S Oracle Private Cloud Appliance: Administration

Oracle IT Infrastructure

DURATION	MODULES	COURSE CODE
3 Days	**15 Lectures**	**—**

Course Overview

The Oracle Private Cloud Appliance: Administration course teaches students to provide and support Infrastructure as a Service (IaaS) with the Oracle Private Cloud Appliance.

What You Will Learn

Oracle Private Cloud Appliance: Introduction and Installation

- Objectives
- Oracle Private Cloud Appliance
- Advantages of Virtualization with the Private Cloud Appliance
- Hardware and Software Configuration: Overview
- Overview of Cloud Services
- Installing the Private Cloud Appliance
- Network Connections
- Quiz
- Summary
- Practice 1: Overview

Enterprise Deployment and Management of the Private Cloud Appliance

- Objectives
- Oracle’s Cloud Service Model
- Oracle’s IaaS
- Enterprise Manager Administrative Roles
- Logging In and Creating Administrators for IaaS
- Logging In to Create Administrators
- Creating IaaS Admin
- Viewing IaaS User
- Quiz
- The Private Cloud Appliance Zone

- Configuring the Infrastructure Cloud Self Service Portal
- Configuring Infrastructure Cloud Self Service: Machine Sizes
- Configuring Infrastructure Cloud Self Service: Request Settings
- Configuring Infrastructure Cloud Self Service: Roles
- Configuring Infrastructure Cloud Self Service: Software Components
- Configuring Infrastructure Cloud Self Service: Chargeback
- Quiz
- Infrastructure Cloud Self Service Portal
- Infrastructure Cloud Self Service Requests
- Infrastructure Cloud Self Service Servers
- Infrastructure Cloud Self Service Chargeback
- Infrastructure Cloud Self Service Library
- Infrastructure Cloud Self Service Policies
- Quiz
- Requesting Servers
- Quiz
- Private Cloud Appliance as a Target
- Oracle Private Cloud Appliance as a Target
- Private Cloud Appliance as a Target
- Appliance to Oracle VM Virtual Target View
- Oracle VM Virtual Target View
- Quiz
- Summary
- Practice 2: Overview

Oracle VM in the Private Cloud Appliance

- Objectives
- Application-Driven Virtualization with Oracle VM
- Oracle VM Manager with Oracle VM Server for x86
- Oracle VM: Main Components
- Server Virtualization
- Templates and Virtual Appliances
- Quiz
- Oracle VM Virtualization Architecture
- Server Management, Live Migrate, and Virtual Machine Networks
- Storage and Cluster Heartbeat Networks
- Oracle VM Functional Architecture: Storage
- Quiz
- Oracle VM Architecture
- Private Cloud Appliance Repositories
- Private Cloud Appliance Server Pool
- Server Pool: Overview
- Server Pool Functions
- High Availability for Virtual Machines
- Live Migration

- Live Migration Process
- Server Processor Compatibility Groups
- Default Server Processor Compatibility Group
- Creating a Server Processor Compatibility Group
- Editing a Server Processor Compatibility Group
- Anti-Affinity Groups
- Creating an Anti-Affinity Group
- Server Pool Policies
- Distributed Resource Scheduling
- Quiz
- Server Pool Clusters
- OCFS2 for Oracle VM
- OCFS2 Features
- OCFS2 Components
- OCFS2 Cluster Services
- Quiz
- Summary
- Practice 3: Overview

Deploying and Examining a Virtual Machine

- Objectives
- Importing the Virtual Appliance File
- Creating a Virtual Machine from the Virtual Appliance VM
- Creating a Virtual Machine by Using the Create Virtual Machine Wizard
- Creating a Virtual Machine from an Existing VM Template
- Virtual Machine Configuration
- Virtual Machine Networks
- Virtual Machine Disks
- Associating the VNIC to a Virtual Machine Network
- Quiz
- Virtual Machine Life Cycle
- Starting and Accessing the Virtual Machine
- Virtual Machine Controls: Starting and Connecting to the Console
- Initializing the Virtual Machine from ISO
- First-Boot Configuration
- Connecting to a VM Console
- Suspending and Resuming a Virtual Machine
- Stopping, Restarting, and Killing a Virtual Machine
- Displaying Details About a Virtual Machine
- Quiz
- Logging In to the Oracle VM Command-Line Interface
- Listing Virtual Machines with the CLI
- Showing a Virtual Machine with the CLI
- Starting a Virtual Machine with the CLI
- Suspending and Resuming a Virtual Machine

- Killing a Virtual Machine
- Quiz
- Summary
- Practice 4: Overview

Managing Oracle VM Networks and Storage

- Objectives
- Oracle VM Networking
- Oracle VM Network Functions
- Preconfigured Oracle VM Networks
- Quiz
- Oracle VM VLAN Terminology
- Creating Networks with VLAN Support
- Creating VLAN Interfaces
- Creating a Network with a VLAN Interface
- Displaying VLAN Interfaces
- Configuring VLAN Interfaces
- Creating VLAN Interfaces
- Selecting Ports
- Selecting VLAN IDs
- Configuring IP Addresses (Optional)
- Create a Network
- Create Network Wizard
- Creating a Network
- Selecting VLAN Interfaces
- Completing the New Network
- Creating a Network from VLAN Interfaces
- Displaying BondPort on an Oracle VM Server
- Using the Virtual NICs Tool
- Listing and Displaying VNICs
- Creating a VNIC
- Quiz
- Storage Functions
- Oracle VM Storage Management
- Server Pools and Repositories
- Storage Repositories
- Repository Content
- Creating Storage Repositories on External Storage
- Presenting Servers to Rack1_Repository
- Obtaining Information About a Repository
- Managing Repositories
- Adding Resources to Repositories
- Managing Virtual Disks in Repositories
- Listing Repositories with the CLI
- Showing a Repository with the CLI: Part 1 of Output

- Showing a Repository with the CLI: Part 2 of Output
- Importing and Deleting a Virtual Appliance
- Cloning a Virtual Disk
- Cloning a Virtual Disk to Another Repository
- Cloning a Virtual Disk
- Quiz
- Summary
- Practice 5: Overview

Creating and Packaging Virtual Machines

- Objectives
- Introduction
- Virtual Machine Terminology
- Guest Types in the Private Cloud Appliance
- Logical View of a Virtual Machine
- Physical View of a Virtual Machine
- Review: Disk Storage for Virtual Machines
- Virtual Disks in the Rack1-Repository
- Virtual Machine Networking
- Using the VNIC Manager
- Quiz
- Steps to Create a Virtual Machine
- Creating a Virtual Machine
- Creating a New Virtual Machine
- Virtual Machine Parameters
- Adding VNICs
- Specifying and Ordering Disks
- Boot Options
- Created Virtual Machine
- Editing a Virtual Machine
- Quiz
- Creating a Virtual Machine with the CLI
- Creating a Virtual Disk with the CLI
- Mapping Storage Devices with the CLI
- Showing the Virtual Machine
- Quiz
- Using Kickstart to Create Virtual Machines
- Creating Virtual Machines from Templates and Virtual Appliances
- Creating New Virtual Machines with Cloning
- Cloning a Virtual Machine
- Simple Virtual Machine Clone
- Advanced Cloning
- Clone Customizer Disk Mappings to Repositories, Physical Disks, and Storage Arrays
- Creating a Clone Customizer
- Creating a Virtual Machine with Advanced Cloning

- Cloning with the CLI
- Migrating a Virtual Machine
- Displaying Selected Events, Deleting a Virtual Machine
- Quiz
- Oracle VM Guest Additions
- First-Boot Configuration Interactions
- Installing Oracle VM Guest Additions
- Using the Oracle VM Guest Additions Daemon and Template-Driven Configuration
- Initial Settings for the Configuration Scripts and Targets
- Using Enumerate with Configuration Scripts
- First-Boot Configuration: Before the First Boot
- Using the ovmd Command to Unconfigure a Virtual Machine
- First-Boot Configuration: First-Boot Processing
- Quiz
- Summary
- Practice 6: Overview

Appliance Rack Management

- Objectives
- From Virtualization Infrastructure to Appliance Management
- Appliance Dashboard Web Interface
- Appliance Hardware View
- Displaying Rack Layout
- Displaying Appliance Software Version
- Appliance Network Settings
- Appliance System Properties: Proxies, Logging, and Time Zone
- Displaying and Setting System Properties
- Locking and Unlocking Management Features
- Locking Rack Management Features
- Diagnosing the Rack Components
- Quiz
- Appliance Network Settings
- Appliance Command Line Interface
- CLI Modes
- CLI Help for All Commands
- CLI Help by Command
- Tab Auto-Completion
- CLI Output Options
- CLI JSON Output
- CLI Sorted Output
- CLI Filtered Output
- CLI Pagination Options
- CLI File Options
- CLI Confirmation and Forcing Options
- CLI Task Management

- Displaying Tasks
- Deleting Tasks
- Oracle Private Cloud Appliance Software Upgrade
- Preparing to Upgrade
- Running the Upgrade
- During and After an Upgrade Process
- Compute Node Upgrade
- Quiz
- Summary
- Practice 7: Overview

Appliance Server Management

- Objectives
- Appliance Servers: Management and Compute Nodes
- Node Management Tasks
- Displaying Management Nodes in the Rack
- Displaying Compute Nodes in the Rack
- Displaying Compute Node Details
- Comparing Compute Node CLI and Hardware Views
- Stopping and Starting a Compute Node
- Tenant Groups
- Creating and Configuring a Tenant Group
- Storage for a Tenant Group
- Deconfiguring and Deleting a Tenant Group
- Deprovision and Reprovision a Compute Node
- Reprovisioning a Compute Node
- Quiz
- Summary
- Practice 8: Overview

Appliance Network Management

- Objectives
- Appliance Switches: Spine and Leaf
- Appliance Ethernet Spine and Leaf Switch Configuration
- Spine Switch Port Configurations
- Displaying All Appliance Networks
- Showing an Appliance Network
- Listing Network Switches
- Displaying Management Switch Ports
- Displaying Network Ports
- Listing Uplink Ports
- Creating and Displaying an Uplink Port Group
- Deleting Uplink Port Groups
- Quiz
- Creating a Custom Ethernet-based Network

- Types of Appliance Custom Networks
- Creating a Custom Ethernet-Based Network
- Creating and Adding a Network to a Compute Node
- Removing a Compute Node and Deleting the Network
- Diagnosing Leaf Switches
- Diagnosing Leaf Switch Resources
- Diagnosing Link Status
- Diagnosing Spine Switches
- Diagnosing Spine Switch Resources
- Diagnosing Uplink Port Statistics
- Managing Switch Log Content
- Quiz
- Summary
- Practice 9: Overview

Appliance Storage Management

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

Appliance Password Management

- Objectives
- Updating Appliance Component Passwords
- Additional Principles for Security and Access Management
- Quiz
- Summary
- Practice 11: Overview

Appliance and Oracle VM Backup

- Objectives
- Appliance Internal and External Storage Components
- Management and Compute Node Storage
- Backup Processes for the Private Cloud Appliance
- About Appliance Internal Backup
- Oracle VM Management Environment
- Appliance Internal Backup Execution
- Appliance Internal Backup Export and Restore
- Quiz
- Oracle VM Repositories and Virtual Machines
- Virtual Machine Backup Considerations
- Virtual Machine Cloning
- Repository Export

- Creating a Repository Export
- Quiz
- ZS7-2 Storage Appliance Snapshot
- Your Backup Planning
- Quiz
- Summary
- Practice 12: Overview

Appliance Disaster Recovery

- Objectives
- Disaster Recovery
- Site Terminology and Transitions
- Site Guard Operation Plans
- Enterprise Manager
- Generalized Disaster Recovery Configuration
- Oracle VM Virtual Machine Failover
- VM Deployment Architecture for Guest Failover
- Application Failover
- VM Deployment Architecture for Application Failover
- Quiz
- Unrestricted Transitions
- Site-to-Site Transitions
- Oracle Private Cloud Appliance and Oracle VM Platforms
- Storage Replication Supplemented with Tape Backup
- Transition and Recovery Considerations
- My Oracle Support Document 1959182.1
- Disaster Recovery White Papers
- Quiz
- Summary
- Practice 13: Overview

Tenant Groups and Partitioning

- Objectives
- What Is a Tenant Group?
- Supporting Tenant Groups
- Why Create a Tenant Group?
- General Steps for Implementing a Tenant Group
- Ensuring Adequate Network and Storage Resources
- Tenant Group Prechecks
- Migrating or Moving VMs from Oracle VM Servers
- Removing from Repository
- Removing from Networks
- Creating the Tenant Group
- Adding Servers to the Tenant Group
- Showing the Tenant Group

- Configuring a Dedicated Network for VMs of the Tenant Group
- Creating a Repository for the Tenant Group
- Quiz
- What Is Partitioning?
- Other Partitioning in the Oracle Private Cloud Appliance
- Oracle VM Hard Partitioning
- Trusted Partitioning: Private Cloud Appliance
- Quiz
- Summary
- Practice 14: Overview

Capacity Planning and Management

- Objectives
- Importance of Capacity Planning and Management
- The Application as a Deployable Unit
- VM Guest Sizing Considerations
- VM Sizing for Application Needs and Requirements
- Monitoring VM Performance and Utilization
- Oracle VM Server Maximums
- Sizing and VM Layout
- Virtual Machine Maximums
- Tenant Group Considerations
- Compute Node and Tenant Group Maximums
- Memory Capacity
- Configuration Options for HA
- Quiz
- Network Planning
- Network Maximums
- Storage Capacity Planning
- Storage Capacity Planning by Application Needs
- Storage Maximums
- Quiz
- Summary
- Practice 15: Overview