Oracle Cloud Application Foundation
Certified Implementation Specialist
Exam Study Guide
Getting Started

The Oracle Cloud Application Foundation Certified Implementation Specialist Exam Study Guide is designed to help you prepare for the Oracle Cloud Application Foundation Essentials exam (1Z0-468).

Earning this certification helps OPN members differentiate in the marketplace through proven in-depth expertise, and helps their partner company qualify for the Oracle Cloud Application Foundation Specialization.

Target Audience

Oracle Cloud Application Foundation Certified Implementation Specialist exam audience defines the type of participants who are likely to pass the exam and targets individuals with a specific level of education and expertise:

Job Role:

- CAF Implementation Specialists
- Fusion Middleware/Java EE Architects
- Technical Consultants
- System Administrators

Level of Competency:

- Technical Consultants who can install, design, configure, deploy, administer, troubleshoot and maintain Cloud Application Foundation systems.
- Up-to-date Coherence 12c product training is strongly recommended.

Exam Topics

Oracle Cloud Application Foundation Certified Implementation Specialist Exam covers eight topics:

- Cloud Application Foundation (CAF) Fundamentals
- Coherence Development Fundamentals
- Advanced Coherence Development Topics
- Deploying and Debugging a Coherence Application
- Monitoring and Managing WebLogic Server with Oracle Enterprise Manager
- Java VM
- Virtual Assembly Builder
- Web Tier
Levels of Knowledge

Each exam topic contains objectives and each objective is categorized by learner or practitioner level of knowledge.

**Learner** items test foundational grasp and require product comprehension (not recognition or memorization).

Example:

“When setting up price list modifiers in Advanced Pricing, which three steps must be completed in order to successfully activate surcharge and price break features?”

**Practitioner** items present on-the-job scenarios and require the ability to: integrate and apply knowledge in new contexts, analyze and troubleshoot complex issues, and solve problems.

Example:

1) “You are creating price list modifiers in Advanced Pricing. Your customer has three requirements: X, Y, Z. Identify the two steps that must be completed in order to meet those requirements.

2) “You are running a two-instance database with six redo logs defined. You decide to add a third thread to support a third database instance, on the third node of the cluster. Using command line administration, which two commands will you execute to achieve this?”

Training Options

Throughout the study guide each exam topic recommends one or several training formats:

- **OPN Boot Camps**
- **Online Training**
- **Oracle University Training**

While the Oracle PartnerNetwork facilitates free access to online training, in class trainings often require a fee.
Exam Details per Topic

This section covers details associated to all exam topics such as: exam topics overview, objectives, levels of knowledge, recommended trainings and sample questions. Specialization exams include all application functionalities not only the most frequently used ones.

**Topic 1: Cloud Application Foundation (CAF) Fundamentals**

**Objective**

- Describe Cloud Application Foundation concepts
- Identify components of WebLogic Suite
- Identify differences between Cloud Application Foundation (WLS) SE, EE & Suite
- Describe the problem domain of Coherence with WLS
- Describe Oracle Cloud Computing business drivers
- Describe Virtual Assembly Builder Studio features
- Describe supported and custom Appliances for Virtual Assemblies
- Describe ActiveCache (WLS and Coherence)

**Recommended Training**

**Instructor-Led Training**

- Oracle Cloud Application Foundation Implementation Boot Camp

**Online Training**

- Cloud Application Foundation, Cloud Application Foundation for Oracle Partners

**Documentation**

- Oracle Cloud Application Foundation Product Overview

**Sample Questions**

Which four service offerings are included in Oracle Public Cloud?

- Database Service
- Data Service
- Java Service
- Security Service
- .NET Service
- SOA Service
Oracle Coherence is best classified as _____?

- A Database Product
- **A Middleware Product**
- An Object Relational Mapping (ORM) Tool
- A Soft Load Balancer
- An Application Product
**Topic 2: Coherence Development Fundamentals**

**Objective**

- Describe Use Cases for Coherence
- Deploy the correct Cache Topologies
- Understand how Coherence Clustering works
- Describe how partitioning works in Coherence
- Describe client types and usage
- Describe POF and other models of Object Serialization
- Understand how to configure different cache topologies and services
- Understand basic Coherence key-based APIs
- Integrate with a datasource

**Level**

- Learner
- Practitioner

**Recommended Training**

**Instructor-Led Training**

- Oracle Coherence 12c: New Features
- Oracle Cloud Application Foundation Implementation Boot Camp

**Online Training**

- FMW Proficiency: Oracle Coherence - Supercharging Your WebLogic Applications
- Scale Your Customer Apps with Coherence

**Documentation**

- What's New in 12c
- Coherence Tutorial
- Installing Coherence
- Integrating Coherence

**Sample Questions**

In order to determine which partition a cache entry belongs to, the partitioned cache service uses the following formula:

\[ \text{hashCode} \mod \text{partition count} \]

For the following code sample:

```java
Integer nKey = 10;
String sValue = "open";
cache.put(nKey, sValue);
```
On which object is `hashCode` invoked to determine the partition for a cache entry?

- The key inserted into the cache (`Integer.hashCode`)
- **The serialized form of the key inserted into the cache** (`Binary.hashCode`)
- The value inserted into the cache (`String.hashCode`)
- The serialized form of the value inserted into the cache (`Binary.hashCode`)

Which statement is correct with respect to the semantics of a replicated cache?

- **Cache entries are replicated to every member of the Cluster (running a replicated service)**
- Cache entries are replicated to every storage enabled member of a Cluster
- Cache entries are replicated to every member of the Cluster and every extend client
- Cache entries are replicated to multiple clusters over a WAN
Topic 3: Advanced Coherence Development Topics

Objective

- Create indexes to optimize filters
- Describe a service
- Describe when you would use Elastic Data
- Perform a map-reduce operation
- Explain advanced capabilities like eventing and processing to customer
- Configure and use a Near Cache or Continuous Query Cache
- Configure operational features like Quorum and Service Guardian
- Perform concurrent operations against a cache
- Integrate with TopLink Grid
- Pre-load a cache
- Write Coherence queries

<table>
<thead>
<tr>
<th>Objective</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create indexes to optimize filters</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Describe a service</td>
<td>Learner</td>
</tr>
<tr>
<td>Describe when you would use Elastic Data</td>
<td>Learner</td>
</tr>
<tr>
<td>Perform a map-reduce operation</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Explain advanced capabilities like eventing and processing to customer</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Configure and use a Near Cache or Continuous Query Cache</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Configure operational features like Quorum and Service Guardian</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Perform concurrent operations against a cache</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Integrate with TopLink Grid</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Pre-load a cache</td>
<td>Practitioner</td>
</tr>
<tr>
<td>Write Coherence queries</td>
<td>Practitioner</td>
</tr>
</tbody>
</table>

Recommended Training

Instructor-Led Training

- Oracle Coherence 12c: New Features
- Oracle Cloud Application Foundation Implementation Boot Camp

Online Training

- FMW Proficiency: Oracle Coherence - Supercharging Your WebLogic Applications
- Scale Your Customer Apps with Coherence

Documentation

- What's New in 12c
- Coherence Tutorial
- Installing Coherence
- Integrating Coherence
- Developing Applications with Coherence
Sample Questions

You have a requirement to host two caches, one for "buyers" and one for "sellers." The requirements state that buyers and sellers must not be on the same physical hardware for security purposes, but for management purposes you want to run on one single cluster. You have divided the machines into bmachines (for buyers) and smachines (for sellers).

Which scenario is the correct way to do this:

- Define two cluster services, one running on bmachines and the other on smachines, and run buyers and sellers on these two services.
- **Define two distributed cache services, one running on bmachines and the other on smachines, and then run buyers on the service running on bmachines and sellers on the service running on smachines.**
- In the cache-config.xml on smachines declare the sellers cache, and on the bmachines declare the buyers cache
- Do not do this in Coherence as it will trick the cluster rebalance protocol.
- In cache-config.xml, map one set of partitions to bmachines, and the second to smachines.

A customer has a process that listens on a JMS queue, and inserts each JMS message into a cache. Which statement attempts to achieve fault tolerance of this process using Coherence without compromising efficiency during normal operations?

- Nothing special needs to be done. Once a process running in a Coherence JVM is started in Coherence, it will always be recovered.
- This cannot be done as Coherence only guarantees recovery of data and EntryProcessors.
- **The customer can use BackingMapListeners to determine when the process must be restarted on a different Coherence node.**
- The customer can start the process on two nodes and use a lock on the JMS queue to determine who should process it.
Topic 4: Deploying and Debugging a Coherence Application

Objective

- Configure a set of proxies
- Architect a Coherence client tier
- Apply best practices for performance tuning
- Plan Capacity for a Coherence deployment
- Debug network issues in Coherence deployments
- Tune and size Coherence JVMs
- Describe how to run a Coherence application
- Debug a basic Coherence problem
- Collect information for advanced Coherence troubleshooting
- Explain how Oracle Enterprise Manager integrates with Coherence
- Apply the Production Checklist

Level

Practitioner

Recommended Training

Instructor-Led Training

- Oracle Coherence 12c: New Features
- Oracle Cloud Application Foundation Implementation Boot Camp

Online Training

- FMW Proficiency: Oracle Coherence - Supercharging Your WebLogic Applications
- Scale Your Customer Apps with Coherence

Documentation

- What’s New in 12c
- Coherence Tutorial
- Installing Coherence
- Integrating Coherence
- Developing Applications with Coherence

Sample Questions

Which Coherence configuration is correct?

- The default mode for coherence is production, with port 8088 and time to live of 4
- The default mode for coherence is development, with port 8080 and time to live of 4
- The default mode for coherence is development, with port 8088 and time to live of 4
You have a six member cluster, consisting of one JVM on each physical machine. Members 1, 2, and 3 are connected to a switch, and members 4, 5, and 6 are connected to a second switch. There is a link between the two switches, which provides network connectivity between all of the machines. At approximately 15:30, the connection between the two switches is severed.

Thirty seconds later (the default packet timeout in development mode) the logs indicate communication failures across the cluster and you are left with two distinct clusters consisting of members 1, 2, 3 and members 4, 5, 6, respectively. The connection between the two switches is restored at 15:33 and the existence of multiple clusters is acknowledged, thus triggering the panic protocol to reconcile this situation.

A cluster formed by members 4, 5, and 6 was removed and all of its members received a kill message. Once members 4, 5, and 6 restarted cluster service, they rejoined the original cluster with senior member 1. However, you noticed that members 4, 5, and 6 didn't join DistributedCache service.

What is a cause for this behavior?

- DistributedCache service allow-remote-management property was set to false.
- **DistributedCache service auto-start property was set to false.**
- DistributedCache service request-timeout property was set to 30s.
- DistributedCache service service-failure-policy was set to exit-process.
Topic 5: Monitoring and Managing WebLogic Server with Oracle Enterprise Manager

Objective

- Describe the architecture and components within Oracle Enterprise Manager Cloud Control
- Describe the Performance, Configuration, and Lifecycle mgmt functionality for WLS
- Configure Enterprise Manager with WLS
- Explain how to position WebLogic Management Pack EE
- Configure Oracle Enterprise Manager for WLS monitoring
- Explain how Java Virtual Machine (JVM) diagnostics provides full cross-tier diagnostics in production environments and why it is important
- Configure Oracle Enterprise Manager Cloud Control to provide WLS patch automation
- Utilize Oracle Enterprise Manager for lifecycle management (i.e. provisioning and cloning of WLS domains and Java applications)
- Utilize the user experience management features provided by Oracle Enterprise Manager Real User Experience Insight
- Describe the primary critical use cases for Oracle Enterprise Manager Business Transaction Management for WLS
- Explain the key challenges that Oracle Enterprise Manager addresses with its configuration management features

Level

- Learner
- Practitioner

Recommended Training

Instructor-Led Training

- Using Oracle Enterprise Manager Cloud Control 12c Ed 1 LVC
- Oracle Cloud Application Foundation Implementation Boot Camp

Online Training

- Understanding Enterprise Manager Cloud Control 12c and WLS Management Pack EE
- Oracle Enterprise Manager Product and Solution Area Overview Reference

Documentation

- Managing Oracle WebLogic Server and Oracle Coherence with Oracle Enterprise Manager 12c
- Oracle Enterprise Manager 12c Release 2 (12.1)
Sample Questions

What four WLS management functionality is included within WLS Management Pack EE?

- **Performance and Monitoring BTM**
- **RUEI**
- **JVM Diagnostics**
- **Configuration Management**
- **Ops Center**

How does JVMD calculate the total time it takes for a specific method to complete?

- It multiplies the time interval between snapshots by the number of times a method is seen in one execution
- **JVMD does not show completion time of a method, unless ADP agent is installed on the same JVM**
- Method time is calculated as the difference between the first time it is seen and the first time it is not seen
- JVMD estimates this number based on the number of thread snapshots the method was seen in.
- JVMD never shows Execution time of any method.
Topic 6: Java VM

Objective

- Explain the basics of Java VM
- Explain the differences between HotSpot VM and Jrockit VM
- Troubleshoot common performance problems
- Describe different garbage collection schemes
- Describe different VM tuning options
- Utilize performance monitoring and profiling using JVM command line tools
- Utilize advanced real-time performance monitoring, profiling and troubleshooting using Java Mission Control
- Utilize Back-in-time analysis and troubleshooting using Java Flight Recorder
- Design for Java application performance

Level

- learner
- Practitioner

Recommended Training

Instructor-Led Training

- Java Performance Tuning with Mission Control and Flight Recorder
- Oracle Cloud Application Foundation Implementation Boot Camp

Documentation

- Garbage Collection Guide Sun Java Real-Time System
- Oracle® JRockit Mission Control Introduction to Mission Control Client Release 4.1

Sample Questions

Which statement is true about the Hotspot Serial Garbage Collector?

- There is no serial garbage collector.
- The serial collector collects garbage for both young generation and old generation.
- The serial collector can only be used on the young generation.
- The serial collector can only be used on the old generation. The serial collector cannot be used on the old generation.

Given:

StringBuilder sb = new StringBuilder();
Identify two examples of string usage in a Java Application?

- `sb = sb.append("Hello") + "World";`
- `sb.append("Hello").append("World");`
- `String msg = "Hello World";`
- `String msg = new String("Hello World");`
- `String msg = String("Hello World");`
Topic 7: Virtual Assembly Builder

Objective

- Explain the business and IT challenges Virtual Assembly Builder helps with  
  Learner
- Explain the advantages of assemblies over standalone VM templates  
  Learner
- Create appliances and multi-tier assemblies  
  Practitioner
- Customize an assembly at deployment time  
  Practitioner
- Setup Virtual Assembly Builder Deployer and deploy a multi-tier assembly  
  Practitioner

Recommended Training

Instructor-Led Training

- Oracle Fusion Middleware 11g: Virtual Assembly Builder Ed 1 LVC
- Oracle Cloud Application Foundation Implementation Boot Camp

Online Training

- Virtualizing the Application Infrastructure with Oracle Virtual Assembly Builder

Documentation

- Oracle Virtual Assembly Builder Online Documentation Library 11g Release 1 (11.1.1.6)

Sample Questions

What three features in Virtual Assembly Builder are for IT Administrators?

- Enabling full access to infrastructure
- Maintaining control through standardization
- Handling all aspects of application and infrastructure management
- Increased hardware and software utilization
- Giving developers the flexibility to pick and choose their own application and infrastructure components

A deployment plan can be used to alter which two networking properties of an assembly?

- Setting up appliance instances to use static IP addresses
- Mapping of appliances' network interfaces to virtual networks
- Mapping of assembly defined logical virtual networks (vNets) to actual networks of the pool
- Mapping of products' listening endpoints to network interfaces
### Topic 8: Web Tier

#### Objective
- Explain the basics of HTTP Server and Traffic Director
- Design and configure Reverse Proxy with HTTP Server and Traffic Director
- Secure HTTP Server and Traffic Director Environments
- Perform basic troubleshooting of HTTP Server and Traffic Director

#### Level
- Learner
- Practitioner

#### Recommended Training

**Instructor-Led Training**
- [Oracle Cloud Application Foundation Implementation Boot Camp](#)

**Online Training**
- HA-Oracle Web Tier Agent TOI
- [FMW Proficiency: Oracle Traffic Director - Traffic Shaping, Caching and Dynamic Load Balancing for WebLogic Server, FMW and the Cloud](#)

**Documentation**
- [Oracle Fusion Middleware Administrator's Guide for Oracle Web Cache](#) 11g Release 1 Chapter 1 Understanding Reverse Proxying
- [Oracle Fusion Middleware Administrator's Guide for Oracle Web Cache](#) 11g Release 1 Chapter 5 Configuring Security
- [Oracle Fusion Middleware Administrator's Guide for Oracle Web Cache](#) 11g Release 1 Appendix A Troubleshooting Oracle Web Cache

#### Sample Questions

Which component is responsible for propagating the diagnostic Execution Context Identifier (ECID)?
- mod_diag
- mod_dms
- mod_ons
- mod_php
- mod_ohs_wl
Exam Registration Details

Full exam preparation details are available on the exam page Oracle Cloud Application Foundation Implementation Specialist certification (1Z0-468), including learning objectives, number of questions, time allowance, pricing and languages available.

The OPN Certified Specialist Exams appointments are available worldwide at Pearson VUE Testing Centers. Reservations can be made via phone or online.

Candidates must have an Oracle Web Account to access CertView and check their exam results. In order to have their certifications reflected on OPN Competency Center, both CertView and Pearson Vue accounts must be updated with the current OPN Company ID. Your Company ID can be obtained by contacting your local Oracle Partner Business Center or by signing in to your OPN account.

Additional Resources

- Oracle Cloud Application Foundation Knowledge Zone
- OPN Guided Learning Paths & Assessments
- OPN Certified Specialist Exam Study Guides
- Enablement 2.0 Boot Camps