Oracle Database 12*c* Essentials Exam Study Guide

Getting Started

The Oracle Database 12*c* Essentials Exam Study Guide is designed to help you prepare for the Oracle Database 12*c* Essentials (1Z0-497).

Earning this certification helps OPN members differentiate in the marketplace through proven in-depth expertise, and helps their partner company qualify for the Oracle Database 12*c* Specialization.

Target Audience

Oracle Database 12*c* Essentials 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:

- Technical Implementers

Level of Competency:

- Strongly recommended for the individuals to have at least 3-5 years implementation experience;
- Participants should possess a strong foundation and expertise in selling and implementing Oracle Database 12c solutions;
- Deep experience in at least one other Oracle product family is highly recommended.

Exam Topics

Oracle Database 12*c* Essentials Exam covers **12 topics**:

- Oracle Database Software
- Administration & Configuration
- Oracle Database 12*c* New Features
- Maximum Availability Architecture
- Backup and Recovery
- Monitoring
- Administering Users and Security
- Software Installation and Maintenance
- Oracle Data Structures
- Oracle Database Instance Architecture
- Oracle Multitenant Architecture
- Oracle Network Architecture

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: Oracle Database Software

Objective   Level

- Describe the key characteristics of a relational database   Learner
- Summarize locking behavior in an Oracle database   Practitioner
- Describe the differences between data concurrency and data consistency   Learner
- Describe the various steps of a database transaction   Learner

Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

Sample Questions

In Oracle Database 12c, when does a transaction begin?

- when a transaction ID is allocated for it
- when a user explicitly issues a "begin" statement
- when a transaction is assigned to an available undo data segment to record undo entries for the new transaction
- **when the first executable SQL statement is encountered**

Topic 2: Administration & Configuration

Objective	Level
• Design a database, identify requirements, create the logical design and physical database design	Practitioner
• Install and configure a database	Practitioner
• Grant Enterprise Manager administrative privileges	Practitioner
• Use SQL*Plus and SQL Developer to access your database	Practitioner

Recommended Training

Online Training

- Oracle Database Concepts 12c Release 1 (12.1)
- Oracle Database Administrator's Guide 12c Release 1 (12.1)

Sample Questions

Identify the correct order of consolidation density.

- Multitenant < Schema Consolidation < Dedicated Databases < Virtual Machines
- Schema Consolidation < Virtual Machines < Dedicated Databases < Multitenant
- Dedicated Databases < Virtual Machines < Schema Consolidation < Multitenant
- **Virtual Machines < Dedicated Databases < Schema Consolidation < Multitenant**

Topic 3: Oracle Database 12c New Features

Objective	**Level**
• Setup a Global Database Service (GDS)	Practitioner
• Define declarative policies for Oracle Data Redaction	Practitioner
• Apply best practices for running the ADDM Advisor	Practitioner

Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)

- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

Sample Questions

Examine the command below:

```
BEGIN
 DBMS_REDACT.ADD_POLICY(
   object_schema         => 'mavis',
   object_name           => 'cust_info',
   column_name           => 'emp_id',
   policy_name           => 'redact_cust_ids',
   function_type         => DBMS_REDACT.REGEXP,
   expression            => '1=1',
   regexp_pattern        => '(\d\d\d)(\d\d)(\d\d\d\d)',
   regexp_replace_string => 'XXXXX\3',
   regexp_position       => 1,
   regexp_occurrence     => 0,
   regexp_match_parameter => 'i',
   policy_description    => 'Redacts customer IDs',
   column_description    => 'emp_id contains employee ID
numbers');
END;
/
```

What do the `regexp_pattern` and `regexp_replace_string` parameters accomplish?

- **They find a pattern of nine digits; break the digits into three groups that contain the first three, the next two, and then the last four digits; and replace all digits with XXXXX concatenated with the last four digits.**

- They find a pattern of six digits; break the digits into two groups that contain the first five, and then the last digit; and replace all digits with XXXXX concatenated with the last digit.

- They find a pattern of nine digits and display the digits as XXXXX XX XXXX.

- They find a pattern of nine digits and display the first five digits as XXXXX and the last four digits as 3333.

Topic 4: Maximum Availability Architecture

Objective

	Level
• Implement the various Data Guard configurations available	Practitioner
• Explain the architectural differences between Data Guard and Active Data Guard	Learner
• Implement the various replication options available to the Oracle database	Practitioner
• Create an MAA architecture that leverages Active Data Guard and Oracle Golden Gate	Practitioner
• Choose the appropriate high availability architecture based on various planned and unplanned scenarios	Practitioner

Recommended Training

Online Training

- Oracle Database Concepts 12c Release 1 (12.1)
- Oracle Database Administrator's Guide 12c Release 1 (12.1)
- Oracle Database High Availability Overview 12c Release 1 (12.1)

Sample Questions

Your customer is looking for zero-data-loss failover with maximum data protection and high availability for their primary database. Which two solutions would you recommend to the customer if the distance between the primary and the standby location is more than 300 miles?

- asynchronous redo transport with Data Guard
- **synchronous redo transport with Data Guard**
- **Active Data Guard Far Sync**
- Data Guard SQL Apply

A standby database is in mounted state and you are required to perform a failover to the physical standby. Which solution is best suited for this scenario?

- **`ALTER DATABASE RECOVER MANAGED STANDBY DATABASE` statement with the `FINISH` keyword**

- `ALTER DATABASE PREPARE TO SWITCHOVER` and `ALTER DATABASE COMMIT TO SWITCHOVER` statements

- `ALTER DATABASE RECOVER TO STANDBY DATABASE` statement with the `FINISH` keyword

- `ALTER DATABASE PREPARE SWITCHOVER` and `ALTER DATABASE COMMIT TO SWITCHOVER` statements

Topic 5: Backup and Recovery

Objective	Level
• Explain general best practices and guidelines for backups on the Oracle database	Learner
• Implement recovery procedures for various failure scenarios	Practitioner
• Use the Data Recovery Advisor for backup and recovery solutions	Practitioner

Recommended Training

Online Training

- Oracle Database Concepts 12c Release 1 (12.1)

- Oracle Database Administrator's Guide 12c Release 1 (12.1)

Sample Questions

Which statement about Storage Snapshot Optimization is correct?

- **It enables you to use third-party technologies to take a storage snapshot of your database without putting the database in BACKUP mode. You can then use the snapshot to recover all or part of the database.**

- It enables you to use RMAN to take a storage snapshot of your database. The database must be in BACKUP mode. You can then use the snapshot to recover all or part of the database.

- It enables you to use RMAN to take a storage snapshot of your database. The database doesn't have to be in BACKUP mode. You can then use the snapshot to recover all or part of the database.

- It enables you to use third-party technologies to take a storage snapshot of your database. The database must be in BACKUP mode. You can then use the snapshot to recover all or part of the database.

You need to recover a database running in NOARCHIVELOG mode. Which two statements are true in this scenario?

- You can perform complete recovery by using the command:

  ```
  RESTORE DATABASE

  FROM TAG "consistent_whole_backup";

  RECOVER DATABASE;
  ```

- **You can perform incomplete recovery by using the command:**

  **```
  RESTORE DATABASE

  FROM TAG "consistent_whole_backup";

  RECOVER DATABASE NOREDO;
  ```**

- **Only consistent backups can be used for restoring a database in NOARCHIVELOG mode.**

- Media recovery is possible in most cases.

# Topic 6: Monitoring

| Objective | Level |
|---|---|
| • Use Oracle Enterprise Manager to view database storage structures | Practitioner |
| • Apply different strategies for interacting with the database using SQL Developer | Practitioner |
| • Describe the EM Cloud Control and EM Express architecture as it relates to the database | Learner |
| • Manage structures used to undo changes made to the database and maintain data consistency | Practitioner |

## Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

## Sample Questions

Which three DBA operations can be performed by using Oracle SQL Developer?

- **database backup and recovery using RMAN**
- **performance tuning operations such as generation of AWR, ADDM, and ASH reports**
- storage configuration for archive logs and control files
- storage configuration for data files and redo log groups
- **database status view and Data Pump export and import jobs**

Which three tasks can you perform in Database Express?

- **View performance and status information about the database instance.**
- Start up the database.
- Shut down the database.
- **Create database structures.**
- **Manage users and security.**

## Topic 7: Administering Users and Security

| Objective | Level |
|---|---|
| • Create and administer users | Practitioner |
| • Grant privileges to users to perform database operations | Practitioner |
| • Create and manage roles | Practitioner |

### Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

### Sample Questions

Which three statements about common and local roles are true?

- **When a role is granted to a user, the privileges in the role are limited to the context of the PDB.**
- Local roles can be granted only to local users.
- **Common roles can be granted to both local and common users.**
- **A user can create common roles if the user has the `CREATE ROLE` privilege, and `SET CONTAINER` for all PDBs.**
- Common roles can be created in the root and PDBs.

# Topic 8: Software Installation and Maintenance

| Objective | Level |
|---|---|
| • Install the Oracle database software | Practitioner |
| • Locate patches for the Oracle database | Practitioner |
| • Apply best practices to patching the database | Practitioner |
| • Apply troubleshooting tasks for planned database maintenance | Practitioner |
| • View and modify the parameters used to configure the Oracle instance | Practitioner |

## Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

## Sample Questions

You are about to install Oracle Database 12c Enterprise Edition. Which statement is true?

- You should not install the Oracle Database software into an existing Oracle home from a different release.
- **A multitenant container database (CDB) can have several pluggable databases (PDBs) with different character sets.**
- Oracle recommends that you back up the `root.sh` script after you complete the installation.
- Cloning an Oracle home is useful if you are performing multiple Oracle Database installations.
- You can stop existing Oracle processes, including the listener and the database running in the Oracle home, before the database software installation.

Which three are initialization parameters for backup and recovery?

- **CLONEDB**
- FILESYSTEMIO_OPTIONS
- DB_CREATE_FILE_DEST
- **RECYCLEBIN**
- **TAPE_ASYNCH_IO**

## Topic 9: Oracle Data Structures

| **Objective** | **Level** |
|---|---|
| • Articulate the various schema objects in a relational database | Learner |
| • Perform different index scans and relate them to index types | Practitioner |
| • Leverage partitioning in an Oracle database | Practitioner |
| • Use the data dictionary and the dynamic performance views | Practitioner |
| • Identify the various tools for data movement and analysis | Learner |

### Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

### Sample Questions

You have two database servers `EMP` and `EXP`. A user of the database from the `EXP` server wants to extract some information from the database in the `EMP` server for cross-verification. Which schema object enables the user to access the information from the remote database?

- cluster
- **database link**
- mapping table
- materialized view

## Topic 10: Oracle Database Instance Architecture

| Objective | Level |
|---|---|
| • Define the main components of an Oracle Instance | Learner |
| • Describe the various stages of a database instance | Practitioner |
| • Articulate the various basic memory structures | Learner |
| • Describe how a block of data is written to the database | Practitioner |
| • Articulate the mandatory background processes | Learner |

## Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

## Sample Questions

Which three events signal a database writer (DWR) to write buffers to disk?

- **The database advances a checkpoint.**
- A client process commits a transaction.
- The redo log buffer becomes full.
- **A server process cannot find non-dirty blocks after scanning a threshold number of buffers.**
- **A tablespace is changed to read-only status.**
- The database is shut down in immediate mode.

You execute some DML commands, followed by a COMMIT statement. Which option correctly describes how the log writer (LGWR) process takes part in the transaction commit?

- LGWR writes the commit record to disk. LGWR writes all redo entries from Redo Log Buffer to disk.
- LGWR writes only the transaction's redo entries from Redo Log Buffer to disk. LGWR writes the commit record to disk.
- **LGWR puts the commit record to Redo Log Buffer. LGWR writes all redo entries from Redo Log Buffer to disk.**
- LGWR puts the commit record to Redo Log Buffer. If the activity is high, LGWR waits three seconds for other transactions to commit. LGWR writes all redo log entries from Redo Log Buffer to disk.
- LGWR puts the commit record to Redo Log Buffer. LGWR signals the database writer (DBW) process to write dirty blocks to disk. LGWR writes all redo entries from Redo Log Buffer to disk.

## Topic 11: Oracle Multitenant Architecture

| Objective | Level |
|---|---|
| • Explain the benefits of multitenant architecture for database consolidation | Learner |
| • Create a pluggable database (PDB) | Practitioner |
| • Articulate the difference between a Container database and a Pluggable database | Learner |
| • Perform administration tasks on a container database (CDB) | Practitioner |
| • Manage processes in a CDB | Practitioner |
| • Manage physical and logical structures in a CDB | Practitioner |
| • Describe the various storage options for a PDB | Learner |

## Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)

## Sample Questions

Which two statements about PDBs and CDBs are true?

- There is only one `SYSTEM` tablespace per CDB.
- There is only one instance per PDB.
- There is a set of redo log files per PDB.
- **There is only one `UNDO` tablespace per CDB.**
- **There is one `SYSAUX` tablespace per PDB.**

Which four items exist in the root of a CDB, but not in the PDBs?

- **shared UNDO and default database temporary tablespace**
- **Oracle-supplied metadata**
- **shared Oracle-supplied data**
- **CDB views providing information across PDBs**
- application tablespaces
- local temporary tablespaces
- local users and local roles
- non-shared local metadata

## Topic 12: Oracle Network Architecture

| Objective | Level |
|---|---|
| • Describe the differences between Shared Server and Dedicated Server architecture as it relates to Oracle Connection Manager | Learner |
| • Describe the Oracle Database listener architecture | Learner |
| • Configure and connect to a database service | Practitioner |
| • Configure a database listener | Practitioner |

## Recommended Training

Online Training

- [Oracle Database Concepts 12c Release 1 (12.1)](#)
- [Oracle Database Administrator's Guide 12c Release 1 (12.1)](#)
- [Oracle Database Net Services Administrator's Guide 12c Release 1 (12.1)](#)

## Sample Questions

> Your database instance is running. MYDB is a net service name. You issue the SQL>
> CONNECT dba1/dba2@MYDB command. Which component receives the request and
> establishes the appropriate connection?
>
> - **listener**
> - user process
> - service name
> - server process

## Exam Registration Details

Full exam preparation details are available on this page Oracle Database 12c Essentials (1Z0-497), 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 Database Knowledge Zone
- Oracle Database 12c Implementation Specialist GLP
- OPN Certified Specialist Exam Study Guides

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