

Oracle® Certification Program Candidate Guide

*Oracle8i™ Certified Professional
Database Administrator*

December 2001

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Contents

Oracle Candidate Certification Guide

Oracle8i Certified Professional Database Administrator

December 2001



- 1** *The Benefits of Oracle Certification*
- 2** *Oracle8i Certified Professional Database Administrator Track*
- 3** *Preparing for the Oracle8i Certified Professional DBA Tests*
- 4** *Registering for Your Tests*
- 5** *Taking Your Tests*
- 6** *After You Are Certified*
- 7** *Special Testing Opportunities*
- ✓** *Test Content Checklists*

Visit the OCP Web site at <http://www.oracle.com/education/certification/>

1

The Benefits of Oracle Certification

The demand for professionals in information technology (IT) is high, and the competition for jobs is intense. Individuals, experienced or new to the profession, need to know what skills make them attractive to employers. Employers look for ways to distinguish employees and prospective employees who have the solid foundation of skills needed for effective performance.

The Oracle Certification Programs help the IT industry make these distinctions by establishing a standard of competence in key entry level and professional job roles.

An Oracle Certification is a valuable, industry-recognized credential that signifies a proven level of knowledge and ability. Each higher level of Oracle certification brings a higher standard of benchmarked skill and ability, which leads to greater opportunities and higher pay.

"Oracle is the #1 skill sought by IT managers, and is the hardest to find."¹

Benefits to the Technical Professional

An ***Oracle Associate Certification (OCA)*** demonstrates that you have a solid understanding of the foundation skills of a given job role which can be applied at an apprentice or entry level.

By earning your OCA designation you can gain increased entry level job opportunities. The OCA is the stepping stone to starting a success-filled career as an Oracle Professional.

Beyond OCA, by becoming an ***Oracle Certified Professional (OCP)*** you demonstrate your understanding of the full range of skills required by Oracle professionals in your chosen job role. The OCP is in high demand in today's marketplace, and that level of demand continues to grow with each new installation of Oracle technologies around the world. OCP certification raises your visibility and increases your access to the industry's most challenging opportunities.

The Oracle Certification Programs can give you a distinct advantage. OCPs have testified to the value of Oracle Certification² :

- 97% said they have benefited from certification
- 89% said they gained more confidence in their Oracle expertise after becoming certified
- 96% would recommend the program to a professional colleague

The true value of earning an OCP credential is increased opportunity. With more opportunity comes career growth and higher pay. Oracle Certifications have consistently delivered the best value for the investment made by IT professionals.

"Oracle's predominant OCP certification showed 28 percent more money than the average certification program measured."³

Benefits to the IT Employer

The Oracle Certification Programs are also valuable to hiring managers who want to distinguish among candidates for critical IT positions. For companies that send employees through annual IT training, certification ensures a return on the training investment by validating the knowledge and understanding gained in training sessions. Companies can also combine certification with an employee development program to enhance employee loyalty and performance on the job. Hiring certified professionals has a direct impact on a company's success, as these conclusions from research by International Data Corporation⁴ suggest:

- Certified professionals handled 40% more support calls, and their employers have reported 49% less system downtime.
- For the majority of companies surveyed, the savings from increased effectiveness paid the costs of certification in fewer than nine months..

¹ Source: *Information Week Magazine*

² Source: "Highlights From The Oracle Certified Professional Benefit Survey," *Market Analysis and Research Strategies*.

³ Source: "Certification Salary Survey", *Certification Magazine*, December, 2000

⁴ Source: "Benefits and Productivity Gains Realized Through IT Certification," *International Data Corporation*



Oracle8i Certified Professional Database Administrator Track

Oracle8i DBA Certification Track Overview

The expertise of Oracle database administrators (DBAs) is integral to the success of today's increasingly complex system environments. The best DBAs operate primarily behind the scenes. They are on watch for ways to fine-tune day-to-day performance and to prevent unscheduled crises, such as a crashed database or hours of expensive downtime. This critical work requires a broad understanding of the architecture and processes of the Oracle database, as well as plenty of hands-on experience solving problems. The best DBAs know they stand between optimal performance and an event that could bring their company to a standstill.

The Oracle8i Certified Database Administrator Track is a certification path that results in the award of a credential to proven performers in the role of database administrator. The track consists of five tests designed so you can translate your knowledge and skills into a tangible, well-recognized professional certification.

Four paths to Oracle8i DBA Certification

The Oracle8i Certified Database Administrator Track offers four paths to become certified. Candidates can freely combine exams from DBA tracks for Oracle8 and higher to complete their certification, subject to the requirement of completing one extra exam. See the chart on the following page for a list of the exams that are accepted under each path.

Oracle8i Core Path (5 Exams):

New OCP candidates can take the core exams exclusively from the Oracle8i track.

Oracle8i Mixed Release Path (6 exams)

New OCP candidates can combine the core exams from any Oracle DBA track for version Oracle8 or higher, then take one extra exam: 1Z0-020 Oracle8i: New Features for Administrators.

Oracle8 to Oracle8i Upgrade Path (1 exam):

Candidates certified on Oracle8 can take exam 1Z0-020 Oracle8i: New Features for Administrators to upgrade their certification to Oracle8i.

Oracle 7.3 to Oracle8i Upgrade Path (2 exams):

Candidates certified on Oracle 7.3 can take exam 1Z0-010 Oracle8: New Features for Administrators to upgrade their certification to Oracle8, then 1Z0-020 Oracle8i: New Features for Administrators to upgrade to Oracle8i.

Candidate Qualifications

Most candidates for DBA certification combine up-to-date training with some level of on-the-job experience. There is no "typical" candidate.

If you are seeking certification to gain entry into the IT industry, you will need more than training to earn the credential. Many of the questions in the OCP tests are based on realistic job scenarios. In addition to the appropriate training, you will need hands-on experience with the software. Trial versions are included in most Oracle University training products.

Oracle8i Certified Professional Database Administrator Track

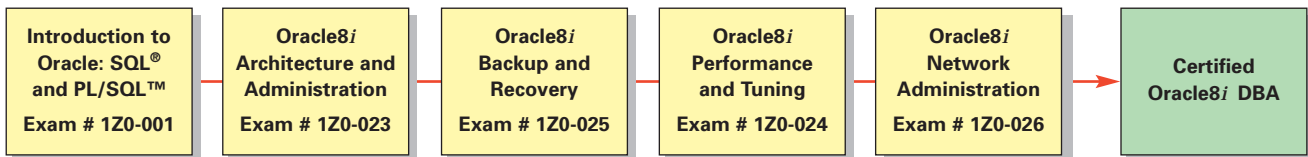
Upgrade Path

Oracle7.3 and/or Oracle8 Certified DBA's, pass the following exam(s) in any order:



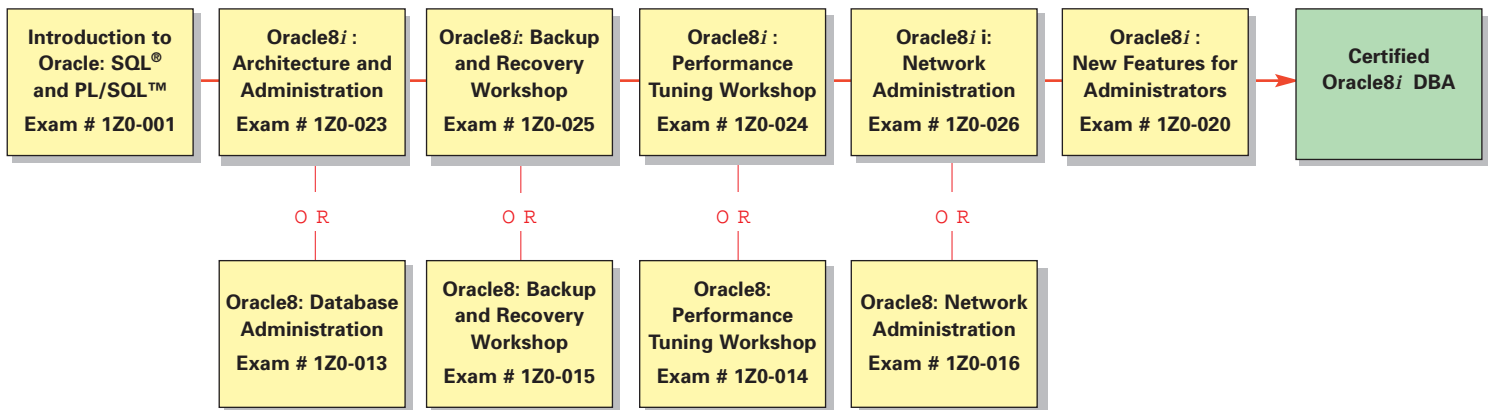
Oracle8i DBA Core Path (5 exams)

Pass the following exams (in any order), selecting exams exclusively from the Oracle8i Track.



Oracle8i Mixed Release Path (6 exams)

Pass the following exams (in any order), selecting the core exams from both the Oracle8 and/or Oracle8i Track



3

Preparing for the Oracle8i Certified Professional DBA Tests

Oracle recommends that you prepare for the Oracle8i Certified Database Administrator exams by combining offerings from Oracle University with practice and on-the-job experience. Start by reviewing the topics covered on the exam in the Test Content Checklist in this guide. Then look over the following preparation methods for a combination that suits your background.

Oracle University Preparation Tools

Instructor-led training and *technology-based training* offered by Oracle University are the best way to prepare to become an Oracle Certified Professional. These courses lay the foundation of knowledge you will need to pass the OCP tests.

Refer to the curriculum map on the following page to chart your optimal preparation based on Oracle University instructor-led training and technology-based training. Your local Oracle University representative can advise you on the best option. For more information, visit the Oracle University Web site at <http://education.oracle.com/>.

Preparing On Your Own

Experience is the best way to deepen your understanding of the topics covered in Oracle University courses. Oracle recommends that you extend your classroom learning by applying your new skills and knowledge either on the job or through practice and self-study.

Test Content Checklist

Use the Test Content Checklist to identify all of the test topics for which you must prepare. Oracle may make modifications to the Test Content Checklist, so visit the OCP Web site at <http://www.oracle.com/education/certification/> to download the latest version of this guide.

Additional Preparation Tools

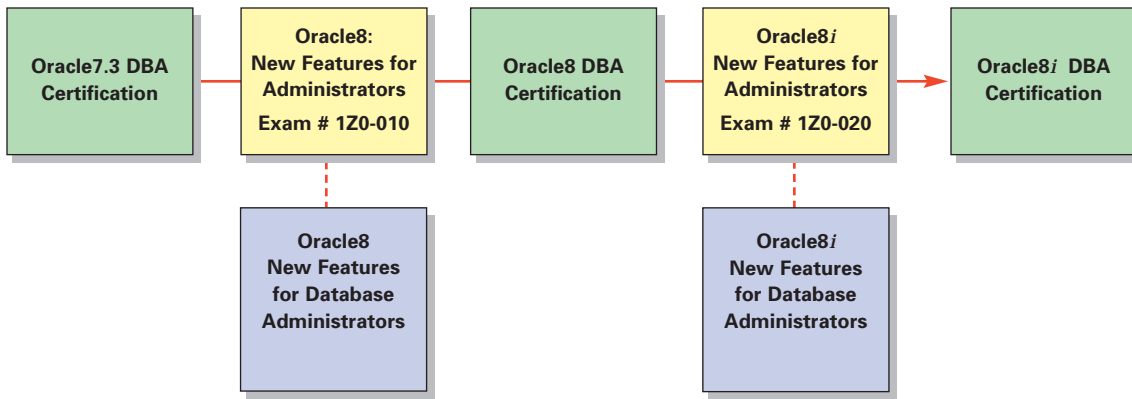
■ Practice Tests

Oracle and Self Test Software have partnered to develop the highest quality practice tests available to individuals seeking Oracle Certified Professional status. To purchase practice tests, visit the OCP web site at <http://www.oracle.com/education/certification/>.

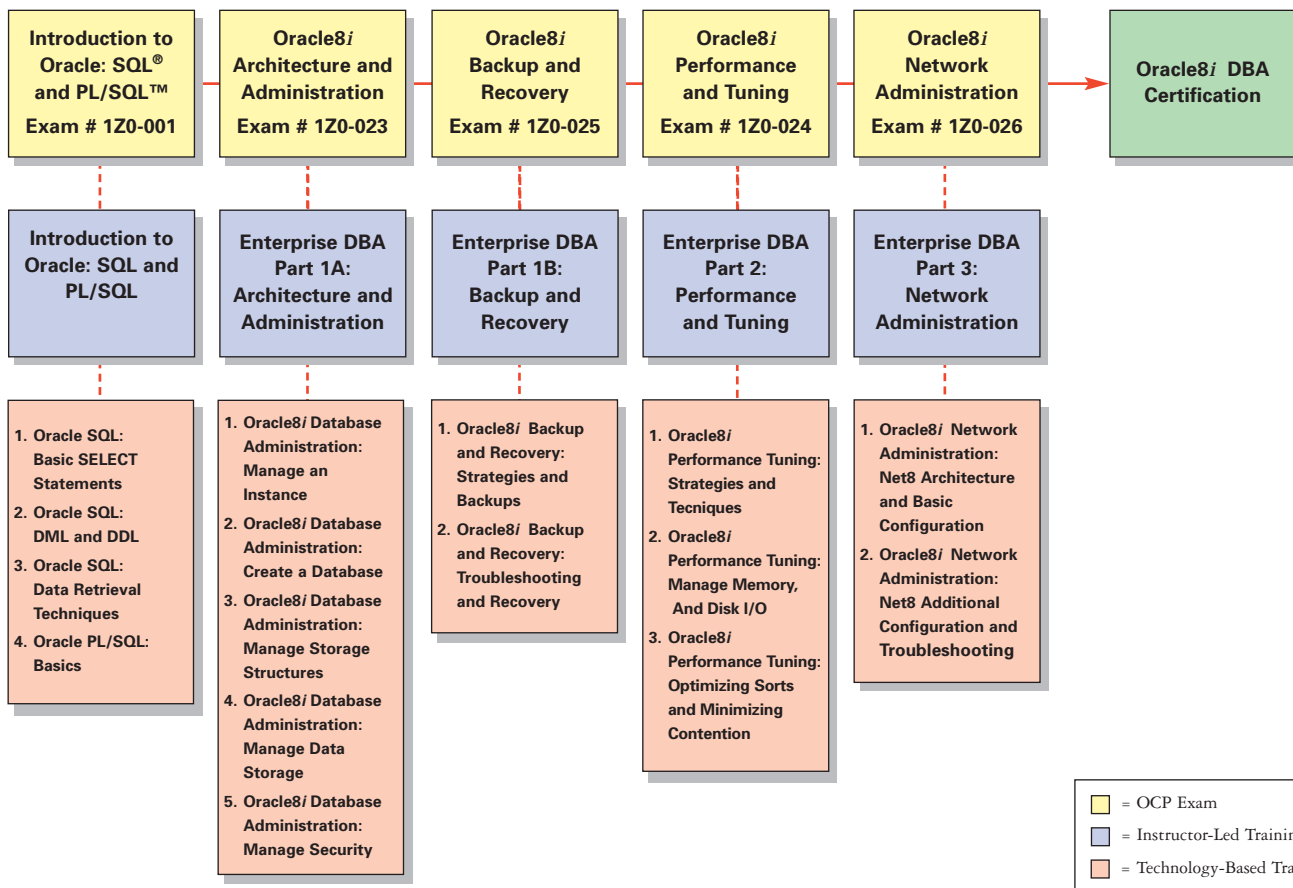
Oracle8i Certified Database Administrator Exams and Training

Listed below each exam are the Oracle University training methods.
Choose which method you prefer to prepare for the exams.

Upgrade Path



Core Path



4

Registering for Your Tests

The Oracle Certification tests are offered through Prometric, the world's largest provider of testing to the information technology industry. Prometric features more than 800 authorized Prometric testing centers worldwide.

All tests are delivered by computer. A brief tutorial precedes each test to familiarize you with the test delivery system. You should attempt to answer every question in the tests because incomplete answers are scored as incorrect.

Reviewing the Candidate Agreement

Candidates pursuing Oracle Certification must accept the terms of the Oracle Certified Professional Candidate Agreement before taking the tests.

You will be presented with the agreement on-screen before the exam starts. You can also review the agreement before your appointment by visiting the OCP Web site at www.oracle.com/education/certification/canagreemt.html.

Scheduling Your Test at an Authorized Prometric Testing Center

1. There are two convenient ways to register for testing:
 - a. Register online at <http://www.oracle.com/education/certification>. (Online registration is not available for beta exam registration.)
 - b. Call the Prometric Regional Service Center (RSC) serving your country during normal business hours (a list of RSCs is located on the last page of this guide)
2. Make sure that you have both the number and title of the test that you are registering for. The Prometric customer service representative will ask for your name and contact information, as well as your preference as to date, time, and location for testing. Schedule your appointment to take the test at any available time Monday through Saturday during normal authorized Prometric testing center hours. Hours vary by location. Be sure to note when and where you are scheduled to take the test.
3. When you register, ask the Prometric customer service representative for a list of valid forms of identification that you will need to present when you take your test. You will not be allowed to take the test without valid identification.

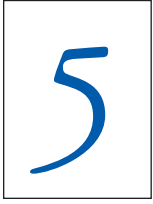
4. Regular exam fees are equivalent to \$125 US Dollars, plus any local taxes. The exam fee is payable to Prometric by major credit card (VISA, MasterCard, American Express and Switch Cards) at the time of registration. All discounts must be applied at the time of paying your exam fee.
5. You must schedule a test at least 24 hours in advance.

Changing or Canceling Your Appointment

To cancel or reschedule your test appointment, you must call the Prometric Regional Service Center. The cancellation policy by region is:

- The Americas: One business day in advance
- Asia Pacific: By midday (Sydney time) the previous business day
- EMEA: Two business days in advance
- Japan: Three business days in advance

Candidates who do not appear for the test or who cancel less than one business day prior to the test will not receive a refund.



Taking Your Tests

On Test Day...

1. Arrive at the testing center at least 15 minutes prior to your scheduled appointment.
2. Sign the test log and present two forms of identification. One must be a government-issued photo identification. Both forms of identification must contain your signature.
3. The test administrator will give you a brief orientation and escort you to a computer terminal where you will take the test. You are not allowed to bring papers, books, bags, or calculators into the room.
4. Remember to adhere to the requirements set forth in Oracle Certification Candidate Agreement. You must agree to the terms and conditions in the agreement before completing any Oracle Certification exam. Any attempt to cheat, assist others, or remove exam content from the testing room will not be tolerated and may result in a zero score, disallowance of OCP credential, even prosecution by law.

Obtaining Your Test Results

You will receive your score report immediately after the test. Beta exam score reports are sent to candidates following analysis and scoring of the beta exam. Candidates completing a beta version of a test can expect their score reports 10-12 weeks following the beta period. Your results are automatically forwarded to Oracle following testing. Please keep a copy of all test reports for your records.

Retaking a Test

Candidates must wait 30 days before retaking a failed exam. There are no exceptions to this policy.

If you do not pass an Oracle Certification exam on the first attempt, Oracle encourages you to make use of the diagnostic feedback supplied with the score report to review the areas that need further study.

If you receive a low score, an Oracle University training course may be necessary for you to gain more knowledge. Otherwise, if you only require skillset review in a few areas, we recommend you consult the Oracle Learning Network, where you will find each topic area available as a short course module. Most modules are only 45 minutes. Visit OLN at www.oracle.com/education/oln/.



After You Are Certified

Receiving Your Oracle Certification Welcome Kit

You will receive a certificate by mail from Prometric within 30 days after successfully completing all tests in a certification track. You can use your certificate as verification that you are an Oracle Certified Professional.

If you do not receive your certificate, write to fulfillment@prometric.com and provide your name, candidate ID, and current mailing address.

OCP Members Web Site

In addition, you will receive information on how to obtain a copy of the OCP logo. The logo may be used on business cards and resumes. You will also receive a letter of congratulations from Oracle which will indicate how you can begin to access the wealth of OCP benefits that await you. This will include the access login and password you will need to enter the OCP member online community.

Keeping Current with New Oracle Technology Releases

Oracle is committed to keeping the Oracle Certification Program current with the latest technology. To ensure the value of your Oracle Certified Professional credential, you may find it advantageous to upgrade your certification to the latest release.

Retirement of an OCP Track

Once Oracle announces the retirement of a track, you will have at least six months to pass the remaining exams in the retiring track. If you do not upgrade your certification by the deadline, you will be required to complete all tests within the new track to obtain the latest credential. Consult the OCP Web site for current testing requirements.

Updating your Demographic Information

Visit the Prometric web site at <http://2test.com> to update your demographic information.

Follow the steps below:

1. Select "Information Technology Certification" from the drop down menu and click "GO"
2. Log in to the site with your User Name and Password. If you have never registered online before, select the link to set up your online account.

3. In the left navigation bar under "Testing with Prometric", select "Update User Profile".
4. You may update your mailing address, telephone numbers and your email address.
5. Select "Next". Your OCP Candidate information is now updated.



Special Testing Opportunities

Special Opportunities: Beta and Tryout Tests

Oracle may offer beta or tryout versions of OCP tests as new and updated questions are developed. Beta and tryout tests are generally offered free or at a discount from the regular test price. Participating in beta and tryout tests is a good way to economize on your certification and to be among the first professionals to be certified on a new track or product release.

Beta score reports are sent to candidates following analysis and scoring of the beta test.

Visit the OCP Web site at <http://www.oracle.com/education/certification/> to find beta and tryout opportunities. Oracle provides detailed descriptions of each beta and tryout offer to help you decide if the tests are right for you.

Visit the OCP Web site at <http://www.oracle.com/education/certification/>



Test Content Checklists

The following test content checklists show the objectives covered in the OCP exams.



Test Content Checklist

Introduction to Oracle: SQL[®] and PL/SQL[™]
(Exam# 1Z0-001)

Overview of Relational Databases, SQL and PL/SQL

- Discuss the theoretical and physical aspects of a relational database
- Describe the Oracle implementation of the RDBMS and ORDBMS
- Describe the use and benefits of PL/SQL

Writing Basic SQL Statements

- List the capabilities of SQL SELECT statements
- Execute a basic SELECT statement
- Differentiate between SQL statements and SQL*Plus commands

Restricting and Sorting Data

- Limit the rows retrieved by a query
- Sort the rows retrieved by a query

Single Row Functions

- Describe various types of functions available in SQL
- Use character, number, and date functions in SELECT statements
- Describe the use of conversion functions

Displaying Data from Multiple Tables

- Write SELECT statements to access data from more than one table using equality and nonequality joins

- View data that generally does not meet a join condition by using outer joins

- Join a table to itself

Aggregating Data Using Group Functions

- Identify the available group functions
- Describe the use of group functions
- Group data using the GROUP BY clause
- Include or exclude grouped rows by using the HAVING clause

Subqueries

- Describe the types of problems that subqueries can solve
- Define subqueries
- List the types of subqueries
- Write single-row and multiple-row subqueries

Multiple-Column Subqueries

- Write multiple-column subqueries
- Describe and explain the behavior of subqueries when null values are retrieved
- Write subqueries in a FROM clause

Producing Readable Output with SQL*Plus

- Produce queries that require an input variable

- Customize the SQL*Plus environment
- Produce more readable output
- Create and execute script files
- Save customizations

Manipulating Data

- Describe each DML statement
- Insert rows into a table
- Update rows in a table
- Delete rows from a table
- Control transactions

Creating and Managing Tables

- Describe the main database objects
- Create tables
- Describe the datatypes that can be used when specifying column definition
- Alter table definitions
- Drop, rename, and truncate tables

Including Constraints

- Describe constraints
- Create and maintain constraints

Creating Views

- Describe a view
- Create a view
- Retrieve data through a view
- Insert, update, and delete data through a view
- Drop a view

Exam #1Z0-001 – Introduction to Oracle: SQL and PL/SQL, continued

Oracle Data Dictionary

- Describe the data dictionary views a user may access
- Query data from the data dictionary

Other Database Objects

- Describe database objects and their uses
- Create, maintain, and use sequences
- Create and maintain indexes
- Create private and public synonyms

Controlling User Access

- Create users
- Create roles to ease setup and maintenance of the security model
- Use the GRANT and REVOKE statements to grant and revoke object privileges

Declaring Variables

- List the benefits of PL/SQL
- Describe the basic PL/SQL block and its sections
- Describe the significance of variables in PL/SQL
- Declare PL/SQL variables
- Execute a PL/SQL block

Writing Executable Statements

- Describe the significance of the executable section
- Write statements in the executable section
- Describe the rules of nested blocks
- Execute and test a PL/SQL block
- Use coding conventions

Interacting with the Oracle Server

- Write a successful SELECT statement in PL/SQL
- Declare the datatype and size of a PL/SQL variable dynamically
- Write DML statements in PL/SQL
- Control transactions in PL/SQL
- Determine the outcome of SQL DML statements

Writing Control Structures

- Identify the uses and types of control structures
- Construct an IF statement
- Construct and identify different loop statements
- Use logic tables
- Control block flow using nested loops and labels

Working with Composite Datatypes

- Create user-defined PL/SQL records

- Create a record with the %ROWTYPE attribute
- Create a PL/SQL table
- Create a PL/SQL table of records
- Describe the difference between records, tables, and tables of records

Writing Explicit Cursors

- Distinguish between an implicit and an explicit cursor
- Use a PL/SQL record variable
- Write a cursor FOR loop

Advanced Explicit Cursor Concepts

- Write a cursor that uses parameters
- Determine when a FOR UPDATE clause in a cursor is required
- Determine when to use the WHERE CURRENT OF clause
- Write a cursor that uses a subquery

Handling Exceptions

- Define PL/SQL exceptions
- Recognize unhandled exceptions
- List and use different types of PL/SQL exception handlers
- Trap unanticipated errors
- Describe the effect of exception propagation in nested blocks
- Customize PL/SQL exception messages



Test Content Checklist

Oracle8i: Architecture and Administration

(Exam# 1Z0-023)

Oracle Architectural Components

- Describe the Oracle server architecture and its main components
- List the structures involved in connecting a user to an Oracle instance
- List the stages in processing: queries, DML statements, COMMITs

Getting Started with the Oracle Server

- Identify the features of the Universal Installer
- Set up operating system and password file authentication
- List the main components of Oracle Enterprise Manager and their uses

Managing an Oracle Instance

- Create the parameter file
- Start up an instance and open the database
- Close a database and shut down the instance
- Get and set parameter values
- Manage sessions
- Monitor the ALERT file and the trace files

Creating a Database

- Prepare the operating system
- Prepare the parameter file
- Create the database

Creating Data Dictionary Views and Standard Packages

- Construct the data dictionary views
- Query the data dictionary
- Prepare the PL/SQL environment using the administrative scripts
- Administer stored procedures and packages
- List the types of database event triggers

Maintaining the Control File

- Explain the uses of the control file
- List the contents of the control file
- Multiplex the control file
- Obtain control file information

Maintaining the Redo Log Files

- Explain the use of online redo log files
- Obtain log and archive information
- Control log switches and checkpoints
- Multiplex and maintain online redo log files
- Plan online redo log files
- Troubleshoot common redo log file problems
- Analyze online and archived redo logs

Managing Tablespaces and Data Files

- Distinguish the different types of temporary segments
- Create tablespaces
- Change the size of tablespaces
- Allocate space for temporary segments
- Change the status of tablespaces
- Change the storage settings of tablespaces
- Relocate tablespaces

Storage Structure and Relationships

- Describe the logical structure of the database
- List the segment types and their uses
- List the keywords that control block space usage
- Obtain information about storage structures from the data dictionary
- List the criteria for separating segments

Managing Rollback Segments

- Create rollback segments using appropriate storage settings

Exam #1Z0-023 – Oracle8i: Architecture and Administration, continued

- Maintain rollback segments
- Plan the number and size of rollback segments
- Obtain rollback segment information from the data dictionary
- Troubleshoot common rollback segment problems

Managing Tables

- Create tables using appropriate storage settings
- Control the space used by tables
- Analyze tables to check integrity and migration
- Retrieve information about tables from the data dictionary
- Convert between different formats of ROWID

Managing Indexes

- List the different types of indexes and their uses
- Create B-tree and bitmap indexes
- Reorganize indexes
- Drop indexes
- Get index information from the data dictionary

Maintaining Data Integrity

- Implement data integrity constraints

- Maintain integrity constraints
- Obtain constraint information from the data dictionary

Loading Data

- Load data using direct-load insert
- Load data into Oracle tables using SQL*Loader: Conventional Path
- Load data into Oracle tables using SQL*Loader: Direct Path

Reorganizing Data

- Reorganize data using the Export and Import utilities
- Move data using transportable tablespaces

Managing Password Security and Resources

- Manage passwords using profiles
- Administer profiles
- Control use of resources using profiles
- Obtain information about profiles, password management, and resources

Managing Users

- Create new database users
- Alter and drop existing database users
- Monitor information about existing users

Managing Privileges

- Identify system and object privileges
- Grant and revoke privileges
- Control operating system or password file authentication
- Identify auditing capabilities

Managing Roles

- Create and modify roles
- Control availability of roles
- Remove roles
- Use predefined roles
- Display role information from the data dictionary

Using National Language Support

- Choose a character set and national character set for a database
- Specify the language-dependent behavior using initialization parameters, environment variables, and the ALTER SESSION command
- Use the different types of National Language Support (NLS) parameters
- Explain the influence on language-dependent application behavior
- Obtain information about NLS usage



Test Content Checklist

Oracle8i: Backup and Recovery
(Exam# 1Z0-025)

Backup and Recovery Considerations

- Define requirements for a backup and recovery strategy
- Articulate the importance of management concurrence for the strategy
- Identify the components of a disaster recovery plan
- List Oracle Server features in the context of high availability
- List the strengths of different database configurations for recoverability
- Discuss the importance of testing a backup and recovery plan

Oracle Recovery Structures and Processes

- List Oracle processes, memory, and file structures relating to recovery
- Identify the importance of checkpoints, redo logs, and archives
- Multiplex control files and redo logs
- List the types of failure
- Describe the structures for instance and media recovery
- Describe the deferred transaction recovery concept

Oracle Backup and Recovery Configuration

- Identify recovery implications of operating in NOARCHIVE mode
- Describe the differences between ARCHIVELOG and NOARCHIVELOG modes
- Configure a database for ARCHIVELOG mode and automatic archiving
- Use init.ora parameters to configure multiple destinations for archived log files and multiple archive processes
- Perform manual archive of logs

Physical Backup Without Oracle Recovery Manager

- Describe the recovery implications of closed and opened database backups
- Perform closed and opened database backups
- Identify the backup implications of the Logging and Nologging options
- Identify the different types of control file backups
- Discuss backup issues associated with read-only tablespaces
- List the data dictionary views useful for backup operations

Complete Recovery without Recovery Manager

- In NOARCHIVELOG and ARCHIVELOG mode: Note the implications of a media failure
- In NOARCHIVELOG and ARCHIVELOG mode: Recover a database in different situations
- In NOARCHIVELOG and ARCHIVELOG mode: Restore files to a different location if media failure occurs
- List the dictionary views required to recover a database after a media failure

Incomplete Oracle Recovery with Archiving

- Determine when to use an incomplete recovery to recover the system
- Perform an incomplete database recovery
- Recover after losing current and inactive nonarchived redo log files

Exam #1Z0-025 – Oracle8i: Backup and Recovery, continued

Oracle Export and Import Utilities

- Use the Export utility to create a complete logical backup of a database object
- Use the Export utility to create an incremental backup of a database object
- Invoke the direct-path method export
- Use the Import utility to recover a database object
- Perform a tablespace point-in-time recovery (TSPITR) with or without the transportable tablespace feature

Additional Recovery Issues

- List methods for minimizing downtime: perform parallel recovery, start recovering a database with missing data files, re-create lost temporary or index tablespaces
- Reconstruct lost or damaged control files
- List recovery issues associated with read-only tablespaces

Oracle Utilities for Troubleshooting

- Use log and trace files to diagnose backup and recovery problems
- Detect corruptions by using different methods
- Detect and mark corrupted blocks by using the DBMS_REPAIR package

- Use the DBVERIFY utility
- Use the LogMiner utility to analyze redo log files to recover by undoing changes

Oracle Recovery Manager Overview

- List the capabilities of Oracle Recovery Manager (RMAN)
- Describe the components of RMAN
- Connect to RMAN without a recovery catalog
- Start up and shut down a target database using RMAN

Oracle Recovery Catalog Creation and Maintenance

- Describe the considerations for using a recovery catalog
- Describe the components of a recovery catalog
- Create a recovery catalog
- Maintain the recovery catalog using RMAN commands
- Query the recovery catalog to generate reports and lists
- Create, store, and run scripts

Backups using RMAN

- Describe backup concepts using RMAN
- Describe types of RMAN backups

- Perform incremental and cumulative backups
- Tune backup operations
- View information from the data dictionary

Restoration and Recovery using RMAN

- Restore and recovery considerations using RMAN
- Restore a database in NOARCHIVELOG mode
- Restore and recover a tablespace
- Restore and recover a data file
- Incomplete recovery using RMAN

Oracle Standby Database

- Explain the use of a standby database
- Configure initialization parameters
- Create, maintain, and activate a standby database
- Describe Managed Recovery mode
- Set a standby database in Read-Only mode
- Describe the process of propagating structural changes to a standby database
- Describe the impact of nologging actions on the primary database



Test Content Checklist

Oracle8i: Performance and Tuning
(Exam# 1Z0-024)

Tuning Overview

- List the roles associated with the database tuning process
- Define the steps associated with the tuning process
- Identify tuning goals

Oracle Alert and Trace Files

- Describe the location and usefulness of the Alert log file
- Describe the location and usefulness of the background and user process trace files

Utilities and Dynamic Performance Views

- Collect statistics through:
 - Available dynamic troubleshooting and performance views
 - The UTLBSTAT/UTLESTAT report output
 - Oracle wait events
 - Appropriate Enterprise Manager (EM) tuning tools
- Define the latch types

Tuning the Shared Pool

- Tune the library cache and the data dictionary cache
- Measure the shared pool hit ratio
- Size the shared pool appropriately
- Pin objects in the shared pool
- Tune the shared pool reserved space

- Describe the User Global Area (UGA) and session memory considerations

- Configure the large pool

Tuning the Buffer Cache

- Describe how the buffer cache is managed
- Calculate and tune the buffer cache hit ratio
- Tune the buffer cache hit ratio by adding or removing buffers
- Create multiple buffer pools
- Size multiple pools
- Monitor buffer cache usage
- Make appropriate use of table caching
- Diagnose LRU latch contention
- Avoid free list contention

Tuning the Redo Log Buffer

- Determine if processes are waiting for space in the redo log buffer
- Size the redo log buffer appropriately
- Reduce redo operations

Database Configuration and I/O Issues

- Diagnose inappropriate use of SYSTEM, RBS, TEMP, DATA, and INDEX tablespaces
- Use locally managed tablespaces to avoid space management issues

- Detect I/O problems

- Ensure that files are distributed to minimize I/O contention and use appropriate type of devices

- Use striping where appropriate

- Tune checkpoints

- Tune DBWn process I/O

Using Oracle Blocks Efficiently

- Determine an appropriate block size
- Optimize space usage within blocks
- Detect and resolve row migration
- Monitor and tune indexes

Optimizing Sort Operations

- Identify the SQL operations that require sorting
- Ensure that sorting is done in memory where possible
- Reduce the number of I/Os required for the sort runs
- Allocate temporary space appropriately

Tuning Rollback Segments

- Use the dynamic performance views to check rollback segment performance
- Reconfigure and monitor rollback segments
- Define the number and sizes of rollback segments
- Appropriately allocate rollback segments to transactions

Exam #1Z0-024 – Oracle8i: Performance and Tuning (Exam# 1Z0-024), continued

Monitoring and Detecting Lock Contention

- Define types and modes of locking
- List possible causes of contention
- Use Oracle utilities to detect lock contention
- Resolve contention in an emergency
- Prevent locking problems
- Diagnose and resolve deadlock errors

SQL Issues and Tuning Considerations for Different Applications

- Identify the role of the DBA in application tuning
- Use optimizer modes to enhance SQL statement performance
- Manage stored outlines to store execution paths as a series of hints
- Use the available data access methods to tune the physical design of the database
- Identify the demands of online transaction processing (OLTP) systems
- Identify the demands of decision support systems (DSS)
- Reconfigure systems on a temporary basis for particular needs

Managing a Mixed Workload

- Describe the features of Database Resource Manager
- Limit the use of resources using Database Resource Manager

Tuning with Oracle Expert

- Describe the features of Oracle Expert

Multithreaded Server Tuning Issues

- Identify issues associated with managing users in a multithreaded server environment
- Diagnose and resolve performance issues with multithreaded server processes
- Configure the multithreaded server environment to optimize performance



Test Content Checklist

Oracle8i: Network Administration
(Exam# 1Z0-026)

Networking Overview

- Identify networking business trends
- Describe Oracle networking solutions

Basic Net8 Architecture

- Define the procedure by which Net8 establishes a server connection
- Identify the key components of Net8 architecture and their interaction

Basic Net8 Server-Side Configuration

- Describe the listener process
- Configure the listener
- Start the Net8 listener using the Listener Control utility (LSNRCTL)
- Stop the Net8 listener using LSNRCTL
- Identify additional LSNRCTL commands

Basic Net8 Client-Side Configuration

- Establish a connection from the Net8 client side using the host naming method
- Configure Net8 client-side files and connect using the local naming method
- Define preferences on the client side

- Configure the Net8 client to use the client load balancing and failover feature

Centralized Naming Concepts

- Define the Names server concept
- Identify the various names resolution methods
- Identify the benefits of a Names server
- Define the administration objects used in a Names server environment
- Define the naming models

Oracle Names Usage and Configuration

- Configure centralized naming
- Store the network configuration in the client cache
- Store the network configuration in a region database
- Start and stop the Names server using the Names Control utility

Multithreaded Server Usage and Configuration

- Identify the components of the multithreaded server (MTS)
- Configure dispatchers using init.ora
- Configure shared servers using init.ora
- Specify the listener address for

multithreaded server

- Set up connection pooling using the multithreaded server

Connection Manager Usage and Configuration

- Identify the capabilities of Connection Manager
- Configure connection concentration
- Enable network access control
- Configure multiprotocol interchange

Troubleshooting the Network Environment

- Follow a troubleshooting checklist.
- Use the TNSPING Utility
- Configure the logging and tracing with Net8 Assistant
- Use the Listener audit trail
- Interpret logging and tracing components

Security in the Network Environment

- Identify network security risks during data transmission
- Identify security features in Oracle Networking products
- Identify the features of the Advanced Security option
- Configure the components of the Advanced Security option



Test Content Checklist

Oracle8: New Features for Administrators
(Exam #1Z0-010)

Using Partitioning: Conceptual Overview

- Describe the benefits of partitioning
- Describe the general partitioning rules
- Describe the general partition restrictions

Implementing Partitioned Indexes

- Describe the different types of partitioned indexes
- Plan an indexing strategy to support your applications
- Describe general partition restrictions

Supporting Commands and Guidelines for Partitioned Tables and Indexes

- Explain the various commands to support partition management
- Describe restrictions that apply to certain operations
- Describe data dictionary tables that provide information on partitions

Parallelizing INSERT, UPDATE, and DELETE Operations

- Describe the advantages of parallel data manipulation language (DML)
- Use hints and the parallel clause to set the degree of parallelism for a DML statement
- Execute parallel UPDATE and DELETE operations on partitioned tables
- Use the data dictionary views associated with parallel DML operations

Identifying New ROWID Structure

- Describe the new ROWID format in Oracle8
- Use the new ROWID format in Oracle8
- Use the DBMS_ROWID package

Defining Object Relational Features

- Define an object relational database
- Describe the object concepts in Oracle8
- Create a basic object type
- Create and use an object view

Managing Large Objects

- Compare and contrast LONG and large object (LOB) data types
- Create and maintain LOB data types
- Differentiate between internal and external LOBs
- Utilize the DBMS_LOB PL/SQL package

Implementing Oracle Advanced Queuing

- Define the advanced queuing concepts
- Create and send messages using the ENQUEUE procedure
- Administer the queues and queue tables

Exam #1Z0-010 - Oracle8: New Features for Administrators, continued

Using Additional New Features

- Implement new types of constraint checking and enforcement
- Implement reverse key indexes
- Describe index-organized tables
- Create and use index-organized tables
- Identify the new security enhancements
- Configure a large pool System Global Area (SGA) area
- Take advantage of National Language Support (NLS) enhancements
- Use external procedures
- Describe the Oracle8 raised size ceilings

Introduction to Recovery Manager

- Describe the Recovery Manager architecture
- Discuss the benefits of using Recovery Manager
- Identify the types of backups
- Describe the use of the Recovery Manager Catalog
- List associated data dictionary views

Using Catalog Commands and Reports in Recovery Manager

- Maintain the contents of the recovery catalog
- Generate reports and lists from the recovery catalog
- Create and execute scripts to perform backup and recovery operations

Using RUN Commands and Scripts in Recovery Manager

- Manage backup, copy, restore, and recovery operations using the Recovery Manager
- Create and execute scripts to perform backup and recovery operations

Enhancements to Networking

- Describe the concept of multiplexing
- Describe the concept of connection pooling
- Describe the new features of naming services

- Describe the connectivity features
- Describe the security features
- Describe the performance benefits
- Describe the possibilities of configuration and administration

Implementing Password Management

- Implement account locking
- Implement password aging and expiry
- Implement password complexity verification

Migrating Server and Applications

- Explain the Migration Utility
- Explain the steps to complete a migration to Oracle8
- Explain the migration options



Test Content Checklist

Oracle8i: New Features for Administrators
(Exam# 1Z0-020)

Java in the Database

- Describe Oracle java components
- Describe JServer installation
- Tune JServer

Optimizer and Query Improvements

- Describe the features of optimizer plan stability
- Describe the contents of the DBMS_STATS Package
- Explain Top-N SQL queries
- Identify new SQL keywords for computing subtotals
- Identify new sort processing options
- Explain automatic parallel execution

Summary Management

- Build and Manage Materialized views for Oracle Summaries
- Build and Manage Dimensions

Indexes and Index-Organized Tables

- Describe bitmap indexes improvements
- Describe a function-based index
- Build an index online
- Compute index statistics
- Describe an index-organized table (IOT)

- Explain logical ROWIDs
- Create multiple indexes on an IOT
- Explain how to partition an IOT

Partitioning Improvements

- Revise the general partitioning concepts
- Implement range, hash, and composite partitioning
- Explain ENABLE/DISABLE ROW MOVEMENT
- Explain the new partition pruning capabilities
- Describe partition-wise join
- Review partition maintenance operations

Object Relational Features and LOBs

- Define LOBs from a DBA perspective

Oracle Universal Installer: Migration and Upgrade

- List the features of the Oracle Universal Installer
- Migrate an Oracle7 database to Oracle8i
- Upgrade an Oracle8 database to Oracle8i

Tablespace Management

- Manage locally managed tablespaces

- Manage transportable tablespaces
- Use read-only tablespace enhancements

Database Resource Manager

- List the features of the database resource manager
- Limit the use of resources using the database resource manager

Manageability Enhancements

- Identify database limits
- Relocate and reorganize tables
- Remove unused columns from a table
- Define temporary tables
- Identify SQL*Loader enhancements
- Monitor long-running operations
- Define new constraints features
- Define new Export/Import features

Availability and Recoverability Enhancements

- Learn RMAN new features
- Implement duplex and multiple archive logs
- Set up a standby database in sustained recovery mode
- Start up a database for read operations

Exam #1Z0-020 - Oracle8i: New Features for Administrators, continued

- Suspend database I/Os
- Describe the functionality of LogMiner
- Implement fast-start fault recovery
- Manage corrupt block detection and repair
- Describe the new possibility of dynamically changing the number of free lists

Features of NET8

- Describe the new service naming scheme
- Explain automatic registration
- Describe load balancing
- Configure the network for JServer

SQL*Plus, PL/SQL, and National Language Support Enhancements

- Use SQL*Plus for database management
- Describe the use of PL/SQL for: Event Triggers, Autonomous Transactions, Native Dynamic SQL

Database Security

- Describe N-Tier authentication
- Describe invoker's rights security management
- Implement application context areas
- Implement fine-grained access control



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