

## What you will learn:

In this course, the concepts and architecture that support backup and recovery, along with the steps of how to carry it out in various ways and situations, are covered in detail. This includes how to define and test your own backup and recovery scenarios.

Also, the students learn to manage memory effectively and to perform some performance evaluation and tuning tasks, including using some of the advisors. All types of flashback technologies, scheduling jobs inside and outside of the database, and controlling system resource usage are covered. Topics are reinforced with hands-on practices.

## Learn To:

- Back up and recover a database using RMAN and Enterprise Manager
- Configure Oracle Database for optimal recovery for any environment
- Identify burdensome database sessions and poorly performing SQL
- Configure the database instance such that resources are allocated among sessions and tasks appropriately
- Schedule jobs to run inside or outside of the database

## Audience:

- Database Administrators
- Data Warehouse Administrator
- Technical Consultant
- Support Engineer

## Prerequisites:

Required Prerequisites:

- Oracle Database 11g: Administration Workshop I

## Course Objectives:

- Back up and recover a database
- Configure Oracle Database for optimal recovery
- Administer ASM disk groups
- Use an RMAN backup to duplicate a database
- Automating Tasks with the Scheduler

## Course Topics:

### Database Architecture and ASM

- Oracle Database Architecture Overview
- ASM General Architecture
- Creating an ASM Instance
- Using Enterprise Manager to Manage ASM Users
- ASM Storage Concepts
- The ASMCMD Utility
- ASM Scalability and Performance

### Configuring for Recoverability

- Purpose of Backup and Recovery Functionality
- Typical Backup and Recovery Tasks
- Oracle Backup and Recovery Solutions
- Using Recovery Manager (RMAN)
- Using a Flash Recovery Area
- Flash Recovery Area Space Management

### Using the RMAN Recovery Catalog

- RMAN Repository Data Storage: Comparison of Options
- Storing Information in the Recovery Catalog
- Registering a Database in the Recovery Catalog
- Recovery Catalog Resynchronization: Concepts
- Using RMAN Stored Scripts
- Backing Up and Recovering the Recovery Catalog
- Using a Virtual Private Catalog

### Configuring Backup Specifications

- Using RMAN to Create Backups
- Configuring Persistent Settings for RMAN
- Using Enterprise Manager to Configure RMAN Settings
- Control File Auto-backups
- Managing Persistent Settings
- Configuring Devices for Backup
- Configuring and Allocating Channels for Use in Backups
- Configuring Backup Optimization

### Creating Backups

- Creating an Oracle-Suggested Backup
- Creating Backup Sets & Image Copies
- Creating a Whole Database Backup
- RMAN Backup Types
- Monitoring Block Change Tracking
- Creating Duplex Backup Sets
- Archival Backups: Concepts
- Encrypting Backups

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## REGISTRATION AND INFORMATION

[education@ecs.com.sg](mailto:education@ecs.com.sg)  
[www.ecs.com.sg/training](http://www.ecs.com.sg/training)  
TEL: (65) 6393-4448  
FAX: (65) 6294-4097

## Performing User-Managed Backup and Recovery

- Restoring and Recovering
- Causes of File Loss
- Critical Versus Non-critical
- Recovering from a TEMPFILE Loss
- Re-creating Indexes
- Recovering from a Lost Index Tablespace
- Authentication Methods for Database Administrators
- Recovering a Read-Only Tablespace

## Using RMAN to Perform Recovery

- Using RMAN RESTORE and RECOVER Commands
- Performing Recovery Using Enterprise Manager
- Recovery Using Incrementally Updated Backups
- Perform a Fast Switch to Image Copies
- Restoring and Recovering the Database on a New Host
- Performing Disaster Recovery

## Using RMAN to Duplicate a Database

- Using RMAN to Create a Duplicate Database
- Creating a Duplicate Database
- Creating an Initialization Parameter File for the Auxiliary Instance
- Allocating Auxiliary Channels
- Understanding the RMAN Duplication Operation
- Using EM to Clone a Database
- Cloning a Running Database

## Performing Tablespace Point-in-time Recovery

- Tablespace Point-in-Time Recovery (TSPITR) Concepts
- Tablespace Point-in-Time Recovery: Architecture
- Understanding When to Use TSPITR
- Determining the Tablespaces for the Recovery Set
- Using Enterprise Manager to Perform TSPITR
- Understanding TSPITR Processing
- Troubleshooting RMAN TSPITR

## Monitoring and Tuning RMAN

- Parallelization of Backup Sets
- Monitoring RMAN Sessions
- Interpreting RMAN Message Output
- Using the DEBUG Option
- Tuning RMAN
- RMAN Multiplexing
- Comparing Synchronous and Asynchronous I/O
- Tape Subsystem Performance Rules

## Using Flashback Technology

- \* Flashback Technology
- \* Transactions and Undo
- \* Guaranteeing Undo Retention
- \* Preparing Your Database for Flashback
- \* Flashback Drop and the Recycle Bin
- \* Using Flashback Technology to Query Data
- \* Possible Workflow
- \* Flashback Transaction Wizard

## Using Flashback Database

- Flashback Table
- Enabling Row Movement on a Table
- Enabling Row Movement on a Table
- Flashback Database Architecture
- Configuring Flashback Database
- Performing Flashback Database Using EM
- Flashback Database Considerations
- Flashback Data Archive

## Diagnosing the Database

- Automatic Diagnostic Workflow & Repository
- Location for Diagnostic Traces
- Viewing the Alert Log Using Enterprise Manager
- The Support Workbench and Oracle Configuration Manager
- Create a Service Request
- Package and upload diagnostic data to Oracle Support
- Incident Packaging Configuration
- Health Monitor Overview & Data Recovery Advisor

## Managing Memory

- Oracle Memory Structures
- Automatic Memory Management Overview
- Oracle Database Memory Parameters
- Auto Memory Parameter Dependency
- Automatic Shared Memory Management: Overview
- Automatic PGA Memory Management
- Using the Memory Advisor to Size the SGA
- Memory Tuning Guidelines for the Library Cache

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## Managing Database Performance

- Tuning Activities
- Performance Planning & Performance Tuning Methodology
- Instance Tuning
- Troubleshooting and Tuning Views
- Automatic Workload Repository
- SQL Tuning & SQL Advisors
- Using the SQL Tuning Advisor
- SQL Access Advisor: Overview

## Globalization

- Globalization Support Features
- What Every DBA Needs to Know
- Understanding Unicode
- Database Character Sets and National Character Sets
- Language- and Territory-Dependent Parameters
- Linguistic Searching and Sorting
- Case- and Accent-Insensitive Search and Sort
- NLS Data Conversion with Oracle Utilities

## Using the Segment Advisor

- Space Management: Overview
- Proactive Tablespace Monitoring
- Thresholds and Resolving Space Problems
- Monitoring Tablespace Space Usage
- Shrinking Segments
- Space Reclamation with ASSM
- Automatic Segment Advisor
- Minimum Compatibility Level

## Managing Resources

- Database Resource Manager: Overview
- Database Resource Manager Concepts
- Accessing Resource Plans
- Default Maintenance Resource Manager Plan
- Creating Consumer Groups
- Resource Allocation Methods for Resource Plans
- Resource Allocation Methods for Resource Plans
- Monitoring the Resource Manager

## Automating Tasks with the Scheduler

- Simplifying Management Tasks
- Key Components and Steps
- Creating an Event-Based Schedule
- Creating Complex Schedules
- Creating Job Chains
- Creating Job Chains

## Administering the Scheduler

- Advanced Scheduler Concepts
- Job Classes
- Windows
- Prioritizing Jobs Within a Window
- Remote Jobs
- Installing the Scheduler Agent
- Dictionary Views Supporting Remote Jobs

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