

Oracle Autonomous Database Workshop 2024 ELS

Data Management

DURATION

3 Days

MODULES

19 Lectures

COURSE CODE

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Course Overview

Benefits to you Learn the technical architecture of Oracle Autonomous Database Learn the tasks involved in creating an Autonomous Database on shared and dedicated Exadata infrastructure Manage, maintain and monitor an Autonomous Database Learn about Oracle Machine Learning, APEX, and SQL Developer Web, which gets deployed with Autonomous Database Learn to use Autonomous JSON, Oracle Text, Spatial, and Graph Identify Migration Options and Considerations

What You Will Learn

- SECTION I: Introduction to Autonomous Database

Module 1: Getting Started with Autonomous Database

- Topics
- Objectives and Overview
- Oracle Autonomous Database Key Features
- Based on Exadata: The World's Best Database Platform
- Complete Database Automation
- High Availability and Service Differentiation
- Articulating Key Features and Offerings
- Autonomous Database Revolution and Oracle Automation History
- Attributes and Service Differences: Serverless vs Dedicated
- Learning Objectives
- Understand Autonomous Database fundamentals and architecture
- Distinguish between serverless and dedicated deployment models
- Recognize licensing and pricing models

Module 2: Oracle Cloud Infrastructure and Pricing

- Topics
- Oracle Universal Credit Payment Structures
- Autonomous Database Pricing Models

- Complete Cloud Infrastructure Platform Overview
- Cloud Regions, Hybrid & Multicloud
- Core Infrastructure Services
- Database Services and Analytics Support
- SaaS, Data Management, and Data Science Capabilities
- Auto Scaling in Autonomous Database Serverless
- Setting Up Auto Scaling at Provisioning or Anytime
- Learning Objectives
- Understand Autonomous Database pricing and credit structures
- Learn core cloud services and capabilities supporting ADB
- Configure auto scaling in serverless ADB
- SECTION II: Provisioning and Managing Autonomous Database

Module 3: Provisioning Autonomous Database

- Topics
- Provisioning the Database
- Start and Stop ADB
- Scaling Options
- Manage Users: Creating Users, Changing Admin Passwords
- Database Consolidation with Elastic Resource Pools
- Learning Objectives
- Provision and manage Autonomous Database instances
- Configure users and admin privileges
- Utilize Elastic Resource Pools to optimize cost and resource usage

Module 4: Cloning, Moving, and Events

- Topics
- Autonomous Database Cloning and Refreshable Clones
- Moving ADB Resources
- Creating Alarms and Notifications
- Defining Events, Topics, Subscriptions
- Creating Alarms (CPU Utilization)
- Learning Objectives
- Clone, move, and monitor ADB resources effectively
- Configure events and notifications for proactive monitoring

Module 5: Backup, Recovery, and Data Guard

- Topics
- Autonomous Database Backups (Manual & Automatic)
- Restoring and Recovering ADB
- Enabling Autonomous Data Guard
- Performing Manual Switchover
- Automatic and Manual Failover
- Cross-Region Autonomous Data Guard

- Learning Objectives
- Implement backup, recovery, and failover strategies
- Configure Data Guard for high availability and disaster recovery
- SECTION III: Dedicated Autonomous Database Infrastructure

Module 6: Dedicated Infrastructure Overview

- Topics
- Dedicated vs Serverless Deployment Benefits
- Workload Isolation and Management Model
- Dedicated Network Architecture
- ADB Cloud@Customer and ExaC@C Options
- Backup Options and Connectivity Considerations
- Learning Objectives
- Understand dedicated deployment architecture
- Learn deployment options for private cloud and on-premises scenarios

Module 7: Provisioning Dedicated Infrastructure

- Topics
- Provisioning Dedicated Resources
- Setting Up Security Lists, Internet Gateway, Route Tables, Subnets
- Creating Autonomous Container Databases
- OCI Policies, Roles, and Fleet Administrators
- Monitoring Dedicated Infrastructure
- Learning Objectives
- Deploy ADB on dedicated infrastructure
- Configure network, security, and administrative roles

Module 8: Maintenance, Updates, and REST APIs

- Topics
- ADB Dedicated Maintenance Scheduling & Preferences
- Update Policies and One-Off Patching
- Using REST APIs and OCI CLI for ADB Management
- Patching and Upgrades in Serverless ADB
- Learning Objectives
- Monitor and manage ADB maintenance
- Use REST APIs and OCI CLI to automate database operations
- SECTION IV: Security and Connectivity

Module 9: Network Security and Access Control

- Topics
- ACLs and Private Endpoints
- Network Security Groups
- Securing Application Connections
- Notifications and Service Monitoring

- Encryption and Key Management
- Learning Objectives
- Secure ADB using ACLs, private endpoints, and encryption
- Configure notifications and monitor performance

Module 10: Auto Indexing and Performance Monitoring

- Topics
- Automatic Indexing and Continuous Optimization
- SQL Developer Web Configuration and Reporting
- Monitoring Autonomous Database Performance
- Learning Objectives
- Enable automatic indexing to optimize query performance
- Monitor and tune database performance efficiently

Module 11: Data Safe and Security Assessments

- Topics
- Oracle Data Safe Overview
- Database Security Assessment and Configuration Drift Detection
- User Risk Assessment and Activity Auditing
- Sensitive Data Discovery and Masking
- Learning Objectives
- Use Data Safe to monitor security and compliance
- Detect and mitigate user and data risks
- SECTION V: Connectivity and Tools

Module 12: ADB Connectivity

- Topics

ADB Connectivity Options: mTLS, TLS, JDBC, Python, Node.js, SQL Developer, Database Actions

- Autonomous Database Credentials and Wallet Management
- Disaster Recovery Configuration
- Learning Objectives
- Connect applications securely to Autonomous Database
- Manage credentials and wallets for secure access

Module 13: Oracle Autonomous Database Tools

- Topics
- SQL Developer, APEX, REST, JSON, SQLcl, Data Studio
- Insights, Machine Learning Notebooks, Graph Studio
- Summary and Use Cases
- Learning Objectives
- Explore development and analytics tools integrated with ADB
- Use ADB for ML, graph analytics, and advanced data insights
- SECTION VI: APEX and Machine Learning Integration

Module 14: APEX on Autonomous Database

- Topics
- Rapid Schema Design with Quick SQL
- Creating New Apps and Using Sample Applications
- Database Actions and Machine Learning Integration
- Learning Objectives
- Build applications with APEX on Autonomous Database
- Integrate ML and data-driven insights into applications

Module 15: Autonomous Database AI & Select AI

- Topics
- Introduction to Select AI and Generative AI Use Cases
- Natural Language Queries with ADB
- SQL Query Generation and App Development with AI
- Demonstrations and Use Cases
- Learning Objectives
- Leverage AI for querying and app development
- Build natural language interfaces on top of ADB
- SECTION VII: JSON, Graphs, Spatial, and Data Sharing

Module 16: Autonomous JSON Database

- Topics
- JSON Storage and Use Cases
- MongoDB Compatibility
- Document Collections and SQL Integration
- Learning Objectives
- Use ADB for JSON workloads and document storage
- Leverage MongoDB API compatibility

Module 17: Oracle Text and Spatial Data

- Topics
- Oracle Text Indexing and Analytics
- Full Text Queries, Faceted Navigation, Text Analytics
- Spatial Studio and Spatial Analysis
- Geocoding and Visualizations
- Learning Objectives
- Perform full-text and spatial analytics
- Visualize and analyze geospatial data

Module 18: Graph Analytics

- Topics
- Graph Data Model and PGQL

- Graph Creation, Querying, Visualization
- Prebuilt Graph Analytics Algorithms
- Using Graph Studio
- Learning Objectives
- Build and analyze graph datasets
- Apply graph algorithms for business insights

Module 19: Data Sharing and Modern Data Platform

- Topics
- Data Lake Integration and Multi-Cloud Access
- Modern Data Sharing Concepts and Benefits
- Loading Architecture and Migration Methods
- Data Pump, Object Store, and Migration Tools
- Learning Objectives
- Share data securely and efficiently
- Migrate workloads to ADB using best practices
- This organizes the full Autonomous Database Workshop into 19 modules, covering:
- Fundamentals & Cloud Infrastructure
- Provisioning & Management
- Dedicated Infrastructure
- Security & Connectivity
- Tools & Development (APEX, ML, REST)
- Advanced Data Workloads (JSON, Graph, Spatial)
- Data Sharing & Migration