ORACLE
University

Oracle AI Autonomous Database Professional (2025)

Student Guide
D1111157GC10

Learn more from Oracle University at **education.oracle.com**

1010302025

Important Note

Oracle AI Autonomous Database has replaced **Oracle Autonomous Database.** This change was announced at Oracle AI World in October 2025. The architecture, concepts, and features presented in this course remain fully relevant.

Table of Contents

Getting started with Oracle Autonomous Database 18

Getting Started with Autonomous Database 18

Objectives 19

Overview 20

Oracle Autonomous Database 21

Complete Database Automation 22

Not an Incremental Improvement 23

Autonomous Database Is Highly Available 24

Oracle Autonomous Database 25

Articulating the Key Features of Autonomous Database 26

Oracle Autonomous Database What and How 27

Oracle Autonomous Database What and How 28

Offerings 29

Autonomous Database Revolutionizes Data Management 30

Oracle Has Spent the Last 20 Years Automating Database Technology 31

Oracle Has Spent the Last 10+ Years Automating Database Infrastructure 32

One Autonomous Database 33

Attributes and Service Differences 34

ORACLE AUTONOMOUS DATABASE 35

Autonomous Database Serverless Versus Dedicated 36

Licensing 37

ECPU pricing metric 38

ECPU key points 39

Autonomous Database Licensing – ADW and ATP 40

Oracle Universal Credit Payment structures 41

Autonomous Database licensing 42
Introduction 48
Complete Cloud Infrastructure Platform 49
Powerful Core Infrastructure Services 50
Comprehensive Database Services 51
Broad Data Management and Data Science Capabilities 52
Manage, Secure, and Operate at Scale 53
Build and Run Cloud Native Applications and Extend Existing Apps 54
Robust Oracle Analytics and Third-Party Support 55
Comprehensive Horizontal and Industry SaaS Portfolio 56
Complete Cloud Infrastructure Platform 57
Autonomous Database Serverless 58
Auto Scaling 58
Objectives 59
Autonomous Database Serverless: Auto Scaling 60
Auto Scaling 61
Setting Up Auto Scaling: When Provisioning 62
Setting Up Auto Scaling: Any Time 63
Provisioning 67
Objectives 68
Provisioning the Database 69
Provisioning an Autonomous Database 70
Start and Stop ADB 78
Objectives 79
Autonomous Database Starting, Stopping, and Scaling 80
Starting an Autonomous Database 81
Manage Users 90
Creating Users in Autonomous Database 91

Changing the Admin Password 92
Create Users with Database Actions 95
Manage Users on ADB 99
Database Consolidation with Elastic Resource Pools 101
Objectives 102
Oracle Autonomous Database 103
About Elastic Resource Pools 104
Lower costs with Elastic Resource Pools 105
Summary 108
Cloning 109
Autonomous Database Cloning 110
Refreshable Clones Key Points to Consider 111
Moving Autonomous Database 112
Moving Autonomous Database Resources 113
Moving an Autonomous Database Resource 114
Creating Alarms and Events 117
Events and Notifications 118
Defining an Event 119
Creating a Topic 120
Creating a Subscription for the Notification 123
Creating an Alarm (CPU Utilization) 128
Backup and Recovery 132
Autonomous Database Backups 133
Backups Available for Recovery 134
Restoring and Recovering Your Autonomous Database 135
Manual Backups 145
Autonomous Database Manual Backups 146
Data Guard 149

Autonomous Data Guard 150
Enabling Autonomous Data Guard 152
Performing a Manual Switchover 156
Automatic and Manual Failover Options 157
Enabling a Cross-Region Autonomous Data Guard 158
Autonomous Database Dedicated 160
Dedicated Infrastructure 160
ORACLE AUTONOMOUS DATABASE 161
Autonomous Database Dedicated: Primary Benefits 162
Autonomous Dedicated Workload Isolation 164
Autonomous Management Model 165
Dedicated Network Architecture 166
Lightweight Local Cloud Control Plane Servers 169
ADB-C@C Gen 2 Network Connectivity 170
Simple Connectivity to the Data Center Network 171
ADB on ExaC@C: Resilience to Disrupted OCI Connectivity 172
ADB on ExaC@C: Database Backup Options 174
Dedicated Infrastructure 175
Autonomous: Private Database Cloud 176
DedicatedAutonomous Database: Exadata Infrastructure 177
Dedicated Autonomous Database 178
Autonomous Database Dedicated General Selection Considerations 179
Autonomous DB Feature Comparison 180
Provisioning Dedicated Resources 182
Setting Up an Autonomous Database: Dedicated Infrastructure 183
Security Lists 187
Creating an Internet Gateway 188
Creating a Route Table for the Application Subnet 189

Provisioning exadataSubnet and appSubnet 190
Setting Up an Autonomous Database: Dedicated Infrastructure 191
Creating an Autonomous Container Database 192
Modifying the Maintenance Schedule 193
Setting Up an Autonomous Database: Dedicated Infrastructure 194
Creating an Autonomous Database on Autonomous Dedicated 195
Selecting an Autonomous Container Database 198
Creating OCI Policies for Autonomous Dedicated 199
Dedicated: Roles 200
Dedicated: Fleet Administrators 201
Dedicated: Developers and DBAs 202
Service Lifecycle 203
Dedicated Private Cloud Fleet and DB Admin IAM setup 204
ADB Dedicated Private Cloud Policy Example 205
Monitoring Dedicated Infrastructure 206
Autonomous Database Management Capabilities 207
ADB-Dedicated: Database Operations Available on Cloud Control Plane 208
ADB-Dedicated: Additional Service Monitoring 209
ADB-Dedicated: Monitor Activities using Events and Notifications 210
Dedicated Infrastructure 211
Autonomous Database – Dedicated 212
ADB-DedicatedUpdate Policy 213
Full Control of Software Versions and ADB placement 214
Autonomous Dedicated Maintenance Scheduling and Preferences 215
ADB-Dedicated Update Policy 216
ADB Dedicated Service Maintenance 217
One-Off Patching – Unscheduled Maintenance 218
Monitor Service Maintenance Events 219

Managing and Monitoring Autonomous Database 220
Using REST APIs to Manage ADB 220
Autonomous Database: REST APIs 221
Using OCI CLI to Manage ADB 227
Autonomous Database: Using OCI-CLI 228
Autonomous Database: Using OCI-CLI Requirements 229
Autonomous Database: OCI CLI 230
Autonomous Database: Using OCI-CLI Supported Services 231
Autonomous Database: OCI CLI –Examples 232
Patching, Upgrades and Services 236
ADB Serverless Patching and Upgrades 237
Predefined Services Minimize Application Impact 239
Transparent Application Continuity 240
Setting Up ACLs and Private Endpoints 241
Securing Application Connections with ACLs 242
Setting Up an ACL 244
Private Endpoints 252
To Set Up Private Endpoints with ADB 254
Network Security Group 255
Monitoring Autonomous Database Performance 257
Monitoring Performance from the Cloud Console 258
Setting Up Service Notifications 263
Notifications 264
Setting Up Notifications 265
Configure Announcement Subscriptions 267
Managing Encryption Keys 270
Data Encryption and Key Management 271
End-to-End Data Protection 273

Auto Indexing 274
Auto-Index Creation Is Inherently Better 275
Continuous Optimization: Using Machine Learning 276
Automatic Indexing 277
Configuring and Monitoring Automatic Indexes 278
Data Safe 280
Oracle Data Safe 281
Security Zones of Control 282
Database Security Assessment 283
Detecting configuration drift 284
User Risk Assessment 285
Detecting user and entitlement drift 286
Activity Auditing 287
Sensitive Data Discovery 288
Sensitive Data Masking 289
Data Safe: Example 290
Compartment Quotas 293
Service Limits and Compartment Quotas 294
Compartments 302
Compartment Quotas 303
Compartment Quotas for Autonomous DB 305
Compartment Quotas 306
Connectivity 307
ADB Connectivity 308
mTLS 309
TLS 310
Connecting JDBC Thin or Universal Connection Pool 312
JDBC Thin URL 313

JDBC Thin Connections with an HTTP Proxy 314
Connecting to ADB Using JDBC 315
Two Helper Connection Samples 318
Executing DRCPSample 319
Executing UCPSample 320
Using SQLNet Connections 321
Python, Node.js, and Other Scripting Languages 322
Connecting to ADB Using SQL Developer Client and built-in Database Actions 323
Connect to ADB Using SQL Developer (Desktop) 324
Connect to ADB Using SQL Developer 330
Connect to ADB Using SQL Developer (Desktop) 332
Connect to ADB Using Database Actions 333
Connect to ADB Using Built-In Database Actions 334
User Management UI - Granting Access to Database Actions 336
Command-line Workflow for Granting Access to Database Actions 337
Connect to Autonomous Database 338
Predefined Database Service Names 339
Connecting to Autonomous Database 340
Autonomous Database Connectivity Options 341
Connecting to an Autonomous Database 345
Connecting to Autonomous Database 346
Autonomous Database Credentials 348
Downloading Autonomous Database Credentials 349
Wallet Management and Expiration 351
Configuring Disaster Recovery (Autonomous Data Guard) 357
Fully automated data protection 358
Fully automated protection that supports different SLAs 362
Autonomous Dedicated: Autonomous Data Guard (AuDG) 363

Autonomous Dedicated: Autonomous Data Guard 364
Autonomous Data Guard Policy 366
Autonomous Database Tools 367
Oracle Autonomous Database Tools 367
Objective 368
Oracle Autonomous Database 369
Database Actions 370
Autonomous as a Development Environment 371
SQL Developer 372
APEX 373
REST 374
JSON 375
SQLcl 376
Data Studio 377
Catalog 378
Data Load 379
Data Share 382
Database Actions 383
Machine Learning Notebooks 384
Database Actions 385
Graph Studio 386
APEX 388
APEX integrated into Autonomous Database 389
APEX: Rapid Schema Design with Quick SQL 392
Creating New Apps with APEX Easy As 1-2-3 393
APEX: Take advantage of sample apps 394
Database Actions 395
Database Actions 396

Autonomous Database with Oracle Machine Learning 400
Introduction to AutoML 401
AutoML in OML4Py 402
The OML AutoML UI Pipeline 403
Algorithm Selection 404
Feature Selection 405
Model Tuning 406
Business Model 407
AVs Drive Analytics 408
Without a Common Business Model 409
Analytic Views in the Database Promotes Consistency 410
Performance: Analytic views Optimize Query Processing 411
Data Analysis 412
Demo 413
Oracle Autonomous Database Tools 416
Evolve to Become a Unified Data Management Platform 417
Data Insights 418
Demo 420
Data Insights 421
Demo 422
Catalog 423
Oracle Autonomous Database Data Studio 425
How to simplify Analytics with Data Studio 426
What if my data is ... 427
Simplify the analytic workflow with Data Studio 429
Search, discover and understand data with Data Studio Catalog 436
Summary 437
Developing on Autonomous Database 438

Gain Business Insights Instantly. Just Ask Your Database. 438
Oracle can bring AI to the enterprise at every layer of our stack. 439
Generative AI Use Cases Across Business Functions 440
Select AI Summary 441
Agenda 442
Autonomous Database Select AI 443
Select AI 444
Demonstration 446
Chat with your data 447
Developing Apps with Select AI 448
Historically, Answering These Types of Questions Has Not Been Easy 449
Select AI Translates Your Language into Oracle SQL Language 450
Easy to Extend and Build New Natural Language Apps 451
Have a Conversation to Get Your Questions Answered 452
Future-Enabled: Easy to Configure Your Data for Natural Language Queries 453
SQL Query Generation Process Flow 454
Demonstration 455
Generative AI models 456
Get Better Results 457
Enhance GenAI with Context from Private Data 458
Create Clear Prompts for the LLM 459
Analyze Data Using Your AI 461
Key Takeaways 462
Natural Language Queries Just Ask Your Database 463
Oracle can bring AI to the enterprise at every layer of our stack. 464
Agenda 465
Autonomous Database Select AI 466
Select AI 467
Demonstration 468

Chat with your data 469
Select AI 470
Select AI Translates Your Language into Oracle SQL Language 471
Easy to Extend and Build New Natural Language Apps 473
Have a Conversation to Get Your Questions Answered 474
Future-Enabled: Easy to Configure Your Data for Natural Language Queries 475
Easy to Configure Your Data for Natural Language Queries 476
SQL Query Generation Process Flow 477
Key Takeaways 478
Oracle Autonomous JSON Database 479
Converged Database 480
Autonomous JSON Database 481
Why Store JSON? 483
Why JSON? 484
Autonomous Database Workloads 485
Autonomous JSON Database Pricing and Performance 486
Autonomous JSON Database 487
The power of SQL meets the schema flexibility of JSON 489
Duality Views - Paradigm shift in App development 490
The power of SQL meets the schema flexibility of JSON 491
Autonomous Database Is MongoDB Compatible* and More 492
Oracle Database API for MongoDB 493
Document Collections 494
Oracle API for MongoDB 495
SQL Only When It Is Needed 499
Summary 500
Using Oracle Text 501
Oracle as a Document Store 502
Oracle Text is a standard part of all versions and editions of Oracle Database. 503

Oracle Text 504
Full Text Indexes 505
Full Text Queries: 1 506
Full Text Queries: 2 507
Full Text Queries: 3 508
Oracle Textin Oracle AutonomousDatabase 509
Handling Text Anywhere 510
The Indexing Pipeline 511
Creating and Using a Simple Oracle Text Index 512
Faceted Navigation 513
Beyond the Text Index 514
Text Analytics 515
23AI Oracle Hybrid Vector Index 516
Hybrid Vector Index | Overview 517
23AI Oracle Hybrid Vector Index 518
Hybrid Vector Index | JSON paths to vectorize 519
Developing on Oracle Autonomous Database 520
Objectives 521
Spatial Data Management in ADB 522
What Is Spatial Data? 523
Spatial: It Is About Location and Spatial Relationships 524
Native Spatial Data Management, Processing, and Analysis 525
Geocoding on Autonomous Database Serverless 526
What Is Spatial Studio? 527
How to Get Spatial Studio with ADB 528
Performing Spatial Analysis 529
Visualizing Results 530
Publishing and Sharing 531
Summary 532

Objectives Completed 533
Using Graph in Oracle Autonomous Database 534
Property Graph Data Model 535
Model Data in Tables as a Graph 536
Graph Data Model 537
What can you do with graphs? 538
Graph Customers 540
Create Graph, Query, Analyze, and Visualize 541
Model Data in Tables as a Graph 542
What Is PGQL? 543
Property Graph Query Language 544
Find Cycles 545
Find Paths 546
Graph Analytics: Nearly 60 Prebuilt Algorithms 547
Find Important Vertices 548
Graph Visualization 549
Find Important Vertices 548
Graph Visualization 549
Using Graph Studio 550
Graph Studio 551
Working with Graphs in User-Managed Databases 552