ORACLE

ADB Cloud Database Professional 2023

Get Started – Exam 1Z0-931-23

Marcel Lamarca
Exadata Cloud Specialist
Oracle, Alliances and Channels LAD

April, 2024

SQL> select * from person where name = 'Marcel Lamarca'

SCAN ME

MARCEL LAMARCA

Exadata Cloud Specialist

Upgrade, Utilities, Patching, Performance & Migrations

marcel-lamarca

marcel.lamarca@oracle.com

About My Career

- 22 Years dedicated to study and support Oracle Databases.
- 12 Years working with Exadata (On-prem, C@C and Cloud Services) .
- 5 Year working for Oracle do Brasil
- 2 Year on Alliances LAD knowledge Team

Certifications

Oracle Cloud Specialist (OCS)

- Exadata Database Machine X9M Certified Specialist
- OCI Foundation 2020 / 2023
- Oracle Autonomous Database Administrator Professional 2019 / 2023
- Oracle Cloud Database Migration and Integration 2021
- OCI Cloud Certified Architect Associate 2022
- OCI Cloud Certified Architect Professional 2022
- OCI Multi-Cloud Architect Professional 2023
- Oracle Database Services Certified Professional 2023

Oracle Certified Professional (OCP)

- Oracle Database certified professional 10g, 11g, 12c and 19c.
- Mysql 8.0 Database Administrator Certified Professional

Oracle Certified Specialist (OCE)

- Grid/RAC Database Administrator 11g
- Oracle Golden Gate 12c Certified Implementation Specialist

Agenda

1. Oracle database 23c! What is new ?
2. Upgrade to 23c
3. Resources
4. Demos

1Z0-931-23 : Autonomous Database 2023 Cloud Professional

SCAN ME

- Number of Questions **60**
- Format **Multiple Choice**
- Duration **90 minutes**
- Passing Score **65%**

Autonomous Database 2023 Cloud Professional exam topics

Autonomous Database Technical Overview

- Describe Autonomous Database architecture, integrations, and license types
- Articulate the key features of Autonomous Database
- Understand the Oracle Cloud Infrastructure
- Describe the Different Autonomous Database offerings

Autonomous Database (ADB) Shared

- Create Autonomous Database Shared Instances - provisioning, scaling OCPU and storage, start, stop, and cloning and moving refreshable clones
- Manage users
- Monitor Autonomous Database Shared instances - events and alarms
- Manage Autonomous Database Shared Backups and Restores

Managing and Maintaining Autonomous Database

- Manage Autonomous Database instances: REST APIs, OCI CLI, moving resources
- Use Access Control Llist (ACL) and Private End Points
- Monitor ADB performance and set up service notifications
- Monitor ADB auto-scaling
- Use services in ADB: auto-indexing, data safe, compartment quotas
- Use ADB connectivity: Wallets, service handles
- Use Marketplace Developer image to connect to ADB, use ADW with third-party tools
- Configure Disaster Recovery (Data Guard) - both Shared and Dedicated

Autonomous Database Tools

- Describe Autonomous Database Tools
- Use Autonomous Database with Oracle Machine Learning, APEX, and SQL Developer Web (Database actions)
- Use Data Load and Data Transforms
- Create Business Models
- Apply Data Insights
- Explore Catalog

Autonomous Database 2023 Cloud Professional exam topics

Developing an Autonomous Database

- Use Autonomous JSON Database
- Use Oracle Text
- Use Oracle Spatial
- Use Graph Studio
- Integrate Object Storage data

Migrating to Autonomous Database

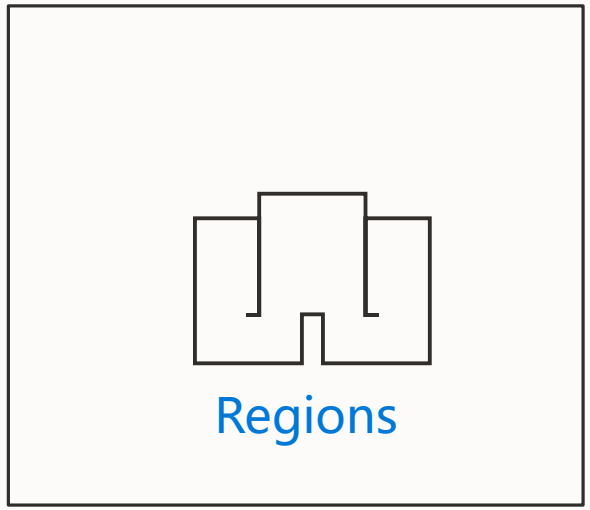
- Describe the options and considerations for migrating to Autonomous Database
- Migrate to Autonomous Database using Data Pump

Autonomous Database Dedicated & Autonomous Database Cloud @ Customer

- Describe ADB Dedicated and ADB Cloud@Customer resources, workflows, and functionality
- Provision Dedicated ADB (ADB, Exadata, Container DB, VM Cluster for Cloud @ Customer)
- Monitor Dedicated Infrastructure
- Manage maintenance scheduling (patching)
- Manage encryption keys

OCI Basic Concepts

OCI Regions

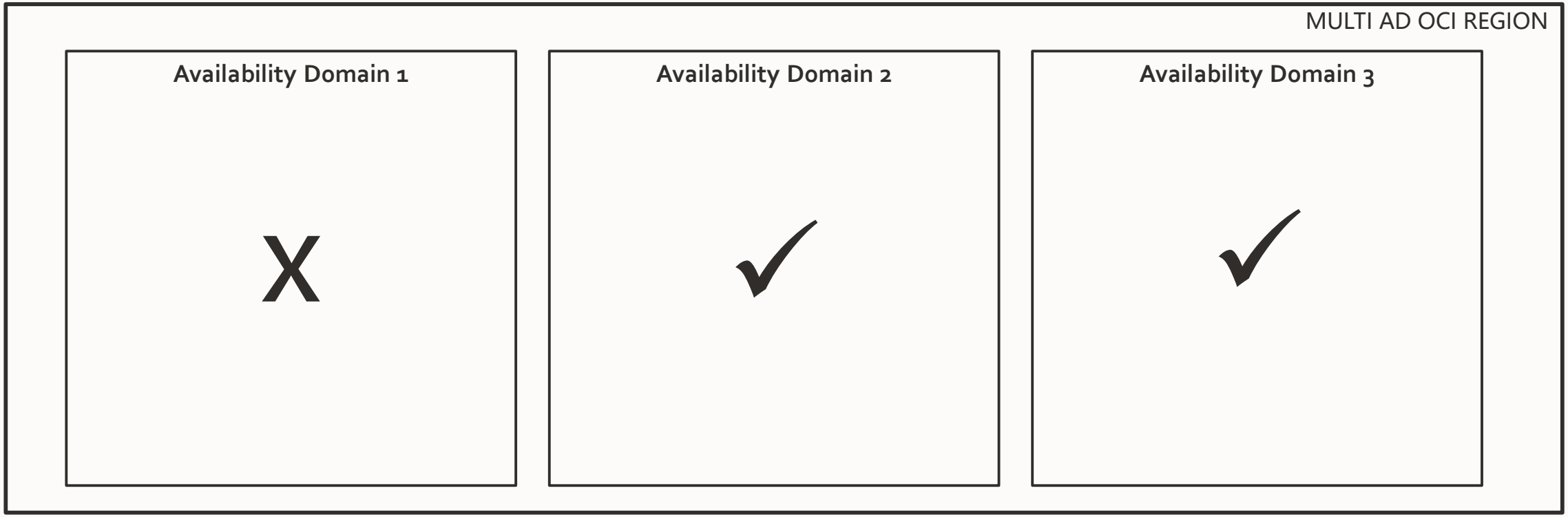


Localized geographic area, comprised of one or more Availability Domains (AD)

AD – Availability Domain

- Availability domains are **isolated from each other,** fault tolerant, and very unlikely to fail simultaneously.

- Because availability domains **do not share physical infrastructure, such as power or cooling, or the internal availability domain network,** a failure that impacts one AD is unlikely to impact the availability of the others



OCI Policy

- Authorization specifies various actions an authenticated Principal can perform
- OCI Authorization = Policies
- Policies are written in human-readable format:

OCI Policy

- Allow Ex:*<identity_domain_name>*/*<subject>* to *<verb>* *<resource-type>* in *<location>* where *<conditions>*

- Allow group <group_name> to <verb> <resource-type> in tenancy Allow group <group_name> to <verb> <resource-type> in compartment compartment_name> [where <conditions>]

OCI Policy

- Allow Ex:*<identity_domain_name>*/*<subject>* **to <verb>** *<resource-type>* in *<location>* where *<conditions>*

- Allow group <group_name> to **<verb>** <resource-type> in tenancy Allow group <group_name> to <verb> <resource-type> in compartment compartment_name> [where <conditions>]

Verbs Are : Use, Inspect, Manage, Read

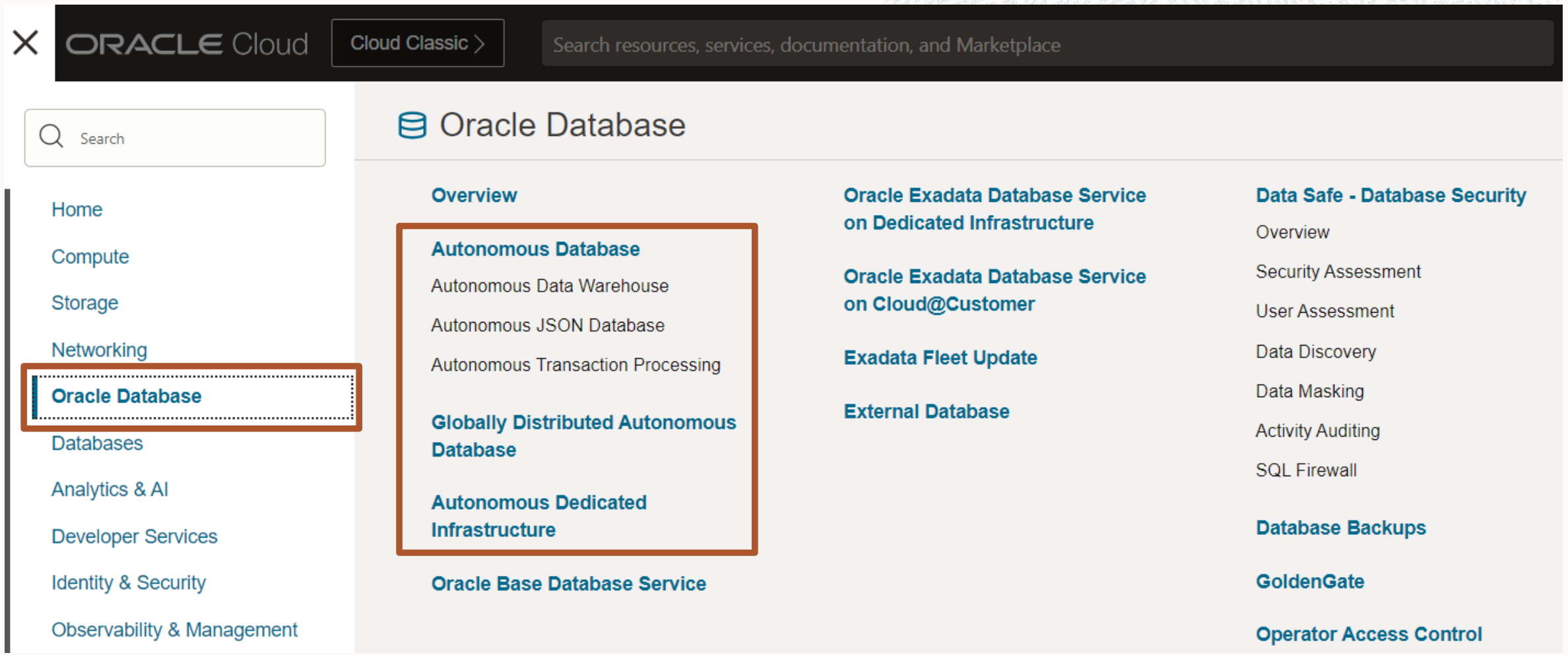
OCI Policy

- Allow Ex:*<identity_domain_name>*/*<subject>* **to <verb>** *<resource-type>* in *<location>* where *<conditions>*

- Allow group <group_name> to **<verb>** <resource-type> in tenancy Allow group <group_name> to <verb> <resource-type> in compartment compartment_name> [where <conditions>]
- Allow group adb-admins to **manage autonomous-database** family in tenancy

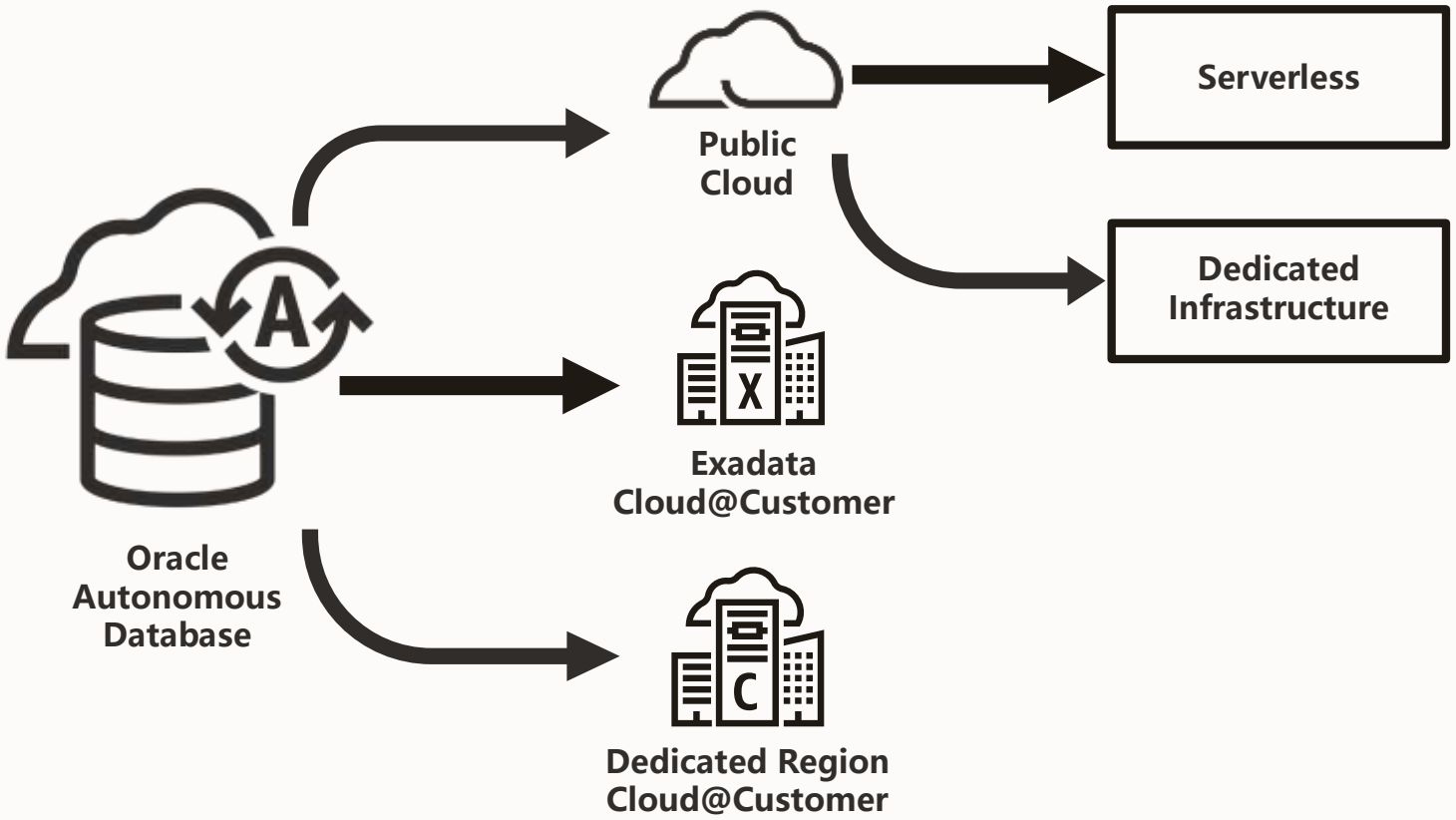
Autonomous Deploy Options

Autonomous Database on OCI Menu



Multiple deployment choices

The most complete support for hybrid cloud strategies



Oracle Public Regions

Hyperscale cloud regions in more than 40 worldwide locations

Dedicated Regions

All OCI services, running in customer data centers

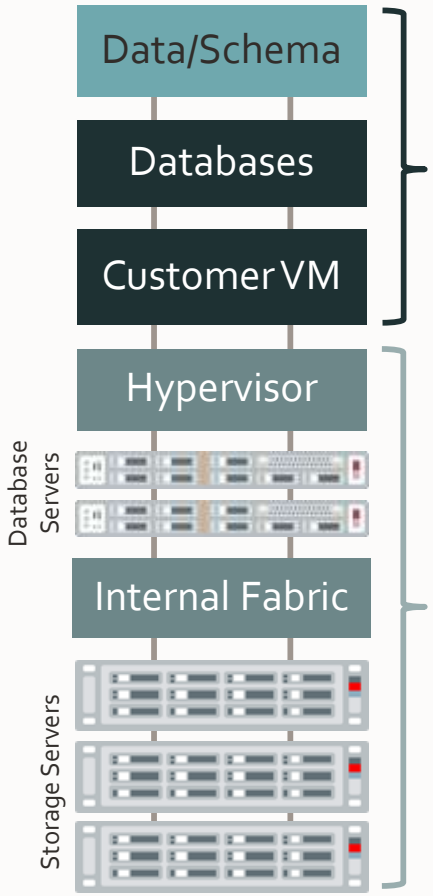
Exadata Cloud@Customer

Cloud Autonomous Databases, running in your data center

Understanding Serverless and Dedicated concepts is crucial to have to this exam !

Autonomous Database Dedicated

Simple Cloud Management Model in at Customer Cloud



Customer owns everything inside database

- Data, schema, encryption keys

Customer subscribes to database services

- Customer manages VMs and Databases using Cloud Automation (UI / APIs)
- Automation to create, delete, patch, backup, scale up/down, etc.
- Runs all supported Oracle Database versions 12.1.0.2, 12.2.0.1, 19c and 21c
- Customer controls access to customer VM
- Customer can install and manage additional software in customer VM
- Oracle staff are not authorized to access customer VM

Oracle owns and manages infrastructure

- Hypervisor, database and storage servers, storage network
- Patching, security scans, security updates
- Monitoring and maintenance
- Customer not authorized to access Oracle infrastructure

Exadata Cloud Domo Patching

DOMo - ORACLE RESPONSIBILITY

Oracle manages quarterly infrastructure maintenance updates of all other infrastructure components:

- Patching Database Servers (Dom0).
- Patching Storage servers.
- Patching Network switches.
- Patching Control Planes.

Quarterly maintenance updates may require a restart of the customer-managed guest virtual servers.

Quarter 1	Quarter 2	Quarter 3	Quarter 4
☑ JANUARY	☑ APRIL	☑ JULY	☑ OCTOBER
☑ FEBRUARY	☑ MAY	☑ AUGUST	☑ NOVEMBER
☑ MARCH	☑ JUNE	☑ SEPTEMBER	☑ DECEMBER

Autonomous Dedicated installation steps

Autonomous Dedicated

1- Exadata Infrastructure

- Feet Administrator provision Infrastructure

2 - Autonomous Containers

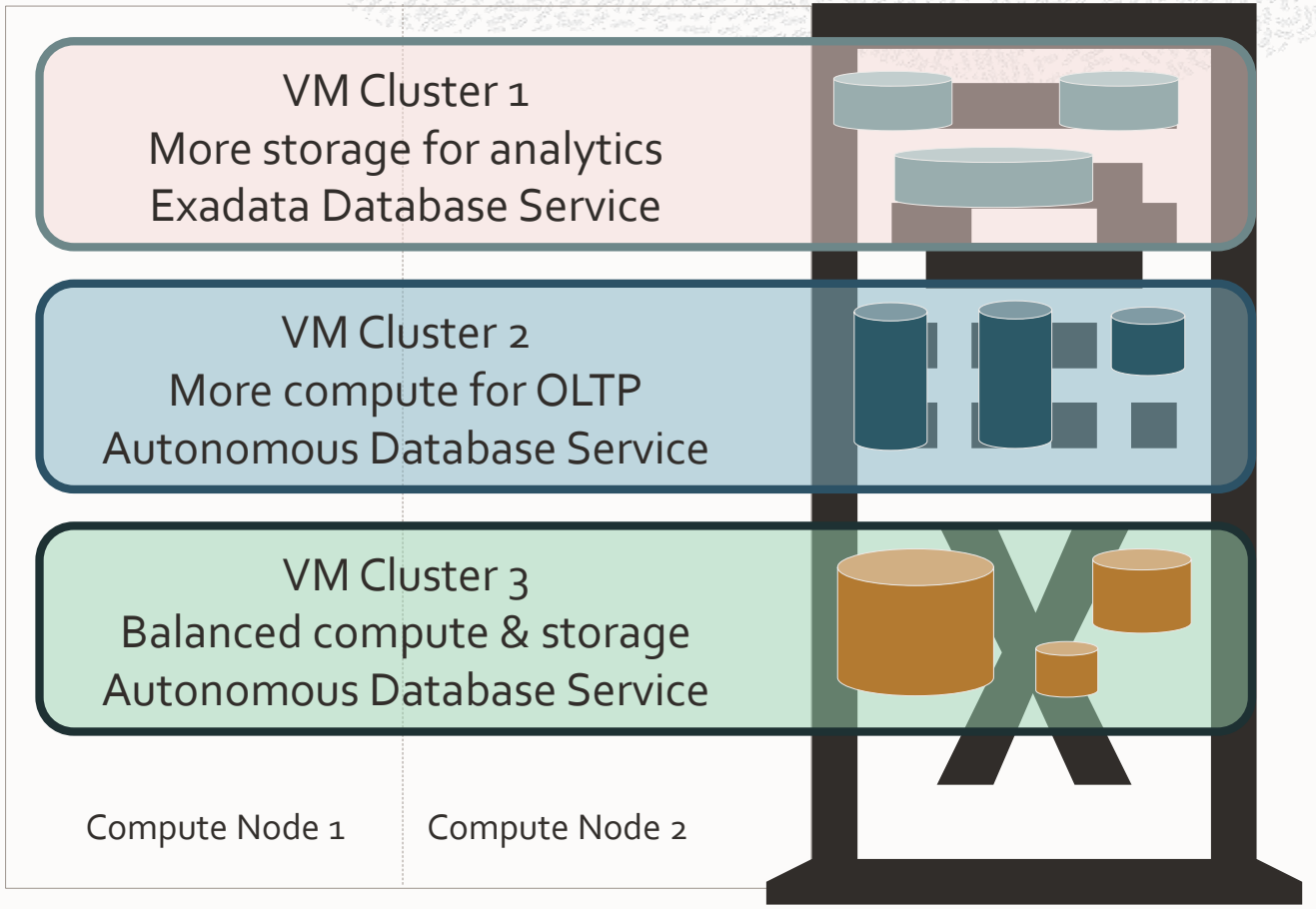
- Partition System by provisioning Clusters and containers

3 –Database Provisioning

DBA's, Devs provisioning database with container Databases

About Autonomous Database Containers On dedicated

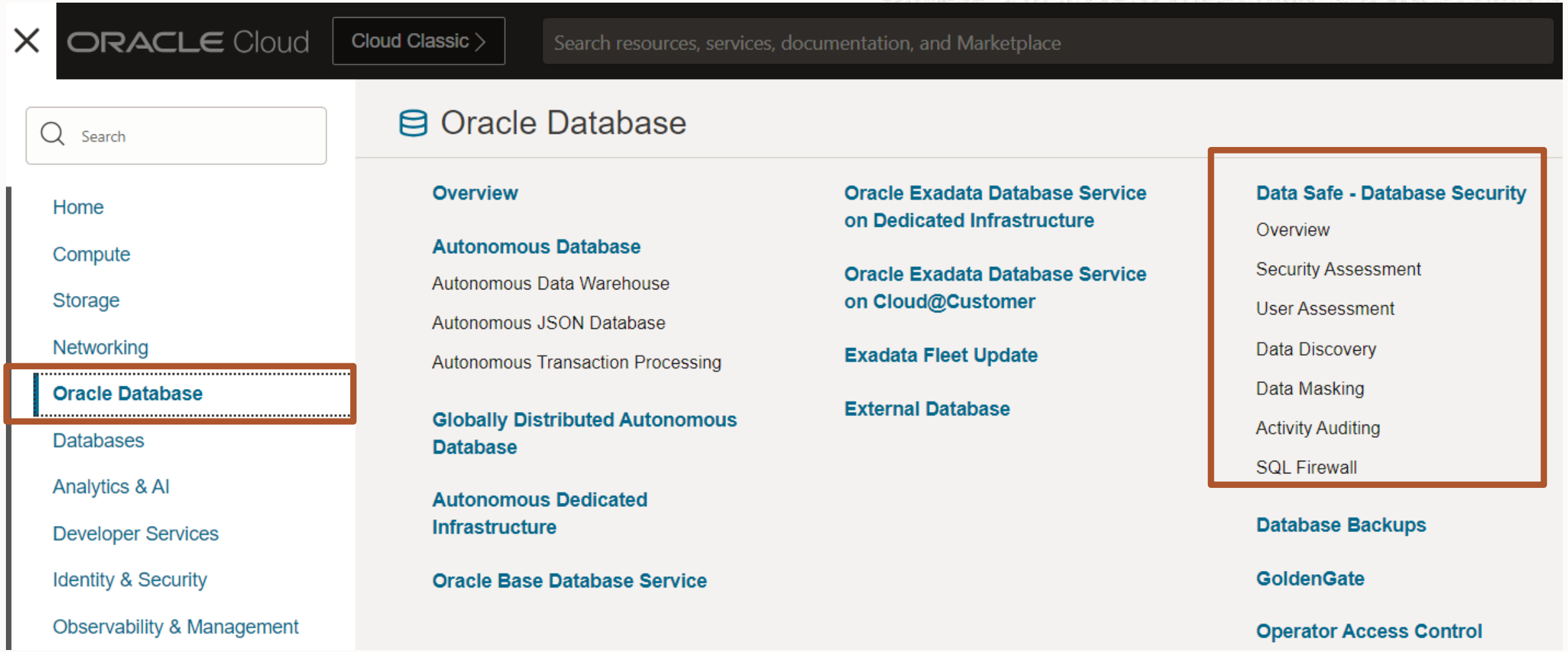
1. Autonomous Container isolates Autonomous Databases and Exadata Cloud VM Clusters.
2. Autonomous Container Database maximum of12 per VM Cluster
3. Each VM cluster can be used for either Autonomous or Exadata Database Service
4. Autonomous CPU scale is limited by Exadata Hardware and shape
5. Auto Scaling enables the database to use up to 3x CPU/IO workloads
6. Auto Scaling is enabled by default



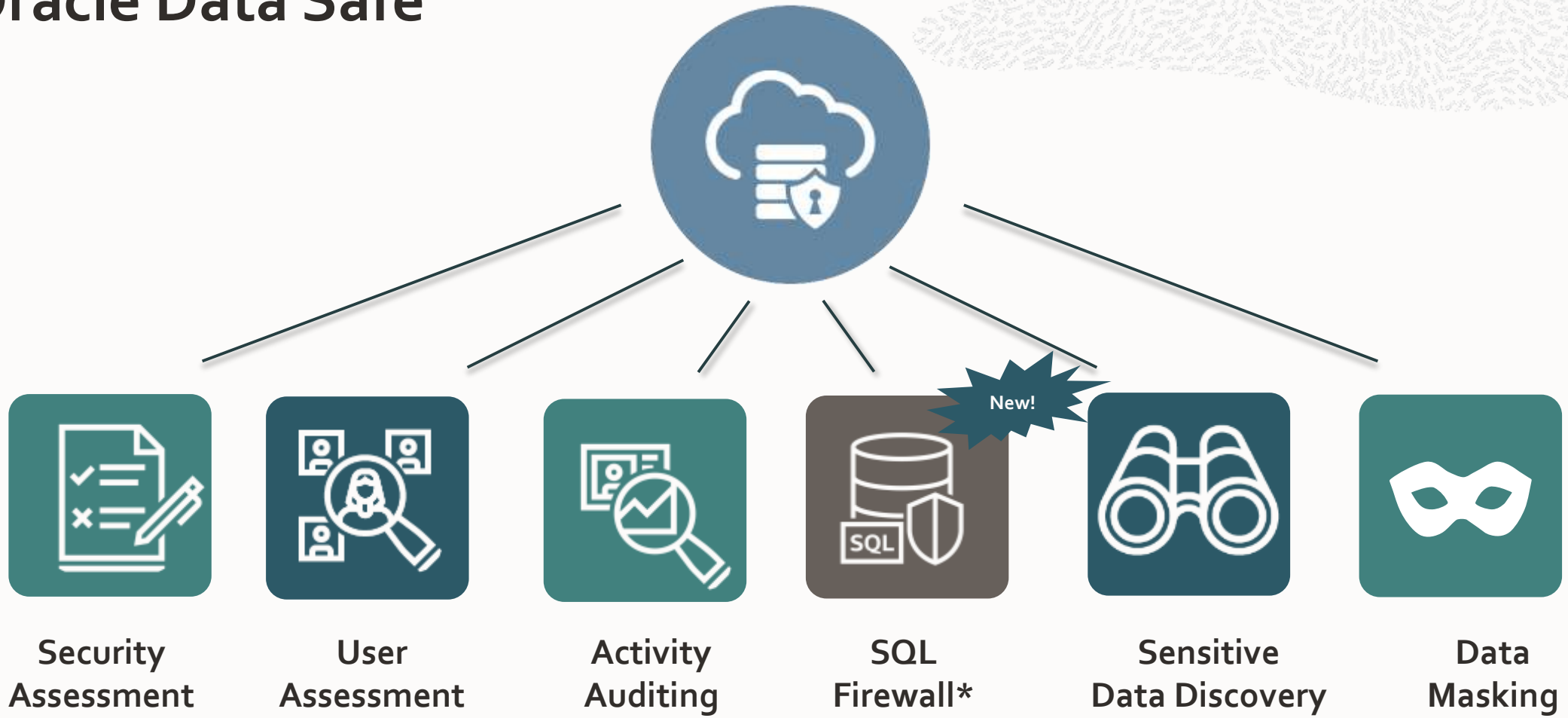
Available on Exadata Cloud@Customer Infrastructure X7 through X10M

Oracle Data Safe

Oracle Data Safe on OCI menu



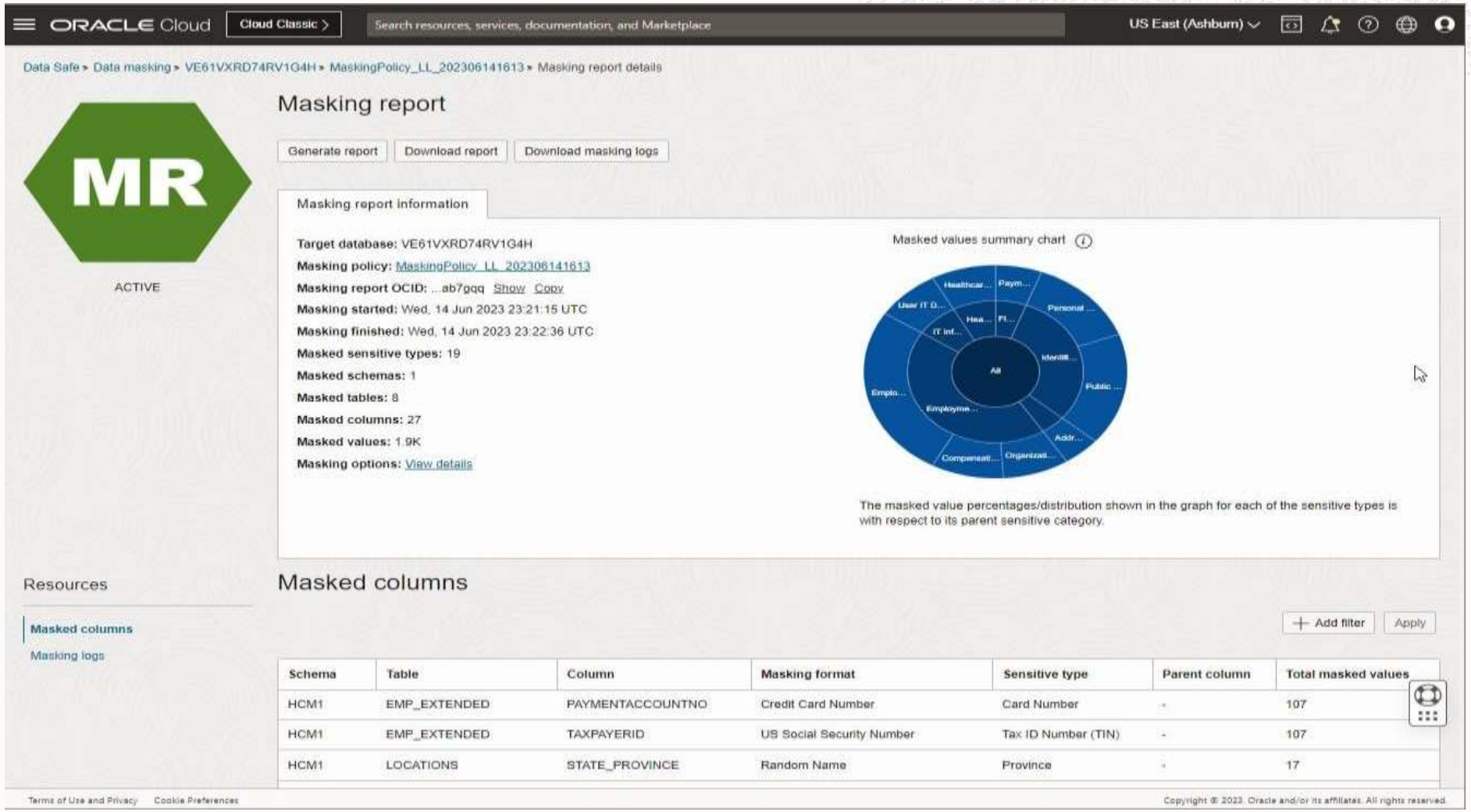
Oracle Data Safe



Available for 23c databases only

Sensitive Data Mask

Sensitive Data Discover Dashboard



Sensitive Data Mask

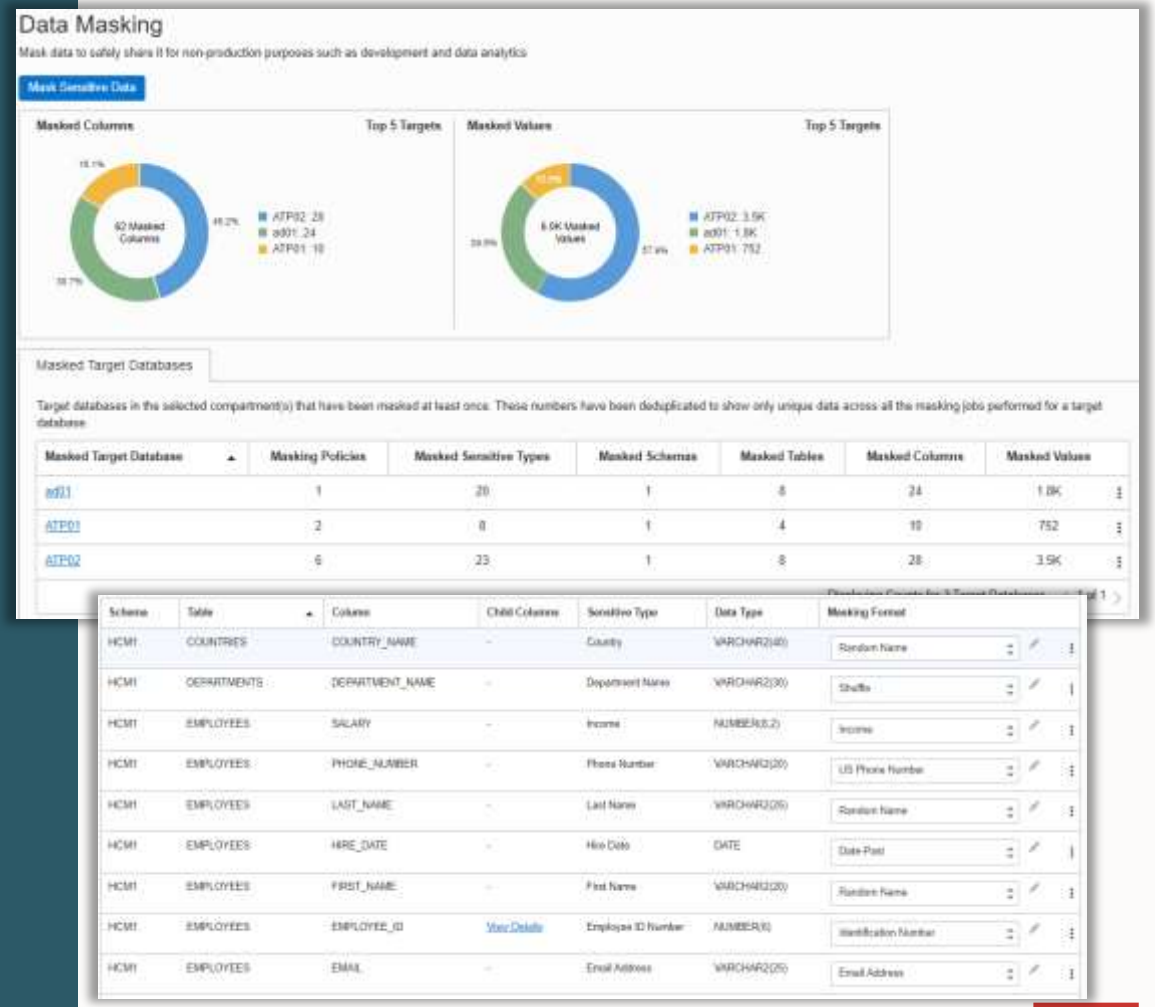
- Mask data identified as sensitive

  - 50+ predefined masking formats
  - Automated format selection based upon sensitive type
  - Optional user-defined masking formats

- Rich masking transformations for complex cases

- Masking report

- Minimize sensitive data exposure for dev & test, partners, analytics databases



Sensitive Data Mask

- Pre-defined masking formats
- **Specific masking formats** like
  - social security number
  - credit card number
  - email address

  etc.
- As well as **generic masking formats**
  - random date, number, name, ...
  - fixed number, fixed string
  - format preserving randomization
  - regular expression
  - truncate data
  - group masking

  etc.

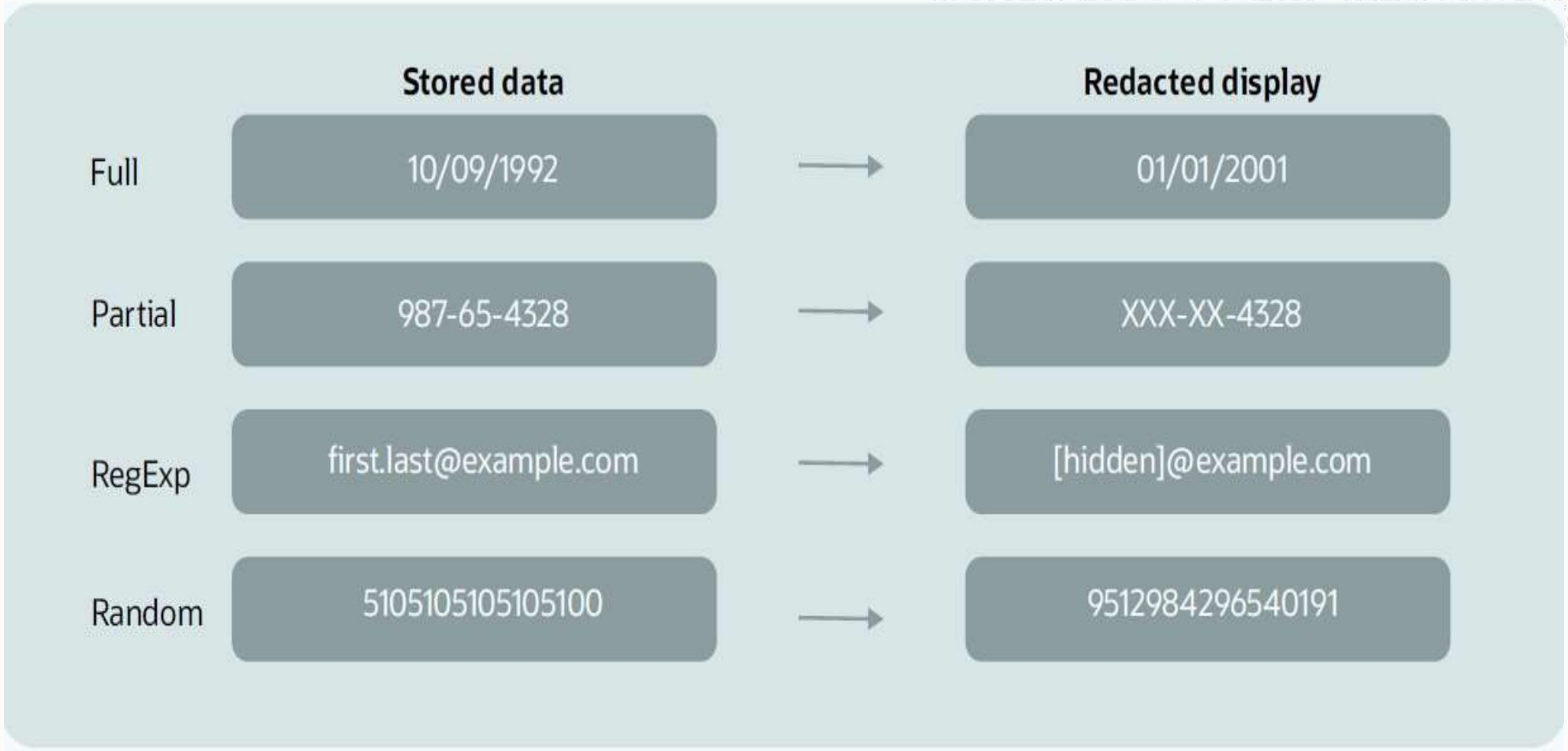
Masking Formats

Masking formats define the logic for masking data. This page lists the user-defined masking formats in the selected compartment, along with all the predefined masking formats. Learn more

Create Masking Format

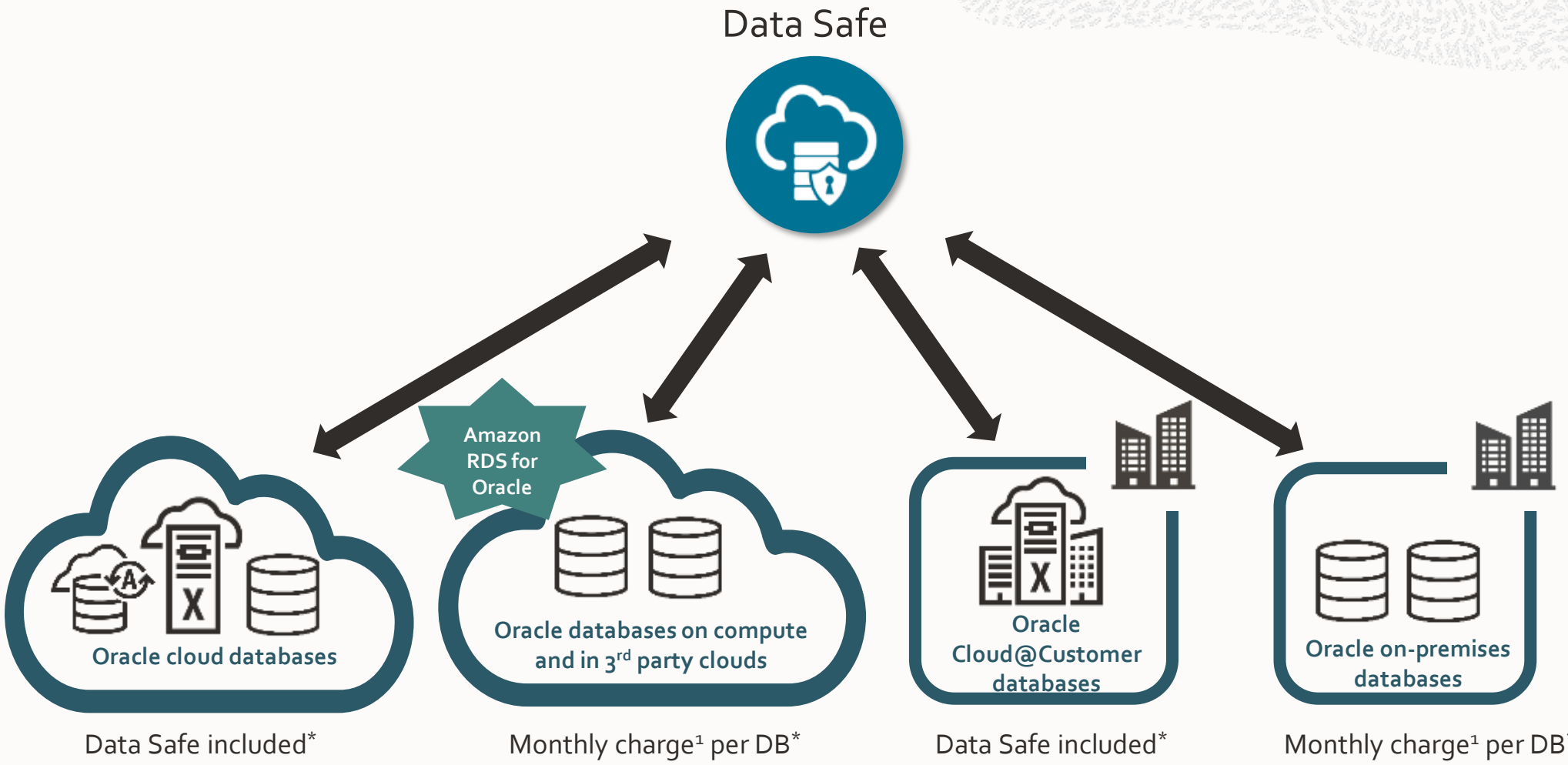
Name	Description	Oracle Predefined
Age	Replaces values with random numbers between 0 and 110	Yes
Bank Account Number	Replaces values with random 9 to 16 digit numbers	Yes
Bank Routing Number	Replaces values with random 9-digit numbers	Yes
Betting	-	No
Blood Type	Replaces with values picked randomly from a list. Possible values are A+, A-, B+, B-, AB+, AB-, O+, and O-	Yes
Canada Postal Code (Space-Separated)	Replaces values with random Canada postal codes. Postal codes are in ASA ASA format, where A signifies a letter and 9 a digit	Yes
Canada Social Insurance Number	Replaces values with random Canada Social Insurance Numbers	Yes
Canada Social Insurance Number (Hyphenated)	Replaces values with random Canada Social Insurance Numbers. Social Insurance Numbers are in 999-999-999 format, where 9 signifies a digit	Yes
Credit Card Number	Replaces values with random credit card numbers. Card types covered are American Express, Diners Club, Discover, enRoute, JCB, Mastercard, and Visa	Yes
Credit Card Number (Hyphenated)	Replaces values with random hyphenated credit card numbers. Card types covered are American Express, Diners Club, Discover, enRoute, JCB, Mastercard, and Visa	Yes
Credit Card Number (Type and Format Preserving)	Replaces values with random credit card numbers while preserving their type and format. Card types covered are American Express, Diners Club, Discover, enRoute, JCB, Mastercard, and Visa. For other card types, preserves the number of digits and Luhn's check but may not preserve the card type	Yes
Credit Card Number-American Express	Replaces values with random 15-digit American Express credit card numbers	Yes

Data Redaction format sample



Oracle Data Avalable to all Oracle Databases

Data Safe is available for all your Oracle Databases



*Includes 1M audit records per database per month; $0.10 per 10K records over the limit

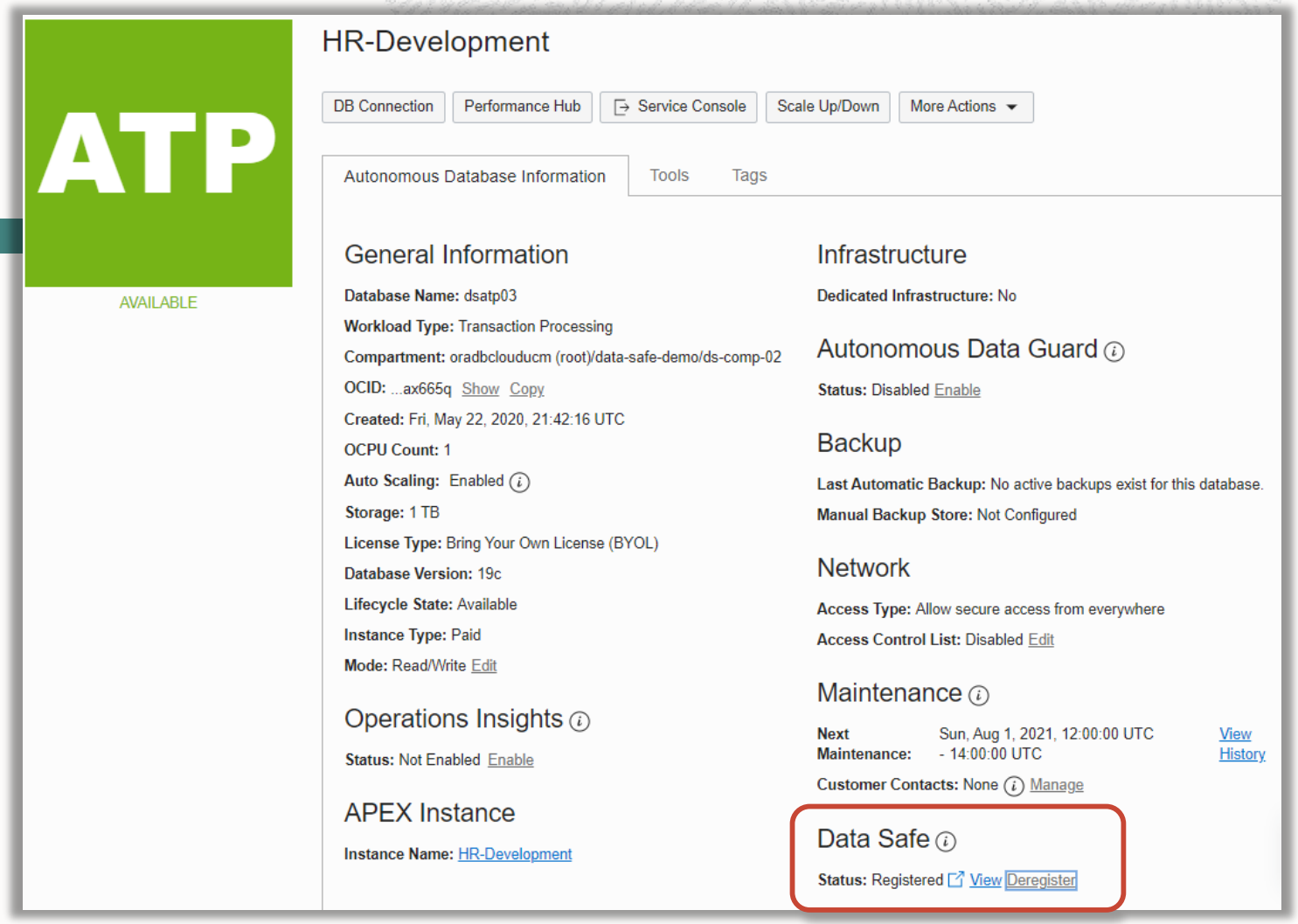
[1] tiered pricing applies (price list)

Three options to register databases with Data Safe

in the DB console
(Autonomous only)

Target registration wizards/
manually in Data Safe

via REST APIs / other interfaces



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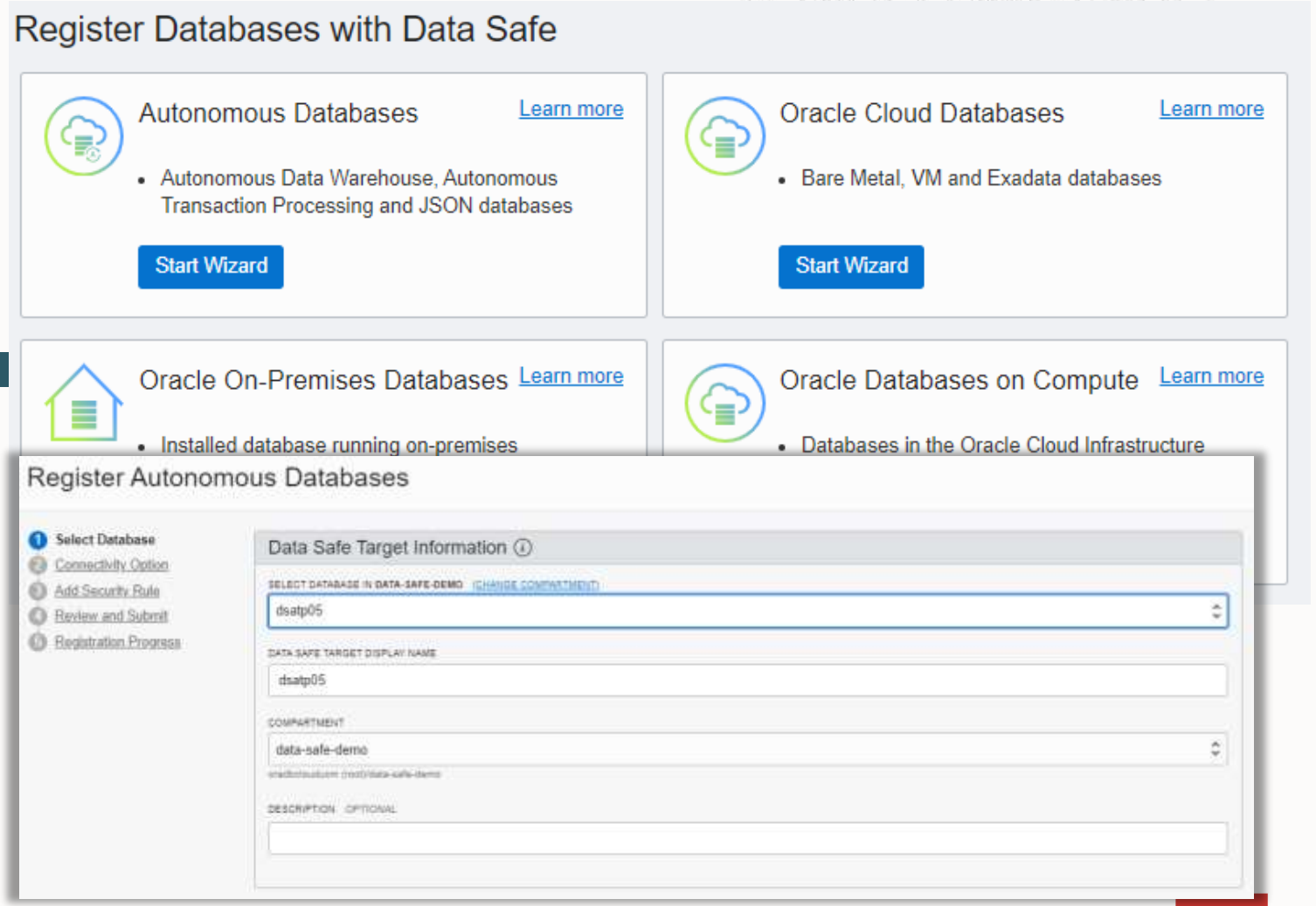

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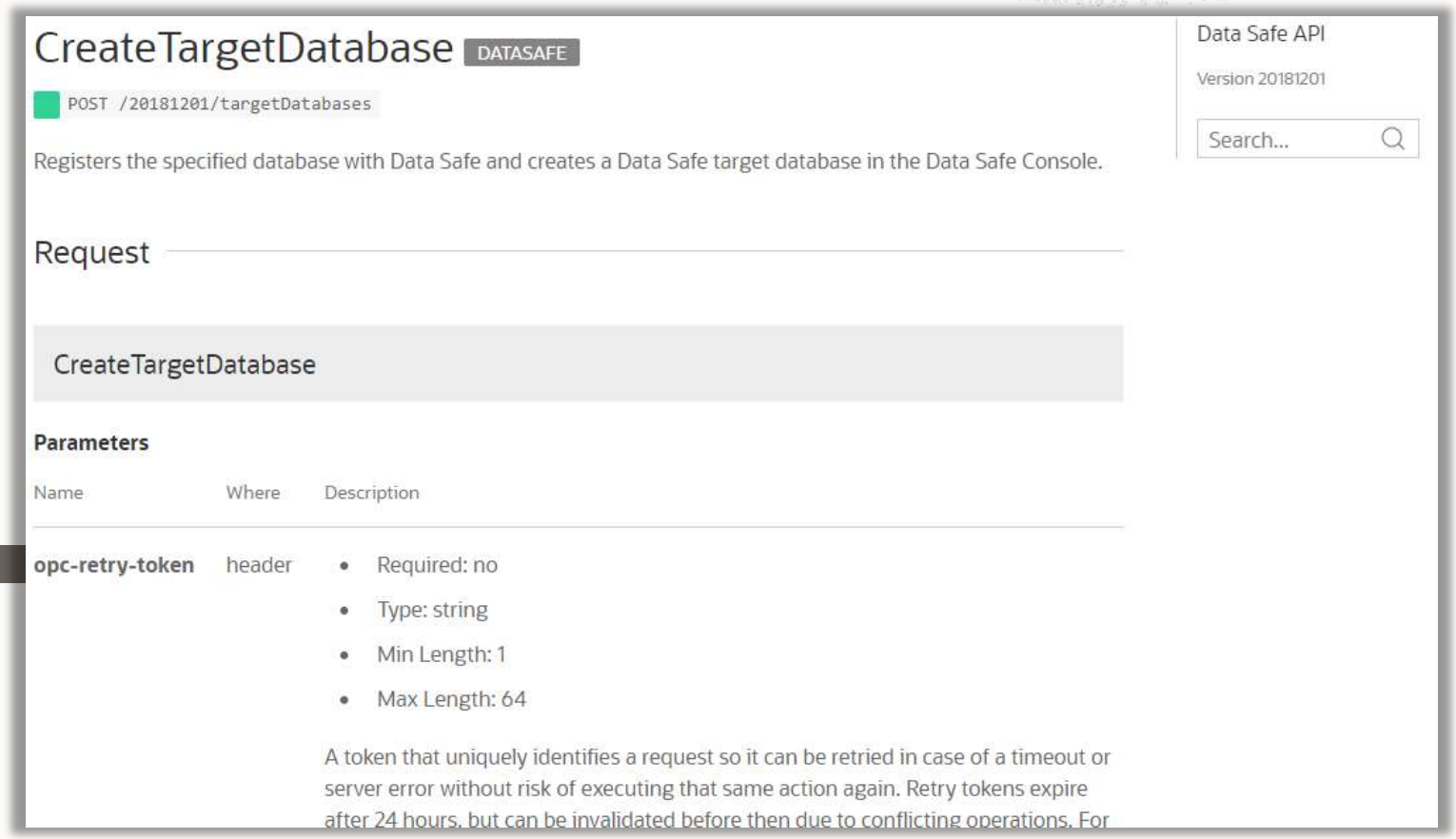


Autonomous Database Features

Spatial Studio

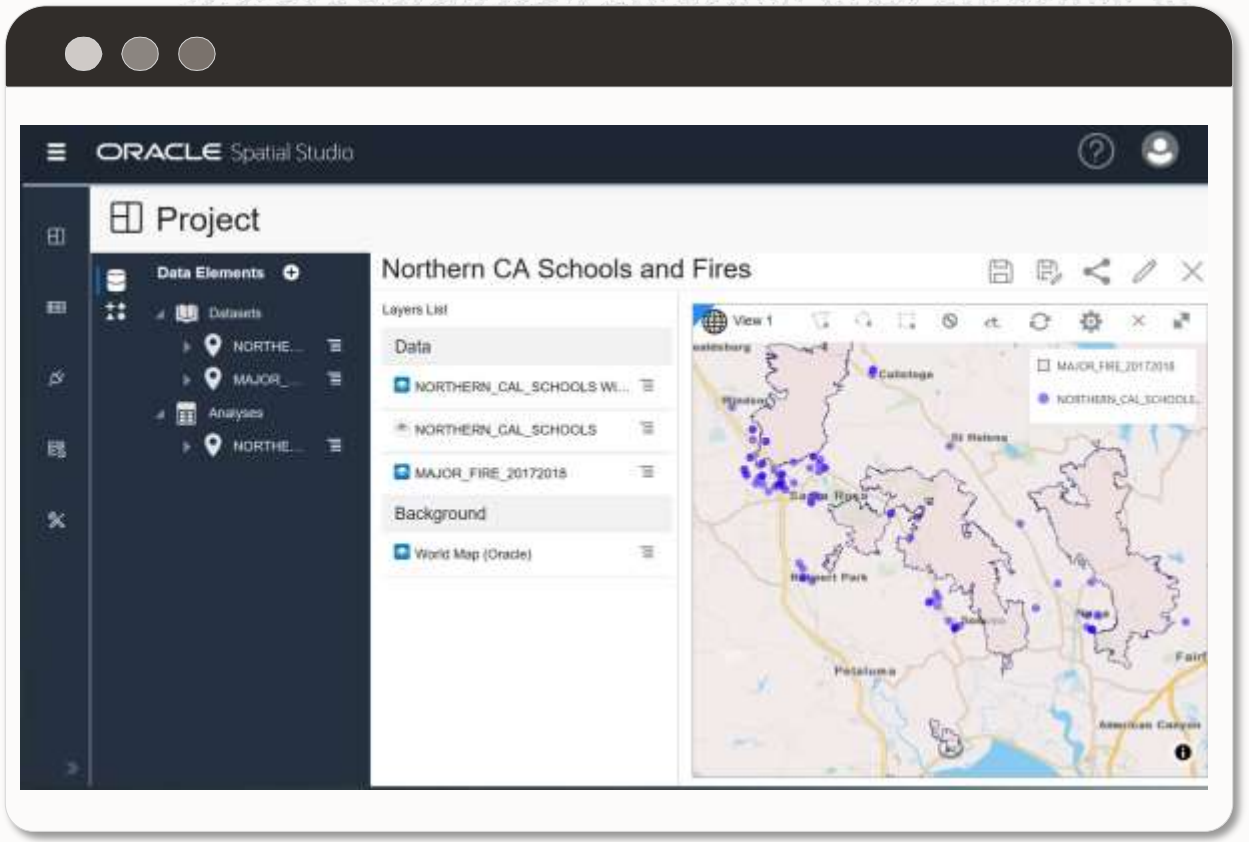
Spatial Studio is a browser-based, self-service application to create interactive maps and perform spatial analysis on business data quickly and easily.

Key features

- Access data in Oracle Database, or load from several popular formats (Excel, Shapefiles, GeoJSON, KML)
- Prepare data (geocode addresses and create indexes), and create maps to visualize and explore data
- Analyze data using 100s of spatial operators

Key benefits

- Analysts and business users can easily visualize, explore, and analyze geospatial data - with no coding
- Developers can easily prepare data and create spatial analyses and analytic workflows
- Share map projects and spatial analyses with other applications such as Oracle Analytics Cloud, for further analysis and insight



Autonomous Database's Data Studio in action

Quick demo

AutoML UI

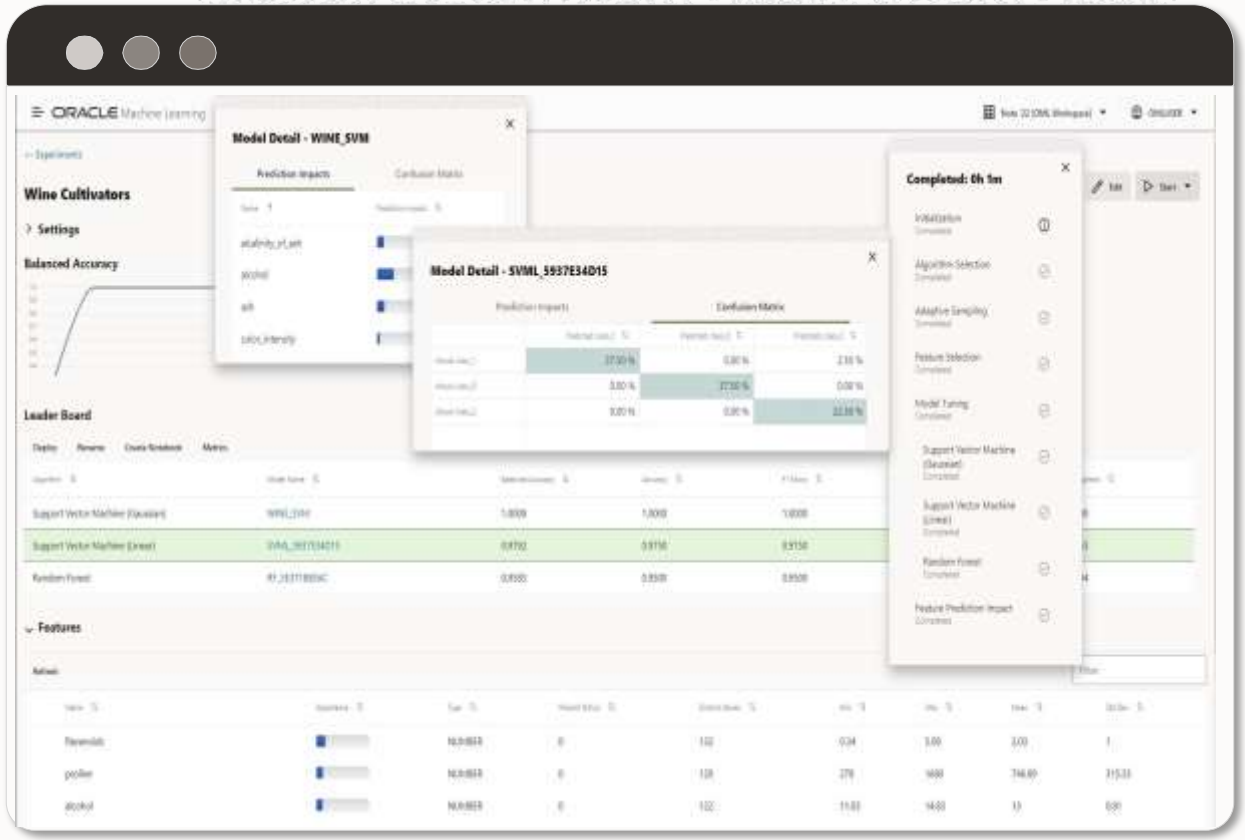
AutoML UI automates Machine Learning model building and evaluation through user interface.

Key features

- Building and evaluative ML models without writing code and with minimal muser input (data and target)
- Leverages in-database algorithms from Oracle Machine Learning (OML) – Classification and regression functions
- Deploy models as REST endpoints in a few clicks

Key benefits

- **Enables non-experts to produce machine learning models without individual algorithm expertise**
- Enhances data scientist productivity
- Automates time-consuming and repetitive tasks for algorithm and feature selection and hyperparameter tuning



Oracle APEX

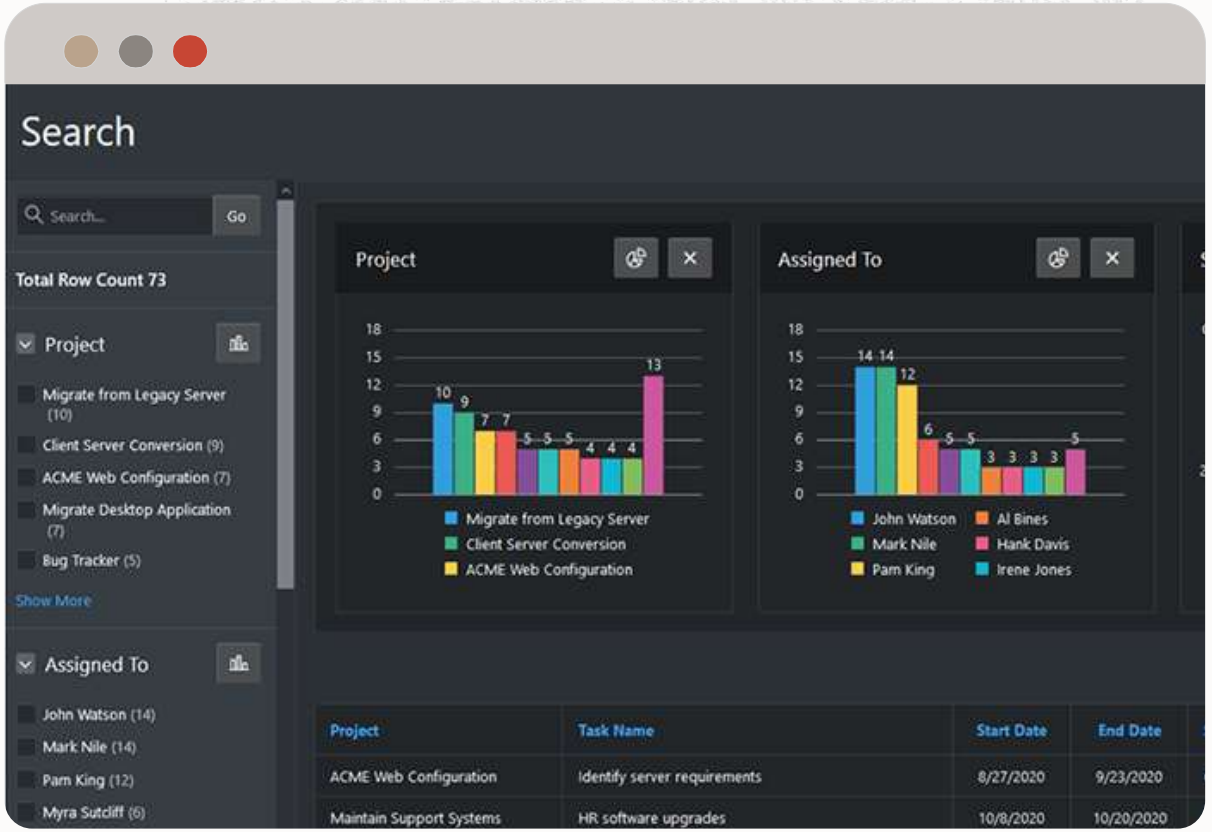
The world's most popular enterprise low-code application platform

Key features

- Pre-built sample apps and drag-and-drop UI components to jump start development
- Data-centric apps to visualize and manage relational, JSON, and spatial data
- Integration of local app data with data from REST endpoints, Excel spreadsheets, and more

Key benefits

- Easy-to-learn and get started without being an expert in a variety of technologies
- Build using a web browser—no additional tools required
- Can develop app experiences for any device, including mobile, without coding



Licensing Autonomous

Cost-Effective Software Licensing Models

Subscribe to infrastructure and choose License Included or Bring Your Own License (BYOL)

License Included Pricing

Ideal for organizations with new workloads and dynamic utilization

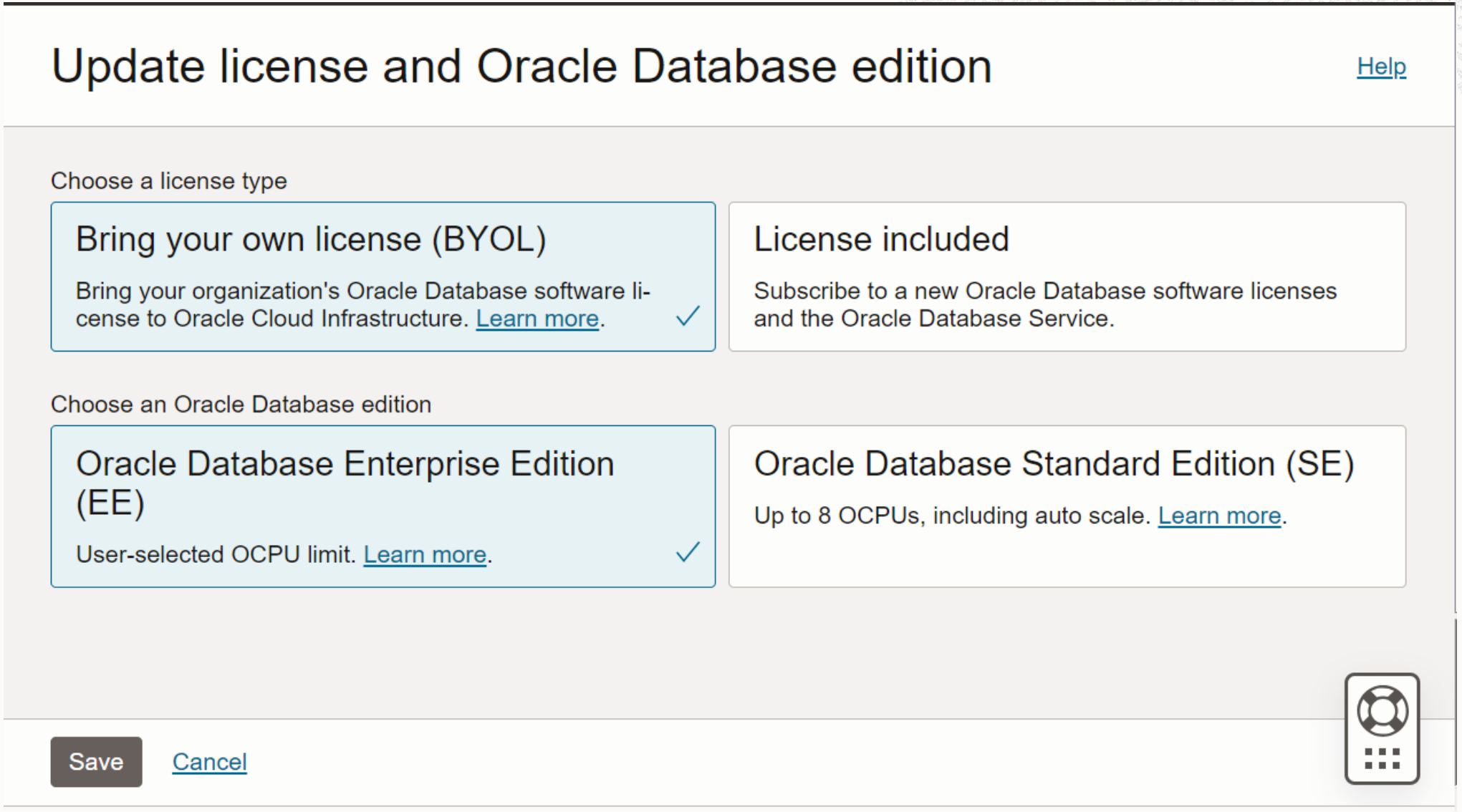
- Includes Oracle Database Enterprise Edition with all options and management packs at one low price
- Consumption-based pricing for software and vCPUs, includes software support and paid for with Universal Credits

Bring Your Own License Pricing

Ideal for organizations moving existing workloads with consistent usage to the cloud

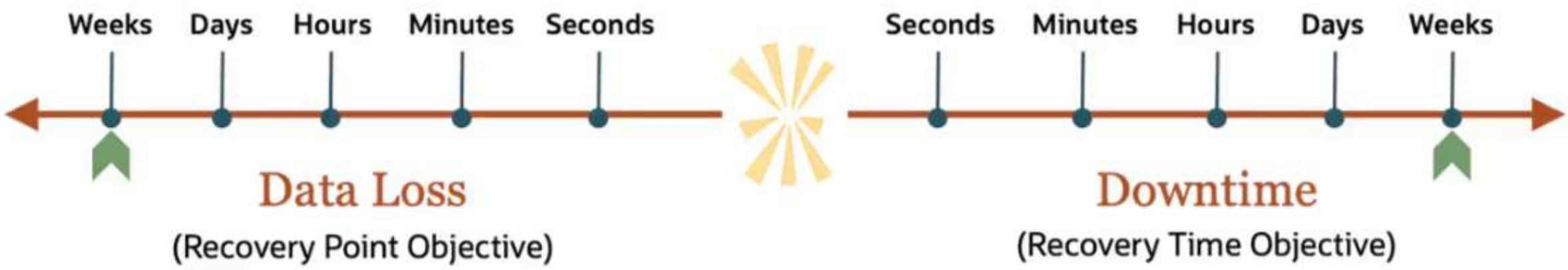
- Utilize existing on-premises licenses and pay software support for them
- Very-low, compute-only consumption pricing, paid for with Universal Credits
- Includes Transparent Data Encryption, Data Safe, Oracle Machine Learning, and select management packs at no additional cost

You can change license type using OCI Console



Autonomous MAA

Recovery Point Objective Vs Recovery Time Objective



Recovery Point Objective (RPO)

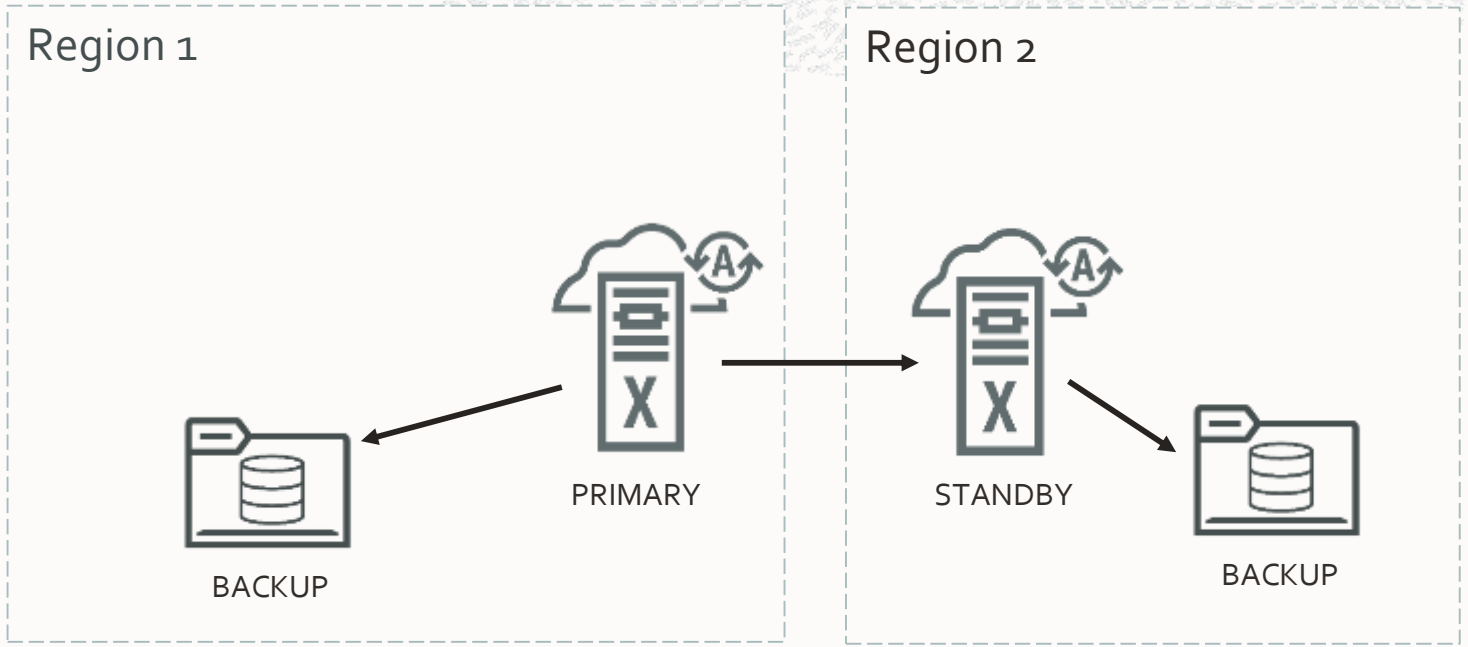
Tolerance for data loss (seconds, hours, days); determines frequency of backups and replication approaches

Recovery Time Objective (RTO)

The shorter the Recovery Time Objective (RTO) the quicker you get back to business

Broad choice for delivering highest levels of business continuity

AVAILABILITY / AUTOMATION CHOICES	
RMAN	• Cannot be used for migration
DATA PUMP	• Can be used for migration • Data Pump Files can be stored on **Object Storage** and **Classic Object Storage**
ACTIVE DATA GUARD	• **RPO is 0** minutes for Auto Failover • **RTO is 2** minutes for Auto Failover
GOLDENGATE	• Can be used for Migration
SQL LOAD	• Can be used for Migration



Outage Matrix

PLANNED MAINTENANCE	ZERO ZERO
RECOVERABLE FAILURE	ZERO SECONDS
UNRECOVERABLE FAILURE	SECONDS SECONDS
UPGRADE	ZERO MINUTES

Datapump recommendations

- **Remap** any tablespace to **DATA** tablespace
- Applies to import only
- Just in case moving to Autonomous

```
$ more  export.par

DYRECTORY=my_data_pump_dir
DUMPFILE=dumpfile%U.dmp
LOGFILE=logfile.log
SCHEMAS=HR
EXCLUDE=STATISTICS
LOGTIME=ALL
METRICS=YES
FLASHBACK_TIME=SYSTIMESTAMP
PARALLEL=4
FILESIZE=5G
COMPRESSION=ALL
COMPRESSION_ALGORITHM=MEDIUM
REMAP_TABLESPACE=%:DATA

expdp parfile=export.par
```

Resources

- **Autonomous Database Product Page**

https://www.oracle.com/autonomous-database/

- **Autonomous Database Cloud Professional 2023 Training (University)**

https://mylearn.oracle.com/ou/learning-path/become-an-oracle-autonomous-database-cloud-professional-2023/122183

- **Oracle Machine Learning Associate (using Autonomous Database) (2023) (University)**

https://mylearn.oracle.com/ou/learning-path/become-an-oracle-machine-learning-associate-using-autonomous-database-2023/119951

- **FAQs For Autonomous Database**

https://www.oracle.com/database/technologies/datawarehouse-bigdata/adb-faqs.html

- **Become An OCI Foundations Associate (2023) (University)**

https://www.oracle.com/database/technologies/datawarehouse-bigdata/adb-faqs.html

- **OCI compartment quotas**

https://docs.oracle.com/en-us/iaas/Content/Quotas/Concepts/resourcequotas.html#GUID-B06202D2-0597-41AA-9481-3B174F75D4B1

- **Developing .NET Applications for Oracle Autonomous Database**

https://www.oracle.com/database/technologies/appdev/dotnet/adbdotnetquickstarts.html

- **Developing .NET Applications for Oracle Autonomous Database**

https://www.oracle.com/database/technologies/appdev/dotnet/adbdotnetquickstarts.html

- **Connect to Autonomous Database Using a Client Application**

https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/connect-preparing.html

- **Backup and Restore Autonomous Database on Dedicated Exadata Infrastructure**

https://docs.oracle.com/en/cloud/paas/autonomous-database/dedicated/adbcm/#GUID-2E1A32D0-6B34-440E-9FE9-CAD3989426 9E

- **Manage Optimizer Statistics on Autonomous Database**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/manage-optimizer-stats.html#GUID-69906542-4DF6-4759-ABC1-1817D77BDB02

- **Database Service names for Autonomous**

https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/service-names-tranaction-processing.html

- **Autonomous Service Concurrency**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/manage-service-concurrency.html

- **Autonomous Service Concurrency**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/manage-service-concurrency.html

- **Autonomous database Service: Autonomous Database Event Types**

https://docs.oracle.com/en-us/iaas/Content/Events/Reference/eventsproducers.htm#dbaasevents__AutoDB

- **DBMS_CLOUD Package Avro, ORC, and Parquet Complex Types**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/complex-types-orc-avro-parquet.html

- **Access Control Within Autonomous Database on Dedicated Exadata Infrastructure**

https://docs.oracle.com/en/cloud/paas/autonomous-database/dedicated/adbcx/index.html#GUID-B61853F3-13AD-43F5-9A12-36B7E3B2058B

- **Autonomous Use Auto Scaling**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/autonomous-auto-scale.html

- **Create Users on Autonomous Database**

https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/manage-users-create.html#GUID-DD0D847B-0283-47F5-9EF3-D8252084F0C1

- **IAM Policies for Autonomous Database**

https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/autonomous-database-iam-policies.html#GUID-8F82FCB4-A130-447F-97FC-0C2FCADCEB42

- **IAM Policies for Autonomous Database on Dedicated Exadata Infrastructure**

https://docs.public.oneportal.content.oci.oraclecloud.com/en-us/iaas/autonomous-database/doc/iam-policies-autonomous-database-dedicated-exadata-infrastructure.html

Thank you

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