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# **ORACLE DATABASE & AUTONOMOUS**

## **FAST TRACK**

### **GUIDE: HANDS ON**

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Cloud Knowledge Team – Brazil  
Oracle Public Sector Brazil



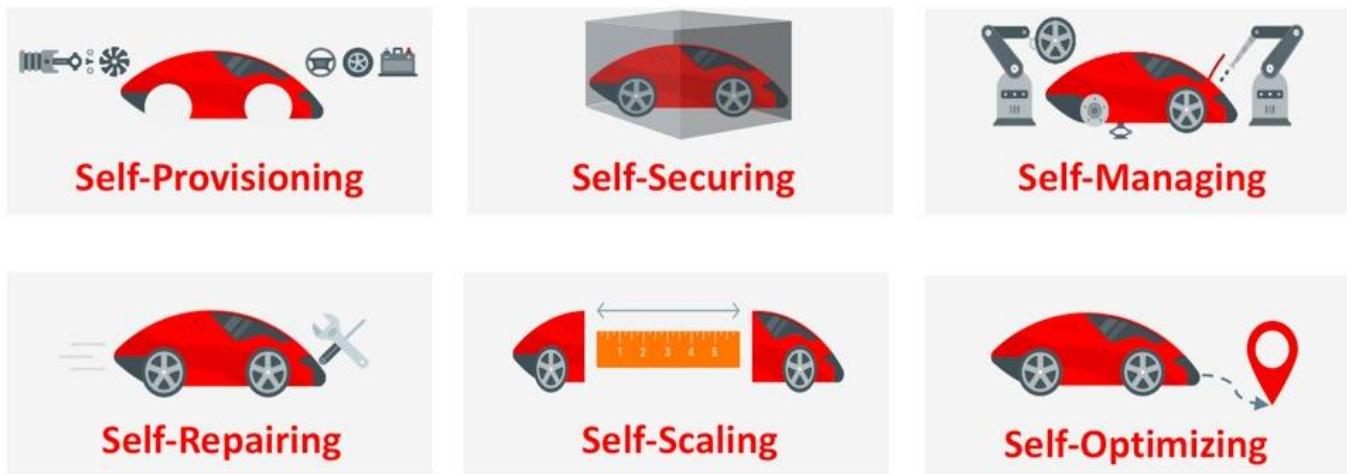
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# 1 INTRODUCTION

O Oracle Autonomous Database é um banco de dados convergente multimodelo e possui automação baseada em machine learning para o gerenciamento completo do seu ciclo de vida. É executado de forma nativa na Oracle Cloud Infrastructure, fornecendo serviços em nuvem otimizados para cargas de trabalho com processamento de transações, data warehousing e json.

Autonomous Vision:



## 1.1 Objective

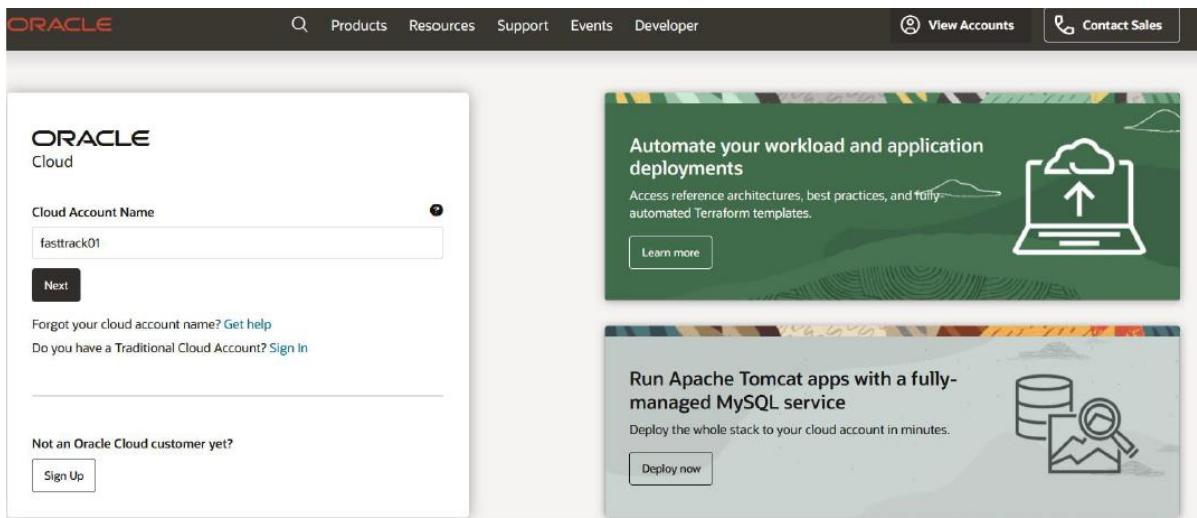
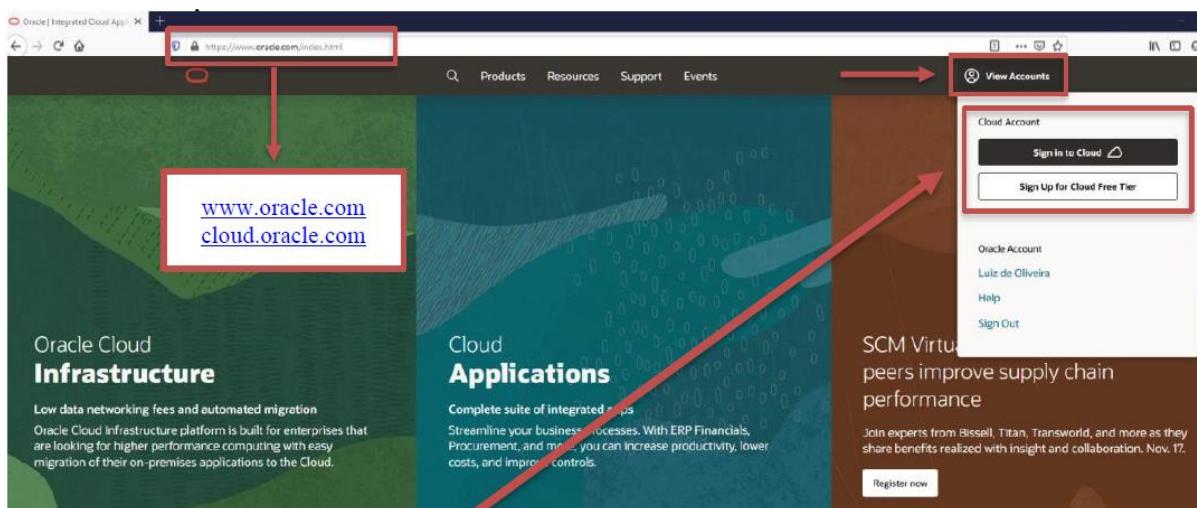
O propósito deste guia é auxiliar na execução dos labs no workshop, servindo como um apoio no passo a passo das atividades.

## 2 LAB 1: ACESSING ORACLE CLOUD

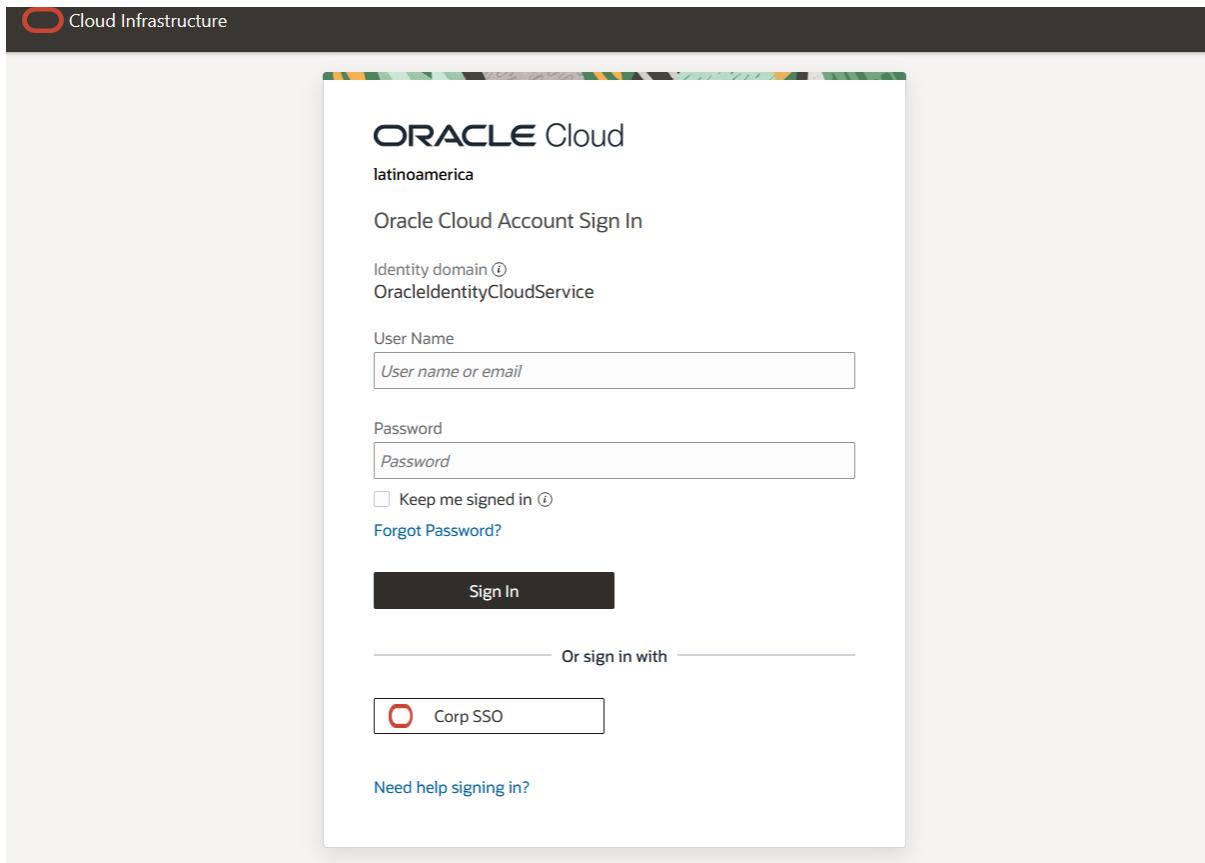
### 2.1 Acessing Oracle Cloud

- Oracle Cloud Console
- Serviços IaaS e PaaS conhecidos
- Familiarize-se com a interface OCI

PASSO 1 – Acesse pelo navegador: [cloud.oracle.com](https://www.oracle.com) ou [www.oracle.com](http://www.oracle.com). Clique no link “Sign in to Cloud” e você será redirecionado para a tela Cloud Connection.



PASSO 2 - Para ambientes implementados mais recentemente, o login deve ser feito por meio da “Identity Cloud Service Account”, onde será necessário inserir “Nome da conta” (que é o nome definido para a Tenant).



Depois de identificado, você chegará à tela principal do Oracle Cloud, de onde poderá acessar todos os serviços disponíveis. Sua tela principal padrão será semelhante a esta.

The image shows the Oracle Cloud Home page for the "latinoamerica" tenancy. The top navigation bar includes "Cloud", a search bar, and a location dropdown set to "US West (Phoenix)". On the left, there's a sidebar with "Home" and "Tenancy: latinoamerica". The main content area is titled "Resources" and shows a table of recently viewed resources. The table has columns for "Name", "Type", "Status", and "Viewed". The resources listed are: "Clone-of-atpsource" (AutonomousDatabase, Available, 3 hours ago), "atpsource" (AutonomousDatabase, Available, 3 hours ago), "oracleidentitycloudservice/E..." (User, Active, 3 hours ago), "SensitiveDataModel\_2025012..." (DataSafeSensitiveDataModel, Active, 3 hours ago), "atpsource" (DataSafeTargetDatabase, Active, 3 hours ago), and "oracleidentitycloudservice/A..." (User, Active, 4 hours ago). A "Resource Explorer" button is at the bottom left of the sidebar.

A partir do “Action Menu” (canto superior esquerdo), você pode acessar os serviços disponíveis em nosso console

## 2.1.1 OCI Concepts

- Regiões
- Compartimentos

Nesta seção, você aprenderá sobre a arquitetura de alta disponibilidade da OCI.

### Regiões

O Oracle Cloud Infrastructure é hospedado em regiões e domínios de disponibilidade. Uma região é uma área geográfica localizada. Uma região é composta por um ou mais domínios de disponibilidade. A maioria dos recursos do Oracle Cloud Infrastructure são específicos da região, como uma rede de nuvem virtual (VCN), ou específicos do domínio de disponibilidade, como uma instância de computação.

As regiões são completamente independentes de outras regiões e podem ser separadas por grandes distâncias - entre países ou mesmo continentes. Geralmente, você implantaria um aplicativo na região onde ele é mais usado, uma vez que usar recursos próximos é mais rápido do que usar recursos distantes. No entanto, você também pode implantar aplicativos em diferentes regiões para:

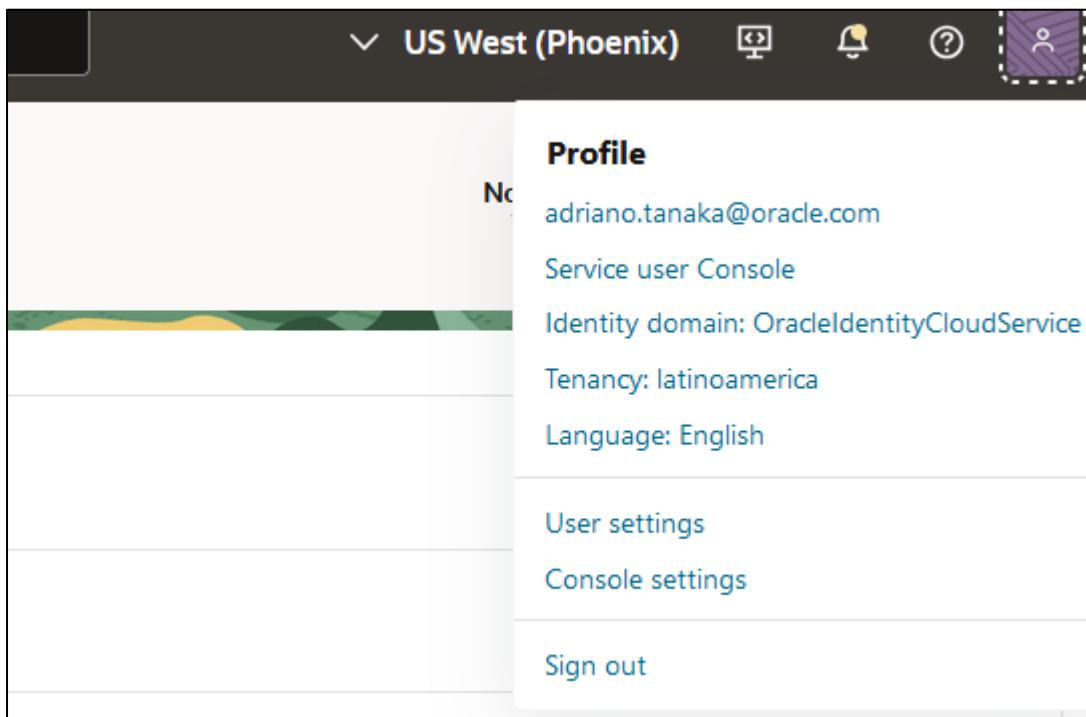
Mitigar o risco de eventos em toda a região, como grandes sistemas climáticos ou terremotos

Atender a diversos requisitos para jurisdições legais, domínios fiscais e outros critérios comerciais ou sociais

Após acessar o ambiente, é possível alterar sua região com apenas um clique:

Regions
Home region US East (Ashburn)
Australia East (Sydney)
Australia Southeast (Melbourne)
Brazil East (Sao Paulo)
Brazil Southeast (Vinhedo)
Canada Southeast (Montreal)
Chile Central (Santiago)

E você tem sua configuração de perfil no canto superior direito da página principal



## Compartimentos

Ao começar a trabalhar com o Oracle Cloud Infrastructure , você precisa pensar cuidadosamente sobre como deseja usar os compartimentos para organizar e isolar seus recursos de nuvem. Os compartimentos são fundamentais para esse processo. A maioria dos recursos pode ser movida entre compartimentos. No entanto, é importante pensar no design do compartimento para a sua organização com antecedência, antes de implementar qualquer coisa.

Ao criar um compartimento, você deve fornecer um nome para ele (máximo de 100 caracteres, incluindo letras, números, pontos, hifens e sublinhados) que seja exclusivo em seu compartimento pai. Você também deve fornecer uma descrição , que é uma descrição não única e mutável para o compartimento, de 1 a 400 caracteres. A Oracle também atribuirá ao compartimento um ID exclusivo denominado Oracle Cloud ID.

O Console é projetado para exibir seus recursos por compartimento na região atual. Ao trabalhar com seus recursos no Console , você deve escolher em qual compartimento trabalhar a partir de uma lista na página. Essa lista é filtrada para mostrar apenas os compartimentos na locação que você tem permissão para acessar. Se você for um administrador, terá permissão para visualizar todos os compartimentos e trabalhar com os recursos de qualquer compartimento, mas se for um usuário com acesso limitado, provavelmente não terá. Os compartimentos são globais, em todas as regiões, quando você cria um compartimento, ele está disponível em todas as regiões em que o seu aluguel está inscrito.

## 3 LAB 2: COMPARTMENT, NETWORK

### 3.1 Create a compartment

Primeiro você precisa criar o compartimento. Para criar seu compartimento, clique no menu -> identity -> Compartment

The screenshot shows the Oracle Cloud Identity & Security dashboard. On the left sidebar, under the 'Identity & Security' category, the 'Compartments' option is highlighted with a star icon. The main content area is titled 'Identity & Security' and contains sections for 'Identity', 'Access Governance', and 'Cloud Guard'. The 'Compartments' section is currently active.

Em seguida, clique em Create Compartment

Coloque as informações sobre seu Compartment e no final clique em Create Compartment

The screenshot shows the 'Create Compartment' dialog box. In the 'Name' field, 'autonomousFT' is entered. In the 'Description' field, 'Fast Track Autonomous' is written. Under 'Parent Compartment', 'iadcloudengineeringhub (root)' is selected. A note about tagging is present, stating: 'Tagging is a metadata system that allows you to organize and track resources within your tenancy. Tags are composed of keys and values that can be attached to resources.' Below the dialog is a table of existing compartments, showing columns for Name, Created, and Actions. At the bottom of the dialog are 'Create Compartment' and 'Cancel' buttons.

## 4 LAB 3: PROVISIONING AUTONOMOUS TRANSACTION PROCESSING (ATP)

### 4.1 Link para documentação oficial

<https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/autonomous-provision.html>

### 4.2 Create an ATP

Nesta sessão, será provisionado um Autonomous Transaction Processing Database. Este banco de dados é projetado para OLTP.

vá para o menu -> Databases -> Autonomous Transaction Processing

The screenshot shows the Oracle Cloud interface. In the top navigation bar, there is a search bar labeled "Search resources, services, documentation, and Marketplace". Below the search bar, the "Cloud" icon is visible. On the left side, there is a sidebar with links: Home, Compute, Storage, Networking, and Oracle Database. The "Oracle Database" link is highlighted with a dashed box. The main content area is titled "Oracle Database" and contains several sections: "Overview", "Autonomous Database", "Autonomous Data Warehouse", "Autonomous JSON Database", and "Autonomous Transaction Processing". The "Autonomous Transaction Processing" section is highlighted with a blue box. At the bottom, there is a section titled "Globally Distributed Autonomous Database".

Verifique se está no Compartment certo e clique em Create Autonomous Database

The screenshot shows the "Autonomous Database" creation page in the Oracle Cloud interface. The URL in the browser is "console.us-ashburn-1.oraclecloud.com/db/adb/atp". The page title is "Autonomous Database". On the left, there is a sidebar with "Autonomous Database" selected (highlighted with a red box) and other options like "Dedicated Infrastructure", "Autonomous Container Database", and "Autonomous Exadata Infrastructure". Below the sidebar, there are "List Scope" and "Filters" sections. The main content area is titled "Autonomous Databases in autonomousFT Compartiment". It shows a table with one row: "Display Name", "State", "Dedicated", "OCpus", "Storage (TB)", "Workload Type", and "Created". The "Create Autonomous Database" button is highlighted with a red box. At the bottom, there are "Terms of Use and Privacy" and "Cookie Preferences" links, along with a copyright notice: "Copyright © 2020, Oracle and/or its affiliates. All rights reserved."

Insira as informações abaixo:

Compartment: autonomousFT

Display name: atpf

Database name: atpf

Choose the workload type: Transaction Processing

Choose deployment type: Shared infrastructure

Provide basic information for the Autonomous Database

Compartment: autonomousFT

Display name: atpf

Database name: atpf

Choose a workload type

Data Warehouse

Transaction Processing

JSON

APEX

Choose a deployment type

Shared Infrastructure

Dedicated Infrastructure

Configure the database

Choose database version: 19c

OCPU count: 2

Storage (TB): 50

Create Autonomous Database

Choose database version: 19c ECPU Count:2

Storage: 50GB

No auto scaling

Escolha a admin Password que você deseja

Configure the database

Always Free ⓘ

Show only Always Free configuration options

Choose database version: 19c

OCPU count: 1

Storage (TB): 50

OCPU auto scaling

Storage auto scaling

Create administrator credentials ⓘ

Username: Read-Only ADMIN

Password

Confirm password

Allow Secure access from everywhere

Choose licensing type: Byol

E depois clique em "Create autonomous database":

The screenshot shows the 'Create Autonomous Database' wizard. It starts with a password section where 'Password' and 'Confirm password' fields are filled. Below this is a 'Choose network access' section with two options: 'Secure access from everywhere' (selected) and 'Private endpoint access only'. A note states: 'The virtual cloud network option is not available for OC Free Tier accounts.' There is also a checkbox for 'Configure access control rules'. The next section is 'Choose a license type' with 'Bring Your Own License (BYOL)' selected, which includes a link to 'Learn more'. Another option is 'License Included'. Below this is a 'Provide up to 10 maintenance contacts' section with an 'Add Contact' button. At the bottom are 'Show Advanced Options' and 'Create Autonomous Database' buttons.

Durante o tempo do processo de criação, você verá a cor laranja da palavra "ATP"

The screenshot shows the 'Autonomous Database Details' page for database 'atpt'. The top navigation bar includes 'Oracle Cloud Infrastructure', 'Applications >', 'Search for resources, services, and documentation', and 'US East (Ashburn)'. The main content area has a yellow banner with the word 'ATP' in large white letters. Below the banner, the database name is 'atpt'. The page features several tabs: 'Autonomous Database Information' (selected), 'Tools', and 'Tags'. Under 'General Information', details include: Database Name: atpt, Workload Type: Transaction Processing, Compartment: Erika\_Nagamine/autonomousFT, OCID: ...la76pc, Created: Sun, Mar 7, 2021, 06:17:13 UTC, OCPU Count: 1, Storage: 1 TB, License Type: Bring Your Own License (BYOL), Database Version: 19c, Auto Scaling: Enabled, Lifecycle State: Provisioning, Instance Type: Paid, and Mode: Read/Write. Under 'Operations Insights', it says Status: Not Enabled. On the right side, sections include 'Infrastructure' (Dedicated Infrastructure: No), 'Autonomous Data Guard' (Status: Disabled), 'Backup' (Last Automatic Backup: No active backups exist for this database, Manual Backup Store: Not Configured), 'Network' (Access Type: Allow secure access from everywhere, Access Control List: Disabled), and 'Data Safe' (Status: Not Registered). At the bottom, there are 'Resources' and 'Metrics' tabs, and a footer with 'Terms of Use and Privacy' and 'Copyright © 2021, Oracle and/or its affiliates. All rights reserved.'

Quando o processo terminar, ficará na cor verde.

The screenshot shows the Oracle Cloud Infrastructure Autonomous Database Details page for a database named 'atp'. The database is currently 'AVAILABLE'. A green banner at the top indicates 'Oracle Database 19c is now available. Learn how to upgrade to Oracle Database 19c.' Below the banner, there are tabs for 'Autonomous Database Information', 'Tools', and 'Tags'. The 'Autonomous Database Information' tab is selected, displaying detailed information about the database, including its name, workload type (Transaction Processing), compartment, OCID, creation date, OCPU count, storage, license type (Bring Your Own License), database version (18c), and auto scaling status. To the right, there are sections for 'Infrastructure' (Dedicated Infrastructure: No), 'Backup' (Last Automatic Backup: No active backups exist for this database), 'Network' (Access Type: Allow secure access from everywhere, Access Control List: Disabled), and 'Maintenance'.

Connect to your autonomous

Usando a opção Database Actions, conecte-se no Database e explore suas opções:

The screenshot shows the Oracle Cloud Infrastructure Autonomous Database Actions page for a database named 'Clone-of-atpsource'. The database is currently 'AVAILABLE'. A red arrow points to the 'Database actions' button in the top navigation bar. Another red arrow points to the 'Processing' status indicator at the bottom of the page. The page displays various database actions such as SQL, REST, Database Users, Data Load, and View all database actions. It also shows the compartment (latinoamerica (root)/ENG\_INFRA\_CN/ENG\_CS\_LAD/a), role (Primary), local (Backup-based), and cross-region (Not enabled) settings. A 'Disaster recovery' section is also present.

The screenshot shows the Oracle Database Actions interface. At the top, there's a navigation bar with tabs: 'Fixo e Visitado Recente' (selected), 'Desenvolvimento' (highlighted with a red arrow), 'Data Studio', 'Administração', 'Downloads', 'Monitoramento', and 'Serviços Relacionados'. Below the navigation bar is a sidebar with various tools: SQL (selected), Data Modeler, REST, Liquibase, JSON, Gráficos, Programando, Oracle Machine Learning, APEX, and Graph Studio. The main workspace is titled 'SQL' and contains a 'Worksheet' tab with the following SQL code:

```
1 drop table demo.emp;
2 drop materialized view demo.emp_mv;
3
4 create table demo.emp (
5   empno number primary key,
6   ename varchar2(25),
7   sal number;
8 );
9
10 insert into demo.emp values(1, 'martin', 100);
```

Below the code, there are tabs for 'Query Result', 'Script Output', 'DBMS Output', 'Explain Plan', 'Autotrace', and 'SQL History'. The status bar at the bottom says 'Carregando Dados' and 'Executando Instruções SQL'.

This screenshot shows the Oracle Database Actions interface with the 'Navigator' tab selected. The left sidebar has 'ADMIN' selected under 'Tables'. The main workspace displays a hierarchical list of database objects:

- CLOUD\_INGEST\_LOG\$
- COPY\$2\_BAD
- COPY\$2\_LOG
- COPY\$3\_BAD
- COPY\$3\_LOG
- DBTOOLS\$EXECUTION\_HISTORY
- GEO NAMES
- GLOBAL\_LANDSLIDE\_CATALOG\_EXP
- GLOBAL\_LANDSLIDE\_CATALOG\_EXP
- GLOBAL\_LANDSLIDE\_CATALOG\_EXP
- MEUCPF
- OGGTESTE
- OGGTESTE2

The top right of the workspace shows 'Consumer group: LOW' and a 'Data Load' button. The bottom of the workspace has tabs for 'Query Result', 'Script Output', 'DBMS Output', 'Explain Plan', 'Autotrace', and 'SQL History'.

## 5 LAB 4: HANDS-ON – ORACLE BANCO DE DADOS CONVERGENTE

### 5.1 Link para documentação oficial

<https://blogs.oracle.com/database/post/what-is-a-converged-database>

Não copie+cole todo conteúdo e execute | execute comando a comando inclusive COMMIT

```
-- ///////////////////////////////////////////////////////////////////
-- CRIANDO UMA TABELA PARA ARMAZENAR DOCUMENTOS JSON
-- ///////////////////////////////////////////////////////////////////

CREATE TABLE DEPARTMENTS_JSON (
  DEPARTMENT_ID INTEGER NOT NULL PRIMARY KEY,
  DEPARTMENT_DATA BLOB NOT NULL
);

-- ///////////////////////////////////////////////////////////////////
-- PARA TER CERTEZA QUE O TIPO DE DADOS ARMAZENADO EH JSON, PODEMOS CRIAR UMA
-- CONSTRAINT PARA VERIFICACAO
-- ///////////////////////////////////////////////////////////////////

ALTER TABLE DEPARTMENTS_JSON
ADD CONSTRAINT DEPT_DATA_JSON
CHECK ( DEPARTMENT_DATA IS JSON );

-- ///////////////////////////////////////////////////////////////////
-- INSERINDO DADOS EM UMA TABELA JSON
-- ///////////////////////////////////////////////////////////////////

INSERT INTO DEPARTMENTS_JSON
VALUES ( 110, UTL_RAW.CAST_TO_RAW ( '{
  "DEPARTMENT": "ACCOUNTING",
  "EMPLOYEES": [
    {
      "NAME": "HIGGINS, SHELLEY",
      "JOB": "ACCOUNTING MANAGER",
      "HIREDATE": "2002-06-07T00:00:00"
    },
    {
      "NAME": "GIETZ, WILLIAM",
      "JOB": "PUBLIC ACCOUNTANT",
      "HIREDATE": "2002-06-07T00:00:00"
    }
  ]
}' ) );

-- 1 linha inserido. Esse é o resultado esperado!

COMMIT;

select count(1) linhas from DEPARTMENTS_JSON;



| LINHAS |
|--------|
| 1      |



-- ///////////////////////////////////////////////////////////////////
-- TESTANDO A CONSTRAINT CHECK "IS JSON":
-- A execução do comando abaixo retornará o erro: ORA-02290, que valida a eficácia da constraint.
-- ///////////////////////////////////////////////////////////////////

INSERT INTO DEPARTMENTS_JSON
VALUES ( 100, UTL_RAW.CAST_TO_RAW ( 'RANDOM JUNK' ) );

-- ///////////////////////////////////////////////////////////////////
-- ATUALIZACAO FULL DO DOCUMENTO JSON
-- ///////////////////////////////////////////////////////////////////

UPDATE DEPARTMENTS_JSON
SET DEPARTMENT_DATA = UTL_RAW.CAST_TO_RAW (
'{
  "DEPARTMENT": "FINANCE AND ACCOUNTING",
  "EMPLOYEES": [
    {
      "NAME": "HIGGINS, SHELLEY",
      "JOB": "ACCOUNTING MANAGER",
      "HIREDATE": "2002-06-07T00:00:00"
    },
    {
      "NAME": "GIETZ, WILLIAM",
      "JOB": "PUBLIC ACCOUNTANT",
      "HIREDATE": "2002-06-07T00:00:00"
    }
  ]
}'
) WHERE DEPARTMENT_ID = 110;

-- 1 linha atualizado. Esse é o resultado esperado!

COMMIT;
```

```

-- ///////////////////////////////////////////////////////////////////
-- ATUALIZACAO PARCIAL DO DOCUMENTO JSON
-- ///////////////////////////////////////////////////////////////////

UPDATE DEPARTMENTS_JSON
SET    DEPARTMENT_DATA = JSON_MERGEPATCH (
          DEPARTMENT_DATA,
          '{
            "DEPARTMENT" : "FINANCE"
          }'
        )
WHERE  DEPARTMENT_ID = 110 ;

-- 1 linha atualizado. Esse é o resultado esperado!

COMMIT;

-- ///////////////////////////////////////////////////////////////////
-- CONSULTAS
-- ///////////////////////////////////////////////////////////////////

SELECT D.DEPARTMENT_DATA.DEPARTMENT
FROM   DEPARTMENTS_JSON D;

SELECT D.DEPARTMENT_DATA.EMPLOYEES[0].NAME
FROM   DEPARTMENTS_JSON D
WHERE  DEPARTMENT_ID = 110;

SELECT D.DEPARTMENT_DATA.EMPLOYEES[*].NAME
FROM   DEPARTMENTS_JSON D
WHERE  DEPARTMENT_ID = 110;

-- ///////////////////////////////////////////////////////////////////
-- RETORNANDO UM DOCUMENTO OU ARRAY COM JSON_QUERY
-- USADO PARA SELECIONAR UM OU MAIS VALORES DE ALGUM DADO JSON COMO UMA STRING.
-- UTILIZADO ESPECIFICAMENTE RECUPERAR FRAGMENTOS DE UM DOCUMENTO JSON
-- ///////////////////////////////////////////////////////////////////

CREATE TABLE EMPLOYEES
(
  ID NUMBER,
  PERSON CLOB
    CONSTRAINT PERSON_ENSURE_JSON
    CHECK (PERSON IS JSON (STRICT WITH UNIQUE KEYS)));
  
INSERT INTO EMPLOYEES VALUES(1,'{"NAME":"BOB","CITY":"SF"}');
INSERT INTO EMPLOYEES VALUES(2,'{"NAME":"JAKE","CITY":"PA"}');
INSERT INTO EMPLOYEES VALUES(3,'{"NAME":"ALICE","CITY":"NYC"}');
INSERT INTO EMPLOYEES VALUES(4,'{"NAME":"JENN","CITY":{"NAME": "TOKYO"} }');
INSERT INTO EMPLOYEES VALUES(5,'{"NAME":"JENN","CITY":["TOKYO"]}');
INSERT INTO EMPLOYEES VALUES(6,'{"NAME":"JENN","CITY":66}' );

COMMIT;

SELECT JSON_QUERY (
          DEPARTMENT_DATA,
          '$.EMPLOYEES[*]'
          RETURNING VARCHAR2 PRETTY
          WITH WRAPPER
        ) EMPLOYEES
FROM   DEPARTMENTS_JSON D
WHERE  DEPARTMENT_ID = 110;

-- ///////////////////////////////////////////////////////////////////
-- CONVERTENDO O JSON PARA RELACIONAL COM JSON_TABLE
-- O JSON_TABLE POSSILITA A CONVERSÃO DE UM ARRAY JSON PARA LINHAS SQL
-- ///////////////////////////////////////////////////////////////////

SELECT J.*
FROM   DEPARTMENTS_JSON D, JSON_TABLE (
          D.DEPARTMENT_DATA, '$' COLUMNS (
          DEPARTMENT,
          NESTED EMPLOYEES[*]
          COLUMNS (
            NAME,
            JOB,
            HIRE_DATE DATE PATH '$.HIREDATE'
          ) ) J
WHERE  D.DEPARTMENT_ID = 110;

-- ///////////////////////////////////////////////////////////////////
-- CRIACAO DE INDICES COM JSON
-- ///////////////////////////////////////////////////////////////////

CREATE INDEX DEPT_DEPARTMENT_NAME_I ON DEPARTMENTS_JSON
(
  JSON_VALUE (
  DEPARTMENT_DATA, '$.DEPARTMENT'
  ERROR ON ERROR
  NULL ON EMPTY
  )
);

```

```

-- ///////////////////////////////////////////////////////////////////
-- JSON SEARCH INDEX PARA FAST AD-HOC SQL (ORACLE TEXT INDEX OVER JSON)
-- ///////////////////////////////////////////////////////////////////

CREATE SEARCH INDEX DEPT_JSON_I ON DEPARTMENTS_JSON ( DEPARTMENT_DATA ) FOR JSON;

ALTER INDEX DEPT_JSON_I REBUILD PARAMETERS ( 'DATAGUIDE ON' );

EXEC DBMS_JSON.ADD_VIRTUAL_COLUMNS ( 'DEPARTMENTS_JSON', 'DEPARTMENT_DATA' );

BEGIN
  DBMS_JSON.RENAME_COLUMN(
    'DEPARTMENTS_JSON', 'DEPARTMENT_DATA',
    '$.DEPARTMENT', DBMS_JSON.TYPE_STRING,
    'DEPARTMENT_NAME'
  );
  DBMS_JSON.ADD_VIRTUAL_COLUMNS (
    'DEPARTMENTS_JSON', 'DEPARTMENT_DATA'
  );
END;
/

select A.INDEX_NAME
      , B.INDEX_TYPE
      , A.TABLE_NAME
      , A.TABLE_OWNER
      , A.COLUMN_NAME
      , A.COLUMN_POSITION COLPOS
      , B.BLEVEL
      , B.LEAF_BLOCKS
      , B.STATUS
      , B.NUM_ROWS
      , B.DEGREE
      , TO_CHAR(B.LAST_ANALYZED,'DD-MM-YYYY HH24:MI:SS') LA
  from dba_ind_columns A
       , dba_indexes B
 where a.index_name = b.index_name
   and a.INDEX_OWNER = b.OWNER
   and upper(A.TABLE_NAME)  = upper('DEPARTMENTS_JSON')
   and upper(A.TABLE_OWNER) = upper('ADMIN')
 order by A.INDEX_NAME
        , A.COLUMN_POSITION
        , A.COLUMN_NAME;

-- ///////////////////////////////////////////////////////////////////
-- CRIANDO VIEWS DE BANCO DE DADOS COM JSON DATA GUIDE
-- O JSON DATA GUIDE POSSIBILITA QUE VOCE ADICIONE COLUNAS A UMA TABELA
-- RETORNANDO VALORES DE UM DOCUMENTO JSON. INTERNAMENTE SAO CRIADOS COLUNAS
-- VIRTUAIS CHAMANDO JSON_VALUE COM A PACKAGE DBMS_JSON EH POSSIVEL
-- INCLUIR E RENOMEAR COLUNAS.
-- ///////////////////////////////////////////////////////////////////

BEGIN
  DBMS_JSON.CREATE_VIEW ( 'DEPARTMENT_EMPLOYEES', 'DEPARTMENTS_JSON', 'DEPARTMENT_DATA',
  DBMS_JSON.GET_INDEX_DATAGUIDE ('DEPARTMENTS_JSON', 'DEPARTMENT_DATA', DBMS_JSON.FORMAT_HIERARCHICAL));
END;
/

SELECT * FROM DEPARTMENT_EMPLOYEES WHERE DEPARTMENT_ID = 110;

-- ///////////////////////////////////////////////////////////////////
-- JSON_OBJECT - GERANDO JSON COM SQL
-- ///////////////////////////////////////////////////////////////////

SELECT * FROM DEPARTMENTS_JSON WHERE DEPARTMENT_ID = 110;

SELECT JSON_OBJECT ( * ) JDOC FROM DEPARTMENTS_JSON WHERE DEPARTMENT_ID = 110;

```

```

-- ///////////////////////////////////////////////////////////////////
-- CRIANDO MATERIALIZED VIEW COM JSON
-- ///////////////////////////////////////////////////////////////////

CREATE TABLE JSON_DOCUMENTS (
  ID    RAW(16) NOT NULL,
  DATA  CLOB,
  CONSTRAINT JSON_DOCUMENTS_PK PRIMARY KEY (ID),
  CONSTRAINT JSON_DOCUMENTS_JSON_CHK CHECK (DATA IS JSON)
);

INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":1, "FIRSTNAME":"RICARDO", "LASTNAME":"MAEDA", "ITEM_ID":101, "ITEM_QTY":1}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":2, "FIRSTNAME":"ALBERTO", "LASTNAME":"EGAMI", "ITEM_ID":101, "ITEM_QTY":1}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":3, "FIRSTNAME":"ARISTOTELES", "LASTNAME":"SERRA", "ITEM_ID":102, "ITEM_QTY":3}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":4, "FIRSTNAME":"BRENO", "LASTNAME":TOZO, "ITEM_ID":101, "ITEM_QTY":1}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":5, "FIRSTNAME":"CEDEIA", "LASTNAME":ARAUJO, "ITEM_ID":102, "ITEM_QTY":3}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":6, "FIRSTNAME":"DANIEL", "LASTNAME":PANIZZO, "ITEM_ID":103, "ITEM_QTY":1}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":7, "FIRSTNAME":"FABIO", "LASTNAME":JESUS, "ITEM_ID":101, "ITEM_QTY":1}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":8, "FIRSTNAME":FERNANDA, "LASTNAME":MARTINS, "ITEM_ID":102, "ITEM_QTY":6}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":9, "FIRSTNAME":ILAN, "LASTNAME":SALVIANO, "ITEM_ID":102, "ITEM_QTY":6}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":10, "FIRSTNAME":INTI, "LASTNAME":RODRIGUES, "ITEM_ID":102, "ITEM_QTY":6}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":11, "FIRSTNAME":LUCAS, "LASTNAME":AZEVEDO, "ITEM_ID":102, "ITEM_QTY":6}');
INSERT INTO JSON_DOCUMENTS (ID, DATA) VALUES (SYS_GUID(), '{"CUSTOMERID":12, "FIRSTNAME":MIGUEL, "LASTNAME":ORNELAS, "ITEM_ID":102, "ITEM_QTY":6}');

COMMIT;

CREATE MATERIALIZED VIEW JSON_DOCUMENTS_MV
REFRESH FAST ON STATEMENT
ENABLE QUERY REWRITE AS
SELECT J.ID,
       JT.CUSTOMERID,
       JT.FIRSTNAME,
       JT.LASTNAME,
       JT.ITEM_ID,
       JT.ITEM_QTY
FROM   JSON_DOCUMENTS J,
       JSON_TABLE(DATA, '$'
                  COLUMNS (
                                CUSTOMERID NUMBER      PATH '$.CUSTOMERID' ERROR ON ERROR NULL ON EMPTY,
                                FIRSTNAME  VARCHAR2(20)  PATH '$.FIRSTNAME'  ERROR ON ERROR NULL ON EMPTY,
                                LASTNAME   VARCHAR2(20)  PATH '$.LASTNAME'   ERROR ON ERROR NULL ON EMPTY,
                                ITEM_ID    NUMBER        PATH '$.ITEM_ID'    ERROR ON ERROR NULL ON EMPTY,
                                ITEM_QTY   NUMBER        PATH '$.ITEM_QTY'   ERROR ON ERROR NULL ON EMPTY
                               )
                 ) JT;

SELECT * FROM JSON_DOCUMENTS_MV;

-- ///////////////////////////////////////////////////////////////////
-- IN-MEMORY COLUMN STORE E JSON
-- ///////////////////////////////////////////////////////////////////

ALTER TABLE JSON_DOCUMENTS INMEMORY;
ALTER TABLE JSON_DOCUMENTS NO INMEMORY;

-- Esse exemplo acima mostra a mesma facilidade de implementação da tecnologia in-memory com dados não estruturados.

-- ///////////////////////////////////////////////////////////////////
-- JSON + GEOJSON
-- EXEMPLO DE DETECCAO DE FRAUDES COM JSON E GEO PROCESSAMENTO
-- ///////////////////////////////////////////////////////////////////
-- O OBJETIVO DO EXERCÍCIO É ENCONTRAR TRANSFERÊNCIAS DE DINHEIRO SUSPEITAS
-- DENTRO DE UMA SÉRIE DE CONTAS DEFINIMOS UM PADRÃO SUSPEITO DE COMPRAS
-- ///////////////////////////////////////////////////////////////////


CREATE TABLE JSON_TRANSACTIONS
(TRANSACTION_DOC CLOB,
  CONSTRAINT "VALID_JSON" CHECK (TRANSACTION_DOC IS JSON) ENABLE
);

INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "01-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "DEPOSIT", "TRANS_AMOUNT": 1000000}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "25-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "DEPOSIT", "TRANS_AMOUNT": 1200000}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "02-FEB-17", "USER_ID": "JOHN", "EVENT_ID": "DEPOSIT", "TRANS_AMOUNT": 500000}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "02-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANS_AMOUNT": 100}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "02-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "BOB", "TRANS_AMOUNT": 1000}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "10-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "ALLEN", "TRANS_AMOUNT": 1500}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "20-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "TIM", "TRANS_AMOUNT": 1200}');
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "27-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "TIM", "TRANS_AMOUNT": 1000000}');

```

```

INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "02-FEB-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "JOHN", "TRANS_AMOUNT": 1000});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "27-MAR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "ALLEN", "TRANS_AMOUNT": 12000500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "20-FEB-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "ALLEN", "TRANS_AMOUNT": 1200});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "10-FEB-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "JOHN", "TRANS_AMOUNT": 1500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "02-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "TIM", "TRANS_AMOUNT": 1000});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "27-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "JOHN", "TRANS_AMOUNT": 3100400});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "20-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "TIM", "TRANS_AMOUNT": 1200});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "10-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "JOHN", "TRANS_AMOUNT": 1500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "15-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "TIM", "TRANS_AMOUNT": 1500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "16-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "BOB", "TRANS_AMOUNT": 1500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "17-APR-17", "USER_ID": "JOHN", "EVENT_ID": "TRANSFER", "TRANSFER_ID": "JOHN", "TRANS_AMOUNT": 1500});
INSERT INTO JSON_TRANSACTIONS VALUES ('{"TIME_ID": "05-JAN-17", "USER_ID": "JOHN", "EVENT_ID": "WITHDRAWAL", "TRANS_AMOUNT": 2000});

COMMIT;

CREATE TABLE JSON_TRANSACTIONS_GEO
(TRANS_GEO_DOC CLOB,
 CONSTRAINT "VALID_GEO_JSON" CHECK (TRANS_GEO_DOC IS JSON) ENABLE
);

INSERT INTO JSON_TRANSACTIONS_GEO VALUES ('{"TIME_ID": "25-JAN-17 08:30:23", "USER_ID": "JOHN", "MERCHANT_ID": "BASKIN ROBINS", "ITEM_REF": "ICE CREAM", "TRANS_AMOUNT": 10.00, "X": -71.48923, "Y": 42.72347, "L_X": -71.48923, "L_Y": 42.72347});
INSERT INTO JSON_TRANSACTIONS_GEO VALUES ('{"TIME_ID": "25-JAN-17 09:35:10", "USER_ID": "JOHN", "MERCHANT_ID": "COSTCO", "ITEM_REF": "GROCERIES", "TRANS_AMOUNT": 55.00, "X": -71.48923, "Y": 42.72347, "L_X": -71.48989, "L_Y": 42.72347});
INSERT INTO JSON_TRANSACTIONS_GEO VALUES ('{"TIME_ID": "25-JAN-17 10:40:10", "USER_ID": "JOHN", "MERCHANT_ID": "STARBUCKS", "ITEM_REF": "COFFEE", "TRANS_AMOUNT": 5.00, "X": -71.48923, "Y": 42.72347, "L_X": -71.48854, "L_Y": 42.72347, "L_Z": 17.5});
INSERT INTO JSON_TRANSACTIONS_GEO VALUES ('{"TIME_ID": "25-JAN-17 16:36:10", "USER_ID": "JOHN", "MERCHANT_ID": "BESTBUY", "ITEM_REF": "APPLE MAC PRO", "TRANS_AMOUNT": 4150.00, "X": -91.48923, "Y": 42.72347, "L_X": -71.48923, "L_Y": 42.72347, "L_Z": 17.5});

COMMIT;

CREATE OR REPLACE VIEW VW_JSON_CC_TRANS AS
SELECT
    TO_DATE(J.TRANS_GEO_DOC.TIME_ID, 'DD-MON-YYYY, HH24:MI:SS') AS DAY_ID,
    TO_CHAR(TO_TIMESTAMP(J.TRANS_GEO_DOC.TIME_ID, 'DD-MON-YYYY, HH24:MI:SS'), 'HH24:MI:SS') AS TIME_ID,
    TRUNC((TO_DATE(J.TRANS_GEO_DOC.TIME_ID, 'DD-MON-RR, HH24:MI:SS')) -
        (TO_DATE(LAG(J.TRANS_GEO_DOC.TIME_ID, 1) OVER (ORDER BY J.TRANS_GEO_DOC.TIME_ID), 'DD-MON-RR, HH24:MI:SS'))) * 24, 0) AS LAG_TIME,
    J.TRANS_GEO_DOC.USER_ID AS USER_ID,
    J.TRANS_GEO_DOC.MERCHANT_ID AS MERCHANT_ID,
    J.TRANS_GEO_DOC.ITEM_REF AS ITEM_REF,
    TO_NUMBER(J.TRANS_GEO_DOC.TRANS_AMOUNT) AS TRANS_AMOUNT,
    TO_NUMBER(J.TRANS_GEO_DOC.X) AS GEO_X,
    TO_NUMBER(J.TRANS_GEO_DOC.Y) AS GEO_Y,
    TO_NUMBER(J.TRANS_GEO_DOC.L_X) AS GEO_LAG_X,
    TO_NUMBER(J.TRANS_GEO_DOC.L_Y) AS GEO_LAG_Y
FROM JSON_TRANSACTIONS_GEO J;

SELECT
    L.DAY_ID AS DAY_ID,
    L.TIME_ID AS TIME_ID,
    L.LAG_TIME AS MINS,
    L.USER_ID,
    L.MERCHANT_ID,
    L.ITEM_REF,
    L.TRANS_AMOUNT,
    SDO_GEOEM.SDO_DISTANCE(SDO_GEOMETRY(2001, 8307, SDO_POINT_TYPE(L.GEO_X, L.GEO_Y, NULL), NULL, NULL),
        SDO_Geometry(2001, 8307, SDO_POINT_TYPE(L.GEO_LAG_X, L.GEO_LAG_Y, NULL), NULL, NULL),
        0.0001, 'UNIT=KM') AS DISTANCE_BETWEEN_TRANS
FROM VW_JSON_CC_TRANS L
ORDER BY L.DAY_ID, TIME_ID;

```

#### -- REINICIALIZAÇÃO DO WORKSHOP !!!!

```

DROP TABLE ADMIN.DEPARTMENTS_JSON PURGE;
DROP TABLE ADMIN.EMPLOYEES PURGE;
DROP TABLE ADMIN.JSON_DOCUMENTS PURGE;
DROP MATERIALIZED VIEW ADMIN.JSON_DOCUMENTS_MV;
DROP TABLE ADMIN.JSON_TRANSACTIONS PURGE;
DROP TABLE ADMIN.JSON_TRANSACTIONS_GEO PURGE;

```

# 6 LAB 5: LOADING DATA TO ADB USING DATABASE ACTIONS: DATABASE

## 6.1 Link para documentação oficial

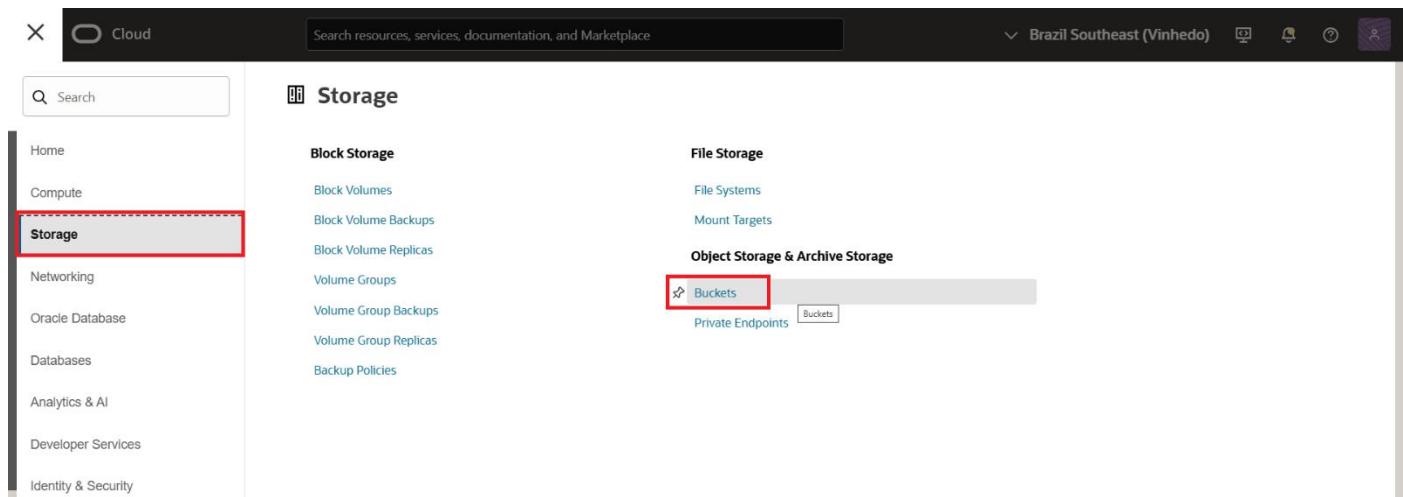
<https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/gs-autonomous-database-tutorials-load-autonomous-database-data-studio.html>

### Supported file types for loading locally include:

- **.csv** (Comma-separated values) or **.tsv** (Tab-separated values) files; **.xls** or **.xlsx** files (Excel spreadsheets); **.txt** files with delimited text; **.avro** (AVRO) files; **.json** (JSON) files; **.xml** (XML) files

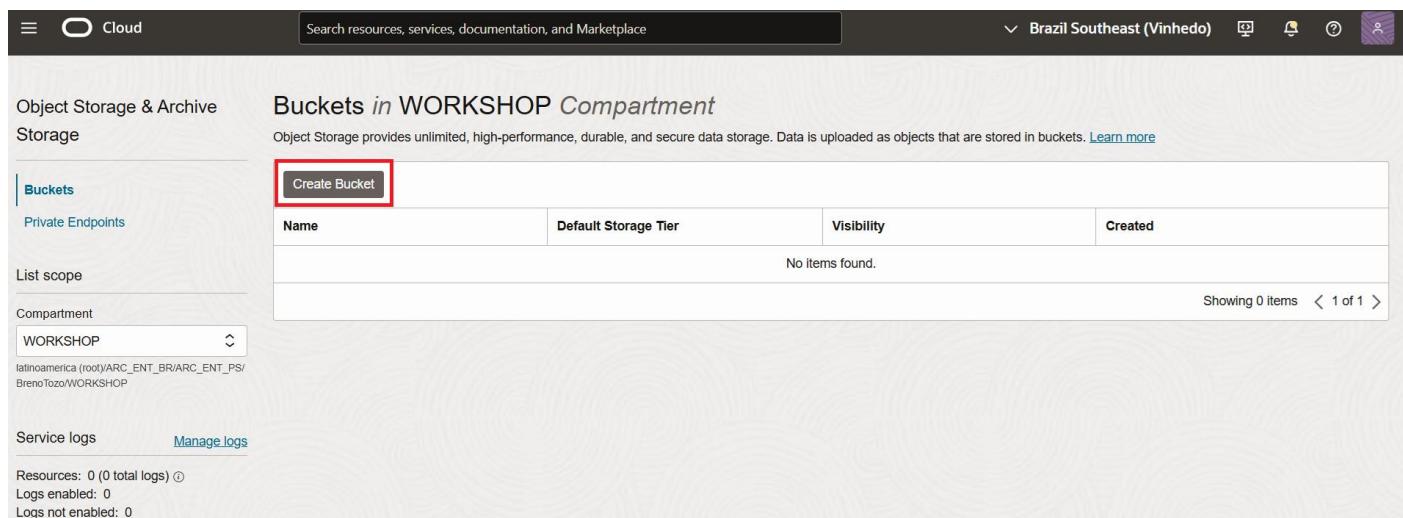
## 6.2 Create a bucket and Upload Files

Para criar um bucket de object storage, clique no menu -> Object Storage -> Object storage



The screenshot shows the Oracle Cloud Infrastructure (OCI) console. The top navigation bar includes 'Cloud', a search bar, and a location dropdown set to 'Brazil Southeast (Vinhedo)'. The left sidebar has a 'Storage' section highlighted with a red box, containing links for Home, Compute, Storage, Networking, Oracle Database, Databases, Analytics & AI, Developer Services, and Identity & Security. The main content area is titled 'Storage' and contains sections for 'Block Storage' (Block Volumes, Block Volume Backups, Block Volume Replicas, Volume Groups, Volume Group Backups, Volume Group Replicas, Backup Policies), 'File Storage' (File Systems, Mount Targets), and 'Object Storage & Archive Storage' (Buckets, Private Endpoints). The 'Buckets' link is also highlighted with a red box.

Verifique se você está no Compartimento certo.



The screenshot shows the 'Buckets in WORKSHOP Compartment' page. The left sidebar shows 'Object Storage & Archive Storage' with a 'Buckets' section highlighted with a red box. It also lists 'Private Endpoints', 'List scope', 'Compartment' (set to 'WORKSHOP'), and 'Service logs' (Manage logs). The main content area displays a table for creating buckets, with a 'Create Bucket' button highlighted with a red box. The table columns are 'Name', 'Default Storage Tier', 'Visibility', and 'Created'. Below the table, it says 'No items found.' and 'Showing 0 items < 1 of 1 >'. The status bar at the bottom shows 'Resources: 0 (total logs) ① Logs enabled: 0 Logs not enabled: 0'.

Clique em Create Bucket e insira o nome **myAppBucket** e clique em Create Bucket

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Buckets in WORKSHOP Compartment

Create Bucket

**Bucket Name** myAppBucket

**Default Storage Tier** Standard

Enable Auto-Tiering

Enable Object Versioning

Enable Object Events

Uncommitted Multipart Uploads Cleanup

Encrypt using Oracle managed keys

Encrypt using customer-managed keys

**Resource logging**

Enable resource logging to allow resource tracking, troubleshooting, and data insights

Resource logging disabled

**Tags**

Add tags to organize your resources. [What can I do with tagging?](#)

Tag namespace	Tag key	Tag value
None (add a free-form tag)		

**Create** **Cancel**

Após ter criado o Bucket sua tela ficará assim. Clique no nome do bucket que foi criado.

Buckets in WORKSHOP Compartment

Object Storage provides unlimited, high-performance, durable, and secure data storage. Data is uploaded as objects that are stored in buckets. [Learn more](#)

Name	Default Storage Tier	Visibility	Created	⋮
myAppBucket	Standard	Private	Sat, Feb 1, 2025, 17:35:14 UTC	⋮

Showing 1 item < 1 of 1 >

Clique no bucket **myAppBucket** para iniciarmos o upload de dados para o storage object.

Cloud

Object Storage > Bucket Details

myAppBucket

Edit Visibility Move Resource Re-encrypt Add tags Delete

Bucket Information Tags

**General**

- Namespace: id100a010nx
- Compartment: WORKSHOP
- Created: Fri, Jan 31, 2025, 13:20:50 UTC
- ETag: 734e8e19-4a75-4bfa-b3d8-e11dfb31592d
- OCID: ...4kq5reva Show Copy

**Usage**

- Approximate Object Count: 2 objects
- Approximate Size: 4.68 MB
- Uncommitted Multipart Uploads Approximate Count: 0 uploads
- Uncommitted Multipart Uploads Approximate Size: 0 bytes

**Features**

- Default Storage Tier: Standard
- Visibility: Private
- Encryption Key: Oracle managed key Assign
- Auto-Tiering: Disabled Edit
- Emit Object Events: Disabled Edit
- Object Versioning: Disabled Edit

Resources

**Objects**

Upload More Actions ▾ Search by prefix

Name	Last Modified	Size	Storage Tier
No items found.			

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## Fazer upload do arquivo abaixo:

- Devices.xlsx



Cloud

Object Storage > Bucket Details

myAppBucket

Edit Visibility Move Resource Re-encrypt A

Bucket Information Tags

**General**

- Namespace: id100a010nx
- Compartment: WORKSHOP
- Created: Fri, Jan 31, 2025, 13:20:50 UTC
- ETag: 734e8e19-4a75-4bfa-b3d8-e11dfb31592d
- OCID: ...4kq5reva Show Copy

**Usage**

- Approximate Object Count: 3 objects
- Approximate Size: 20.78 KB
- Uncommitted Multipart Uploads Approximate Count: 0
- Uncommitted Multipart Uploads Approximate Size: 0 bytes

**Objects**

Upload More Actions ▾

Object Name Prefix: Optional

Storage Tier: Standard

Additional checksum: Optional

None

Choose Files from your Computer

Drop files here or select files

Devices.xlsx / 0.13 KB

Show Optional Response Headers and Metadata

1

2

3

Upload Cancel

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Após o final do upload (ítem 5), clicar em **CLOSE**

Agora iremos criar uma solicitação pré-autorizada para cada arquivo na lista.

The screenshot shows the 'Bucket Details' page for 'myAppBucket'. On the left, there's a large green circular icon with a white letter 'B'. The main content area has tabs for 'Bucket Information' and 'Tags'. Under 'General', details like Namespace (id100a010nx), Compartment (WORKSHOP), and Creation Date (Fri, Jan 31, 2025) are shown. Under 'Features', settings for Default Storage Tier (Standard), Visibility (Private), and Encryption Key (Oracle managed key) are listed. The 'Usage' section shows 3 objects, 20.78 KiB total size, and 0 multipart uploads. On the right, a sidebar offers actions like 'View Object Details', 'Download', 'Copy', 'Update Storage Tier', 'Create Pre-Authenticated Request' (highlighted with a red box labeled '2'), 'Re-encrypt', 'Rename', and 'Delete' (highlighted with a red box labeled '1'). A small red box highlights the 'Devices.xlsx' object in the 'Objects' list.

This screenshot shows the 'Create Pre-Authenticated Request' dialog overlaid on the 'Bucket Details' page. The dialog has a 'Name' field containing 'par-Devices' (highlighted with a red box). The 'Pre-Authenticated Request Target' section includes a 'Bucket' field (with a note about applying to all objects in the bucket) and an 'Object' field (with a note about applying to a specific object, highlighted with a red box labeled '2'). Other fields include 'Object Name' (Devices.xlsx), 'Access Type' (radio button selected for 'Permit object reads' - highlighted with a red box labeled '1'), and 'Expiration' (set to Feb 8, 2025, 16:53 UTC). At the bottom, a 'Create Pre-Authenticated Request' button is highlighted with a red box labeled '3'.

Crie um arquivo texto para copiar nome do PAR e a URL do arquivo no bucket.

The screenshot shows the Oracle Cloud Object Storage interface. On the left, there's a large green circular icon with a white letter 'B'. The main area displays a bucket named 'myAppBucket' with various details like Namespace, Compartment, and Usage. A modal window titled 'Pre-Authenticated Request Details' is open. It contains a 'Name' field with 'par-Devices' (marked with red box 1), a 'Pre-Authenticated Request URL' field with a long URL (marked with red box 2), a 'Copy this URL for your records' button, a note about dedicated endpoints, and a 'Close' button (marked with red box 3). Below the modal, the 'Objects' section is visible.

Ao final da criação da pre-autorização (PAR) para cada arquivo no object storage, seu arquivo texto deve estar da seguinte forma:

```

1 par-Devices
2 par-Devices
3 https://objectstorage.sa-vinhedo-1.oraclecloud.com/p/WEOMrp-JffkAlrsF0NAXCsTyVZud
4 K1KDqy4E1R0i5iEk2ubkkvYJyHaLX6sLxQA7/n/idi1o0a010nx/b/myAppBucket/o/Devices.xlsx
5

```

OU

par-Devices

<https://objectstorage.sa-vinhedo-1.oraclecloud.com/p/WEOMrp-JffkAlrsF0NAXCsTyVZudK1KDqy4E1R0i5iEk2ubkkvYJyHaLX6sLxQA7/n/idi1o0a010nx/b/myAppBucket/o/Devices.xlsx>

Retorne a página principal do Autonomous Database, menu “Database actions” e “View all database actions”:

The screenshot shows the Oracle Autonomous Database details page. At the top, there's a navigation bar with 'Cloud', a search bar, and account information for 'Brazil East (Sao Paulo)'. Below the navigation is a large green banner with 'ADW' and 'AVAILABLE'. The main content area has tabs for 'Database actions', 'Database connection', 'Performance Hub', 'Manage resource allocation', and 'More actions'. The 'Database actions' tab is selected and highlighted with a red box. Under this tab, there are links for 'SQL', 'REST', 'Database Users', 'Data Load', and 'View all database actions'. To the right, there's a section titled 'Disaster recovery' with details like 'Role: Primary', 'Local: Backup-based', and 'Cross-region: Not enabled'. Below this is a 'Backup' section with details about backup retention and storage.

Em Data Studio, selecione Carga de Dados

The screenshot shows the Oracle Data Studio Launchpad. At the top, there's a navigation bar with 'ORACLE Database Actions | Launchpad', a search bar, and account information for 'ADMIN'. The main interface has a top navigation bar with tabs: 'Fixo e Visitado Recentemente', 'Desenvolvimento', 'Data Studio' (which is highlighted with a red box), 'Administração', 'Downloads', 'Monitoramento', and 'Serviços Relacionados'. On the left, there's a sidebar with icons for 'Visão Geral do Data Studio', 'Data Marketplace', 'Assistente de IA da Tabela', 'Catálogo', 'Insights de Dados', 'Transformações de Dados', 'Análise de Dados', and 'Compartilhamento de Dados'. A red box highlights the 'Carga de Dados' icon. The central area is titled 'Visão Geral do Data Studio' and contains sections for 'Get Started' (with 'Data Load', 'Data Analysis', and 'Insights' options), 'Recent Objects', 'Documentação', and 'Ferramentas do Data Studio'. A red number '1' is above the 'Data Studio' tab, and a red number '2' is above the 'Carga de Dados' icon.

**Caso ocorra qualquer intercorrência, por favor repita o processo de abertura do “View all database actions”**

## Selecione Carregar Dados

The screenshot shows the Oracle Database Actions interface with the 'Carga de Dados' (Load Data) section selected. A red box highlights the 'CARREGAR DADOS' (Load Data) button. Below it, there are sections for 'DADOS DO LINK' (Data from Link), 'DADOS DE FEED' (Data from Feed), and 'CONEXÕES' (Connections). A message at the bottom indicates that credentials and AI profile were not found. The main area is titled 'Cargas de View e Tabela' (Load of Views and Tables) and shows a message: 'Não há itens para exibição.' (No items to display).

## Selecione Cloud Storage

The screenshot shows the Oracle Database Actions interface with the 'Carregar Dados' (Load Data) section selected. A red box highlights the 'Cloud Store' tab. Below it, a message indicates that a credential was not found. The main area is titled 'Selecionar o Local do Cloud Store ou insira a URL pública' (Select Cloud Store location or enter public URL) and shows a URL input field with a red box around it. Numbered callouts point to: 1. 'Cloud Store' tab, 2. URL input field, 3. 'Arrastar e soltar' (Drag and drop) instruction, and 4. 'Início' (Start) button.

### Iniciar Carregamento do Cloud Store

Deseja iniciar o carregamento com base no Cloud Store?

**Executar**

**Cancelar**

## Clique em Consulta

The screenshot shows the Oracle Database Actions interface. On the left, there's a sidebar with navigation links: Visão Geral, Carga de Dados, Análise, Insights, Catálogo, Marketplace, and Compartilhamento de Dados. The main area is titled 'Cargas de View e Tabela' and shows a table named 'ADMIN.DEVICES' with 3 columns. A message at the top says 'Não Foram Encontrados a Credencial e o Perfil de IA'. Below the table, there are buttons for 'Relatório' and 'Recarregar'. The 'Consulta' button is highlighted with a red box.

É possível verificar que os dados foram carregados e já estão disponíveis para análises

The screenshot shows the Oracle Database Actions interface with a report titled 'My Report\_Report-0'. The report contains a single query: 'SELECT \* FROM "ADMIN"."DEVICES"'. To the right of the query, there are three bar charts labeled 'DEVICE', 'FORM\_FACTOR', and 'SALES'. Below the report, there's a table titled 'Resultado da Consulta' with the following data:

DEVICE	FORM_FACTOR	SALES
phone x1	Smartphone	1000
phone h56	Smartphone	900
phone a75d8	Smartphone	800
Comp b94p	Computer	700
phone 455BP	Smartphone	600
Comp 99ai	Computer	500

Agora podemos por exemplo criar um gráfico a partir das informações que foram carregadas a partir do **Storage Object**.

Vamos clicando com o botão direito do mouse sobre a coluna **DEVICE**, vamos atribuí-la ao **eixo X** do nosso gráfico

1

2

3

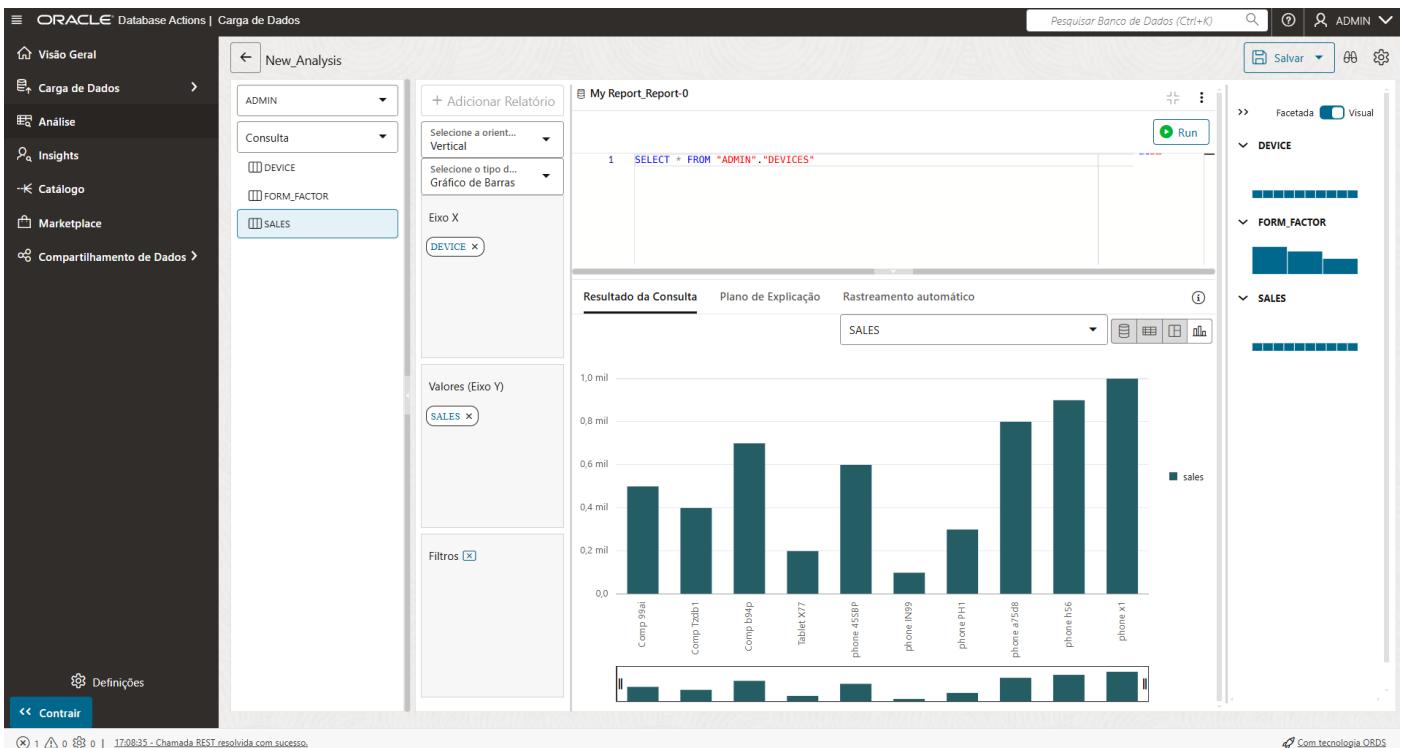
E a coluna **SALES** como o eixo Y do nosso gráfico

1

2

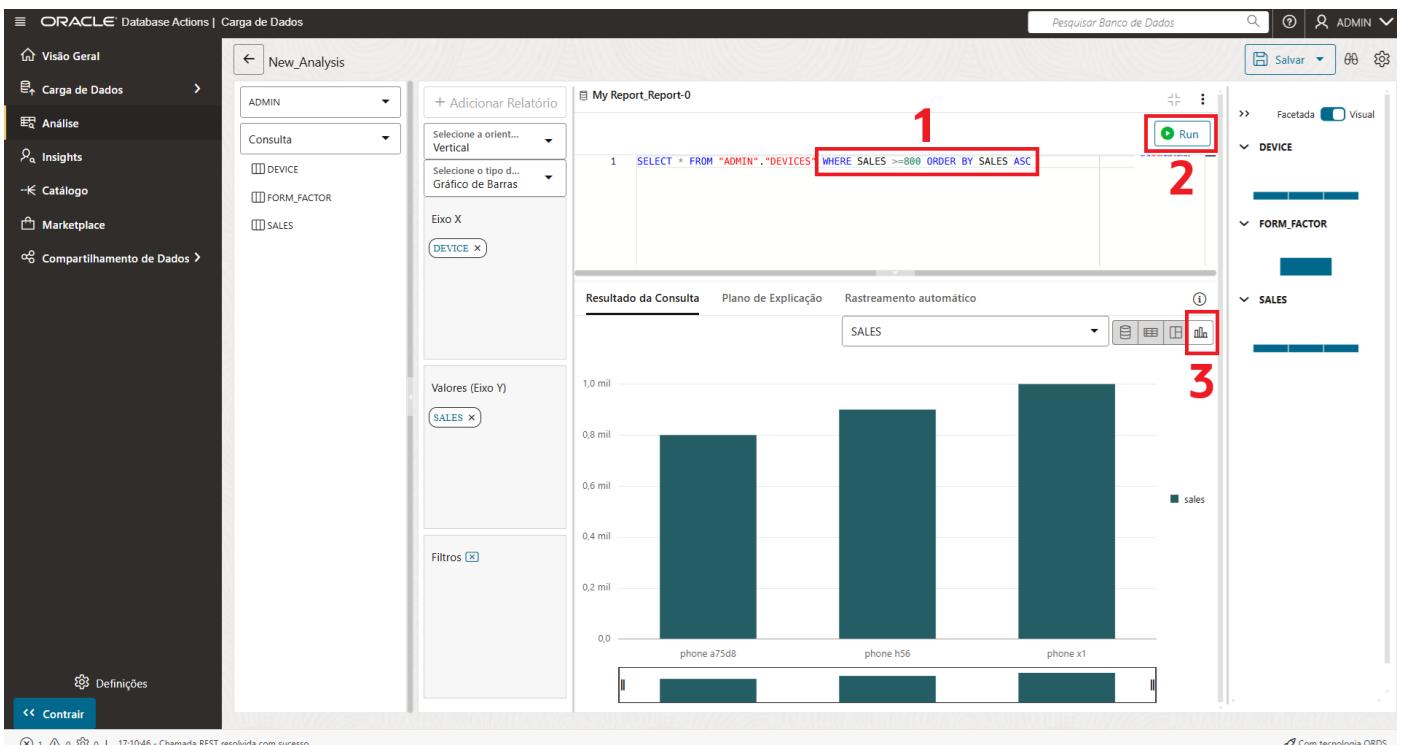
3

Clique no botão RUN para ver o resultado no gráfico



Também é possível modificar a consulta, por exemplo:

```
SELECT * FROM "ADMIN"."DEVICES" WHERE SALES >=800 ORDER BY SALES ASC
```



E podemos observar a mudança no gráfico.

## 7 LAB 6: CREATE A CLONE AUTONOMOUS DATABASE

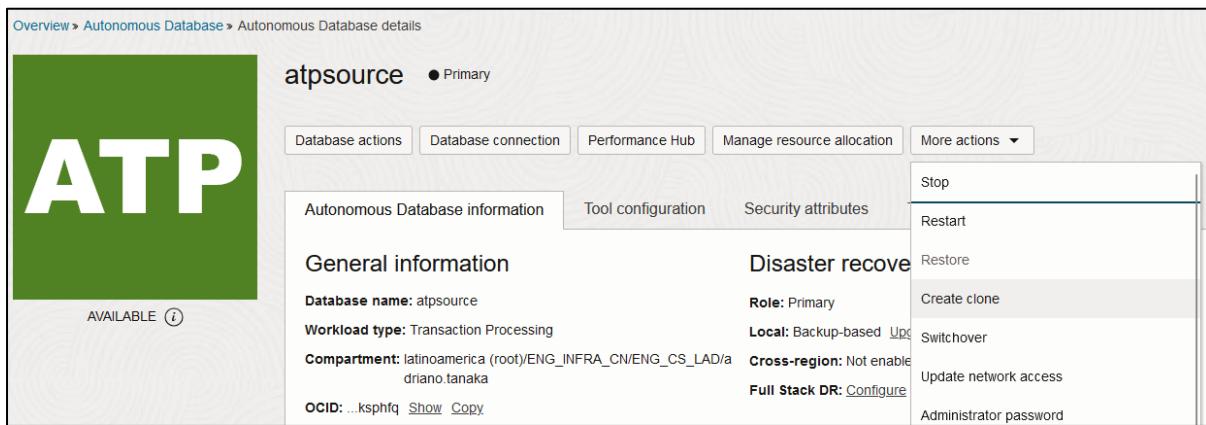
Nesta etapa iremos fazer o clone do database “adwft” já criado anteriormente.

### 7.1 Link para documentação oficial

<https://docs.oracle.com/en/cloud/paas/autonomous-database/serverless/adbsb/autonomous-clone.html>

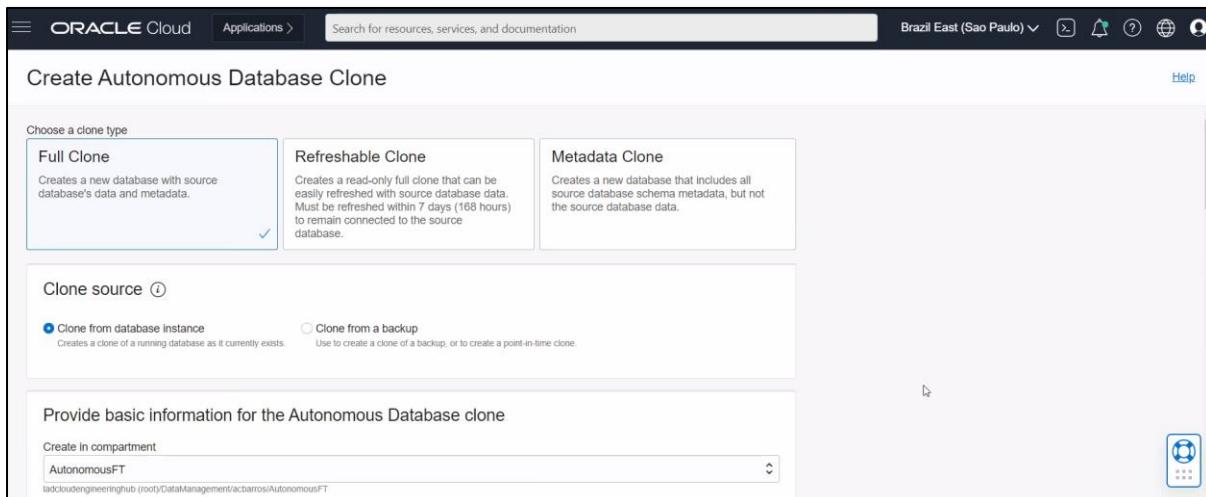
### 7.2 Full Clone

Na página inicial do banco de dados “adwft” clique em “More Actions” e depois em “Create Clone”:



The screenshot shows the Oracle Cloud interface for an Autonomous Database named 'atpsource'. The database is listed as 'AVAILABLE'. In the top right corner of the main panel, there's a 'More actions' button with a dropdown menu. The 'Create clone' option is clearly visible and highlighted in the list.

Depois escolha “Full Clone”, em Clone Source escolha “Clone from database instance”.



This screenshot shows the 'Create Autonomous Database Clone' wizard. It starts with a section to choose a clone type, where 'Full Clone' is selected. Below that, it asks for a 'Clone source', with 'Clone from database instance' chosen. Finally, it prompts for basic information about the new database, including its compartment, which is set to 'autonomousFT'.

Compartiment: autonomousFT

Display name: cloneadwft

Database name: cloneadwft

Choose database version: 19c ECPU Count: 2

Storage: 50GB

No auto scaling

Escolha a admin Password que você deseja

**Create Autonomous Database Clone**

Provide basic information for the Autonomous Database clone

Create in compartment  
AutonomousFT  
iadcloudengineeringhub (root)/DataManagement/acbarros/AutonomousFT

Source database name **Read-Only**  
adwft

Display name  
**Clone of adw\_ft**  
A user-friendly name to help you easily identify the resource.

Database name  
**cloneadwft**  
The name must contain only letters and numbers, starting with a letter. 14 characters max.

Configure the database

Choose database version



**Create Autonomous Database Clone**

Configure the database

Choose database version  
**19c**  
Cloned databases must use an Oracle Database version that is the same or higher than the source database.

OCPU count  
**1**  
The number of OCPU cores to enable. Available cores are subject to your tenancy's service limits.

Storage (TB)  
**1**  
The amount of storage to allocate.

Patch level  
**Regular**  
Your database will be patched on a regular schedule. The region selected does not currently support early patching.



**Create Autonomous Database Clone**

Create administrator credentials [?](#)

Username **Read-Only**  
ADMIN  
ADMIN username cannot be edited.

Password  
\*\*\*\*\*

Confirm password  
\*\*\*\*\*

Choose network access

Access Type

- Secure access from everywhere**  Allow users with database credentials to access the database from the internet.
- Secure access from allowed IPs and VCNs only  Restrict access to specified IP addresses and VCNs.
- Private endpoint access only  Restrict access to a private endpoint within an OCI VCN.

Require mutual TLS (mTLS) authentication [?](#)

**Create Autonomous Database Clone** **Cancel**



Allow Secure access from everywhere

Choose licensing type: Byol

Informe um email de contato

ORACLE Cloud Applications > Search for resources, services, and documentation Brazil East (Sao Paulo) Help

### Create Autonomous Database Clone

Require mutual TLS (mTLS) authentication ⓘ If you select this option, mTLS will be required to authenticate connections to your Autonomous Database.

Choose a license type

**Bring Your Own License (BYOL)** Bring my organization's Oracle Database software licenses to the Database service. [Learn more](#)

**License Included** Subscribe to new Oracle Database software licenses and the Database service.

Provide contacts for operational notifications and announcements ⓘ

Contact Email: joao da silva@email.com [x](#) [Add Contact](#)

[Show Advanced Options](#)

[Create Autonomous Database Clone](#) [Cancel](#)

E depois clique em "Create Autonomous Database Clone":

ORACLE Cloud Applications > Search for resources, services, and documentation Brazil East (Sao Paulo) Help

Overview » Autonomous Database » Autonomous Database Details

### Clone of adw\_ft

DB Connection Performance Hub Service Console Scale Up/Down More Actions ▾

Autonomous Database Information		Tools	Tags
<b>General Information</b>	<b>Infrastructure</b>		
<b>Database Name:</b> cloneadwft <b>Workload Type:</b> Data Warehouse <b>Compartment:</b> iadcloudeengineeringhub (root)/DataManagement/acbarros/AutonomousFT <b>OCID:</b> ...fyrkxa <a href="#">Show Copy</a> <b>Created:</b> Wed, Aug 4, 2021, 18:38:01 UTC <b>OCPU Count:</b> 1 <b>Auto Scaling:</b> Disabled ⓘ <b>Storage:</b> 1 TB <b>License Type:</b> Bring Your Own License (BYOL) <b>Database Version:</b> 19c <b>Lifecycle State:</b> Provisioning	<b>Dedicated Infrastructure:</b> No  <b>Autonomous Data Guard</b> ⓘ <b>Status:</b> Disabled <a href="#">Enable</a>	<a href="#">Backup</a>	
<b>Backup</b>		<b>Network</b>	<a href="#">Access Type:</a> Allow secure access from everywhere

Quando estiver concluído o nome do banco aparecerá com um fundo verde:

ORACLE Cloud Applications > Search for resources, services, and documentation Brazil East (Sao Paulo) Help

Overview » Autonomous Database » Autonomous Database Details

### Clone of adw\_ft

DB Connection Performance Hub Service Console Scale Up/Down More Actions ▾

Autonomous Database Information		Tools	Tags
<b>General Information</b>	<b>Infrastructure</b>		
<b>Database Name:</b> cloneadwft <b>Workload Type:</b> Data Warehouse <b>Compartment:</b> iadcloudeengineeringhub (root)/DataManagement/acbarros/AutonomousFT <b>OCID:</b> ...fyrkxa <a href="#">Show Copy</a> <b>Created:</b> Wed, Aug 4, 2021, 18:38:01 UTC <b>OCPU Count:</b> 1 <b>Auto Scaling:</b> Disabled ⓘ <b>Storage:</b> 1 TB <b>License Type:</b> Bring Your Own License (BYOL) <b>Database Version:</b> 19c <b>Lifecycle State:</b> Available	<b>Dedicated Infrastructure:</b> No  <b>Autonomous Data Guard</b> ⓘ <b>Status:</b> Disabled <a href="#">Enable</a>	<a href="#">Backup</a>	
<b>Backup</b>		<b>Network</b>	<a href="#">Access Type:</a> Allow secure access from everywhere

## EXECUTE A CONSULTA NO BANCO DE DADOS CLONADO

```
SELECT
    L.DAY_ID AS DAY_ID,
    L.TIME_ID AS TIME_ID,
    L.LAG_TIME AS MINS,
    L.USER_ID,
    L.MERCHANT_ID,
    L.ITEM_REF,
    L.TRANS_AMOUNT,
    SDO_GEOEM.SDO_DISTANCE(SDO_GEOMETRY(2001,8307,SDO_POINT_TYPE(L.GEO_X, L.GEO_Y, NULL),NULL,NULL),
                            SDO_GEOGRAPHY(2001,8307,SDO_POINT_TYPE(L.GEO_LAG_X, L.GEO_LAG_Y, NULL),NULL,NULL),
                            0.0001,'UNIT=KM') AS DISTANCE_BETWEEN_TRANS
FROM VW_JSON_CC_TRANS L
ORDER BY L.DAY_ID, TIME_ID;
```

Apague o banco de dados clonado (Full Clone).

The screenshot shows the Oracle Cloud Infrastructure (OCI) Autonomous Database details page for a database named 'Clone-of-ADBBT'. The database is listed as Primary. The main interface includes tabs for 'Autonomous Database information', 'Tool configuration', 'Security attributes', and 'Tags'. Under 'General information', details such as Database name (XU0TJK1XF7I4WW9), Workload type (Transaction Processing), Compartment (latinoamerica (root)/ARC\_ENT\_BR/ARC\_ENT\_PS/BrenoTozo/WORKSHOP), OCID (...uzvlla), and creation date (Mon, Feb 3, 2025, 11:46:16 UTC) are displayed. The 'More actions' dropdown menu is open, showing options like 'Administrator password', 'Update license and Oracle Database edition', 'Auto start/stop schedule', 'Manage encryption key', 'Rename database', 'Update display name', 'Move resource', 'Add security attributes', and 'Add tags'. The 'Terminate' option is highlighted with a red box.

### Terminate Autonomous Database

Are you sure you want to terminate Autonomous Database **Clone-of-ADBBT**? Terminating the Autonomous Database **Clone-of-ADBBT** permanently deletes the database and **all its backups**. You cannot recover a terminated Autonomous Database.

To confirm, enter the name of the database that you want to terminate:

**Terminate Autonomous Database** [Cancel](#)

## 7.3 Metadata Clone

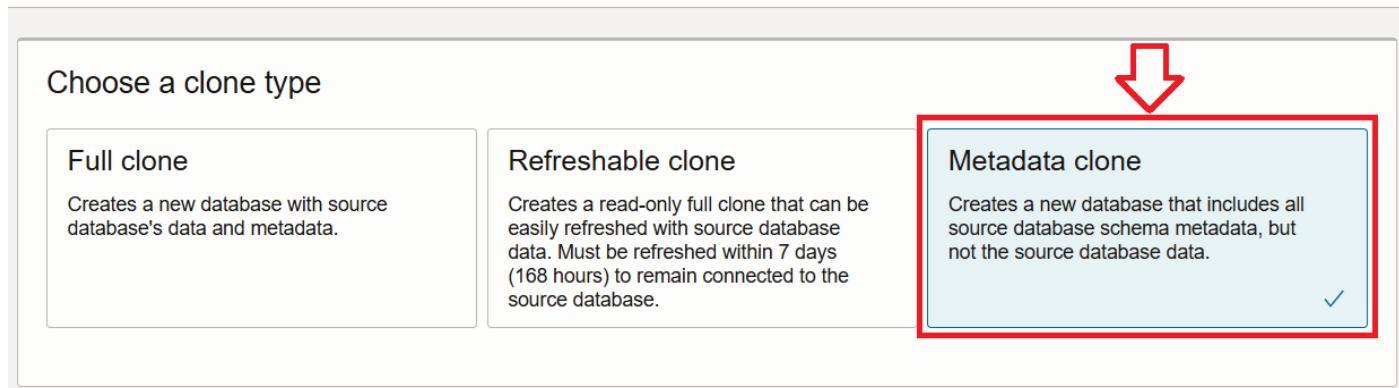
Repita os passos de clonagem de banco de dados, mas agora criando um **METADATA CLONE**, conforme abaixo:

Compartment: autonomousFT

Display name: cloneadwftMDO

Database name: cloneadwftMDO

### Create Autonomous Database clone



### EXECUTE A CONSULTA NO BANCO DE DADOS CLONADO

```
SELECT
  L.DAY_ID AS DAY_ID,
  L.TIME_ID AS TIME_ID,
  L.LAG_TIME AS MINS,
  L.USER_ID,
  L.MERCHANT_ID,
  L.ITEM_REF,
  L.TRANS_AMOUNT,
  SDO_GEOGRAPHY.SDO_DISTANCE(SDO_GEOGRAPHY(2001,8307,SDO_POINT_TYPE(L.GEO_X, L.GEO_Y, NULL),NULL,NULL),
                               SDO_GEOGRAPHY(2001,8307,SDO_POINT_TYPE(L.GEO_LAG_X, L.GEO_LAG_Y, NULL),NULL,NULL),
                               0.0001,'UNIT=KM') AS DISTANCE_BETWEEN_TRANS
FROM VW_JSON_CC_TRANS L
ORDER BY L.DAY_ID, TIME_ID;
```

Após o teste da consulta, apague o banco de dados clonado “metadata clone”.

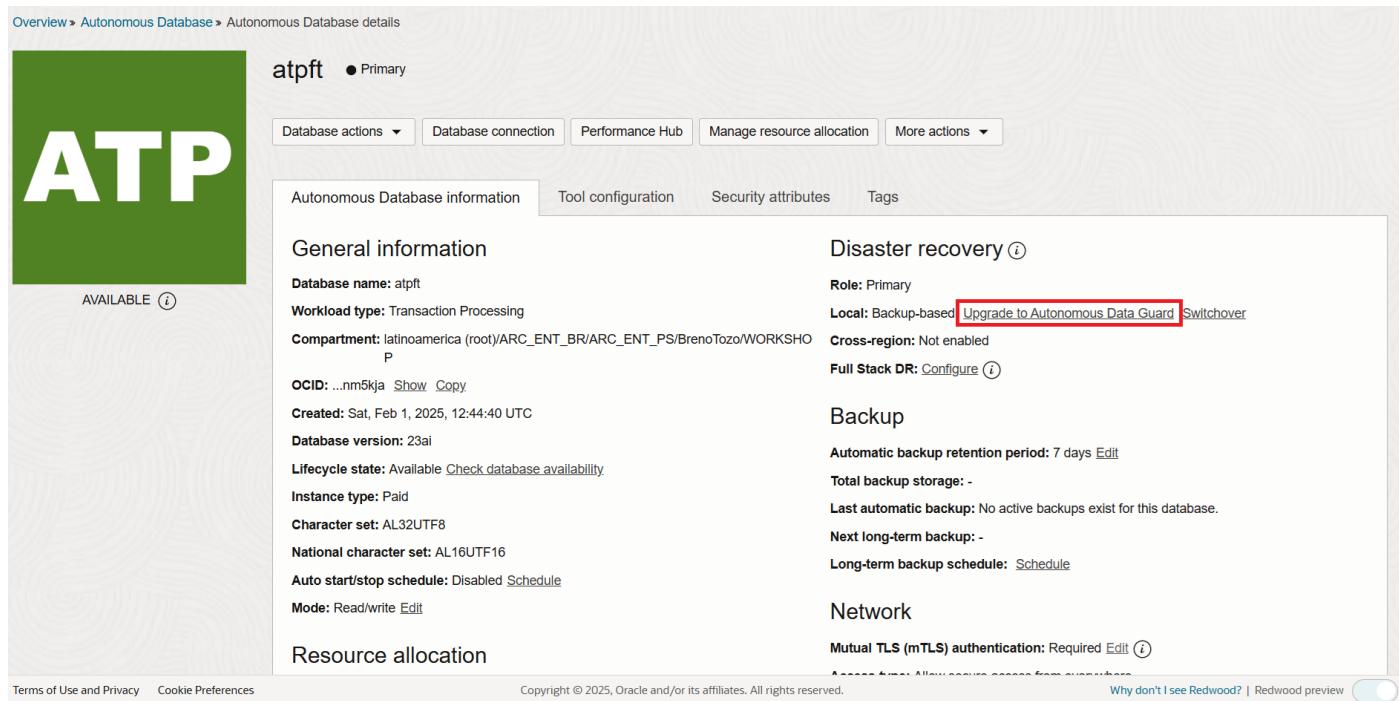
# 8 LAB 7: CREATE A AUTONOMOUS DATA GUARD

## 8.1 Link para documentação oficial

<https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/autonomous-data-guard-update-type.html#GUID-967ED737-4A05-4D6E-A7CA-C3F21ACF9BFO>

## 8.2 Oracle Autonomous Data Guard

Nesta etapa iremos criar um data guard a partir do ADB “adwft”.



Overview > Autonomous Database > Autonomous Database details

atpt • Primary

Database actions Database connection Performance Hub Manage resource allocation More actions

Autonomous Database information Tool configuration Security attributes Tags

**General information**

Database name: atpt  
Workload type: Transaction Processing  
Compartment: latinoamerica (root)/ARC\_ENT\_BR/ARC\_ENT\_PS/BrenoTozo/WORKSHOP  
OCID: ...nm5kja Show Copy  
Created: Sat, Feb 1, 2025, 12:44:40 UTC  
Database version: 23ai  
Lifecycle state: Available [Check database availability](#)  
Instance type: Paid  
Character set: AL32UTF8  
National character set: AL16UTF16  
Auto start/stop schedule: Disabled [Schedule](#)  
Mode: Read/write [Edit](#)

**Disaster recovery**

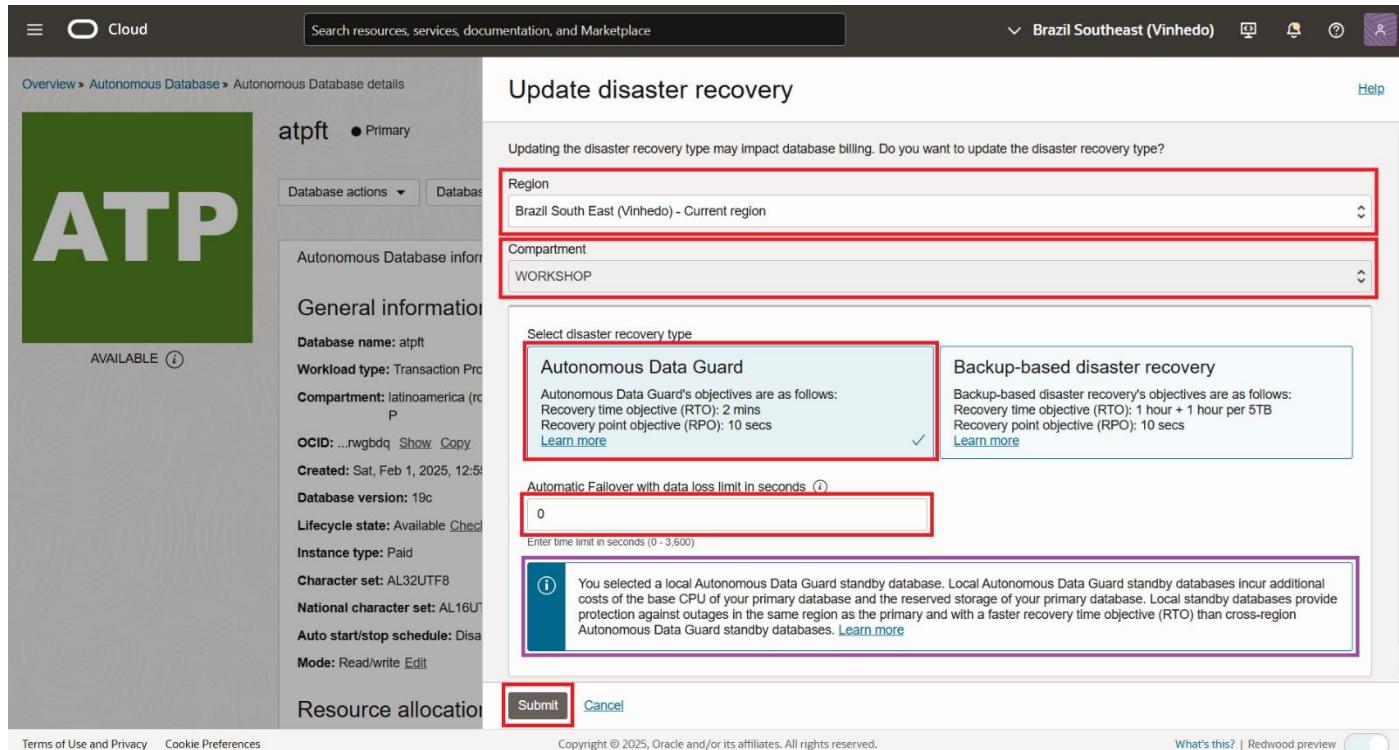
Role: Primary  
Local: Backup-based [Upgrade to Autonomous Data Guard](#) Switchover  
Cross-region: Not enabled  
Full Stack DR: [Configure](#)

**Backup**

Automatic backup retention period: 7 days [Edit](#)  
Total backup storage: -  
Last automatic backup: No active backups exist for this database.  
Next long-term backup: -  
Long-term backup schedule: [Schedule](#)

**Network**

Mutual TLS (mTLS) authentication: Required [Edit](#)  
[Access keys](#) Allow secure access from everywhere  
Why don't I see Redwood? | Redwood preview



Overview > Autonomous Database > Autonomous Database details

Cloud Search resources, services, documentation, and Marketplace Brazil Southeast (Vinhedo) Help

atpt • Primary

Database actions Database

Autonomous Database information

**General information**

Database name: atpt  
Workload type: Transaction Proc  
Compartment: latinoamerica (rc  
OCID: ...rwgbdq Show Copy  
Created: Sat, Feb 1, 2025, 12:51  
Database version: 19c  
Lifecycle state: Available [Check](#)  
Instance type: Paid  
Character set: AL32UTF8  
National character set: AL16UTF16  
Auto start/stop schedule: Disa  
Mode: Read/write [Edit](#)

**Update disaster recovery**

Updating the disaster recovery type may impact database billing. Do you want to update the disaster recovery type?

**Region**  
Brazil South East (Vinhedo) - Current region

**Compartment**  
WORKSHOP

**Select disaster recovery type**

Autonomous Data Guard  
Autonomous Data Guard's objectives are as follows:  
Recovery time objective (RTO): 2 mins  
Recovery point objective (RPO): 10 secs [Learn more](#)

Backup-based disaster recovery  
Backup-based disaster recovery's objectives are as follows:  
Recovery time objective (RTO): 1 hour + 1 hour per 5TB  
Recovery point objective (RPO): 10 secs [Learn more](#)

Automatic Failover with data loss limit in seconds [Edit](#)  
0  
Enter time limit in seconds (0 - 3,600)

You selected a local Autonomous Data Guard standby database. Local Autonomous Data Guard standby databases incur additional costs of the base CPU of your primary database and the reserved storage of your primary database. Local standby databases provide protection against outages in the same region as the primary and with a faster recovery time objective (RTO) than cross-region Autonomous Data Guard standby databases. [Learn more](#)

Submit Cancel

Cloud Search resources, services, documentation, and Marketplace Brazil Southeast (Vinhedo) Overview > Autonomous Database > Autonomous Database details

atpf ● Primary

Database actions ▾ Database connection Performance Hub Manage resource allocation More actions ▾

Autonomous Database information Tool configuration Security attributes Tags

**General information**

**Database name:** atpf  
**Workload type:** Transaction Processing  
**Compartment:** latinoamerica (root)/ARC\_ENT\_BR/ARC\_ENT\_PS/BrenoTozo/WORKSHOP  
P  
**OCID:** ...rwgbdq [Show](#) [Copy](#)  
**Created:** Sat, Feb 1, 2025, 12:55:29 UTC  
**Database version:** 19c  
**Lifecycle state:** Updating [Check database availability](#)  
**Instance type:** Paid  
**Character set:** AL32UTF8  
**National character set:** AL16UTF16  
**Auto start/stop schedule:** Disabled [Schedule](#)  
**Mode:** Read/write [Edit](#)

**Resource allocation**

**Disaster recovery** ⓘ

**Role:** Primary  
**Local:** Backup-based [Upgrade to Autonomous Data Guard](#) [Switchover](#)  
**Cross-region:** Not enabled  
**Full Stack DR:** Configure ⓘ

**Backup**

**Automatic backup retention period:** 60 days [Edit](#)  
**Total backup storage:** -  
**Last automatic backup:** No active backups exist for this database.  
**Next long-term backup:** -  
**Long-term backup schedule:** [Schedule](#)

**Network**

**Mutual TLS (mTLS) authentication:** Required [Edit](#) ⓘ

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Cloud Search resources, services, documentation, and Marketplace Brazil Southeast (Vinhedo) Overview > Autonomous Database > Autonomous Database details

atpf ● Primary

Database actions ▾ Database connection Performance Hub Manage resource allocation More actions ▾

Autonomous Database information Tool configuration Security attributes Tags

**General information**

**Database name:** atpf  
**Workload type:** Transaction Processing  
**Compartment:** latinoamerica (root)/ARC\_ENT\_BR/ARC\_ENT\_PS/BrenoTozo/WORKSHOP  
P  
**OCID:** ...rwgbdq [Show](#) [Copy](#)  
**Created:** Sat, Feb 1, 2025, 12:55:29 UTC  
**Database version:** 19c  
**Lifecycle state:** Available [Check database availability](#)  
**Instance type:** Paid  
**Character set:** AL32UTF8  
**National character set:** AL16UTF16  
**Auto start/stop schedule:** Disabled [Schedule](#)  
**Mode:** Read/write [Edit](#)

**Resource allocation**

**Disaster recovery** ⓘ

**Role:** Primary  
**Local:** Autonomous Data Guard [Switchover](#)  
**Cross-region:** Not enabled  
**Full Stack DR:** Configure ⓘ

**Backup**

**Automatic backup retention period:** 60 days [Edit](#)  
**Total backup storage:** -  
**Last automatic backup:** No active backups exist for this database.  
**Next long-term backup:** -  
**Long-term backup schedule:** [Schedule](#)

**Network**

**Mutual TLS (mTLS) authentication:** Required [Edit](#) ⓘ

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**Resource allocation**

ECPU count: 2  
Compute auto scaling: Enabled   
Storage: 100 GB  
Storage auto scaling: Disabled 

**Associated services**

Database Management: Not enabled    
Operation Insights: Not enabled  

**APEX instance**

Instance name: atptf

**Network**

Mutual TLS (mTLS) authentication: Required    
Access type: Allow secure access from everywhere  
Access control list: Disabled   
Availability domain: IAA-SA-VINHEDO-1-AD-1  
Availability domain (local peer): IAA-SA-VINHEDO-1-AD-1

**Maintenance**

Patch level: Regular   
Next maintenance: Sat, Feb 8, 2025, 06:00:00 UTC - 08:00:00 UTC   
Target component: Database  
Next maintenance (local peer): Sat, Feb 8, 2025, 06:00:00 UTC - 08:00:00 UTC   
Target component (local peer): Database  
Customer contacts: None 

**Data Safe**

Status: Not registered 

**Encryption**

Encryption key: Oracle-managed key

**Resources**

**Disaster recovery**

Local peer : 1, Cross-region peer : 0, You may create up to 1 local peer and 1 cross-region peer for every remote paired region that your tenancy is subscribed to.

Add peer database							
Peer Autonomous Database	Peer role	State	Region	DR type	Remote backup replication	Automatic Failover data loss limit	Role changed on
atptf	Standby	 Standby	Brazil Southeast (Vinhedo)	Autonomous Data Guard	Disabled	300 seconds	-

**1**   
**2** 

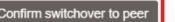
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Cloud Search resources, services, documentation, and Marketplace Brazil Southeast (Vinhedo) 

**Maintenance**

**Confirm switchover to peer**

Do you want to switchover to local disaster recovery peer atptf now?  
Confirm the switchover to the peer database 

**2** 

**Encryption**

Encryption key: Oracle-managed key

**Resources**

**Disaster recovery**

Local peer : 1, Cross-region peer : 0, You may create up to 1 local peer and 1 cross-region peer for every remote paired region that your tenancy is subscribed to.

Add peer database							
Peer role	State	Region	DR type	Remote backup replication	Automatic Failover data loss limit	Role changed on	Created
Standby	 Standby	Brazil Southeast (Vinhedo)	Autonomous Data Guard	Disabled	300 seconds	-	Sa

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## Disaster recovery

Local peer : 1, Cross-region peer : 0, You may create up to 1 local peer and 1 cross-region peer for every remote paired region that your tenancy is subscribed to.

**Add peer database**

Peer Autonomous Database	Peer role	State	Region	DR type
atptf	Standby	 Role change in progress	Brazil Southeast (Vinhedo)	Autonomous Data Guard

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Overview » Autonomous Database » Autonomous Database details

atpt Standby

Database actions Database connection Performance Hub Manage resource allocation More actions ▾

Autonomous Database information Tool configuration Security attributes Tags

**General information**

Database name: atpt  
Workload type: Transaction Processing  
Compartment: latinoamerica (root)/ARC\_ENT\_BR/ARC\_ENT\_PS/BrenoTozo/WORKSHOP  
OCID: ...rvgbdq Show Copy  
Created: Sat, Feb 1, 2025, 12:55:29 UTC  
Database version: 19c  
Autonomous Data Guard role: Standby  
Lifecycle state: Role change in progress [Check database availability](#)  
Instance type: Paid  
Character set: AL32UTF8

**Disaster recovery** ⓘ

Role: Standby [Switchover](#) [Update disaster recovery](#) [Disconnected peer](#)  
Cross-region backup replication: Not enabled  
Full Stack DR: [Configure](#) ⓘ

**Backup**

Automatic backup retention period: 60 days [Edit](#)  
Total backup storage: -  
Last automatic backup: Sat, Feb 1, 2025, 13:47:19 UTC  
Next long-term backup: -  
Long-term backup schedule: [Schedule](#)

ROLE CHANGE IN PROGRESS

The screenshot shows the Oracle Database Actions | SQL interface. The top navigation bar includes 'ORACLE Database Actions | SQL', a search bar 'Pesquisar Banco de Dados', and a user 'ADMIN'. On the left, there's a sidebar with 'Navegador' (ADMIN selected), 'Arquivos', and a dropdown for 'Tabelas'. Below that are buttons for 'Pesquisar...', 'Recarregar', and three dots. The main area shows a toolbar with icons for file operations and a red box highlighting the play button icon (number 2). A dropdown menu 'Planilha' is open. To the right, a consumer group dropdown shows 'Grupo de consumidores: LOW'. A 'Carga de Dados' button is also present. The SQL editor contains the following code:

```
1 select instance_name, host_name, status, to_char(sysdate, 'dd/mm/yyyy hh24:mi:ss') data from gv$instance
```

The result set is displayed below:

	INSTANCE_NAME	HOST_NAME	STATUS	DATA
1	eem1pod2	(nulo)	OPEN	01/02/2025 13:59:01

Below the results, it says 'Tempo de execução: 0,002 segundos'. The bottom status bar shows '13 0 0 0 14:12:42 - Falha na execução de código.'

```
select instance_name, host_name, status, to_char(sysdate, 'dd/mm/yyyy hh24:mi:ss') data from gv$instance
```

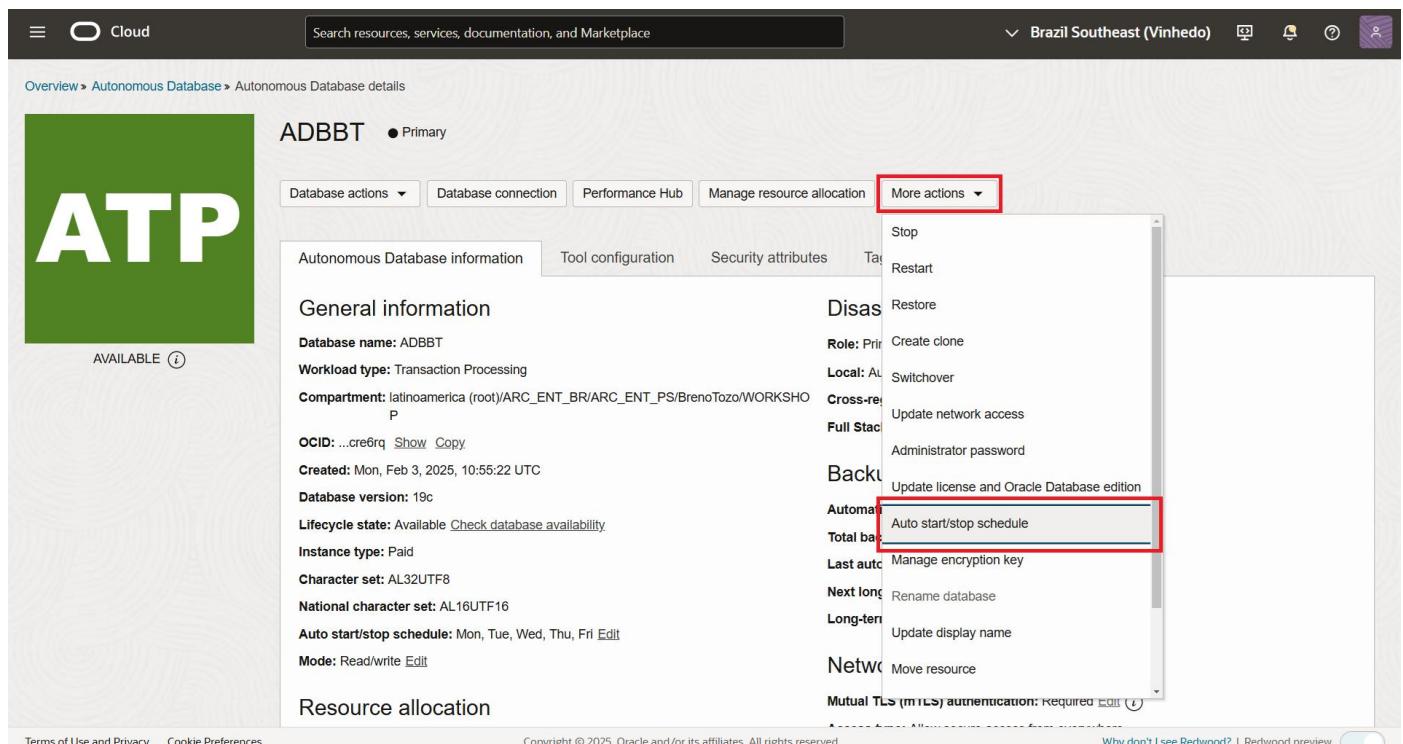
## 9 LAB 8: AUTO START/STOP SCHEDULE

### 9.1 Link para documentação oficial

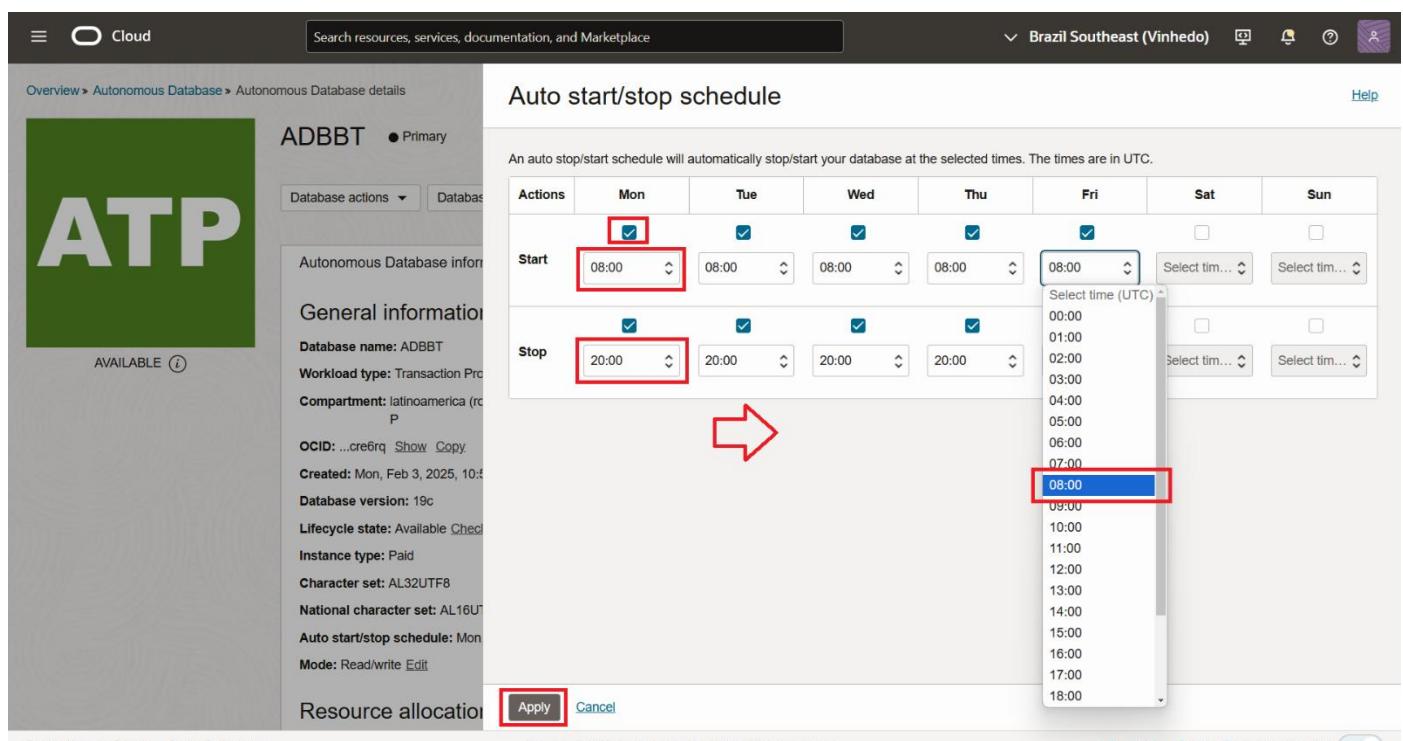
<https://docs.oracle.com/en-us/iaas/autonomous-database-serverless/doc/autonomous-auto-stop-start.html#:~:text=When%20you%20enable%20Auto%20Start,system%20is%20not%20in%20use.>

### 9.2 Schedule Start and Stop Times for an Autonomous Database Instance

Com o Autonomous Database Serverless você pode controlar o tempo de inicialização e parada do banco de dados.



The screenshot shows the Oracle Cloud Infrastructure (OCI) Autonomous Database details page for a database named 'ADBBT'. The 'More actions' dropdown menu is open, and the 'Auto start/stop schedule' option is highlighted with a red box. Other options in the menu include Stop, Restart, Restore, Create clone, Switchover, Update network access, Administrator password, Update license and Oracle Database edition, Manage encryption key, Rename database, Update display name, Move resource, and Mutual TLS (mTLS) authentication.



The screenshot shows the 'Auto start/stop schedule' configuration page. The schedule table shows the following settings:

Action	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Start	08:00	08:00	08:00	08:00	08:00		
Stop	20:00	20:00	20:00	20:00	08:00	Select time... (dropdown)	Select time... (dropdown)

A red box highlights the '08:00' start time for Friday. A red arrow points from the start time grid to the dropdown menu for selecting the stop time, which also has '08:00' highlighted with a red box. The 'Apply' button at the bottom left is also highlighted with a red box.



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