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# Inovação com dados em nuvem

TRILHA



Como migrar os seus dados da  
AWS para o MySQL Database  
Service na Oracle Cloud

Herbert Rogério B. de Menezes

29.10.2020



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# Inovação com dados em nuvem

**COMO MIGRAR OS SEUS DADOS DA AWS  
PARA O MYSQL DATABASE SERVICE  
NA ORACLE CLOUD**

**29.10.20**



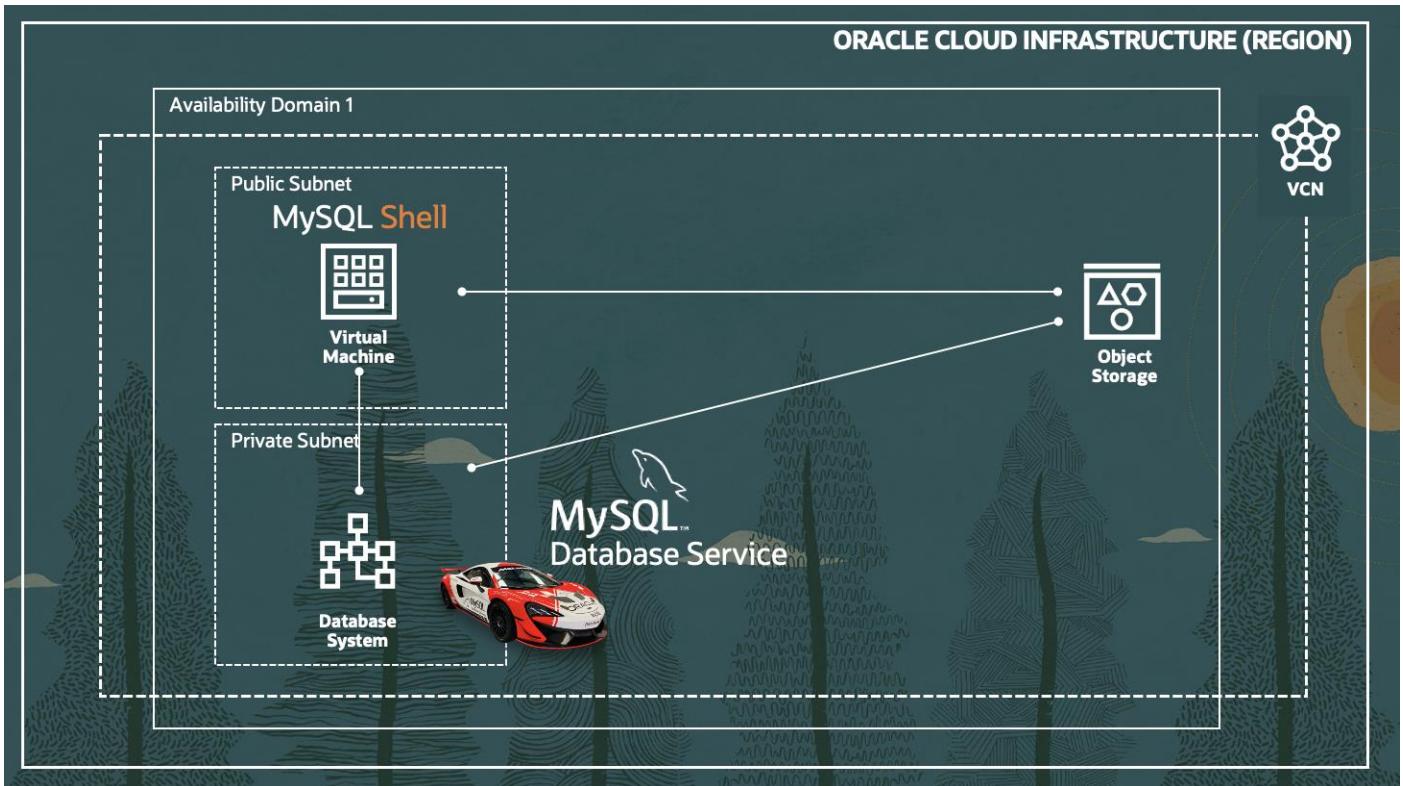
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## **DECLARAÇÃO DE PORTO SEGURO**

A informação a seguir tem como objetivo traçar a orientação dos nossos produtos em geral. É destinada somente a fins informativos e não pode ser incorporada a um contrato. Ela não representa um compromisso de entrega de qualquer tipo de material, código ou funcionalidade e não deve ser considerado em decisões de compra. O desenvolvimento, a liberação, a data de disponibilidade e a especificação de quaisquer funcionalidades ou recursos descritos para produtos da Oracle estão sujeitos a mudanças e são de critério exclusivo da Oracle Corporation. Caso tenha dúvidas, entre em contato com o representante de vendas da Oracle.

# Arquitetura de referência na OCI



# Passo 1: Criar uma Virtual Cloud Network (VCN)

OBS: Para a realização deste passo, é necessário que você já tenha uma tenancy na OCI e um compartimento criado.

- No menu, selecione Networking > Virtual Cloud Network

The screenshot shows the OCI console interface. On the left, there's a navigation sidebar with categories like Applications Console, Core Infrastructure (Compute, Block Storage, Object Storage, File Storage), Networking (selected), Oracle Database, and MySQL. Under Networking, there are sub-options: Overview, Virtual Cloud Networks (highlighted with a red arrow), Dynamic Routing Gateways, Customer-Premises Equipment, VPN Connections, Load Balancers, FastConnect, IP Management, DNS Zone Management, TSIG Keys, Traffic Management Steering Policies, and HTTP Redirects. The main content area has cards for Autonomous Transaction Processing, Autonomous Data Warehouse, Resource Manager, and a featured 'Get Started with FREE training from Oracle University'. The right sidebar shows account information and recent news items.

- Pressione o botão “Start VCN Wizard”
- Selecione a opção VCN with Internet Connectivity e pressione o botão “START VCN WIZARD”
- Escolha um nome para a sua VCN e o compartimento onde ela será criada e pressione o botão “NEXT”
- Revise as informações e pressione o botão “CREATE”

## Passo 2: Crie regras de acesso na Security List

- Com a sua VCN criada, clique nos 3 pontos a direita do nome da sua VCN e selecione “View Details”

The screenshot shows the Oracle Cloud Networking interface. On the left, there's a sidebar with various networking options like Dynamic Routing Gateways, Customer-Premises Equipment, VPN Connections, Load Balancers, FastConnect, IP Management, DNS Zone Management, TSIG Keys, Traffic Management Steering Policies, and HTTP Redirects. The main area is titled "Virtual Cloud Networks in HerbertMenezes-Sandbox Compartiment". It lists a single VCN named "vcnsp" with the status "Available". To the right of the table, a context menu is open over the "vcnsp" row, with a red arrow pointing to the "View Details" option. Other options in the menu include "Move Resource", "Copy OCID", "View Tags", "Add Tags", and "Terminate".

- Clique em “Security Lists” no menu a esquerda e então clique em “Security List for Private Subnet-XXXXX” na lista de Security Lists da sua VCN
- Crie regras para que as portas 3306 e 33060 recebem tráfego da Subnet Pública de sua VCN. A sua Seciruty List deve parecer com a do exemplo:

The screenshot shows the Oracle Cloud Ingress Rules configuration page. On the left, there's a sidebar with "Resources" and "Ingress Rules (5)". The main area is titled "Ingress Rules" and shows a table with the following data:

	Stateless	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows	Description
<input type="checkbox"/>	No	10.0.0.0/16	TCP	All	22			TCP traffic for ports: 22 SSH Remote Logon Protocol
<input type="checkbox"/>	No	0.0.0.0/0	ICMP		3, 4			ICMP traffic for: 3, 4 Destination Unreachable: Fragmentation Needed and Don't Fragment was Set
<input type="checkbox"/>	No	10.0.0.0/16	ICMP		3			ICMP traffic for: 3 Destination Unreachable
<input type="checkbox"/>	No	10.0.0.0/16	TCP	All	3306			TCP traffic for ports: 3306
<input type="checkbox"/>	No	10.0.0.0/16	TCP	All	33060			TCP traffic for ports: 33060

At the bottom of the table, it says "Showing 5 Items < 1 of 1 >".

## Passo 3: Crie uma VM para ser o Bastion Server

- a. No menu principal a esquerda, selecione a opção Compute > Instances
- b. Pressione o botão “CREATE INSTANCE”
- c. Selecione a Imagem da sua instância computacional. Neste laboratório escolha uma imagem do Oracle Linux 7.8
- d. Selecione o shape de sua instância computacional
- e. Escolha a sua VCN criada para este laboratório
- f. Escolha a sua subnet **PÚBLICA** para a criação desta instância
- g. Selecione ou crie as chaves de acesso à instância
- h. Pressione o botão “CREATE”
- i. Depois de criada a sua instância, anote o número de endereço IP Público da sua instância

## Passo 4: Crie sua instância do MySQL Database Service

- No menu principal a esquerda, selecione a opção MySQL > DB Systems

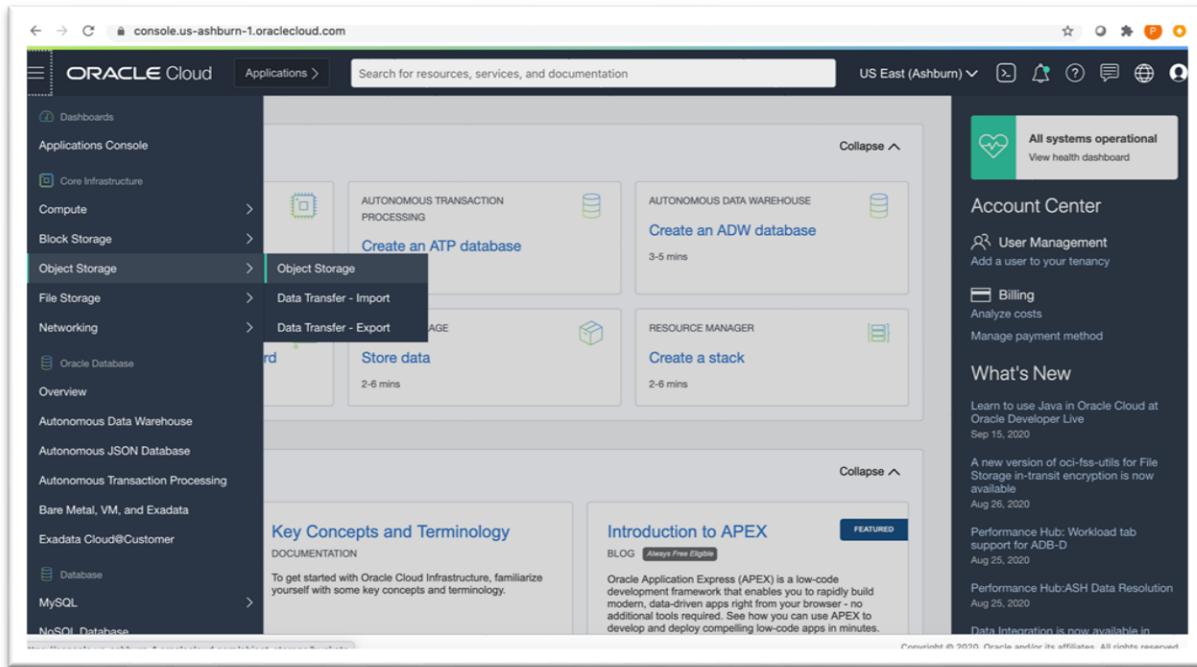
The screenshot shows the Oracle Cloud Infrastructure Instances page. On the left sidebar, under the MySQL category, 'DB Systems' is highlighted with a red arrow. The main content area displays a table titled 'Instances in HerbertMenezes-Sandbox Compartiment'. The table has columns: Name, State, Public IP, Shape, OCPU Count, Memory (GB), Availability Domain, Fault Domain, and Created. One row is listed: bastion\_server, Running, 140.238.182.188, VM.Standard.E3.Flex, 1, 16, AD-1, FD-2, Fri, Oct 23, 2020, 15:11:33 UTC. Below the table, it says 'Showing 1 Item 1 of 1'.

- Pressione o botão “CREATE MYSQL DB SYSTEM”
- Selecione o compartimento onde será criado o MDS
- Dê um nome a sua instância do MDS
- Selecione o AD onde será criada a sua instância do MDS
- Selecione o Fault Domain
- Escolha o shape do MDS
- Selecione o tamanho do storage da instância do MDS
- Se desejar, configue a janela de manutenção da instância
- Pressione o botão “NEXT”
- Defina um nome para o usuário de administração da instância
- Defina a senha de acesso para este usuário
- Escolha a sua VCN para a criação da instância do MDS
- Escolha a sua subnet **PRIVADA** para a criação da instância do MDS
- Se necessário, defina um hostname para a instância
- Mantenha as portas 3306 e 33060 para o acesso ao MDS

- q. Pressione o botão “NEXT”
- r. Configure suas opções de backup
- s. Pressione o botão “CREATE”
- t. Depois de criada a sua instância, anote o número de endereço IP Privado da sua instância

# Passo 5: Criar um bucket no Object Storage da OCI

a. No menu a esquerda, selecione Object Storage > Object Storage

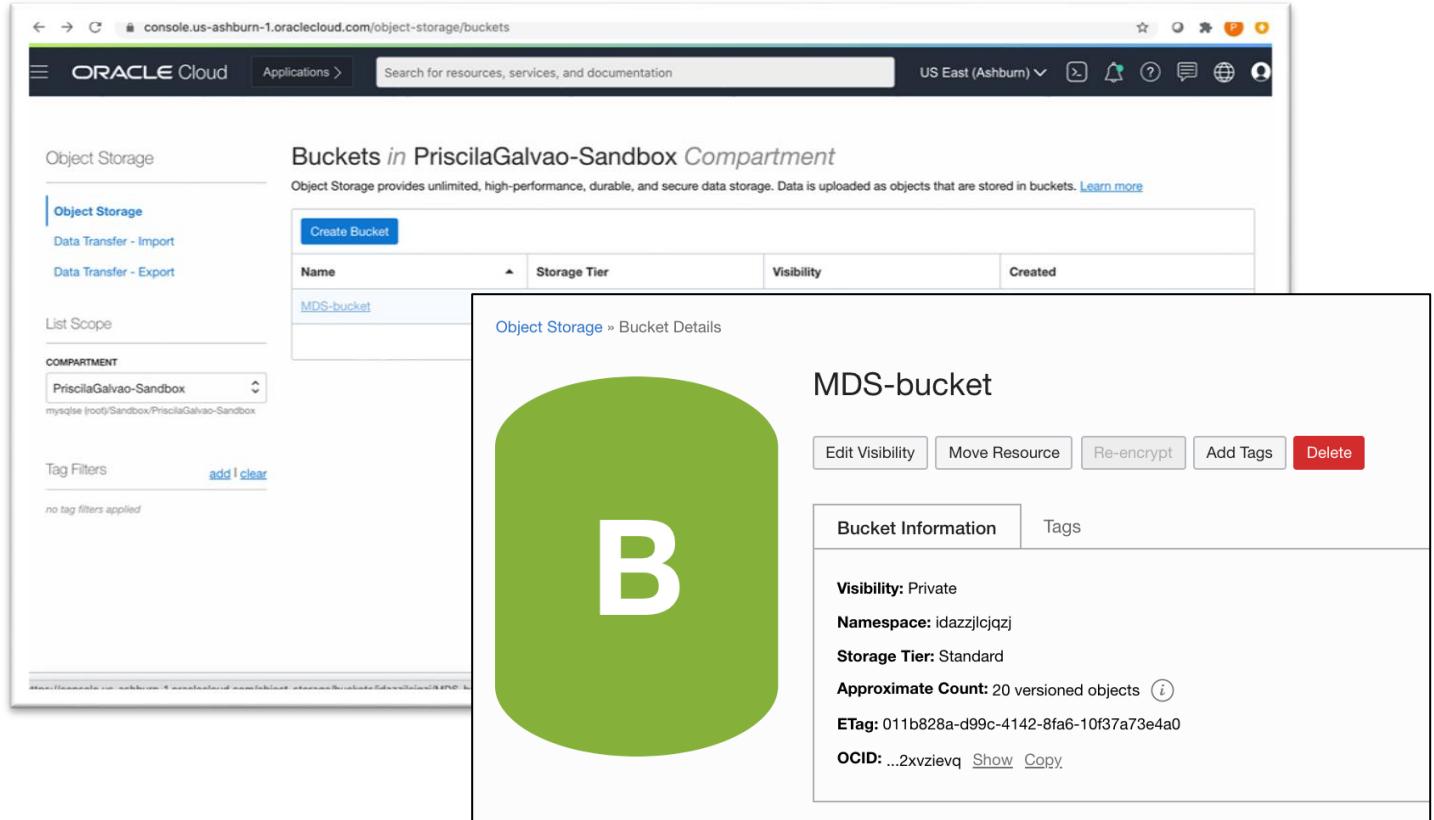


The screenshot shows the Oracle Cloud Applications Console interface. On the left, there's a navigation sidebar with various services like Dashboards, Core Infrastructure, Compute, Block Storage, Object Storage, File Storage, Networking, Oracle Database, and MySQL. The 'Object Storage' item is highlighted with a blue selection bar. Below the sidebar, there are several cards: 'AUTONOMOUS TRANSACTION PROCESSING' (Create an ATP database), 'AUTONOMOUS DATA WAREHOUSE' (Create an ADW database), 'DATA TRANSFER - IMPORT' (Data Transfer - Import), 'DATA TRANSFER - EXPORT' (Data Transfer - Export), 'STORE DATA' (Store data), 'RESOURCE MANAGER' (Create a stack), and 'KEY CONCEPTS AND TERMINOLOGY' (Introduction to APEX). On the right side, there's an 'Account Center' section with links for User Management and Billing, and a 'What's New' section with news items about Java in Oracle Cloud, Oracle Developer Live, and various performance and storage updates.

b. Pressione o botão “CREATE BUCKET”

c. Dê um nome para o seu Bucket e pressione o botão “CREATE BUCKET”

d. Clique no nome do bucket para ver os detalhes



The screenshot shows the Oracle Cloud Object Storage Buckets page. On the left, there's a sidebar with 'Object Storage' selected, followed by 'Data Transfer - Import' and 'Data Transfer - Export'. Below that are 'List Scope' and 'COMPARTMENT' dropdowns set to 'PriscilaGalvao-Sandbox'. Under 'Tag Filters', it says 'no tag filters applied'. The main area is titled 'Buckets in PriscilaGalvao-Sandbox Compartment' and contains a 'Create Bucket' button. A table lists one bucket: 'Name' (MDS-bucket), 'Storage Tier' (Standard), 'Visibility' (Private), and 'Created' (recently). To the right, a large green circle contains a white letter 'B'. Below it, the text 'Object Storage > Bucket Details' and 'MDS-bucket' is displayed. A red 'Delete' button is visible. On the right, there are tabs for 'Bucket Information' (selected) and 'Tags'. Under 'Bucket Information', details are shown: 'Visibility: Private', 'Namespace: idazzjlcjzj', 'Storage Tier: Standard', 'Approximate Count: 20 versioned objects', 'ETag: 011b828a-d99c-4142-8fa6-10f37a73e4a0', and 'OCID: ...2xvzievq'. Buttons for 'Edit Visibility', 'Move Resource', 'Re-encrypt', 'Add Tags', and 'Delete' are also present.

## Passo 6: Criando o arquivo oci.config

- a. Você precisará criar este arquivo no seu Bastion-Server. Para este arquivo, você precisará das seguintes informações apresentadas no exemplo abaixo:

[DEFAULT]

```
user=ocid1.user.oc1..<unique_ID>
fingerprint=<your_fingerprint>
key_file=~/.oci/oci_api_key.pem
tenancy=ocid1.tenancy.oc1..<unique_ID>
region=us-ashburn-1
```

- b. Para conseguir o user OCID, clique no ícone de usuário a direita e selecione oracleidentitycloudservice/email\_do\_usuario@dominio

The screenshot shows the Oracle Cloud Instances page. On the left, there's a sidebar with 'Compute' selected, under 'Instances'. It lists options like Dedicated Virtual Machine Hosts, Instance Configurations, Instance Pools, Cluster Networks, Autoscaling Configurations, Custom Images, Boot Volumes, Boot Volume Backups, and OS Management. Below this is a 'List Scope' section with a 'COMPARTMENT' dropdown set to 'HerbertMenezes-Sandbox'. The main content area shows a table titled 'Instances in HerbertMenezes-Sandbox Compartment'. The table has columns: Name, State, Public IP, Shape, OCPU Count, Memory (GB), AD, FD, and Last Update. One row is visible for 'bastion\_server', which is 'Running' with IP 140.238.182.188, shape VM.Standard.E3.Flex, 1 OCPU, 16 GB memory, AD-1, FD-2, and last updated on Fri, Oct 23, 2020, 15:11:33 UTC. At the bottom right of the table, it says 'Showing 1 item < 1 of 1 >'. To the right of the table is a 'Profile' sidebar. It shows the email 'oracleidentitycloudservice/herbert.menezes@oracle.com' with a red arrow pointing to it. Below it are 'Tenancy: mysqlse' and 'User Settings'. At the bottom of the sidebar is a 'Sign Out' link.

c. Será aberta uma tela com informações do usuário. Nela, você encontrará seu OCID. Anote esta informação.

The screenshot shows the Oracle Cloud Infrastructure User Details page. At the top, there's a navigation bar with links like 'Identity', 'Users', 'User Details', and 'API Keys'. Below the navigation is a user profile section with a large green circular icon containing a white 'U' and the text 'ACTIVE'. The main content area has tabs for 'User Information' and 'Tags'. Under 'User Information', there's a table with columns for 'OCID', 'Created', 'Multi-factor authentication', 'Email', 'Capabilities', 'SMTP credentials', and 'Customer secret keys'. The 'OCID' row contains the value '...gvpwka' with 'Show' and 'Copy' buttons, which is highlighted by a red arrow. Other details shown include 'Created: Mon, May 13, 2019, 15:59:15 UTC', 'Multi-factor authentication: Disabled', 'Email: herbert.menezes@oracle.com (Verification Pending)', and various capability status like 'Local password: No', 'API keys: Yes', etc.

d. Para obter o OCID da sua tenancy, clique no ícone do usuário e depois em tenancy

The screenshot shows the Oracle Cloud Infrastructure Instances page. On the left, there's a sidebar with 'Compute' and 'Instances' selected. The main content area shows a table of instances in the 'HerbertMenezes-Sandbox' compartment. One instance, 'bastion\_server', is listed with details like 'Name: bastion\_server', 'State: Running', 'Public IP: 140.238.182.188', 'Shape: VM.Standard.E3.Flex', 'OCPUs: 1', 'Memory (GB): 16', 'AD: AD-1', 'FD: FD-2', and 'Last Update: Fri, Oct 23, 2020, 15:11:33 UTC'. To the right of the table is a 'Profile' section with the user's email 'oracleidentitycloudservice/herbert.menezes@oracle.com' and the 'Tenancy: mysqlse' highlighted by a red arrow. Below the profile is a 'User Settings' section with a 'Sign Out' button. At the bottom of the page, there's a 'COMPARTMENT' dropdown set to 'HerbertMenezes-Sandbox' and a 'List Scope' dropdown. The footer includes 'Terms of Use and Privacy' and 'Cookie Preferences'.

e. Será aberta uma tela com informações da tenancy. Nela, você encontrará o valor do OCID da tenancy. Anote esta informação.

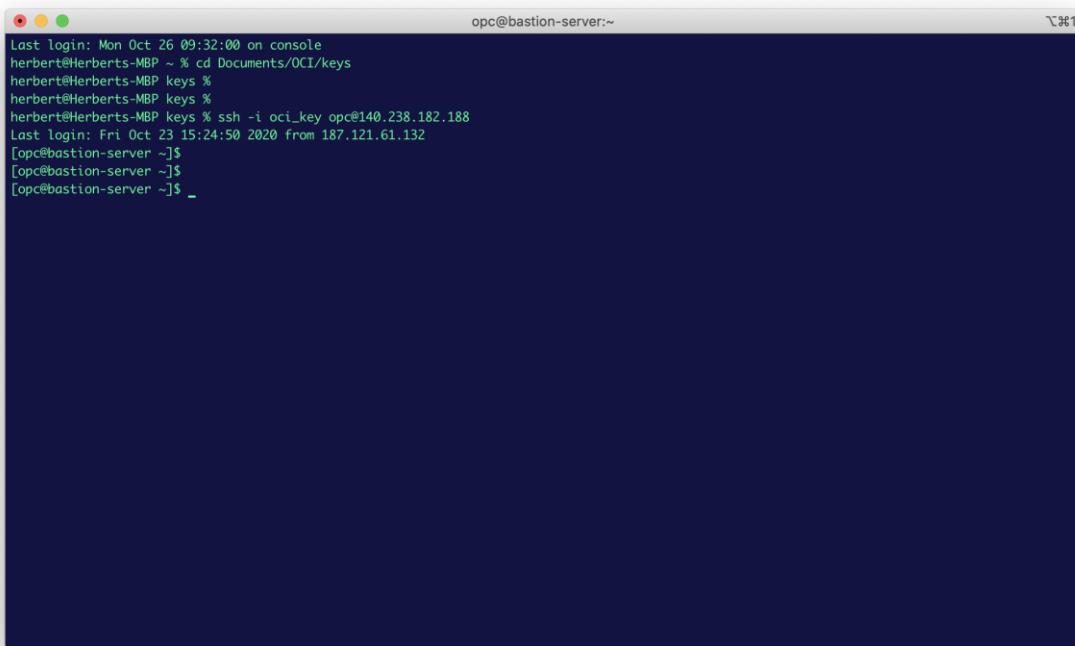
The screenshot shows the Oracle Cloud interface for a MySQL service named 'mysqlse'. The 'Tenancy Information' tab is selected, displaying the OCID (...5rieiq) with a red arrow pointing to it. Other details shown include the Home Region (US East (Ashburn)), CSI Number (22229856), and Audit Retention Period (not authorized to view). Below this, there are sections for Object Storage Settings and Manage Regions or Service Limits.

f. Para obter o valor da sua região, vá para o menu da esquerda do console da OCI, escolha Administration > RegionManagement. Você irá encontrar o código das regiões. Anote o valor do código da região onde você criou os recursos.

The screenshot shows the Oracle Cloud Region Management page under the Infrastructure Regions section. It lists several regions with their identifiers and subscription status. A red arrow points to the 'Region Management' link in the navigation sidebar, which is highlighted with a black box.

Region	Subscription Status
US East (Ashburn) - Home Region Region Identifier: us-ashburn-1	Subscribed
Australia East (Sydney) Region Identifier: ap-sydney-1	Subscribed
Australia Southeast (Melbourne) Region Identifier: ap-melbourne-1	Subscribed
Brazil East (Sao Paulo) Region Identifier: sa-saopaulo-1	Subscribed
Tenancy Details (Montreal) Region Identifier: ca-montreal-1	Subscribed
Announcements (Toronto) Region Identifier: ca-toronto-1	Subscribed

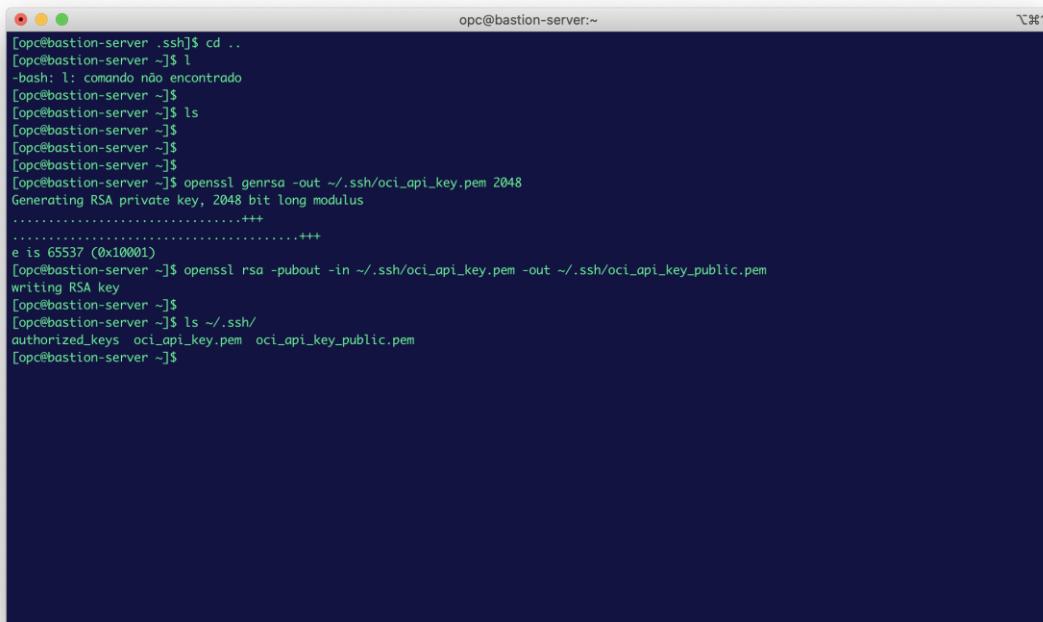
g. Acesse a sua instância computacional via SSH (use algum software como o Putty, MobaXTerm, etc)



```
opc@bastion-server:~ Last login: Mon Oct 26 09:32:00 on console herbert@Herberts-MBP ~ % cd Documents/OCI/keys herbert@Herberts-MBP keys % herbert@Herberts-MBP keys % ssh -i oci_key opc@140.238.182.188 Last login: Fri Oct 23 15:24:50 2020 from 187.121.61.132 [opc@bastion-server ~]$ [opc@bastion-server ~]$ [opc@bastion-server ~]$
```

h. Crie um par de chave pública/privada do tipo PEM para acesso ao bucket da OCI usando estes comandos

```
openssl genrsa -out ~/.ssh/oci_api_key.pem 2048  
openssl rsa -pubout -in ~/.ssh/oci_api_key.pem -out ~/.ssh/oci_api_key_public.pem
```



```
[opc@bastion-server .ssh]$ cd ..  
[opc@bastion-server ~]$ l  
-bash: l: comando não encontrado  
[opc@bastion-server ~]$ ls  
[opc@bastion-server ~]$ [opc@bastion-server ~]$ [opc@bastion-server ~]$ [opc@bastion-server ~]$ openssl genrsa -out ~/.ssh/oci_api_key.pem 2048  
Generating RSA private key, 2048 bit long modulus  
.....++  
.....++  
e is 65537 (0x10001)  
[opc@bastion-server ~]$ openssl rsa -pubout -in ~/.ssh/oci_api_key.pem -out ~/.ssh/oci_api_key_public.pem  
writing RSA key  
[opc@bastion-server ~]$ [opc@bastion-server ~]$ ls ~/.ssh/  
authorized_keys oci_api_key.pem oci_api_key_public.pem  
[opc@bastion-server ~]$
```

- i. Para obter o valor do fingerprint, repita o passo b desta seção para obter as informações do usuário. Depois, vá para a opção API Keys no menu a esquerda e clique em “ADD PUBLIC KEY”

The screenshot shows the Oracle Cloud Identity interface. On the left sidebar, 'API Keys' is highlighted with a red arrow. In the main content area, a user profile is displayed with OCID, Created date, Multi-factor authentication status, and Email information. Below this, the 'Capabilities' section lists Local password, API keys, and Auth tokens. The 'API Keys' section contains a table with one entry: Fingerprint (redacted), Created (Wed, Nov 27, 2019, 17:01:27 UTC). A blue button labeled 'Add Public Key' is visible above the table.

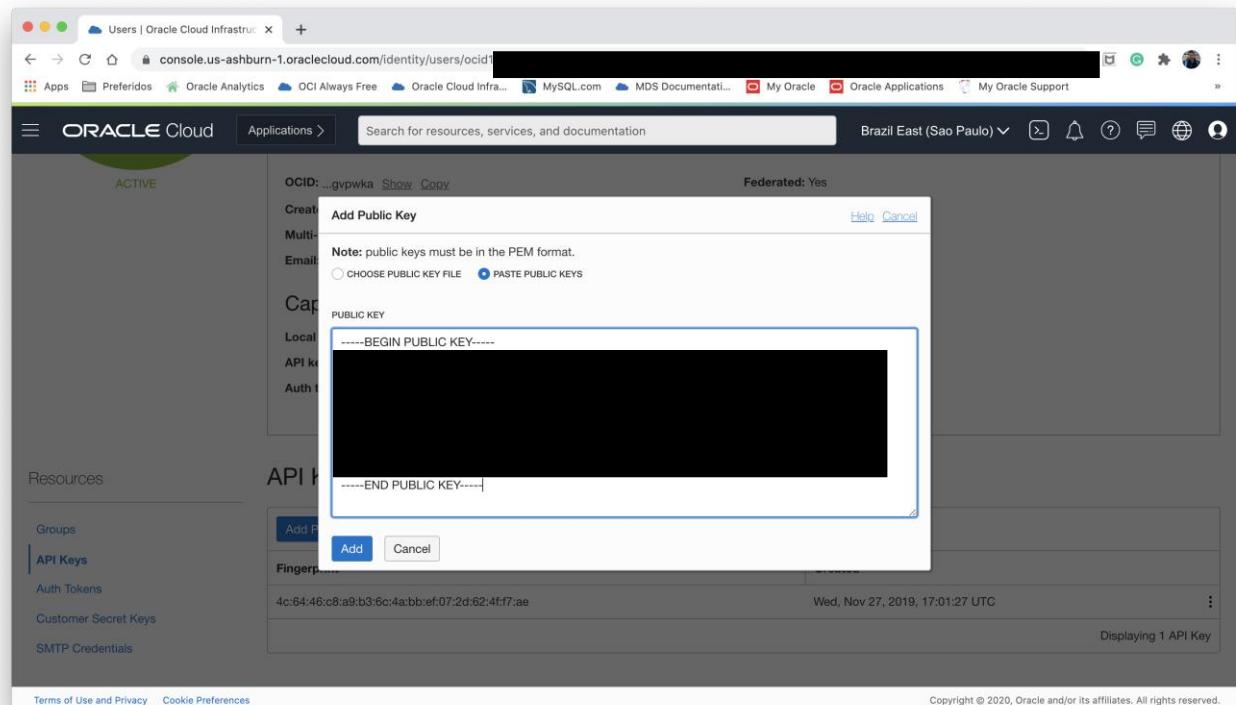
- j. Na sua sessão SSH no Bastion Server, veja o conteúdo da chave pública que você criou no passo g. Utilize o comando abaixo para ver o conteúdo do arquivo

```
cat ~/.ssh/oci_api_key_public.pem
```

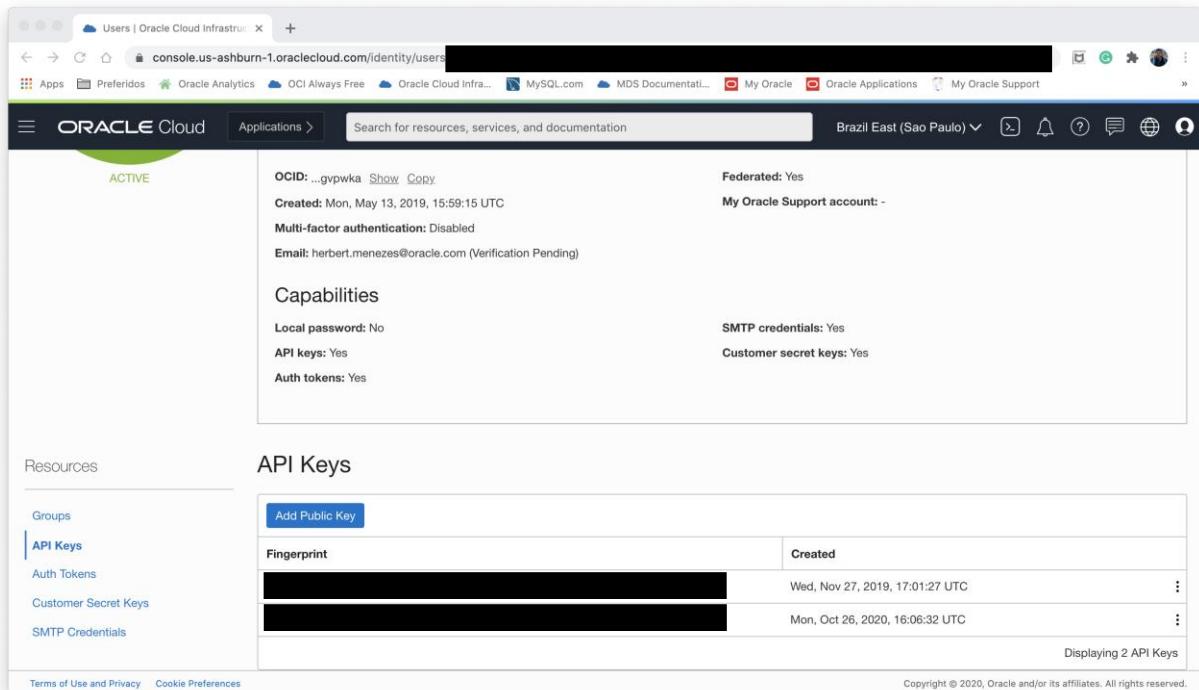
The screenshot shows an SSH session on a Bastion Server. The terminal window displays the following command and its output:

```
[opc@bastion-server .ssh]$ cat ..\oci_api_key_public.pem
-----BEGIN PUBLIC KEY-----
[REDACTED]
-----END PUBLIC KEY-----
```

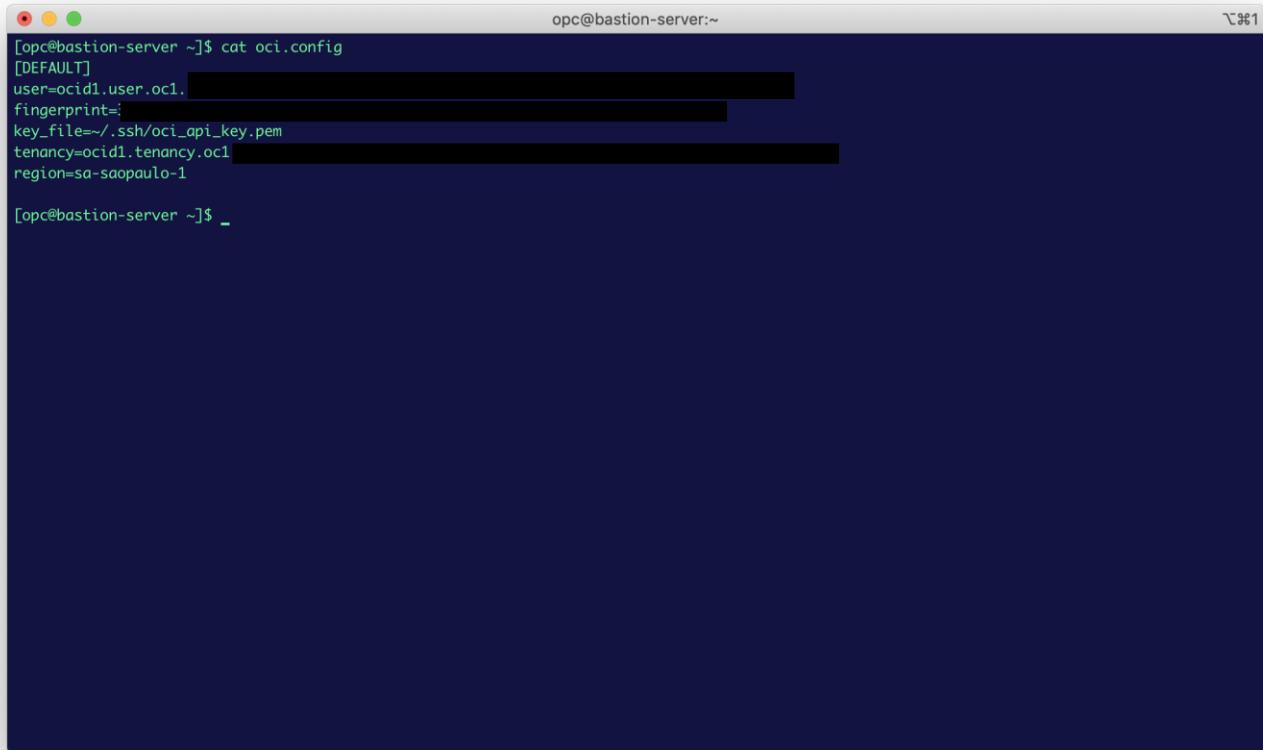
k. Copie o conteúdo do arquivo da chave pública para o campo de Public Key no console da OCI e clique em “ADD”



l. Será gerado um valor de fingerprint. Anote este valor.



- m. De posse de todos os valores, crie o arquivo `oci.config` no seu Bastion Server. Utilize o `vi`, `nano` ou outro editor de texto do Linux de sua preferência. Seu arquivo deve ficar parecido com este do exemplo:



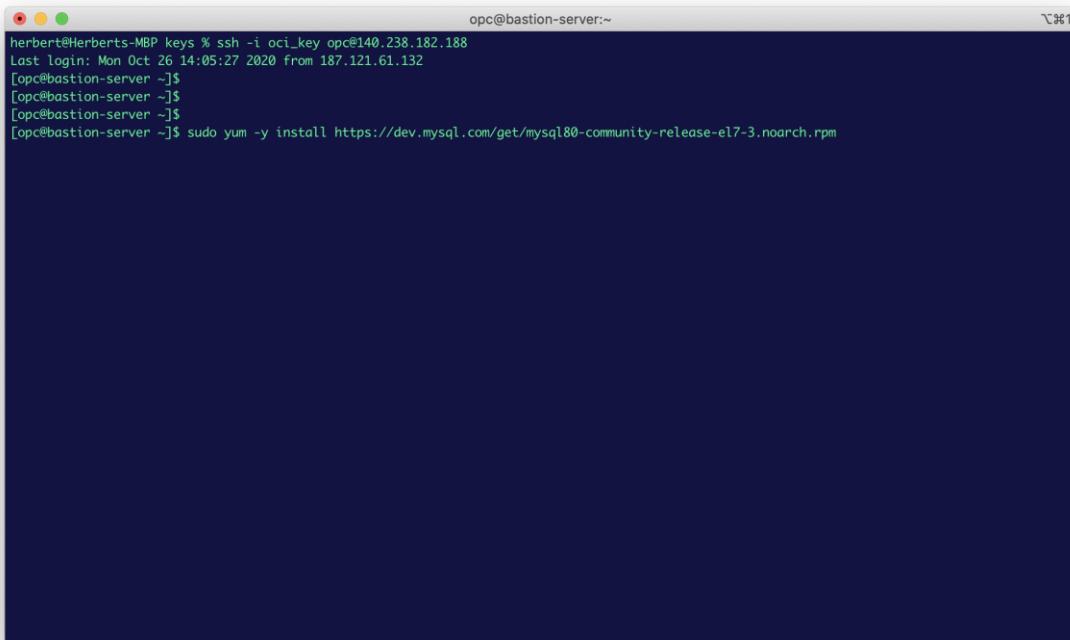
```
[opc@bastion-server ~]$ cat oci.config
[DEFAULT]
user=ocid1.user.oc1.[REDACTED]
fingerprint=
key_file=/.ssh/oci_api_key.pem
tenancy=ocid1.tenancy.oc1.[REDACTED]
region=sa-saopaulo-1

[opc@bastion-server ~]$ _
```

## Passo 7: Instalando o MySQL Shell no Bastion Server

- Atualize os pacotes de instalação do MySQL Community usando o comando abaixo. Este passo é muito importante para atualizar o repositório do Linux com os pacotes fornecidos pela Oracle

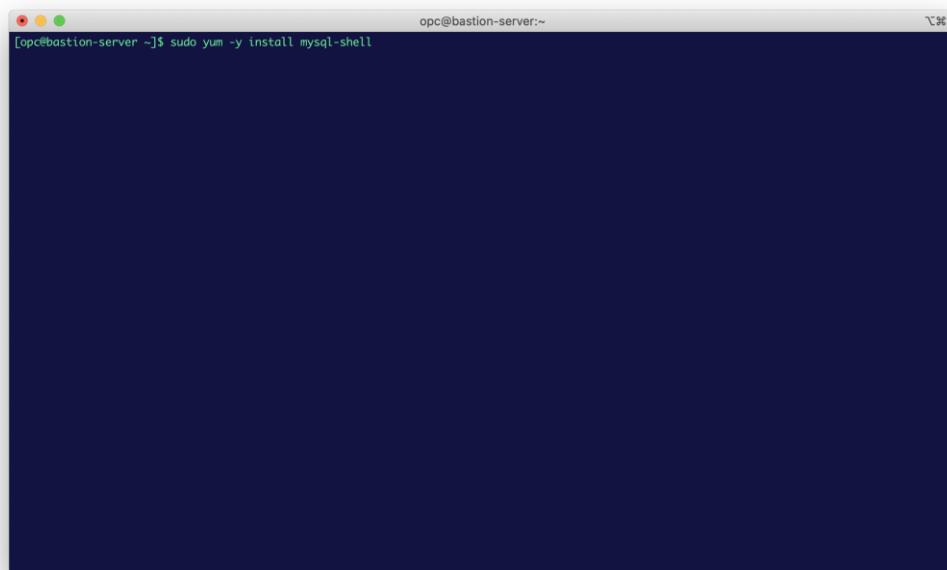
```
sudo yum -y install https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm
```



A screenshot of a terminal window titled 'opc@bastion-server:~'. The window shows a command-line session where the user has just run the command 'sudo yum -y install https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm'. The terminal is dark-themed with white text.

- Instale o MySQL Shell usando o comando:

```
sudo yum -y install mysql-shell
```

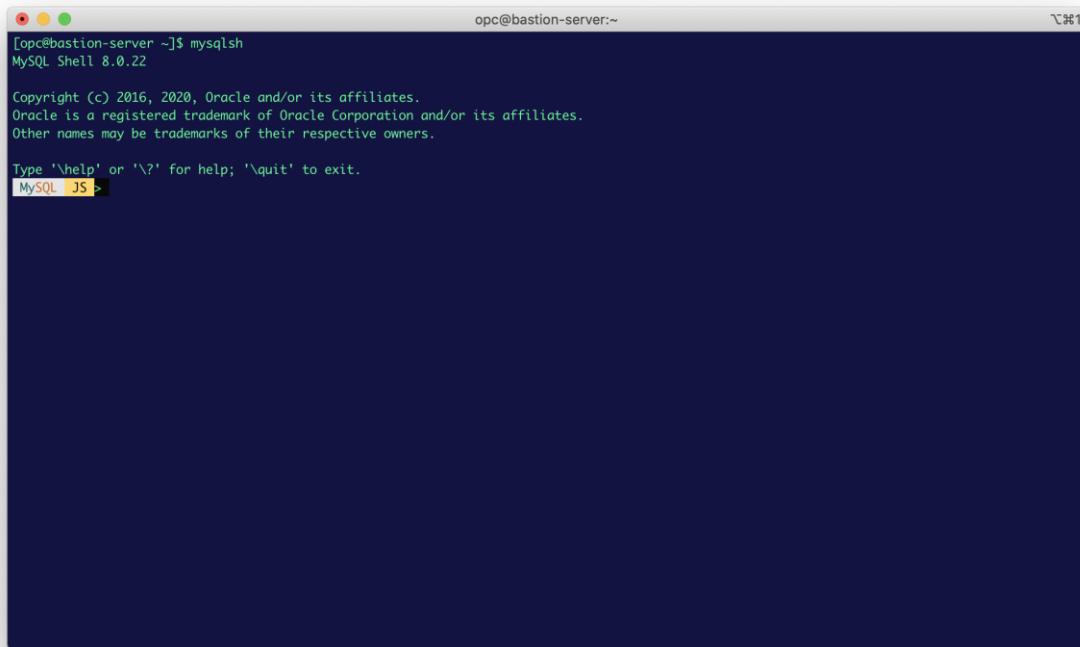


A screenshot of a terminal window titled 'opc@bastion-server:~'. The window shows a command-line session where the user has just run the command 'sudo yum -y install mysql-shell'. The terminal is dark-themed with white text.

# Passo 8: Conecte-se a sua instância do RDS usando o MySQL Shell

## a. Execute o comando abaixo para acessar ao mysqlsh

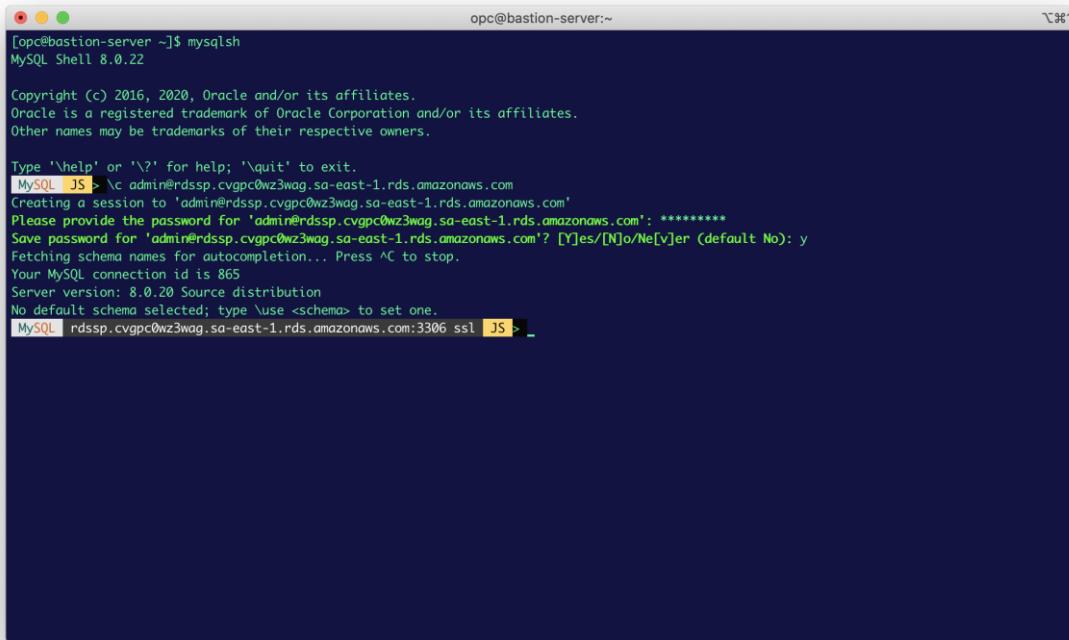
```
mysqlsh
```



A screenshot of a terminal window titled "opc@bastion-server:~". The window displays the MySQL Shell 8.0.22 welcome screen, which includes copyright information from Oracle, a help message, and the MySQL prompt "MySQL [opc@bastion-server:~] >".

## b. Conecte-se a sua instância do RDS na AWS usando o comando

```
\c usuário_rds@endpoint_rds.amazonaws.com:3306
```

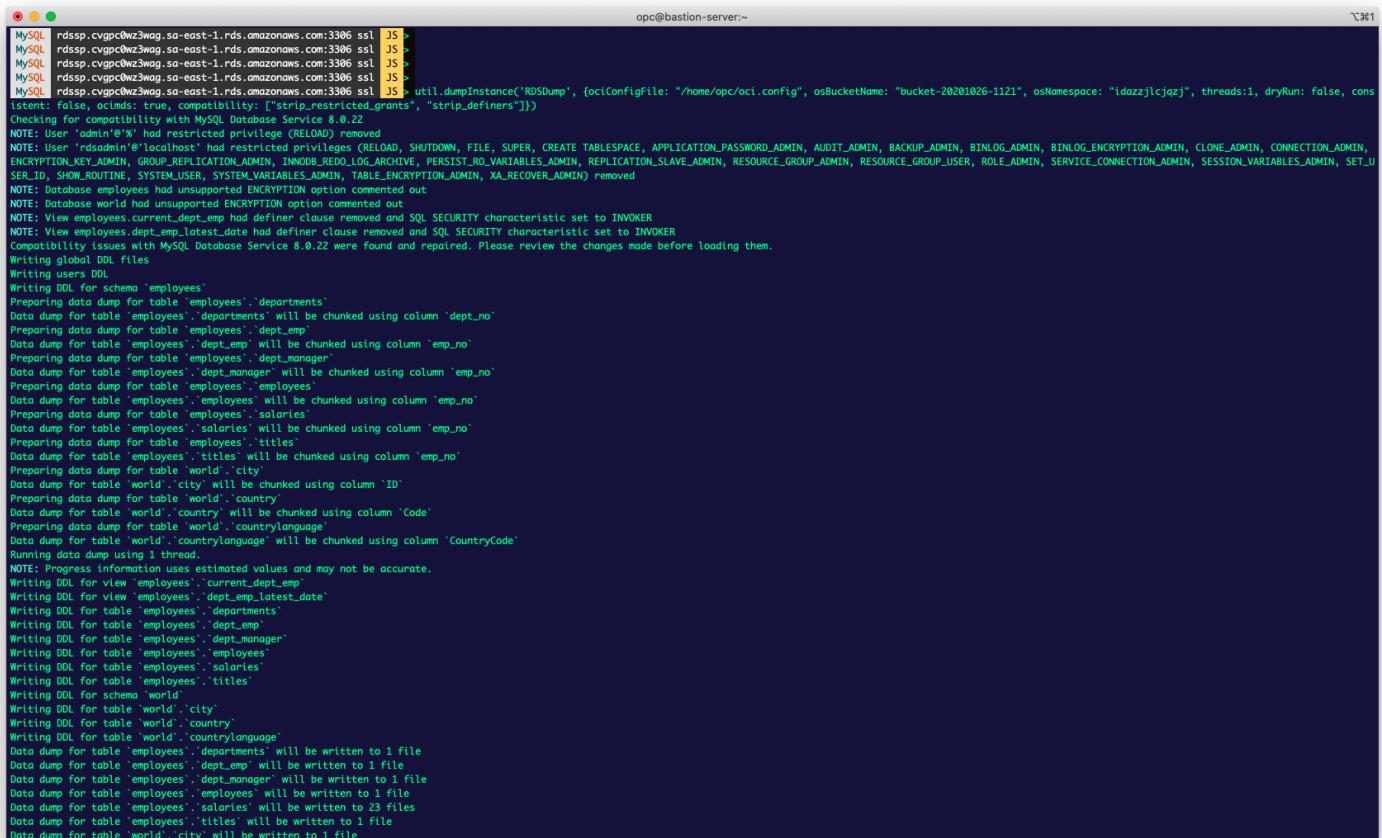


A screenshot of a terminal window titled "opc@bastion-server:~". The window shows the process of connecting to an AWS RDS instance using the \c command in MySQL Shell. It prompts for the connection details, including the host, port, and schema, and then asks for a password. Once connected, it displays the MySQL prompt "MySQL [opc@bastion-server:~] >".

# Passo 9: Faça o Dump do RDS para o Object Storage na OCI

## a. Execute o comando abaixo no mysqlsh

```
util.dumpInstance('RDSDump', {ociConfigFile: "/home/opc/oci.config", osBucketName: "bucket-20201026-1121", osNamespace: "idazzjlcjqzj", threads:1, dryRun: false, consistent: false, ocimds: true, compatibility: ["strip_restricted_grants", "strip_definers"]})
```



```
MySQL> rdssp.cvgpc0wz3wag.sa-east-1.rds.amazonaws.com:3306 ssl JS>
MySQL> rdssp.cvgpc0wz3wag.sa-east-1.rds.amazonaws.com:3306 ssl JS> util.dumpInstance('RDSDump', {ociConfigFile: "/home/opc/oci.config", osBucketName: "bucket-20201026-1121", osNamespace: "idazzjlcjqzj", threads:1, dryRun: false, consistent: false, ocimds: true, compatibility: ["strip_restricted_grants", "strip_definers"]})
Istent: false, ocimds: true, compatibility: ["strip_restricted_grants", "strip_definers"])
Checking for compatibility with MySQL Database Service 8.0.22
NOTE: User 'admin'@'%' had restricted privilege (RELOAD) removed
NOTE: User 'rdssadmin'@'localhost' had restricted privileges (RELOAD, SHUTDOWN, FILE, SUPER, CREATE TABLESPACE, APPLICATION_PASSWORD_ADMIN, AUDIT_ADMIN, BACKUP_ADMIN, BINLOG_ADMIN, BINLOG_ENCRYPTION_ADMIN, CLONE_ADMIN, CONNECTION_ADMIN, ENCRYPTION_KEY_ADMIN, GROUP_REPLICATION_ADMIN, INNODB_REDO_LOG_ARCHIVE, PERSIST_RO_VARIABLES_ADMIN, REPLICATION_SLAVE_ADMIN, RESOURCE_GROUP_ADMIN, RESOURCE_GROUP_USER, ROLE_ADMIN, SERVICE_CONNECTION_ADMIN, SESSION_VARIABLES_ADMIN, SET_USER_ID, SHOW_ROUTINE, SYSTEM_USER, SYSTEM_VARIABLES_ADMIN, TABLE_ENCRYPTION_ADMIN, XA_RECOVER_ADMIN) removed
NOTE: Database 'employees' had unsupported ENCRYPTION option commented out
NOTE: Database 'world' had unsupported ENCRYPTION option commented out
NOTE: View 'employees.current_dept_emp' had definer clause removed and SQL SECURITY characteristic set to INVOKER
NOTE: View 'employees.dept_emp.latest_date' had definer clause removed and SQL SECURITY characteristic set to INVOKER
Compatibility issues with MySQL Database Service 8.0.22 were found and repaired. Please review the changes made before loading them.
Writing global DDL files
Writing users DDL
Writing DDL for schema 'employees'
Preparing data dump for table 'employees'.'departments'
Data dump for table 'employees'.'departments' will be chunked using column 'dept_no'
Preparing data dump for table 'employees'.'dept_emp'
Data dump for table 'employees'.'dept_emp' will be chunked using column 'emp_no'
Preparing data dump for table 'employees'.'dept_manager'
Data dump for table 'employees'.'dept_manager' will be chunked using column 'emp_no'
Preparing data dump for table 'employees'.'employees'
Data dump for table 'employees'.'employees' will be chunked using column 'emp_no'
Preparing data dump for table 'employees'.'salaries'
Data dump for table 'employees'.'salaries' will be chunked using column 'emp_no'
Preparing data dump for table 'employees'.'titles'
Data dump for table 'employees'.'titles' will be chunked using column 'emp_no'
Preparing data dump for table 'world'.'city'
Data dump for table 'world'.'city' will be chunked using column 'ID'
Preparing data dump for table 'world'.'country'
Data dump for table 'world'.'country' will be chunked using column 'Code'
Preparing data dump for table 'world'.'countrylanguage'
Data dump for table 'world'.'countrylanguage' will be chunked using column 'CountryCode'
Running data dump using 1 thread.
NOTE: Progress information uses estimated values and may not be accurate.
Writing DDL for view 'employees.current_dept_emp'
Writing DDL for view 'employees.dept_emp.latest_date'
Writing DDL for table 'employees'.'departments'
Writing DDL for table 'employees'.'dept_emp'
Writing DDL for table 'employees'.'dept_manager'
Writing DDL for table 'employees'.'employees'
Writing DDL for table 'employees'.'salaries'
Writing DDL for table 'employees'.'titles'
Writing DDL for schema 'world'
Writing DDL for table 'world'.'city'
Writing DDL for table 'world'.'country'
Writing DDL for table 'world'.'countrylanguage'
Data dump for table 'employees'.'departments' will be written to 1 file
Data dump for table 'employees'.'dept_emp' will be written to 1 file
Data dump for table 'employees'.'dept_manager' will be written to 1 file
Data dump for table 'employees'.'employees' will be written to 1 file
Data dump for table 'employees'.'salaries' will be written to 23 files
Data dump for table 'employees'.'titles' will be written to 1 file
Data dump for table 'world'.'city' will be written to 1 file
```

# Passo 10: Vá para Object Storage na OCI para conferir os dados copiados para o bucket

- No console da OCI, vá para Object Storage > Object Storage. Clique no nome do seu bucket e em Objects, verifique se diretório RDSDump foi criado. Clique em “>” na frente de RDSDump para ver seu conteúdo.

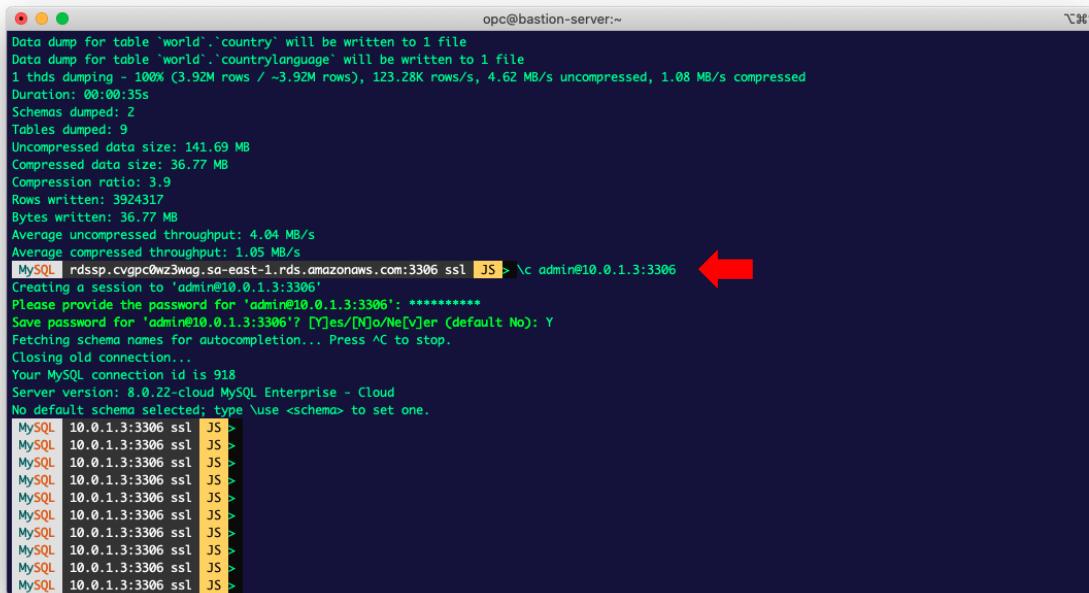
The screenshot shows the Oracle Cloud Object Storage interface. At the top, there's a navigation bar with tabs for Object Storage, util.dumpInstance, and MySQL Shell 8.0. Below the bar, the URL is console.us-ashburn-1.oraclecloud.com/object-storage/buckets/ldazzjlcjqzj/bucket-20201026-1121/objects. The main area has two sections: 'Bucket Information' and 'Objects'. The 'Bucket Information' section displays details like Visibility: Private, Namespace: ldazzjlcjqzj, Storage Tier: Standard, Approximate Count: 68 objects, ETag: c374bd5d-570d-401d-afc2-68292197273d, and OCID: ...pwarrqoq. The 'Objects' section shows a table with columns: Name, Last Modified, Size, and Status. A red arrow points to the 'Name' column for the first object, which is named 'RDSDump'. Underneath 'RDSDump', there are three sub-objects: '@.done.json', '@.json', and '@.manifest.json'. All three sub-objects have a Last Modified date of Mon, Oct 26, 2020, and are marked as Available.

Name	Last Modified	Size	Status
RDSDump	-	-	-
@.done.json	Mon, Oct 26, 2020, 17:14:39 UTC	1.96 KIB	Available
@.json	Mon, Oct 26, 2020, 17:14:05 UTC	700 bytes	Available
@.manifest.json	Mon, Oct 26, 2020, 17:14:40 UTC	37.52 KIB	Available

# Passo 11: Conecte-se a sua instância do MDS usando o MySQL Shell

- Dentro no MySQL Shell, execute o comando abaixo. Note que agora você vai precisar o endereço privado da sua instância do MDS.

```
\c usuário_mds@endereço_privado_MDS:3306
```

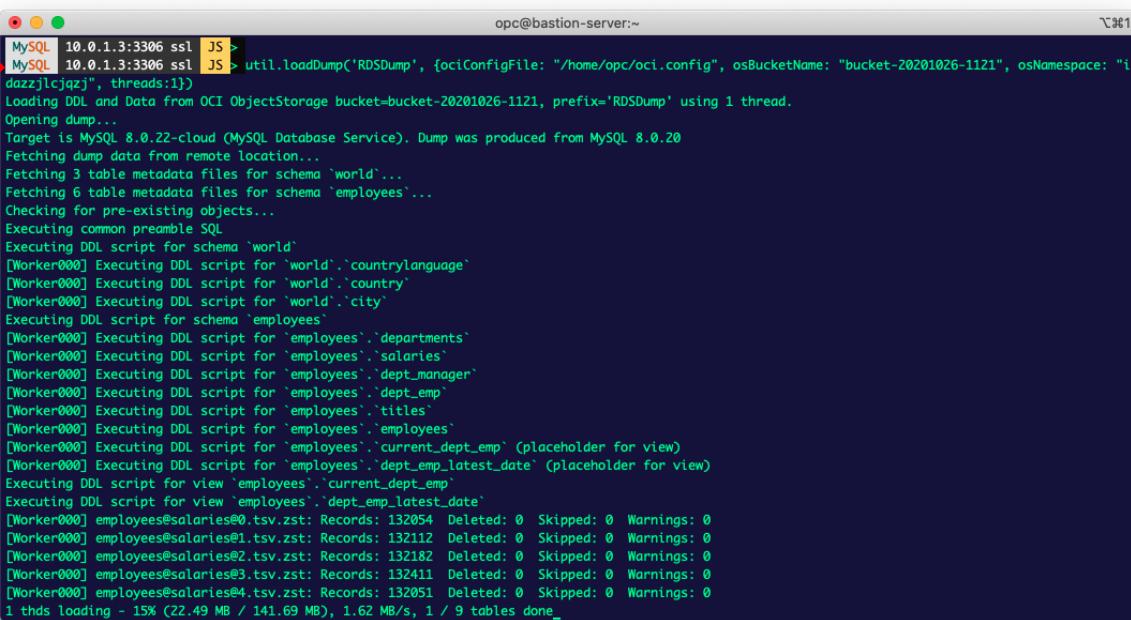


```
opc@bastion-server:~ Data dump for table 'world'.`country` will be written to 1 file Data dump for table `world`.`countrylanguage` will be written to 1 file 1 thds dumping - 100% (3.92M rows / ~3.92M rows), 123.28K rows/s, 4.62 MB/s uncompressed, 1.08 MB/s compressed Duration: 00:00:35s Schemas dumped: 2 Tables dumped: 9 Uncompressed data size: 141.69 MB Compressed data size: 36.77 MB Compression ratio: 3.9 Rows written: 3924317 Bytes written: 36.77 MB Average uncompressed throughput: 4.04 MB/s Average compressed throughput: 1.05 MB/s MySQL!rdsp.cvpc0nz3wag.sa-east-1.rds.amazonaws.com:3306 ssl JS > \c admin@10.0.1.3:3306 Creating a session to 'admin@10.0.1.3:3306' Please provide the password for 'admin@10.0.1.3:3306': ***** Save password for 'admin@10.0.1.3:3306'? [Y]es/[N]o/[N]o/[V]er (default No): Y Fetching schema names for autocomplete... Press ^C to stop. Closing old connection... Your MySQL connection id is 918 Server version: 8.0.22-cloud MySQL Enterprise - Cloud No default schema selected; type 'use <schema>' to set one. MySQL!10.0.1.3:3306 ssl JS > MySQL!10.0.1.3:3306 ssl JS >
```

# Passo 12: Copie o conteúdo do Object Storage para o MDS

## a. Dentro no MySQL Shell, execute o comando

```
util.loadDump('RDSDump', {ociConfigFile: "/home/opc/oci.config", osBucketName:  
"bucket-20201026-1121", osNamespace: "idazzjlcjqzj", threads:1})
```



A screenshot of a terminal window titled 'MySQL 10.0.1.3:3306 ssl JS'. The command 'util.loadDump' is being run with specific parameters. A red arrow points to the first line of the command. The output shows the process of loading data from OCI ObjectStorage into MySQL, including schema creation, table metadata retrieval, and data loading progress. The progress bar at the bottom indicates '1 thds loading - 15% (22.49 MB / 141.69 MB), 1.62 MB/s, 1 / 9 tables done'.

```
MySQL 10.0.1.3:3306 ssl JS >  
MySQL 10.0.1.3:3306 ssl JS > util.loadDump('RDSDump', {ociConfigFile: "/home/opc/oci.config", osBucketName: "bucket-20201026-1121", osNamespace: "idazzjlcjqzj", threads:1})  
Loading DDL and Data from OCI ObjectStorage bucket=bucket-20201026-1121, prefix='RDSDump' using 1 thread.  
Opening dump...  
Target is MySQL 8.0.22-cloud (MySQL Database Service). Dump was produced from MySQL 8.0.20  
Fetching dump data from remote location...  
Fetching 3 table metadata files for schema 'world'...  
Fetching 6 table metadata files for schema 'employees'...  
Checking for pre-existing objects...  
Executing common preamble SQL  
Executing DDL script for schema 'world'  
[Worker000] Executing DDL script for 'world'.'countrylanguage'  
[Worker000] Executing DDL script for 'world'.'country'  
[Worker000] Executing DDL script for 'world'.'city'  
Executing DDL script for schema 'employees'  
[Worker000] Executing DDL script for 'employees'.'departments'  
[Worker000] Executing DDL script for 'employees'.'salaries'  
[Worker000] Executing DDL script for 'employees'.'dept_manager'  
[Worker000] Executing DDL script for 'employees'.'dept_emp'  
[Worker000] Executing DDL script for 'employees'.'titles'  
[Worker000] Executing DDL script for 'employees'.'employees'  
[Worker000] Executing DDL script for 'employees'.'current_dept_emp' (placeholder for view)  
[Worker000] Executing DDL script for 'employees'.'dept_emp_latest_date' (placeholder for view)  
Executing DDL script for view 'employees'.'current_dept_emp'  
Executing DDL script for view 'employees'.'dept_emp_latest_date'  
[Worker000] employees@salaries#0.tsv.zst: Records: 132054 Deleted: 0 Skipped: 0 Warnings: 0  
[Worker000] employees@salaries#1.tsv.zst: Records: 132112 Deleted: 0 Skipped: 0 Warnings: 0  
[Worker000] employees@salaries#2.tsv.zst: Records: 132182 Deleted: 0 Skipped: 0 Warnings: 0  
[Worker000] employees@salaries#3.tsv.zst: Records: 132411 Deleted: 0 Skipped: 0 Warnings: 0  
[Worker000] employees@salaries#4.tsv.zst: Records: 132051 Deleted: 0 Skipped: 0 Warnings: 0  
1 thds loading - 15% (22.49 MB / 141.69 MB), 1.62 MB/s, 1 / 9 tables done_
```