

Conectar clientes Oracle desde cualquier cloud a Autonomous Transaction Processing a través de Equinix



Contenido

CONECTAR CLIENTES ORACLE DESDE CUALQUIER CLOUD A AUTONOMOUS TRANSACTION PROCESSING A TRAVÉS DE EQUINIX	1
CONFIGURACIÓN TABLAS DE RUTAS EN OCI.....	3
COMPROBACIÓN DEL ESTADO DE LAS RUTAS DESDE TODOS LOS CLOUDS	9
CONECTAR A ATP A TRAVÉS DE UN CLIENTE ORACLE DESDE CUALQUIER CLOUD	11
CONECTAR DESDE CLIENTES EN LOS CLOUDS DE AMAZON, GOOGLE Y AZURE	12



Configuración Tablas de Rutas en OCI

Lo primero será configurar las tablas de rutas necesarias para habilitar el tráfico entre las diferentes clouds. Vaya a las tablas de rutas de su Virtual Cloud Network (VCN) **atplabnet** y edite la tabla de rutas por defecto “**Default Route Table for atplabnet**”

Añada una nueva regla que conecte esta red con las rutas con de los otros clouds.

Esta es la red que utilizaremos para salir a otros Clouds.

TARGET TYPE	Dynamic Routing Gateway
DESTINATION CIDR	10.10.0.0/16
DESCRIPTION (OPTIONAL)	To other clouds



Una vez hecho esto, cree una nueva tabla de rutas para conectar el DRG con el Service Gateway.

Desde el menú de la izquierda seleccionamos **Network** → **VCN**, seleccionamos la VCN **atplabnet** y pulsamos el botón **Create Route Table**:

Resources

Route Tables in atplab Compartment

Create Route Table

Name	State	Number of Rules	Created
routetablefordrg	Available	2	Mon, May 11, 2020, 11:13:18 UTC
Default Route Table for atplabnet	Available	4	Wed, Apr 22, 2020, 07:02:59 UTC

Showing 3 Items < Page 1 >

atplabnet

VCN Information

CIDR Block: 10.10.31.0/24

Compartment: atplab

Created: Wed, Apr 22, 2020, 07:02:59 UTC

OCID: o_gvzia Show Copy

Default Route Table: Default Route Table for atplabnet

DNS Domain Name: atplabnet.oraclecloud.com

Resources

Route Tables in atplab Compartment

Create Route Table

Name	State	Number of Rules	Created
routetablefordrg	Available	2	Mon, Ma
Default Route Table for atplabnet	Available	4	Wed, Ap

Creamos la Route Table con los siguientes valores:

- Nombre: **RouteTableDRGtoSG**
- Create In Compartment: **atplab**

Create Route Table

NAME

RouteTableDRGtoSG

CREATE IN COMPARTMENT

atplab

workshop20200505a (root)/atplab

Route Rules

Important: For a route rule that targets a Private IP, you must first enable "Skip Source/Destination Check" on the VNIC that the Private IP is assigned to.

+ Additional Route Rule

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.

Pulsar botón **+ Additional Route Rule**, e informamos los siguientes campos:

- Target Type: **Service Gateway**
- Destination Service: **All FRA Services in Oracle Service Network**
- Compartment: **atplab**
- Target Service Gateway: **atplabsg**



Route Rules

Important: For a route rule that targets a Private IP, you must first enable "Skip Source/Destination Check" on the VNIC that the Private IP is assigned to.

TARGET TYPE

Service Gateway

DESTINATION SERVICE ⓘ

All FRA Services In Oracle Services Network

COMPARTMENT

atplab

workshop20200505a (root)/atplab

TARGET SERVICE GATEWAY

atplabsg

DESCRIPTION OPTIONAL

Maximum 255 characters

+ Additional Route Rule

Pulsamos el botón **Create Route Table**:

Create Route Table

[Help](#) [Cancel](#)

NAME

RouteTableDRGtoSG

CREATE IN COMPARTMENT

atplab

workshop20200505a (root)/atplab

Route Rules

Important: For a route rule that targets a Private IP, you must first enable "Skip Source/Destination Check" on the VNIC that the Private IP is assigned to.

TARGET TYPE

Service Gateway

DESTINATION SERVICE ⓘ

All FRA Services In Oracle Services Network

COMPARTMENT

atplab

workshop20200505a (root)/atplab

TARGET SERVICE GATEWAY

atplabsg

DESCRIPTION OPTIONAL

Maximum 255 characters

+ Additional Route Rule

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.

[Learn more about tagging](#)

TAG NAMESPACE

None (add a free-form tag)

TAG KEY

VALUE

+ Additional Tag

Create Route Table [Cancel](#)

Así quedarían las tablas de rutas desde el lado de Oracle



Resources

Route Tables *in atplab Compartment*

Create Route Table

Name	State	Number of Rules	Created
RouteTableDRGtoSG	Available	1	Mon, May 11, 2020, 15:58:40 UTC
routeTableforDrg	Available	2	Mon, May 11, 2020, 11:13:18 UTC
Default Route Table for atplabnet	Available	4	Wed, Apr 22, 2020, 07:02:59 UTC

Showing 3 items < Page 1 >

A continuación, desde el menú de la izquierda dentro de la VCN *atplabnet* seleccionamos la opción *Dynamic Routing Gateway*:

ORACLE Cloud

Germany Central (Frankfurt)

Networking » Virtual Cloud Networks » Virtual Cloud Network Details » Dynamic Routing Gateways

atplabnet

VCN

AVAILABLE

Move Resource Add Tags Terminate

VCN Information Tags

CIDR Block: 10.10.31.0/24
Compartment: atplab
Created: Wed, Apr 22, 2020, 07:02:59 UTC

OCID: ...gvizia Show Copy
Default Route Table: [Default Route Table for atplabnet](#)
DNS Domain Name: atplabnet.oraclecloud.com

Resources

Dynamic Routing Gateways

Attach Dynamic Routing Gateway

Name	State	Compartment	Route Table	Created
atplabdrg	Attached	atplab	RouteTableDRGtoSG	Mon, May 11, 2020, 10:49:33 UTC

Showing 1 item < Page 1 >

Pulsamos en el link al menú (⋮) del Dynamic Routing Gateway *atplabdrg*, y seleccionamos la opción *Associate Route Table*:

Service Gateways *in atplab Compartment*

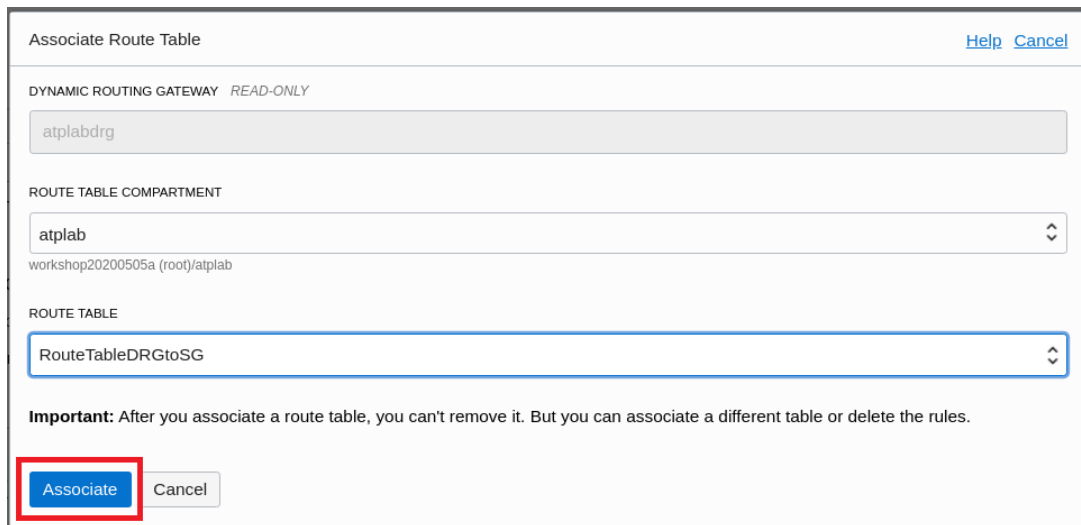
Create Service Gateway

Name	State	Services	Route Table	Created
atplabsg	Available	All FRA Services In Oracle Services Netwo		Mon, Mar 23, 2020

Block Traffic
Edit
Associate Route Table
Move Resource
Copy OCID
View Tags
Add Tags
Terminate



Seleccionamos como Route Table Compartment **atplab**, y como Route Table la **RouteTableDRGtoSG**:



The dialog box titled "Associate Route Table" contains the following fields:

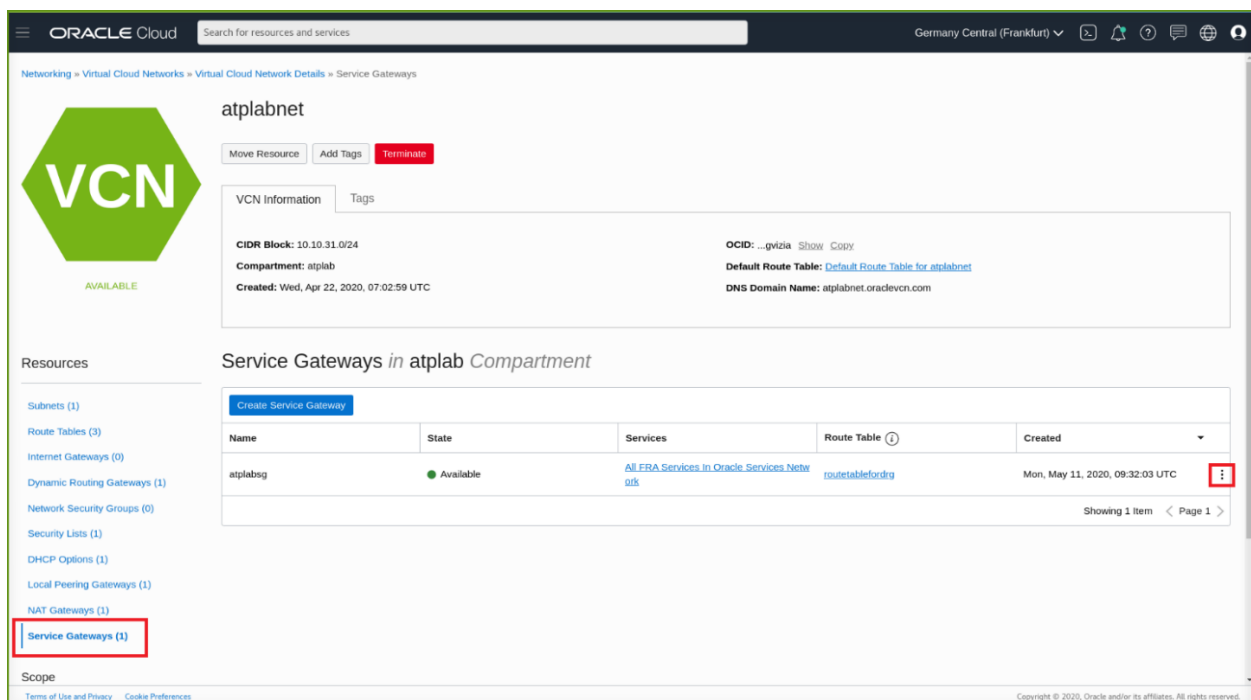
- DYNAMIC ROUTING GATEWAY** (READ-ONLY): atplabdrg
- ROUTE TABLE COMPARTMENT**: atplab (dropdown menu showing workshop20200505a (root)/atplab)
- ROUTE TABLE**: RouteTableDRGtoSG (dropdown menu)

Important: After you associate a route table, you can't remove it. But you can associate a different table or delete the rules.

Buttons: Associate (highlighted with a red box), Cancel

Pulsamos el botón **Associate**.

De la misma forma tenemos que asociar la tabla de rutas **routeablefordrg** al Service Gateway de nuestra VCN. Esto lo haremos seleccionando desde el menú de la izquierda dentro de la VCN **atplabnet** la opción **Service Gateway**:



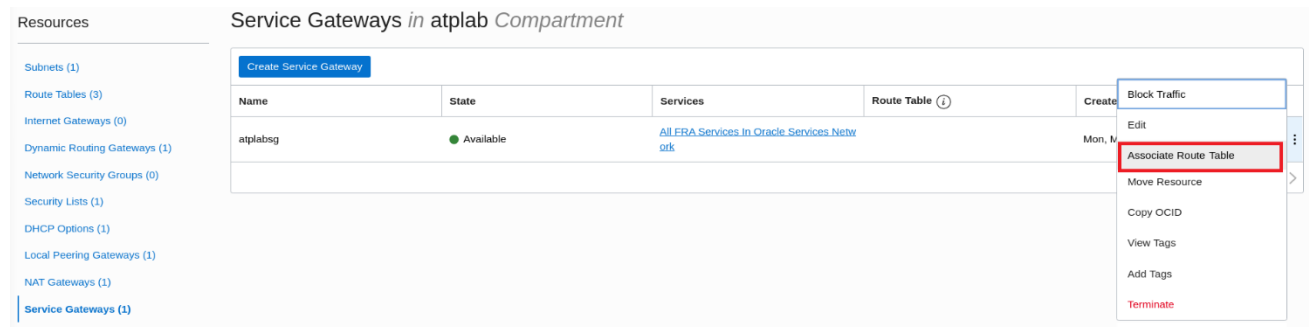
The screenshot shows the Oracle Cloud console for the VCN **atplabnet**. The left sidebar lists resources, with **Service Gateways (1)** highlighted (red box). The main content area shows the **Service Gateways in atplab Compartment** table:

Name	State	Services	Route Table	Created
atplabsg	Available	All FRA Services in Oracle Services Network	routeablefordrg	Mon, May 11, 2020, 09:32:03 UTC

The table row for **atplabsg** has a red box around the three-dot menu icon in the **Created** column.



Pulsamos en el link al menu (⋮) del Service Gateway *atplabsg*, y seleccionamos la opción **Associate Route Table**:



Resources

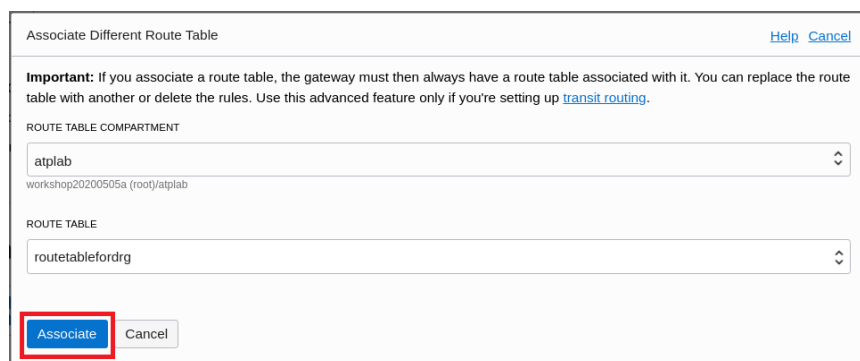
Service Gateways in atplab Compartment

Create Service Gateway

Name	State	Services	Route Table ⓘ	Create
atplabsg	Available	All FRA Services in Oracle Services Network		Mon, M

- Block Traffic
- Edit
- Associate Route Table
- Move Resource
- Copy OCID
- View Tags
- Add Tags
- Terminate

Asociamos el Service Gateway a la Route Table *routetablefordrg*:



Associate Different Route Table [Help](#) [Cancel](#)

Important: If you associate a route table, the gateway must then always have a route table associated with it. You can replace the route table with another or delete the rules. Use this advanced feature only if you're setting up [transit routing](#).

ROUTE TABLE COMPARTMENT

atplab
workshop20200505a (root)/atplab

ROUTE TABLE

routetablefordrg

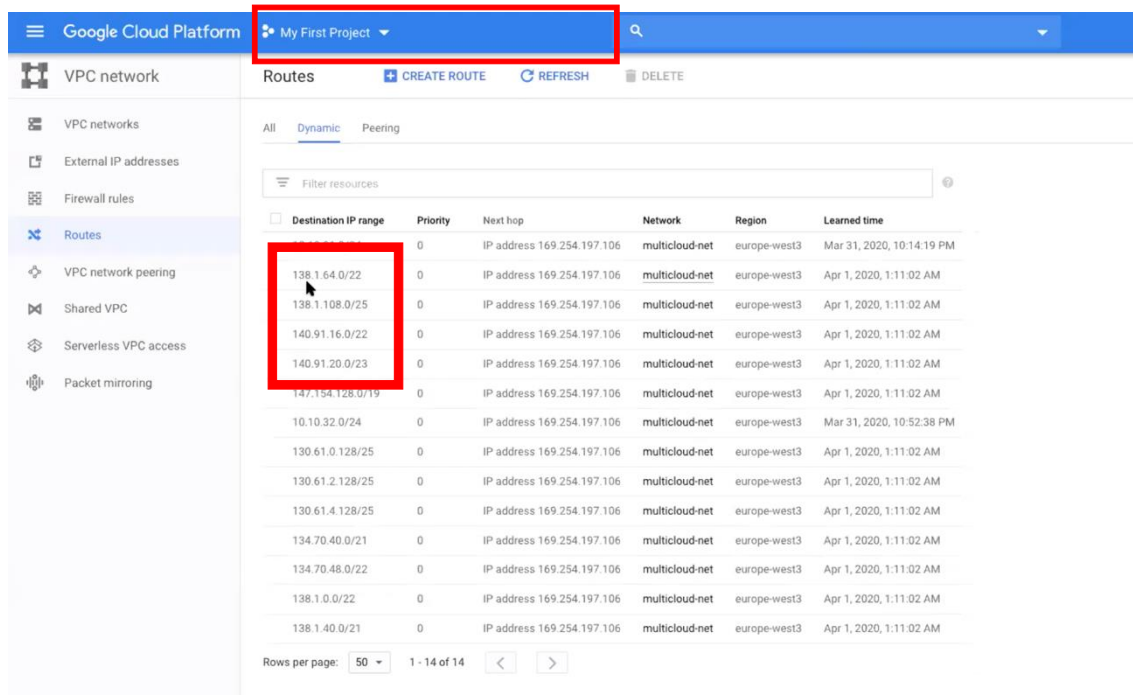
Associate Cancel

Pulsamos el botón **Associate**.



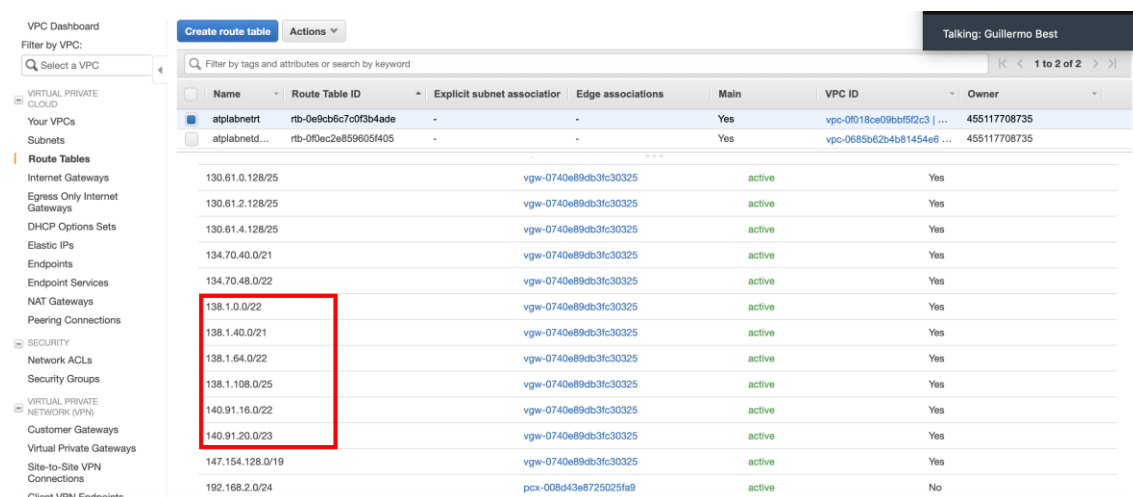
Comprobación del estado de las rutas desde todos los clouds

Compruebe que está en su proyecto asignado dentro de GCP, antes de continuar con las pruebas. En la **sección de rutas de Google Cloud**, se pueden ver las **rutas que conectan con Oracle Cloud**. Preste atención a las **direcciones que empiezan por 138 y 140**



Destination IP range	Priority	Next hop	Network	Region	Learned time
138.1.64.0/22	0	IP address 169.254.197.106	multicloud-net	europe-west3	Mar 31, 2020, 10:14:19 PM
138.1.108.0/25	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
140.91.16.0/22	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
140.91.20.0/23	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
147.154.128.0/19	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
10.10.32.0/24	0	IP address 169.254.197.106	multicloud-net	europe-west3	Mar 31, 2020, 10:52:38 PM
130.61.0.128/25	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
130.61.2.128/25	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
130.61.4.128/25	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
134.70.40.0/21	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
134.70.48.0/22	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
138.1.0.0/22	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM
138.1.40.0/21	0	IP address 169.254.197.106	multicloud-net	europe-west3	Apr 1, 2020, 1:11:02 AM


Desde la nube de **AWS** dentro de las **tablas de rutas**, compruebe que las rutas que conectan con Oracle están también **activas y en verde**.



Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner
atplabnetrt	rtb-0e9cb6c7c0f3b4ade	-	-	Yes	vpc-0f018ce09bbf5f2c3 ...	455117708735
atplabnetd...	rtb-0f0ec2e859605405	-	-	Yes	vpc-0685b62b4b81454e6 ...	455117708735
130.61.0.128/25			vgw-0740e89db3fc30325	active		Yes
130.61.2.128/25			vgw-0740e89db3fc30325	active		Yes
130.61.4.128/25			vgw-0740e89db3fc30325	active		Yes
134.70.40.0/21			vgw-0740e89db3fc30325	active		Yes
134.70.48.0/22			vgw-0740e89db3fc30325	active		Yes
138.1.0.0/22			vgw-0740e89db3fc30325	active		Yes
138.1.40.0/21			vgw-0740e89db3fc30325	active		Yes
138.1.64.0/22			vgw-0740e89db3fc30325	active		Yes
138.1.108.0/25			vgw-0740e89db3fc30325	active		Yes
140.91.16.0/22			vgw-0740e89db3fc30325	active		Yes
140.91.20.0/23			vgw-0740e89db3fc30325	active		Yes
147.154.128.0/19			vgw-0740e89db3fc30325	active		Yes
192.168.2.0/24			pcx-008d43e8725025fa9	active		No





Desde la nube de **Azure** dentro del **ExpressRoute**, compruebe en **Private Peering** que se muestran las IPs de Oracle.


 **Microsoft Azure**

Home > atplaber > Private peering >

Route table (Primary)

AzurePrivatePeering - atplaber

 Download  Show secondary

 Showing only top 200 primary records, click Download above to see all.


Network	↑↓	Next hop	↑↓	LocPrf	↑↓	Weight	↑.
10.10.31.0/24		169.254.244.1				0	
10.10.34.0/24		10.10.34.77				0	
10.10.34.0/24		10.10.34.76*				0	
130.61.0.128/25		169.254.244.1				0	
130.61.2.128/25		169.254.244.1				0	
130.61.4.128/25		169.254.244.1				0	
134.70.40.0/21		169.254.244.1				0	
134.70.48.0/22		169.254.244.1				0	
138.1.0.0/22		169.254.244.1				0	
138.1.40.0/21		169.254.244.1				0	
138.1.64.0/22		169.254.244.1				0	
138.1.108.0/25		169.254.244.1				0	
140.91.16.0/22		169.254.244.1				0	
140.91.20.0/23		169.254.244.1				0	
147.154.128.0/19		169.254.244.1				0	



Conectar a ATP a través de un cliente Oracle desde cualquier cloud

Antes de comenzar, en la **consola de ATP** presione **Scale Up/Down** y ponga las OCPU un valor de **1**. Si ya creó su ATP con valor 1 no hace falta hacer Scale Down.

Autonomous Database » Autonomous Database Details



atplabpub

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

Autonomous Database Information Tools Tags

General Information

Database Name: atplabpub

Workload Type: Transaction Processing

Compartment: workshop20200505a (root)/atplab

OCID: ...6wdzq [Show](#) [Copy](#)

Scale Up/Down [Help](#) [Cancel](#)

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.

☐ Auto Scaling

Enabling auto scaling allows Oracle to use up to three times the number of OCPU's for processing workload if required. [Learn more.](#)

Update Cancel

Una vez hecho esto, **compruebe las máquinas virtuales** que estarán conectadas dentro de la red de Amazon que conecta al ATP. En primer lugar, la máquina bastión es la que tiene una IP pública, y a través de esta máquina, conectaremos a la máquina que contiene el cliente de Oracle y está en la red interna que conecta con los demás Clouds. Verifique que todas las máquinas están arrancadas y si no lo están por favor arránquelas (normalmente mediante el menú contextual y comando start).

AWS cloud instances:

aws Services Resource Groups

New EC2 Experience

EC2 Dashboard

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates

Spot Requests

Launch Instance

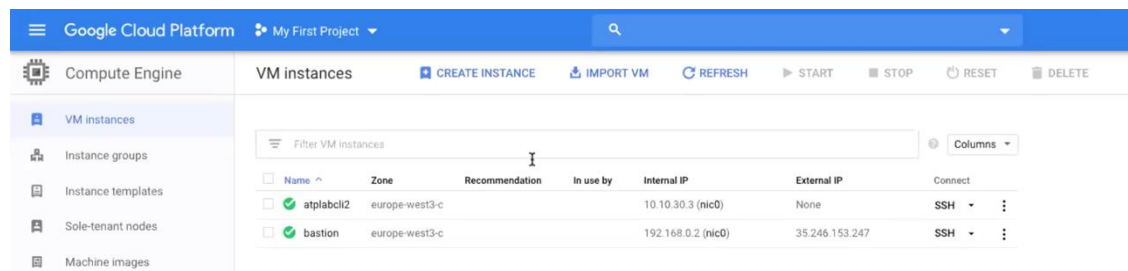
Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	IP-v4 Public IP	Key Name	Monitoring	Launch Time
bastion	i-074678d712a294da3	t2.micro	eu-central-1a	running	3/2 checks p...	None	3.123.22.164	atplabaws	disabled	March 31, 2020 at 11:27:45 PM...
atplabcl3	i-0a9d1b544a8e952e	t2.micro	eu-central-1a	running	3/2 checks p...	None	-	atplabaws	disabled	March 31, 2020 at 11:27:45 PM...

Select an instance above



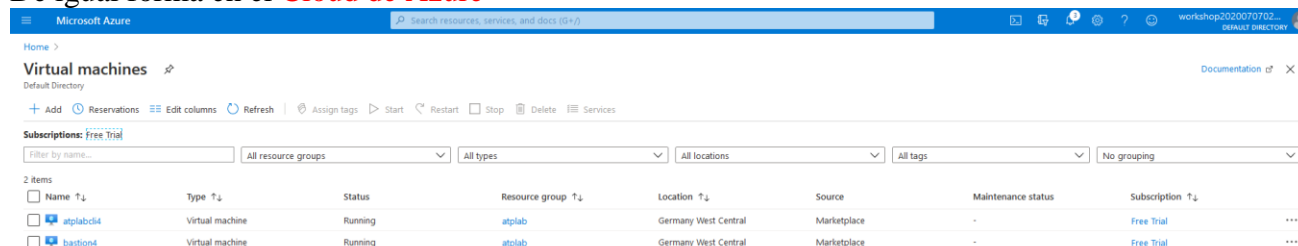
De la misma manera en el **Cloud de Google**



The screenshot shows the Google Cloud Platform interface for VM instances. The left sidebar lists 'VM instances', 'Instance groups', 'Instance templates', 'Sole-tenant nodes', and 'Machine images'. The main area displays a table of VM instances:

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
atplabcli2	europe-west3-c			10.10.30.3 (nic0)	None	SSH
bastion	europe-west3-c			192.168.0.2 (nic0)	35.246.153.247	SSH

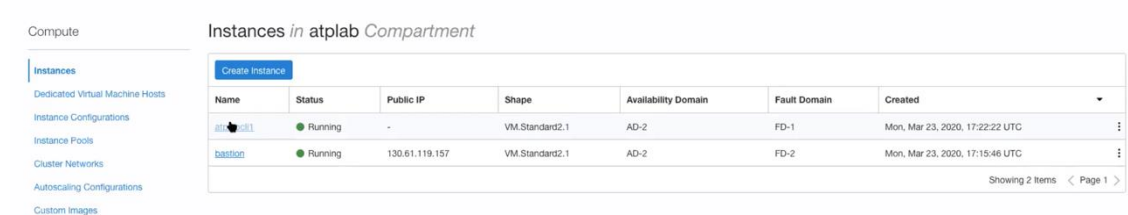
De igual forma en el **Cloud de Azure**



The screenshot shows the Microsoft Azure portal for Virtual machines. The left sidebar lists 'Virtual machines', 'Reservations', 'Edit columns', 'Refresh', 'Assign tags', 'Start', 'Restart', 'Stop', 'Delete', and 'Services'. The main area displays a table of virtual machines:

Name	Type	Status	Resource group	Location	Source	Maintenance status	Subscription
atplabcli4	Virtual machine	Running	atplab	Germany West Central	Marketplace	-	Free Trial
bastion4	Virtual machine	Running	atplab	Germany West Central	Marketplace	-	Free Trial

Y en el Cloud de Oracle



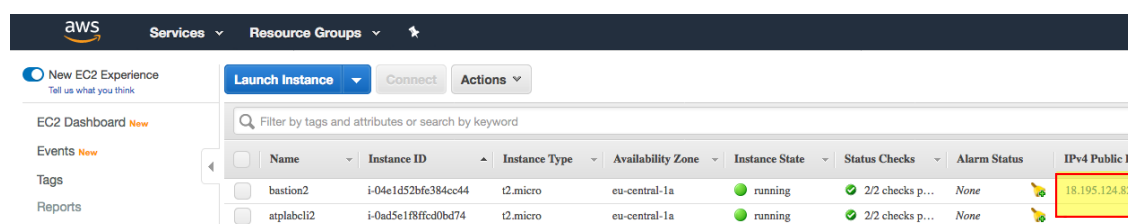
The screenshot shows the Oracle Cloud Compute page for instances in the 'atplab' compartment. The left sidebar lists 'Instances', 'Dedicated Virtual Machine Hosts', 'Instance Configurations', 'Instance Pools', 'Cluster Networks', 'Autoscaling Configurations', and 'Custom Images'. The main area displays a table of instances:

Name	Status	Public IP	Shape	Availability Domain	Fault Domain	Created
atplabcli1	Running	-	VM.Standard2.1	AD-2	FD-1	Mon, Mar 23, 2020, 17:22:22 UTC
bastion	Running	130.61.119.157	VM.Standard2.1	AD-2	FD-2	Mon, Mar 23, 2020, 17:15:46 UTC

Conectar desde clientes en los clouds de Amazon, Google y Azure

Los pasos a realizar desde **Amazon AWS** son los siguientes:

Conecte desde su máquina a la máquina bastion2 de AWS, y desde ahí a la máquina cliente atplabcli2 mediante ssh. Para ello siga estos pasos.



The screenshot shows the Amazon AWS Management Console for EC2 instances. The left sidebar lists 'New EC2 Experience', 'Events', 'Tags', and 'Reports'. The main area displays a table of instances:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	IPv4 Public IP
bastion2	i-04e1d52bfc384cc44	t2.micro	eu-central-1a	running	2/2 checks p...	None	18.195.124.82
atplabcli2	i-0ad5e1f8ffcd0bd74	t2.micro	eu-central-1a	running	2/2 checks p...	None	

Use la clave atplab_aws.pem que puede encontrar entre las claves que se dan para este workshop.

```
ssh -i atplab_aws.pem ec2-user@<ip_publica_bastion2>
```

Copie la misma clave ssh **privada aws atplab_aws.pem**, para poder acceder a la máquina atplabcli2 a través del bastion2.

```
$ mkdir .ssh
```

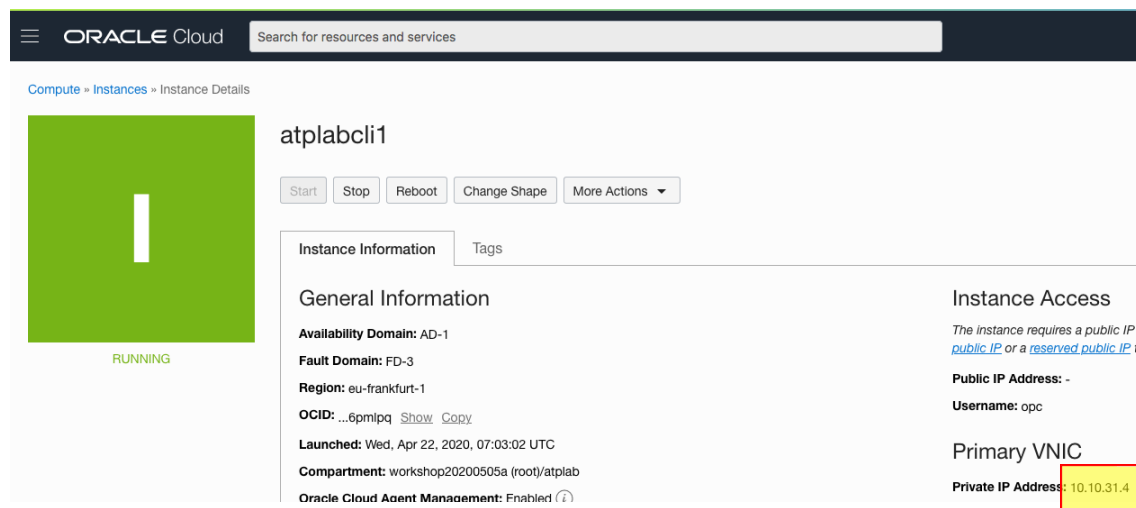


```
$ vi .ssh/atplab_aws.pem
<copie la clave en esta sesion de vi>
$ chmod 600 .ssh/atplab_aws.pem
$ ssh -i .ssh/atplab_aws.pem ec2-user@<ip_privada_atplabcli2>
```

Una vez en la máquina **atplabcli2**, copie la clave privada ssh **atplab_rsa**, para poder acceder a la máquina **atplabcli1** que está en OCI.

```
$ mkdir .ssh
$ vi .ssh/atplab_rsa
<copie la clave en esta sesion de vi>
$ chmod 600 .ssh/atplab_rsa
```

Una vez que tiene la clave privada de acceso a **atplabcli1**, ejecute los siguientes comandos **SCP** desde **atplabcli2**, para importar tanto el directorio con el cliente Oracle como las variables de entorno desde la instancia de OCI:



```
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/instantclient_19_6 .
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/.bash_profile .
```

A continuación, cargue el entorno:

```
$ . .bash_profile
```

Ya puede conectar con sqlplus a ATP desde atplabcli2:

```
$ sqlplus hr/hr@atplabpub_medium
```

A continuación cree la tabla lineorder (si no la ha creado en el Lab 0)

```
sql> create table lineorder as
select * from ssb.lineorder
where to_char(lo_orderdate,'YYYY') = '1994';
```

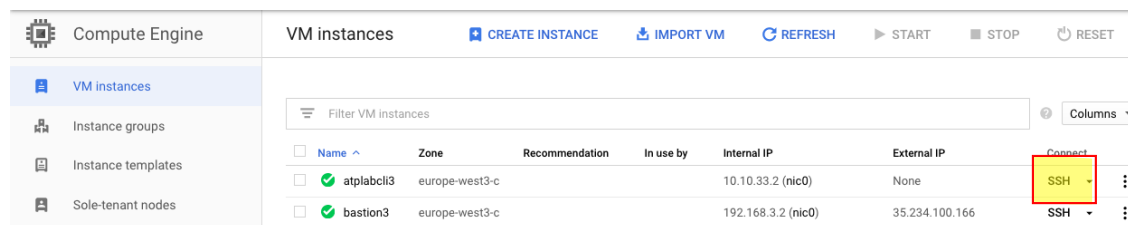
Ya puede ejecutar una consulta contra ATP desde el cloud de Amazon.

```
select /*AWS*/ sum(lo_extendedprice*lo_discount) as revenue
from lineorder, ssb.dwdte
where lo_orderdate = d_datekey
```



```
and d_weeknuminyear = 6
and d_year = 1994
and lo_discount between 5 and 7
and lo_quantity between 26 and 35;
```

Para acceder desde **Google**, se puede acceder directamente a la máquina cliente atplabcli3 pulsando en el **botón SSH** en la consola de GCP.

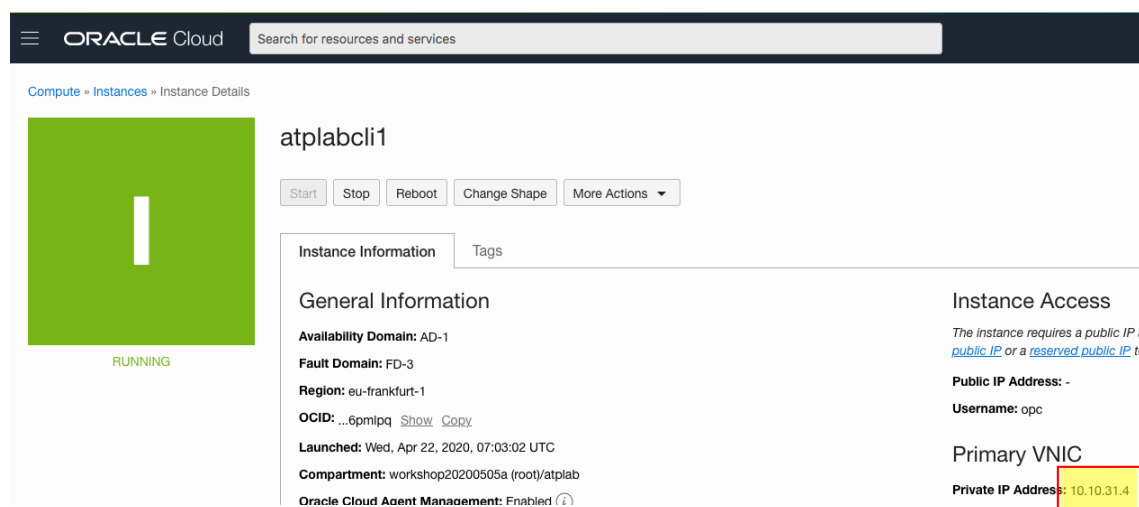


Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
atplabcli3	europa-west3-c			10.10.33.2 (nic0)	None	SSH
bastion3	europa-west3-c			192.168.3.2 (nic0)	35.234.100.166	SSH

En primer lugar, copie su clave privada ssh. Puede encontrarla en su maquina OCI, o entre las claves que se dan para este workshop.

```
$ mkdir .ssh
$ vi .ssh/atplab_rsa
<copie la clave en esta sesion de vi>
$chmod 600 .ssh/atplab_rsa
```

Una vez ahí, ejecute los siguientes comandos **SCP** para importar tanto el directorio con el cliente Oracle como las variables de entorno desde la instancia atplabcli1:



atplabcli1

Start Stop Reboot Change Shape More Actions

Instance Information Tags

General Information

Availability Domain: AD-1
 Fault Domain: FD-3
 Region: eu-frankfurt-1
 OCID: ...6pmlpq [Show](#) [Copy](#)
 Launched: Wed, Apr 22, 2020, 07:03:02 UTC
 Compartment: workshop20200505a (root)/atplab
 Oracle Cloud Agent Management: Enabled

Instance Access

The instance requires a public IP or a reserved public IP to

Public IP Address: -
 Username: opc

Primary VNIC

Private IP Address: 10.10.31.4

```
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/instantclient_19_6 .
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/.bash_profile .
```

A continuación, cargue el entorno:

```
$ . .bash_profile
```

Ya puede conectar con sqlplus a ATP desde atplabcli3:

```
$ sqlplus hr/hr@atplabpub_medium
```



A continuación, cree la tabla lineorder (si no la ha creado antes en este Lab o en el Lab 0)

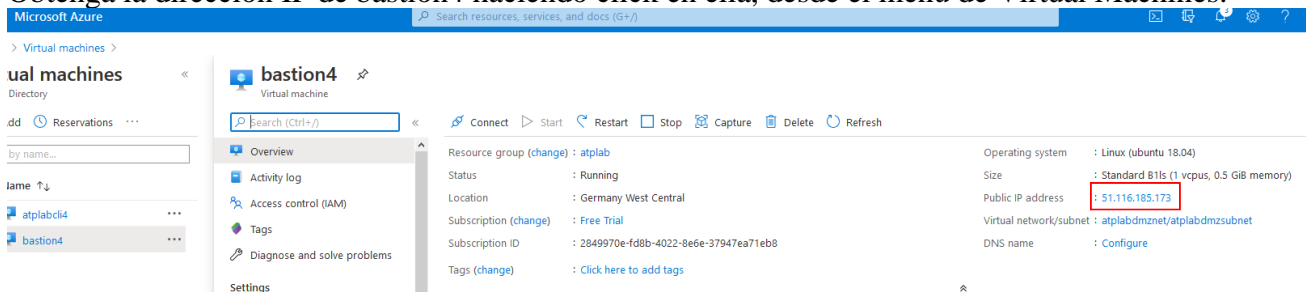
```
sql> create table lineorder as
select * from ssb.lineorder
where to_char(lo_orderdate,'YYYY') = '1994';
```

Ya puede ejecutar una consulta contra ATP desde el cloud de Google.

```
select /*GCP*/ sum(lo_extendedprice*lo_discount) as revenue
from lineorder, ssb.dwdte
where lo_orderdate = d_datekey
and d_weeknuminyear = 6
and d_year = 1994
and lo_discount between 5 and 7
and lo_quantity between 26 and 35;
```

Para conectar con Microsoft Azure, hay que repetir los pasos como se hicieron con AWS, conectando desde su terminal, PuTTY o similar.

Obtenga la dirección IP de bastion4 haciendo click en ella, desde el menú de Virtual Machines.



Use la clave **atplab_azu.pem** que se le habrá proporcionado al inicio del workshop.

```
ssh -i atplab_azu.pem ec2-user@<ip_publica_bastion4>
```

Copie la misma clave ssh **privada aws atplab_azu.pem**, para poder acceder a la máquina **atplabcli4** a través del **bastion4**.

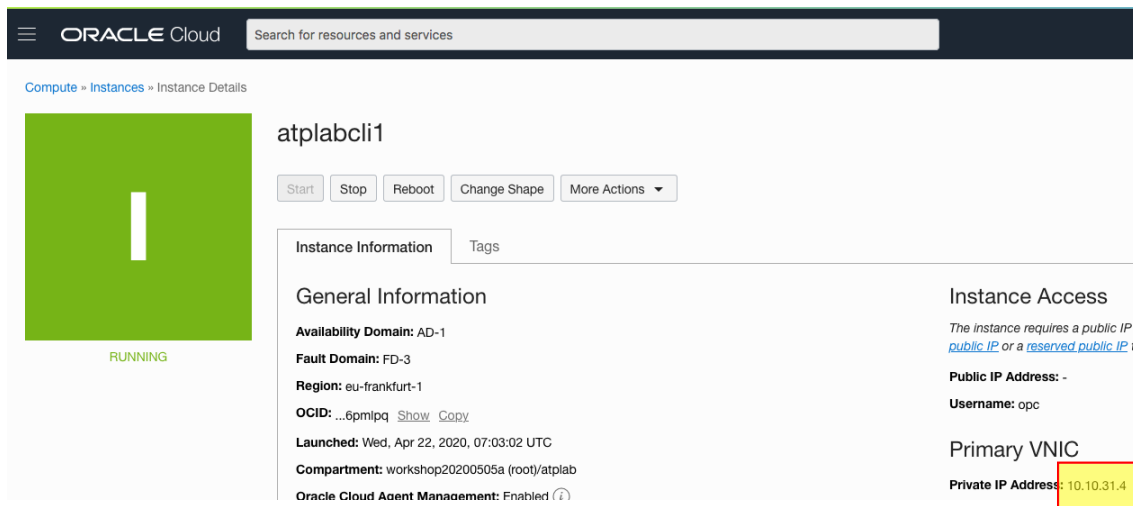
```
$ mkdir .ssh
$ vi .ssh/atplab_aws.pem
<copie la clave en esta sesion de vi>
$ chmod 600 .ssh/atplab_azu.pem
$ ssh -i .ssh/atplab_azu.pem AzureUser@<ip_privada_atplabcli4>
```

Una vez en la máquina **atplabcli4**, copie la clave privada ssh **atplab_rsa**, para poder acceder a la máquina **atplabcli1** que está en OCI.

```
$ mkdir .ssh
$ vi .ssh/atplab_rsa
<copie la clave en esta sesion de vi>
$ chmod 600 .ssh/atplab_rsa
```

Una vez que tiene la clave privada de acceso a **atplabcli1**, ejecute los siguientes comandos **SCP** desde **atplabcli4**, para importar tanto el directorio con el cliente Oracle como las variables de entorno desde la instancia de OCI:





Compute » Instances » Instance Details

atplabcli1

Start Stop Reboot Change Shape More Actions

Instance Information Tags

General Information

Availability Domain: AD-1
 Fault Domain: FD-3
 Region: eu-frankfurt-1
 OCID: ...6pmipq [Show](#) [Copy](#)
 Launched: Wed, Apr 22, 2020, 07:03:02 UTC
 Compartment: workshop20200505a (root)/atplab
 Oracle Cloud Agent Management: Enabled

Instance Access

The instance requires a public IP or a reserved public IP to be accessible from the Internet.

Public IP Address: -
 Username: opc

Primary VNIC

Private IP Address: 10.10.31.4

```
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/instantclient_19_6 .
$ scp -r -i .ssh/atplab_rsa opc@<ip_atplabcli1>:/home/opc/.bash_profile .
```

A continuación, cargue el entorno:

```
$ . .bash_profile
```

Ya puede conectar con sqlplus a ATP desde atplabcli4:

```
$ sqlplus hr/hr@atplabpub_medium
```

A continuación cree la tabla lineorder (si no la ha creado en el Lab 0)

```
sql> create table lineorder as
select * from ssb.lineorder
where to_char(lo_orderdate,'YYYY') = '1994';
```

Ya puede ejecutar una consulta contra ATP desde el cloud de Azure.

```
select /*AZU*/ sum(lo_extendedprice*lo_discount) as revenue
from lineorder, ssb.dwdte
where lo_orderdate = d_datekey
and d_weeknumyear = 6
and d_year = 1994
and lo_discount between 5 and 7
and lo_quantity between 26 and 35;
```

Del mismo modo, también tendrá que ejecutar una consulta contra ATP desde atplabcli1 en el cloud de Oracle.

```
select /*OCI*/ sum(lo_extendedprice*lo_discount) as revenue
from lineorder, ssb.dwdte
where lo_orderdate = d_datekey
and d_weeknumyear = 6
and d_year = 1994
and lo_discount between 5 and 7
and lo_quantity between 26 and 35;
```

Ahora ejecute (Enter) las 3 sentencias que ha preparado en atplabcli1, atplabcli2 y atplabcli3, todas casi al mismo tiempo (para que haya concurrencia).



Vaya a la consola de ATP en el navegador:

The screenshot shows the Oracle Cloud console interface. At the top, there's a search bar and the Oracle Cloud logo. Below, the 'Autonomous Database' section is active, showing a list of databases in the 'atplab' compartment. A table lists the database 'atplabpub' with details: State is 'Available', Dedicated is 'No', OCPUs is '1', Storage is '1 TB', and Workload Type is 'Transaction Processing'. A 'Create Autonomous Database' button is also visible.

Display Name	State	Dedicated	OCPUs	Storage (TB)	Workload Type
atplabpub	Available	No	1	1	Transaction Processing

Entre en la instancia atplabpub

The screenshot shows the 'Autonomous Database Details' page for the 'atplabpub' instance. On the left, there's a large green 'ATP' logo with the status 'AVAILABLE' below it. On the right, there are buttons for 'DB Connection', 'Performance Hub' (highlighted with a red box), 'Service Console', 'Scale Up/Down', and 'More Actions'. Below these buttons, the 'Autonomous Database Information' tab is selected, showing 'General Information' such as Database Name, Workload Type, Compartment, OCID, Created date, OCPU Count, Storage, License Type, Database Version, Auto Scaling status, Lifecycle State, and Instance Type.

General Information

- Database Name: atplabpub
- Workload Type: Transaction Processing
- Compartment: workshop20200505a (root)/atplab
- OCID: ...6wdzqq [Show](#) [Copy](#)
- Created: Tue, May 5, 2020, 09:54:01 UTC
- OCPU Count: 1
- Storage: 1 TB
- License Type: Bring Your Own License (BYOL)
- Database Version: 19c
- Auto Scaling: Disabled ⓘ
- Lifecycle State: Available
- Instance Type: Paid

Pulse el botón **Performance Hub** y luego pulse en **SQL Monitoring** más abajo en la parte de debajo de la pantalla.

The screenshot shows the 'Performance Hub' page for the 'atplabpub' instance. It includes a 'Time Range' selector set to 'Last Hour'. Below this, there's a bar chart titled 'Active Sessions in Last Hour' showing session activity from 07:00 PM to 07:10 PM on May 7, 2020. At the bottom, there are three tabs: 'ASH Analytics', 'SQL Monitoring' (highlighted with a red box), and 'Workload'.



Verá las consultas ejecutadas una a una con los tiempos de Duración y tiempos de Base de Datos correspondientes a cada una de ellas:

✓	13.00s	2	1x0m20cch8ty	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB	13.30s	105K	select /*GCP*/ sum(jo_extended...
✓	13.00s	2	44z8eahf9amyh	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB	13.22s	105K	select /*OCI*/ sum(jo_extended...
✓	13.00s	2	f77vuhdkf16c	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB	13.25s	105K	select /*AWS*/ sum(jo_extended...


Vuelva a ejecutarlas con el comando “r” en cada cliente atplabliN al mismo tiempo y verá los nuevos tiempos con concurrencia luego de dar al botón **Refresh** arriba a la derecha en la pantalla del Performance Hub:

Status	Duration	Inst ID	SQL ID	SQL Plan Hash	User Name	Parallel	Database Time	I/O Requests	SQL Text
✓	37.00s	2	44z8eahf9amyh	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB		36.84s	105K	select /*OCI*/ sum(jo_extended...
✓	34.00s	2	f77vuhdkf16c	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB		34.80s	105K	select /*AWS*/ sum(jo_extended...
✓	37.00s	2	1x0m20cch8ty	3002741515	HR@QLZLWMQRWSRRIKD_ATPLABPUB		37.41s	105K	select /*GCP*/ sum(jo_extended...

Observe que en ambos casos, **sin Parallel**, puesto que la instancia de ATP sólo tiene 1 OCPU aumentan considerablemente.

Cierre esta ventana con el botón abajo a la izquierda. De regreso en la consola de ATP presione **Scale Up/Down** y aumente las OCPU a 3 (o 4 OCPU si se está accediendo también desde Azure).

Autonomous Database » Autonomous Database Details



AVAILABLE

atplabpub

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

Autonomous Database Information
Tools
Tags

General Information

Database Name: atplabpub

Workload Type: Transaction Processing

Compartment: workshop20200505a (root)/atplab

OCID: ...6wdzqq [Show](#) [Copy](#)

Created: Tue, May 5, 2020, 09:54:01 UTC

OCPU Count: 1

Storage: 1 TB

License Type: Bring Your Own License (BYOL)

Database Version: 19c

Auto Scaling: Disabled ⓘ

Lifecycle State: Available

Instance Type: Paid



Scale Up/Down [Help](#) [Cancel](#)

OCPU count
3
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.

☐ **Auto Scaling**
Enabling auto scaling allows Oracle to use up to three times the number of OCPU's for processing workload if required. [Learn more.](#)

Update **Cancel**

Cuando esté listo vuelva a ejecutar las sentencias SQL desde los clientes con el comando “r”. Aunque puede ejecutar las sentencias mientras está escalando las OCPU, no hay problema, sólo tendrá que repetirlas cuando haya terminado para tomar tiempo limpios.

Autonomous Database » Autonomous Database Details



AVAILABLE

atplabpub

DB Connection Performance Hub [Service Console](#) [Scale Up/Down](#) [More Actions](#)

Autonomous Database Information Tools Tags

General Information

Database Name: atplabpub
Workload Type: Transaction Processing
Compartment: workshop20200505a (root)/atplab
OCID: ...6wdzqq [Show](#) [Copy](#)
Created: Tue, May 5, 2020, 09:54:01 UTC
OCPU Count: 3
Storage: 1 TB
License Type: Bring Your Own License (BYOL)
Database Version: 19c
Auto Scaling: Disabled ⓘ
Lifecycle State: Available
Instance Type: Paid

Ahora que las OCPU son 3, vuelva a entrar al **Performance Hub** y ejecute las sentencias todas juntas una vez más.



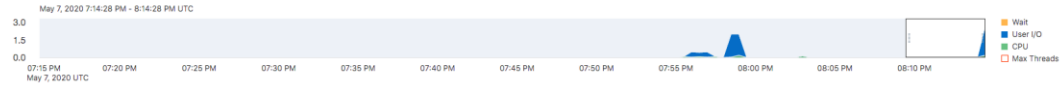
Performance Hub

atpiabpub

Refresh

Time Range

Active Sessions in Last Hour



ASH Analytics SQL Monitoring Workload

Top 100 by Last Active Time

Filter by Status, SQL ID or User Name

Status	Duration	Inst ID	SQL ID	SQL Plan Hash	User Name	Parallel	Database Time	I/O Requests	SQL Text
	8.00s	2	1k0m20ocb8ty	3313491567	HR@QLZLWMQRW/SRRKD_ATPLABPUB	3	24.27s	105K	select /*OCPU*/ sum(io_extended...
	10.00s	2	f77uuhdkf16c	3313491567	HR@QLZLWMQRW/SRRKD_ATPLABPUB	3	30.03s	105K	select /*AWS*/ sum(io_extended...
	8.00s	2	4428ashfoamyh	3313491567	HR@QLZLWMQRW/SRRKD_ATPLABPUB	3	23.60s	105K	select /*OCI*/ sum(io_extended...

Observe que ahora el Parallel es 3 en cada sentencia y que el tiempo es 1/3 del anterior y aún menor que los tiempos iniciales para cada una.

Esto demuestra una escalabilidad casi lineal y una capacidad elástica sin costes adicionales. Pregunte a su instructor si tiene dudas para que se lo explique.

Vuelva a poner la OCPU en 1 y aquí termina el HOL4.

