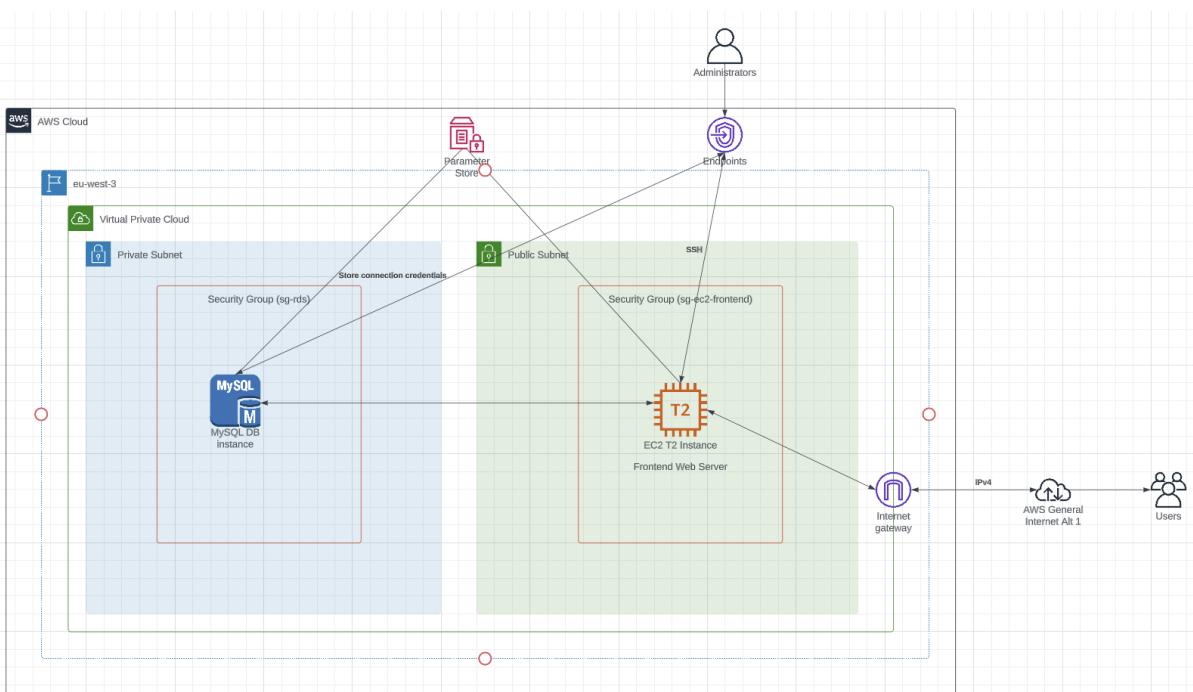


AWS Cloud & Big Data Architectures - Project

I. Design an architecture diagram



II. Deploy app

Create the VPC

You successfully created `vpc-0ef4197ec1d531099 / capstone-vpc`

[VPC](#) > [Your VPCs](#) > `vpc-0ef4197ec1d531099`

Details		Actions ▾	
VPC ID	<code>vpc-0ef4197ec1d531099</code>	State	Available
Tenancy	Default	DHCP option set	<code>dopt-0fe1e1e2208b48c83</code>
Default VPC	No	IPv4 CIDR	<code>10.0.0.0/24</code>
Network Address Usage metrics	Disabled	Route 53 Resolver DNS Firewall rule groups	-
		Owner ID	<code>422051975754</code>
		DNS hostnames	Disabled
		Main route table	<code>rtb-0bdf0b0f70a0275c</code>
		IPv6 pool	-
		Main network ACL	<code>acl-0c10df3ec0c803f45</code>
		IPv6 CIDR	-

create internet gateway

The screenshot shows the AWS VPC Internet Gateways page. A green header bar at the top displays a success message: "The following internet gateway was created: igw-04cd5f981bb67424d - capstone-igw. You can now attach to a VPC to enable the VPC to communicate with the internet." To the right of the message are two buttons: "Attach to a VPC" and a close button (X). Below the header, the breadcrumb navigation shows "VPC > Internet gateways > igw-04cd5f981bb67424d". The main title is "igw-04cd5f981bb67424d / capstone-igw". On the right, there is an "Actions" dropdown menu. The page content includes a "Details" tab and an "Info" tab (which is currently selected). The "Details" tab displays the following information:

Internet gateway ID igw-04cd5f981bb67424d	State Detached	VPC ID -	Owner 422051975754
--	-------------------	-------------	-----------------------

Below the details, there is a "Tags" section with a search bar and a "Manage tags" button. It shows one tag: "Name" with the value "capstone-igw".

Attach it to the VPC

The screenshot shows the AWS VPC Internet Gateways page. A green header bar at the top displays a success message: "Internet gateway igw-04cd5f981bb67424d successfully attached to vpc-0ef4197ec1d531099". To the right of the message are two buttons: "Actions" and a close button (X). Below the header, the breadcrumb navigation shows "VPC > Internet gateways > igw-04cd5f981bb67424d". The main title is "igw-04cd5f981bb67424d / capstone-igw". On the right, there is an "Actions" dropdown menu. The page content includes a "Details" tab and an "Info" tab (which is currently selected). The "Details" tab displays the following information:

Internet gateway ID igw-04cd5f981bb67424d	State Attached	VPC ID vpc-0ef4197ec1d531099 capstone-vpc	Owner 422051975754
--	-------------------	--	-----------------------

And edit the route table to add new route to the internet gateway

⌚ Updated routes for rtb-0bdf0b0f70a0275c successfully
▶ Details

You can now check network connectivity with Reachability Analyzer

[Run Reachability Analyzer](#)

Details		Info	
Route table ID rtb-0bdf0b0f70a0275c	Main <input checked="" type="checkbox"/> Yes	Explicit subnet associations -	Edge associations -
VPC vpc-0ef4197ec1d531099 capstone-vpc	Owner ID 422051975754		

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)

Routes (2)

Filter routes

[Edit routes](#)

Destination	Target	Status	Propagated
0.0.0.0/0	igw-04cd5f981bb67424d	<input checked="" type="checkbox"/> Active	No
10.0.0.0/24	local	<input checked="" type="checkbox"/> Active	No

Create 2 subsets, 1 public for EC2 instance and 1 private for RDS Database

Subnets (1/2) [Info](#)

Find resources by attribute or tag

[Create subnet](#)

Name	Subnet ID	State	VPC	IPv4 CIDR
<input checked="" type="checkbox"/> EC2-public-subnet-capstone	subnet-071a560af14eeb5a8	<input checked="" type="checkbox"/> Available	vpc-0ef4197ec1d531099 caps...	10.0.0.0/25
<input checked="" type="checkbox"/> private-subnet-rds-capstone	subnet-039aac93c11715d03	<input checked="" type="checkbox"/> Available	vpc-0ef4197ec1d531099 caps...	10.0.0.128/25

[Actions](#)

subnet-039aac93c11715d03	arn:aws:ec2:eu-west-3:422051975754:subnet/subnet-039aac93c11715d03	<input checked="" type="checkbox"/> Available	10.0.0.128/25
Available IPv4 addresses <input checked="" type="checkbox"/> 123	IPv6 CIDR -	Availability Zone <input checked="" type="checkbox"/> eu-west-3c	Availability Zone ID <input checked="" type="checkbox"/> euw3-az3
VPC vpc-0ef4197ec1d531099 capstone-vpc	Route table rtb-0bdf0b0f70a0275c	Network ACL acl-0c10df3ecec803f45	Default subnet No
Auto-assign public IPv4 address No	Auto-assign IPv6 address No	Auto-assign customer-owned IPv4 address No	Customer-owned IPv4 pool -
Outpost ID -	IPv4 CIDR reservations -	IPv6 CIDR reservations -	IPv6-only No

⌚ You have successfully created 1 subnet: subnet-0a16da7f7ab4994d3

Subnets (1/2) Info				
<input type="text"/> Find resources by attribute or tag Clear filters Actions ▾ Create subnet				
Name	Subnet ID	State	VPC	IPv4 CIDR
<input checked="" type="checkbox"/> public-subnet-ec2-capstone	subnet-0a16da7f7ab4994d3	Available	vpc-0ef4197ec1d531099 capstone-vpc	10.0.0.0/25
<input type="checkbox"/> private-subnet-rds-capstone	subnet-039aac93c11715d03	Available	vpc-0ef4197ec1d531099 capstone-vpc	10.0.0.128/25

Subnet ID subnet-0a16da7f7ab4994d3	ARN AWS:EC2:EU-West-3:422051975754:subnet/subnet-0a16da7f7ab4994d3	Available	IPv4 CIDR 10.0.0.0/25
Available IPv4 addresses 123	Availability Zone eu-west-3a	Availability Zone ID euw3-az1	
VPC vpc-0ef4197ec1d531099 capstone-vpc	IPv6 CIDR -	Network ACL acl-0c10df3ecec803f45	Default subnet No
Auto-assign public IPv4 address No	Route table rtb-0bdf0b0f70a0275c	Auto-assign customer-owned IPv4 address No	Customer-owned IPv4 pool -
	Auto-assign IPv6 address		IDv6-only

Configurer l'instance RDS (Create a private database) :

Connectivity & security Monitoring Logs & events Configuration Maintenance & backups Tags

Connectivity & security		
Endpoint & port	Networking	Security
Endpoint -	Availability Zone eu-west-3c	VPC security groups RDS-security-group (sg-0fec0869fae443ff) Active
Port -	VPC capstone-vpc (vpc-0ef4197ec1d531099)	Publicly accessible No
Subnet group	Subnets	Certificate authority Info rds-ca-2019
default-vpc-0ef4197ec1d531099	subnet-0a16da7f7ab4994d3 subnet-039aac93c11715d03	Certificate authority date August 22, 2024, 19:08 (UTC+02:00)
Network type	IPv4	

Configurer le groupe de sécurité RDS :

The screenshot shows two pages from the AWS Management Console:

- Security Groups (1/7) [Info]**: A list of security groups. One entry, "RDS-security-gr...", is selected. A green banner at the top indicates: "Inbound security group rules successfully modified on security group (sg-0fec0869fae443ff | RDS-security-group)".
- Inbound rules (2)**: A list of inbound rules for the selected security group. It shows two rules: one for All traffic (Protocol: All, Port range: All) and one for MySQL/Aurora (Protocol: TCP, Port range: 3306).

Configurer les paramètres du SSM Parameter Store :

The screenshot shows the "My parameters" page in the AWS SSM Parameter Store:

Name	Tier	Type	Last modified
/example/database	Standard	String	Wed, 19 Jul 2023 07:57:48 GMT
/example/endpoint	Standard	String	Wed, 19 Jul 2023 07:56:46 GMT
/example/password	Standard	String	Wed, 19 Jul 2023 07:57:32 GMT
/example/username	Standard	String	Wed, 19 Jul 2023 07:57:10 GMT

Create EC2 public instance

The screenshot shows the AWS EC2 Instances page. At the top, there is a green banner indicating "Successfully terminated i-0bb06ce455901d6f8". Below this, the "Instances (1/3) Info" section shows a table with one row. The row for "capstone-instance..." (ID: i-05ec9173cbfa1798d) is selected and highlighted in blue. The instance is listed as "Running".

The main content area displays the details for the selected instance:

- Instance ID:** i-05ec9173cbfa1798d (capstone-instance)
- PUBLIC IPv4 address:** 13.36.165.48 | [open address](#)
- Private IPv4 addresses:** 10.0.0.72
- Instance state:** Running
- Public IPv4 DNS:** -
- Hostname type:** IP name: ip-10-0-0-72.eu-west-3.compute.internal
- Private IP DNS name (IPv4 only):** ip-10-0-0-72.eu-west-3.compute.internal
- Answer private resource DNS name:** -
- VPC ID:** vpc-0ef4197ec1d531099 (capstone-vpc)
- Elastic IP addresses:** -
- Auto-assigned IP address:** 13.36.165.48 [Public IP]
- IAM Role:** -
- Subnet ID:** subnet-0a16da7f7ab4994d3 (public-subnet-ec2-capstone)
- AWS Compute Optimizer finding:** Opt-in to AWS Compute Optimizer for recommendations. | Learn more
- Auto Scaling Group name:** -

Configure rules for EC2 security group :

The screenshot shows the AWS Security Groups page for the security group "sg-0bb6273fc49a5458d - default".

Details:

Security group name: default	Security group ID: sg-0bb6273fc49a5458d	Description: default VPC security group	VPC ID: vpc-0ef4197ec1d531099
Owner: 422051975754	Inbound rules count: 2 Permission entries	Outbound rules count: 1 Permission entry	

Inbound rules: (2)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-0293b8102dc02cb...	IPv4	HTTP	TCP	80
-	sgr-0794f673f7d63bf4f	IPv4	SSH	TCP	22

Message: You can now check network connectivity with Reachability Analyzer | Run Reachability Analyzer

Deploy PHP application :

```
simonmartinenq@MacBook-Pro-de-simon Downloads % ssh -i capstone-pair.pem
ec2-user@13.36.165.48
Last login: Wed Jul 19 09:09:59 2023 from 217.26.204.244

      _|_ _|_
      | (   /   Amazon Linux 2 AMI
      __| \__| __|_

https://aws.amazon.com/amazon-linux-2/
No packages needed for security; 2 packages available
Run "sudo yum update" to apply all updates.
:~ $ sudo -i
[root@ip-10-0-0-72 ~]# yum -y update
Modules complémentaires chargés : extras_suggestions, langpacks,
priorities, update-motd
244 packages excluded due to repository priority protections
Résolution des dépendances
--> Lancement de la transaction de test
---> Le paquet iutils.x86_64 0:20160308-10.amzn2.0.2 sera mis à jour
---> Le paquet iutils.x86_64 0:20180629-11.amzn2.1.20160308 sera
utilisé
---> Le paquet terraform.x86_64 0:1.5.1-1 sera mis à jour
---> Le paquet terraform.x86_64 0:1.5.3-1 sera utilisé
--> Résolution des dépendances terminée

Dépendances résolues

=====
=====
Package          Architecture      Version
Dépôt           Taille
=====
=====
Mise à jour :
  iutils            x86_64        20180629-11.amzn2.1.20160308
    amzn2-core       147 k
  terraform         x86_64        1.5.3-1
    hashicorp        21 M

Résumé de la transaction
=====
```

```
=====
Mettre à jour  2 Paquets

Taille totale des téléchargements : 21 M
Downloading packages:
Delta RPMs disabled because /usr/bin/applydeltarpm not installed.
(1/2): iputils-20180629-11.amzn2.1.20160308.x86_64.rpm
       | 147 kB  00:00:00
(2/2): terraform-1.5.3-1.x86_64.rpm
       | 21 MB   00:00:00
-----
Total
      37 MB/s | 21 MB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Mise à jour  : iputils-20180629-11.amzn2.1.20160308.x86_64
    2/4
  Nettoyage  : terraform-1.5.1-1.x86_64
    3/4
  Nettoyage  : iputils-20160308-10.amzn2.0.2.x86_64
    4/4
  Vérification : iputils-20180629-11.amzn2.1.20160308.x86_64
    1/4
  Vérification : terraform-1.5.3-1.x86_64
    2/4
  Vérification : terraform-1.5.1-1.x86_64
    3/4
  Vérification : iputils-20160308-10.amzn2.0.2.x86_64
    4/4

Mis à jour :
  iputils.x86_64 0:20180629-11.amzn2.1.20160308
  terraform.x86_64 0:1.5.3-1

Terminé !
[root@ip-10-0-0-72 ~]# amazon-linux-extras install -y
lamp-mariadb10.2-php7.2 php7.2

Topic php7.2 has end-of-support date of 2020-11-30
Installing php-pdo, php-mysqlnd, php-fpm, php-cli, php-json, mariadb
Modules complémentaires chargés : extras_suggestions, langpacks,
priorities, update-motd
```

```
Verrou /var/run/yum.pid existant : une autre copie est lancée avec le
pid 27355.
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 228 M RSS (445 MB VSZ)
    Débuté   : Wed Jul 19 09:11:06 2023 - il y a 00:04
    État     : Exécution, pid : 27355
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 308 M RSS (524 MB VSZ)
    Débuté   : Wed Jul 19 09:11:06 2023 - il y a 00:06
    État     : Exécution, pid : 27355
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 341 M RSS (557 MB VSZ)
    Débuté   : Wed Jul 19 09:11:06 2023 - il y a 00:08
    État     : Exécution, pid : 27355
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 343 M RSS (560 MB VSZ)
    Débuté   : Wed Jul 19 09:11:06 2023 - il y a 00:10
    État     : Exécution, pid : 27355
Nettoyage des dépôts : amzn2-core amzn2extra-docker amzn2extra-epel
amzn2extra-lamp-mariadb10.2-php7.2
                           : amzn2extra-php7.2 epel hashicorp
35 metadata fichiers supprimés
16 sqlite fichiers supprimés
0 metadata fichier supprimé
Modules complémentaires chargés : extras_suggestions, langpacks,
priorities, update-motd
amzn2-core
    | 3.7 kB  00:00:00
amzn2extra-docker
    | 3.0 kB  00:00:00
amzn2extra-epel
    | 3.0 kB  00:00:00
amzn2extra-lamp-mariadb10.2-php7.2
    | 3.0 kB  00:00:00
amzn2extra-php7.2
    | 3.0 kB  00:00:00
epel/x86_64/metalink
    | 24 kB   00:00:00
epel
    | 4.7 kB  00:00:00
hashicorp
```

```
| 1.4 kB 00:00:00
(1/15): amzn2-core/2/x86_64/group_gz
| 2.5 kB 00:00:00
(2/15): amzn2-core/2/x86_64/updateinfo
| 637 kB 00:00:00
(3/15): amzn2extra-epel/2/x86_64/primary_db
| 1.8 kB 00:00:00
(4/15): amzn2extra-lamp-mariadb10.2-php7.2/2/x86_64/updateinfo
| 76 B 00:00:00
(5/15): amzn2extra-lamp-mariadb10.2-php7.2/2/x86_64/primary_db
| 506 kB 00:00:00
(6/15): amzn2extra-php7.2/2/x86_64/updateinfo
| 76 B 00:00:00
(7/15): amzn2extra-docker/2/x86_64/updateinfo
| 9.8 kB 00:00:00
(8/15): amzn2extra-docker/2/x86_64/primary_db
| 106 kB 00:00:00
(9/15): amzn2extra-epel/2/x86_64/updateinfo
| 76 B 00:00:00
(10/15): amzn2extra-php7.2/2/x86_64/primary_db
| 580 kB 00:00:00
(11/15): epel/x86_64/group_gz
| 99 kB 00:00:00
(12/15): epel/x86_64/updateinfo
| 1.0 MB 00:00:00
(13/15): amzn2-core/2/x86_64/primary_db
| 74 MB 00:00:01
(14/15): hashicorp/x86_64/primary
| 172 kB 00:00:00
(15/15): epel/x86_64/primary_db
| 7.0 MB 00:00:00
hashicorp
1238/1238
245 packages excluded due to repository priority protections
Le paquet 3:mariadb-10.2.38-1.amzn2.0.1.x86_64 est déjà installé dans sa dernière version
Résolution des dépendances
--> Lancement de la transaction de test
---> Le paquet php-cli.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
--> Traitement de la dépendance : php-cli(x86-64) = 7.2.24-1.amzn2.0.1
pour le paquet : php-devel-7.2.24-1.amzn2.0.1.x86_64
---> Le paquet php-cli.x86_64 0:7.2.34-1.amzn2 sera utilisé
--> Traitement de la dépendance : php-common(x86-64) = 7.2.34-1.amzn2
pour le paquet : php-cli-7.2.34-1.amzn2.x86_64
---> Le paquet php-fpm.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
```

```

---> Le paquet php-fpm.x86_64 0:7.2.34-1.amzn2 sera utilisé
---> Le paquet php-json.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-json.x86_64 0:7.2.34-1.amzn2 sera utilisé
---> Le paquet php-mysqlnd.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-mysqlnd.x86_64 0:7.2.34-1.amzn2 sera utilisé
---> Le paquet php-pdo.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-pdo.x86_64 0:7.2.34-1.amzn2 sera utilisé
--> Lancement de la transaction de test
---> Le paquet php-common.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
--> Traitement de la dépendance : php-common(x86-64) =
7.2.24-1.amzn2.0.1 pour le paquet : php-xml-7.2.24-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : php-common(x86-64) =
7.2.24-1.amzn2.0.1 pour le paquet :
php-process-7.2.24-1.amzn2.0.1.x86_64
---> Le paquet php-common.x86_64 0:7.2.34-1.amzn2 sera utilisé
--> Traitement de la dépendance : libzip.so.5()(64bit) pour le paquet :
php-common-7.2.34-1.amzn2.x86_64
---> Le paquet php-devel.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-devel.x86_64 0:7.2.34-1.amzn2 sera utilisé
--> Lancement de la transaction de test
---> Le paquet libzip.x86_64 0:1.3.2-1.amzn2.0.1 sera installé
---> Le paquet php-process.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-process.x86_64 0:7.2.34-1.amzn2 sera utilisé
---> Le paquet php-xml.x86_64 0:7.2.24-1.amzn2.0.1 sera mis à jour
---> Le paquet php-xml.x86_64 0:7.2.34-1.amzn2 sera utilisé
--> Résolution des dépendances terminée

```

Dépendances résolues

Package	Architecture	Version
Dépôt		Taille
<hr/>		
<hr/>		
Mise à jour :		
php-cli	x86_64	7.2.34-1.amzn2
amzn2extra-php7.2		4.4 M
php-fpm	x86_64	7.2.34-1.amzn2
amzn2extra-php7.2		1.5 M
php-json	x86_64	7.2.34-1.amzn2
amzn2extra-php7.2		71 k
php-mysqlnd	x86_64	7.2.34-1.amzn2
amzn2extra-php7.2		238 k
php-pdo	x86_64	7.2.34-1.amzn2

```
amzn2extra-php7.2           132 k
Installation pour dépendances :
  libzip                  x86_64          1.3.2-1.amzn2.0.1
amzn2-core                 62 k
Mise à jour pour dépendances :
  php-common               x86_64          7.2.34-1.amzn2
amzn2extra-php7.2           1.1 M
  php-devel                x86_64          7.2.34-1.amzn2
amzn2extra-php7.2           1.2 M
  php-process               x86_64          7.2.34-1.amzn2
amzn2extra-php7.2           88 k
  php-xml                  x86_64          7.2.34-1.amzn2
amzn2extra-php7.2           212 k
```

Résumé de la transaction

```
=====
=====
Installation          ( 1 Paquet en dépendance)
Mettre à jour  5 Paquets (+4 Paquets en dépendance)
```

Taille totale des téléchargements : 8.9 M

Downloading packages:

Delta RPMs disabled because /usr/bin/applydeltarpm not installed.

```
(1/10): libzip-1.3.2-1.amzn2.0.1.x86_64.rpm
| 62 kB  00:00:00
(2/10): php-common-7.2.34-1.amzn2.x86_64.rpm
| 1.1 MB  00:00:00
(3/10): php-devel-7.2.34-1.amzn2.x86_64.rpm
| 1.2 MB  00:00:00
(4/10): php-fpm-7.2.34-1.amzn2.x86_64.rpm
| 1.5 MB  00:00:00
(5/10): php-cli-7.2.34-1.amzn2.x86_64.rpm
| 4.4 MB  00:00:00
(6/10): php-json-7.2.34-1.amzn2.x86_64.rpm
| 71 kB   00:00:00
(7/10): php-mysqlnd-7.2.34-1.amzn2.x86_64.rpm
| 238 kB  00:00:00
(8/10): php-pdo-7.2.34-1.amzn2.x86_64.rpm
| 132 kB  00:00:00
(9/10): php-process-7.2.34-1.amzn2.x86_64.rpm
| 88 kB   00:00:00
(10/10): php-xml-7.2.34-1.amzn2.x86_64.rpm
| 212 kB  00:00:00
```

```
Total
    10 MB/s | 8.9 MB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installation : libzip-1.3.2-1.amzn2.0.1.x86_64
    1/19
  Mise à jour  : php-common-7.2.34-1.amzn2.x86_64
    2/19
  Mise à jour  : php-json-7.2.34-1.amzn2.x86_64
    3/19
  Mise à jour  : php-cli-7.2.34-1.amzn2.x86_64
    4/19
  Mise à jour  : php-pdo-7.2.34-1.amzn2.x86_64
    5/19
  Mise à jour  : php-mysqlnd-7.2.34-1.amzn2.x86_64
    6/19
  Mise à jour  : php-devel-7.2.34-1.amzn2.x86_64
    7/19
  Mise à jour  : php-fpm-7.2.34-1.amzn2.x86_64
    8/19
  Mise à jour  : php-xml-7.2.34-1.amzn2.x86_64
    9/19
  Mise à jour  : php-process-7.2.34-1.amzn2.x86_64
    10/19
Nettoyage : php-devel-7.2.24-1.amzn2.0.1.x86_64
    11/19
Nettoyage : php-cli-7.2.24-1.amzn2.0.1.x86_64
    12/19
Nettoyage : php-mysqlnd-7.2.24-1.amzn2.0.1.x86_64
    13/19
Nettoyage : php-pdo-7.2.24-1.amzn2.0.1.x86_64
    14/19
Nettoyage : php-process-7.2.24-1.amzn2.0.1.x86_64
    15/19
Nettoyage : php-xml-7.2.24-1.amzn2.0.1.x86_64
    16/19
Nettoyage : php-fpm-7.2.24-1.amzn2.0.1.x86_64
    17/19
Nettoyage : php-json-7.2.24-1.amzn2.0.1.x86_64
    18/19
Nettoyage : php-common-7.2.24-1.amzn2.0.1.x86_64
    19/19
Vérification : php-fpm-7.2.34-1.amzn2.x86_64
```

```
1/19
Vérification : php-cli-7.2.34-1.amzn2.x86_64
2/19
Vérification : php-xml-7.2.34-1.amzn2.x86_64
3/19
Vérification : php-json-7.2.34-1.amzn2.x86_64
4/19
Vérification : libzip-1.3.2-1.amzn2.0.1.x86_64
5/19
Vérification : php-process-7.2.34-1.amzn2.x86_64
6/19
Vérification : php-devel-7.2.34-1.amzn2.x86_64
7/19
Vérification : php-mysqlnd-7.2.34-1.amzn2.x86_64
8/19
Vérification : php-pdo-7.2.34-1.amzn2.x86_64
9/19
Vérification : php-common-7.2.34-1.amzn2.x86_64
10/19
Vérification : php-common-7.2.24-1.amzn2.0.1.x86_64
11/19
Vérification : php-fpm-7.2.24-1.amzn2.0.1.x86_64
12/19
Vérification : php-process-7.2.24-1.amzn2.0.1.x86_64
13/19
Vérification : php-cli-7.2.24-1.amzn2.0.1.x86_64
14/19
Vérification : php-pdo-7.2.24-1.amzn2.0.1.x86_64
15/19
Vérification : php-json-7.2.24-1.amzn2.0.1.x86_64
16/19
Vérification : php-devel-7.2.24-1.amzn2.0.1.x86_64
17/19
Vérification : php-xml-7.2.24-1.amzn2.0.1.x86_64
18/19
Vérification : php-mysqlnd-7.2.24-1.amzn2.0.1.x86_64
19/19
```

Dépendances installées :

libzip.x86_64 0:1.3.2-1.amzn2.0.1

Mis à jour :

php-cli.x86_64 0:7.2.34-1.amzn2 php-fpm.x86_64 0:7.2.34-1.amzn2
 php-json.x86_64 0:7.2.34-1.amzn2

```
php-mysqlnd.x86_64 0:7.2.34-1.amzn2      php-pdo.x86_64 0:7.2.34-1.amzn2
```

Dépendances mises à jour :

```
php-common.x86_64 0:7.2.34-1.amzn2      php-devel.x86_64
0:7.2.34-1.amzn2  php-process.x86_64 0:7.2.34-1.amzn2
php-xml.x86_64 0:7.2.34-1.amzn2
```

Terminé !

```
0  ansible2                  available  \
   [ =2.4.2  =2.4.6  =2.8  =stable ]
2  httpd_modules              available  [ =1.0  =stable ]
3  memcached1.5               available  \
   [ =1.5.1  =1.5.16  =1.5.17 ]
6  postgresql10                available  [ =10  =stable ]
9  R3.4                      available  [ =3.4.3  =stable ]
10 rust1                     available  \
   [ =1.22.1  =1.26.0  =1.26.1  =1.27.2  =1.31.0  =1.38.0
     =stable ]
15 *php7.2=latest             enabled   \
   [ =7.2.0  =7.2.4  =7.2.5  =7.2.8  =7.2.11  =7.2.13  =7.2.14
     =7.2.16  =7.2.17  =7.2.19  =7.2.21  =7.2.22  =7.2.23
     =7.2.24  =7.2.26  =stable ]
17 *lamp-mariadb10.2-php7.2=latest enabled   \
   [ =10.2.10_7.2.0  =10.2.10_7.2.4  =10.2.10_7.2.5
     =10.2.10_7.2.8  =10.2.10_7.2.11  =10.2.10_7.2.13
     =10.2.10_7.2.14  =10.2.10_7.2.16  =10.2.10_7.2.17
     =10.2.10_7.2.19  =10.2.10_7.2.22  =10.2.10_7.2.23
     =10.2.10_7.2.24  =stable ]
18 libreoffice                available  \
   [ =5.0.6.2_15  =5.3.6.1  =stable ]
19 gimp                      available  [ =2.8.22 ]
20 docker=latest               enabled   \
   [ =17.12.1  =18.03.1  =18.06.1  =18.09.9  =stable ]
21 mate-desktop1.x             available  \
   [ =1.19.0  =1.20.0  =stable ]
22 GraphicsMagick1.3          available  \
   [ =1.3.29  =1.3.32  =1.3.34  =stable ]
23 tomcat8.5                  available  \
   [ =8.5.31  =8.5.32  =8.5.38  =8.5.40  =8.5.42  =8.5.50
     =stable ]
24 epel=latest                 enabled   [ =7.11  =stable ]
25 testing                     available  [ =1.0  =stable ]
26 ecs                         available  [ =stable ]
27 corretto8                  available  \
```

```
[ =1.8.0_192  =1.8.0_202  =1.8.0_212  =1.8.0_222  =1.8.0_232
     =1.8.0_242  =stable ]
29 golang1.11                      available  \
[ =1.11.3  =1.11.11  =1.11.13  =stable ]
30 squid4                           available  [ =4  =stable ]
32 lustre2.10                      available  \
[ =2.10.5  =2.10.8  =stable ]
33 java-openjdk11                   available  [ =11  =stable ]
34 lynis                            available  [ =stable ]
36 BCC                             available  [ =0.x  =stable ]
37 mono                            available  [ =5.x  =stable ]
38 nginx1                          available  [ =stable ]
40 mock                            available  [ =stable ]
41 postgresql11                    available  [ =11  =stable ]
43 livepatch                       available  [ =stable ]
44 python3.8                        available  [ =stable ]
45 haproxy2                         available  [ =stable ]
46 collectd                         available  [ =stable ]
47 aws-nitro-enclaves-cli          available  [ =stable ]
48 R4                               available  [ =stable ]
49 kernel-5.4                        available  [ =stable ]
50 selinux-ng                       available  [ =stable ]
_ php8.0                           available  [ =stable ]
52 tomcat9                         available  [ =stable ]
53 unbound1.13                      available  [ =stable ]
_ mariadb10.5                      available  [ =stable ]
55 kernel-5.10                      available  [ =stable ]
56 redis6                           available  [ =stable ]
57 ruby3.0                          available  [ =stable ]
58 postgresql12                     available  [ =stable ]
59 postgresql13                     available  [ =stable ]
60 mock2                            available  [ =stable ]
61 dnsmasq2.85                     available  [ =stable ]
62 kernel-5.15                      available  [ =stable ]
63 postgresql14                     available  [ =stable ]
64 firefox                          available  [ =stable ]
65 lustre                           available  [ =stable ]
_ php8.1                           available  [ =stable ]
67 awscli1                         available  [ =stable ]
_ php8.2                           available  [ =stable ]
69 dnsmasq                          available  [ =stable ]
70 unbound1.17                      available  [ =stable ]
71 golang1.19                        available  [ =stable ]
72 collectd-python3                 available  [ =stable ]
```

* Extra topic has reached end of support.

```
[root@ip-10-0-0-72 ~]# yum install -y httpd mariadb-server
Modules complémentaires chargés : extras_suggestions, langpacks,
priorities, update-motd
Verrou /var/run/yum.pid existant : une autre copie est lancée avec le
pid 27679.
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 124 M RSS (341 MB VSZ)
    Débuté   : Wed Jul 19 09:11:38 2023 - il y a 00:03
    État     : Exécution, pid : 27679
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 295 M RSS (511 MB VSZ)
    Débuté   : Wed Jul 19 09:11:38 2023 - il y a 00:05
    État     : Exécution, pid : 27679
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 343 M RSS (558 MB VSZ)
    Débuté   : Wed Jul 19 09:11:38 2023 - il y a 00:07
    État     : Exécution, pid : 27679
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 345 M RSS (562 MB VSZ)
    Débuté   : Wed Jul 19 09:11:38 2023 - il y a 00:09
    État     : Exécution, pid : 27679
Another app is currently holding the yum lock; waiting for it to exit...
Il s'agit de yum
    Mémoire : 345 M RSS (562 MB VSZ)
    Débuté   : Wed Jul 19 09:11:38 2023 - il y a 00:11
    État     : Exécution, pid : 27679
245 packages excluded due to repository priority protections
Le paquet httpd-2.4.57-1.amzn2.x86_64 est déjà installé dans sa dernière
version
Résolution des dépendances
--> Lancement de la transaction de test
---> Le paquet mariadb-server.x86_64 3:10.2.38-1.amzn2.0.1 sera installé
--> Traitement de la dépendance : mariadb-tokudb-engine(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : mariadb-server-utils(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : mariadb-rocksdb-engine(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
```

```
--> Traitement de la dépendance : mariadb-gssapi-server(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : mariadb-errmsg(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance :
mariadb-cracklib-password-check(x86-64) = 3:10.2.38-1.amzn2.0.1 pour le
paquet : 3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : mariadb-backup(x86-64) =
3:10.2.38-1.amzn2.0.1 pour le paquet :
3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
--> Lancement de la transaction de test
---> Le paquet mariadb-backup.x86_64 3:10.2.38-1.amzn2.0.1 sera installé
---> Le paquet mariadb-cracklib-password-check.x86_64
3:10.2.38-1.amzn2.0.1 sera installé
---> Le paquet mariadb-errmsg.x86_64 3:10.2.38-1.amzn2.0.1 sera installé
---> Le paquet mariadb-gssapi-server.x86_64 3:10.2.38-1.amzn2.0.1 sera
installé
---> Le paquet mariadb-rocksdb-engine.x86_64 3:10.2.38-1.amzn2.0.1 sera
installé
---> Le paquet mariadb-server-utils.x86_64 3:10.2.38-1.amzn2.0.1 sera
installé
--> Traitement de la dépendance : perl(DBI) pour le paquet :
3:mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : perl(DBI) pour le paquet :
3:mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64
--> Traitement de la dépendance : perl(DBD::mysql) pour le paquet :
3:mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64
---> Le paquet mariadb-tokudb-engine.x86_64 3:10.2.38-1.amzn2.0.1 sera
installé
--> Lancement de la transaction de test
---> Le paquet perl-DBD-MySQL.x86_64 0:4.023-6.amzn2 sera installé
---> Le paquet perl-DBI.x86_64 0:1.627-4.amzn2.0.2 sera installé
--> Traitement de la dépendance : perl(RPC::PlServer) >= 0.2001 pour le
paquet : perl-DBI-1.627-4.amzn2.0.2.x86_64
--> Traitement de la dépendance : perl(RPC::PlClient) >= 0.2000 pour le
paquet : perl-DBI-1.627-4.amzn2.0.2.x86_64
--> Lancement de la transaction de test
---> Le paquet perl-PlRPC.noarch 0:0.2020-14.amzn2 sera installé
--> Traitement de la dépendance : perl(Net::Daemon) >= 0.13 pour le
paquet : perl-PlRPC-0.2020-14.amzn2.noarch
--> Traitement de la dépendance : perl(Net::Daemon::Test) pour le paquet
: perl-PlRPC-0.2020-14.amzn2.noarch
--> Traitement de la dépendance : perl(Net::Daemon::Log) pour le paquet
```

```
: perl-PlRPC-0.2020-14.amzn2.noarch
--> Traitement de la dépendance : perl(Compress::Zlib) pour le paquet :
perl-PlRPC-0.2020-14.amzn2.noarch
--> Lancement de la transaction de test
---> Le paquet perl-IO-Compress.noarch 0:2.061-2.amzn2 sera installé
---> Traitement de la dépendance : perl(Compress::Raw::Zlib) >= 2.061
pour le paquet : perl-IO-Compress-2.061-2.amzn2.noarch
---> Traitement de la dépendance : perl(Compress::Raw::Bzip2) >= 2.061
pour le paquet : perl-IO-Compress-2.061-2.amzn2.noarch
---> Le paquet perl-Net-Daemon.noarch 0:0.48-5.amzn2 sera installé
--> Lancement de la transaction de test
---> Le paquet perl-Compress-Raw-Bzip2.x86_64 0:2.061-3.amzn2.0.2 sera
installé
---> Le paquet perl-Compress-Raw-Zlib.x86_64 1:2.061-4.amzn2.0.2 sera
installé
--> Résolution des dépendances terminée
```

Dépendances résolues

Package	Architecture	Version
Dépôt		Taille
<hr/>		
<hr/>		
Installation :		
mariadb-server	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	17 M	
Installation pour dépendances :		
mariadb-backup	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	5.9 M	
mariadb-cracklib-password-check	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	37 k	
mariadb-errmsg	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	222 k	
mariadb-gssapi-server	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	39 k	
mariadb-rocksdb-engine	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	5.5 M	
mariadb-server-utils	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	1.6 M	
mariadb-tokudb-engine	x86_64	3:10.2.38-1.amzn2.0.1
amzn2extra-lamp-mariadb10.2-php7.2	833 k	
perl-Compress-Raw-Bzip2	x86_64	2.061-3.amzn2.0.2

```

amzn2-core                      32 k
perl-Compress-Raw-Zlib          x86_64      1:2.061-4.amzn2.0.2
    amzn2-core                  58 k
perl-DBD-MySQL                  x86_64      4.023-6.amzn2
    amzn2-core                  141 k
perl-DBI                        x86_64      1.627-4.amzn2.0.2
    amzn2-core                  804 k
perl-IO-Compress                noarch     2.061-2.amzn2
    amzn2-core                  260 k
perl-Net-Daemon                 noarch     0.48-5.amzn2
    amzn2-core                  51 k
perl-PlRPC                      noarch     0.2020-14.amzn2
    amzn2-core                  36 k

```

Résumé de la transaction

```
=====
=====
Installation 1 Paquet (+14 Paquets en dépendance)
```

Taille totale des téléchargements : 33 M

Taille d'installation : 142 M

Downloading packages:

```
(1/15): mariadb-cracklib-password-check-10.2.38-1.amzn2.0.1.x86_64.rpm
| 37 kB  00:00:00
(2/15): mariadb-errmsg-10.2.38-1.amzn2.0.1.x86_64.rpm
| 222 kB  00:00:00
(3/15): mariadb-gssapi-server-10.2.38-1.amzn2.0.1.x86_64.rpm
| 39 kB  00:00:00
(4/15): mariadb-backup-10.2.38-1.amzn2.0.1.x86_64.rpm
| 5.9 MB  00:00:00
(5/15): mariadb-rocksdb-engine-10.2.38-1.amzn2.0.1.x86_64.rpm
| 5.5 MB  00:00:00
(6/15): mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64.rpm
| 1.6 MB  00:00:00
(7/15): mariadb-tokudb-engine-10.2.38-1.amzn2.0.1.x86_64.rpm
| 833 kB  00:00:00
(8/15): perl-Compress-Raw-Bzip2-2.061-3.amzn2.0.2.x86_64.rpm
| 32 kB  00:00:00
(9/15): perl-Compress-Raw-Zlib-2.061-4.amzn2.0.2.x86_64.rpm
| 58 kB  00:00:00
(10/15): perl-DBD-MySQL-4.023-6.amzn2.x86_64.rpm
| 141 kB  00:00:00
(11/15): perl-DBI-1.627-4.amzn2.0.2.x86_64.rpm
| 804 kB  00:00:00
(12/15): perl-IO-Compress-2.061-2.amzn2.noarch.rpm
```

```
| 260 kB 00:00:00
(13/15): perl-Net-Daemon-0.48-5.amzn2.noarch.rpm
| 51 kB 00:00:00
(14/15): perl-PlRPC-0.2020-14.amzn2.noarch.rpm
| 36 kB 00:00:00
(15/15): mariadb-server-10.2.38-1.amzn2.0.1.x86_64.rpm
| 17 MB 00:00:00
-----
-----
Total
    25 MB/s | 33 MB 00:00:01
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
    Installation : perl-Net-Daemon-0.48-5.amzn2.noarch
        1/15
    Installation : perl-Compress-Raw-Bzip2-2.061-3.amzn2.0.2.x86_64
        2/15
    Installation : 1:perl-Compress-Raw-Zlib-2.061-4.amzn2.0.2.x86_64
        3/15
    Installation : perl-IO-Compress-2.061-2.amzn2.noarch
        4/15
    Installation : perl-PlRPC-0.2020-14.amzn2.noarch
        5/15
    Installation : perl-DBI-1.627-4.amzn2.0.2.x86_64
        6/15
    Installation : perl-DBD-MySQL-4.023-6.amzn2.x86_64
        7/15
    Installation : 3:mariadb-errmsg-10.2.38-1.amzn2.0.1.x86_64
        8/15
    Installation : 3:mariadb-rocksdb-engine-10.2.38-1.amzn2.0.1.x86_64
        9/15
    Installation : 3:mariadb-tokudb-engine-10.2.38-1.amzn2.0.1.x86_64
        10/15
    Installation :
3:mariadb-cracklib-password-check-10.2.38-1.amzn2.0.1.x86_64
        11/15
    Installation : 3:mariadb-backup-10.2.38-1.amzn2.0.1.x86_64
        12/15
    Installation : 3:mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64
        13/15
    Installation : 3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
        14/15
    Installation : 3:mariadb-gssapi-server-10.2.38-1.amzn2.0.1.x86_64
```

```
15/15
Vérification : 3:mariadb-gssapi-server-10.2.38-1.amzn2.0.1.x86_64
  1/15
Vérification : 3:mariadb-rocksdb-engine-10.2.38-1.amzn2.0.1.x86_64
  2/15
Vérification : perl-IO-Compress-2.061-2.amzn2.noarch
  3/15
Vérification : 3:mariadb-tokudb-engine-10.2.38-1.amzn2.0.1.x86_64
  4/15
Vérification : 3:mariadb-errmsg-10.2.38-1.amzn2.0.1.x86_64
  5/15
Vérification : 3:mariadb-server-10.2.38-1.amzn2.0.1.x86_64
  6/15
Vérification : 1:perl-Compress-Raw-Zlib-2.061-4.amzn2.0.2.x86_64
  7/15
Vérification : perl-DBD-MySQL-4.023-6.amzn2.x86_64
  8/15
Vérification : perl-Compress-Raw-Bzip2-2.061-3.amzn2.0.2.x86_64
  9/15
Vérification :
3:mariadb-cracklib-password-check-10.2.38-1.amzn2.0.1.x86_64
  10/15
Vérification : 3:mariadb-backup-10.2.38-1.amzn2.0.1.x86_64
  11/15
Vérification : perl-Net-Daemon-0.48-5.amzn2.noarch
  12/15
Vérification : perl-DBI-1.627-4.amzn2.0.2.x86_64
  13/15
Vérification : perl-PlRPC-0.2020-14.amzn2.noarch
  14/15
Vérification : 3:mariadb-server-utils-10.2.38-1.amzn2.0.1.x86_64
  15/15
```

Installé :

```
mariadb-server.x86_64 3:10.2.38-1.amzn2.0.1
```

Dépendances installées :

```
mariadb-backup.x86_64 3:10.2.38-1.amzn2.0.1
mariadb-cracklib-password-check.x86_64 3:10.2.38-1.amzn2.0.1
  mariadb-errmsg.x86_64 3:10.2.38-1.amzn2.0.1
mariadb-gssapi-server.x86_64 3:10.2.38-1.amzn2.0.1
  mariadb-rocksdb-engine.x86_64 3:10.2.38-1.amzn2.0.1
mariadb-server-utils.x86_64 3:10.2.38-1.amzn2.0.1
  mariadb-tokudb-engine.x86_64 3:10.2.38-1.amzn2.0.1
```

```
perl-Compress-Raw-Bzip2.x86_64 0:2.061-3.amzn2.0.2
  perl-Compress-Raw-Zlib.x86_64 1:2.061-4.amzn2.0.2
perl-DBD-MySQL.x86_64 0:4.023-6.amzn2
  perl-DBI.x86_64 0:1.627-4.amzn2.0.2
perl-IO-Compress.noarch 0:2.061-2.amzn2
  perl-Net-Daemon.noarch 0:0.48-5.amzn2
  perl-PlRPC.noarch
0:0.2020-14.amzn2

Terminé !
[root@ip-10-0-0-72 ~]# chkconfig httpd on
Note : transfert de la requête par « systemctl enable httpd.service ».
Created symlink from
/etc/systemd/system/multi-user.target.wants/httpd.service to
/usr/lib/systemd/system/httpd.service.
[root@ip-10-0-0-72 ~]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@ip-10-0-0-72 ~]# cd /home/ec2-user
[root@ip-10-0-0-72 ec2-user]# wget
https://aws-tc-largeobjects.s3.us-west-2.amazonaws.com/CUR-TF-200-ACACAD
-2/21-course-project/s3/Countrydatadump.sql
--2023-07-19 09:12:04--
https://aws-tc-largeobjects.s3.us-west-2.amazonaws.com/CUR-TF-200-ACACAD
-2/21-course-project/s3/Countrydatadump.sql
Résolution de aws-tc-largeobjects.s3.us-west-2.amazonaws.com
(aws-tc-largeobjects.s3.us-west-2.amazonaws.com)... 52.92.161.170,
52.92.163.202, 52.92.180.218, ...
Connexion vers aws-tc-largeobjects.s3.us-west-2.amazonaws.com
(aws-tc-largeobjects.s3.us-west-2.amazonaws.com)|52.92.161.170|:443...co
nnecté.
requête HTTP transmise, en attente de la réponse...200 OK
Longueur: 15508 (15K) [application/x-sql]
Sauvegarde en : «Countrydatadump.sql»

100%[=====>] 15 508      --.-K/s   ds 0s

2023-07-19 09:12:04 (52,1 MB/s) - «Countrydatadump.sql» sauvegardé
[15508/15508]

[root@ip-10-0-0-72 ec2-user]# chown ec2-user:ec2-user
Countrydatadump.sql
[root@ip-10-0-0-72 ec2-user]# cd /var/www/html
[root@ip-10-0-0-72 html]# wget
https://aws-tc-largeobjects.s3.us-west-2.amazonaws.com/CUR-TF-200-ACACAD
-2/21-course-project/s3/Example.zip
```

```
--2023-07-19 09:12:04--
https://aws-tc-largeobjects.s3.us-west-2.amazonaws.com/CUR-TF-200-ACACAD
-2/21-course-project/s3/Example.zip
Résolution de aws-tc-largeobjects.s3.us-west-2.amazonaws.com
(aws-tc-largeobjects.s3.us-west-2.amazonaws.com)... 52.92.130.218,
52.92.161.170, 52.92.163.202, ...
Connexion vers aws-tc-largeobjects.s3.us-west-2.amazonaws.com
(aws-tc-largeobjects.s3.us-west-2.amazonaws.com)|52.92.130.218|:443...co
necté.
requête HTTP transmise, en attente de la réponse...200 OK
Longueur: 6359580 (6,1M) [application/zip]
Sauvegarde en : «Example.zip»

100%[=====>] 6 359 580 5,05MB/s ds 1,2s

2023-07-19 09:12:06 (5,05 MB/s) - «Example.zip» sauvegardé
[6359580/6359580]

[root@ip-10-0-0-72 html]# unzip Example.zip -d /var/www/html/
Archive: Example.zip
  inflating: /var/www/html/index.php
  inflating: /var/www/html/gdp.php
  inflating: /var/www/html/Shirley.jpeg
  inflating: /var/www/html/query2.php
  inflating: /var/www/html/query3.php
  inflating: /var/www/html/population.php
  inflating: /var/www/html/lifeexpectancy.php
  inflating: /var/www/html/get-parameters.php
  inflating: /var/www/html/aws.phar
  inflating: /var/www/html/mortality.php
  inflating: /var/www/html/menu.php
  inflating: /var/www/html/Logo.png
  extracting: /var/www/html/style.css
  inflating: /var/www/html/mobile.php
  inflating: /var/www/html/query.php
[root@ip-10-0-0-72 html]# chown -R ec2-user:ec2-user /var/www/html
```

Connect to the MariaDB database instance and create the database capstone-database:

```
[root@ip-10-0-0-72 html]# mysql -u admin -h
capstone-database.c4s5tqbwhgxs.eu-west-3.rds.amazonaws.com -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 65
Server version: 10.6.14-MariaDB-log managed by
https://aws.amazon.com/rds/

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
```

```
MariaDB [(none)]> CREATE DATABASE capstonedb;
Query OK, 1 row affected (0,00 sec)

MariaDB [(none)]> use capstonedb source Countrydatadump.sql
Database changed
```

Execute the sql script file using the previous created database:

```
MariaDB [capstonedb]> source Countrydatadump.sql
Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,00 sec)
```

```
Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,01 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,01 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,01 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,01 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 0 rows affected (0,00 sec)

Query OK, 214 rows affected (0,01 sec)
Records: 214  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0,01 sec)

Query OK, 0 rows affected (0,00 sec)

MariaDB [capstonedb]>
```

Check the data:

```
MariaDB [capstonedb]> select * from countrydata_final limit 5;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| name | mobilephones | mortalityunder5 | healthexpenditurepercapita | healthexpenditurepercentGDP | population | populationurban | birthrate | lifeexpectancy | GDP |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Afghanistan | 0 | 150 | 11 | 9 | 26697430 | 5771984 | 50 | 46 | 2461666315 |
| Albania | 29791 | 29 | 75 | 6 | 3071856 | 1280964 | 17 | 74 | 3686649387 |
| Algeria | 86000 | 49 | 63 | 3 | 30533827 | 18259229 | 21 | 70 | 5479058957 |
| American Samoa | 1992 | 0 | 0 | 0 | 57625 | 51171 | 0 | 0 | 0 |
| Andorra | 23543 | 5 | 1289 | 8 | 64634 | 59722 | 11 | 0 | 1133644295 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0,00 sec)

MariaDB [capstonedb]> ||
```

```
MariaDB [capstonedb]> select * from countrydata_final limit 5;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| name | mobilephones | mortalityunder5 | healthexpenditurepercapita | healthexpenditurepercentGDP | population | populationurban | birthrate | lifeexpectancy | GDP |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Afghanistan | 0 | 150 | 11 | 9 | 26697430 | 5771984 | 50 | 46 | 2461666315 |
| Albania | 29791 | 29 | 75 | 6 | 3071856 | 1280964 | 17 | 74 | 3686649387 |
| Algeria | 86000 | 49 | 63 | 3 | 30533827 | 18259229 | 21 | 70 | 5479058957 |
| American Samoa | 1992 | 0 | 0 | 0 | 57625 | 51171 | 0 | 0 | 0 |
| Andorra | 23543 | 5 | 1289 | 8 | 64634 | 59722 | 11 | 0 | 1133644295 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0,00 sec)

MariaDB [capstonedb]> ||
```

And check the website

The screenshot shows a Firefox browser window with the URL 13.36.165.48. The page title is "Example Social Research Organization". The content includes a bio for Shirley Rodriguez, a photo of her, and a "Contact Us" button.

About Us Contact Us Query

Welcome to our data query site. You can get data from countries all over the world to use in your research.

We provide data for a variety of areas including basic demographics and development statistics.

About Us

Shirley Rodriguez

Our site got started when Shirley Rodriguez found that she was frequently looking up data from a variety of databases. Shirley decided to start sharing some of this data with other social researchers.

Contact Us

III. Quiz

A. IAM QUIZZ

A team of developers needs access to several services and resources in a virtual private cloud (VPC) for 9 months. How can you use AWS Identity and Access Management (IAM) to enable access for them?

- Create a single IAM user for the developer team and attach the required IAM policies.
- Create an IAM user for each developer, and attach the required IAM policies to each IAM user.
- Create an IAM user for each developer, put them all in an IAM group, and attach the required IAM policies to the IAM group.
- Create a single IAM user for the developer team, place it in an IAM group, and attach the required IAM policies to the IAM group.

How does AWS Identity and Access Management (IAM) evaluate a policy?

- It checks for explicit allow statements before it checks for explicit deny statements.
- It checks for explicit deny statements before it checks for explicit allow statements.
- If there is no explicit deny statement or explicit allow statement, users will have access by default.
- An explicit deny statement does not override an explicit allow statement.

How can you grant the same level of permissions to multiple users within an account?

- Apply an AWS Identity and Access Management (IAM) policy to an IAM group.
- Apply an AWS Identity and Access Management (IAM) policy to an IAM role.
- Create a resource-based policy.
- Create an organization in AWS Organizations.

Which statement describes AWS Identity and Access Management (IAM) users?

- IAM users are used to control access to a specific AWS resource.
- IAM user names can represent a collection of individuals.
- Every IAM user for an account must have a unique name.
- Every IAM user name is unique across all AWS accounts.

Which statement describes a resource-based policy?

- It can be applied to any AWS resource.
- It can be an AWS managed policy.
- It is attached to a user or group.
- It is always an inline policy.

Which statements describe AWS Identity and Access Management (IAM) roles? (Select TWO.)

- They are uniquely associated to an individual.
- They can only be used by accounts associated to the person who creates the role.
- They can be assumed by individuals, applications, and services.
- They provide temporary security credentials.
- They provide permanent security credentials.

How does identity federation increase security for an application that is built in Amazon Web Services (AWS)?

- Users can use single sign-on (SSO) to access the application through an existing authenticated identity.
- The application can synchronize users' user names and passwords in AWS Identity and Access Management (IAM) with their social media accounts.
- The browser can establish a trust relationship with the application to bypass the need for multi-factor authentication (MFA).
- Users can use their AWS Identity and Access Management (IAM) accounts to log in to on-premises systems.

B. Network quizz

Several EC2 instances launch in a virtual private cloud (VPC) that has internet access. These instances should not be accessible from the internet, but they must be able to download updates from the internet. How should the instances launch?

- With Elastic IP addresses, in a subnet with a default route to an internet gateway
- With public IP addresses, in a subnet with a default route to an internet gateway
- Without public IP addresses, in a subnet with a default route to an internet gateway
- Without public IP addresses, in a subnet with a default route to a network address translation (NAT) gateway

Which combination of actions enables direct internet access for IPv4 hosts in a virtual private cloud (VPC)? (Select THREE.)

- Creating a route for 0.0.0.0/0 that points to the internet gateway
- Enabling Domain Name System (DNS) resolution for the VPC
- Configuring hosts to have or obtain an internet-routable address
- Configuring the VPC domain name in a Dynamic Host Configuration Protocol (DHCP) options set
- Creating a default route that points to the virtual private gateway
- Configuring security groups and network access control lists (network ACLs) to permit internet traffic

A company's VPC has the CIDR block 172.16.0.0/21 (2048 addresses). It has two subnets (A and B). Each subnet must support 100 usable addresses now, but this number is expected to rise to at most 254 usable addresses soon. Which subnet addressing scheme meets the requirements and follows AWS best practices?

- Subnet A: 172.16.0.0/25 (128 addresses) Subnet B: 172.16.0.128/25 (1024 addresses)
- Subnet A: 172.16.0.0/25 (128 addresses) Subnet B: 172.16.0.128/25 (128 addresses)
- Subnet A: 172.16.0.0/23 (512 addresses) Subnet B: 172.16.2.0/23 (512 addresses)
- Subnet A: 172.16.0.0/22 (1024 addresses) Subnet B: 172.16.4.0/22 (128 addresses)

Which definition describes a virtual private cloud (VPC)?

- A virtual private network (VPN) in the AWS Cloud
- An extension of an on-premises network into Amazon Web Services (AWS)
- A logically isolated virtual network that you define in the AWS Cloud
- A fully managed service that extends the AWS Cloud to customer premises

IV. IAM

Please evaluate below IAM policies

```
{  
  "Version": "2012-10-17",  
  "Statement": [  
    {  
      "Sid": "AllowEC2AndS3",  
      "Effect": "Allow",  
      "Action": [  
        "ec2:RunInstances",  
        "ec2:TerminateInstances",  
        "s3:ListBucket"  
      ]  
    }  
  ]  
}
```

```

    "s3:GetObject",
    "s3:PutObject"
],
"Resource": [
    "arn:aws:ec2:us-east-1:123456789012:instance/*",
    "arn:aws:s3:::example-bucket/*"
]
}
]
```

Question: What actions are allowed for EC2 instances and S3 objects based on this policy? What specific resources are included?

Allowed Actions for EC2 Instances:

- ec2:RunInstances: allows the user to launch new EC2 instances.
- ec2:TerminateInstances: allows the user to terminate EC2 instances.

Allowed Actions for S3 Objects:

- s3:GetObject: allows the user to retrieve (read) objects from an S3 bucket.
- s3:PutObject: allows the user to upload (write) objects to an S3 bucket.

Specific Resources Included:

- EC2 Instances: allows actions on all EC2 instances in the us-east-1 region for the AWS account with the ID 123456789012. The resource ARN for this includes all instances under the given account and region: "arn:aws:ec2:us-east-1:123456789012:instance/*".
- S3 Objects: allows actions on all objects (files) within the S3 bucket named example-bucket. The resource ARN for this includes all objects within the specified bucket: "arn:aws:s3:::example-bucket/*".

```
{
"Version": "2012-10-17",
"Statement": [
{
    "Sid": "AllowVPCAccess",
    "Effect": "Allow",
    "Action": [
        "ec2:DescribeVpcs",
        "ec2:DescribeSubnets",
        "ec2:DescribeNetworkInterfaces",
        "ec2:DescribeRegions",
        "ec2:DescribeInstances"
    ],
    "Resource": [
        "arn:aws:ec2:us-east-1:123456789012:instance/*",
        "arn:aws:s3:::example-bucket/*"
    ]
}
]
```

```

        "ec2:DescribeSecurityGroups"
    ],
    "Resource": "*",
    "Condition": {
        "StringEquals": {
            "aws:RequestedRegion": "us-west-2"
        }
    }
}
]
}

```

Question: Under what condition does this policy allow access to VPC-related information? Which AWS region is specified?

Condition:

- "StringEquals": used to check if a specific condition key has a particular value.
- "aws:RequestedRegion": "us-west-2": This specifies the condition key aws:RequestedRegion and sets the required value to "us-west-2".

Effect:

- Effect: "Allow": allows the specified actions (ec2:DescribeVpcs, ec2:DescribeSubnets, and ec2:DescribeSecurityGroups) if the specified conditions are met.

Allowed Actions for EC2:

- ec2:DescribeVpcs: allows the user to describe (retrieve information about) VPCs (Virtual Private Clouds) in the us-west-2 region.
- ec2:DescribeSubnets: allows the user to describe (retrieve information about) subnets within the us-west-2 region.
- ec2:DescribeSecurityGroups: allows the user to describe (retrieve information about) security groups within the us-west-2 region.

Resource:

- Resource: "*": allows the specified actions on all resources in the AWS account.

```

{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "AllowS3ReadWrite",

```

```
"Effect": "Allow",
"Action": ["s3:GetObject", "s3:PutObject", "s3>ListBucket"],
"Resource": [
    "arn:aws:s3::::example-bucket",
    "arn:aws:s3::::example-bucket/*"
],
"Condition": {
    "StringLike": {
        "s3:prefix": ["documents/*", "images/*"]
    }
}
]
```

Question: What actions are allowed on the "example-bucket" and its objects based on this policy? What specific prefixes are specified in the condition?

Allowed Actions on the Bucket:

- s3>ListBucket: allows the user to list the contents of the "example-bucket". It does not grant permission to access the individual objects within the bucket, only the ability to see the list of objects.

Allowed Actions on Objects within the Bucket:

- s3GetObject: allows the user to retrieve (read) objects from the "example-bucket".
- s3PutObject: allows the user to upload (write) objects to the "example-bucket".

Resource ARNs:

- "arn:aws:s3::::example-bucket": This specifies the ARN (Amazon Resource Name) of the "example-bucket" itself, allowing the specified actions on the bucket itself.
- "arn:aws:s3::::example-bucket/*": This specifies the ARN of all objects within the "example-bucket", allowing the specified actions on any object within the bucket.

Condition: The policy includes a condition that restricts the allowed actions to objects with specific prefixes. The condition is as follows:

- "s3:prefix": ["documents/*", "images/*"]: This condition uses the StringLike comparison to match object keys (or "prefixes") that start with either "documents/" or "images/". The * after each prefix indicates that there can be additional characters after "documents/" or "images/" in the object keys.

```
{  
  "Version": "2012-10-17",  
  "Statement": [  
    {  
      "Sid": "AllowIAMUserCreation",  
      "Effect": "Allow",  
      "Action": "iam:CreateUser",  
      "Resource": "arn:aws:iam::123456789012:user/${aws:username}"  
    },  
    {  
      "Sid": "AllowIAMUserDeletion",  
      "Effect": "Allow",  
      "Action": "iam:DeleteUser",  
      "Resource": "arn:aws:iam::123456789012:user/${aws:username}"  
    }  
  ]  
}
```

**Question: What actions are allowed for IAM users based on this policy?
How are the resource ARNs constructed?**

Allowed Action:

- iam:CreateUser: allows the IAM user to create a new IAM user.

Allowed Action:

- iam:DeleteUser: allows the IAM user to delete their own IAM user account.

Resource ARNs:

- "arn:aws:iam::123456789012:user/\${aws:username}": This is the format of the resource ARN (Amazon Resource Name) for both the "CreateUser" and "DeleteUser" actions.
- \${aws:username}: This is a special variable used in the resource ARN. When an IAM user performs an action covered by this policy, the \${aws:username} variable will be replaced with the username of the IAM user performing the action. This means that the IAM user is only allowed to create or delete their own IAM user account, as the ARN will be specific to their own username.

```
{
```

```
"Version": "2012-10-17",
"Statement": [
    "Effect": "Allow",
    "Action": ["iam:Get*", "iam>List*"],
    "Resource": "*"
}
```

Questions:

This IAM policy grants access to Access Management (IAM) service and AWS Identity.

Does it allow you to create an IAM user, group, policy, or role? No, this policy only allows read-only actions (iam:Get* and iam>List*) on IAM-related resources. It does not include any write actions, so creating IAM entities like users, groups, policies, or roles is not permitted.

Name at least three specific actions that the iam:Get* action allows. The iam:Get* action allows to perform various read operations on IAM resources. Some specific actions included are:

- iam:GetUser: allows to retrieve information about an IAM user, such as username, ARN, groups, and attached policies.
- iam:GetGroup: allows to retrieve information about an IAM group, including group name, ARN, group members, and attached policies.
- iam:GetPolicy: allows to retrieve information about an IAM policy, including its policy document, ARN, and policy details.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Condition": {
        "StringEquals": {
          "ec2:InstanceType": ["t2.micro", "t2.small"]
        }
      },
      "Resource": "arn:aws:ec2:*:instance/*",
      "Action": ["ec2:RunInstances", "ec2:StartInstances"],
      "Effect": "Deny"
    }
  ]
}
```

{

Questions:

- **What actions does the policy allow?** The provided policy allows two actions related to Amazon EC2 instances:
 - ec2:RunInstances: allows the user to launch new EC2 instances.
 - ec2:StartInstances: allows the user to start existing EC2 instances.
- Say that the policy included an additional statement object, like this **example**:

```
{  
  "Effect": "Allow",  
  "Action": "ec2:/*"  
}
```

The additional statement grants full access (ec2:*) to all EC2-related actions. This means that all EC2 actions, including those related to instance management, security groups, volumes, etc., will be allowed.

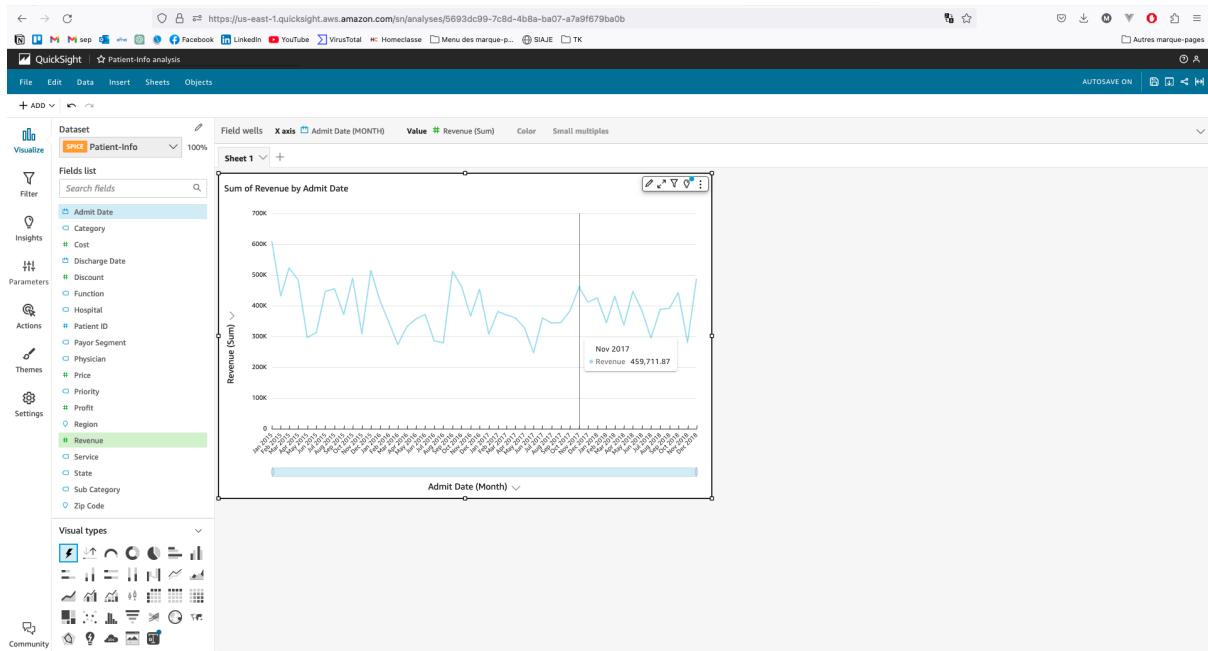
Policy with Both Statements: If the policy included both the original statement (Deny ec2:RunInstances and ec2:StartInstances for t2.micro and t2.small) and the additional statement (Allow all ec2 actions), the policy would behave as follows:

- The original statement with "Effect": "Deny" would take precedence. It would deny the ec2:RunInstances and ec2:StartInstances actions for instances with t2.micro or t2.small instance types.
- The additional statement with "Effect": "Allow" would grant unrestricted access to all other EC2 actions, including the ability to terminate instances.

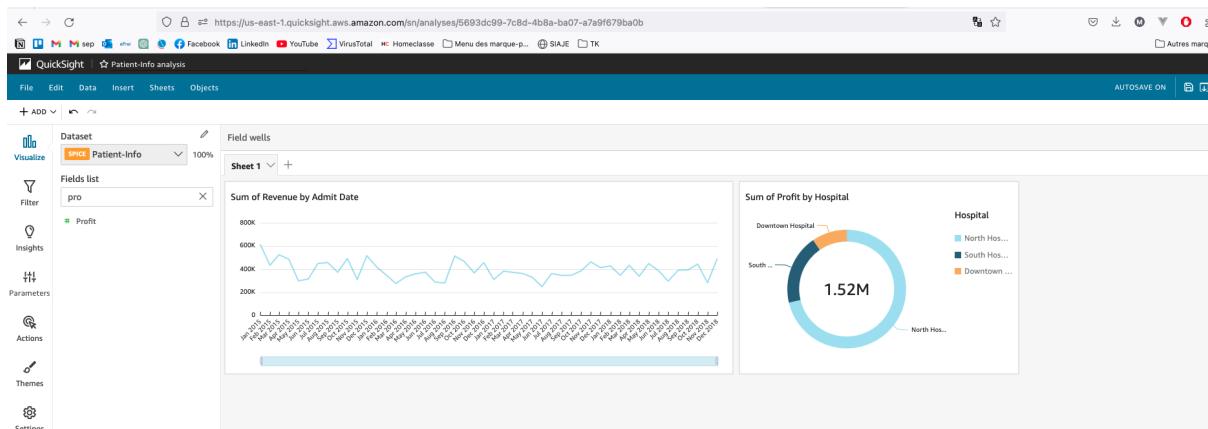
V. Big Data - Data Visualization With AWS QuickSight

Sum of revenue by admit date

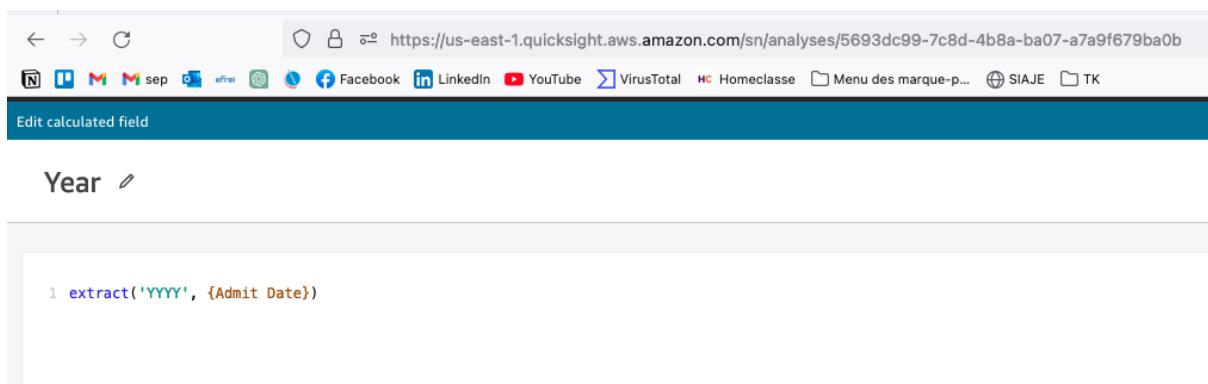
Aggregate by month dates for clarity



Sum of profits by hospital



Calculated field Year, YoY Profit 2017 vs 2018 and YoY Revenue 2017 vs 2018 for next chart



<https://us-east-1.quickstarts.aws.amazon.com/sn/analyses/5693dc99-7c8d-4b8a-ba07-a7a9f679ba0b>

Edit calculated field

YoY Profit 2017 vs 2018

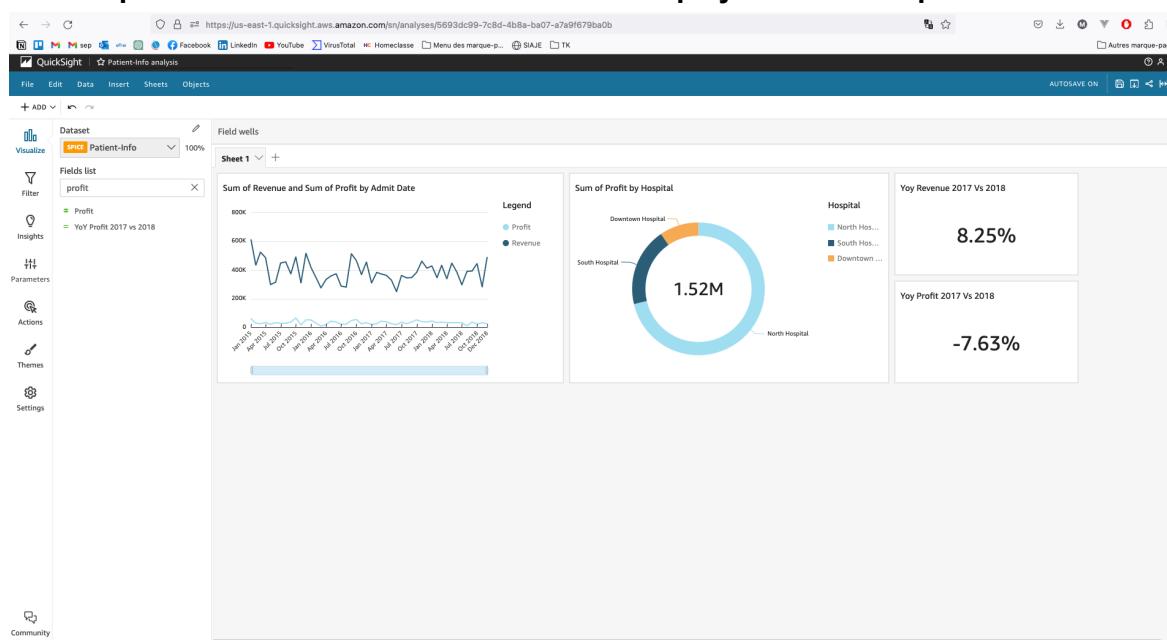
```
1 ((sumIf(Profit, Year=2018) - sumIf(Profit, Year=2017)) / abs(sumIf(Profit, Year=2017)))
```

Edit calculated field

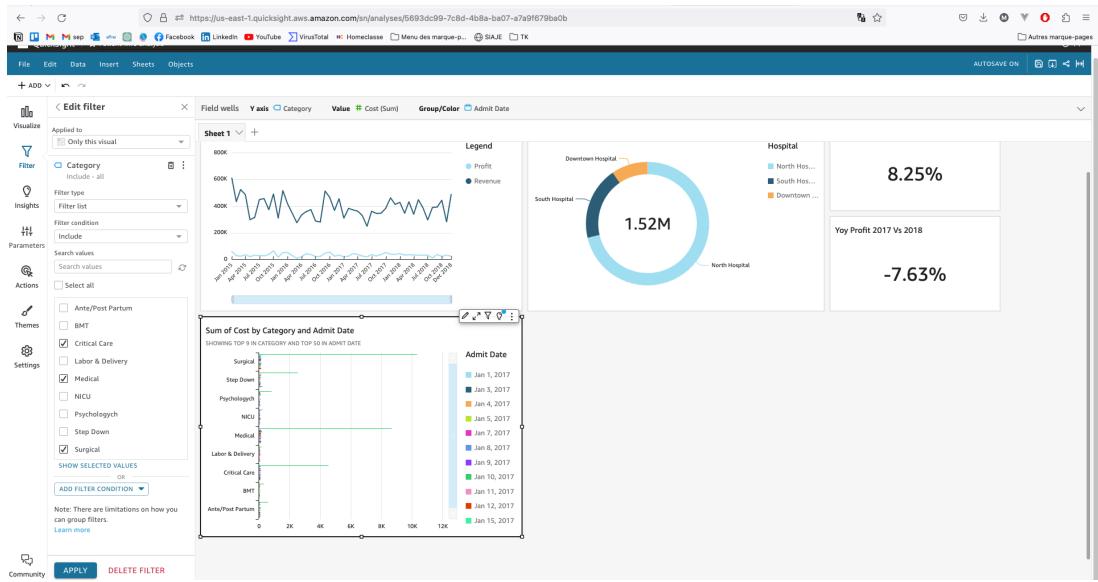
YoY revenue 2017 vs 2018

```
1 ((sumIf(Revenue, Year=2018) - sumIf(Revenue, Year=2017)) / sumIf(Revenue, Year=2017))
```

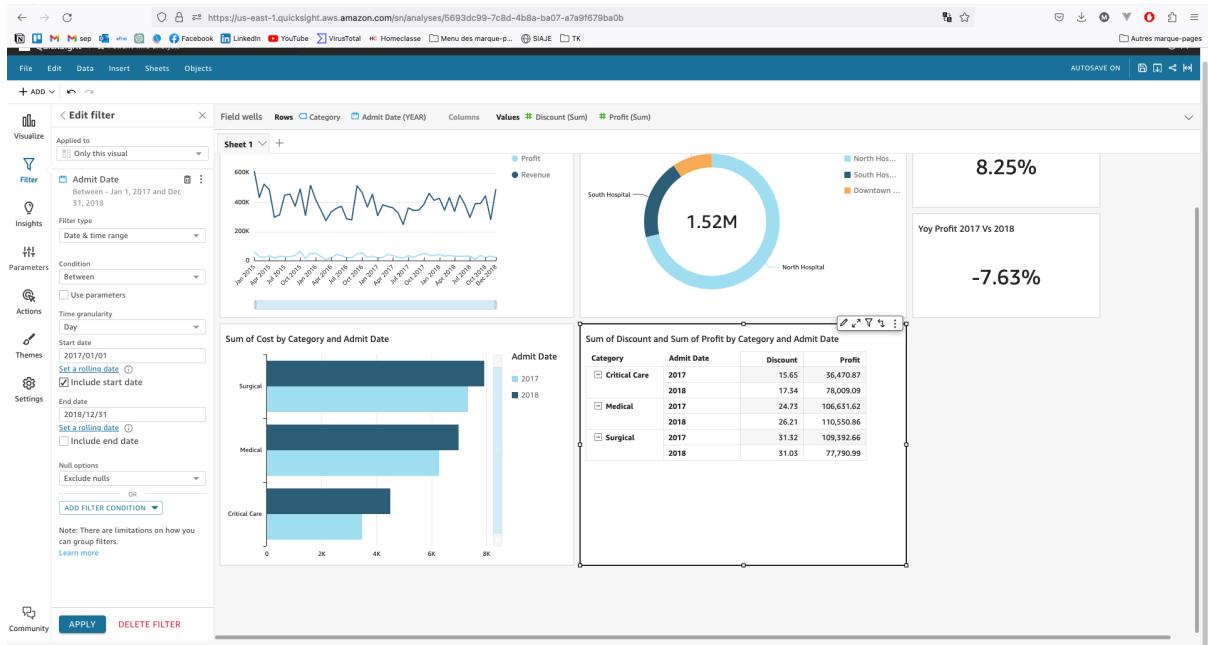
Use the previous calculated field for KPI and display the result in percent



Use bar charts for Sum of cost by category and admit date
Add a filter date and category target some of them



Use pivot table to show the sum of profit by category and admit date



And finally we add the count of physicians by function

