

AWS Cloud & Big Data Architectures - Project

I. Design an architecture diagram

Commencez par créer le diagramme d'architecture pour visualiser l'ensemble de votre solution. Cela vous aidera à planifier la disposition des composants et à prendre des décisions éclairées concernant la configuration.

II. Deploy app

Create the VPC

VPC ID	State	DNS hostnames	DNS resolution
vpc-0ef4197ec1d531099	Available	Disabled	Enabled
Tenancy	DHCP option set	Main route table	Main network ACL
Default	dopt-0fe1e1e2208b48c83	rtb-0bdfdb0b0f70a0275c	acl-0c10df3ecec803f45
Default VPC	IPv4 CIDR	IPv6 pool	IPv6 CIDR
No	10.0.0.0/24	-	-
Network Address Usage metrics	Route 53 Resolver DNS Firewall rule groups	Owner ID	
Disabled	-	422051975754	

create internet gateway

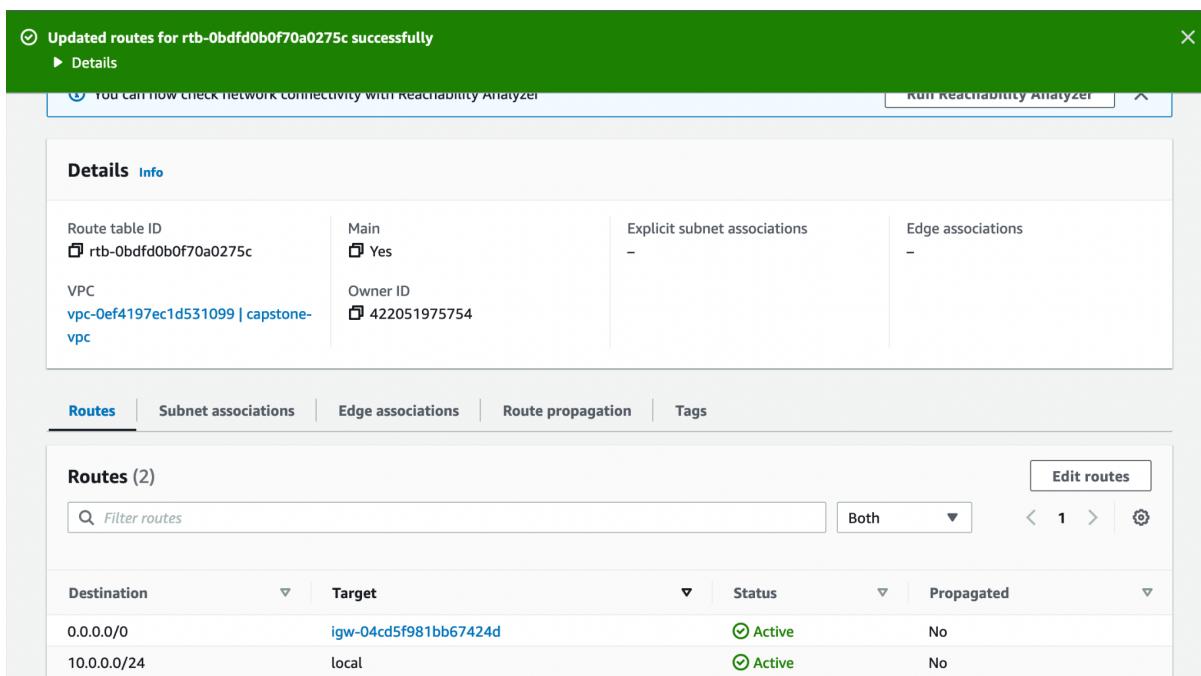
Internet gateway ID	State	VPC ID	Owner
igw-04cd5f981bb67424d	Detached	-	422051975754

Tags	
<input type="text" value="Search tags"/>	
Key	Value
Name	capstone-igw

Attach it to the VPC



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



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

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

Find resources by attribute or tag [Clear filters](#)

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

<input type="checkbox"/> subnet-039aac93c11715d03	<input type="checkbox"/> arn:aws:ec2:eu-west-3:422051975754:subnet/subnet-039aac93c11715d03	Available	<input type="checkbox"/> 10.0.0.128/25
Available IPv4 addresses	arn:aws:ec2:eu-west-3:422051975754:subnet/subnet-039aac93c11715d03	Availability Zone	Availability Zone ID
<input type="checkbox"/> 123	<input type="checkbox"/> eu-west-3c	<input type="checkbox"/> euw3-az3	
VPC	IPv6 CIDR	Network ACL	Default subnet
vpc-0ef4197ec1d531099 capstone-vpc	-	acl-0c10df3ecec803f45	No
Auto-assign public IPv4 address	Route table	Auto-assign customer-owned IPv4 address	Customer-owned IPv4 pool
No	rtb-0bdfd0b0f70a0275c	No	-
Outpost ID	Auto-assign IPv6 address	IPv6 CIDR reservations	IPv6-only
-	No	-	No
	IPv4 CIDR reservations		private

ⓘ You have successfully created 1 subnet: subnet-0a16da7f7ab4994d3 ×

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

Find resources by attribute or tag [Clear filters](#)

Name	Subnet ID	State	VPC	IPv4 CIDR
<input checked="" type="checkbox"/> public-subnet-ec2-capstone	subnet-0a16da7f7ab4994d3	Available	vpc-0ef4197ec1d531099 caps...	10.0.0.0/25
<input type="checkbox"/> private-subnet-rds-capstone	subnet-039aac93c11715d03	Available	vpc-0ef4197ec1d531099 caps...	10.0.0.128/25

<input type="checkbox"/> subnet-0a16da7f7ab4994d3	<input type="checkbox"/> arn:aws:ec2:eu-west-3:422051975754:subnet/subnet-0a16da7f7ab4994d3	Available	<input type="checkbox"/> 10.0.0.0/25
Available IPv4 addresses	arn:aws:ec2:eu-west-3:422051975754:subnet/subnet-0a16da7f7ab4994d3	Availability Zone	Availability Zone ID
<input type="checkbox"/> 123	<input type="checkbox"/> eu-west-3a	<input type="checkbox"/> euw3-az1	
VPC	IPv6 CIDR	Network ACL	Default subnet
vpc-0ef4197ec1d531099 capstone-vpc	-	acl-0c10df3ecec803f45	No
Auto-assign public IPv4 address	Route table	Auto-assign customer-owned IPv4 address	Customer-owned IPv4 pool
No	rtb-0bdfd0b0f70a0275c	No	-
	Auto-assign IPv6 address	IPv6 CIDR reservations	IPv6-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)	
-	VPC	capstone-vpc (vpc-0ef4197ec1d531099)	Publicly accessible	No	
Port	Subnet group	default-vpc-0ef4197ec1d531099	Certificate authority	Info	rds-ca-2019
-	Subnets	subnet-0a16da7f7ab4994d3 subnet-039aac93c11715d03	Certificate authority date		August 22, 2024, 19:08 (UTC+02:00)
Network type	IPv4				

Configurer le groupe de sécurité RDS :

⌚ Inbound security group rules successfully modified on security group (sg-0fec0869fae443ff | RDS-security-group)

▶ Details

Security Groups (1/7) Info						
	Name	Security group ID	Security group name	VPC ID	Description	Owner
<input type="checkbox"/>	-	sg-0b2da31e2cd8440f6	launch-wizard-1	vpc-0588669789e12cd3b	launch-wizard-1 create...	4220519
<input type="checkbox"/>	-	sg-0816a4323bcf086a1	ec2-rds-1	vpc-0588669789e12cd3b	Security group attache...	4220519
<input type="checkbox"/>	EC2-security-group	sg-0bb6273fc49a5458d	default	vpc-0ef4197ec1d531099	default VPC security gr...	4220519
<input type="checkbox"/>	-	sg-0e5c696d32dce3690	default	vpc-0588669789e12cd3b	default VPC security gr...	4220519
<input checked="" type="checkbox"/>	RDS-security-gr...	sg-0fec0869fae443ff	RDS-security-group	vpc-0ef4197ec1d531099	Created by RDS manag...	4220519
<input type="checkbox"/>	-	sg-0abee15d913a13c8a	rds-ec2-1	vpc-0588669789e12cd3b	Security group attache...	4220519
<input type="checkbox"/>	-	sg-09755eefe2ce57a64	private-capstone	vpc-0588669789e12cd3b	Created by RDS manag...	4220519

Inbound rules (2)						
	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-0fc40b64834ca798c	-	All traffic	All	All
<input type="checkbox"/>	-	sgr-0e9bcf8aa8a296452	IPv4	MYSQL/Aurora	TCP	3306

Configurer les paramètres du SSM Parameter Store :

My parameters					
	Name	Tier	Type	Last modified	
<input type="checkbox"/>	/example/database	Standard	String	Wed, 19 Jul 2023 07:57:48 GMT	View details Edit Delete Create parameter
<input type="checkbox"/>	/example/endpoint	Standard	String	Wed, 19 Jul 2023 07:56:46 GMT	View details Edit Delete Create parameter
<input type="checkbox"/>	/example/password	Standard	String	Wed, 19 Jul 2023 07:57:32 GMT	View details Edit Delete Create parameter
<input type="checkbox"/>	/example/username	Standard	String	Wed, 19 Jul 2023 07:57:10 GMT	View details Edit Delete Create parameter

Create EC2 public instance

Successfully terminated i-0bb06ce455901d6f8

Instances (1/3) Info						
	Name	Instance ID	Instance state	Instance type	Status check	Actions
<input type="checkbox"/>	-	i-0e7a99d5cb6445288	Terminated	t2.micro	-	Launch instances
<input type="checkbox"/>	capstone-inst...	i-0bb06ce455901d6f8	Terminated	t2.micro	-	Launch instances
<input checked="" type="checkbox"/>	capstone-inst...	i-05ec9173cbfa1798d	Running	t2.micro	-	Launch instances

Instance: i-05ec9173cbfa1798d (capstone-instance)

Instance ID i-05ec9173cbfa1798d (capstone-instance)	PUBLIC IPv4 address 13.36.165.48 open address	Private IPv4 addresses 10.0.0.72
IPv6 address -	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	Elastic IP addresses -
Answer private resource DNS name -	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendation s. Learn more
Auto-assigned IP address 13.36.165.48 [Public IP]	VPC ID vpc-0ef4197ec1d531099 (capstone-vpc)	Auto Scaling Group name -
IAM Role -	Subnet ID subnet-0a16da7f7ab4994d3 (public-subnet-ec2-capstone)	

Configure rules for EC2 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 | **Outbound rules** | **Tags**

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer X

Inbound rules (2)

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-0293b8102dc02cb...	IPv4	HTTP	TCP	80
<input type="checkbox"/>	-	sgr-0794f673f7d63bf4f	IPv4	SSH	TCP	22

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 :
  iputils           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 : iutils-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 : iutils-20160308-10.amzn2.0.2.x86_64
  4/4

Mis à jour :
  iutils.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
=====
=====
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

```
=====
=====
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  
nnecté.  
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:

```
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 (0,00 sec)
```

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

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

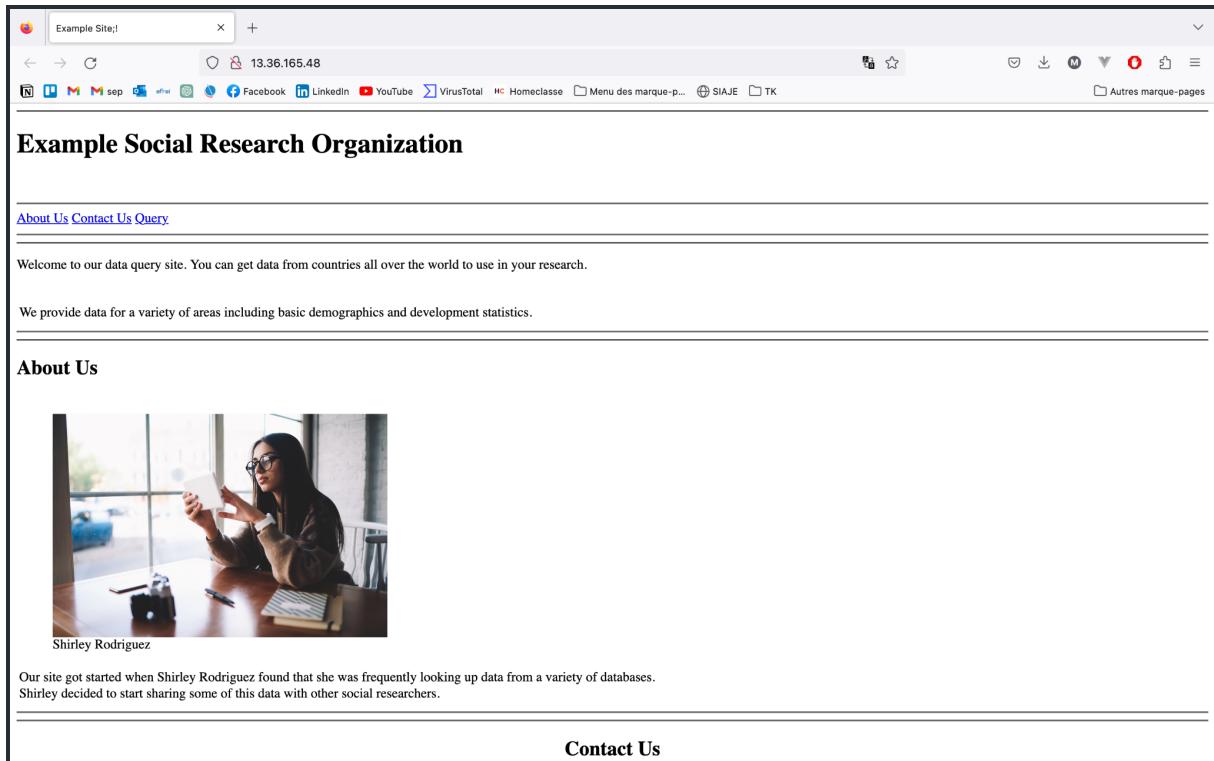
```
MariaDB [capstonedb]>
```

Check the data:

```
MariaDB [capstonedb]> select * from countrydata_final limit 5;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| name | mobilephones | mortalityunder5 | healthexpenditurepercapita | healthexpenditurepercentGDP | population | populationurban | birthrate | lifeexpectancy | GDP |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Afghanistan | 9 | 150 | 11 | 9 | 26697430 | 5771984 | 50 | 46 | 2461666315 |
| Albania | 29791 | 29 | 75 | 6 | 3871856 | 1288964 | 17 | 74 | 3686649387 |
| Algeria | 86000 | 49 | 63 | 3 | 30533827 | 18259229 | 21 | 70 | 54790058957 |
| 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 | 9 | 150 | 11 | 9 | 26697430 | 5771984 | 50 | 46 | 2461666315 |
| Albania | 29791 | 29 | 75 | 6 | 3871856 | 1288964 | 17 | 74 | 3686649387 |
| Algeria | 86000 | 49 | 63 | 3 | 30533827 | 18259229 | 21 | 70 | 54790058957 |
| 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 address bar set to "Example Site;". The page content is as follows:

Example Social Research Organization

[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.

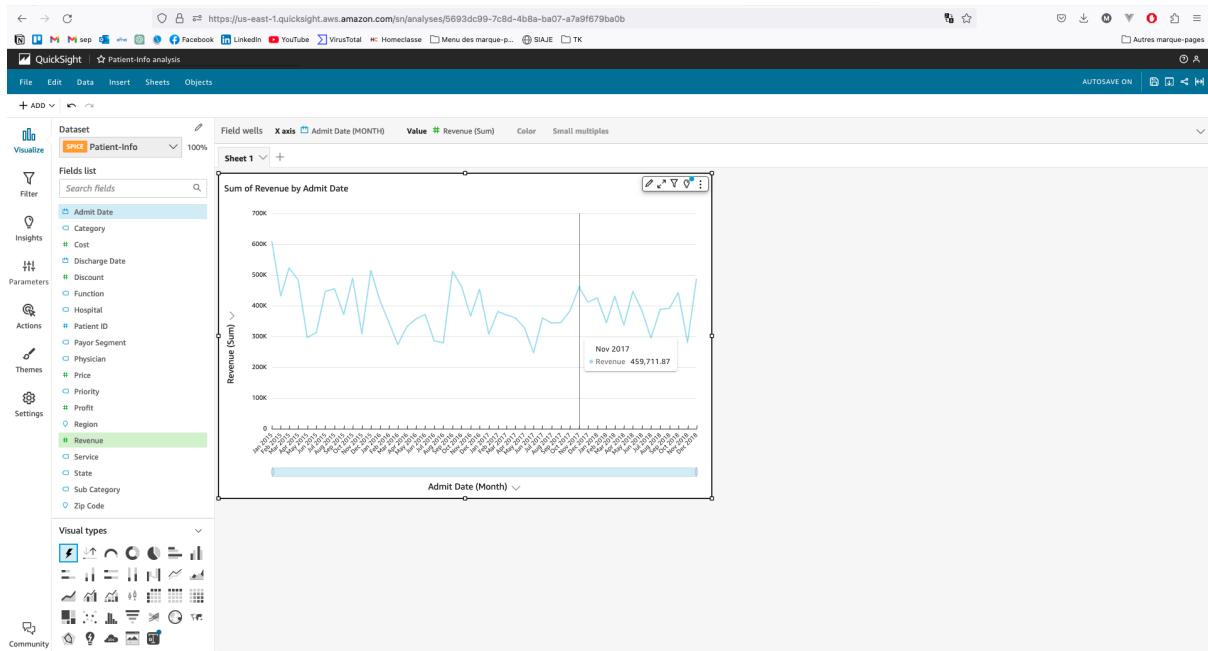
Policy with Both Statements: If the policy included both the original statement (Deny ec2:RunInstances and ec2:StartInstances for t2.micro and t2.small) and the additional statement (Allow all ec2 actions), the policy would behave as follows:

- 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.

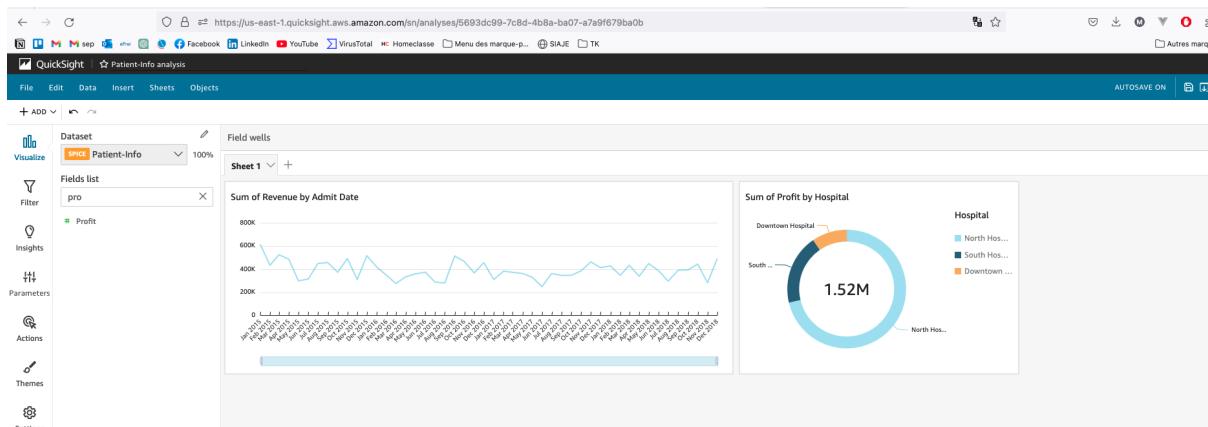
V. Big Data - Data Visualization With AWS QuickSight

Sum of revenue by admit date

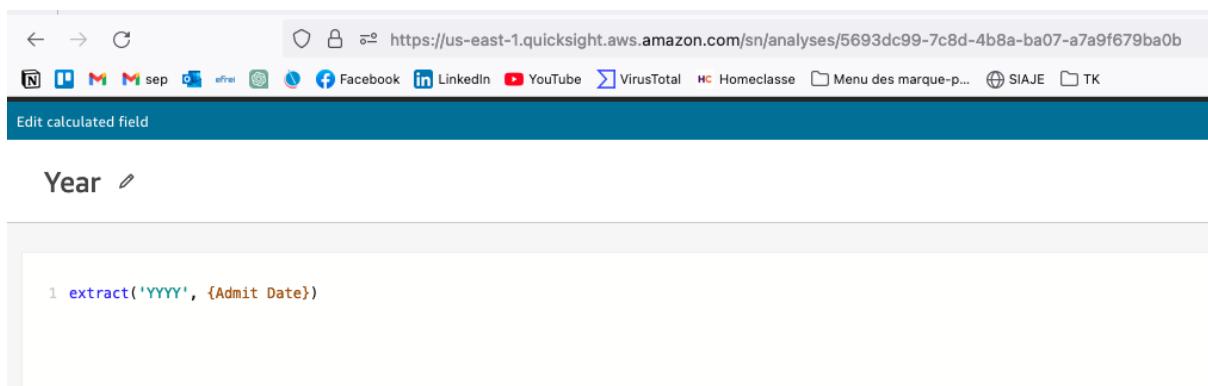
Aggregate by month dates for clarity



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

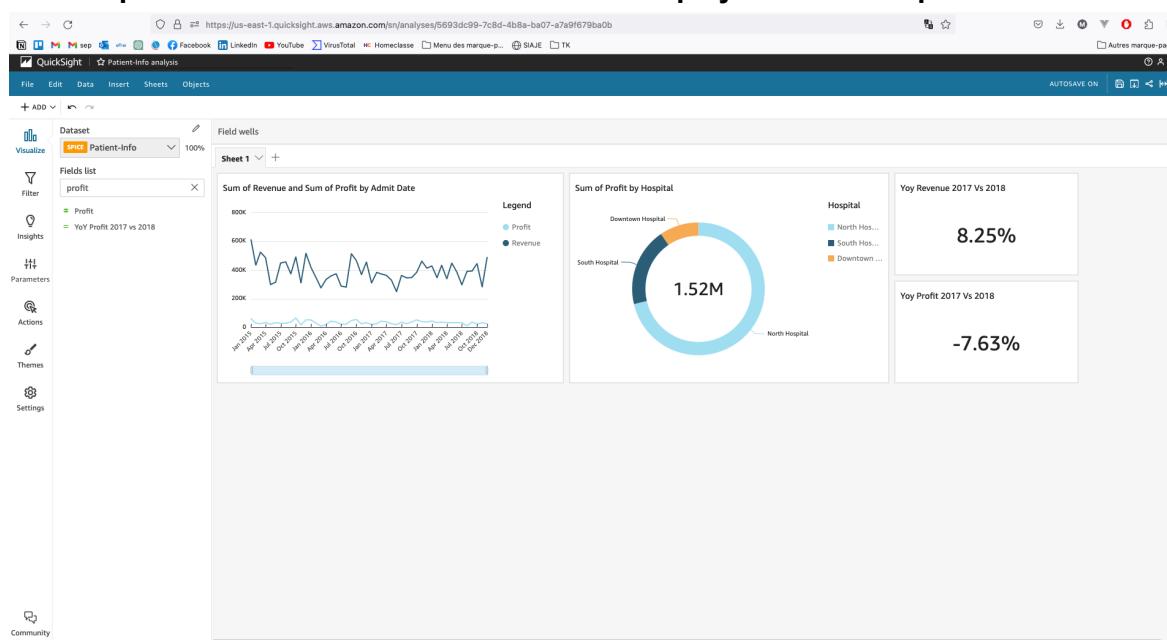
```
1 ((sumIf(Profit, Year=2018) - sumIf(Profit, Year=2017)) / abs(sumIf(Profit, Year=2017)))
```

Edit calculated field

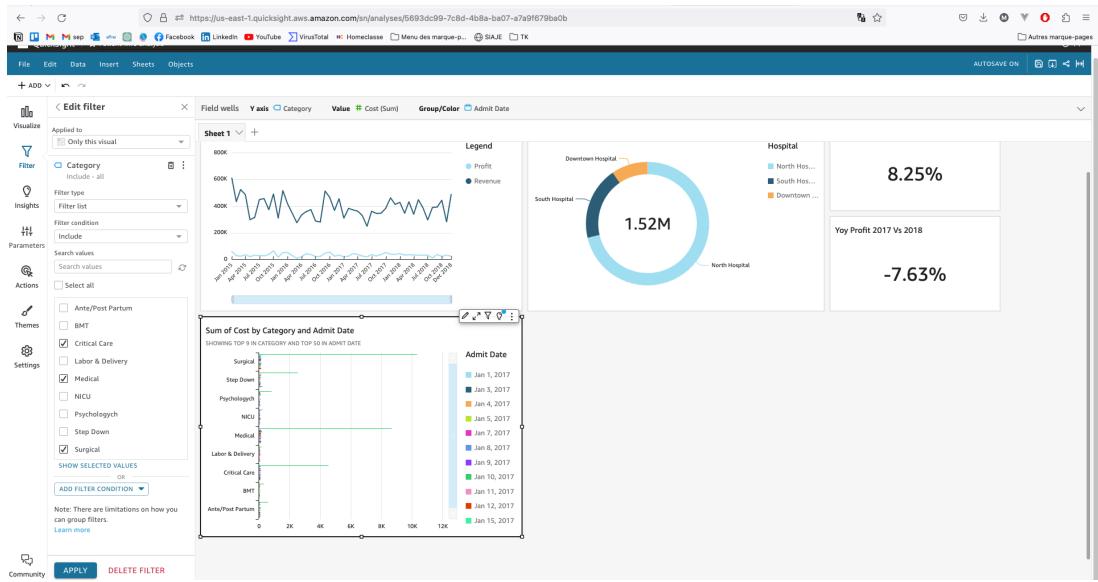
YoY revenue 2017 vs 2018

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

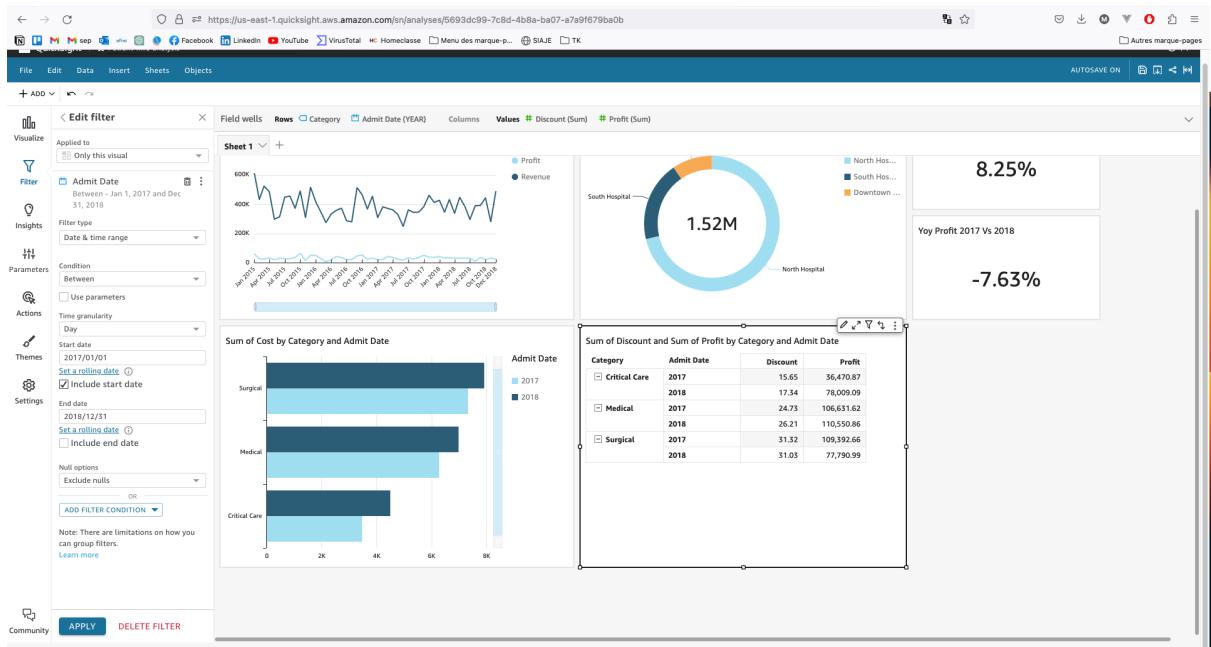
Use the previous calculated field for KPI and display the result in percent



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

