Createing infrastructure of vpc through AWS-cli

The AWS Command Line Interface (CLI) is a unified tool that allows you to manage your AWS services using commands in your command-line shell. It is a powerful alternative to using the AWS Management Console, providing automation capabilities, ease of scripting, and faster operations.

1. Why Use AWS CLI Instead of the Console?

Automation: AWS CLI enables you to automate tasks. With scripts, you can create, manage, and delete resources in bulk without manually interacting with the console.

Speed: The CLI is typically faster for making changes than the console, especially when you're working with large numbers of resources.

Consistency: The CLI ensures repeatability and consistency when creating or modifying infrastructure, as you can version control your commands and scripts.

Flexibility: The CLI provides more advanced features than the console, such as creating complex multi-step workflows and integrating with other tools.

Access: You can access AWS services through the CLI from any machine with the AWS CLI installed, whereas the console requires a web browser and is often tied to your AWS user session.

2. How AWS CLI Works (API Calls) [Application Programming Interface]

The CLI interacts with AWS services by making API calls to AWS endpoints. Here's a basic flow:

Command Input: You issue a command through the CLI, specifying the AWS service, operation, and parameters.

API Request: The CLI translates your command into an API request that is sent to the corresponding AWS service.

AWS Service: The AWS service processes the API request, performs the required operation (e.g., create a VPC, launch an EC2 instance), and returns the response to the CLI.

Response: The CLI displays the response (e.g., resource ID, status, or errors) to the user.

The AWS CLI abstracts the API calls, so you don't need to manually interact with
the low-level HTTP API requests.

3. Setting Up AWS CLI (Configuration)

To use the AWS CLI, you need to configure it with your AWS credentials (Access
Key ID and Secret Access Key) and other settings. The configuration process

typically involves the following steps:
Install AWS CLI
Windows: Download the installer from AWS CLI website .

1)Crate vpc

Aws ec2 create-vpc --cidr-block 172.16.0.0/24
Aws ec2 create-tags --resources vpc-0d3b97ce56f6dd6ee --tags Key=Name,Value=cli-vpc
aws ec2 create-vpc --cidr-block 172.16.0.0/24 --tag-specifications 'ResourceType=vpc,Tags=[{Key=Name,Value=cli-VPC}]'
aws ec2 describe-vpcs --query "Vpcs[*].{VpcId:VpcId, CidrBlock:CidrBlock}"

2)create subnets

1) Aws ec2 create-subnets --vpc-id vpc-0d3b97ce56f6dd6ee --cidr-block 172.16.0.0/26 --availabilty-zone ap-south-1a

2) Aws ec2 create-subnets --vpc-id vpc-0d3b97ce56f6dd6ee --cidr-block 172.16.0.64/26 --availabilty-zone ap-south-1a

3) Aws ec2 create-subnets --vpc-id vpc-0d3b97ce56f6dd6ee --cidr-block 172.16.0.128/26 --availabilty-zone ap-south-1a

4) Aws ec2 create-subnets --vpc-id vpc-0d3b97ce56f6dd6ee --cidr-block 172.16.0.192/26 --availabilty-zone ap-south-1a

Aws ec2 create-tags --resource-subnet-id subnet-0c48034feb1f02f83 --tags “Key=Name,Value=cli-public-subnet-1

aws ec2 describe-subnets --query "Subnets[*].{SubnetId:SubnetId, Tags:Tags}"

```
{
    "SubnetId": "subnet-0659491f2e4836938",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-public-subnet-2"
        }
    ]
},
{
    "SubnetId": "subnet-0c48034feb1f02f83",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-public-subnet-1"
        }
    ]
```

```
  {
      "SubnetId": "subnet-04acbbad616354f98",
      "Tags": [
          {
              "Key": "Name",
              "Value": "cli-private-subnet-1"
          }
      ]
  },
```

```
  {
      "SubnetId": "subnet-0f95ca76382e2341f",
      "Tags": [
          {
              "Key": "Name",
              "Value": "private-subnet-2"
          }
      ]
  },
```


3)createing internet-gateway

aws ec2 create-internet-gateway

aws ec2 attach-internet-gateway --vpc-id vpc-0d3b97ce56f6dd6ee --internet-gateway-id igw-0142efafc66e9dec2

aws ec2 describe-internet-gateways --query "InternetGateways[*].{InternetGatewayId:InternetGatewayId, Attachments:Attachments, Tags:Tags}"


```
{
    "InternetGatewayId": "igw-0142efafc66e9dec2",
    "Attachments": [
        {
            "State": "available",
            "VpcId": "vpc-0d3b97ce56f6dd6ee"
        }
    ],
    "Tags": [
        {
            "Key": "Name",
            "Value": "CLI-IGW"
        }
    ]
}
```


4)createing route-tables

aws ec2 create-route-tables --vpc-id vpc-0d3b97ce56f6dd6ee
aws ec2 create-route-tables --vpc-id vpc-0d3b97ce56f6dd6ee

Giving names or tags to route-tables

aws ec2 create-tags --resources rtb-0fa389493dae71731 --tags "Key=Name,Value=cli-public-route-table"
aws ec2 create-tags --resources rtb-0156ac35d06090125 --tags "Key=Name,Value=cli-private-route-table"

aws ec2 describe-route-tables --query "RouteTables[*].{RouteTableId:RouteTableId, Tags:Tags}"

```
{
    "RouteTableId": "rtb-0fa389493dae71731",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-publicroute-table"
        }
    ]
},
{
    "RouteTableId": "rtb-0156ac35d06090125",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-privatecroute-table"
        }
    ]
},
```


Associateing subnets to route-tables

Aws ec2 associate-route-tables --route-table-id rtb-0fa389493dae71731 --subnet-id subnet-0659491f2e4836938

Aws ec2 associate-route-tables --route-table-id rtb-0fa389493dae71731 --subnet-id subnet-0c48034feb1f02f83

Aws ec2 associate-route-tables --route-table-id rtb-0156ac35d06090125 --subnet-id subnet-04acbbad616354f98

Aws ec2 associate-route-tables --route-table-id rtb-0156ac35d06090125 --subnet-id subnet-07f88eee62d2c611a

aws ec2 describe-route-tables --query "RouteTables[*].{RouteTableId:RouteTableId,Tags:Tags, Associations:Associations[*].SubnetId}"

```
{
    "RouteTableId": "rtb-0fa389493dae71731",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-publicroute-table"
        }
    ],
    "Associations": [
        "subnet-0659491f2e4836938",
        "subnet-0c48034feb1f02f83"
    ]
},
```



```
{
    "RouteTableId": "rtb-0156ac35d06090125",
    "Tags": [
        {
            "Key": "Name",
            "Value": "cli-privatecroute-table"
        }
    ],
    "Associations": [
        "subnet-04acbbad616354f98",
        "subnet-07f88eee62d2c611a"
    ]
},
```


Createing nat-gateway

aws ec2 allocate-address --domain vpc

aws ec2 create-nat-gateway --subnet-id subnet-0c48034feb1f02f83 --allocation-id eipalloc-0c9b09d328573ced6

```
[
    {
        "NatGatewayId": "nat-0d44b379ecabac9cf",
        "Tags": [
            {
                "Key": "Name",
                "Value": "cli-nat-gateway"
            }
        ],
        "SubnetId": "subnet-0c48034feb1f02f83"
    }
]
```


Creating routes to route-tables to internet-gateway

Aws ec2 create-route --route-table-id rtb-0fa389493dae71731 --destination-cidr-block 0.0.0.0/0 --internet-gateway-id igw-0142efafc66e9dec2

Creating routes to route-tables to nat-gateway

Aws ec2 create-route --route-table-id rtb-0156ac35d06090125 --destination-cidr-block 0.0.0.0/0 --nat-gateway-id nat-0d44b379ecabac9cf

aws ec2 describe-route-tables --route-table-ids rtb-0fa389493dae71731 --query "RouteTables[].{ID:RouteTableId, Name:Tags[?Key=='Name'].Value | [0], VPC:VpcId, SubnetsAttached:length(Associations), Subnets:Associations[].SubnetId}" --output table --region ap-south-1

```
C:\Users\manoj>aws ec2 describe-route-tables --route-table-ids rtb-0fa389493dae71731 --query "Ro
uteTables[].{ID:RouteTableId, Name:Tags[?Key=='Name'].Value | [0], VPC:VpcId, SubnetsAttached:le
ngth(Associations), Subnets:Associations[].SubnetId}" --output table --region ap-south-1
-------------------------------------------------
|            DescribeRouteTables              |
+------------------+--------------------------+
|  ID              |  rtb-0fa389493dae71731   |
|  Name            |  cli-publicroute-table   |
|  SubnetsAttached |  2                       |
|  VPC             |  vpc-0d3b97ce56f6dd6ee   |
+------------------+--------------------------+
||                 Subnets                   ||
|+-----------------------------------------+|
||  subnet-0c48034feb1f02f83                ||
||  subnet-0659491f2e4836938                ||
|+-----------------------------------------+|
```

Create an frontend-AMI

aws ec2 create-image --instance-id i-0f2d3e1203aefec09 --name frontend-cli-ami --description frontend-cli-ami... --no-reboot --region ap-south-1

```
C:\Users\manoj>aws ec2 create-image --instance-id i-0f2d3e1203aefec09
--name frontend-cli-ami --description frontend-cli-ami... --no-reboot
--region ap-south-1
{
    "ImageId": "ami-0247f22d010d53372"
}
```

Create frontend-security group

aws ec2 create-security-group --group-name frontend-cli-sg --description "Security group for frontend" --vpc-id vpc-0d3b97ce56f6dd6ee --region ap-south-1

```
C:\Users\manoj>aws ec2 create-security-group --group-name frontend-cli-sg --description "Security group for frontend" --vpc-id vpc-0d3b97ce56f6d
d6ee --region ap-south-1
{
    "GroupId": "sg-09e5306a9db37c9dc",
    "SecurityGroupArn": "arn:aws:ec2:ap-south-1:779846794980:security-group/sg-09e5306a9db37c9dc"
}
```

Cretateing frontend-ec2

aws ec2 run-instances --image-id ami-0247f22d010d53372 --count 1 --instance-type t3.micro --key-name mumbai-key.pem --security-group-ids sg-09e5306a9db37c9dc --subnet-id subnet-0c48034feb1f02f83 --associate-public-ip-address --region ap-south-1

aws ec2 describe-instances --instance-ids i-06c86fbd88b97fe9c --query "Reservations[].Instances[].{ID:InstanceId, Tags:Tags}" --output table

```
-----------------------------------
|        DescribeInstances        |
+---------------------------------+
|                ID               |
+---------------------------------+
|  i-06c86fbd88b97fe9c            |
+---------------------------------+
|              Tags               |
+-------+-------------------------+
|  Key  |          Value          |
+-------+-------------------------+
|  Name |  cli-frontend-ec2       |
+-------+-------------------------+
```

Crateing backend security group

aws ec2 create-security-group --group-name backend-cli-sg --description "Security group for backend" --vpc-id vpc-0d3b97ce56f6dd6ee --region ap-south-1


```
{
    "GroupId": "sg-0717fda0ae5b4aaa3",
    "SecurityGroupArn": "arn:aws:ec2:ap-south-1:779846794980:security-group/sg-0717fda0ae5b4aaa3"
}
```


Creating backend-ami

aws ec2 create-image --instance-id i-089fcfa2b91f1ab5d --name backend-cli-ami --description backend-cli-ami... --no-reboot --regi
on ap-south-1


```
{
    "ImageId": "ami-0d95d96ac54cbc098"
}
```


Creating backend-ec2

aws ec2 run-instances --image-id ami-0d95d96ac54cbc098 --count 1 --instance-type t3.micro --key-name mumbai-key.pem --security-group-ids sg-0717fda0ae5b4aaa3 --subnet-id subnet-04acbbad616354f98 --region ap-south-1

aws ec2 describe-instances --instance-ids i-073bbc44517f692b8 --query "Reservations[].Instances[].{ID:InstanceId, Tags:Tags}" --o
utput table


```
-----------------------------
|      DescribeInstances    |
+---------------------------+
|            ID             |
+---------------------------+
|  i-073bbc44517f692b8      |
+---------------------------+
||           Tags          ||
|+-------+-----------------+|
||  Key  |      Value      ||
|+-------+-----------------+|
||  Name | cli-backend-ec2 ||
|+-------+-----------------+|
```


Creating datbase security group

aws ec2 create-security-group --group-name database-cli-sg --description "Security group for database" --vpc-id vpc-0d3b97ce56f6d
d6ee --region ap-south-1


```
{
    "GroupId": "sg-019525d7e52e71b8e",
    "SecurityGroupArn": "arn:aws:ec2:ap-south-1:779846794980:security-group/sg-019525d7e52e71b8e"
}
```


Creating database ami

aws ec2 create-image --instance-id i-0be62aeaf3598b774 --name database-cli-ami --description database-cli-ami... --no-reboot --re
gion ap-south-1


```
{
    "ImageId": "ami-03b64167ce6d873df"
}
```


Creating database ec2

aws ec2 run-instances --image-id ami-03b64167ce6d873df --count 1 --instance-type t3.micro --key-name mumbai-key.pem --security-group-ids sg-019525d7e52e71b8e --subnet-id subnet-07f88eee62d2c611a --region ap-south-1

aws ec2 describe-instances --instance-ids i-08fc10df74fea7670 --query "Reservations[].Instances[].{ID:InstanceId, Tags:Tags}" --o
utput table

```
-----------------------------
|       DescribeInstances     |
+-----------------------------+
|              ID             |
+-----------------------------+
|  i-08fc10df74fea7670        |
+-----------------------------+
||            Tags           ||
|+-------+-------------------+|
||  Key  |       Value       ||
|+-------+-------------------+|
||  Name |  cli-database-ec2 ||
|+-------+-------------------+|
```

Setting an inbound rules of frontend sg

aws ec2 authorize-security-group-ingress --group-id sg-09e5306a9db37c9dc --protocol tcp --port 80 --cidr 0.0.0.0/0

aws ec2 authorize-security-group-ingress --group-id sg-09e5306a9db37c9dc --protocol tcp --port 22 --cidr 0.0.0.0/0

Setting an inbound rules of backend sg

aws ec2 authorize-security-group-ingress --group-id sg-0717fda0ae5b4aaa3 --protocol tcp --port 8000 --cidr 0.0.0.0/0

aws ec2 authorize-security-group-ingress --group-id sg-0717fda0ae5b4aaa3 --protocol tcp --port 22 --cidr 0.0.0.0/0

Setting an inbound rules of database sg

aws ec2 authorize-security-group-ingress --group-id sg-019525d7e52e71b8e --protocol tcp --port 22 --cidr 0.0.0.0/0

aws ec2 authorize-security-group-ingress --group-id sg-019525d7e52e71b8e --protocol tcp --port 5432 --cidr 0.0.0.0/0

Attaching security groups to ec2

aws ec2 modify-instance-attribute --instance-id i-06c86fbd88b97fe9c --groups sg-09e5306a9db37c9dc --region ap-south-1

aws ec2 describe-instances --instance-ids i-06c86fbd88b97fe9c --query "Reservations[].Instances[].SecurityGroups[].GroupId" --output table --region ap-south-1

```
C:\Users\manoj>aws ec2 describe-instances --instance-ids i-06c86fbd88b97fe9c --query "Reservations[].Instances[].SecurityGroups[].GroupId" --out
put table --region ap-south-1
-------------------------
|    DescribeInstances   |
+------------------------+
|  sg-09e5306a9db37c9dc  |
+------------------------+
```

aws ec2 modify-instance-attribute --instance-id i-073bbc44517f692b8 --groups sg-0717fda0ae5b4aaa3 --region ap-south-1

```
C:\Users\manoj>aws ec2 describe-instances --instance-ids i-073bbc44517f692b8 --query "Reservations[].Instances[].SecurityGroups[].GroupId" --out
put table --region ap-south-1
-------------------------
|    DescribeInstances   |
+------------------------+
|  sg-0717fda0ae5b4aaa3  |
+------------------------+
```

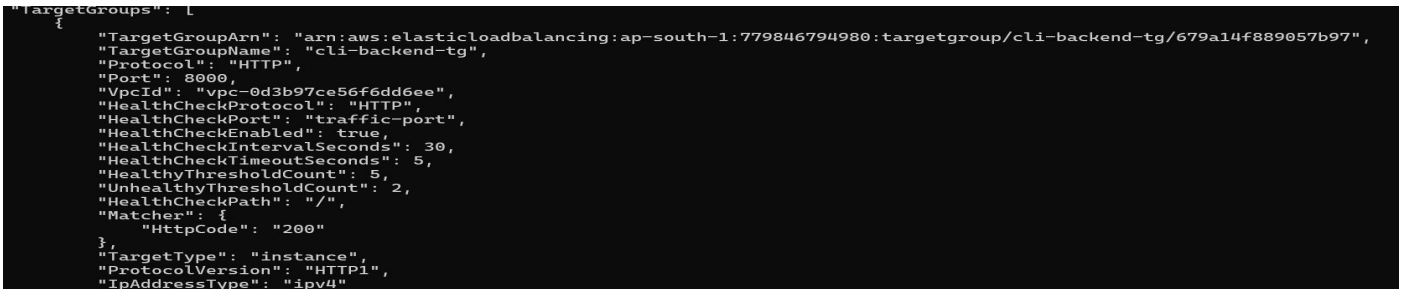
aws ec2 modify-instance-attribute --instance-id i-08fc10df74fea7670 --groups sg-019525d7e52e71b8e --region ap-south-1

```
C:\Users\manoj>aws ec2 describe-instances --instance-ids i-08fc10df74fea7670 --query "Reservations[].Instances[].SecurityGroups[].GroupId" --out
put table --region ap-south-1
-------------------------
|    DescribeInstances   |
+------------------------+
|  sg-019525d7e52e71b8e  |
+------------------------+
```

Creating backend load balancer

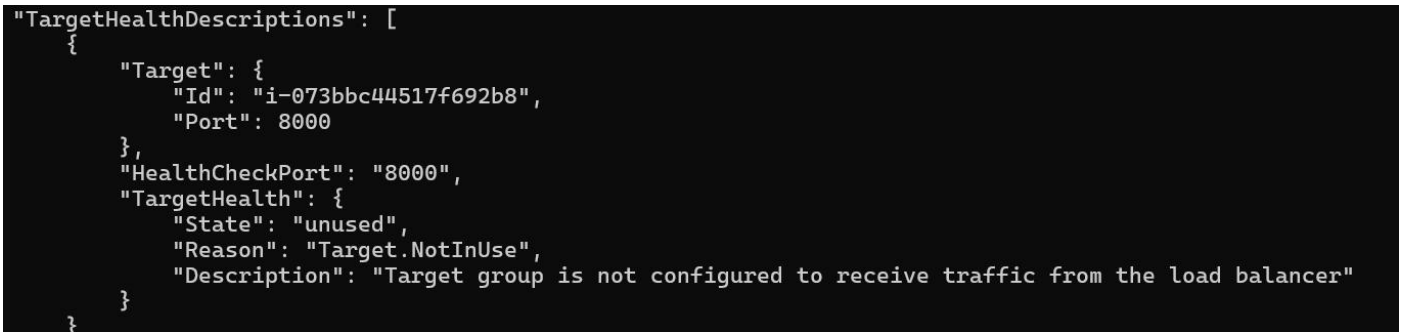
Creating target groups

aws elbv2 create-target-group --name cli-backend-tg --protocol HTTP --port 8000 --vpc-id vpc-0d3b97ce56f6dd6ee --target-type inst
ance --region ap-south-1



aws elbv2 register-targets --target-group-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-backend-tg/6c38073839d70848 --targets Id=i-073bbc44517f692b8 --region ap-south-1

aws elbv2 describe-target-health --target-group-arn "arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-backend-tg/679a14f889057b97"



aws elbv2 describe-load-balancers --load-balancer-arns arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/net/cli-backend-lb/6e3bdde9e8c87362 --query "LoadBalancers[].[LoadBalancerArn, DNSName, Scheme, State]" --output table --region ap-south-1

Create load balancer

aws elbv2 create-load-balancer --name cli-backend-ALB --subnets subnet-07f88eee62d2c611a subnet-04acbbad616354f98 --scheme internal --type application --ip-address-type ipv4

Adding listners

aws elbv2 create-listener --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-backend-ALB/9a8373a13b19604e --protocol HTTP --port 8000 --default-actions Type=forward,TargetGroupArn=arn:aws:elasticloadbalancing:ap-south-1:7798467949
80:targetgroup/cli-backend-tg/6c38073839d70848

aws elbv2 create-listener --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-backend-ALB/9a8373a13b19604e --protocol HTTP --port 80 --default-actions Type=forward,TargetGroupArn=arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-backend-tg/6c38073839d70848

aws elbv2 describe-listeners --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-backend-ALB/9a8373a13b19604e --query "Listeners[].ListenerArn" --output table --region ap-south-1

```
-------------------------------------------------------------------------------------------------------------------
|                                                DescribeListeners                                                |
+-----------------------------------------------------------------------------------------------------------------+
|  arn:aws:elasticloadbalancing:ap-south-1:779846794980:listener/app/cli-backend-ALB/9a8373a13b19604e/abf178e0ae4dab62  |
-------------------------------------------------------------------------------------------------------------------
```

>aws elbv2 describe-listeners --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-backend-ALB/9a8373a13b19604e --query "Listeners[].{ListenerArn: ListenerArn, Port: Port, Protocol: Protocol}" --output table --region ap-south-1

```
-------------------------------------------------------------------------------------------------------------------
|                                                DescribeListeners                                                |
+-----------------------------------------------------------------------------------------------------------------+
|                                                ListenerArn                                                | Port | Protocol |
+-----------------------------------------------------------------------------------------------------------------+
|  arn:aws:elasticloadbalancing:ap-south-1:779846794980:listener/app/cli-backend-ALB/9a8373a13b19604e/76d1d23df25fd32b  |  80  |  HTTP    |
|  arn:aws:elasticloadbalancing:ap-south-1:779846794980:listener/app/cli-backend-ALB/9a8373a13b19604e/abf178e0ae4dab62  | 8000 |  HTTP    |
-------------------------------------------------------------------------------------------------------------------
```

Createing target group for frontend load balancer

aws elbv2 create-target-group --name cli-frontend-tg --protocol HTTP --port 80 --vpc-id vpc-0d3b97ce56f6dd6ee --target-type insta
nce --region ap-south-1

```
C:\Users\manoj>aws elbv2 create-target-group --name cli-frontend-tg --protocol HTTP --port 80 --vpc-id vpc-0d3b97ce56f6dd6ee --target-type insta
nce --region ap-south-1
{
    "TargetGroups": [
        {
            "TargetGroupArn": "arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec",
            "TargetGroupName": "cli-frontend-tg",
            "Protocol": "HTTP",
            "Port": 80,
            "VpcId": "vpc-0d3b97ce56f6dd6ee",
            "HealthCheckProtocol": "HTTP",
            "HealthCheckPort": "traffic-port",
```

>aws elbv2 describe-target-groups --target-group-arns arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec --query "TargetGroups[0].{TargetGroupArn:TargetGroupArn, VpcId:VpcId, TargetGroupName:TargetGroupName}" --output table --region ap-south-1

```
|                                DescribeTargetGroups                                |
+-----------------+------------------------------------------------------------------
|  TargetGroupArn |  arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec
|  TargetGroupName|  cli-frontend-tg
|  VpcId          |  vpc-0d3b97ce56f6dd6ee
+-----------------+------------------------------------------------------------------
```

aws elbv2 create-load-balancer --name cli-frontend-ALB --subnets subnet-0659491f2e4836938 subnet-0c48034feb1f02f83 --scheme internet-facing --type application --ip-address-type
ipv4

```
    "LoadBalancers": [
        {
            "LoadBalancerArn": "arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-frontend-ALB/9
bcc9530ddd606d",
            "DNSName": "cli-frontend-ALB-47033204.ap-south-1.elb.amazonaws.com",
            "CanonicalHostedZoneId": "ZP97RAFLXTNZK",
            "CreatedTime": "2024-11-16T04:53:32.204000+00:00",
            "LoadBalancerName": "cli-frontend-ALB",
            "Scheme": "internet-facing",
            "VpcId": "vpc-0d3b97ce56f6dd6ee",
```

aws elbv2 describe-load-balancers --load-balancer-arns arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-frontend-ALB/94bcc9530ddd606d --query "LoadBalancers[].{Name: LoadBalancerName, Subnets: Availab
ilityZones[].SubnetId}" --output table --region ap-south-1

```
      DescribeLoadBalancers           |
--------------------------------------+
               Name                   |
--------------------------------------+
   cli-frontend-ALB                   |
--------------------------------------+
|              Subnets              |
+-----------------------------------+
|    subnet-0659491f2e4836938       |
|    subnet-0c48034feb1f02f83       |
+-----------------------------------+
```

aws elbv2 create-listener --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-frontend-ALB/94bcc9530ddd606d --protocol HTTP --port 80 --default-actions Type=forward,TargetGroupArn=arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec
aws elbv2 describe-listeners --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-frontend-ALB/94bcc9530ddd606d --query "Listeners[].{ListenerArn: ListenerArn, Port: Port, Protocol: Protocol}" --output table --region ap-south-1

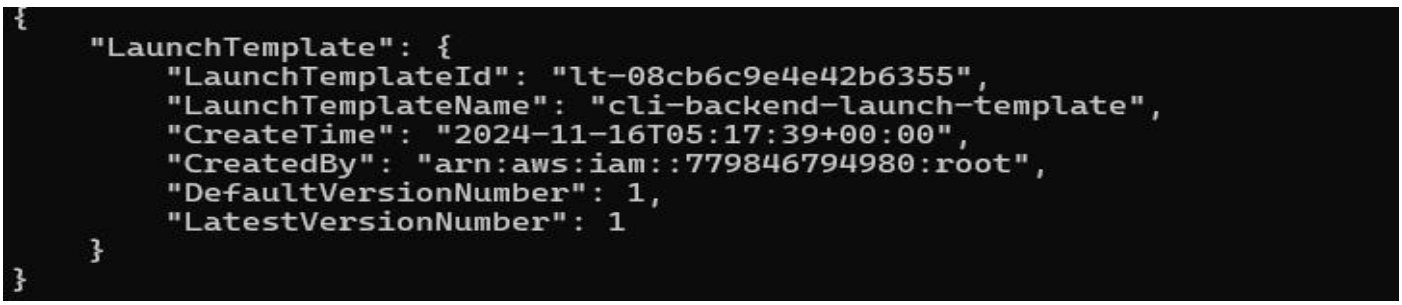
Delete an load balancer

aws elbv2 delete-load-balancer --load-balancer-arn arn:aws:elasticloadbalancing:ap-south-1:779846794980:loadbalancer/app/cli-frontend-ALB/a364ab9d4554afce

Creaeting auto scaing for backend ec2

Step 1: Create a Launch Configuration

aws ec2 create-launch-template --launch-template-name cli-backend-launch-template --version-description "initial version" --launch-template-data "{\"ImageId\":\"ami-0d95d96ac54cbc098\",\"InstanceType\":\"t2.micro\",\"SecurityGroupIds\":[\"sg-0717fda0ae5b4aaa3\"],\"KeyName\":\"mumbai-key\"}"



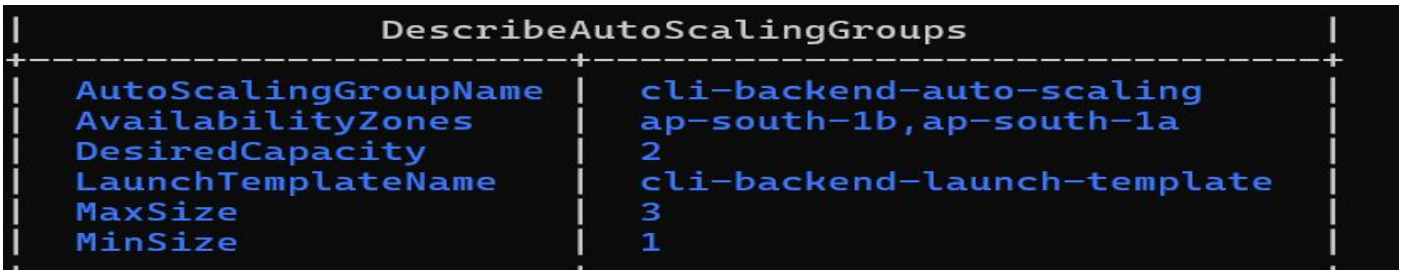
Step 2: Create an Auto Scaling Group

aws autoscaling create-auto-scaling-group --auto-scaling-group-name cli-backend-auto-scaling --launch-template "LaunchTemplateName=cli-backend-

launch-template,Version=1" --min-size 1 --max-size 3 --desired-capacity 2 --vpc-zone-identifier subnet-0c48034feb1f02f83,subnet-0659491f2e4836938

Step 3: Verify the Auto Scaling Group

aws autoscaling describe-auto-scaling-groups --auto-scaling-group-name cli-backend-auto-scaling --query "AutoScalingGroups[0].{AutoScalingGroupName:AutoScalingGroupName,LaunchTemplateName:LaunchTemplate.LaunchTemplateName,MinSize:MinSize,MaxSize:MaxSize,DesiredCapacity:DesiredCapacity,AvailabilityZones:join(',',AvailabilityZones)}" --output table



Attaching load balancer to auto-sacling

aws autoscaling attach-load-balancer-target-groups --auto-scaling-group-name cli-backend-auto-scaling --target-group-ar
ns arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-backend-tg/6c38073839d70848

aws autoscaling describe-auto-scaling-groups --auto-scaling-group-name cli-backend-auto-scaling --query "AutoScalingGroups[0].[AutoScalingGroupName,TargetGroupARNs]" --output table

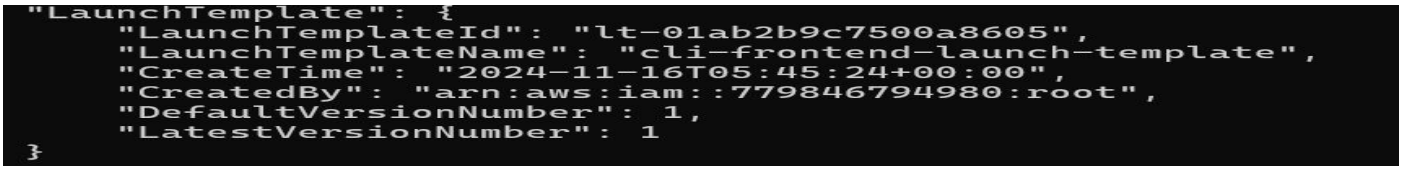
aws autoscaling put-scaling-policy --auto-scaling-group-name cli-backend-auto-scaling --policy-name cli-backend-TargetScalingPoli
cy --policy-type TargetTrackingScaling --target-tracking-configuration "{\"TargetValue\": 70.0, \"PredefinedMetricSpecification\": {\"PredefinedMetricType\": \"ASGAverageCPUUtilization\"}, \"DisableScaleIn\": false}"

aws autoscaling describe-policies --auto-scaling-group-name cli-backend-auto-scaling --query "ScalingPolicies[?PolicyName=='cli-backend-TargetScalingPolicy']" --output table

Creating auto sacling for frontend ec2

Step 1: Create a Launch Configuration

aws ec2 create-launch-template --launch-template-name cli-frontend-launch-template --version-description "initial version" --launch-template-data "{\"ImageId\":\"ami-0247f22d010d53372\",\"InstanceType\":\"t2.micro\",\"SecurityGroupIds\":[\"sg-09e5306a9db37c9dc\"],\"KeyName\":\"mumbai-key\"}"



Step 2: Create an Auto Scaling Group

aws autoscaling create-auto-scaling-group --auto-scaling-group-name cli-frontend-auto-scaling --launch-template "LaunchTemplateName=cli-frontend-launch-template,Version=1" --min-size 1 --max-size 3 --desired-capacity 2 --vpc-zone-identifier subnet-07f88eee62d2c611a,subnet-04acbbad616354f98

Step 3: Verify the Auto Scaling Group

aws autoscaling describe-auto-scaling-groups --auto-scaling-group-name cli-frontend-auto-scaling --query "AutoScalingGroups[0].{AutoScalingGroupName:AutoScalingGroupName,LaunchTemplateName:LaunchTemplate.LaunchTemplateName,MinSize:MinSize,M

axSize:MaxSize,DesiredCapacity:DesiredCapacity,AvailabilityZones:join(',',Ava
ilabilityZones)}" --output table

```
|                DescribeAutoScalingGroups                |
+-------------------------+-------------------------------+
|  AutoScalingGroupName   |  cli-frontend-auto-scaling    |
|  AvailabilityZones      |  ap-south-1c,ap-south-1b      |
|  DesiredCapacity        |  2                            |
|  LaunchTemplateName     |  cli-frontend-launch-template |
|  MaxSize                |  3                            |
|  MinSize                |  1                            |
+-------------------------+-------------------------------+
```

Attaching load balancer to auto-scaling

aws autoscaling attach-load-balancer-target-groups --auto-scaling-group-name cli-frontend-auto-scaling --target-group-arns arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec

aws autoscaling describe-auto-scaling-groups --auto-scaling-group-name cli-frontend-auto-scaling --query "AutoScalingGroups[0].[A
utoScalingGroupName,TargetGroupARNs]" --output table

```
|                                DescribeAutoScalingGroups                                |
+-----------------------------------------------------------------------------------------+
|  cli-frontend-auto-scaling                                                              |
|  arn:aws:elasticloadbalancing:ap-south-1:779846794980:targetgroup/cli-frontend-tg/e31727f475e905ec  |
+-----------------------------------------------------------------------------------------+
```

aws autoscaling put-scaling-policy --auto-scaling-group-name cli-frontend-auto-scaling --policy-name cli-frontend-TargetScalingPolicy --policy-type TargetTrackingScaling --target-tracking-configuration "{\"TargetValue\": 70.0, \"PredefinedMetricSpecification\": {\"PredefinedMetricType\": \"ASGAverageCPUUtilization\"}, \"DisableScaleIn\": false}"

aws autoscaling describe-policies --auto-scaling-group-name cli-frontend-auto-scaling --query "ScalingPolicies[?PolicyName=='cli-frontend-TargetScalingPolicy']" --output table

```
+-----------------------------------+|
|                                   TargetTrackingConfiguration                                   ||
+-----------------------------------+|
|  False                                                                                          ||
+-----------------------------------+|
|  TargetValue                      |  70.0                                                       ||
+-----------------------------------+|
|                                   PredefinedMetricSpecification                                 |||
+-----------------------------------+||
|  PredefinedMetricType             |  ASGAverageCPUUtilization                                   |||
+-----------------------------------+||
```