Repeat online practice with AWS CLI and CloudFormation

9.1) CLI commands with output

9.1.1) Команди для виконання:

Create a VPC with a 10.0.0.0/16 CIDR block using the following create-vpc command.
aws ec2 create-vpc --cidr-block i192.168.0.0/16 --query Vpc.VpcId --output text

#aws ec2 delete-vpc --vpc-id vpc-0393f6239298fcbe4

vpc-025ca4a0014374ad2

Using the VPC ID from the previous step, create a subnet with a 10.0.1.0/24 CIDR block using the following create-subnet command.

aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.0.0/24

Create an internet gateway using the following create-internet-gateway command.

aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.1.0/24

Create an internet gateway using the following create-internet-gateway command.

aws ec2 create-internet-gateway --query InternetGateway.InternetGatewayId --output text

Using the ID from the previous step, attach the internet gateway to your VPC using the following attach-internet-gateway command.

aws ec2 attach-internet-gateway --vpc-id vpc-025ca4a0014374ad2 --internet-gateway-id igw-03feb1bbe8aa0f334

Create a custom route table for your VPC using the following create-route-table command.

aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2 --query RouteTable.RouteTableId --output text

rtb-03659ac9ff9b4f635

Create a route in the route table that points all traffic (0.0.0.0/0) to the internet gateway using the following create-route command.

aws ec2 create-route --route-table-id rtb-03659ac9ff9b4f635 --destination-cidr-block 0.0.0.0/0 --gateway-id igw-03feb1bbe8aa0f334

aws ec2 describe-route-tables --route-table-id rtb-03659ac9ff9b4f635

aws ec2 describe-subnets --filters "Name=vpc-id,Values=vpc-025ca4a0014374ad2" --query "Subnets[*].{ID:SubnetId,CIDR:CidrBlock}"

aws ec2 associate-route-table --subnet-id subnet-0b43ab4a2e11d947b --route-table-id rtb-03659ac9ff9b4f635

```
aws ec2 modify-subnet-attribute --subnet-id subnet-0b43ab4a2e11d947b
--map-public-ip-on-launch

aws ec2 create-key-pair --key-name MyKeyPair --query "KeyMaterial" --output
text > MyKeyPair.pem

chmod 400 MyKeyPair.pem

aws ec2 create-security-group --group-name SSHAccess --description "Security
group for SSH access" --vpc-id vpc-025ca4a0014374ad2

aws ec2 authorize-security-group-ingress --group-id sg-093f7636c75b8256e --protocol tcp
--port 22 --cidr 0.0.0.0/0

aws ec2 run-instances --image-id ami-08f13e5792295e1b2 --count 1 --instance-type
t2.micro --key-name MyKeyPair --security-group-ids sg-093f7636c75b8256e --subnet-id
subnet-0b43ab4a2e11d947b
```

9.1.2) Результат вводу команд:

```
rob@ansible:~]aws ec2 create-vpc --cidr-block 10.0.0.0/16 --query Vpc.VpcId --output text
vpc-0393f6239298fcbe4
rob@ansible:~]aws ec2 delete-vpc --vpc-id

usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
To see help text, you can run:

  aws help
  aws <command> help
  aws <command> <subcommand> help

aws: error: argument --vpc-id: expected one argument

rob@ansible:~]aws ec2 delete-vpc --vpc-id vpc-0393f6239298fcbe4

rob@ansible:~]
rob@ansible:~]aws ec2 create-vpc --cidr-block i192.168.0.0/16 --query Vpc.VpcId --output text


An error occurred (InvalidParameterValue) when calling the CreateVpc operation: Value (i192.168.0.0/16) for
parameter cidrBlock is invalid. This is not a valid CIDR block.
rob@ansible:~]
rob@ansible:~]
rob@ansible:~]
rob@ansible:~]
rob@ansible:~]aws ec2 create-vpc --cidr-block 192.168.0.0/16 --query Vpc.VpcId --output text
vpc-025ca4a0014374ad2
rob@ansible:~]aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 10.0.1.0/24
^[[D
An error occurred (InvalidSubnet.Range) when calling the CreateSubnet operation: The CIDR '10.0.1.0/24' is
invalid.
rob@ansible:~]aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.0.0/24
{
    "Subnet": {
        "AvailabilityZone": "eu-central-1c",
```

```
        "AvailabilityZoneId": "euc1-az1",
        "AvailableIpAddressCount": 251,
        "CidrBlock": "192.168.0.0/24",
        "DefaultForAz": false,
        "MapPublicIpOnLaunch": false,
        "State": "available",
        "SubnetId": "subnet-0b43ab4a2e11d947b",
        "VpcId": "vpc-025ca4a0014374ad2",
        "OwnerId": "085054811666",
        "AssignIpv6AddressOnCreation": false,
        "Ipv6CidrBlockAssociationSet": [],
        "SubnetArn": "arn:aws:ec2:eu-central-1:085054811666:subnet/subnet-0b43ab4a2e11d947b",
        "EnableDns64": false,
        "Ipv6Native": false,
        "PrivateDnsNameOptionsOnLaunch": {
            "HostnameType": "ip-name",
            "EnableResourceNameDnsARecord": false,
            "EnableResourceNameDnsAAAARecord": false
        }
    }
}
rob@ansible:~]aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.1.0/24
{
    "Subnet": {
        "AvailabilityZone": "eu-central-1c",
        "AvailabilityZoneId": "euc1-az1",
        "AvailableIpAddressCount": 251,
        "CidrBlock": "192.168.1.0/24",
        "DefaultForAz": false,
        "MapPublicIpOnLaunch": false,
        "State": "available",
        "SubnetId": "subnet-05c42226b55f50563",
        "VpcId": "vpc-025ca4a0014374ad2",
        "OwnerId": "085054811666",
        "AssignIpv6AddressOnCreation": false,
        "Ipv6CidrBlockAssociationSet": [],
        "SubnetArn": "arn:aws:ec2:eu-central-1:085054811666:subnet/subnet-05c42226b55f50563",
        "EnableDns64": false,
        "Ipv6Native": false,
        "PrivateDnsNameOptionsOnLaunch": {
            "HostnameType": "ip-name",
            "EnableResourceNameDnsARecord": false,
            "EnableResourceNameDnsAAAARecord": false
        }
    }
}
rob@ansible:~]aws ec2 create-internet-gateway --query InternetGateway.InternetGatewayId --output text
igw-03feb1bbe8aa0f334
rob@ansible:~]aws ec2 attach-internet-gateway --vpc-id vpc-2f09a348 --internet-gateway-id
^[[D
usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
To see help text, you can run:

  aws help
  aws <command> help
  aws <command> <subcommand> help

aws: error: argument --internet-gateway-id: expected one argument
```

```
rob@ansible:~]aws ec2 attach-internet-gateway --vpc-id vpc-025ca4a0014374ad2 --internet-gateway-id

usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
To see help text, you can run:

  aws help
  aws <command> help
  aws <command> <subcommand> help

aws: error: argument --internet-gateway-id: expected one argument

rob@ansible:~]aws ec2 attach-internet-gateway --vpc-id vpc-025ca4a0014374ad2 --internet-gateway-id
igw-03feb1bbe8aa0f334
rob@ansible:~]
rob@ansible:~]aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2
{
    "RouteTable": {
        "Associations": [],
        "PropagatingVgws": [],
        "RouteTableId": "rtb-0f92da30943031f93",
        "Routes": [
            {
                "DestinationCidrBlock": "192.168.0.0/16",
                "GatewayId": "local",
                "Origin": "CreateRouteTable",
                "State": "active"
            }
        ],
        "Tags": [],
        "VpcId": "vpc-025ca4a0014374ad2",
        "OwnerId": "085054811666"
    }
}
^[[Drob@ansible:~]aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2  --query

usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
To see help text, you can run:

  aws help
  aws <command> help
  aws <command> <subcommand> help

aws: error: argument --query: expected one argument

rob@ansible:~]aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2  --query RouteTable.RouteTableId
--output text
rtb-03659ac9ff9b4f635
rob@ansible:~]aws ec2 create-route --route-table-id rtb-03659ac9ff9b4f635 --destination-cidr-block 0.0.0.0/0
--gateway-
id igw-03feb1bbe8aa0f334
{
    "Return": true
}
rob@ansible:~]aws ec2 describe-route-tables --route-table-id rtb-03659ac9ff9b4f635
{
    "RouteTables": [
        {
```

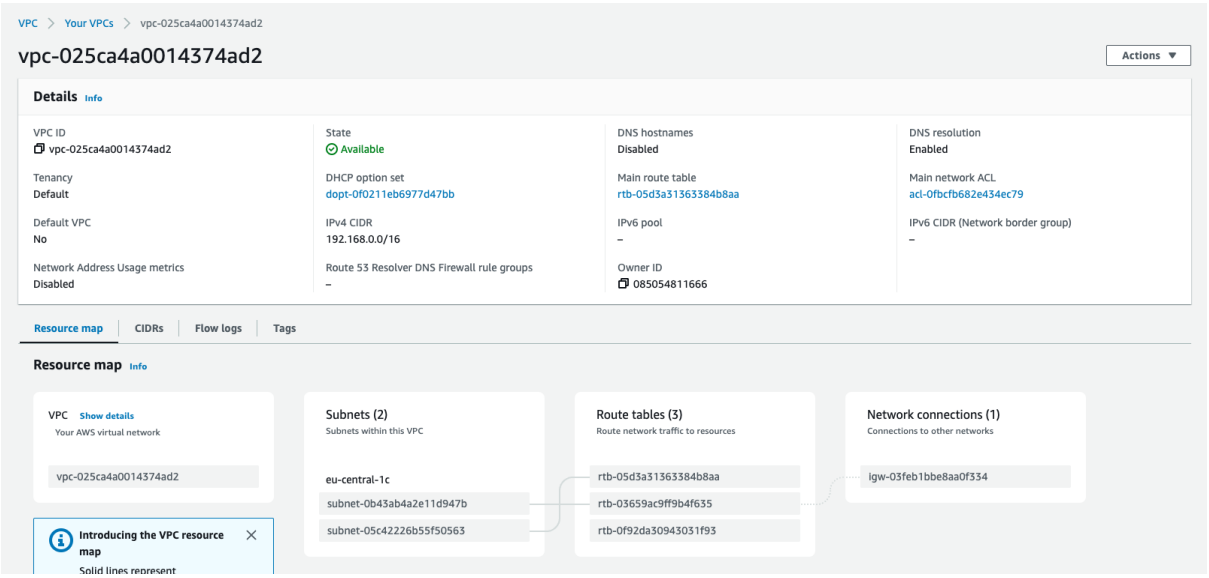
```
            "Associations": [],
            "PropagatingVgws": [],
            "RouteTableId": "rtb-03659ac9ff9b4f635",
            "Routes": [
                {
                    "DestinationCidrBlock": "192.168.0.0/16",
                    "GatewayId": "local",
                    "Origin": "CreateRouteTable",
                    "State": "active"
                },
                {
                    "DestinationCidrBlock": "0.0.0.0/0",
                    "GatewayId": "igw-03feb1bbe8aa0f334",
                    "Origin": "CreateRoute",
                    "State": "active"
                }
            ],
            "Tags": [],
            "VpcId": "vpc-025ca4a0014374ad2",
            "OwnerId": "085054811666"
        }
    ]
}
rob@ansible:~]iaws ec2 describe-subnets --filters "Name=vpc-id,Values=vpc-025ca4a0014374ad2" --query
"Subnets[*].{ID:Su
bnetId,CIDR:CidrBlock}"
-bash: iaws: command not found
rob@ansible:~]aws ec2 describe-subnets --filters "Name=vpc-id,Values=vpc-025ca4a0014374ad2" --query
"Subnets[*].{ID:Sub
netId,CIDR:CidrBlock}"
[
    {
        "ID": "subnet-0b43ab4a2e11d947b",
        "CIDR": "192.168.0.0/24"
    },
    {
        "ID": "subnet-05c42226b55f50563",
        "CIDR": "192.168.1.0/24"
    }
]
rob@ansible:~]aws ec2 associate-route-table  --subnet-id subnet-b46032ec --route-table-id
rtb-03659ac9ff9b4f635

An error occurred (InvalidSubnetID.NotFound) when calling the AssociateRouteTable operation: The subnet ID
'subnet-b46032ec' does not exist
rob@ansible:~]aws ec2 associate-route-table  --subnet-id subnet-0b43ab4a2e11d947b --route-table-id
rtb-03659ac9ff9b4f63
5
{
    "AssociationId": "rtbassoc-0f6cfc0ecbd5b45a1",
    "AssociationState": {
        "State": "associated"
    }
}
rob@ansible:~]iaws ec2 modify-subnet-attribute --subnet-id subnet-0b43ab4a2e11d947b
--map-public-ip-on-launch
-bash: iaws: command not found
```

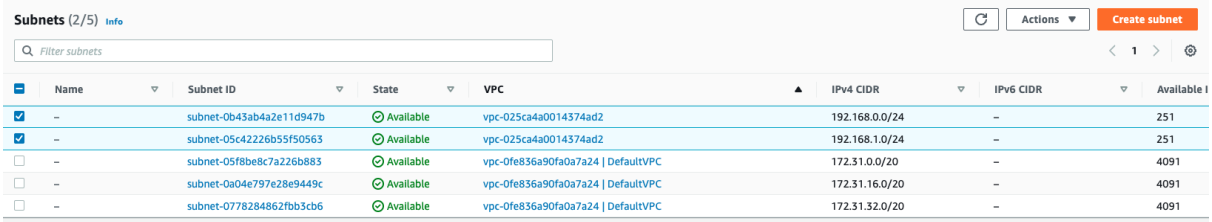
```
rob@ansible:~]aws ec2 modify-subnet-attribute --subnet-id subnet-0b43ab4a2e11d947b
--map-public-ip-on-launch
rob@ansible:~]aws ec2 create-key-pair --key-name MyKeyPair --query "KeyMaterial" --output text >
MyKeyPair.pem
rob@ansible:~]vi MyKeyPair.pem
rob@ansible:~]chmod 400 MyKeyPair.pem
rob@ansible:~]aws ec2 create-security-group --group-name SSHAccess --description "Security group for SSH
access" --vpc-id vpc-2f09a348

An error occurred (InvalidVpcID.NotFound) when calling the CreateSecurityGroup operation: The vpc ID
'vpc-2f09a348' does not exist
rob@ansible:~]
rob@ansible:~]aws ec2 create-security-group --group-name SSHAccess --description "Security group for SSH
access" --vpc-id vpc-025ca4a0014374ad2
{
    "GroupId": "sg-093f7636c75b8256e"
}
rob@ansible:~]aws ec2 authorize-security-group-ingress --group-id sg-093f7636c75b8256e --protocol tcp --port
22 --cidr 0.0.0.0/0
{
    "Return": true,
    "SecurityGroupRules": [
        {
            "SecurityGroupRuleId": "sgr-0a667e970d0dc9789",
            "GroupId": "sg-093f7636c75b8256e",
            "GroupOwnerId": "085054811666",
            "IsEgress": false,
            "IpProtocol": "tcp",
            "FromPort": 22,
            "ToPort": 22,
            "CidrIpv4": "0.0.0.0/0"
        }
    ]
}
rob@ansible:~]aws ec2 run-instances --image-id ami-08f13e5792295e1b2 --count 1 --instance-type t2.micro
--key-name MyKeyPair --security-group-ids sg-093f7636c75b8256e --subnet-id subnet-0b43ab4a2e11d947b
{
    "Groups": [],
    "Instances": [
        {
            "AmiLaunchIndex": 0,
            "ImageId": "ami-08f13e5792295e1b2",
            "InstanceId": "i-072bb918ba3f9f969",
            "InstanceType": "t2.micro",
            "KeyName": "MyKeyPair",
            "LaunchTime": "2023-02-27T15:25:14+00:00",
            "Monitoring": {
                "State": "disabled"
            },
            "Placement": {
                "AvailabilityZone": "eu-central-1c",
                "GroupName": "",
                "Tenancy": "default"
            },
            "PrivateDnsName": "ip-192-168-0-205.eu-central-1.compute.internal",
            "PrivateIpAddress": "192.168.0.205",
            "ProductCodes": [],
            "PublicDnsName": "",
```

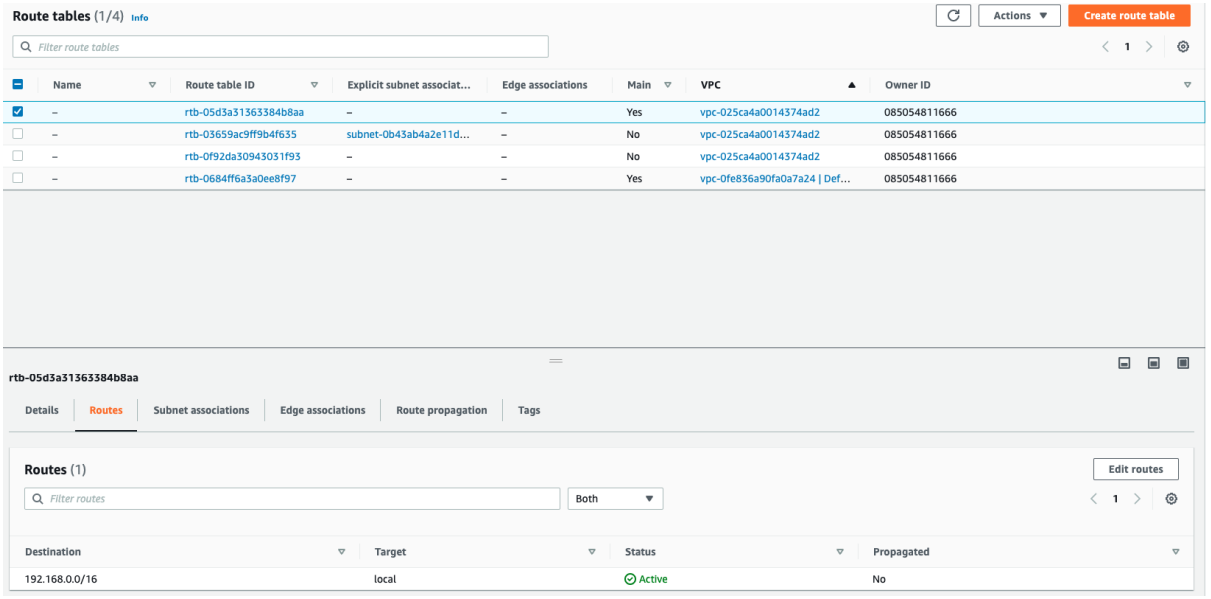
```
"State": {
    "Code": 0,
    "Name": "pending"
},
"StateTransitionReason": "",
"SubnetId": "subnet-0b43ab4a2e11d947b",
"VpcId": "vpc-025ca4a0014374ad2",
"Architecture": "x86_64",
"BlockDeviceMappings": [],
"ClientToken": "1d3977c3-c56f-46d8-b600-d660ee3f4b48",
"EbsOptimized": false,
"EnaSupport": true,
"Hypervisor": "xen",
"NetworkInterfaces": [
    {
        "Attachment": {
            "AttachTime": "2023-02-27T15:25:14+00:00",
            "AttachmentId": "eni-attach-0dbab42c0cc5215a0",
            "DeleteOnTermination": true,
            "DeviceIndex": 0,
            "Status": "attaching",
            "NetworkCardIndex": 0
        },
        "Description": "",
        "Groups": [
            {
                "GroupName": "SSHAccess",
                "GroupId": "sg-093f7636c75b8256e"
            }
        ],
        "Ipv6Addresses": [],
        "MacAddress": "0a:9a:6a:a8:c8:c4",
        "NetworkInterfaceId": "eni-029d3a33971381df7",
        "OwnerId": "085054811666",
        "PrivateIpAddress": "192.168.0.205",
        "PrivateIpAddresses": [
            {
                "Primary": true,
                "PrivateIpAddress": "192.168.0.205"
            }
        ],
        "SourceDestCheck": true,
        "Status": "in-use",
        "SubnetId": "subnet-0b43ab4a2e11d947b",
        "VpcId": "vpc-025ca4a0014374ad2",
        "InterfaceType": "interface"
    }
],
"RootDeviceName": "/dev/xvda",
"RootDeviceType": "ebs",
"SecurityGroups": [
    {
        "GroupName": "SSHAccess",
        "GroupId": "sg-093f7636c75b8256e"
    }
],
"SourceDestCheck": true,
"StateReason": {
```

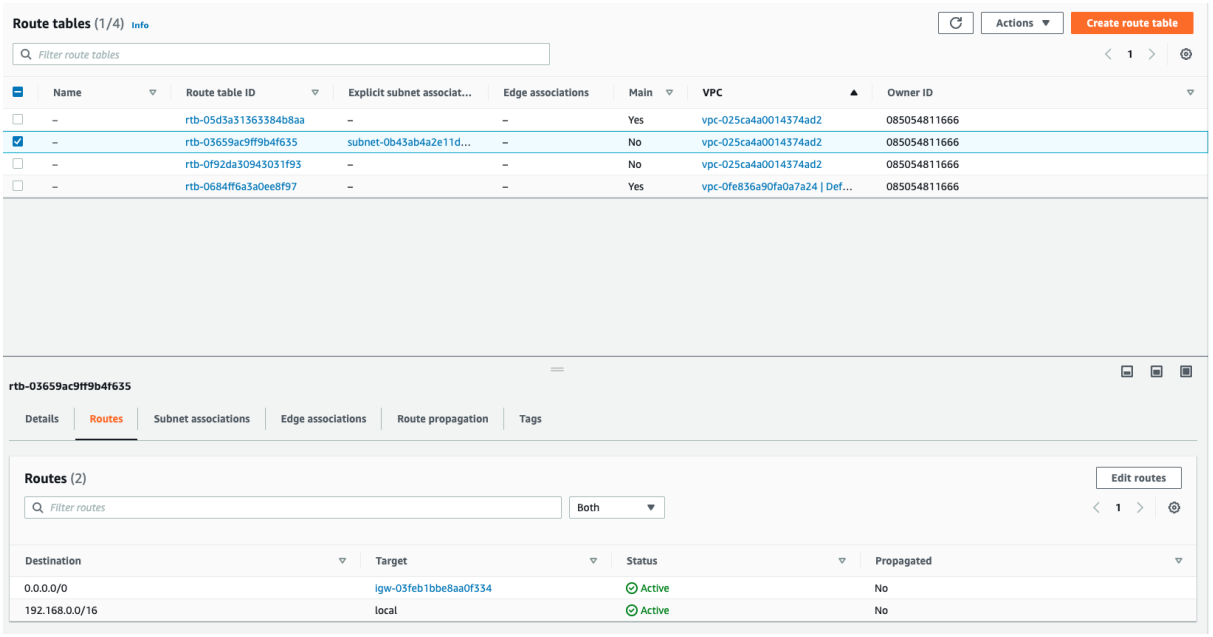
```
            "Code": "pending",
            "Message": "pending"
        },
        "VirtualizationType": "hvm",
        "CpuOptions": {
            "CoreCount": 1,
            "ThreadsPerCore": 1
        },
        "CapacityReservationSpecification": {
            "CapacityReservationPreference": "open"
        },
        "MetadataOptions": {
            "State": "pending",
            "HttpTokens": "optional",
            "HttpPutResponseHopLimit": 1,
            "HttpEndpoint": "enabled",
            "HttpProtocolIpv6": "disabled",
            "InstanceMetadataTags": "disabled"
        },
        "EnclaveOptions": {
            "Enabled": false
        },
        "PrivateDnsNameOptions": {
            "HostnameType": "ip-name",
            "EnableResourceNameDnsARecord": false,
            "EnableResourceNameDnsAAAARecord": false
        },
        "MaintenanceOptions": {
            "AutoRecovery": "default"
        }
    }
  ],
  "OwnerId": "085054811666",
  "ReservationId": "r-019326c8f8ff4ff45"
}
```

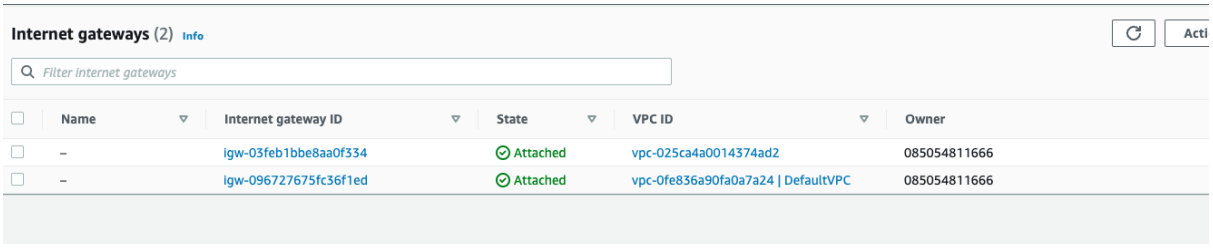

9.1.3) Скріншоти:

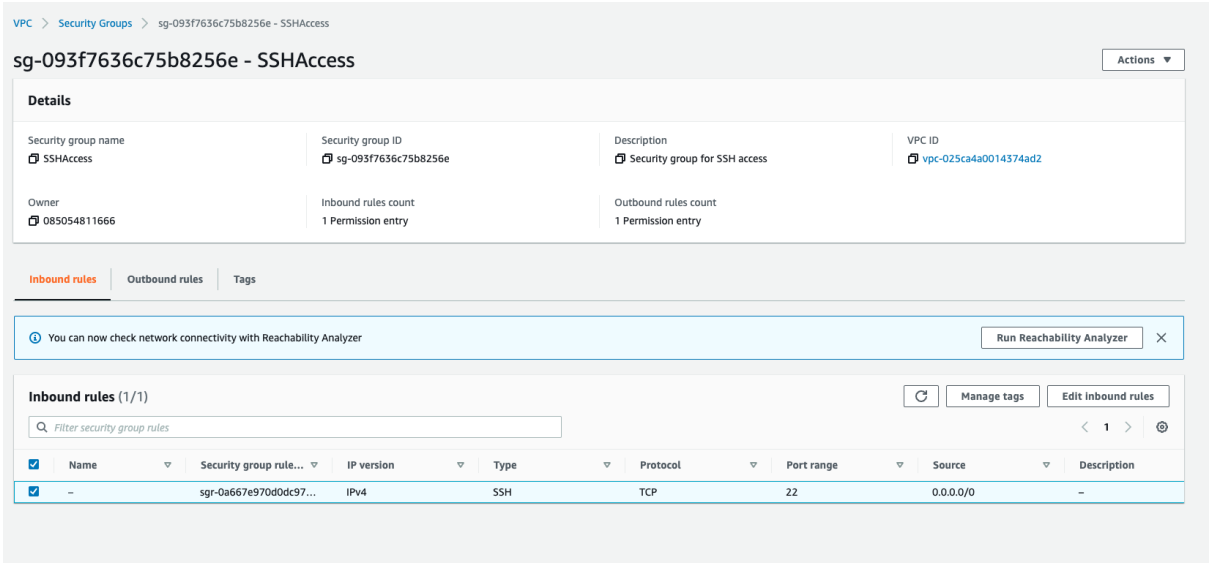

VPC > Your VPCs > vpc-025ca4a0014374ad2
vpc-025ca4a0014374ad2
Actions
Details Info
VPC ID
vpc-025ca4a0014374ad2
State
Available
DNS hostnames
Disabled
DNS resolution
Enabled
Tenancy
Default
DHCP option set
dopt-0f0211eb6977d47bb
Main route table
rtb-05d3a31363384b8aa
Main network ACL
acl-0fbcfb682e434ec79
Default VPC
No
IPv4 CIDR
192.168.0.0/16
IPv6 pool
–
IPv6 CIDR (Network border group)
–
Network Address Usage metrics
Disabled
Route 53 Resolver DNS Firewall rule groups
–
Owner ID
085054811666
Resource map
CIDRs
Flow logs
Tags
Resource map Info
VPC Show details
Your AWS virtual network
vpc-025ca4a0014374ad2
Introducing the VPC resource map
Solid lines represent
Subnets (2)
Subnets within this VPC
eu-central-1c
subnet-0b43ab4a2e11d947b
subnet-05c42226b55f50563
Route tables (3)
Route network traffic to resources
rtb-05d3a31363384b8aa
rtb-03659ac9ff9b4f635
rtb-0f92da30943031f93
Network connections (1)
Connections to other networks
igw-03feb1bbe8aa0f334

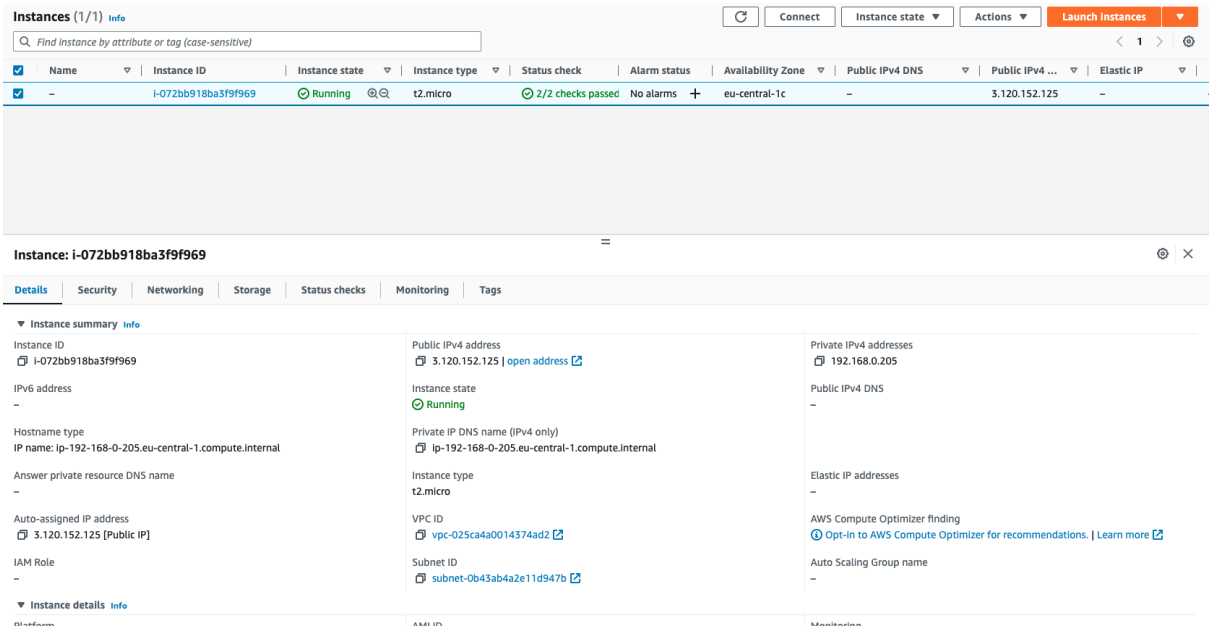

Subnets (2/5) Info
Actions
Create subnet
Filter subnets
Name
Subnet ID
State
VPC
IPv4 CIDR
IPv6 CIDR
subnet-0b43ab4a2e11d947b Available vpc-025ca4a0014374ad2 192.168.0.0/24 – 251
subnet-05c42226b55f50563 Available vpc-025ca4a0014374ad2 192.168.1.0/24 – 251
subnet-05f8be8c7a226b883 Available vpc-0fe836a90fa0a7a24 | DefaultVPC 172.31.0.0/20 – 4091
subnet-0a04e797e28e9449c Available vpc-0fe836a90fa0a7a24 | DefaultVPC 172.31.16.0/20 – 4091
subnet-0778284862fbb3cb6 Available vpc-0fe836a90fa0a7a24 | DefaultVPC 172.31.32.0/20 – 4091


Route tables (1/4) Info
Actions
Create route table
Filter route tables
Name
Route table ID
Explicit subnet associat...
Edge associations
Main
VPC
Owner ID
rtb-05d3a31363384b8aa – – Yes vpc-025ca4a0014374ad2 085054811666
rtb-03659ac9ff9b4f635 subnet-0b43ab4a2e11d... – No vpc-025ca4a0014374ad2 085054811666
rtb-0f92da30943031f93 – – No vpc-025ca4a0014374ad2 085054811666
rtb-0684ff6a3a0ee8f97 – – Yes vpc-0fe836a90fa0a7a24 | Def... 085054811666
rtb-05d3a31363384b8aa
Details
Routes
Subnet associations
Edge associations
Route propagation
Tags
Routes (1)
Edit routes
Filter routes
Both
Destination
Target
Status
Propagated
192.168.0.0/16 local Active No


Route tables (1/4) Info
Actions
Create route table
Filter route tables
Name
Route table ID
Explicit subnet associat...
Edge associations
Main
VPC
Owner ID
– rtb-05d3a31363384b8aa – – Yes vpc-025ca4a0014374ad2 085054811666
– rtb-03659ac9ff9b4f635 subnet-0b43ab4a2e11d... – No vpc-025ca4a0014374ad2 085054811666
– rtb-0f92da30943031f93 – – No vpc-025ca4a0014374ad2 085054811666
– rtb-0684ff6a3a0ee8f97 – – Yes vpc-0fe836a90fa0a7a24 | Def... 085054811666
rtb-03659ac9ff9b4f635
Details
Routes
Subnet associations
Edge associations
Route propagation
Tags
Routes (2)
Edit routes
Filter routes
Both
Destination
Target
Status
Propagated
0.0.0.0/0 igw-03feb1bbe8aa0f334 Active No
192.168.0.0/16 local Active No


Internet gateways (2) Info
Filter internet gateways
Name
Internet gateway ID
State
VPC ID
Owner
– igw-03feb1bbe8aa0f334 Attached vpc-025ca4a0014374ad2 085054811666
– igw-096727675fc36f1ed Attached vpc-0fe836a90fa0a7a24 | DefaultVPC 085054811666


VPC > Security Groups > sg-093f7636c75b8256e - SSHAccess
sg-093f7636c75b8256e - SSHAccess
Actions
Details
Security group name
SSHAccess
Security group ID
sg-093f7636c75b8256e
Description
Security group for SSH access
VPC ID
vpc-025ca4a0014374ad2
Owner
085054811666
Inbound rules count
1 Permission entry
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
You can now check network connectivity with Reachability Analyzer
Run Reachability Analyzer
Inbound rules (1/1)
Manage tags
Edit inbound rules
Filter security group rules
Name
Security group rule...
IP version
Type
Protocol
Port range
Source
Description
– sgr-0a667e970d0dc97... IPv4 SSH TCP 22 0.0.0.0/0 –




```
rob@ansible:~]ssh -i "MyKeyPair.pem" admin@3.120.152.125
The authenticity of host '3.120.152.125 (3.120.152.125)' can't be established.
ECDSA key fingerprint is SHA256:GAeck1WhhoEDU+vcoyCV0m8p6ZSzWB7gNK0kaAGDr7E.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '3.120.152.125' (ECDSA) to the list of known hosts.
Linux ip-192-168-0-205 5.10.0-21-cloud-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
admin@ip-192-168-0-205:~$
```

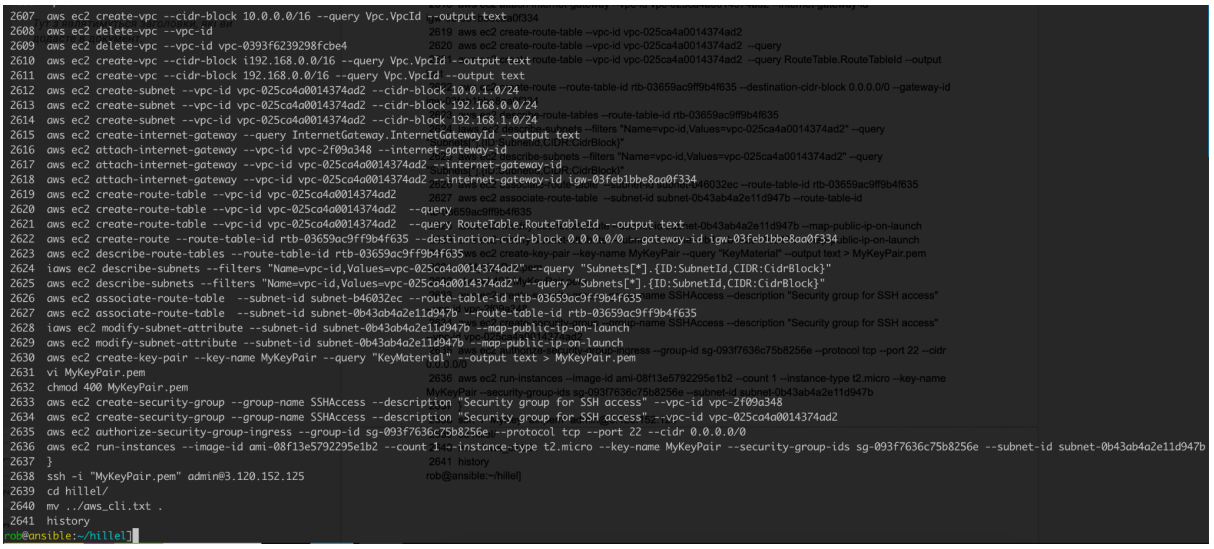
```
admin@ip-192-168-0-205:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 0a:9a:6a:a8:c8:c4 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.205/24 brd 192.168.0.255 scope global dynamic eth0
       valid_lft 2366sec preferred_lft 2366sec
    inet6 fe80::89a:6aff:fea8:c8c4/64 scope link
       valid_lft forever preferred_lft forever
```

```
admin@ip-192-168-0-205:~$ ping bbc.com
PING bbc.com (151.101.64.81) 56(84) bytes of data.
64 bytes from 151.101.64.81 (151.101.64.81): icmp_seq=1 ttl=53 time=0.971 ms
64 bytes from 151.101.64.81 (151.101.64.81): icmp_seq=2 ttl=53 time=1.02 ms
64 bytes from 151.101.64.81 (151.101.64.81): icmp_seq=3 ttl=53 time=1.01 ms
^C
--- bbc.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 0.971/1.002/1.021/0.022 ms
```

9.1.4) History

```
 2607  aws ec2 create-vpc --cidr-block 10.0.0.0/16 --query Vpc.VpcId --output text
 2608  aws ec2 delete-vpc --vpc-id
 2609  aws ec2 delete-vpc --vpc-id vpc-0393f6239298fcbe4
 2610  aws ec2 create-vpc --cidr-block i192.168.0.0/16 --query Vpc.VpcId --output text
 2611  aws ec2 create-vpc --cidr-block 192.168.0.0/16 --query Vpc.VpcId --output text
 2612  aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 10.0.1.0/24
 2613  aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.0.0/24
 2614  aws ec2 create-subnet --vpc-id vpc-025ca4a0014374ad2 --cidr-block 192.168.1.0/24
 2615  aws ec2 create-internet-gateway --query InternetGateway.InternetGatewayId --output text
 2616  aws ec2 attach-internet-gateway --vpc-id vpc-2f09a348 --internet-gateway-id
 2617  aws ec2 attach-internet-gateway --vpc-id vpc-025ca4a0014374ad2 --internet-gateway-id
 2618  aws ec2 attach-internet-gateway --vpc-id vpc-025ca4a0014374ad2 --internet-gateway-id
igw-03feb1bbe8aa0f334
 2619  aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2
 2620  aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2  --query
 2621  aws ec2 create-route-table --vpc-id vpc-025ca4a0014374ad2  --query RouteTable.RouteTableId --output
text
 2622  aws ec2 create-route --route-table-id rtb-03659ac9ff9b4f635 --destination-cidr-block 0.0.0.0/0 --gateway-id
igw-03feb1bbe8aa0f334
 2623  aws ec2 describe-route-tables --route-table-id rtb-03659ac9ff9b4f635
 2624  iaws ec2 describe-subnets --filters "Name=vpc-id,Values=vpc-025ca4a0014374ad2" --query
"Subnets[*].{ID:SubnetId,CIDR:CidrBlock}"
 2625  aws ec2 describe-subnets --filters "Name=vpc-id,Values=vpc-025ca4a0014374ad2" --query
"Subnets[*].{ID:SubnetId,CIDR:CidrBlock}"
 2626  aws ec2 associate-route-table  --subnet-id subnet-b46032ec --route-table-id rtb-03659ac9ff9b4f635
 2627  aws ec2 associate-route-table  --subnet-id subnet-0b43ab4a2e11d947b --route-table-id
rtb-03659ac9ff9b4f635
 2628  iaws ec2 modify-subnet-attribute --subnet-id subnet-0b43ab4a2e11d947b --map-public-ip-on-launch
 2629  aws ec2 modify-subnet-attribute --subnet-id subnet-0b43ab4a2e11d947b --map-public-ip-on-launch
 2630  aws ec2 create-key-pair --key-name MyKeyPair --query "KeyMaterial" --output text > MyKeyPair.pem
 2631  vi MyKeyPair.pem
 2632  chmod 400 MyKeyPair.pem
 2633  aws ec2 create-security-group --group-name SSHAccess --description "Security group for SSH access"
--vpc-id vpc-2f09a348
 2634  aws ec2 create-security-group --group-name SSHAccess --description "Security group for SSH access"
--vpc-id vpc-025ca4a0014374ad2
 2635  aws ec2 authorize-security-group-ingress --group-id sg-093f7636c75b8256e --protocol tcp --port 22 --cidr
0.0.0.0/0
 2636  aws ec2 run-instances --image-id ami-08f13e5792295e1b2 --count 1 --instance-type t2.micro --key-name
MyKeyPair --security-group-ids sg-093f7636c75b8256e --subnet-id subnet-0b43ab4a2e11d947b
 2637  }
 2638  ssh -i "MyKeyPair.pem" admin@3.120.152.125
```

```
 2639  cd hillel/
 2640  mv ../aws_cli.txt .
 2641  history
rob@ansible:~/hillel]
```



9.2) CF template

9.2.1) Template

```
cription:  This template deploys a VPC, with a pair of public and private subnets spread
  across two Availability Zones. It deploys an internet gateway, with a default
  route on the public subnets. It deploys a pair of NAT gateways (one in each AZ),
  and default routes for them in the private subnets.

Parameters:
  EnvironmentName:
    Description: An environment name that is prefixed to resource names
    Type: String

  VpcCIDR:
    Description: Please enter the IP range (CIDR notation) for this VPC
    Type: String
    Default: 192.168.0.0/16

  PublicSubnet1CIDR:
    Description: Please enter the IP range (CIDR notation) for the public subnet in the first Availability Zone
    Type: String
    Default: 192.168.0.0/24

  PrivateSubnet1CIDR:
    Description: Please enter the IP range (CIDR notation) for the private subnet in the first Availability Zone
    Type: String
    Default: 192.168.1.0/24

Resources:
```

```
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: !Ref VpcCIDR
    EnableDnsSupport: true
    EnableDnsHostnames: true
    Tags:
      - Key: Name
        Value: !Ref EnvironmentName

InternetGateway:
  Type: AWS::EC2::InternetGateway
  Properties:
    Tags:
      - Key: Name
        Value: !Ref EnvironmentName

InternetGatewayAttachment:
  Type: AWS::EC2::VPCGatewayAttachment
  Properties:
    InternetGatewayId: !Ref InternetGateway
    VpcId: !Ref VPC

PublicSubnet1:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref VPC
    AvailabilityZone: !Select [ 0, !GetAZs '' ]
    CidrBlock: !Ref PublicSubnet1CIDR
    MapPublicIpOnLaunch: true
    Tags:
      - Key: Name
        Value: !Sub ${EnvironmentName} Public Subnet (AZ1)

PrivateSubnet1:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref VPC
    AvailabilityZone: !Select [ 0, !GetAZs  '' ]
    CidrBlock: !Ref PrivateSubnet1CIDR
    MapPublicIpOnLaunch: false
    Tags:
      - Key: Name
        Value: !Sub ${EnvironmentName} Private Subnet (AZ1)

NatGateway1EIP:
  Type: AWS::EC2::EIP
  DependsOn: InternetGatewayAttachment
  Properties:
    Domain: vpc

NatGateway1:
  Type: AWS::EC2::NatGateway
  Properties:
    AllocationId: !GetAtt NatGateway1EIP.AllocationId
    SubnetId: !Ref PublicSubnet1

PublicRouteTable:
```

```
    Type: AWS::EC2::RouteTable
    Properties:
      VpcId: !Ref VPC
      Tags:
        - Key: Name
          Value: !Sub ${EnvironmentName} Public Routes

  DefaultPublicRoute:
    Type: AWS::EC2::Route
    DependsOn: InternetGatewayAttachment
    Properties:
      RouteTableId: !Ref PublicRouteTable
      DestinationCidrBlock: 0.0.0.0/0
      GatewayId: !Ref InternetGateway

  PublicSubnet1RouteTableAssociation:
    Type: AWS::EC2::SubnetRouteTableAssociation
    Properties:
      RouteTableId: !Ref PublicRouteTable
      SubnetId: !Ref PublicSubnet1

  PrivateRouteTable1:
    Type: AWS::EC2::RouteTable
    Properties:
      VpcId: !Ref VPC
      Tags:
        - Key: Name
          Value: !Sub ${EnvironmentName} Private Routes (AZ1)

  DefaultPrivateRoute1:
    Type: AWS::EC2::Route
    Properties:
      RouteTableId: !Ref PrivateRouteTable1
      DestinationCidrBlock: 0.0.0.0/0
      NatGatewayId: !Ref NatGateway1

  PrivateSubnet1RouteTableAssociation:
    Type: AWS::EC2::SubnetRouteTableAssociation
    Properties:
      RouteTableId: !Ref PrivateRouteTable1
      SubnetId: !Ref PrivateSubnet1

  NoIngressSecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupName: "no-ingress-sg"
      GroupDescription: "Security group with no ingress rule"
      VpcId: !Ref VPC

Outputs:
  VPC:
    Description: A reference to the created VPC
    Value: !Ref VPC

  PublicSubnets:
    Description: A list of the public subnets
    Value: !Join [ ",", [ !Ref PublicSubnet1 ]]
```

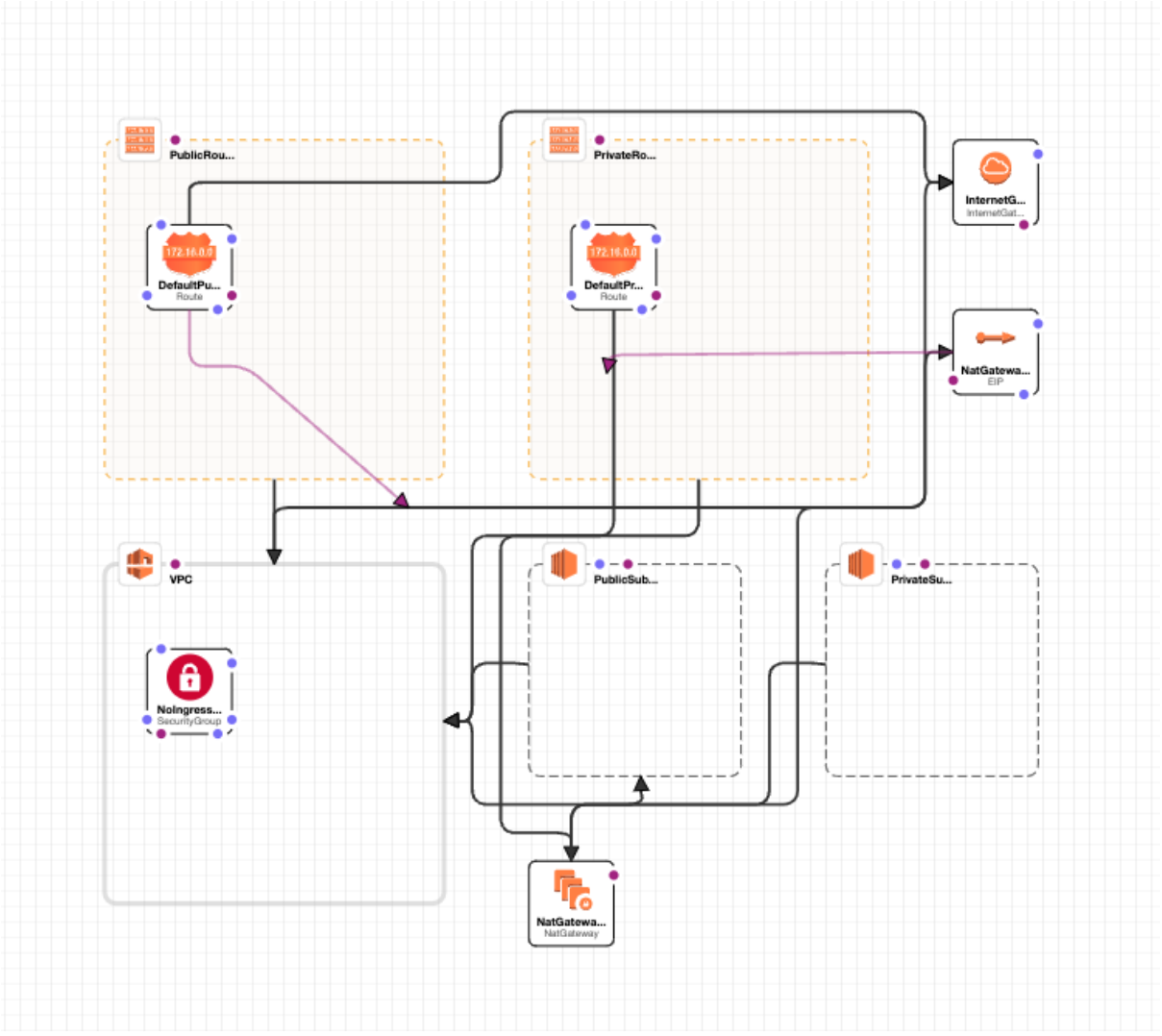
PrivateSubnets:
  Description: A list of the private subnets
  Value: !Join [",", [!Ref PrivateSubnet1]]

PublicSubnet1:
  Description: A reference to the public subnet in the 1st Availability Zone
  Value: !Ref PublicSubnet1

PrivateSubnet1:
  Description: A reference to the private subnet in the 1st Availability Zone
  Value: !Ref PrivateSubnet1

NoIngressSecurityGroup:
  Description: Security group with no ingress rule
  Value: !Ref NoIngressSecurityGroup

9.2.2) ScreenShots:



Specify stack details

Stack name

Stack name

test_stuck

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

Parameters

Parameters are defined in your template and allow you to input custom values when you create or update a stack.

EnvironmentName

An environment name that is prefixed to resource names

test_env

PrivateSubnet1CIDR

Please enter the IP range (CIDR notation) for the private subnet in the first Availability Zone

192.168.1.0/24

PublicSubnet1CIDR

Please enter the IP range (CIDR notation) for the public subnet in the first Availability Zone

192.168.0.0/24

VpcCIDR

Please enter the IP range (CIDR notation) for this VPC

192.168.0.0/16

Review teststuck

Step 1: Specify template — Edit

Template

Template URL

https://s3.eu-central-1.amazonaws.com/cf-templates-1wpzuv9fd8uzd-eu-central-1/2023-02-27T164322.544Zeu7-aws_cf_vpc_template.cf

Stack description

This template deploys a VPC, with a pair of public and private subnets spread across two Availability Zones. It deploys an internet gateway, with a default route on the public subnets. It deploys a pair of NAT gateways (one in each AZ), and default routes for them in the private subnets.

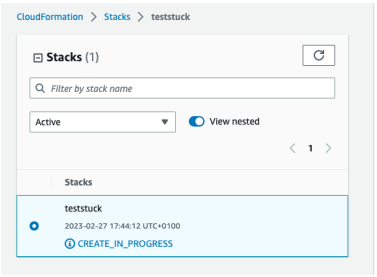
Step 2: Specify stack details — Edit

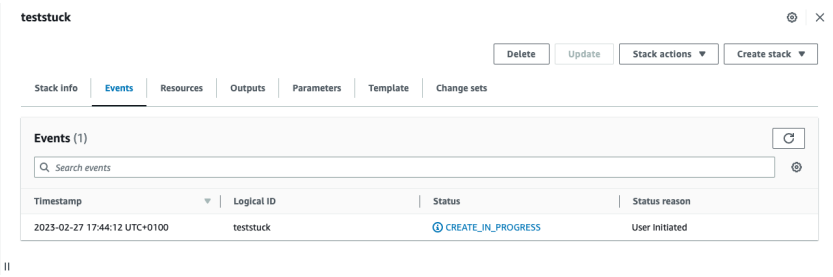
Parameters (4)

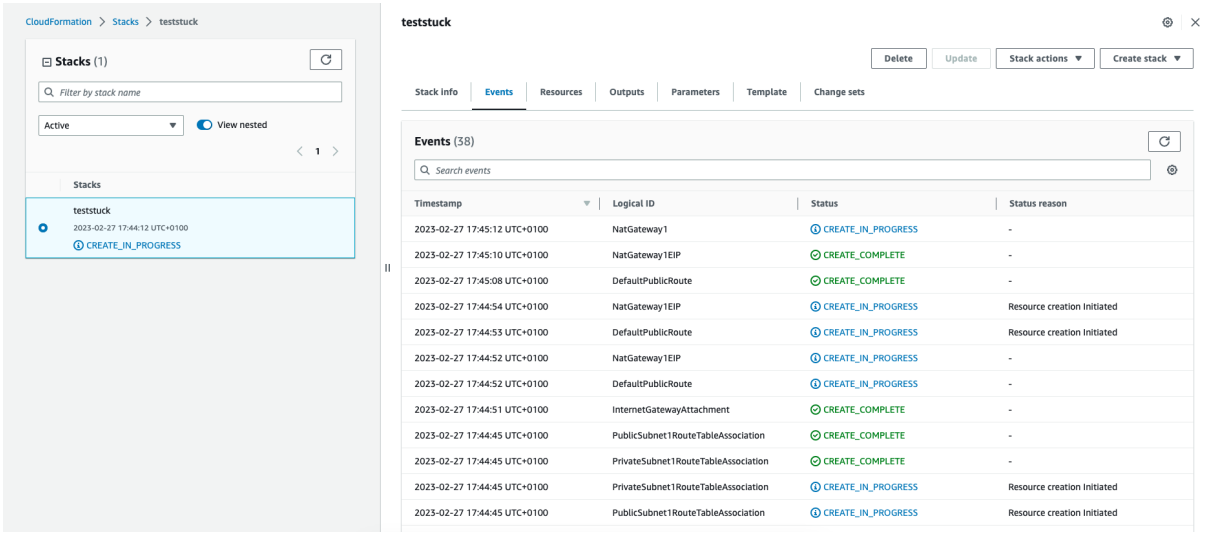
Search

1

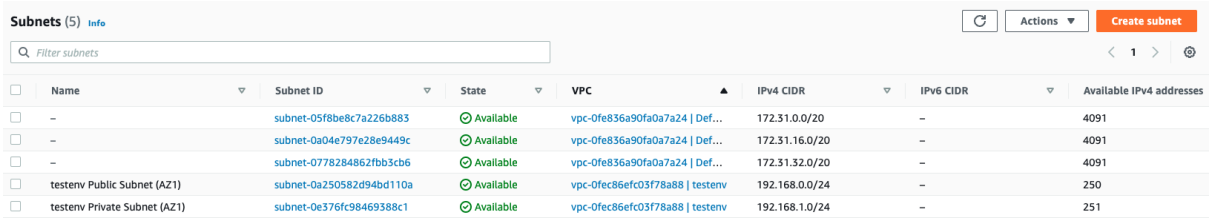
Key	Value
EnvironmentName	testenv
PrivateSubnet1CIDR	192.168.1.0/24
PublicSubnet1CIDR	192.168.0.0/24
VpcCIDR	192.168.0.0/16

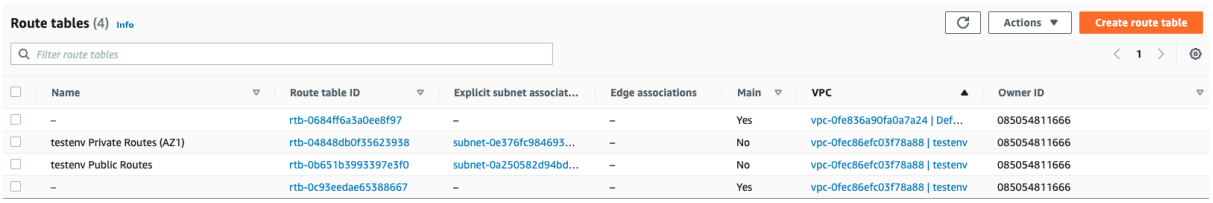





CloudFormation > Stacks > teststuck
Stacks (1)
Filter by stack name
Active
View nested
Stacks
teststuck
2023-02-27 17:44:12 UTC+0100
CREATE_IN_PROGRESS
teststuck
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Events (38)
Search events
Timestamp
Logical ID
Status
Status reason
2023-02-27 17:45:12 UTC+0100 NatGateway1 CREATE_IN_PROGRESS -
2023-02-27 17:45:10 UTC+0100 NatGateway1EIP CREATE_COMPLETE -
2023-02-27 17:45:08 UTC+0100 DefaultPublicRoute CREATE_COMPLETE -
2023-02-27 17:44:54 UTC+0100 NatGateway1EIP CREATE_IN_PROGRESS Resource creation Initiated
2023-02-27 17:44:53 UTC+0100 DefaultPublicRoute CREATE_IN_PROGRESS Resource creation Initiated
2023-02-27 17:44:52 UTC+0100 NatGateway1EIP CREATE_IN_PROGRESS -
2023-02-27 17:44:52 UTC+0100 DefaultPublicRoute CREATE_IN_PROGRESS -
2023-02-27 17:44:51 UTC+0100 InternetGatewayAttachment CREATE_COMPLETE -
2023-02-27 17:44:45 UTC+0100 PublicSubnet1RouteTableAssociation CREATE_COMPLETE -
2023-02-27 17:44:45 UTC+0100 PrivateSubnet1RouteTableAssociation CREATE_COMPLETE -
2023-02-27 17:44:45 UTC+0100 PrivateSubnet1RouteTableAssociation CREATE_IN_PROGRESS Resource creation Initiated
2023-02-27 17:44:45 UTC+0100 PublicSubnet1RouteTableAssociation CREATE_IN_PROGRESS Resource creation Initiated


Your VPCs (2) Info
Filter VPCs
Actions
Create VPC
Name
VPC ID
State
IPv4 CIDR
IPv6 CIDR
DHCP option set
Main route table
testenv vpc-0fec86efc03f78a88 Available 192.168.0.0/16 – dopt-0f0211eb6977d... rtb-0c93eedae65388667
DefaultVPC vpc-0fe836a90fa0a7a24 Available 172.31.0.0/16 – dopt-0f0211eb6977d... rtb-0684ff6a3a0ee8f97


Subnets (5) Info
Filter subnets
Actions
Create subnet
Name
Subnet ID
State
VPC
IPv4 CIDR
IPv6 CIDR
Available IPv4 addresses
– subnet-05f8be8c7a226b883 Available vpc-0fe836a90fa0a7a24 | Def... 172.31.0.0/20 – 4091
– subnet-0a04e797e28e9449c Available vpc-0fe836a90fa0a7a24 | Def... 172.31.16.0/20 – 4091
– subnet-0778284862fbb3cb6 Available vpc-0fe836a90fa0a7a24 | Def... 172.31.32.0/20 – 4091
testenv Public Subnet (AZ1) subnet-0a250582d94bd110a Available vpc-0fec86efc03f78a88 | testenv 192.168.0.0/24 – 250
testenv Private Subnet (AZ1) subnet-0e376fc98469388c1 Available vpc-0fec86efc03f78a88 | testenv 192.168.1.0/24 – 251


Route tables (4) Info
Filter route tables
Actions
Create route table
Name
Route table ID
Explicit subnet associat...
Edge associations
Main
VPC
Owner ID
– rtb-0684ff6a3a0ee8f97 – – Yes vpc-0fe836a90fa0a7a24 | Def... 085054811666
testenv Private Routes (AZ1) rtb-04848db0f35623938 subnet-0e376fc984693... – No vpc-0fec86efc03f78a88 | testenv 085054811666
testenv Public Routes rtb-0b651b3993397e3f0 subnet-0a250582d94bd... – No vpc-0fec86efc03f78a88 | testenv 085054811666
– rtb-0c93eedae65388667 – – Yes vpc-0fec86efc03f78a88 | testenv 085054811666


Internet gateways (3) Info
Filter internet gateways
Actions
Create internet gateway
Name
Internet gateway ID
State
VPC ID
Owner
– igw-03feb1bbe8aa0f334 Detached – 085054811666
– igw-096727675fc36f1ed Attached vpc-0fe836a90fa0a7a24 | DefaultVPC 085054811666
testenv igw-09bb8479c80407635 Attached vpc-0fec86efc03f78a88 | testenv 085054811666