

DEVOPS

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Create VPC

```
resource "aws_vpc" "tier-3-project" { cidr_block =  
"192.168.0.0/16" tags = {  
Name = "3tier-terraform"  
  
}
```

}

vpc-0b84b5053eb9dd4fd / 3tier-terraform

Details

Resource map

CIDRs


Flow logs

Tags

Integrations

Details

VPC ID

 vpc-0b84b5053eb9dd4fd

Tenancy

Default


Default VPC

No

Network Address Usage metrics

Disabled

State

 Available

DHCP option set

dopt-00a30660bb10b6b6d

IPv4 CIDR

192.168.0.0/16

Route 53 Resolver DNS Firewall rule groups

-

DNS hostnames

Disabled


Main route table

[rtb-0c09c6215e5a5fba4](#)

IPv6 pool

-

Owner ID

 761018873814

DNS resolution

Enabled

Main network ACL



[acl-03859dc57529279aa](#)

IPv6 CIDR (Network border group)

-

Create Subnet

```
resource "aws_subnet" "sub1" {  
  
  vpc_id = aws_vpc.tier-3-project.id  
  
  cidr_block = "192.168.1.0/24"  
  
  availability_zone = "us-east-1a"  
  
  map_public_ip_on_launch = "true"  
  
}
```

| | | | | | |
|-------------------------------------|---|--|---|---|--------------------|
| <input type="checkbox"/> | - | subnet-0b77f4d445554541 |  Available | vpc-0b289054d2486799c Default VPC | 1 / 2.51.48.0 / 20 |
| <input type="checkbox"/> | - | subnet-09f91c771ec8bb5a2 |  Available | vpc-06289054d2486799c Default VPC | 172.31.0.0/20 |
| <input checked="" type="checkbox"/> | - | subnet-0d4ebd9b6c6c14bf1 |  Available | vpc-0b84b5053eb9dd4fd 3tier-terraform | 192.168.1.0/24 |
| <input type="checkbox"/> | - | subnet-00a1b06b1c5e81b43 |  Available | vpc-06289054d2486799c Default VPC | 172.31.64.0/20 |

Create IGW

```
resource "aws_internet_gateway" "int" {  
  
  vpc_id=aws_vpc.tier-3-project.id tags = {  
  
    Name="igw-40-40"
```

```
}
```

```
}
```

Details

| | | | |
|--|-------------------|---|-----------------------|
| Internet gateway ID igw-083c239fb57193962 | State Attached | VPC ID vpc-0b84b5053eb9dd4fd 3tier-terraform | Owner 761018873814 |
|--|-------------------|---|-----------------------|

Create Route Table

```
resource "aws_route_table" "Public-RT" {
```

```
vpc_id = aws_vpc.tier-3-project.id
```

```
tags = {
```

```
Name="Public-RT-40"
```

```
}
```

Details

| | | | |
|--|--------------------------|--|------------------------|
| Route table ID rtb-035859422c9ab2143 | Main No | Explicit subnet associations subnet-0d4ebd9b6c6c14bf1 | Edge associations - |
| VPC vpc-0b84b5053eb9dd4fd 3tier-terraform | Owner ID 761018873814 | | |

```
# route = [{
```

```
# gateway_id=aws_internet_gateway.int.id
```

```
# cidr_block="0.0.0.0/0"
```

```
# }]
```

```
}
```

Routing

```
resource "aws_route" "route_to_internet" {  
  
  route_table_id      = aws_route_table.Public-RT.id  
  
  destination_cidr_block = "0.0.0.0/0" gateway_id  
  
  = aws_internet_gateway.int.id  
  
}
```

Subnet association

```
resource "aws_route_table_association" "demo" {  
  
  subnet_id = aws_subnet.sub1.id route_table_id =  
  
  aws_route_table.Public-RT.id  
  
}
```

| Explicit subnet associations (1) | | | | | Edit subnet associations |
|---|--|----------------|-----------|--|--------------------------|
| <input type="text" value="Find subnet association"/> | | | | | < 1 > ⌕ |
| Name | Subnet ID | IPv4 CIDR | IPv6 CIDR | | |
| - | subnet-Od4ebd9b6c6c14bf1 | 192.168.1.0/24 | - | | |
| Subnets without explicit associations (0) | | | | | Edit subnet associations |
| The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table: | | | | | |
| <input type="text" value="Find subnet association"/> | | | | | < 1 > ⌕ |
| Name | Subnet ID | IPv4 CIDR | IPv6 CIDR | | |
| No subnets without explicit associations | | | | | |
| All your subnets are associated with a route table. | | | | | |

Create Security Group

```
resource "aws_security_group" "sg" {  
  
  vpc_id = aws_vpc.tier-3-project.id tags  
  
  = {  
  
    Name="sg_3tier"  
  
  }  
  
  ingress = [{ from_port    = 22 to_port    = 22  
    protocol    = "tcp" cidr_blocks  = ["0.0.0.0/0"]  
    description = "Allow SSH access from anywhere"  
    ipv6_cidr_blocks = [] prefix_list_ids = []
```


Create Security Group

```
resource "aws_instance" "inst" {

ami = "ami-0866a3c8686eaeeba"

instance_type = "t2.micro"

key_name="new_key"

subnet_id = aws_subnet.sub1.id

vpc_security_group_ids = [aws_security_group.sg.id]

tags = {

Name="public_instance"

}

}
```

The screenshot shows the AWS Management Console interface. The main content area displays the 'Instances (1)' page. A table lists the instance 'public_instance' with the following details:

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IP v4 DNS | Public IP v4 ... |
|-----------------|---------------------|----------------|---------------|-------------------|---------------|-------------------|------------------|------------------|
| public_instance | i-03631a6250fb41ad9 | Running | t2.micro | 2/2 checks passed | View alarms + | us-east-1a | - | 3.235.84.198 |

The left sidebar contains the navigation menu with categories like 'Instances', 'Images', 'Elastic Block Store', and 'Network & Security'. The top bar shows the AWS logo, search bar, and user profile 'Rutugandh Shete'.

Variables

What are Variables in Terraform?

- **Variables** allow you to define values once and use them in multiple places.
- They make your Terraform scripts more dynamic, as you can change the variable values without modifying the actual code.
- Variables can be defined in a file called `variables.tf`, or they can be specified directly in the Terraform configuration file.

Data Types for Variables

Here are the common data types you can use for variables in Terraform:

String

Description: A sequence of characters (text).

Example: "Hello, World!"

Number

Description: A numeric value (integer or float).

Example: 42 or 3.14

Boolean

Description: Represents a true or false value.

Example: true or false

List

Description: An ordered collection of values (can be of the same or different types).

Example: ["value1", "value2", "value3"]

Map

Description: A collection of key-value pairs.

Example: {"key1" = "value1", "key2" = "value2"}

What are Output Variables?

- **Outputs** provide a way to return values from your Terraform configurations.
- They can be displayed in the terminal after you run `terraform apply`.
- Outputs can be used by other Terraform configurations if you're using modules.

```
output "publicip" {  
  value = aws_instance.instance_prac.public_ip  
}
```



```
resource "aws_vpc" "vpc_prac" {
  cidr_block = "192.168.0.0/16"
  tags = {
    Name="VPC_prac"
  }
}

resource "aws_subnet" "s1" {
  vpc_id = aws_vpc.vpc_prac.id
  cidr_block = var.subnet[0]
  availability_zone = var.az[0]
  map_public_ip_on_launch = true
  tags = {
    Name="subnet_prac"
  }
}

resource "aws_internet_gateway" "int_prac" {
  vpc_id = aws_vpc.vpc_prac.id
  tags={
    Name="IGW_prac"
  }
}

resource "aws_route_table" "rt" {
  vpc_id = aws_vpc.vpc_prac.id
  tags={
    Name="RT_prac"
  }
}

resource "aws_route" "route" {
  route_table_id = aws_route_table.rt.id
  destination_cidr_block = "0.0.0.0/0"
  gateway_id = aws_internet_gateway.int_prac.id
}

resource "aws_route_table_association" "name" {
  route_table_id = aws_route_table.rt.id
  subnet_id = aws_subnet.s1.id
}
```

```

}
resource "aws_security_group" "sg_prac" {
  vpc_id = aws_vpc.vpc_prac.id
  tags = {
    Name="sg_prac"
  }
  ingress {
    from_port=22
    to_port=22
    protocol="tcp"
    cidr_blocks=["0.0.0.0/0"]
    description="allow ssh port"
  }
  egress {
    from_port=0
    to_port=0
    protocol="-1"
    cidr_blocks=["0.0.0.0/0"]
  }
}

resource "aws_instance" "instance_prac" {
  ami = var.ami_id
  instance_type = var.instance_type
  subnet_id = aws_subnet.s1.id
  key_name = var.key_pair[0]
  vpc_security_group_ids = [aws_security_group.sg_prac.id]
  tags = {
    Name="public_instance"
  }
}

output "publicip" {
  value = aws_instance.instance_prac.public_ip
}

```

```

variable "subnet"{
  type=list(string)
  default = [ "192.168.1.0/24","192.168.2.0/24" ]
}
variable "az" {
  type = list(string)
  default = ["us-east-1a","us-east-2"]
}
# variable "port" {
#   type = list(number)
#   default = [ ]
# }

```

```
variable "ami_id" {  
  type = string  
  description = "ami_id"  
  default = "ami-0866a3c8686eaeeba"  
}  
variable "instance_type" {  
  type=string  
  default = "t2.micro"  
}  
variable "key_pair" {  
  type=list(string)  
  default = ["new_key","key"]  
}
```