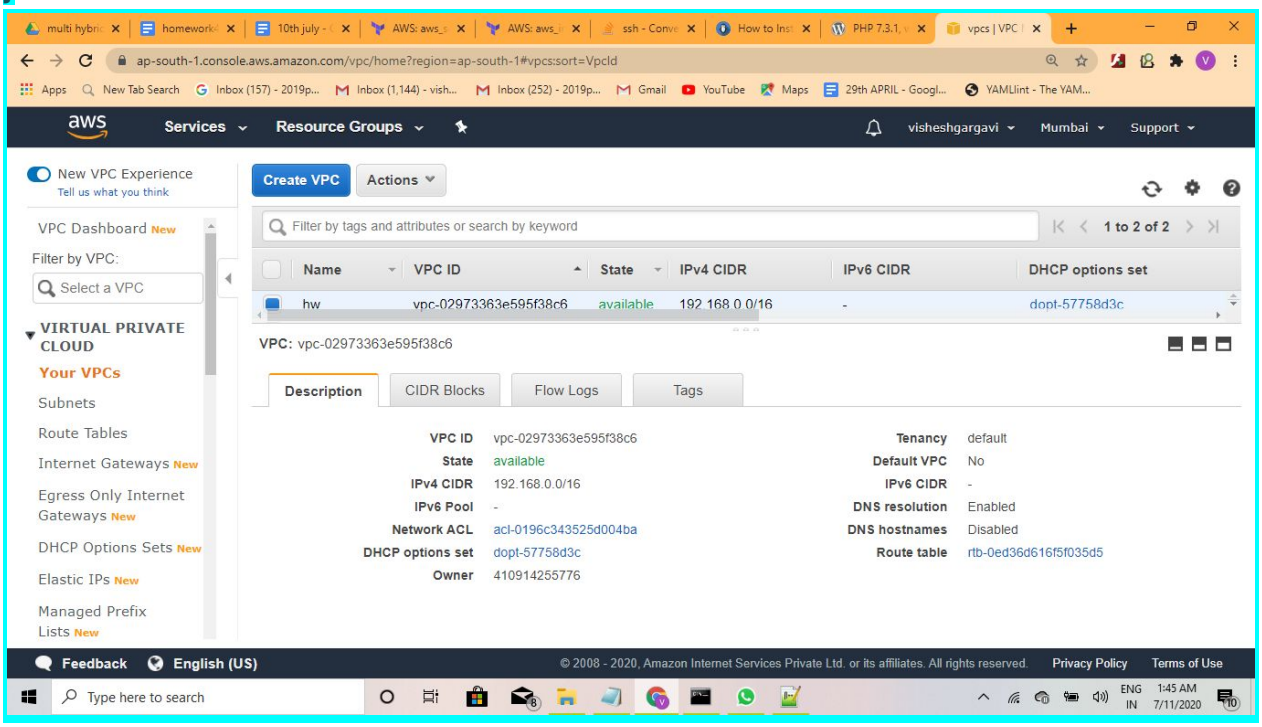
TASK 3:

> login in aws
> create a vpc

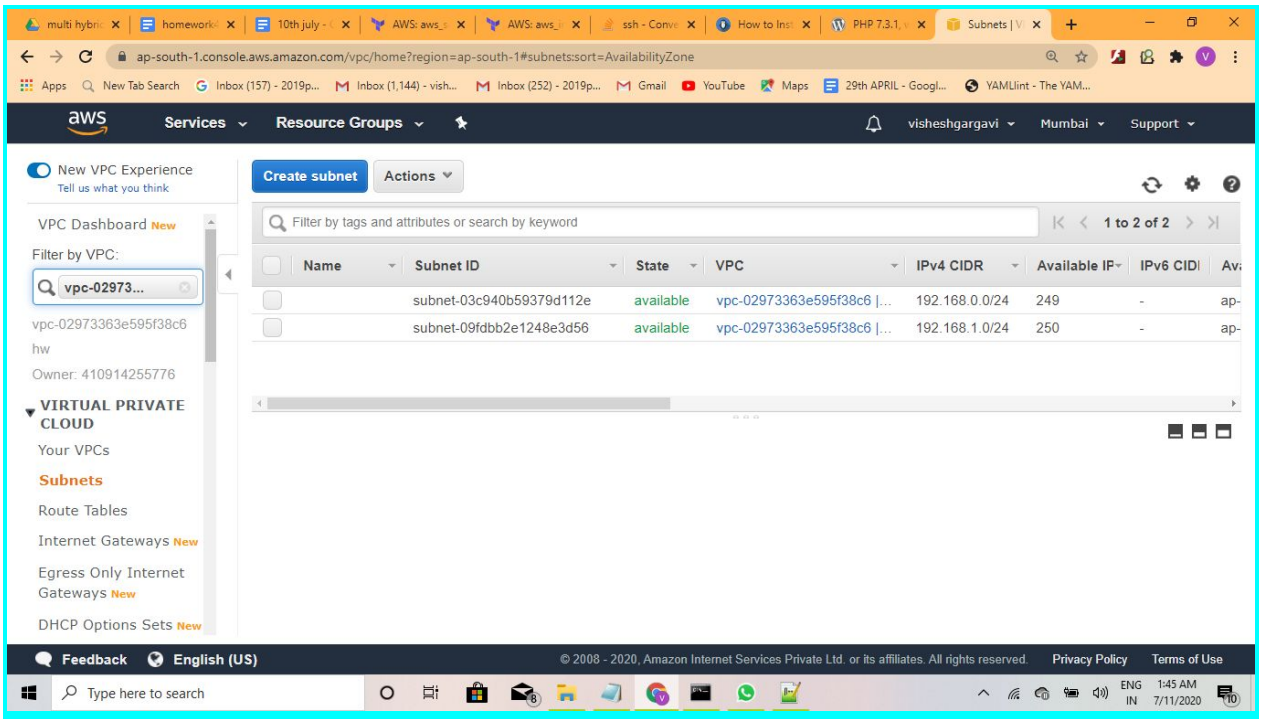
```
provider "aws" {
  region   = "ap-south-1"
  profile  = "myvishesh"
}

resource "aws_vpc" "hw" {
  cidr_block       = "192.168.0.0/16"
  instance_tenancy = "default"

  tags = {
    Name = "hw"
  }
}
```



> creating two subnet 1 has auto-launch ip

```
resource "aws_subnet" "hw_subnet-1a" {
  vpc_id     = "${aws_vpc.hw.id}"
  cidr_block = "192.168.0.0/24"
```

```
  availability_zone = "ap-south-1a"
  map_public_ip_on_launch = true
}
resource "aws_subnet" "hw_subnet-1b" {
  vpc_id     = "${aws_vpc.hw.id}"
  cidr_block = "192.168.1.0/24"
  availability_zone = "ap-south-1b"
}
```


ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#subnets:sort=AvailabilityZone
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
Create subnet
Actions
VPC Dashboard New
Filter by VPC:
vpc-02973...
vpc-02973363e595f38c6
hw
Owner: 410914255776
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
DHCP Options Sets New
Filter by tags and attributes or search by keyword
1 to 2 of 2
Name
Subnet ID
State
VPC
IPv4 CIDR
Available IP
IPv6 CIDI
subnet-03c940b59379d112e
available
vpc-02973363e595f38c6 |...
192.168.0.0/24
249
subnet-09fdbb2e1248e3d56
192.168.1.0/24
250
Feedback
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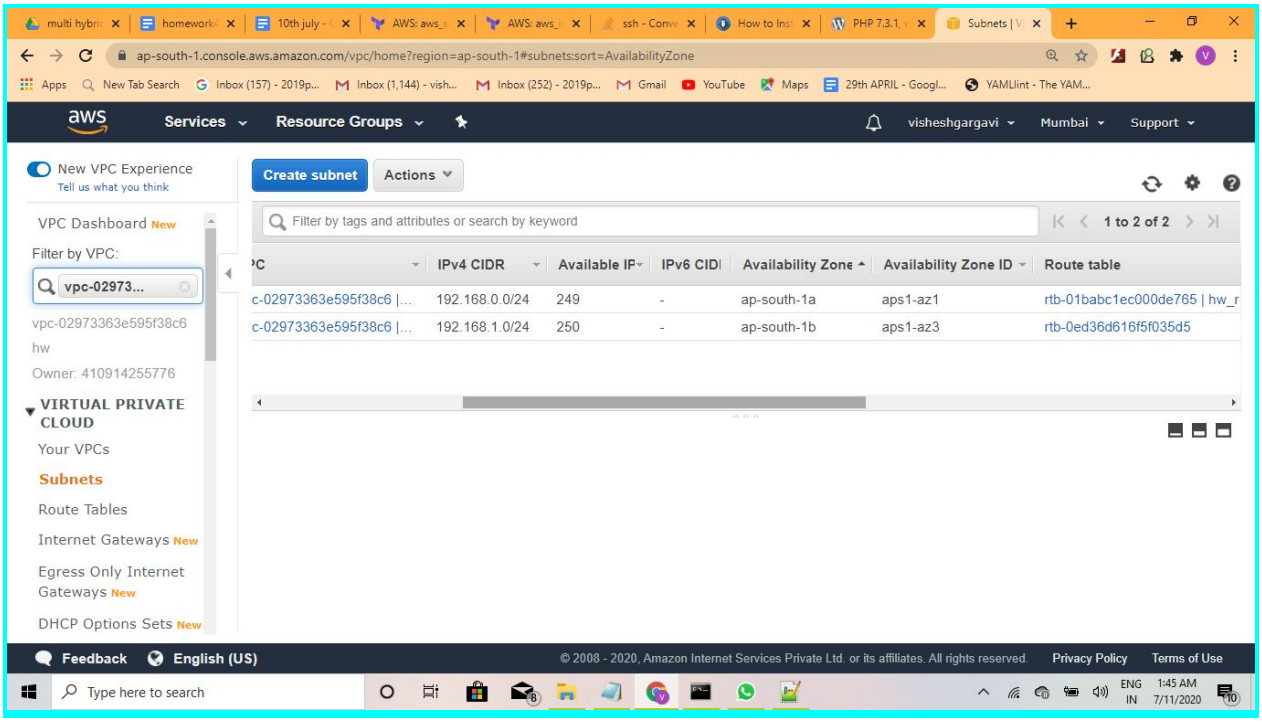
ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#subnets:sort=AvailabilityZone
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
Create subnet
Actions
VPC Dashboard New
Filter by VPC:
vpc-02973...
vpc-02973363e595f38c6
hw
Owner: 410914255776
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
DHCP Options Sets New
Filter by tags and attributes or search by keyword
1 to 2 of 2
IPv4 CIDR
Available IP
IPv6 CIDI
Availability Zone
Availability Zone ID
Route table
c-02973363e595f38c6 |...
192.168.0.0/24
249
ap-south-1a
aps1-az1
rtb-01babc1ec000de765 | hw_r
192.168.1.0/24
250
ap-south-1b
aps1-az3
rtb-0ed36d616f5f035d5
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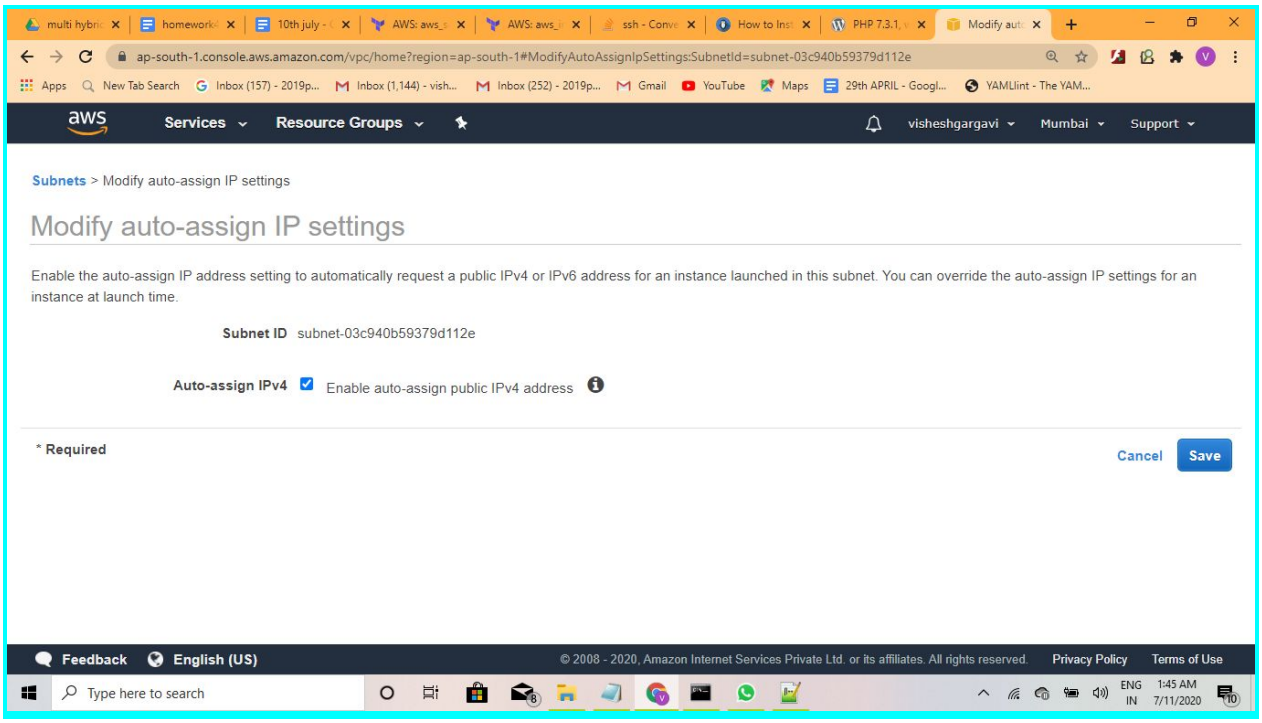
ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#ModifyAutoAssignIpSettings:SubnetId=subnet-03c940b59379d112e
Services
Resource Groups
visheshgargavi
Mumbai
Support
Subnets > Modify auto-assign IP settings
Modify auto-assign IP settings
Enable the auto-assign IP address setting to automatically request a public IPv4 or IPv6 address for an instance launched in this subnet. You can override the auto-assign IP settings for an instance at launch time.
Subnet ID subnet-03c940b59379d112e
Auto-assign IPv4 Enable auto-assign public IPv4 address
* Required
Cancel
Save
Feedback
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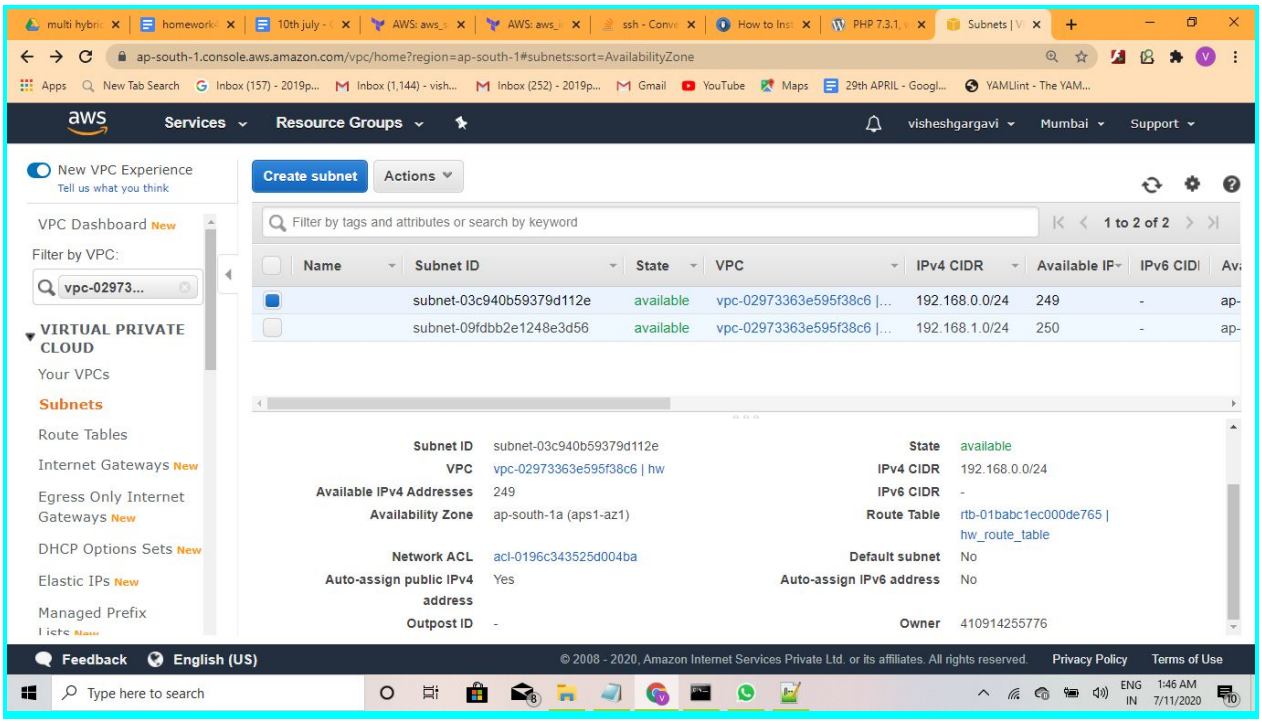
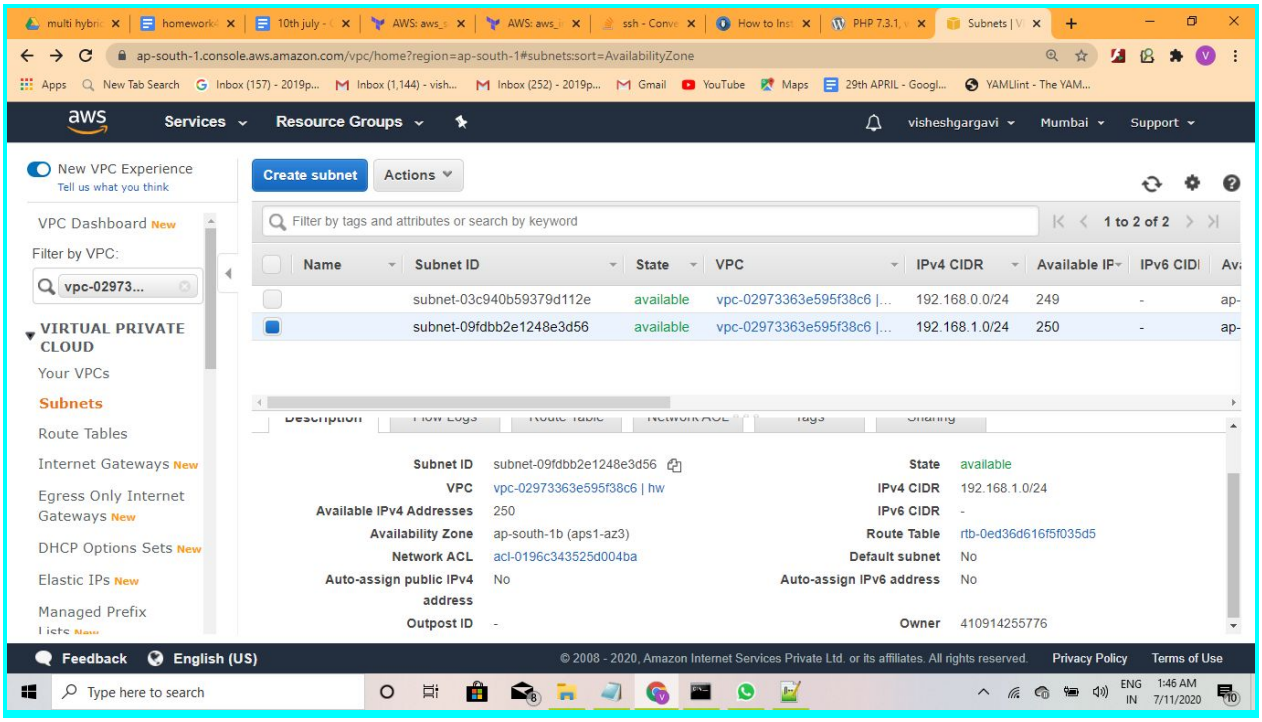
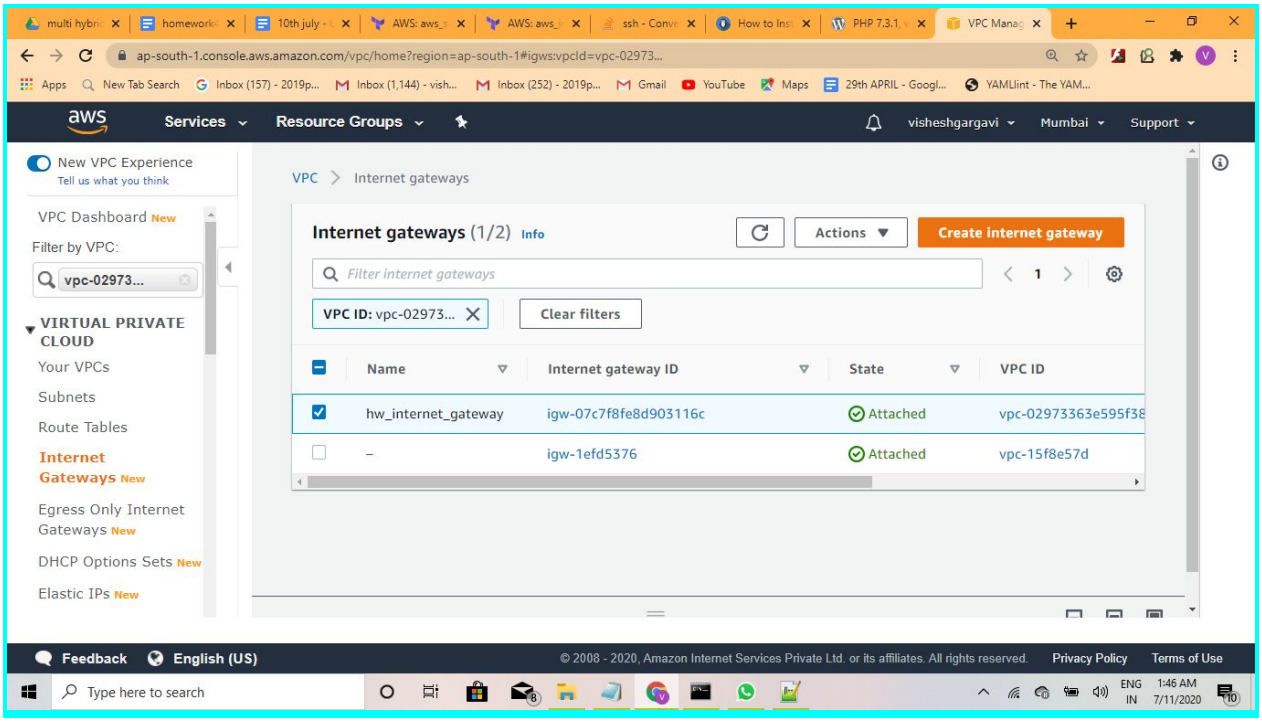




> creating an internet gateway for a subnet id in 1a

```
resource "aws_internet_gateway" "hw_internet_gateway" {
  vpc_id = "${aws_vpc.hw.id}"

  tags = {
    Name = "hw_internet_gateway"
```

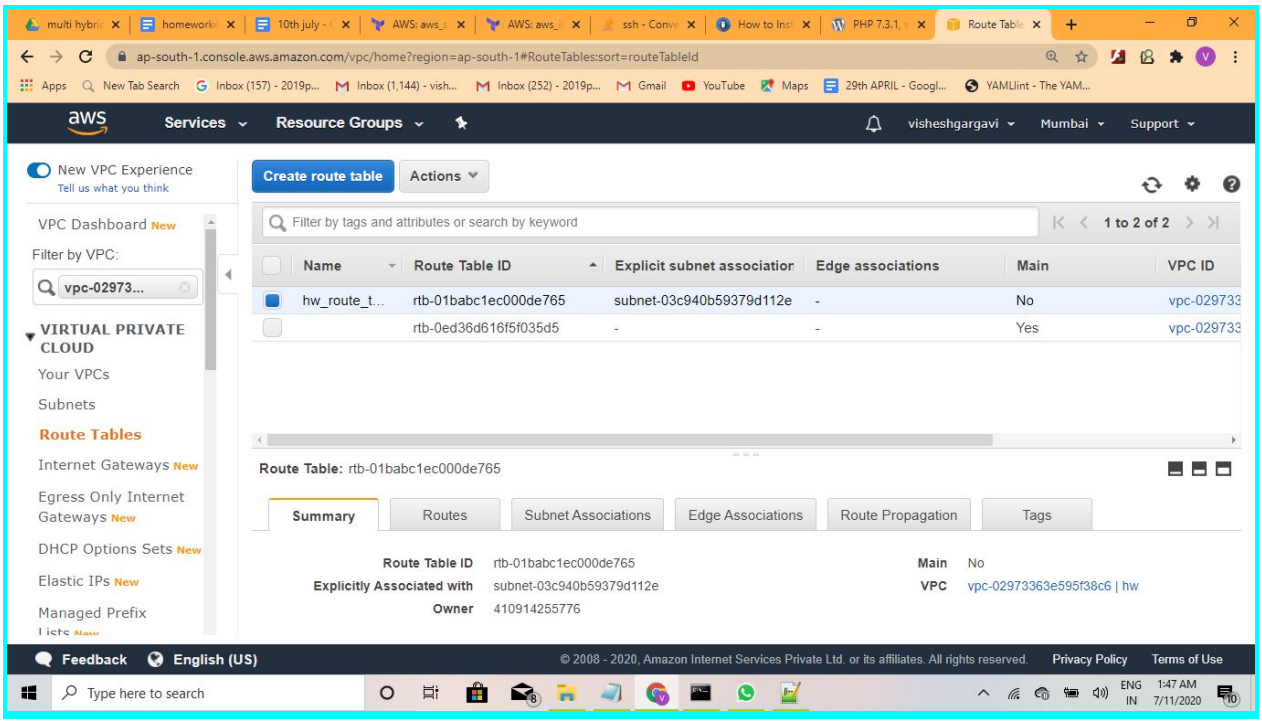
```
 }
}
```

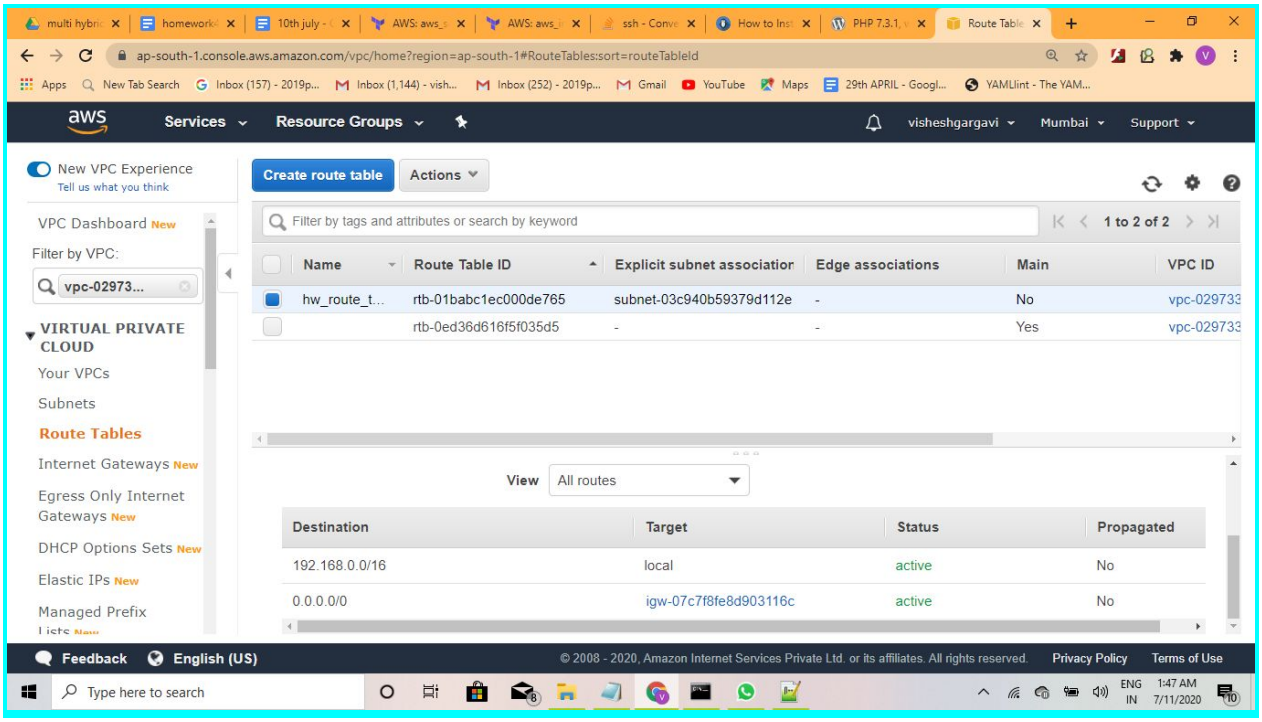


> creating a route-table

> associating route-table with the internet gateway

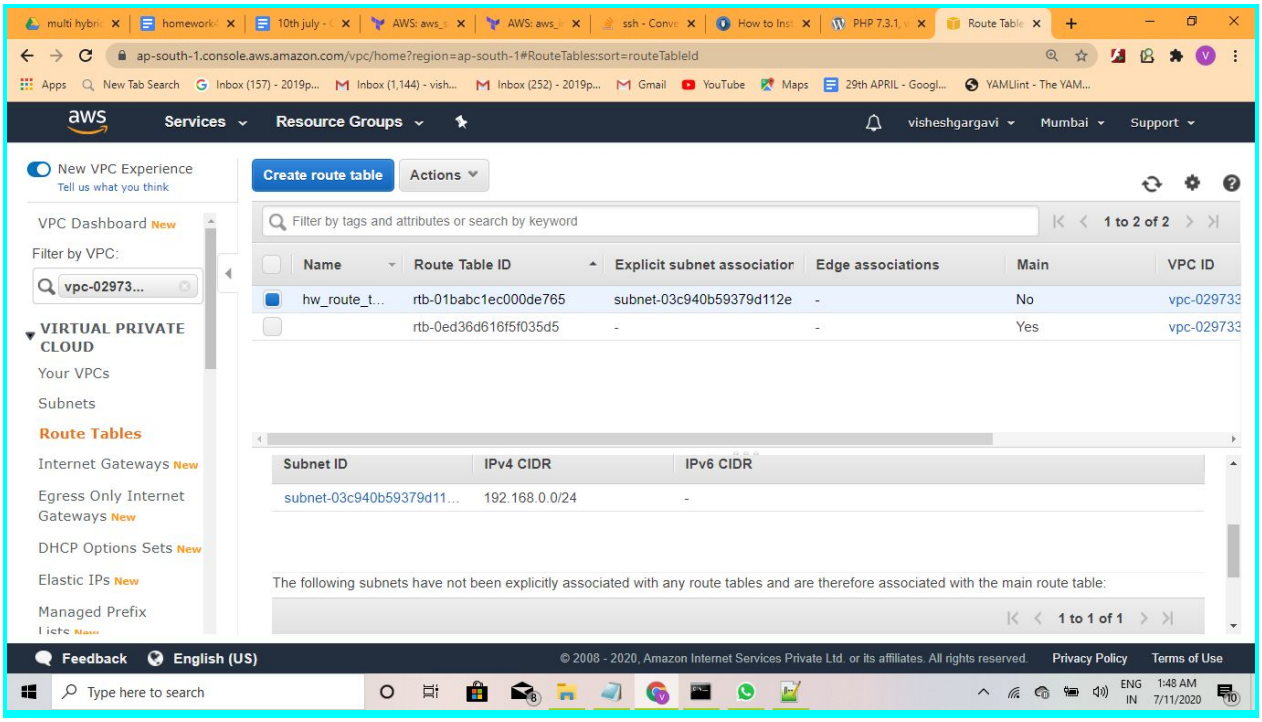
```
resource "aws_route_table" "hw_route_table" {
  vpc_id = "${aws_vpc.hw.id}"

  route {
    cidr_block = "0.0.0.0/0"
    gateway_id = "${aws_internet_gateway.hw_internet_gateway.id}"
  }

  tags = {
    Name = "hw_route_table"
  }
}
```





> associating route table with subnet

```
resource "aws_route_table_association" "a" {
  subnet_id      = aws_subnet.hw_subnet-1a.id
  route_table_id = "${aws_route_table.hw_route_table.id}"
}
```

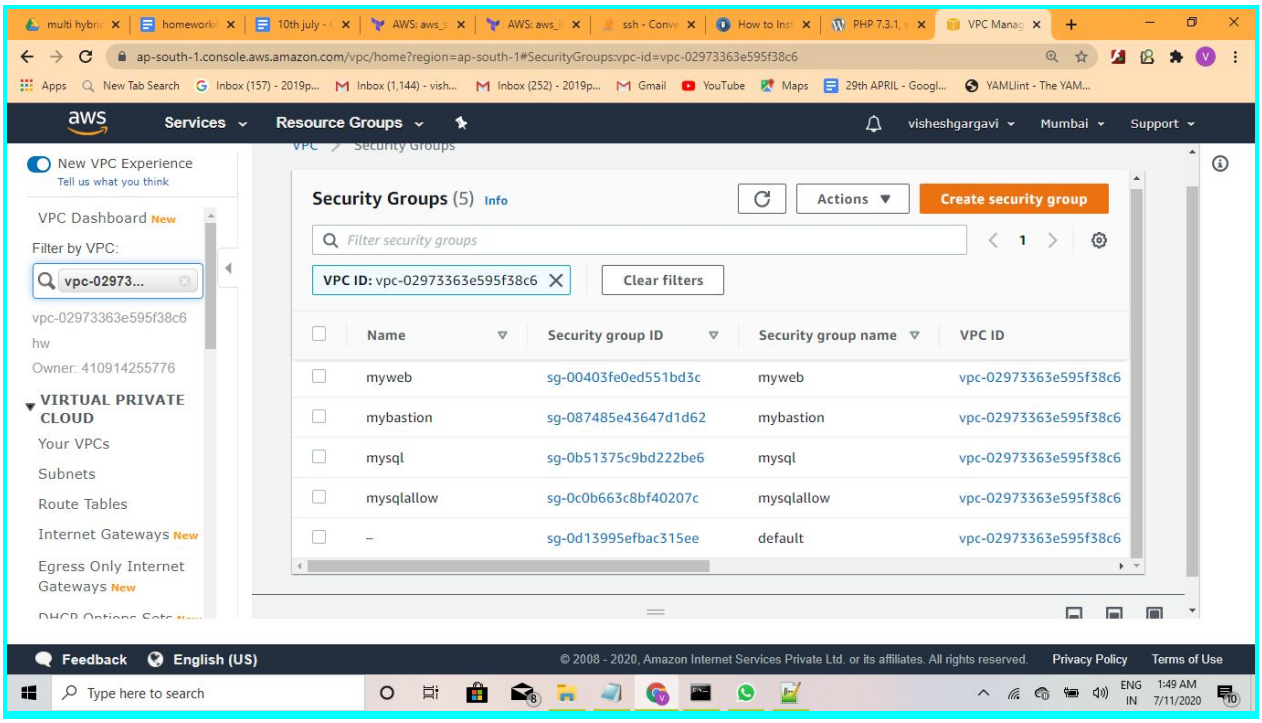


> creating the security group with ingress(ssh,http and icmpv4 protocol)

> myweb

```
resource "aws_security_group" "myweb" {
  name        = "myweb"
  description = "Allow ssh http and icmp"
  vpc_id      = "${aws_vpc.hw.id}"

  ingress {
    description = "http"
    from_port   = 80
    to_port     = 80
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
 ingress {
    description = "ssh"
    from_port   = 22
    to_port     = 22
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
ingress {
```

```
    description = "ICMP-IPv4"
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  tags = {
    Name = "myweb"
  }
}
```


ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#SecurityGroups:vpc-id=vpc-02973363e595f38c6
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
VPC Dashboard New
Filter by VPC:
vpc-02973...
vpc-02973363e595f38c6
hw
Owner: 410914255776
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
Security Groups (5) Info
Actions
Create security group
Filter security groups
VPC ID: vpc-02973363e595f38c6
Clear filters
Name
Security group ID
Security group name
VPC ID
myweb sg-00403fe0ed551bd3c myweb vpc-02973363e595f38c6
mybastion sg-087485e43647d1d62 mybastion vpc-02973363e595f38c6
mysql sg-0b51375c9bd222be6 mysql vpc-02973363e595f38c6
mysqlallow sg-0c0b663c8bf40207c mysqlallow vpc-02973363e595f38c6
– sg-0d13995efbac315ee default vpc-02973363e595f38c6
Feedback
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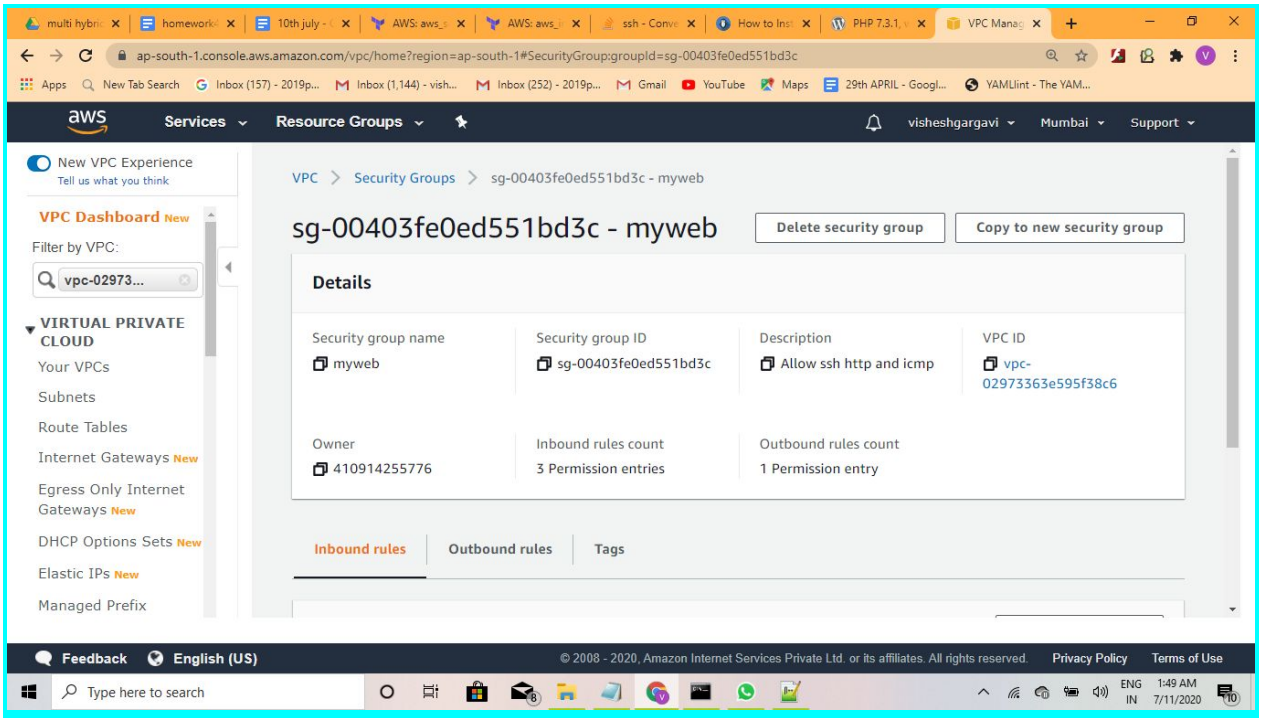
ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#SecurityGroup:groupId=sg-00403fe0ed551bd3c
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
VPC Dashboard New
Filter by VPC:
vpc-02973...
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
DHCP Options Sets New
Elastic IPs New
Managed Prefix
VPC > Security Groups > sg-00403fe0ed551bd3c - myweb
sg-00403fe0ed551bd3c - myweb
Delete security group
Copy to new security group
Details
Security group name
myweb
Security group ID
sg-00403fe0ed551bd3c
Description
Allow ssh http and icmp
VPC ID
vpc-02973363e595f38c6
Owner
410914255776
Inbound rules count
3 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
Feedback
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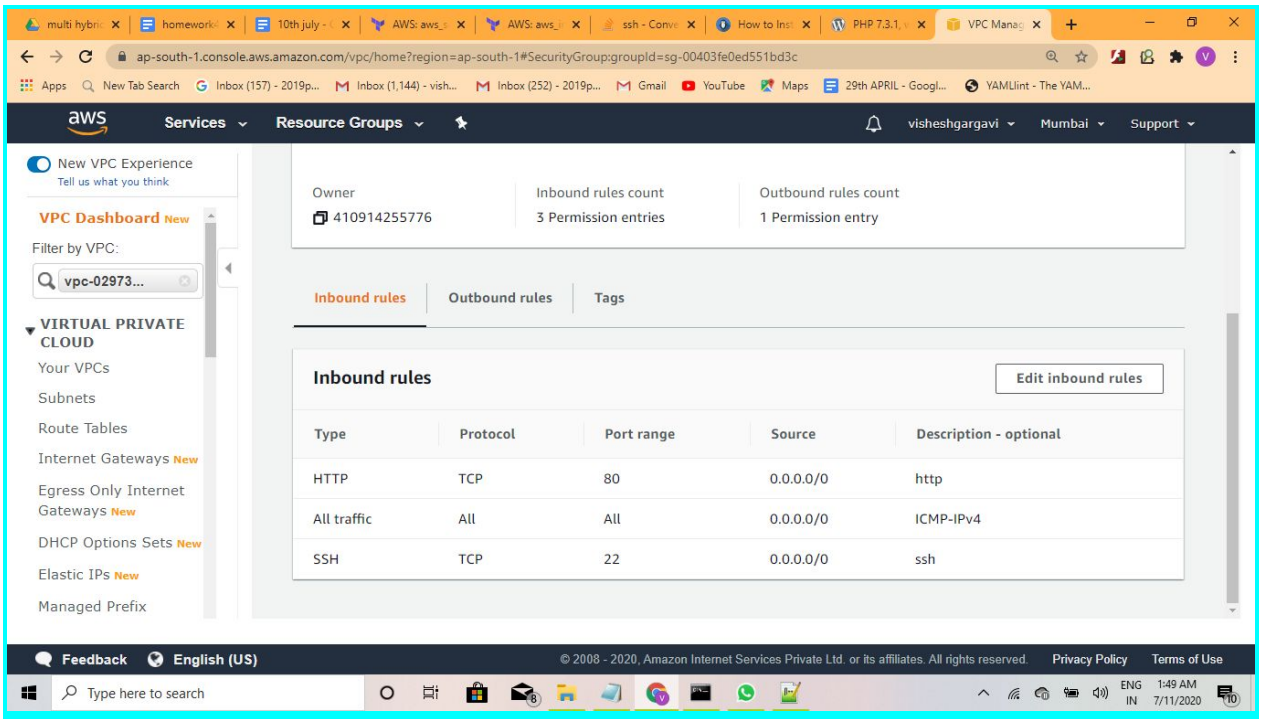


> creating a subnet group with MYSQL protocol and value of security_id(myweb) > mysql

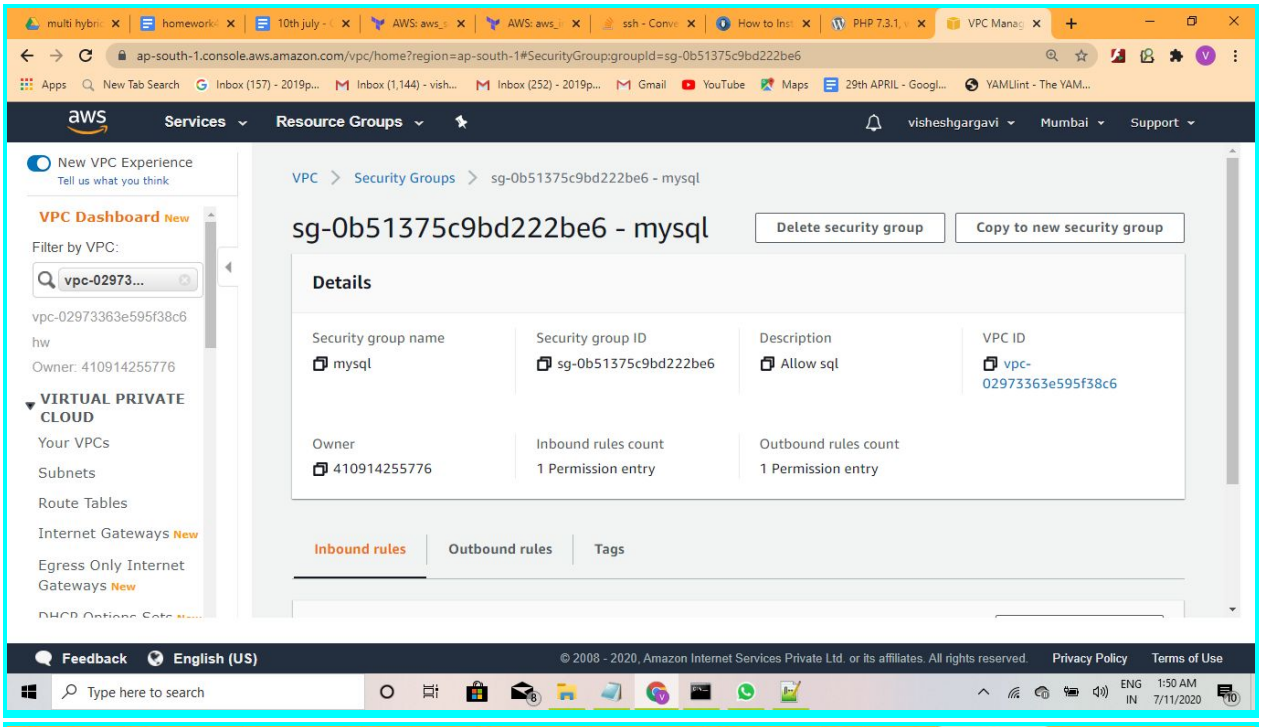
```
resource "aws_security_group" "mysql" {
 name        = "mysql"
 description = "Allow sql"
 vpc_id      = "${aws_vpc.hw.id}"

 ingress {
   description = "MYSQL"
   security_groups=[ "${aws_security_group.myweb.id}" ]
   from_port   = 3306
   to_port     = 3306
   protocol    = "tcp"
 }

 egress {
   from_port   = 0
   to_port     = 0
   protocol    = "-1"
   cidr_blocks = ["0.0.0.0/0"]
 }

 tags = {
```

```
  Name = "mysql"
 }
}
```


ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#SecurityGroup:groupId=sg-0b51375c9bd222be6
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
VPC Dashboard New
Filter by VPC:
vpc-02973...
vpc-02973363e595f38c6
hw
Owner: 410914255776
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
VPC > Security Groups > sg-0b51375c9bd222be6 - mysql
sg-0b51375c9bd222be6 - mysql
Delete security group
Copy to new security group
Details
Security group name
mysql
Security group ID
sg-0b51375c9bd222be6
Description
Allow sql
VPC ID
vpc-02973363e595f38c6
Owner
410914255776
Inbound rules count
1 Permission entry
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
Feedback
English (US)
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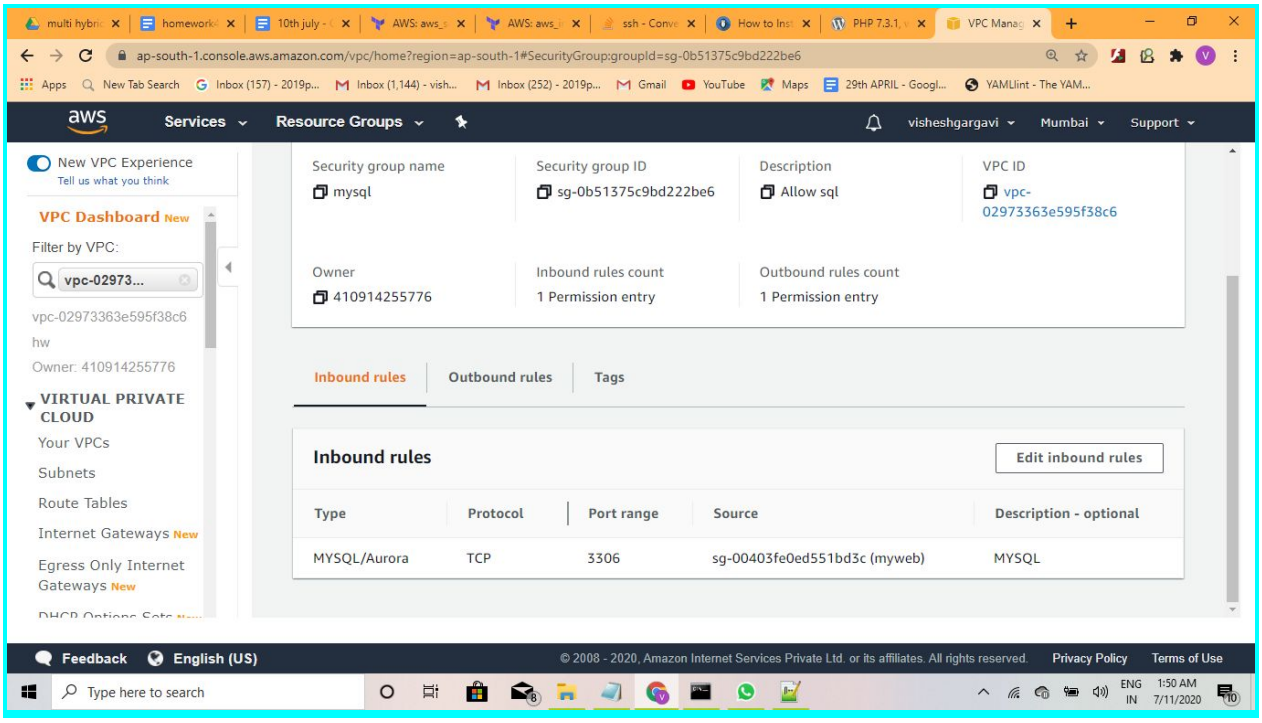
ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#SecurityGroup:groupId=sg-0b51375c9bd222be6
Services
Resource Groups
visheshgargavi
Mumbai
Support
New VPC Experience
Tell us what you think
VPC Dashboard New
Filter by VPC:
vpc-02973...
vpc-02973363e595f38c6
hw
Owner: 410914255776
VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways New
Egress Only Internet Gateways New
Security group name
mysql
Security group ID
sg-0b51375c9bd222be6
Description
Allow sql
VPC ID
vpc-02973363e595f38c6
Owner
410914255776
Inbound rules count
1 Permission entry
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
Inbound rules
Edit inbound rules
Type
Protocol
Port range
Source
Description - optional
MYSQL/Aurora
TCP
3306
sg-00403fe0ed551bd3c (myweb)
MYSQL
Feedback
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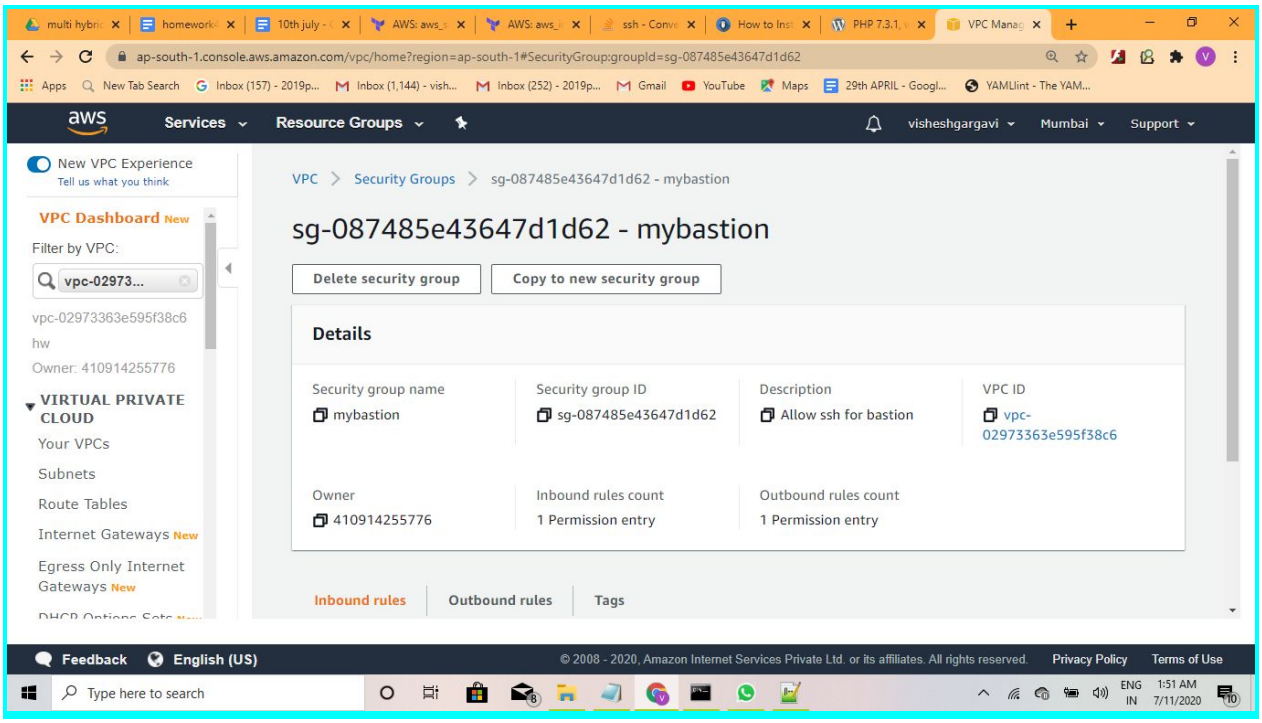
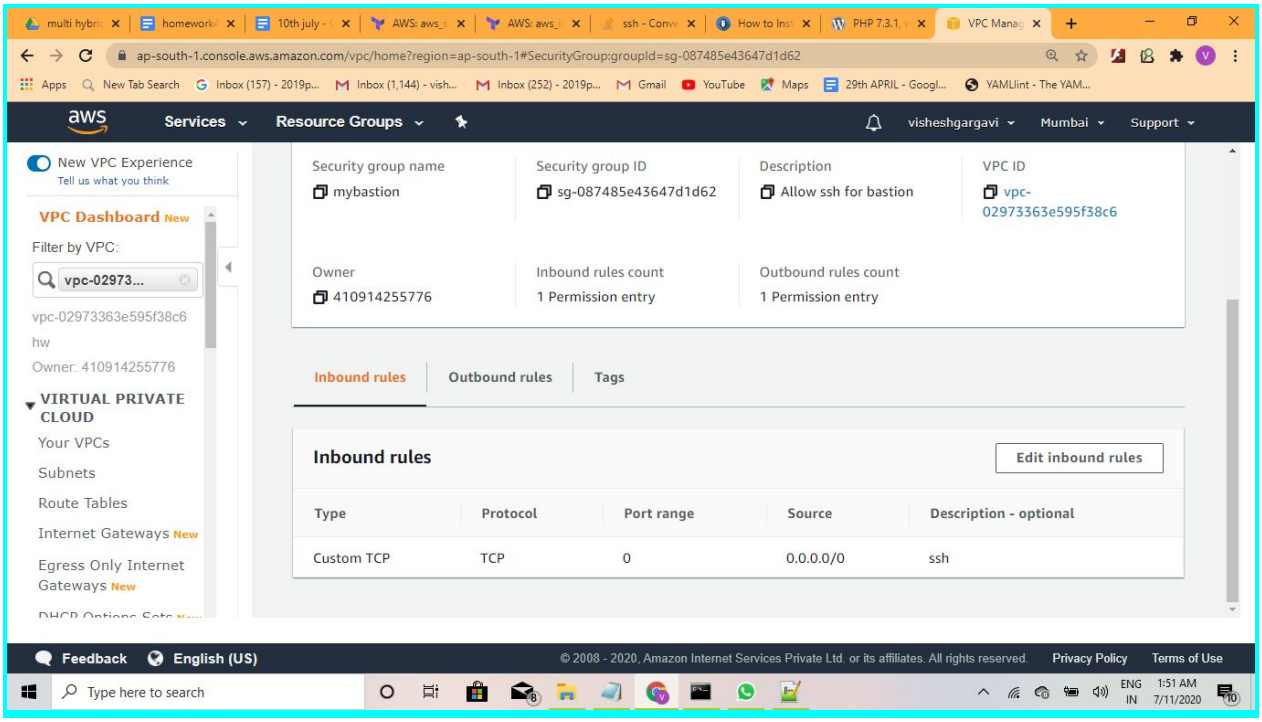
> creating a security group with ssh protocol
> bastion

```
resource "aws_security_group" "mybastion" {
  name        = "mybastion"
  description = "Allow ssh for bastion"
  vpc_id      = "${aws_vpc.hw.id}"

  ingress {
    description = "ssh"
    from_port   = 22
    to_port     = 22
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  tags = {
    Name = "mybastion"
  }
}
```





> creating a subnet group with ssh protocol and value as security_id(mybastion) > mysqlallow

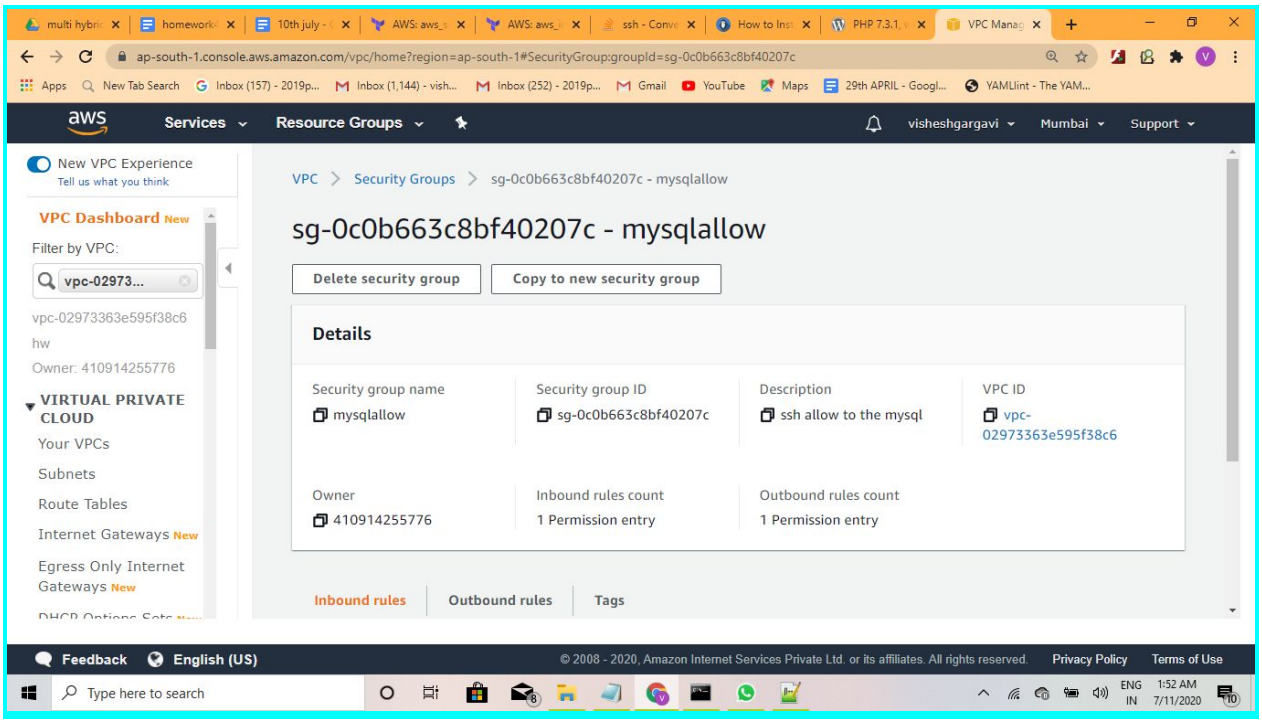
```
resource "aws_security_group" "mysqlallow" {
  name        = "mysqlallow"
```

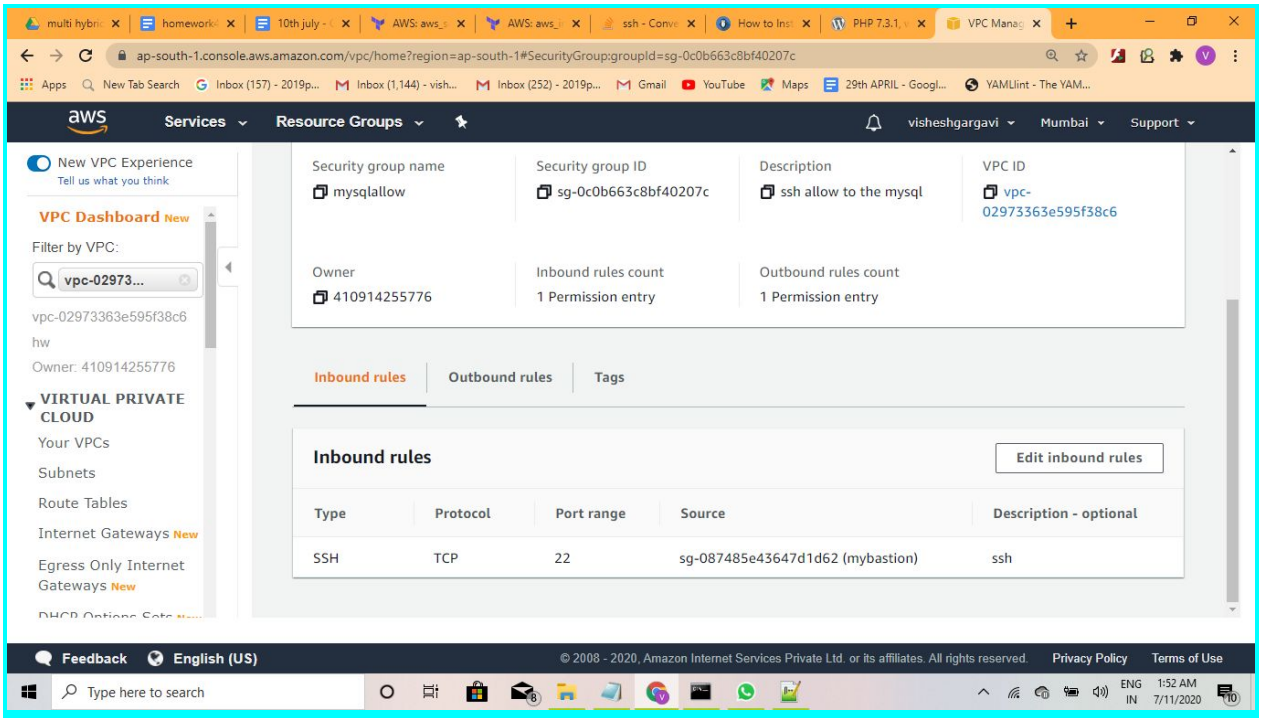
```
  description = "ssh allow to the mysql"
  vpc_id      = "${aws_vpc.hw.id}"

  ingress {
    description = "ssh"
    security_groups=[ "${aws_security_group.mybastion.id}" ]
    from_port   = 22
    to_port     = 22
    protocol    = "tcp"
  }

  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  tags = {
    Name = "mysqlallow"
  }
}
```



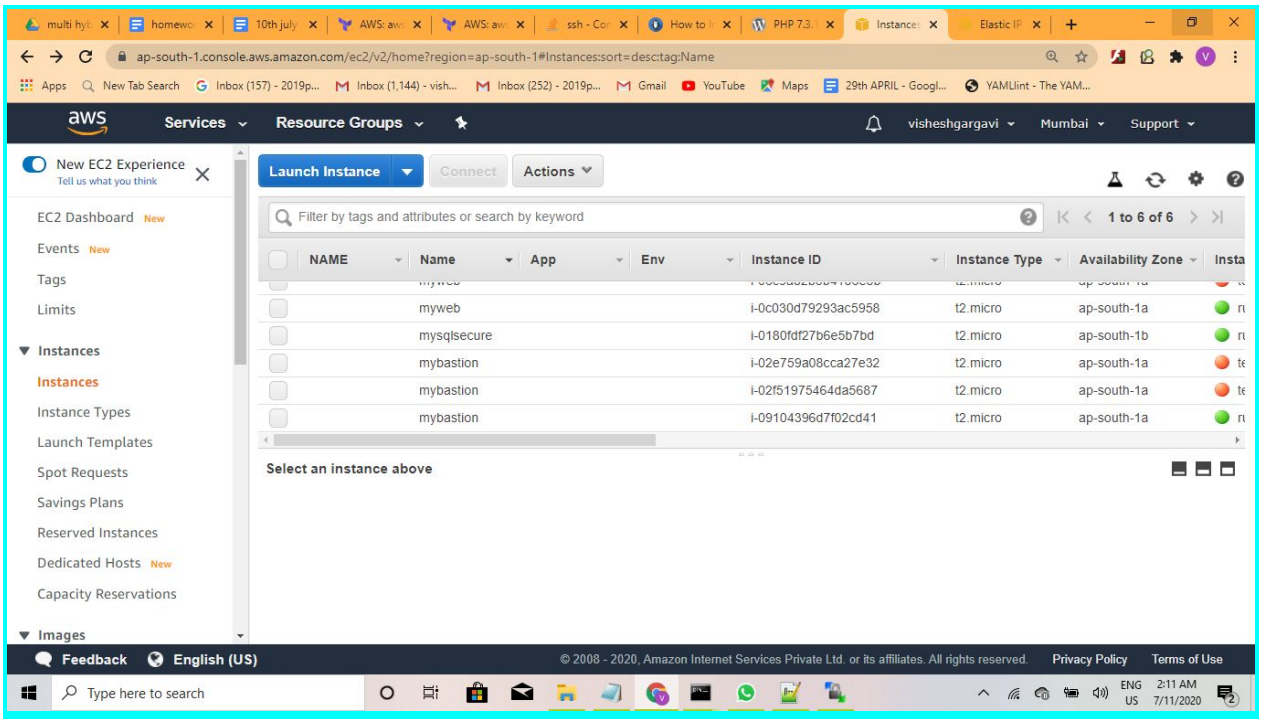


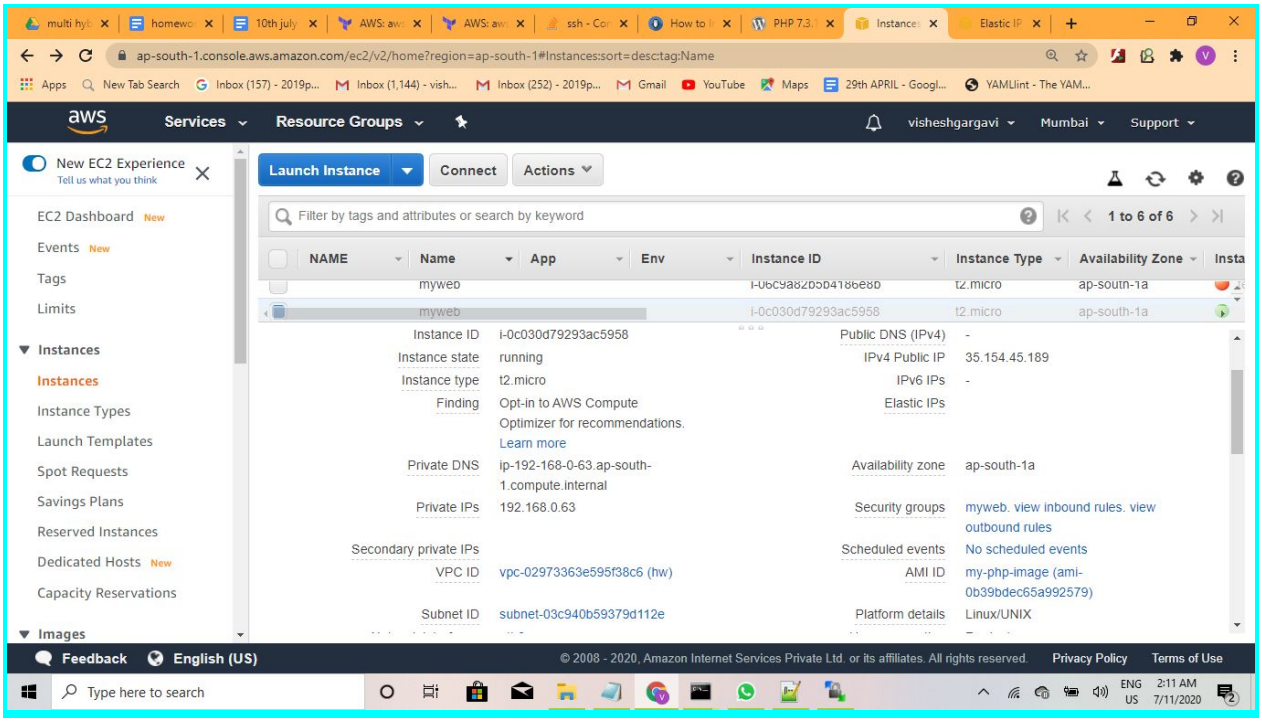
> launching the instance with the rhel image in the 1a region and attaching the security group myweb
> enabling the public-ip

resource "aws_instance" "mywordpress" {

```
  ami           = "ami-052c08d70def0ac63"
  instance_type = "t2.micro"
  key_name      = "mykey1111.pem"
  availability_zone = "ap-south-1a"
  subnet_id = "${aws_subnet.hw_subnet-1a.id}"
  security_groups = [ "${aws_security_group.myweb.id}" ]
  user_data = <<-EOF
              #! /bin/bash
              sudo yum install  dnf install php-mysqlnd php-fpm  httpd tar curl php-json -y
               systemctl start httpd
              systemctl enable httpd
              curl https://wordpress.org/latest.tar.gz --output wordpress.tar.gz
              tar xf wordpress.tar.gz
              cp -r wordpress /var/www/html
              chown -R apache:apache /var/www/html/wordpress
              chcon -t httpd_sys_rw_content_t /var/www/html/wordpress -R
  EOF


  tags = {
    Name = "mywordpress"
  }
}
```





> launching the instance with the rhel image in the region 1b and attaching the security group mysql and mysqlallow

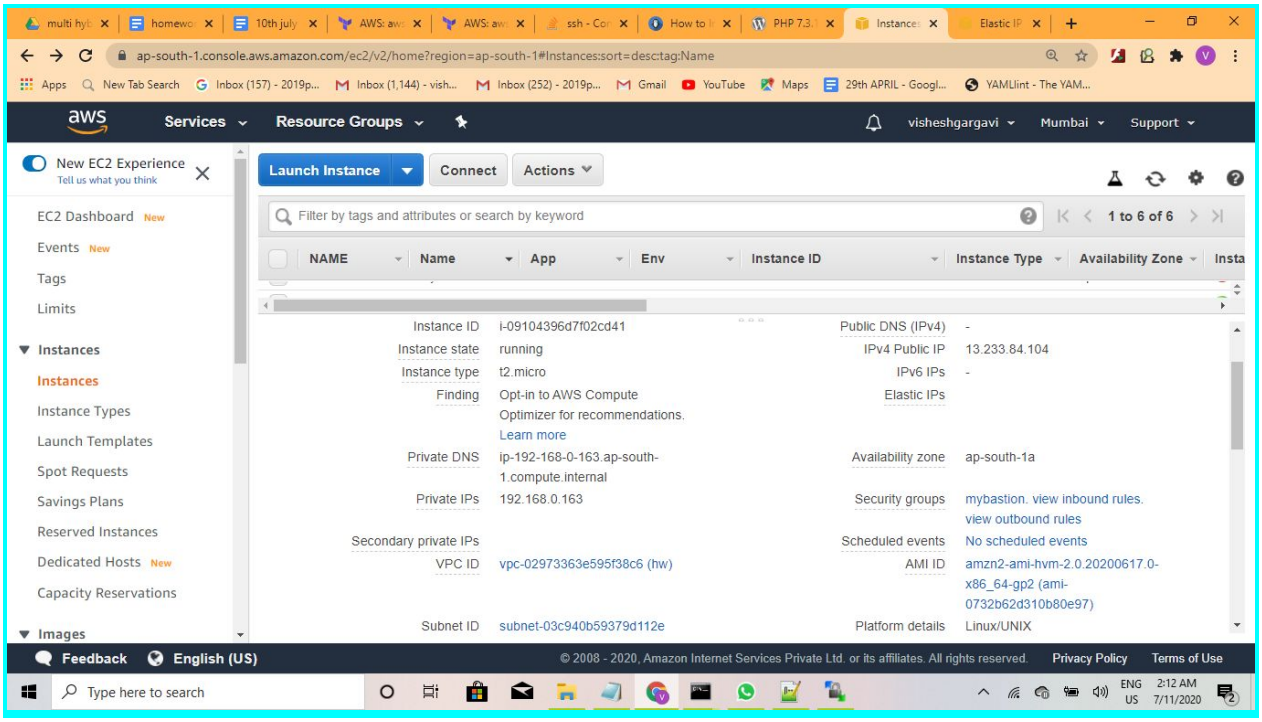
> not enabling the public-ip

```
resource "aws_instance" "mysqlsecure" {
  ami           = "ami-042c08d40def0ac62"
```

```
 instance_type = "t2.micro"
 key_name      = "mykey1111.pem"
 availability_zone = "ap-south-1b"
 subnet_id = "${aws_subnet.hw_subnet-1b.id}"
 security_groups = [ "${aws_security_group.mysql.id}" ,
"${aws_security_group.mysqlallow.id}"]
user_data = <<-EOF
            #! /bin/bash
            sudo yum install @mysql -y
            systemctl start mysqld
            systemctl enable mysqld

 EOF


 tags = {
   Name = "mysqlsecure"
 }
}
```

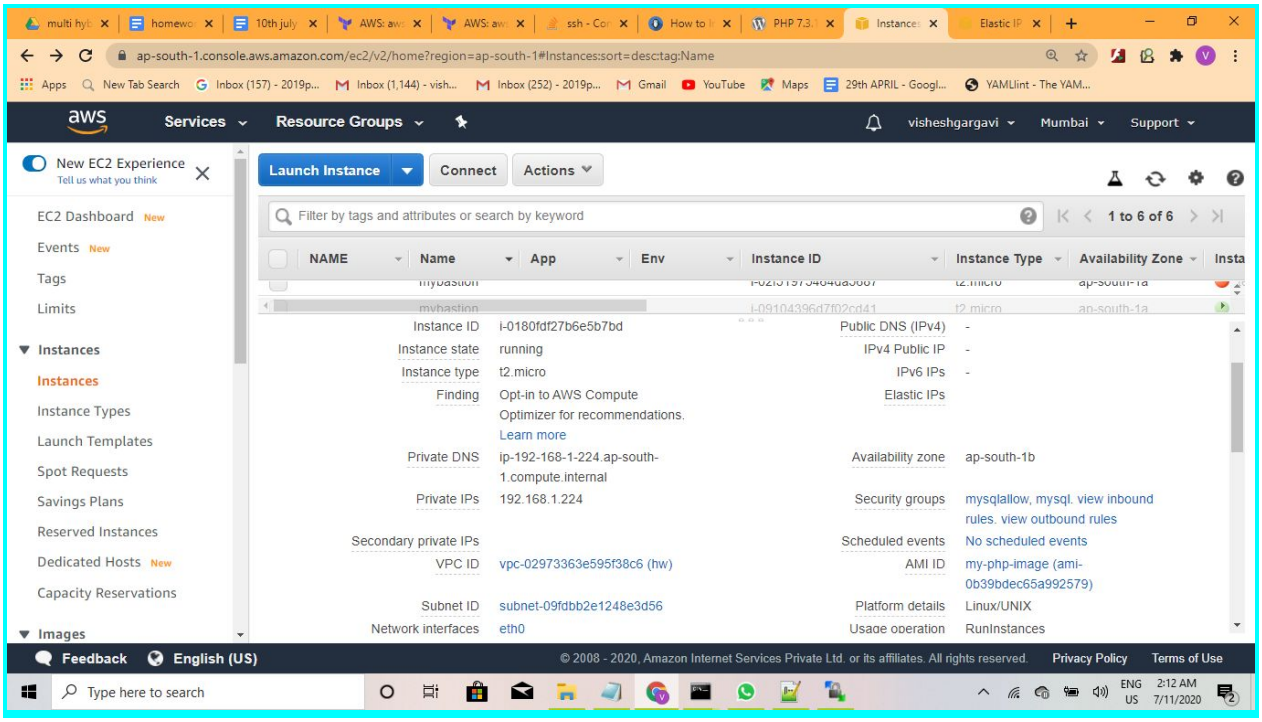


> launching the instance with the rhel image in the region 1a and attaching the security group mybastion

> enabling the public-ip

```
resource "aws_instance" "mybastion" {
 ami           = "ami-0732b62d310b80e97"
 instance_type = "t2.micro"
 key_name      = "mykey1111.pem"
 availability_zone = "ap-south-1a"
 subnet_id = "${aws_subnet.hw_subnet-1a.id}"
 security_groups = [ "${aws_security_group.mybastion.id}" ]

 tags = {
   Name = "mybastion"
 }
}
```



>> creating an elastic ip for allowing the NAT CONNECTIVITY
> creating a nat gateway and associating the nat_gateway with the elastic_ip
> associating the nat_gatway with the route table

```
resource "aws_eip" "hw_eip" {
 vpc = true

 instance                  = "${aws_instance.mysql.id}"
```

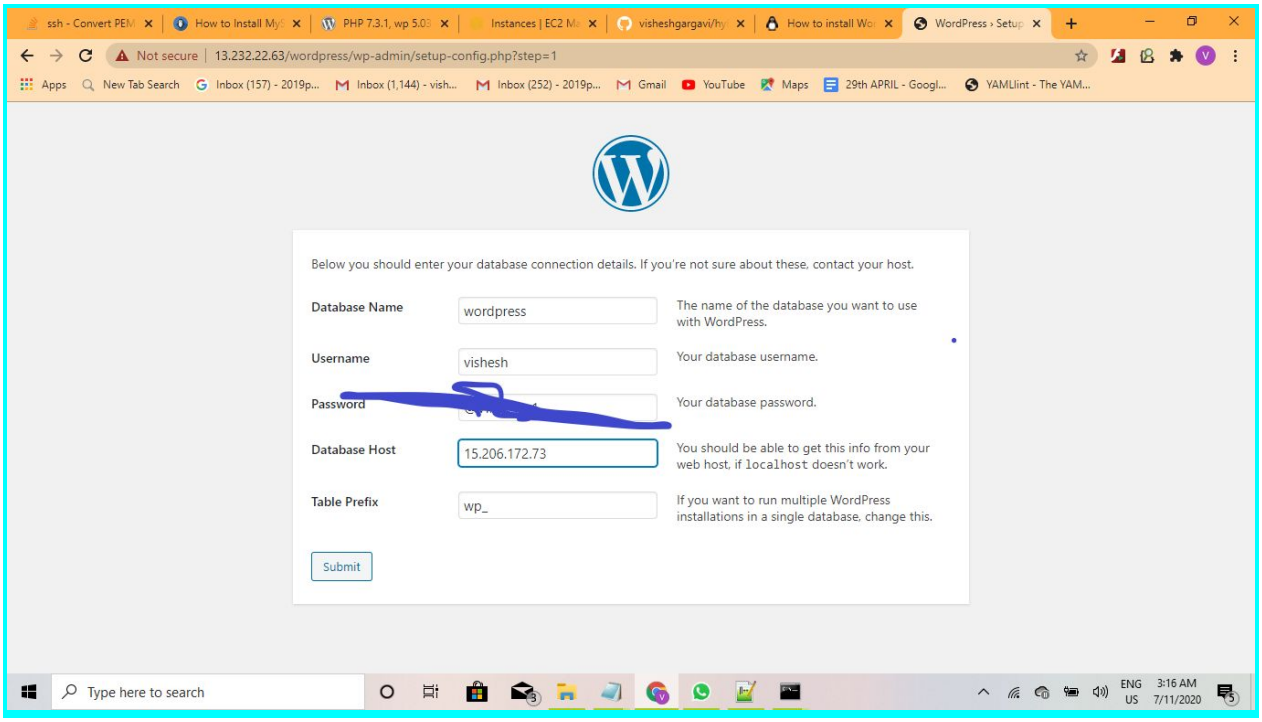
```
  associate_with_private_ip = "10.0.0.12"
  depends_on                = ["aws_internet_gateway.hw_internet_gateway"]
}

resource "aws_nat_gateway" "hw_nat_gateway" {
  allocation_id = "${aws_eip.hw_eip.id}"
  subnet_id     = "${aws_subnet.hw_subnet-1b.id}"

  tags = {
    Name = "hw_nat_gateway"
  }
}

resource "aws_route_table" "hw_route_table2" {
  vpc_id = "${aws_vpc.hw.id}"

  route {
    cidr_block = "0.0.0.0/0"
    nat_gateway_id = "${aws_nat_gateway.hw_nat_gateway.id}"
  }
}
```



Highly recommend to use pre-created image to avoid network disturbances

Run this few commands on the mysqlserver console

mysql_secure_installation

```
mysql -u root -p
mysql> CREATE DATABASE wordpress;
mysql> CREATE USER `admin`@`localhost` IDENTIFIED BY 'pass';
mysql> GRANT ALL ON wordpress.* TO `admin`@`localhost`;
mysql> FLUSH PRIVILEGES;
```

mysql> exit