Terraform notes

Run “Terraform init” when first running terraform to initialize and setup for a project

Run “Terraform plan” to determine if the tf file will work

Run “Terraform apply” to make changes to AWS account

Run “Terraform apply - - auto-approve” to make changes to AWS account, without needing to enter approvals

Never change the state file

Create a eip resource for nat resource

```
# Create eip for NAT
resource "aws_eip" "nat" {


 tags = {

     Name = "${var.project}-nat-eip"

  }

  }
```

Nat gateway should be used for private subnets. The Cidr block should be “0.0.0.0/0

The private subnet should be linked to a route table through the aws_route_table_association resouce function

```
resource "aws_route_table_association" "public_route_table_1" {
```

```
    subnet_id = aws_subnet.public_subnet_1.id
    route_table_id = aws_route_table.public_route_table.id

}
```

The code will create a VPC with 3 private subnets, 3 public subnets, 1 public route table, 3 private route tables, 1 internet gateway linked to a public route table, and one nat gateway lined to the 3 private route tables

```
# Create a VPC
resource "aws_vpc" "main" {
  cidr_block = var.vpc-cidr

    tags = {

     Name = "${var.project}-vpc"

  }
}



# Create eip for NAT
resource "aws_eip" "nat" {



 tags = {

     Name = "${var.project}-nat-eip"

  }

  }



###############################################################################
###############
################################        Public Subnets
#####################################
```

```
#############################################################################
###############



resource "aws_subnet" "public_subnet_1" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.0.0/20"
  availability_zone = "us-east-1a"

  tags = {
    Name = "${var.project}-public-subnet-1"
  }
}

resource "aws_subnet" "public_subnet_2" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.16.0/20"
  availability_zone = "us-east-1b"

  tags = {
    Name = "${var.project}-public-subnet-2"
  }
}

resource "aws_subnet" "public_subnet_3" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.32.0/20"
  availability_zone = "us-east-1c"

  tags = {
    Name = "${var.project}-public-subnet-3"
  }
}



#############################################################################
###############
#################################        Private Subnets
#####################################
#############################################################################
###############
```

```
resource "aws_subnet" "private_subnet_1" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.128.0/20"
  availability_zone = "us-east-1a"

  tags = {
    Name = "${var.project}-private-subnet-1"
  }
}

resource "aws_subnet" "private_subnet_2" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.144.0/20"
  availability_zone = "us-east-1b"

  tags = {
    Name = "${var.project}-private-subnet-2"
  }
}

resource "aws_subnet" "private_subnet_3" {
  vpc_id     = aws_vpc.main.id
  cidr_block = "10.0.160.0/20"
  availability_zone = "us-east-1c"

  tags = {
    Name = "${var.project}-private-subnet-3"
  }
}

###############################################################################################
###############
#################################        Internet Gateway
#####################################
###############################################################################################
###############

#Create Internet Gateway
resource "aws_internet_gateway" "igw" {
  vpc_id = aws_vpc.main.id
```

```
  tags = {
    Name = "${var.project}-igw"
  }

  depends_on = [ aws_internet_gateway.igw ]

}



################################################################################
################
################################        NAT Internet Gateway
################################
################################################################################
################

#Create NAT Internet Gateway - could add 1 per public subnet for higher
availabilty
resource "aws_nat_gateway" "ngw" {


  allocation_id = aws_eip.nat.id
  subnet_id     = aws_subnet.public_subnet_1.id

  tags = {
    Name = "${var.project}-gw ngw"
  }


# To ensure proper ordering, its recoomended to add an explicit dependancy on the
internet
#gateway for the VPC
depends_on = [ aws_internet_gateway.igw ]

}


################################################################################
################
```

```
##################################  Pulbic Route Tables
####################################
#############################################################################################
###############


resource "aws_route_table" "public_route_table" {

  vpc_id = aws_vpc.main.id

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

   tags = {
    Name = "${var.project}-public-rt"
  }

}

resource "aws_route_table_association" "public_route_table_1" {

    subnet_id = aws_subnet.public_subnet_1.id
    route_table_id = aws_route_table.public_route_table.id

}

#########################################################################



resource "aws_route_table_association" "public_route_table_2" {

    subnet_id = aws_subnet.public_subnet_2.id
    route_table_id =aws_route_table.public_route_table.id

}

#########################################################################
```

```
resource "aws_route_table_association" "public_route_table_3" {

    subnet_id = aws_subnet.public_subnet_3.id
    route_table_id = aws_route_table.public_route_table.id

}



#############################################################################
###############
###################################  Private Route Tables
#####################################
#############################################################################
###############


resource "aws_route_table" "private_route_table_1" {

  vpc_id = aws_vpc.main.id

  route {
  cidr_block = "0.0.0.0/0"
  gateway_id = aws_nat_gateway.ngw.id
  }


 tags = {
    Name = "${var.project}-private-subnet-1"
  }

}

resource "aws_route_table_association" "private_route_table_1" {

    subnet_id = aws_subnet.private_subnet_1.id
    route_table_id = aws_route_table.private_route_table_1.id

}

#####################################################################
```

```
resource "aws_route_table" "private_route_table_2" {

  vpc_id = aws_vpc.main.id

  route {
  cidr_block = "0.0.0.0/0"
  gateway_id = aws_nat_gateway.ngw.id
  }


 tags = {
    Name = "${var.project}-private-subnet-2"
  }

}



resource "aws_route_table_association" "private_route_table_2" {

    subnet_id = aws_subnet.private_subnet_2.id
    route_table_id = aws_route_table.private_route_table_2.id

}


#############################################################################


resource "aws_route_table" "private_route_table_3" {

  vpc_id = aws_vpc.main.id

  route {
  cidr_block = "0.0.0.0/0"
  gateway_id = aws_nat_gateway.ngw.id
  }
   tags = {
    Name = "${var.project}-private-subnet-3"
```

```
  }



}

resource "aws_route_table_association" "private_route_table_3" {

    subnet_id = aws_subnet.private_subnet_3.id
    route_table_id = aws_route_table.private_route_table_3.id

}
```