Terraform – Configuration Management Tool :

To create VPC with subnet and launch the EC2 Amazon Linux on Specific Region using Terraform tool:

To create one folder as terraform under anywhere: (In my case i created under /tmp)

terraform folder --> /tmp/terraform

Inside terraform folder --> create two more directory such as /dev and /modules

inside

```
root@ip-172-31-83-180:/tmp/terraform# ls -l
total 36
drwxr-xr-x 3 root root 4096 Mar  4 11:08 dev
drwxr-xr-x 4 root root 4096 Mar  4 09:48 modules
```

/dev

deirectory --> create file as main.tf

#cd

```
root@ip-172-31-83-180:/tmp/terraform/dev# ls -l
total 12
-rw-r--r-- 1 root root  385 Mar  4 11:03 main.tf
```

/tmp/terraform/dev
#vi main.tf

Go to
directory
Inside
directory
two
like

```
root@ip-172-31-83-180:/tmp/terraform/dev# cat main.tf
provider "aws" {
  region = "us-east-1"
}
module "my_vpc" {
  source = "../modules/vpc"
  vpc_cidr = "192.168.0.0/16"
  tenancy = "default"
```

modules
-->
modules
– Create
directory
below

```
root@ip-172-31-83-180:/tmp/terraform/modules# ls -l
total 8
drwxr-xr-x 2 root root 4096 Mar  4 11:07 ec2
drwxr-xr-x 2 root root 4096 Mar  4 10:58 vpc
```

Inside
directory
two files
below

```
  source = "../modules/ec2"
  ec2_count = 1
  ami_id = "ami-0080e4c5bc078760e"
  instance_type = "t2.micro"
  subnet_id = "${module.my_vpc.subnet_id}"
```

/ec2
create
like

#vi

```
root@ip-172-31-83-180:/tmp/terraform/modules/ec2# ls -l
total 8
-rw-r--r-- 1 root root 198 Mar  4 11:07 instances.tf
-rw-r--r-- 1 root root 142 Mar  4 10:57 vars.tf
```

/tmp/terraform/modules/ec2
#vi instances.tf

```
resource "aws_instance" "web" {
  count = "${var.ec2_count}"
  ami = "${var.ami_id}"
  instance_type = "${var.instance_type}"
  subnet_id = "${var.subnet_id}"

  tags {
    Name = "AppServer"
  }
}
```

#vi /tmp/terraform/modules/ec2
#vi vars.tf

Inside create like

```
variable "ec2_count" {
  default = "1"
}

variable "ami_id" {}

root@ip-172-31-83-180:/tmp/terraform/modules/vpc# ls -l
total 8
-rw-r--r-- 1 root root 373 Mar  4 10:58 networking.tf
-rw-r--r-- 1 root root 174 Mar  4 10:58 vars.tf
variable "subnet_id" {}
```

/vpc two files below

#vi /tmp/terraform/modules/vpc
#vi networking.tf

```
resource "aws_vpc" "main" {
  cidr_block = "${var.vpc_cidr}"
  instance_tenancy = "${var.tenancy}"

  tags {
    Name = "main"
  }
}

resource "aws_subnet" "main" {
  vpc_id = "${var.vpc_id}"
  cidr_block = "${var.subnet_cidr}"

  tags {
    Name = "Main"
  }
}

output "vpc_id" {
  value = "${aws_vpc.main.id}"
}

output "subnet_id" {
  value = "${aws_subnet.main.id}"
}
```

##vi /tmp/terraform/modules/vpc
#vi vars.tf

```
variable "vpc_cidr" {
  default = "10.0.0.0/16"
}

variable "tenancy" {
  default = "dedicated"
}

variable "vpc_id" {}

variable "subnet_cidr" {
  default = "10.0.1.0/24"
}
```
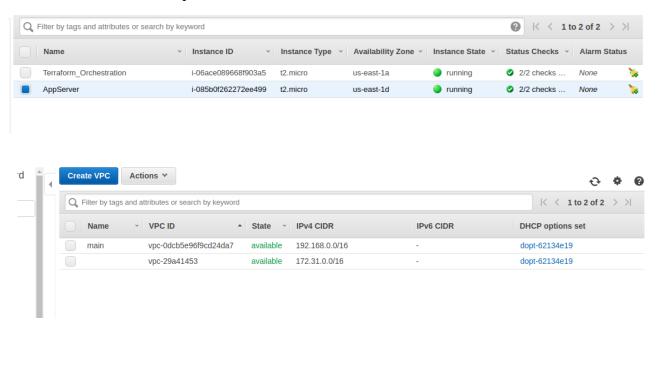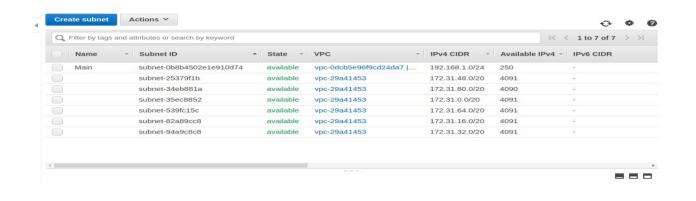
Now we have to run:

#cd /tmp/terraform/dev

#terraform init --> {It is used to initialize a working directory containing terraform configuration files}

#terraform apply --> {The `**terraform apply**` command is used to apply the changes required to reach the desired state of the configuration}

(Thats it...!!! Its working fine)

Below are scree shots of output

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status
	Terraform_Orchestration	i-06ace089668f903a5	t2.micro	us-east-1a	🟢 running	✅ 2/2 checks ...	None
☑	AppServer	i-085b0f262272ee499	t2.micro	us-east-1d	🟢 running	✅ 2/2 checks ...	None

Create VPC | **Actions** ∨

	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set
	main	vpc-0dcb5e96f9cd24da7	available	192.168.0.0/16	-	dopt-62134e19
		vpc-29a41453	available	172.31.0.0/16	-	dopt-62134e19

Create subnet | **Actions** ∨

	Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR
	Main	subnet-0b8b4502e1e910d74	available	vpc-0dcb5e96f9cd24da7 |...	192.168.1.0/24	250	-
		subnet-25379f1b	available	vpc-29a41453	172.31.48.0/20	4091	-
		subnet-34eb881a	available	vpc-29a41453	172.31.80.0/20	4090	-
		subnet-35ec8852	available	vpc-29a41453	172.31.0.0/20	4091	-
		subnet-539fc15c	available	vpc-29a41453	172.31.64.0/20	4091	-
		subnet-82a89cc8	available	vpc-29a41453	172.31.16.0/20	4091	-
		subnet-94a9c8c8	available	vpc-29a41453	172.31.32.0/20	4091	-

You can refer here :
https://www.youtube.com/playlist?list=PLH1ul2iNXl7vk8RUchIiMBeXqDnFTi4_M