Terraform Task-2

Task Description:

Create 2 EC2 instances on 2 different regions and install nginx using terraform script.

Techstacks needs to be used:

- AWS EC2
- Terraform
- AWS CLI

Step1

• Install AWS CLI

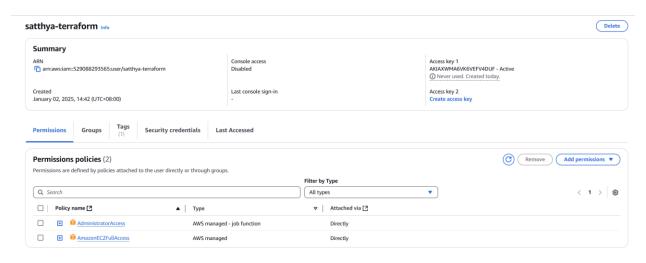
```
wbuntu@ip-172-31-18-20:~$ ubuntu@ip-172-31-18-20:~$ aws --version aws-cli/2.22.26 Python/3.12.6 Linux/6.8.0-1018-aws exe/x86_64.ubuntu.24 ubuntu@ip-172-31-18-20:~$
```

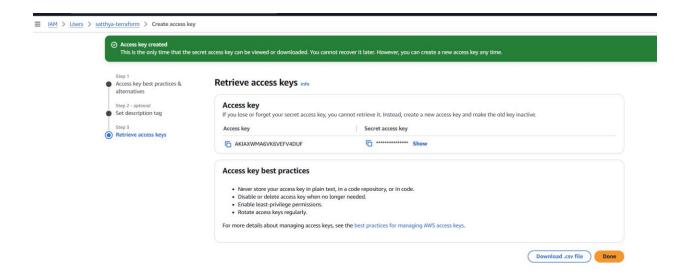
• Install Terraform

```
ubuntu@ip-172-31-18-20:~$ ubuntu@ip-172-31-18-20:~$ terraform --version
Terraform v1.10.3
on linux_amd64
ubuntu@ip-172-31-18-20:~$
```

Step2

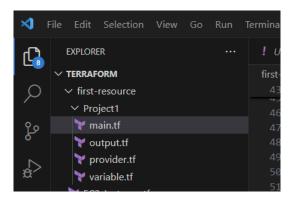
• Set up IAM user and credential.





Step3

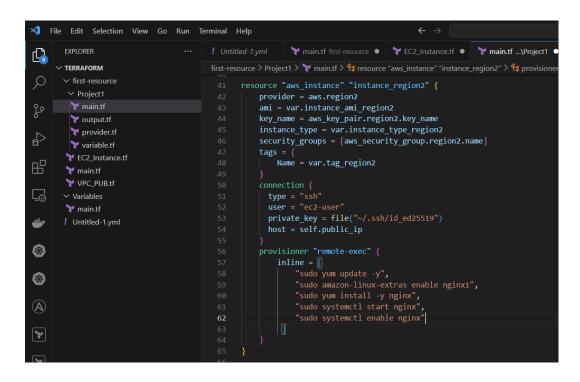
- Create Terraform Configuration file.
 - o Project1
 - main.tf
 - provider.tf
 - variable.tf
 - output.tf

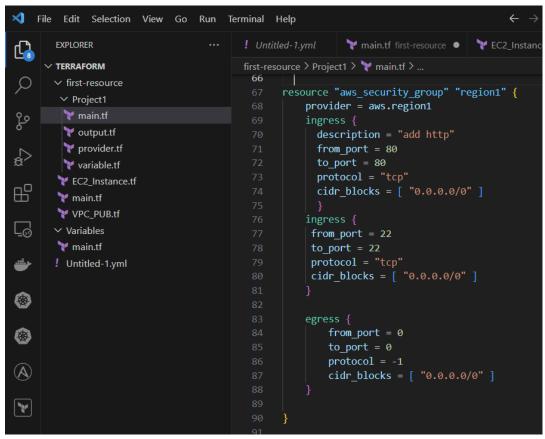


♣ main.tf

```
刘 File Edit Selection View Go Run Terminal Help
             EXPLORER
                                                                 first-resource > Project1 > * main.tf > * resource "aws_instance" "instance_region1" > 55 tags

1 resource "aws_key_pair" "region1" {
2 provider = aws.region1
3 key_name = "key_region1"
4 public_key = file("~/.ssh/id_ed25519.pub")
          ∨ TERRAFORM
                 autput.tf
                y provider.tf
                                                                                               resource "aws_key_pair" "region2" {
    provider = aws.region2
    key_name = "key_region2"
    public_key = file("~/.ssh/id_ed25519.pub")
                variable.tf
               Y EC2_Instance.tf
               main.tf
main.tf
                                                                                                      source Taws_instance Tinstance_region1 {
    provider = aws.region1
    ami = var.instance_ami_region1
    key_name = aws_key_pair.region1.key_name
    instance_type = var.instance_type_region1
    security_groups = [aws_security_group.region1.name]
    tags = {
        Name = var.tag_region1
             ! Untitled-1.yml
(4)
connection {
  type = "ssh"
  user = "ec2-user"
  private_key = file("~/.ssh/id_ed25519")
  host = self.public_ip
Y
                                                                                                        provisioner "remote-exec" {
   inline = [
                                                                                                                 "sudo yum update -y",
"sudo amazon-linux-extras enable nginxi",
"sudo yum install -y nginx",
"sudo systemctl start nginx',
"sudo systemctl enable nginx"
```





```
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▼ main.tf first-resource ● ▼ EC2_Instance.tf

✓ TERRAFORM

                                         first-resource > Project1 > 🍟 main.tf > ...
Q

✓ first-resource

                                                 resource "aws_security_group" "region2" {
                                                    provider = aws.region2
وړ
                                                     ingress {
         voutput.tf
                                                      description = "add http"
        rovider.tf
                                                       from_port = 80
         💜 variable.tf
                                                       to_port = 80
        Y EC2_Instance.tf
B
                                                       cidr_blocks = [ "0.0.0.0/0" ]
        main.tf

▼ VPC_PUB.tf

                                                     ingress {

∨ Variables

                                                      from_port = 22
        main.tf
                                                      to_port = 22
       ! Untitled-1.yml
                                                      cidr_blocks = [ "0.0.0.0/0" ]
egress {
from_port = 0
                                                         to port = 0
                                                         protocol = -1
(A)
                                                         cidr_blocks = [ "0.0.0.0/0" ]
*
```

♣ variable.tf

```
File Edit Selection View Go Run Terminal Help
        EXPLORER

▼ main.tf first-resource ● ▼ EC2_Instance.tf ●

✓ TERRAFORM

                                             first-resource > Project1 > 🚏 variable.tf > 😭 variable "tag_region1" > 🖭 de.

√ first-resource

✓ Project1

          main.tf
وړ
                                                    variable "instance_ami_region1" {
          y output.tf
                                                         description = "aws instance region1"
         provider.tf
                                                         type = string
          💙 variable.tf
                                                         default = "ami-0995922d49dc9a17d"
         Y EC2_Instance.tf
         main.tf
                                                    variable "instance_type_region1" {

▼ VPC_PUB.tf

                                                         description = "instance type"

∨ Variables

                                                         type = string
        main.tf
                                                         default = "t2.micro"
        ! Untitled-1.yml
(4)
                                                         description = "security group"
default = "satthya1"
(A)
                                                    variable "tag_region1" {{
    description = "instance tag"|
type = string
                                                      default = "satthya-1"
```

```
🔻 File Edit Selection View Go Run Terminal Help

▼ main.tf first-resource ● ▼ EC2_In

✓ TERRAFORM

                                             first-resource > Project1 > 💜 variable.tf > 😫 variable "tag_region
         main.tf
                                                     variable "instance_ami_region2" {
         y output.tf
                                                         description = "aws instance region2"
         y provider.tf
                                                         default = "ami-0d6560f3176dc9ec0"
          💜 variable.tf
        Y EC2_Instance.tf
        main.tf
                                                     variable "instance_type_region2" {
   description = "instance type"

▼ VPC_PUB.tf

∨ Variables

        main.tf
                                                         default = "t2.micro"
        ! Untitled-1.yml
                                                     variable "instance_security_region2" {
description = "security group"
                                                         type = string
default = "satthya2"
description = "instance tag"
default = "satthya-2"
Y
```

provider.tf

```
🔾 File Edit Selection View Go Run Terminal Help
         EXPLORER

▼ main.tf first-resource ● ▼ EC2_Inst

                              回の打打

✓ TERRAFORM

                                                first-resource > Project1 > 🦞 provider.tf > 😭 provider "aws"
                                                        provider <u>"aws"</u> {
  alias = "region1"

✓ first-resource

          ∨ Project1
                                                          region = "ap-southeast-1"
          🍟 main.tf
          y output.tf
          rovider.tf
          yariable.tf
                                                          region == "ap-southeast-2"
         Y EC2_Instance.tf
```

output.tf

```
X File Edit Selection View Go Run Terminal Help

▼ main.tf first-resource ●  ▼ EC2_Instance.tf ●
      Explorer (Ctrl+Shift+E) - 8 unsaved files ...

✓ TERRAFORM

                                           first-resource > Project1 > 🚩 output.tf
                                                  output "region1 key" {

√ first-resource

                                                      value = aws_key_pair.region1.key_name
        ∨ Project1
         main.tf
وړ
         y output.tf
                                                  output "region2_key" {
         y provider.tf
                                                      value = aws_key_pair.region2.key_name
         yariable.tf
        Y EC2_Instance.tf
HP 
                                                  output "region1" {
        main.tf
                                                    value = aws_instance.instance_region1.id

▼ VPC_PUB.tf

∨ Variables

        main.tf
                                                  output "region2" {
       ! Untitled-1.yml
                                                    value = aws_instance.instance_region2.id
output "region1_public_ip" {
                                                      value = aws instance.instance region1.public ip
®
                                                  output "region2_public_ip" {
(A)
                                                      value = aws instance.instance region2.public ip
                                            23
```

Step4

• Run terraform configuration file.

```
ubuntu@ip-172-31-19-68: ~/guvi3
```

```
ubuntu@ip-172-31-19-68:~/guvi3$ 11

total 24

drwxrwxr-x 2 ubuntu ubuntu 4096 Jan 7 06:05 ./

drwxr-x--- 12 ubuntu ubuntu 4096 Jan 7 06:05 ../

-rw-rw-r-- 1 ubuntu ubuntu 2703 Jan 7 06:04 main.tf

-rw-rw-r-- 1 ubuntu ubuntu 442 Jan 7 06:04 output.tf

-rw-rw-r-- 1 ubuntu ubuntu 134 Jan 7 06:04 provider.tf

-rw-rw-r-- 1 ubuntu ubuntu 981 Jan 7 06:05 variable.tf

ubuntu@ip-172-31-19-68:~/guvi3$
```

terraform init

```
ubuntu@ip-172-31-19-68:~/guvi3$
ubuntu@ip-172-31-19-68:~/guvi3$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.82.2...
- Installed hashicorp/aws v5.82.2 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider selections it made above. Include this file in your version control repository so that Terraform can guarantee to make the same selections by default when you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see any changes that are required for your infrastructure. All Terraform commands should now work.

If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other commands will detect it and remind you to do so if necessary. ubuntu@ip-172-31-19-68:~/guvi3$
```

terraform fmt

• terraform plan

```
∠ ubuntu@ip-172-31-19-68: ~/guvi3

                                    = (known after apply)
         vpc_id
 egress
                 cidr_blocks = [
+ "0.0.0.0/0",
                 = (known after apply)
= [
         ingress
                + cidr_blocks = [
+ "0.0.0.0/0",
                  # (1 unchanged attribute hidden)
                  cidr_blocks = [
+ "0.0.0.0/0",
                 description = 80
from_port = 80
ipv6_cidn_blocks = []
prefix_list_ids = []
protocol = "tcp"
security_groups = []
self = false
port = 80
                                    = "add http"
= 80
                   description
         name_prefix
owner_id
        tags_all
vpc_id
 lan: 6 to add, 0 to change, 0 to destroy.
Changes to Outputs:
   region1 = (known after apply)
region1_key = "key_region1"
region1_public_ip = (known after apply)
region2 = (known after apply)
region2_key = "key_region2"
    region2_public_ip = (known after apply)
```

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if you run "terraform apply" now.ubuntu@ip-172-31-19-68: ~/guvi3\$

terraform apply

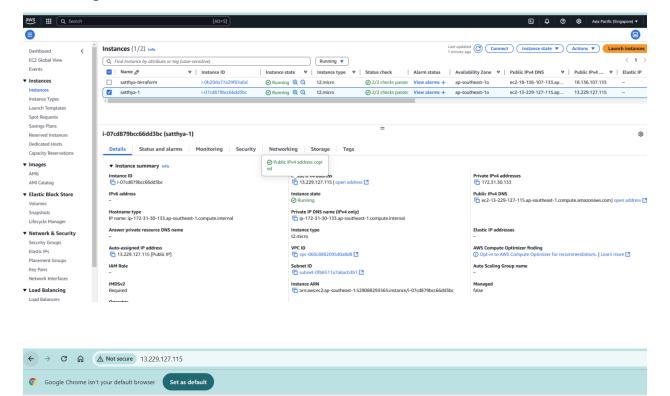
```
ubuntu@ip-172-31-19-68: ~/guvi3
                                                                               Running scriptlet: nginx-filesy
Installing : nginx [
                                                                                                                                       1/7
] 1/7
] 1/7
] 1/7
   s instance.instance regi
                                                        mote-exec)
    s_instance.instance_reg
    s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                                             : nginx
                                                                                Installing
                                                                                                             : nginx [==
  vs_instance.instance_region1
vs_instance.instance_region1
                                                                                                             : nginx
                                                                                                                                         1/7
                                                                                Installing
                                                                                Installing
Installing
                                                                                                             : nginx [====
                                                   (remote-exec):
                                                                                                             : nginx [====
: nginx-filesy
   s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                                            : nginx
: nginx [
- nginx [====
                                                                                Installing
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   s_instance.instance_region1
s_instance.instance_region1
                                                                                                             : nginx [=====
                                                                               Installing Installing
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                                                                                                            : libun [
: libun [=
    instance.instance region1
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                                                                                Installing
                                                                                                            : libun [===
: libun [====
: libun [====
   s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                          ote-exec):
                                                                               Installing Installing
                                                                                                            : libumw
: gperf [
   s_instance.instance_region1
s_instance.instance_region1
                                                                               Installing
Installing
                                                                                                             : libunwind-1.
                                                                                                               gperf [=
gperf [==
                                                                                Installing
                                                                                                                                         4/7
4/7
                                                                               Installing
Installing
    instance.instance region1
                                                  (remote-exec):
                                                                                                            : gperf [===
: gperf [====
: gperf [====
                                                                                                                                         4/7
4/7
    s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                Installing
   s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                                               gperftools-1
                                                                                                                                      5/7
5/7
                                                                                Installing
                                                                                                            : nginx [
: nginx [=
                                                   (remote-exec):
                                                                                Installing
   s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                                             : nginx
                                                                                Installing
                                                                                                             : nginx [===
                                                                                Installing
                                                                                                                nginx
                                                                                                                                         5/7
5/7
    s_instance.instance_region1
s_instance.instance_region1
                                                                                                             : nginx [====
                                                  (remote-exec):
                                                                                Installing
                                                                                Installing
                                                                                                             : nginx-core-1
                                                                                                            : gener [
: gener [
                                                                                Installing
                                                                                Installing
    s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                                                                                         6/7
6/7
                                                                                                                gener [====
                                                                                                            : generic-logo

: nginx [

: nginx [==
                                                                               Installing Installing
   s_instance.instance_region1
s_instance.instance_region1
                                                                                Installing
                                                                              Installing : nginx [=== ] 7/7
Installing : nginx [==== ] 7/7
Running scriptlet: nginx-1:1.26 7/7
Verifying : generic le
    instance.instance region1
                                                  (remote-exec)
                                                                                                            : generic-logo
: gperftools-l
                                                                                Verifying
   s_instance.instance_region1
s_instance.instance_region1
                                                                               Verifying
                                                                                                            : libunwind-1.
: nginx-1:1.26
                                                                               Verifying
Verifying
                                                  (remote-exec):
(remote-exec):
                                                                                                             : nginx-core-1
   s_instance.instance_region1 (remote-exec):
s_instance.instance_region1 (remote-exec):
                                                                                                            : nginx-filesy
: nginx-mimety
                                                                               Verifying
                                                                                Verifying
   s_instance.instance_region1 (remote-exec): Installed:
s_instance.instance_region1 (remote-exec): generic-1
s_instance.instance_region1 (remote-exec): gereftool
s_instance.instance_region1 (remote-exec): libunwing
s_instance_instance_region1 (remote-exec):
                                                                               generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
                                                                               gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64
libunwind-1.4.0-5.amzn2023.0.2.x86_64
   s_instance.instance_region1 (remote-exec):
s_instance.instance_region1 (remote-exec):
s_instance.instance_region1 (remote-exec):
                                                                               nginx-1:1.26.2-1.amzn2023.0.1.x86_64
                                                                               nginx-core-1:1.26.2-1.amzn2023.0.1.x86_64
nginx-filesystem-1:1.26.2-1.amzn2023.0.1.noarch
                                                                               nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch
   vs_instance.instance_region1 (remote-exec): Complete!
  vs_instance.instance_region1 (remote-exec): Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.se
vs_instance.instance_region1: Creation complete after 1m14s [id=i-07cd879bcc66dd3bc]
  oply complete! Resources: 6 added, 0 changed, 0 destroyed.
region1 = "i-07cd879bcc66dd3bc"
region1 = 1-0/cdo/30c/coud3bc
region1, ey = "key region1"
region1_public_ip = "13.229.127.115"
region2 = "i-0f1596fc00e74494c"
region2_key = "key_region2"
region2_public_ip = "54.206.100.166"
ubuntu@ip-172-31-19-68:~/guvi3$
```

Result



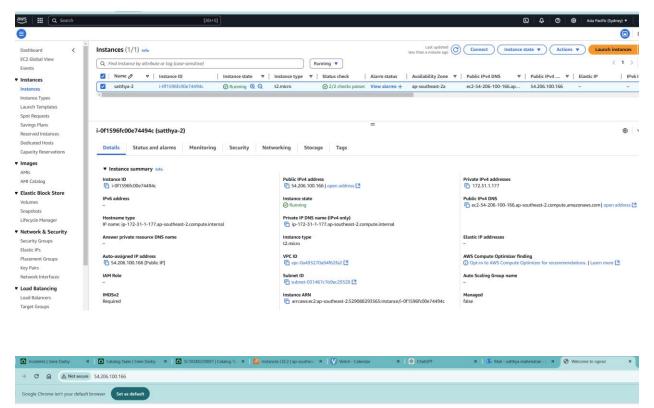


Welcome to nginx!

For online documentation and support please refer to <u>nginx.org</u>. Commercial support is available at <u>nginx.com</u>.

Thank you for using nginx.





Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org. Commercial support is available at nginx.com.

Thank you for using nginx.