

SOLUTION PRESENTATION

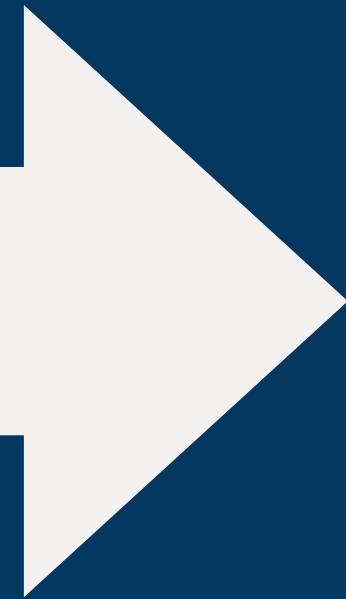
CONNECTING TO MONGODB SERVER

PRESENTER

RASHMI ARORA



TOOLS USED

- 
- Visual Studio Code
 - Putty (Terminal)
 - Terraform
 - Ansible
 - AWS Console

1

```
ubuntu@ip-172-31-37-225: ~ -- ssh ubuntu@ip-172-31-37-225  
: https://help.ubuntu.com  
https://landscape.canonical.com  
https://ubuntu.com/advantage  
  
Maintenance for Infrastructure is not enabled.  
To apply immediately:  
Additional updates run: apt list --upgradable  
  
Security updates can be applied with ESM Infra.  
It enabling ESM Infra service for Ubuntu 16.04 at  
com/16-04  
  
.04.6 LTS' available.  
upgrade' to upgrade to it.  
  
Feb 17 19:02:57 2024 from 103.101.103.32  
1-37-225:~$  
1-37-225:~$  
1-37-225:~$  
1-37-225:~$
```

TERMINAL

Open Terminal (putty) to access the ubuntu machine

2

```
tu@ip-172-31-37-225:~$ terraform  
aform v1.7.3  
nix_amd64  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$  
tu@ip-172-31-37-225:~$
```

INSTALL TERRAFORM

Download and install Terraform in the ubuntu machine

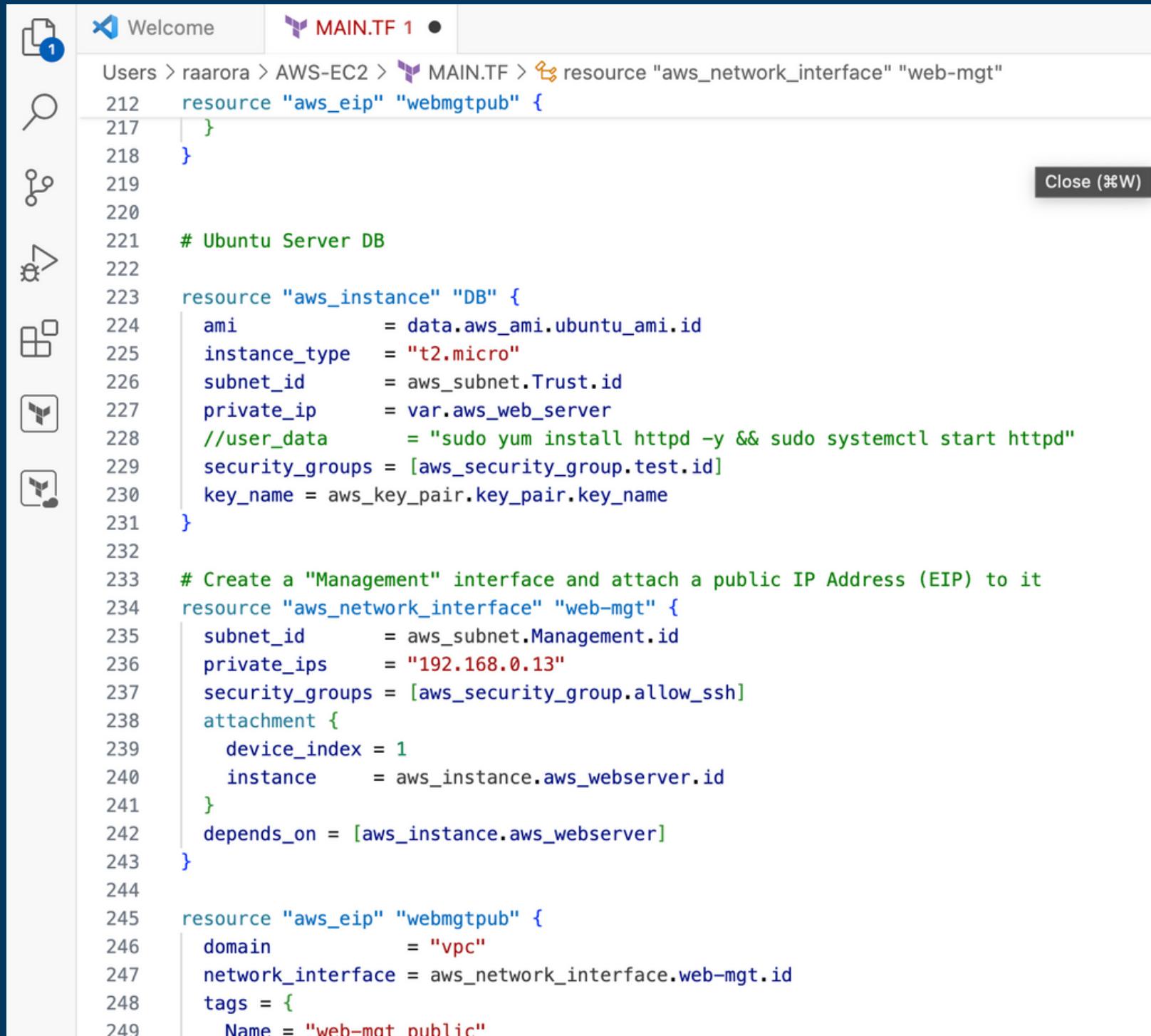
3

```
-----  
figure  
k*q]: AKIAUJ0YV  
k****q]: m6x54  
-1]: ap-southea  
  
_project/  
lect$ terraform
```

CONFIG AWS

Configure AWS to add credentials and setup the servers

PREPARING CODE IN VISUAL STUDIO



The screenshot shows a Visual Studio Code interface with a single tab open named "MAIN.TF 1". The code editor displays a Terraform script for provisioning an AWS EC2 instance. The script includes resource blocks for an EIP, a subnet, an instance, and a network interface. It also configures security groups and user data for the instance. The code is color-coded for syntax highlighting.

```
Users > raarora > AWS-EC2 > MAIN.TF > resource "aws_network_interface" "web-mgt"
212 resource "aws_eip" "webmgtpub" {
217 }
218 }

219
220
221 # Ubuntu Server DB
222

223 resource "aws_instance" "DB" {
224   ami           = data.aws_ami.ubuntu_ami.id
225   instance_type = "t2.micro"
226   subnet_id     = aws_subnet.Trust.id
227   private_ip    = var.aws_web_server
228   //user_data    = "sudo yum install httpd -y && sudo systemctl start httpd"
229   security_groups = [aws_security_group.test.id]
230   key_name      = aws_key_pair.key_pair.key_name
231 }

232

233 # Create a "Management" interface and attach a public IP Address (EIP) to it
234 resource "aws_network_interface" "web-mgt" {
235   subnet_id     = aws_subnet.Management.id
236   private_ips  = "192.168.0.13"
237   security_groups = [aws_security_group.allow_ssh]
238   attachment {
239     device_index = 1
240     instance     = aws_instance.aws_webserver.id
241   }
242   depends_on = [aws_instance.aws_webserver]
243 }

244

245 resource "aws_eip" "webmgtpub" {
246   domain        = "vpc"
247   network_interface = aws_network_interface.web-mgt.id
248   tags = {
249     Name = "web-mgt public"
```

Using Ubuntu 20 AMI

Creating SSH Key File

Orchestrating the vpc resources -
subnets, gateway, routing table,
security group

Coding different security groups
for different servers

Spinning up 3 EC2 instances
for 3 servers



Sign in as IAM user

Account ID (12 digits) or account alias

295196550967

IAM user name

rashmi_arora

Password

Remember this account

Sign in

[Sign in using root user email](#)

Forgot password?

Account owners, return to the main sign-in page and sign in using your email address. IAM users, only your administrator can reset your password. For help.

ERRORS & FIXES

- Tried resetting password, IAM user is usually not given the rights and same is the case here as well
- Contacted HR for password reset and the new password did not work either
- Configured the setup using only Terraform

TERRAFORM ERRORS & FIXES

Error: Reference to undeclared resource

```
on ec2-1.tf line 141, in resource "aws_instance" "WEB":  
141:   subnet_id      = aws_subnet.Trust.id
```

A managed resource "aws_subnet" "Trust" has not been declared in the root module.

Error: Reference to undeclared resource

```
on ec2-1.tf line 179, in resource "aws_instance" "DB":  
179:   subnet_id      = aws_subnet.Trust.id
```

A managed resource "aws_subnet" # Ubuntu Server LB

```
resource "aws_instance" "LB" {  
  ami           = data.aws_ami.ubuntu_ami.id  
  instance_type = "t2.micro"  
  subnet_id     = aws_subnet.server_subnet.id  
  private_ip    = "192.168.0.11"  
  //user_data     = "sudo yum install httpd -y && sudo systemctl start httpd"  
  security_groups = [aws_security_group.allow_lb.id]  
  key_name      = aws_key_pair.key_pair.key_name  
}
```

TERRAFORM ERRORS & FIXES

```
[ -Q query_option ] [ -R address ] [ -S cert_path ] [ -W host_port ]
[ -w local_tun[:remote_tun] ] [user@]hostname [command]
ubuntu@ip-172-31-37-225:~/new_project$ ssh -i ssh-key.pem ubuntu-web@13.229.246.172
The authenticity of host '13.229.246.172 (13.229.246.172)' can't be established.
ECDSA key fingerprint is SHA256:Bff7uiMS8yG7cQhT0nza7M1eGb/arAo47PIBhSv1GBd...
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '13.229.246.172' (ECDSA) to the list of known hosts.
@@@@@@@WARNING: UNPROTECTED PRIVATE KEY FILE! @
Permissions 0775 for 'ssh-key.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "ssh-key.pem": bad permissions
Permission denied (publickey).
ubuntu@ip-172-31-37-225:~/new_project$ ls
dpip.tf  output2.bar  output.bar  ssh-key3.pem  terraform.tfstate
ec2.tf   output3.bar  ssh-key2.pem  ssh-key.pem  terraform.tfstate.backup
ubuntu@ip-172-31-37-225:~/new_project$ pwd
/home/ubuntu/new_project
ubuntu@ip-172-31-37-225:~/new_project$ chmod 600 /home/ubuntu/new_project
```

After setting up the instances, login to the server failed

Fix : changed the permissions for private key file ssh-key.pem

Successful Spinning of 3 Servers

```
aws_instance.DB (local-exec): Executing: ["./bin/sh" "-c" "echo >> /home/ubuntu/new_project/dpip.tf"]  
aws_instance.DB: Creation complete after 44s [id=i-08ed599861d21ad52]  
aws_eip.webmgtpub3: Creating...  
aws_eip.webmgtpub3: Creation complete after 2s [id=eipalloc-035e1a17fa3d90482]
```

Apply complete! Resources: 24 added, 0 changed, 0 destroyed.

Outputs:

```
DB_server_eip = "47.128.3.71"  
LB_server_eip = "54.169.77.129"  
web_server_eip = "13.214.233.14"
```

```
ubuntu@ip-172-31-37-225:~/new_project$ ssh -i ssh-key.pem ubuntu@47.128.3.71  
The authenticity of host '47.128.3.71 (47.128.3.71)' can't be established.  
ECDSA key fingerprint is SHA256:yeCg+szmNoYg70NzVYzQ+cuowa2GcZoFoxGZ8RJFQto.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added '47.128.3.71' (ECDSA) to the list of known hosts.  
oooooooooooooooooooooooooooooooooooo
```

```
ubuntu@ip-172-31-37-225:~/new_project$ ssh -i ssh-key.pem ubuntu@54.169.77.129
The authenticity of host '54.169.77.129 (54.169.77.129)' can't be established.
ECDSA key fingerprint is SHA256:ijjmsBAd7zv9zc0tK4DfqrmNyD+WNg0VJDLv89PwwDM.
Are you sure you want to continue connecting (yes/no)? yes
Please type 'yes' or 'no': yes
Warning: Permanently added '54.169.77.129' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1053-aws x86_64)
```

- * Documentation: <https://help.ubuntu.com>
- * Management: <https://landscape.canonical.com>
- * Support: <https://ubuntu.com/pro>

System information as of Tue Feb 20 19:15:01 UTC 2024

SSH to SERVERS

```
ubuntu@ip-172-31-37-225:~/new_project$ ssh -i ssh-key.pem ubuntu@47.128.3.71
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1053-aws x86_64)
```

- * Documentation: <https://help.ubuntu.com>
- * Management: <https://landscape.canonical.com>
- * Support: <https://ubuntu.com/pro>

System information as of Tue Feb 20 19:14:21 UTC 2024



```
ubuntu@ip-172-31-37-225:~/new_project$ ssh -i ssh-key.pem ubuntu@13.214.233.14
The authenticity of host '13.214.233.14 (13.214.233.14)' can't be established.
ECDSA key fingerprint is SHA256:8uK/06ldS6K3wqDm4W0cIgeqPbvH7X0tu8sS+YPeaJk.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '13.214.233.14' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1053-aws x86_64)
```

- * Documentation: <https://help.ubuntu.com>
- * Management: <https://landscape.canonical.com>
- * Support: <https://ubuntu.com/pro>

System information as of Tue Feb 20 19:15:22 UTC 2024

ANSIBLE - ERRORS & FIXES

```
ubuntu@ip-172-31-37-225:~/new_project$ ansible-playbook -i inventory.yml playbook.yml  
PLAY [Configure load balance servers] ****  
TASK [include_role : nginx_lb] ****  
ERROR! the role 'nginx_lb' was not found in /home/ubuntu/new_project/roles:/home/ubuntu/roles:/home/ubuntu/new_project
```

The error appears to be in '/home/ubuntu/new_project/playbook.yml': line 7, column 13,
be elsewhere in the file depending on the exact syntax problem.

The offending line appears to be:

```
- include_role:  
  name: nginx_lb  
  ^ here
```

```
ubuntu@ip-172-31-37-225:~/new_project$ pwd  
/home/ubuntu/new_project  
ubuntu@ip-172-31-37-225:~/new_project$ cd ..  
ubuntu@ip-172-31-37-225:~$ ls  
gpg  hashicorp-archive-keyring.gpg  new_project  project  roles  
ubuntu@ip-172-31-37-225:~$ cd new_project/  
ubuntu@ip-172-31-37-225:~/new_project$ ansible-playbook -i inventory.yml playbook.yml
```



ANSIBLE - ERRORS & FIXES

```
ok: [WEB]
```

```
TASK [tomcat : Install package] *****
fatal: [WEB]: FAILED! => {"changed": false, "msg": "No package matching 'tomcat7' is available"}
```

```
PLAY RECAP *****
LB : ok=6    changed=0   unreachable=0   failed=0    skipped=0   rescued=0   ignored=0
WEB: ok=1    changed=0   unreachable=0   failed=1    skipped=0   rescued=0   ignored=0
```

```
TASK [tomcat : Install package] *****
ok: [WEB]
```

```
TASK [tomcat : Create App directory] *****
ok: [WEB]
```

```
TASK [tomcat : Copy index.jsp] *****
ok: [WEB]
```

```
TASK [tomcat : Copy additional files] *****
ok: [WEB] => (item={'dest': u'/var/lib/tomcat9/webapps/Test', 'src': u'WEB-INF'})
ok: [WEB] => (item={'dest': u'/usr/share/tomcat9/bin/setenv.sh', 'src': u'setenv.sh'})
```



```
PLAY RECAP *****
DB : ok=3    changed=0   unreachable=0   failed=0    skipped=0   rescued=0   ignored=0
LB : ok=6    changed=0   unreachable=0   failed=0    skipped=0   rescued=0   ignored=0
WEB: ok=5    changed=0   unreachable=0   failed=0    skipped=0   rescued=0   ignored=0
```

THANK YOU



[HTTPS://GITHUB.COM/IAMRASHMIARORA22/GUARDICORE](https://github.com/IAMRASHMIARORA22/GUARDICORE)

+919466533966

iamrashmiarora22@gmail.com

www.linkedin.com/in/iamrashmiarora/

