

FINAL PROJECT (TASK3)

Name: Mohamed Mostafa Mostafa Esmael

Track: System Administration

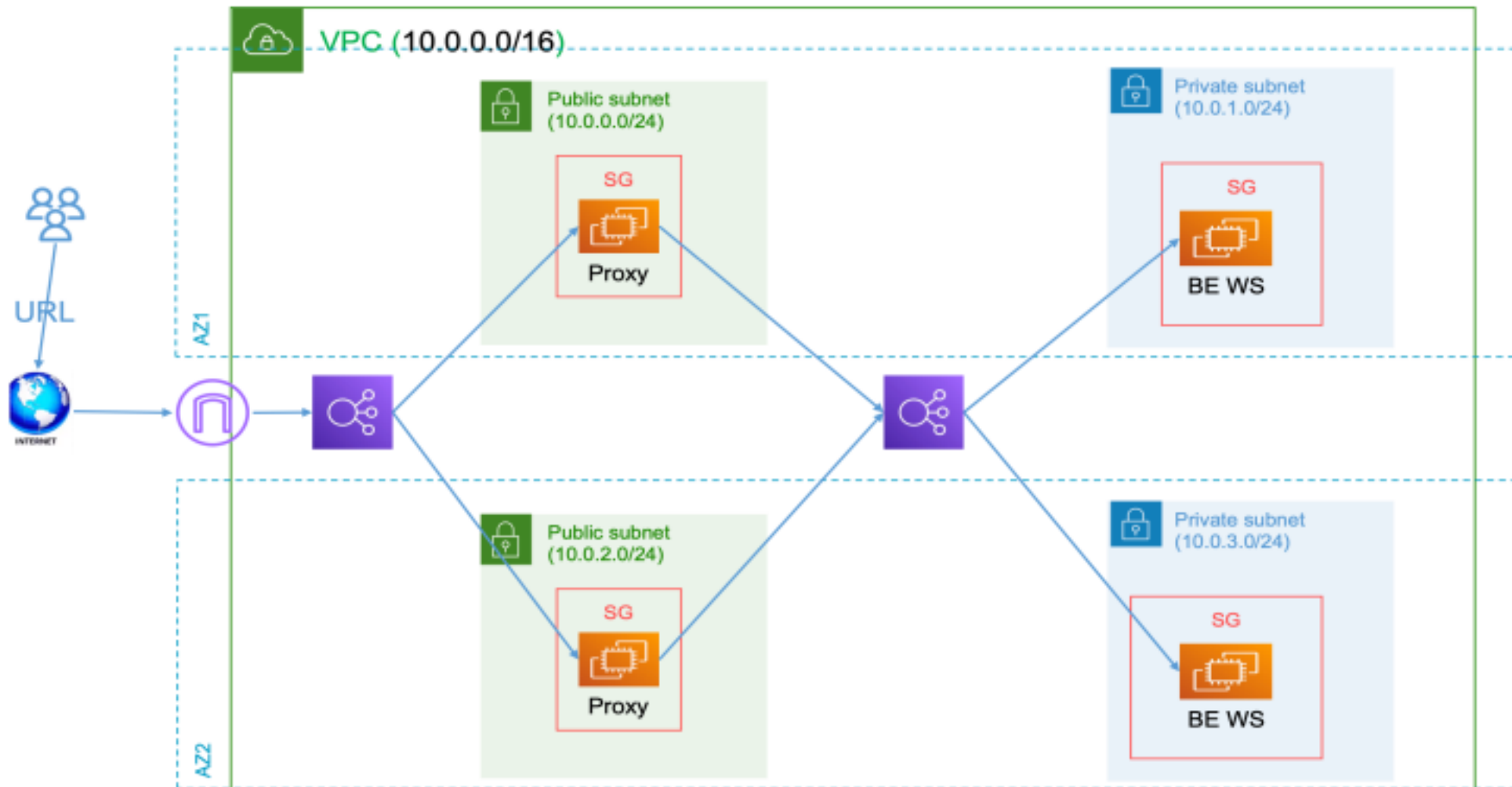
Branch: Aswan

GITHUB Repo:

https://github.com/mohamedesmael10/MultiTier_Terraform

Video Link:

https://www.linkedin.com/posts/mohamedesmael_cloudcomputing-aws-terraform-activity-7314675933087449088-PTL?utm_source=share&utm_medium=member_desktop&rcm=ACoAACy5_PwBM_YWP94Stzoi0El9kwuZo_kBV9A





```
[esmael@localhost ~]$ terraform workspace new dev
```

Created and switched to workspace "dev"!

You're now on a new, empty workspace. Workspaces isolate their state, so if you run "terraform plan" Terraform will not see any existing state for this configuration.

```
[esmael@localhost ~]$ terraform workspace list
```

```
  default
```

```
* dev
```

```
[esmael@localhost ~]$
```

```
[esmael@localhost ~]$
```

```
[esmael@localhost MultiTier_Terraform]$ terraform init -reconfigure
```

Initializing the backend...

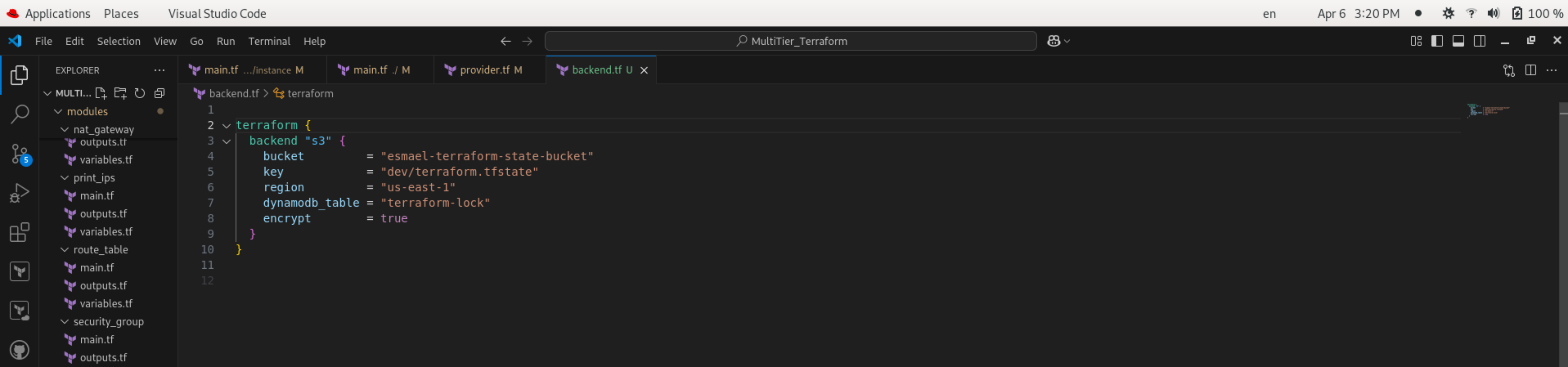
Successfully configured the backend "s3"! Terraform will automatically use this backend unless the backend configuration changes.

Initializing provider plugins...

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.



Instances (12) [Info](#)

Last updated
less than a minute ago



Connect

Instance state ▼

Actions ▼

Launch instances



Find Instance by attribute or tag (case-sensitive)

All states ▼

< 1 >



<input type="checkbox"/>	Name	Instance ID	Instance state ▲	Instance type ▼	Status check	Alarm status	Availability Zone ▼	Public IPv4 DNS ▼	Public IPv4 ... ▼	El...
<input type="checkbox"/>	EsmaelTF-private-1	i-0c7795398dd3c8881	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	–	–	–
<input type="checkbox"/>	EsmaelTF-bastion-1	i-0fc185d5b31be785d	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	–	34.238.245.81	–
<input type="checkbox"/>	EsmaelTF-private-0	i-07e647815c5f06de7	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	–	–	–
<input type="checkbox"/>	EsmaelTF-bastion-0	i-060153d643b0e35e3	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	–	100.27.48.162	–
<input type="checkbox"/>	EsmaelTF-private-1	i-06cb512d84fc03f29	Terminated	t2.micro	–	View alarms +	us-east-1b	–	–	–
<input type="checkbox"/>	EsmaelTF-bastion-1	i-0930a1505a81f2077	Terminated	t2.micro	–	View alarms +	us-east-1b	–	–	–

Select an instance

Amazon S3

General purpose buckets

Directory buckets

Table buckets

Access Grants

Access Points

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

Storage Lens groups

AWS Organizations settings

terraform.tfstate Info

Properties Permissions Versions

Object overview

Owner

mohamed.0572714104

AWS Region

US East (N. Virginia) us-east-1

Last modified

April 6, 2025, 15:20:29 (UTC+02:00)

Size

123.6 KB

Type

tfstate

Key

dev/terraform.tfstate

S3 URI

s3://esmael-terraform-state-bucket/dev/terraform.tfstate

Amazon Resource Name (ARN)

arn:aws:s3:::esmael-terraform-state-bucket/dev/terraform.tfstate

Entity tag (Etag)

fdd007792150bd8e7bfd1909aeb9f2b2

Object URL

https://esmael-terraform-state-bucket.s3.us-east-1.amazonaws.com/dev/terraform.tfstate

- EC2
- Dashboard
- EC2 Global View
- Events
- ▼ Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations

Load balancers (2)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Refresh

Actions

Create load balancer

< 1 >

Settings

<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input type="checkbox"/>	EsmaelTF-Public-lb	EsmaelTF-Public-lb-823249...	Active	vpc-0c53859dc0a4583a2	2 Availability Zones	application	April 6, 2025, 15:16 (UTC+02:00)
<input type="checkbox"/>	EsmaelTF-lb	internal-EsmaelTF-lb-7755...	Active	vpc-0c53859dc0a4583a2	2 Availability Zones	application	April 6, 2025, 15:17 (UTC+02:00)

EC2

Dashboard

EC2 Global View

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Capacity Reservations

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Application

Active

Scheme

Internet-facing

Hosted zone

Z35SXDOTRQ7X7K

[vpc-0c53859dc0a4583a2](#)

Availability Zones

[subnet-05937e2ad878aa2cb](#) us-east-1a (use1-az1)[subnet-0379d25fa4e007d90](#) us-east-1b (use1-az2)

IPv4

Date created

April 6, 2025, 15:16 (UTC+02:00)

Load balancer ARN

[arn:aws:elasticloadbalancing:us-east-1:025066251600:loadbalancer/app/EsmaelTF-Public-lb/d0e4cf03ff24ce10](#)DNS name [Info](#)[EsmaelTF-Public-lb-823249941.us-east-1.elb.amazonaws.com](#) (A Record)

Listeners and rules

Network mapping

Resource map

Security

Monitoring

Integrations

Attributes

Capacity

Tags

Resource map [Info](#)[Give feedback](#)

View, explore, and troubleshoot your load balancer's architecture.

Overview

Unhealthy target map

☒ Show resource details

EsmaelTF-Public-lb

Last fetched seconds ago

[Export](#)

Listeners (1)

HTTP:80

1 rule

Rules (1)

→ Priority default
Forward to target groupConditions (If)
If no other rule appliesTarget groups (1) [Info](#) Instance
EsmaelTF-pub-tg 2 targets☒ 2 ☒ 0 ☒ 0 ☒ 0 ☒ 0

Targets (2)

i-060153d643b0e35e3 Port 80

☒ Healthy

i-0fc185d5b31be785d Port 80

☒ Healthy

Load balancer type Application	Status Active	VPC vpc-0c53859dc0a4583a2	Load balancer IP address type IPv4
Scheme Internal	Hosted zone Z35SXDOTRQ7X7K	Availability Zones subnet-0977e8881d259f542 us-east-1a (use1-az1) subnet-05ef066f6eed06262 us-east-1b (use1-az2)	Date created April 6, 2025, 15:17 (UTC+02:00)
Load balancer ARN arn:aws:elasticloadbalancing:us-east-1:025066251600:loadbalancer/app/EsmaelTF-lb/e39d6b49947da17e		DNS name Info internal-EsmaelTF-lb-775540221.us-east-1.elb.amazonaws.com (A Record)	

- Listeners and rules
- Network mapping
- Resource map
- Security
- Monitoring
- Integrations
- Attributes
- Capacity
- Tags

Resource map Info

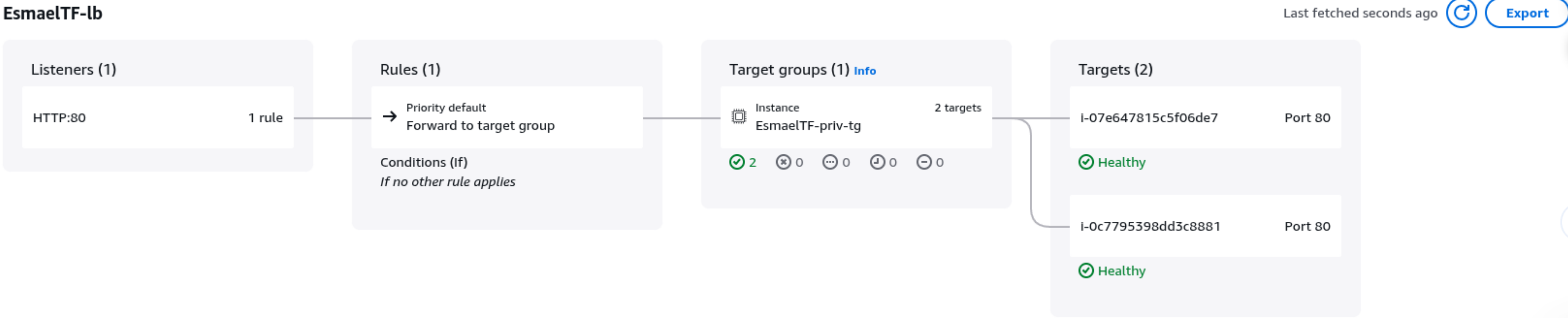
Give feedback

View, explore, and troubleshoot your load balancer's architecture.

Overview

Unhealthy target map

Show resource details



aws

Search

[Alt+S]

S3

IAM

VPC

EC2

DynamoDB

>

Tables

>

terraform-lock

DynamoDB

<

Dashboard

Tables

Explore items

PartiQL editor

Backups

Exports to S3

Imports from S3

Integrations

New

Reserved capacity

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Clusters

Subnet groups

Parameter groups

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Tables (2)

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Any tag key

Any tag value

Find tables

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esmaeltable

terraform-lock

terraform-lock

Settings

Indexes

Monitor

Global tables

Backups

Exports and streams

Permissions

Protect your DynamoDB table from accidental writes and deletes

When you turn on point-in-time recovery (PITR), DynamoDB backs up your table data automatically so that you can restore to any given second in the preceding 1 to 35 days. Additional charges apply. [Learn more](#)

Edit PITR

General information

Info

Partition key

LockID (String)

Sort key

-

Capacity mode

On-demand

Table status

Active

Alarms

No active alarms

Point-in-time recovery (PITR)

Info

Off

Item count

1

Resource-based policy

Info

Not active

Average item size

99 bytes

Table size

99 bytes

Amazon Resource Name (ARN)

arn:aws:dynamodb:us-east-1:025066251600:table/terraform-lock

Get live item count

Additional info


```
provisioner "remote-exec" {
  connection {
    type      = "ssh"
    user      = "ubuntu"
    private_key = file(var.key)
    host      = aws_instance.bastion[count.index].public_ip
  }
  inline = [
    "sleep 60",
    "sudo apt-get update -y",
    "sudo apt-get install -y apache2",
    "sudo a2enmod proxy proxy_http",
    "sudo systemctl start apache2",
    "sudo systemctl enable apache2",
    "sudo chown -R ubuntu:ubuntu /var/www/html",
    "sudo systemctl restart apache2"
  ]
}

depends_on = [aws_instance.bastion]
}
```

Mohamed Mostafa Esmael's CV

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Profile

Motivated and detail-oriented System Administrator & DevOps Engineer with hands-on experience in cloud computing, automation, and CI/CD pipelines. Proficient in Infrastructure as Code tools like Terraform, Ansible, and Docker, excelling in managing both Linux and Windows environments. My internships at ITI, NTI, DEPI, and CCNA have refined my expertise in server management, containerization, and network configuration.

Internships

Information Technology Institute (ITI) – Aswan, Egypt

Intensive Code Camp (ICC): System Administration (Nov 2024 – Apr 2025)
A Systems Administration Specialist adept at deploying and maintaining Linux and Windows systems. Proficient with Ansible, Docker, Terraform, AWS, Azure, Python & Bash scripting, CI/CD pipelines, and container orchestration; certified in RHCSA.

Projects:

- [Windows Server Infrastructure](#)
- [Memory Card Game](#)
- [Python-Based System Administration Tool](#)
- [Serverless API with AWS Lambda & DynamoDB](#)

Certificates:

- [NTI Certificate](#)
- [Huawei Certificate](#)

National Telecommunication Institute (NTI) – Port Said, Egypt

(Sep 2024 – Nov 2024)
Acquired essential skills in Huawei Cloud services through the HCIA certification, covering cloud fundamentals, server technologies, and virtualization in preparation for the H13-511 exam.

Certificates:

- [CCNA: Introduction to Networks](#)
- [CCNA: Switching, Routing, and Wireless Essentials](#)
- [CCNA: Enterprise Networking, Security, and Automation](#)

