

Pre requisites for Deployment 4 include having Jenkins installed on an EC2 Ubuntu instance

```
#!/bin/bash
```

```
sudo apt update
```

```
sudo apt -y install openjdk-11-jre
```

```
curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo tee \
```

```
/usr/share/keyrings/jenkins-keyring.asc > /dev/null
```

```
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
```

```
https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
```

```
/etc/apt/sources.list.d/jenkins.list > /dev/null
```

```
sudo apt-get update
```

```
sudo apt-get -y install jenkins
```

```
sudo systemctl start jenkins
```

```
systemctl status jenkins >> ~/file.txt
```

install Terraform on the Jenkins server

```
wget -O- https://apt.releases.hashicorp.com/gpg | gpg --dearmor | sudo tee
```

```
/usr/share/keyrings/hashicorp-archive-keyring.gpg
```

```
echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg]
```

```
https://apt.releases.hashicorp.com $(lsb_release -cs) main" | sudo tee
```

```
/etc/apt/sources.list.d/hashicorp.list
```

```
sudo apt update && sudo apt install terraform
```

```
terraform --version
```

Select the pipeline, select credentials and deploy the Jenkins build

Unfortunately, after multiple troubleshooting steps with colleagues and Google my Jenkins build continuously had a credential failure—thus not allowing me to move beyond. This is reflected in my diagram

```
D Shell Script -- terraform plan -out plan.tfplan -var="aws_access_key=$aws_access_key" -var="aws_secret_key=$aws_secret_key" (self time 10s)

+ terraform plan -out plan.tfplan -var=aws_access_key=**** -var=aws_secret_key=****
[31m[0m[0m
[31m[0m[0m[31mError: [0m[0m[31merror configuring Terraform AWS Provider: error validating provider credentials: error calling sts:GetCallerIdentity: operation error STS: GetCallerIdentity, https response error StatusCode: 403, RequestID: c5b0f633-301f-4
e97-8f58-14a2bcc0968b, api error InvalidClientTokenId: The security token included in the request is invalid.[0m
[31m[0m[0m[0m
[31m[0m[0m[0m with provider["registry.terraform.io/hashicorp/aws"],
[31m[0m[0m[0m on main.tf line 4, in provider "aws":
[31m[0m[0m[0m 4: provider "aws" [4m[0m[0m[0m
[31m[0m[0m[0m
[31m[0m[0m[0m
```



Figure 1 Initial Credential Failure

Lessons learned:

To resolve this issue I had to delete my keys and re-apply them. I further troubleshot the issue by restarting my instance which then gave it a different instance. I later learned that when I initially added my keys in github which is a huge safety error---AWS added a exposed key role to my IAM user thus making impossible for me to plan and apply. Upon deleting this I was able to continue.

I also learned to ensure proper spacing on my terraform VPC pipeline syntax was updated as well as replacing the quotes as this initially gave multiple errors. After clearing out a series of errors my VPC was constructed. I also had to delete my 5th VPC to make room for this deployment as AWS has a maximum of 5 vpcs. I then added my destroy stage and verified the URL shortner displayed.

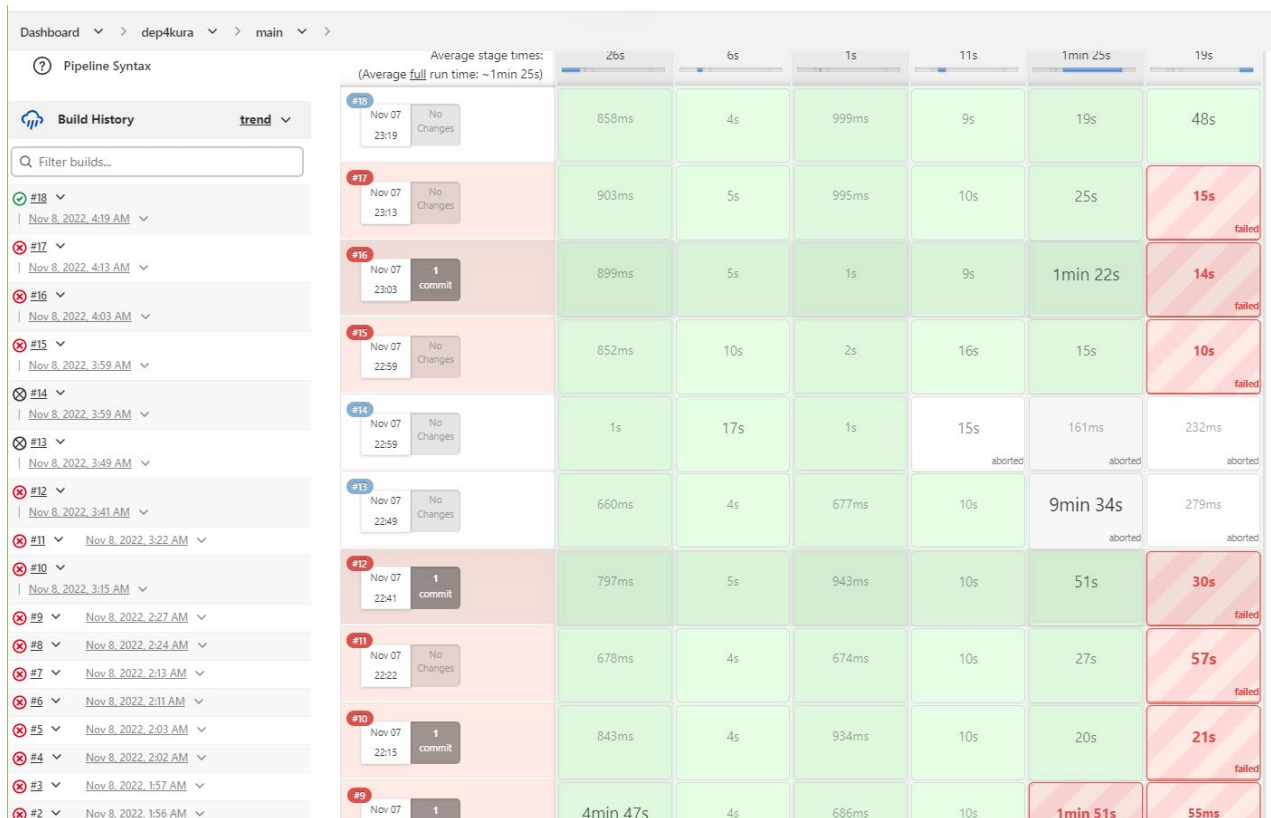


Figure 2 Multiple Commits

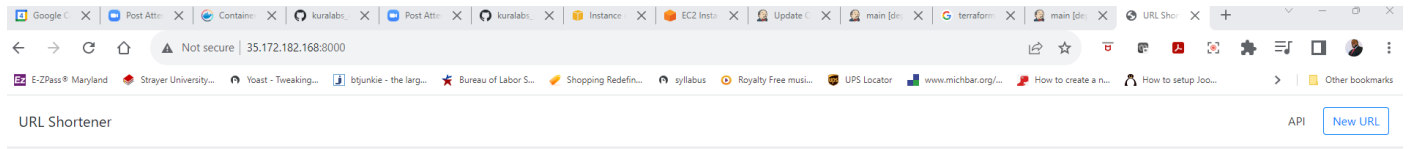


Figure 3 URL Shortner