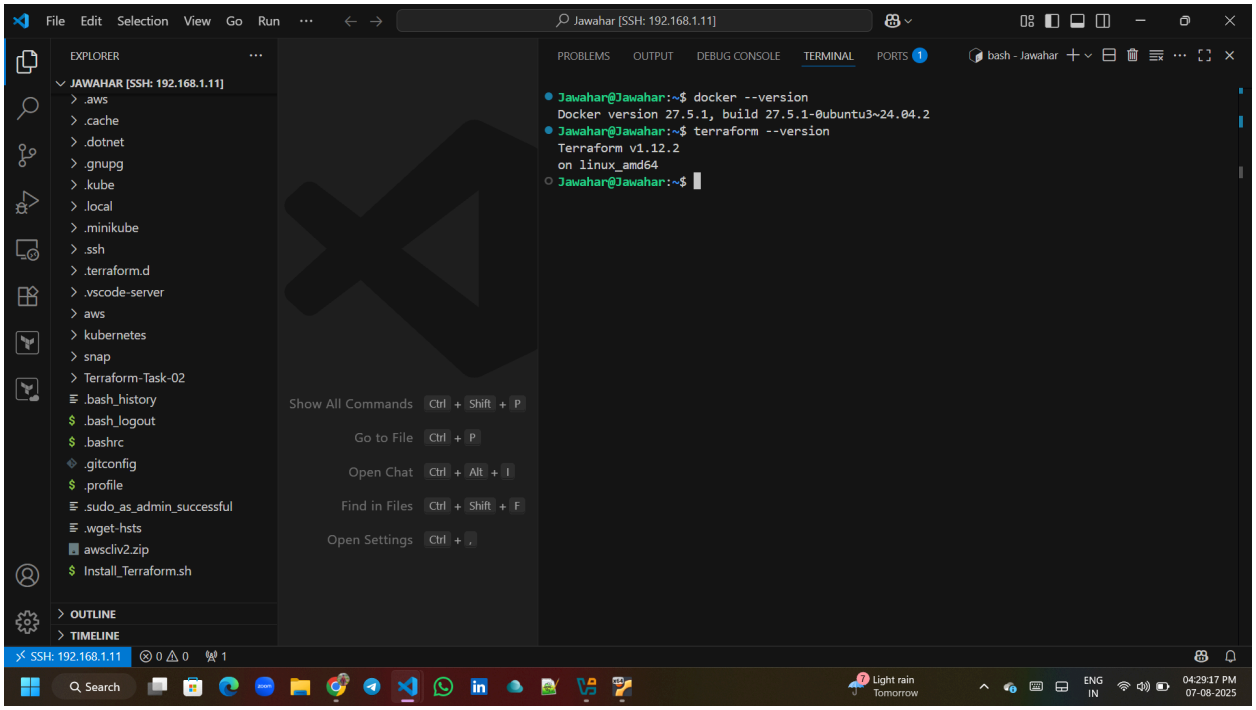
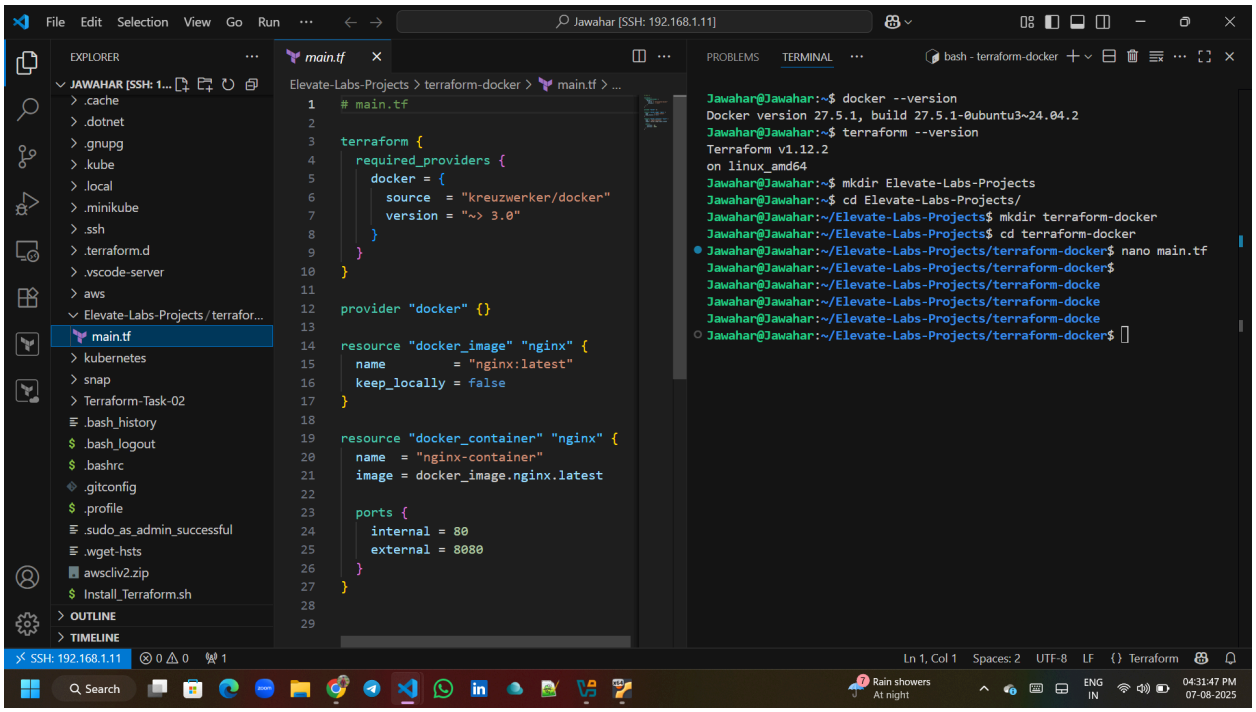
TASK 3 : Infrastructure as Code (IaC) with Terraform

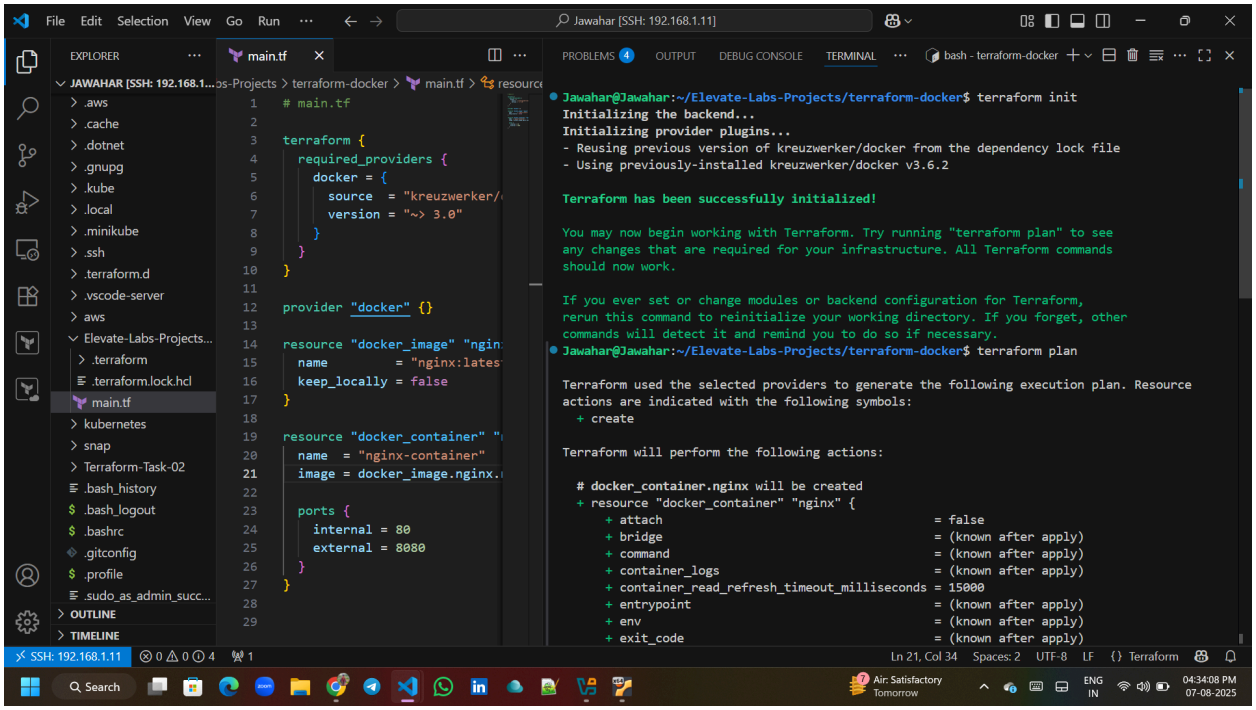
- **Objective: Provision a local Docker container using Terraform.**
- **Tools: Terraform, Docker**
- **Deliverables: main.tf, execution logs**
- **Hints:**
  a. **Use Docker provider in Terraform.**
  b. **Write Terraform code to create a container.**
  c. **Run terraform init, apply.**
  d. **Destroy infra using terraform destroy.**
  e. **Use terraform plan before apply.**
  f. **Check terraform state command.**

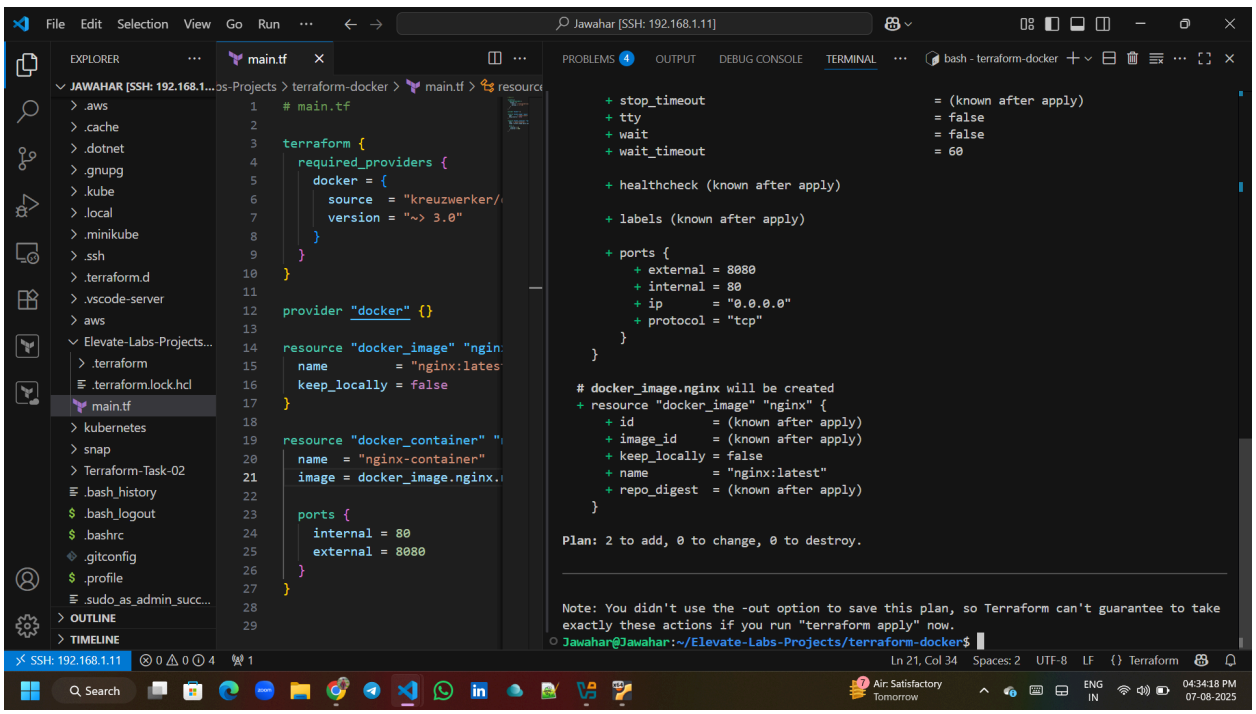
Screenshots:

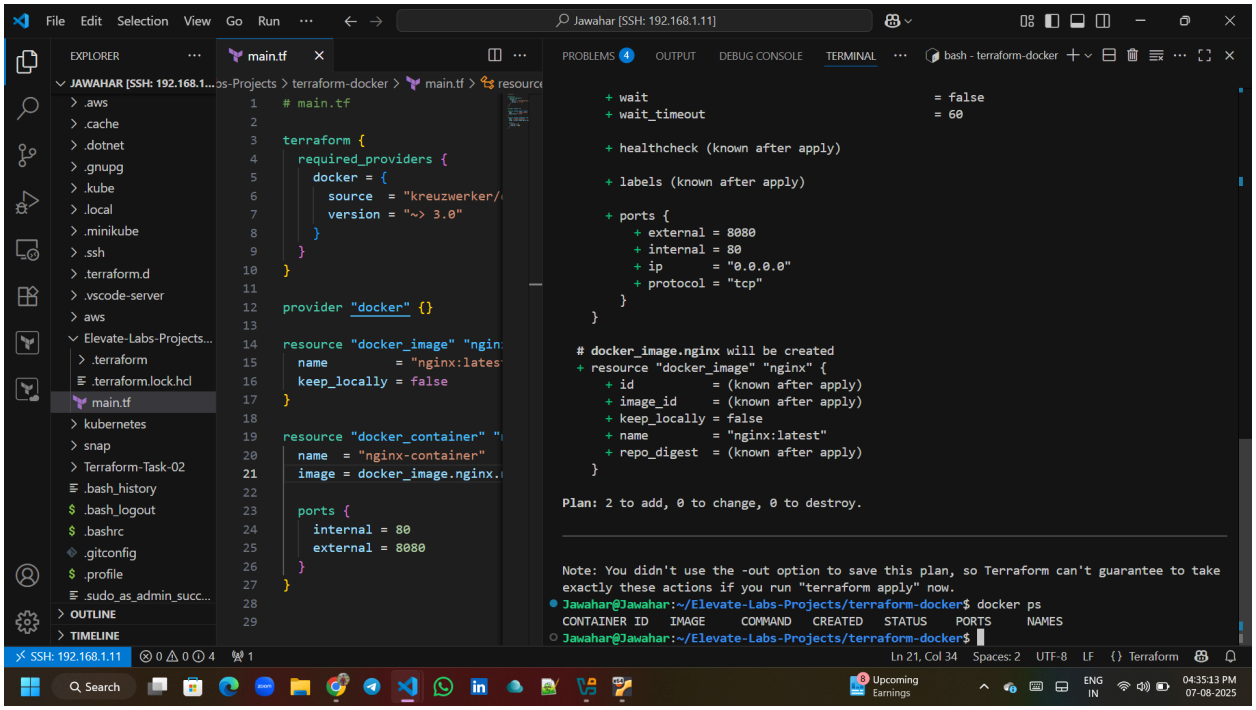
Drive URL :
https://docs.google.com/document/d/1qyk7kUEm4HjAikjHJVgJnC7jNq5SiZ3lg0lepAhN2Ml/edit?usp=sharing

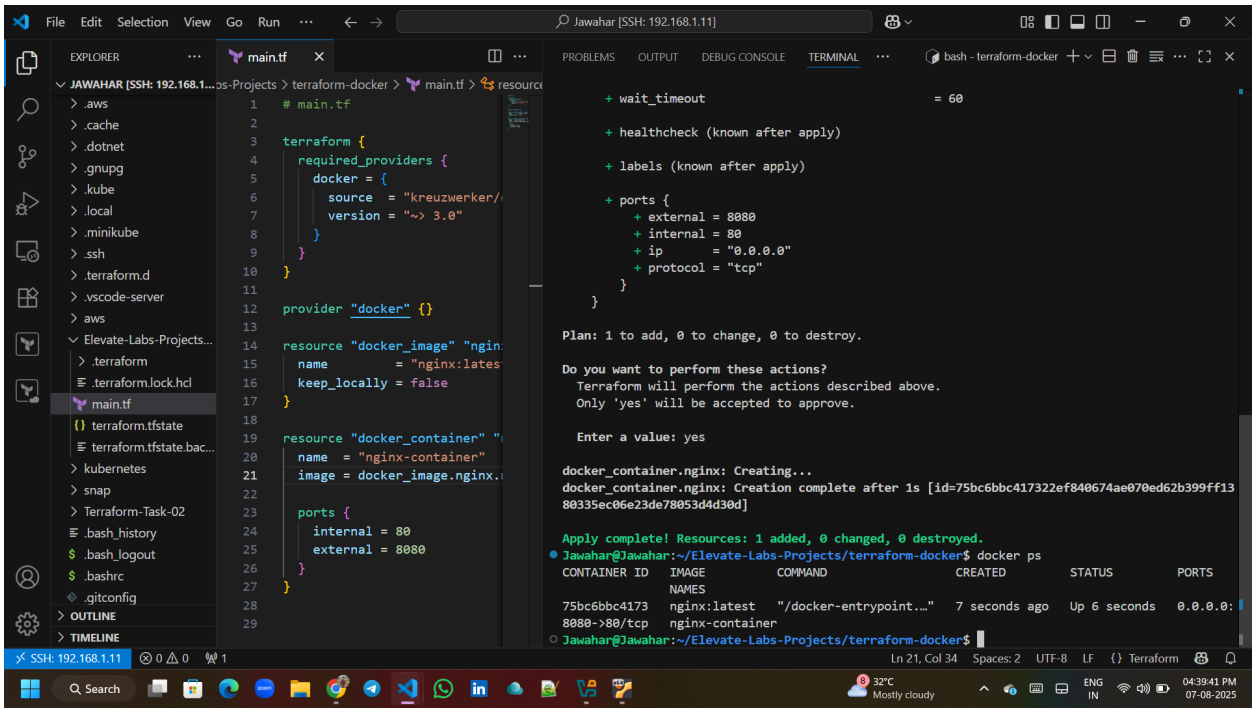

File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
JAWAHAR [SSH: 192.168.1.11]
.aws
.cache
.dotnet
.gnupg
.kube
.local
.minikube
.ssh
.terraform.d
.vscode-server
aws
kubernetes
snap
Terraform-Task-02
.bash_history
.bash_logout
.bashrc
.gitconfig
.profile
.sudo_as_admin_successful
.wget-hsts
awscliv2.zip
Install_Terraform.sh
OUTLINE
TIMELINE
Show All Commands Ctrl + Shift + P
Go to File Ctrl + P
Open Chat Ctrl + Alt + I
Find in Files Ctrl + Shift + F
Open Settings Ctrl + ,
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS 1
bash - Jawahar
Jawahar@Jawahar:~$ docker --version
Docker version 27.5.1, build 27.5.1-0ubuntu3~24.04.2
Jawahar@Jawahar:~$ terraform --version
Terraform v1.12.2
on linux_amd64
Jawahar@Jawahar:~$
SSH: 192.168.1.11
Search
Light rain
Tomorrow
ENG
IN
04:29:17 PM
07-08-2025

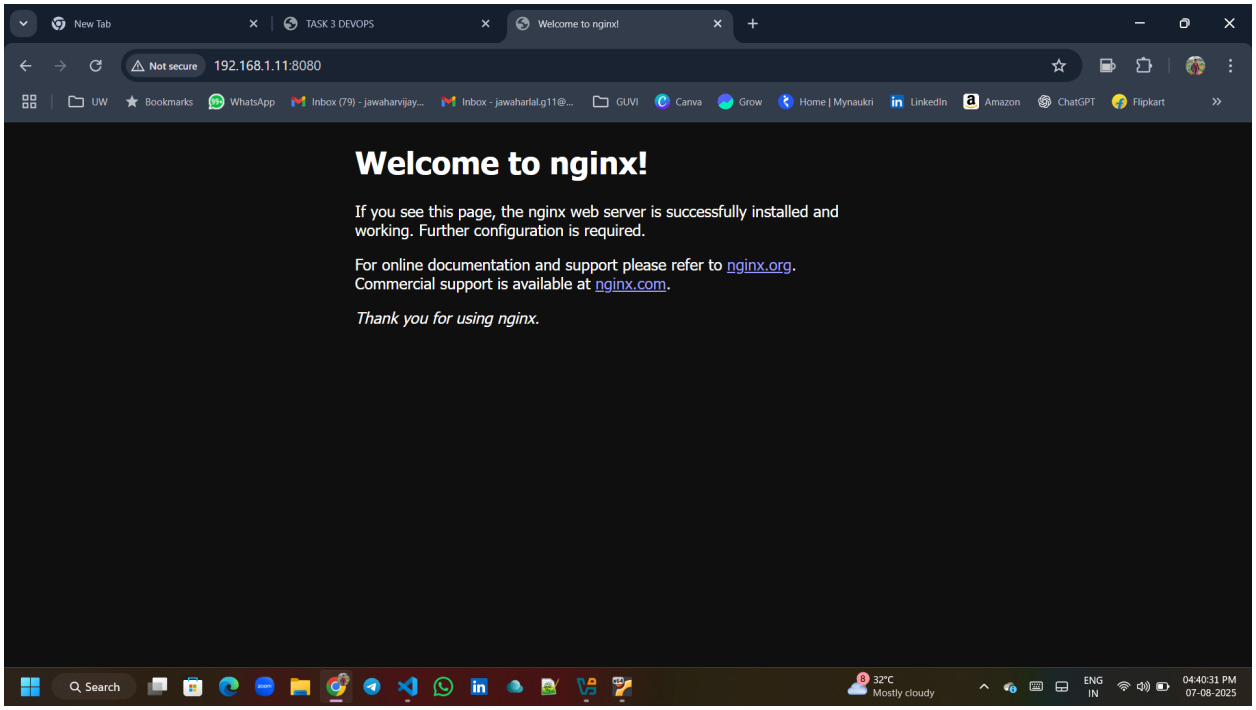

File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
JAWAHAR [SSH: 1...
main.tf
Elevate-Labs-Projects > terraform-docker > main.tf > ...
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/docker"
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "nginx" {
name = "nginx:latest"
keep_locally = false
}
resource "docker_container" "nginx" {
name = "nginx-container"
image = docker_image.nginx.latest
ports {
internal = 80
external = 8080
}
}
Elevate-Labs-Projects / terrafor...
main.tf
PROBLEMS TERMINAL
bash - terraform-docker
Jawahar@Jawahar:~$ docker --version
Docker version 27.5.1, build 27.5.1-0ubuntu3~24.04.2
Jawahar@Jawahar:~$ terraform --version
Terraform v1.12.2
on linux_amd64
Jawahar@Jawahar:~$ mkdir Elevate-Labs-Projects
Jawahar@Jawahar:~$ cd Elevate-Labs-Projects/
Jawahar@Jawahar:~/Elevate-Labs-Projects$ mkdir terraform-docker
Jawahar@Jawahar:~/Elevate-Labs-Projects$ cd terraform-docker
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ nano main.tf
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docke
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docke
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docke
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 1, Col 1 Spaces: 2 UTF-8 LF {} Terraform
Search
Rain showers
At night
ENG
IN
04:31:47 PM
07-08-2025

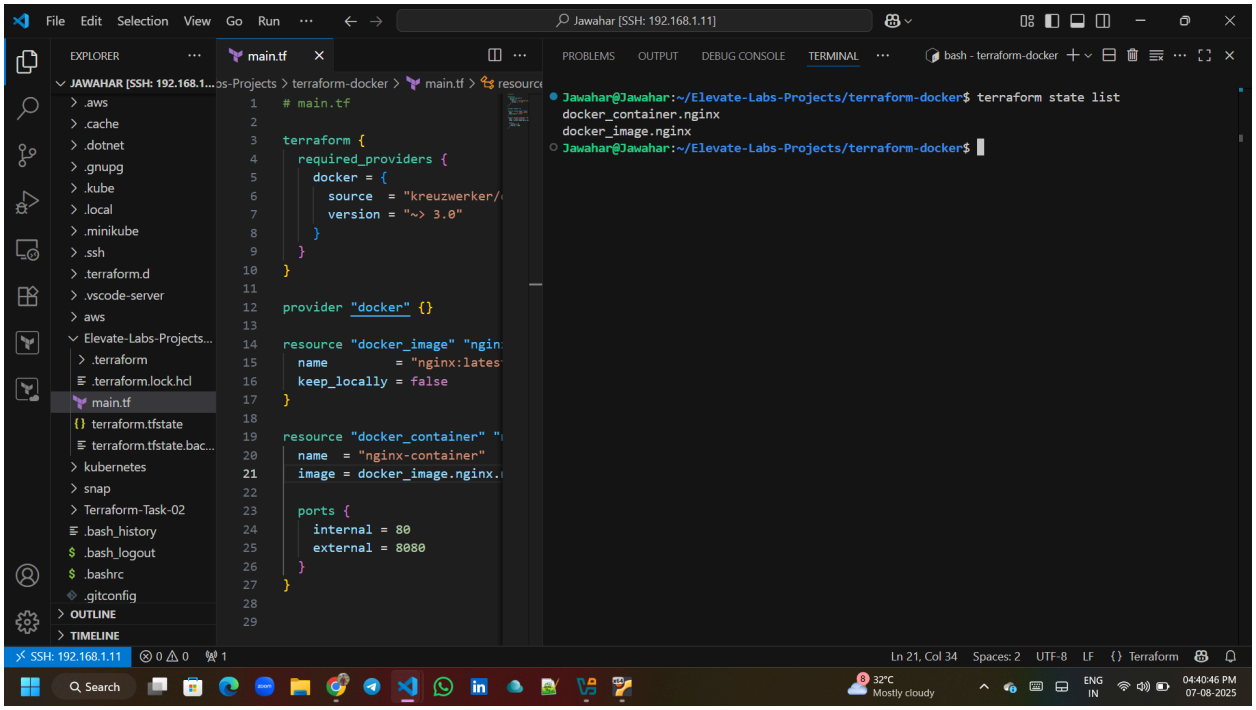

File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
terraform-docker > main.tf
.aws
.cache
.dotnet
.gnupg
.kube
.local
.minikube
.ssh
.terraform.d
.vscode-server
aws
Elevate-Labs-Projects...
.terraform
.terraform.lock.hcl
main.tf
kubernetes
snap
Terraform-Task-02
.bash_history
.bash_logout
.bashrc
.gitconfig
.profile
.sudo_as_admin_succ...
OUTLINE
TIMELINE
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of kreuzwerker/docker from the dependency lock file
- Using previously-installed kreuzwerker/docker v3.6.2
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.
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ terraform plan
Terraform used the selected providers to generate the following execution plan. Resource
actions are indicated with the following symbols:
+ create
Terraform will perform the following actions:
# docker_container.nginx will be created
+ resource "docker_container" "nginx" {
+ attach = false
+ bridge = (known after apply)
+ command = (known after apply)
+ container_logs = (known after apply)
+ container_read_refresh_timeout_milliseconds = 15000
+ entrypoint = (known after apply)
+ env = (known after apply)
+ exit_code = (known after apply)
SSH: 192.168.1.11
Ln 21, Col 34
Spaces: 2
UTF-8
LF
Terraform
Search
Air: Satisfactory
Tomorrow
ENG
IN
04:34:08 PM
07-08-2025

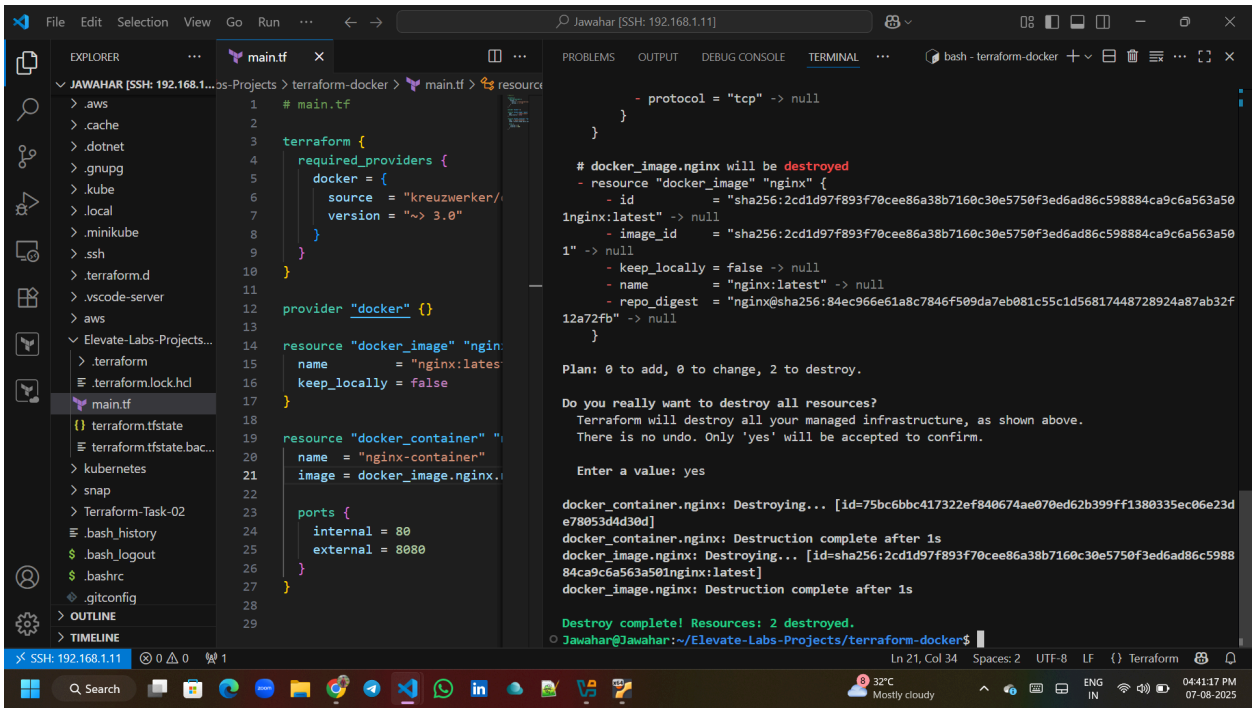

File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
terraform-docker > main.tf
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
+ stop_timeout = (known after apply)
+ tty = false
+ wait = false
+ wait_timeout = 60
+ healthcheck (known after apply)
+ labels (known after apply)
+ ports {
+ external = 8080
+ internal = 80
+ ip = "0.0.0.0"
+ protocol = "tcp"
}
}
# docker_image.nginx will be created
+ resource "docker_image" "nginx" {
+ id = (known after apply)
+ image_id = (known after apply)
+ keep_locally = false
+ name = "nginx:latest"
+ repo_digest = (known after apply)
}
Plan: 2 to add, 0 to change, 0 to destroy.
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.
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 21, Col 34
Spaces: 2
UTF-8
LF
Terraform
Search
Air: Satisfactory
Tomorrow
ENG
IN
04:34:18 PM
07-08-2025


File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
Elevate-Labs-Projects > terraform-docker > main.tf
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
+ wait = false
+ wait_timeout = 60
+ healthcheck (known after apply)
+ labels (known after apply)
+ ports {
+ external = 8080
+ internal = 80
+ ip = "0.0.0.0"
+ protocol = "tcp"
}
}
# docker_image.nginx will be created
+ resource "docker_image" "nginx" {
+ id = (known after apply)
+ image_id = (known after apply)
+ keep_locally = false
+ name = "nginx:latest"
+ repo_digest = (known after apply)
}
Plan: 2 to add, 0 to change, 0 to destroy.
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.
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 21, Col 34 Spaces: 2 UTF-8 LF {} Terraform
Search
Upcoming Earnings
ENG IN
04:35:13 PM 07-08-2025


File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
Elevate-Labs-Projects > terraform-docker > main.tf
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
+ wait_timeout = 60
+ healthcheck (known after apply)
+ labels (known after apply)
+ ports {
+ external = 8080
+ internal = 80
+ ip = "0.0.0.0"
+ protocol = "tcp"
}
}
Plan: 1 to add, 0 to change, 0 to destroy.
Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.
Enter a value: yes
docker_container.nginx: Creating...
docker_container.nginx: Creation complete after 1s [id=75bc6bbc417322ef840674ae070ed62b399ff1380335ec06e23de78053d4d30d]
Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
75bc6bbc4173 nginx:latest "/docker-entrypoint.…" 7 seconds ago Up 6 seconds 0.0.0.0:8080->80/tcp nginx-container
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 21, Col 34 Spaces: 2 UTF-8 LF {} Terraform
Search
32°C Mostly cloudy
ENG IN
04:39:41 PM 07-08-2025


New Tab
TASK 3 DEVOPS
Welcome to nginx!
Not secure
192.168.1.11:8080
UW
Bookmarks
WhatsApp
Inbox (79) - jawaharvijay...
Inbox - jawaharlal.g11@...
GUVI
Canva
Grow
Home | Mynaukri
LinkedIn
Amazon
ChatGPT
Flipkart
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.
Search
32°C
Mostly cloudy
ENG
IN
04:40:31 PM
07-08-2025


File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
terraform-docker > main.tf
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$ terraform state list
docker_container.nginx
docker_image.nginx
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 21, Col 34 Spaces: 2 UTF-8 LF Terraform
Search
32°C Mostly cloudy
ENG IN
04:40:46 PM 07-08-2025


File Edit Selection View Go Run
Jawahar [SSH: 192.168.1.11]
EXPLORER
main.tf
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
bash - terraform-docker
JAWAHAR [SSH: 192.168.1...
terraform-docker > main.tf
# main.tf
terraform {
required_providers {
docker = {
source = "kreuzwerker/
version = "~> 3.0"
}
}
}
provider "docker" {}
resource "docker_image" "ngin
name = "nginx:lates
keep_locally = false
}
resource "docker_container" "
name = "nginx-container"
image = docker_image.nginx.
ports {
internal = 80
external = 8080
}
}
- protocol = "tcp" -> null
}
}
# docker_image.nginx will be destroyed
- resource "docker_image" "nginx" {
- id = "sha256:2cd1d97f893f70cee86a38b7160c30e5750f3ed6ad86c598884ca9c6a563a50
1nginx:latest" -> null
- image_id = "sha256:2cd1d97f893f70cee86a38b7160c30e5750f3ed6ad86c598884ca9c6a563a50
1" -> null
- keep_locally = false -> null
- name = "nginx:latest" -> null
- repo_digest = "nginx@sha256:84ec966e61a8c7846f509da7eb081c55c1d56817448728924a87ab32f
12a72fb" -> null
}
Plan: 0 to add, 0 to change, 2 to destroy.
Do you really want to destroy all resources?
Terraform will destroy all your managed infrastructure, as shown above.
There is no undo. Only 'yes' will be accepted to confirm.
Enter a value: yes
docker_container.nginx: Destroying... [id=75bc6bbc417322ef840674ae070ed62b399ff1380335ec06e23d
e78053d4d30d]
docker_container.nginx: Destruction complete after 1s
docker_image.nginx: Destroying... [id=sha256:2cd1d97f893f70cee86a38b7160c30e5750f3ed6ad86c5988
84ca9c6a563a501nginx:latest]
docker_image.nginx: Destruction complete after 1s
Destroy complete! Resources: 2 destroyed.
Jawahar@Jawahar:~/Elevate-Labs-Projects/terraform-docker$
SSH: 192.168.1.11
Ln 21, Col 34 Spaces: 2 UTF-8 LF Terraform
Search
32°C Mostly cloudy
ENG IN
04:41:17 PM 07-08-2025