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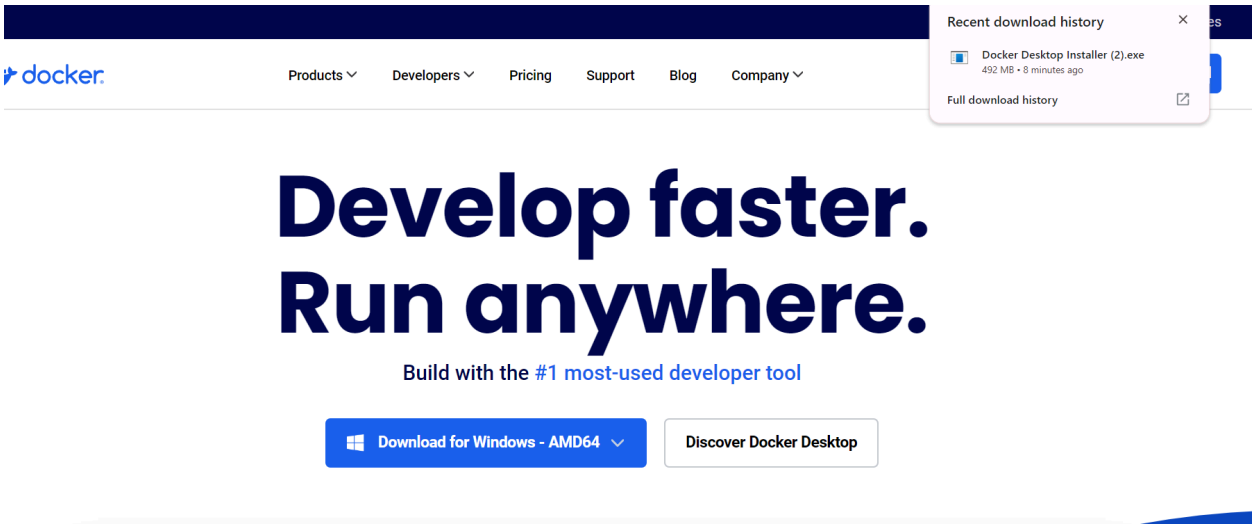
# Experiment.6

**Aim-** To create docker image using terraform

Step 1: Check the docker functionality




```
C:\Windows\System32\cmd.e

C:\New volume\OneDrive\Desktop\docker>docker version
Client:
 Version:           27.1.1
 API version:       1.46
 Go version:        go1.21.12
 Git commit:        6312585
 Built:             Tue Jul 23 19:57:57 2024
 OS/Arch:           windows/amd64
 Context:           desktop-linux

Server: Docker Desktop 4.33.1 (161083)
 Engine:
  Version:          27.1.1
  API version:      1.46 (minimum version 1.24)
  Go version:       go1.21.12
  Git commit:       cc13f95
  Built:            Tue Jul 23 19:57:19 2024
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.7.19
  GitCommit:        2bf793ef6dc9a18e00cb12efb64355c2c9d5eb41
 runc:
  Version:          1.7.19
  GitCommit:        v1.1.13-0-g58aa920
 docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0

C:\New volume\OneDrive\Desktop\docker>
```

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```
Command Prompt

Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sawan>docker --version
Docker version 27.0.3, build 7d4bcd8

C:\Users\sawan>
```

```
C:\Users\sawan>docker version
Client:
 Version:           27.0.3
 API version:       1.46
 Go version:        go1.21.11
 Git commit:        7d4bcd8
 Built:             Sat Jun 29 00:03:32 2024
 OS/Arch:           windows/amd64
 Context:           desktop-linux
error during connect: Get "http://%2F%2F.%2Fpipe%2FdockerDesktopLinuxEngine/v1.46/version": open //./pipe/dockerDesktopLinuxEngine: The system cannot find t
he file specified.
```

Step 2: Firstly create a new folder named ‘Docker’ in the ‘TerraformScripts’ folder. Then create a new docker.tf file using Atom editor and write the followingcontents into it to create a Ubuntu Linux container.

```
terraform {
  required_providers {
    docker = {
      source  = "kreuzwerker/docker"
      version = "2.21.0"
    }
  }
}

provider "docker" {
  host = "npipe:////./pipe/docker_engine"
}

# Pull the Ubuntu image
resource "docker_image" "ubuntu" {
```

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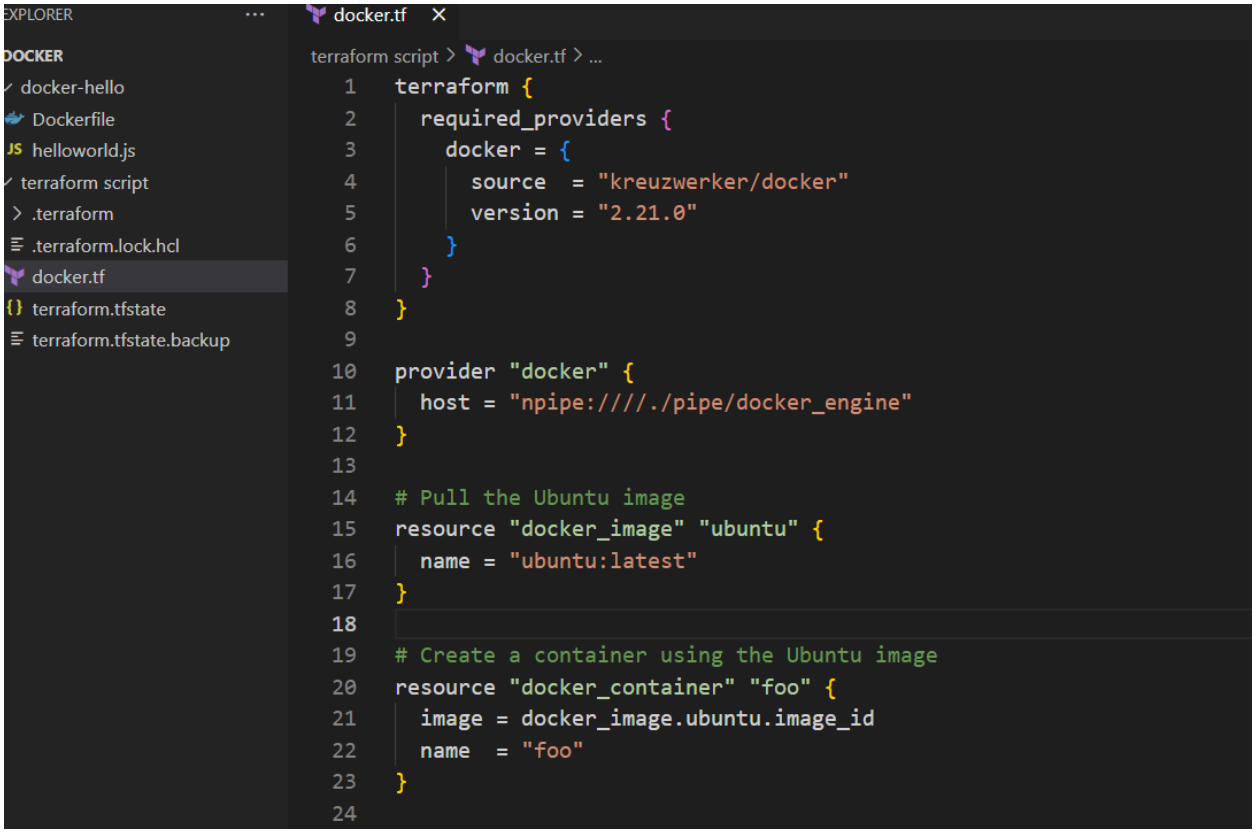
```
  name = "ubuntu:latest"
}

# Create a container using the Ubuntu image
resource "docker_container" "foo" {
  image = docker_image.ubuntu.image_id
  name  = "foo"
}
```



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```
C:\Users\sawan>docker -H
flag needs an argument: 'H' in -H
See 'docker --help'.

Usage:  docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Common Commands:
  run         Create and run a new container from an image
  exec        Execute a command in a running container
  ps          List containers
  build       Build an image from a Dockerfile
  pull        Download an image from a registry
  push        Upload an image to a registry
  images      List images
  login       Log in to a registry
  logout      Log out from a registry
  search      Search Docker Hub for images
  version     Show the Docker version information
  info        Display system-wide information

Management Commands:
  builder     Manage builds
  buildx*     Docker Buildx
  checkpoint  Manage checkpoints
  compose*    Docker Compose
  container   Manage containers
  context     Manage contexts
  debug*      Get a shell into any image or container
  desktop*    Docker Desktop commands (Alpha)
  dev*        Docker Dev Environments
  extension*  Manages Docker extensions
  feedback*   Provide feedback, right in your terminal!
  image       Manage images
  init*       Creates Docker-related starter files for your project
  manifest    Manage Docker image manifests and manifest lists
  network     Manage networks
  plugin      Manage plugins
```

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Step 3: Execute Terraform Init command to initialize the resources

```
C:\Windows\System32\cmd.e

Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

C:\New volume\OneDrive\Desktop\docker\terraform script>terraform init
Initializing the backend...
Initializing provider plugins...
- Finding kreuzwerker/docker versions matching "2.21.0"...
- Installing kreuzwerker/docker v2.21.0...
- Installed kreuzwerker/docker v2.21.0 (self-signed, key ID BD080C4571C6104C
)
Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it her
e:
https://www.terraform.io/docs/cli/plugins/signing.html
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control reposito
ry
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 se
e
any changes that are required for your infrastructure. All Terraform command
s
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, ot
her
commands will detect it and remind you to do so if necessary.

C:\New volume\OneDrive\Desktop\docker\terraform script>
```

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Step 4: Execute Terraform plan to see the available resources

```
C:\Windows\System32\cmd.e

C:\New volume\OneDrive\Desktop\docker\terraform script>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.foo will be created
  + resource "docker_container" "foo" {
      + attach           = false
      + bridge           = (known after apply)
      + command          = (known after apply)
      + container_logs   = (known after apply)
      + entrypoint       = (known after apply)
      + env              = (known after apply)
      + exit_code        = (known after apply)
      + gateway          = (known after apply)
      + hostname         = (known after apply)
      + id               = (known after apply)
      + image            = (known after apply)
      + init             = (known after apply)
      + ip_address       = (known after apply)
      + ip_prefix_length = (known after apply)
      + ipc_mode         = (known after apply)
      + log_driver       = (known after apply)
      + logs             = false
      + must_run         = true
      + name             = "foo"
```

```
C:\Windows\System32\cmd.e

      + network_data     = (known after apply)
      + read_only        = false
      + remove_volumes   = true
      + restart          = "no"
      + rm               = false
      + runtime          = (known after apply)
      + security_opts    = (known after apply)
      + shm_size         = (known after apply)
      + start            = true
      + stdin_open       = false
      + stop_signal      = (known after apply)
      + stop_timeout     = (known after apply)
      + tty              = false

      + healthcheck (known after apply)

      + labels (known after apply)
    }

  # docker_image.ubuntu will be created
  + resource "docker_image" "ubuntu" {
      + id          = (known after apply)
      + image_id    = (known after apply)
      + latest      = (known after apply)
      + name        = "ubuntu:latest"
      + output      = (known after apply)
      + repo_digest = (known after apply)
    }

Plan: 2 to add, 0 to change, 0 to destroy.
```

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Step 5: Execute Terraform apply to apply the configuration, which will automatically create and run the Ubuntu Linux container based on our configuration. Using command : “terraform apply”

```
C:\Windows\System32\cmd.e

C:\New volume\OneDrive\Desktop\docker\terraform script>terraform apply

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.foo will be created
  + resource "docker_container" "foo" {
      + attach           = false
      + bridge           = (known after apply)
      + command          = (known after apply)
      + container_logs   = (known after apply)
      + entrypoint       = (known after apply)
      + env              = (known after apply)
      + exit_code        = (known after apply)
      + gateway          = (known after apply)
      + hostname         = (known after apply)
      + id               = (known after apply)
      + image            = (known after apply)
      + init             = (known after apply)
      + ip_address       = (known after apply)
      + ip_prefix_length = (known after apply)
      + ipc_mode         = (known after apply)
      + log_driver       = (known after apply)
      + logs             = false
      + must_run         = true
      + name             = "foo"
```

```
C:\Windows\System32\cmd.e

      + network_data     = (known after apply)
      + read_only        = false
      + remove_volumes   = true
      + restart          = "no"
      + rm               = false
      + runtime          = (known after apply)
      + security_opts    = (known after apply)
      + shm_size         = (known after apply)
      + start            = true
      + stdin_open       = false
      + stop_signal      = (known after apply)
      + stop_timeout     = (known after apply)
      + tty              = false

      + healthcheck (known after apply)

      + labels (known after apply)
    }

  # docker_image.ubuntu will be created
  + resource "docker_image" "ubuntu" {
      + id          = (known after apply)
      + image_id    = (known after apply)
      + latest      = (known after apply)
      + name        = "ubuntu:latest"
      + output      = (known after apply)
      + repo_digest = (known after apply)
    }

Plan: 2 to add, 0 to change, 0 to destroy.
```

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Docker images, Before Executing Apply step and Execute Terraform destroy to delete the configuration, which will automatically
delete the Ubuntu Container.

```
C:\Windows\System32\cmd.e

C:\New volume\OneDrive\Desktop\docker\terraform script>docker images
REPOSITORY   TAG       IMAGE ID       CREATED       SIZE
ubuntu       latest    edbfe74c41f8   3 weeks ago   78.1MB

C:\New volume\OneDrive\Desktop\docker\terraform script>terraform destroy
docker_image.ubuntu: Refreshing state... [id=sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubun
tu:latest]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
  - destroy

Terraform will perform the following actions:

  # docker_image.ubuntu will be destroyed
  - resource "docker_image" "ubuntu" {
      - id          = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:latest" -> null
      - image_id    = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598a" -> null
      - latest      = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598a" -> null
      - name        = "ubuntu:latest" -> null
      - repo_digest = "ubuntu@sha256:8a37d68f4f73ebf3d4efafbcf66379bf3728902a8038616808f04e34a9ab63ee" -> null
    }

Plan: 0 to add, 0 to change, 1 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.
```

```
Plan: 0 to add, 0 to change, 1 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_image.ubuntu: Destroying... [id=sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:lat
est]
docker_image.ubuntu: Destruction complete after 0s

Destroy complete! Resources: 1 destroyed.

C:\New volume\OneDrive\Desktop\docker\terraform script>docker images
REPOSITORY   TAG       IMAGE ID   CREATED   SIZE

C:\New volume\OneDrive\Desktop\docker\terraform script>
```

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