EXPERIMENT NO : 05

AIM : To understand terraform lifecycle, core concepts/terminologies and install it on a Linux Machine

THEORY :

Terraform is an open-source infrastructure as code software tools created by HashiCorp. Users define and provide data center infrastructure using a declarative configuration language known as HashiCorp Configuration Language (HCL) or optionally JSON.

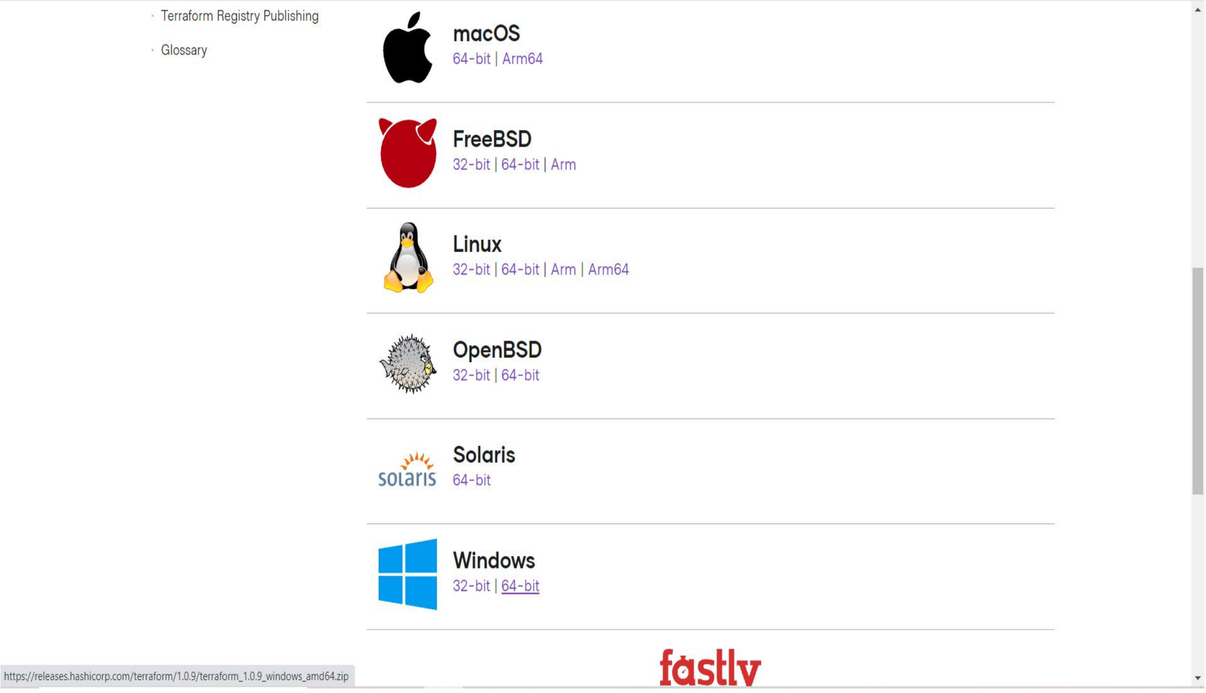
Terraform supports a number of cloud infrastructure providers such Amazon Web Services, Microsoft Azure, IBM Cloud, Google Cloud Platform, DigitalOcean, Oracle Cloud Infrastructure, Yandex.Cloud, vMware vSphere and OpenStack.

Terraform has four major commands

```
$ terraform init

$ terraform plan

$ terraform apply

$ terraform destroy
```

INSTALLATION OF TERRAFORM

Step 1: Download the Terraform Cli utility



- Terraform Registry Publishing
- Glossary

macOS
64-bit | Arm64

FreeBSD
32-bit | 64-bit | Arm

Linux
32-bit | 64-bit | Arm | Arm64

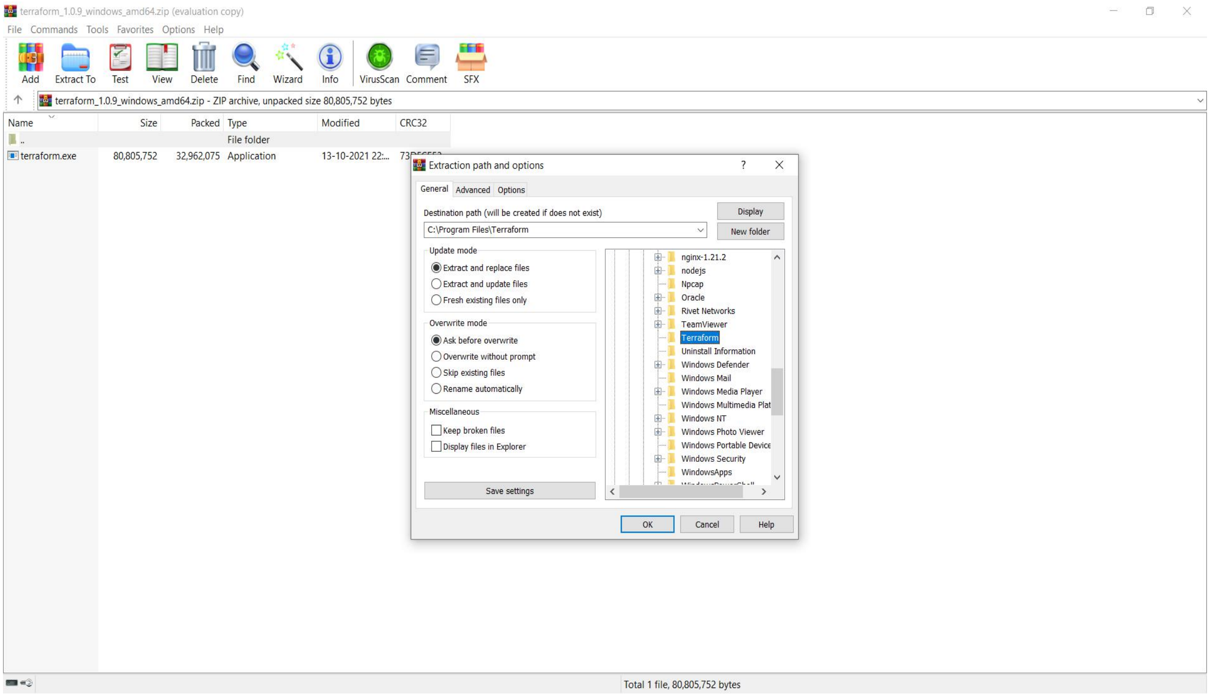
OpenBSD
32-bit | 64-bit

Solaris
64-bit

Windows
32-bit | 64-bit

https://releases.hashicorp.com/terraform/1.0.9/terraform_1.0.9_windows_amd64.zip

Step 2: Extract the downloaded setup file Terraform.exe in C:\Terraform directory



terraform_1.0.9_windows_amd64.zip (evaluation copy)

terraform_1.0.9_windows_amd64.zip - ZIP archive, unpacked size 80,805,752 bytes

Name	Size	Packed	Type	Modified	CRC32
..			File folder		
terraform.exe	80,805,752	32,962,075	Application	13-10-2021 22:...	73

Extraction path and options

Destination path (will be created if does not exist)

C:\Program Files\Terraform

Update mode

- ● Extract and replace files
- ○ Extract and update files
- ○ Fresh existing files only

Overwrite mode

- ● Ask before overwrite
- ○ Overwrite without prompt
- ○ Skip existing files
- ○ Rename automatically

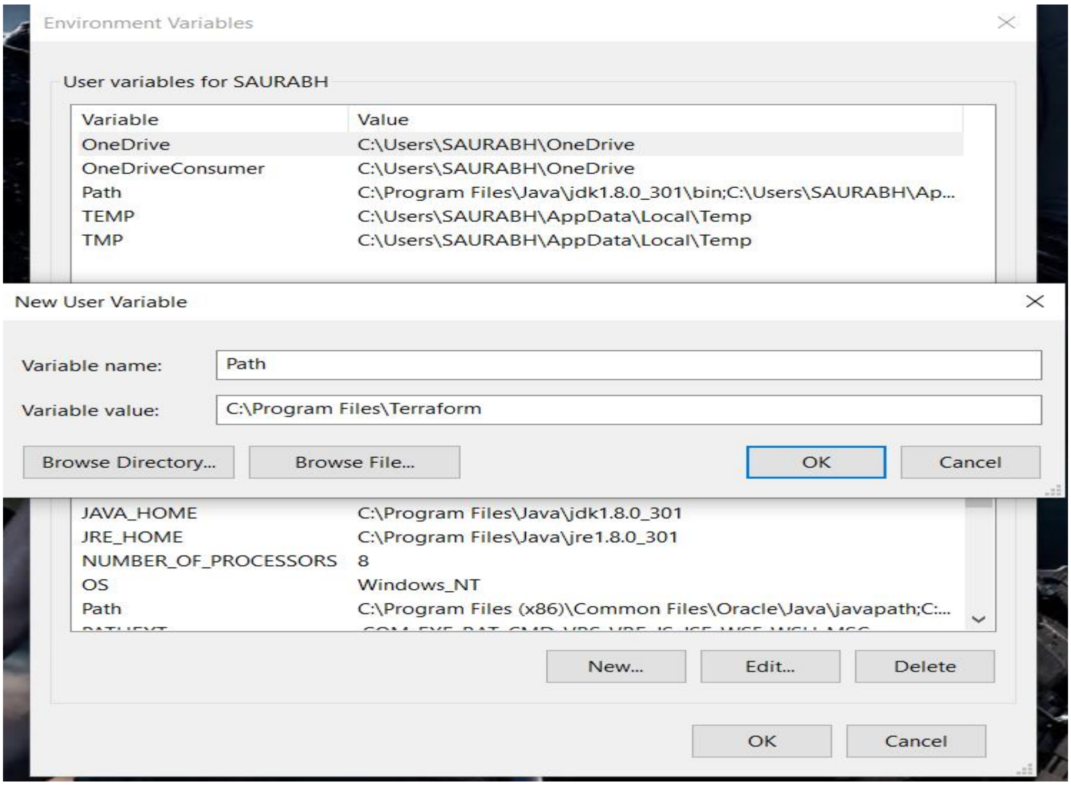
Miscellaneous

- □ Keep broken files
- □ Display files in Explorer

nginx-1.21.2
nodejs
Npcap
Oracle
Rivet Networks
TeamViewer
Terraform
Uninstall Information
Windows Defender
Windows Mail
Windows Media Player
Windows Multimedia Plat
Windows NT
Windows Photo Viewer
Windows Portable Device
Windows Security
WindowsApps

Total 1 file, 80,805,752 bytes

Step 3: Set the System path for Terraform in Environment variables



Environment Variables

User variables for SAURABH

Variable	Value
OneDrive	C:\Users\SAURABH\OneDrive
OneDriveConsumer	C:\Users\SAURABH\OneDrive
Path	C:\Program Files\Java\jdk1.8.0_301\bin;C:\Users\SAURABH\Ap...
TEMP	C:\Users\SAURABH\AppData\Local\Temp
TMP	C:\Users\SAURABH\AppData\Local\Temp

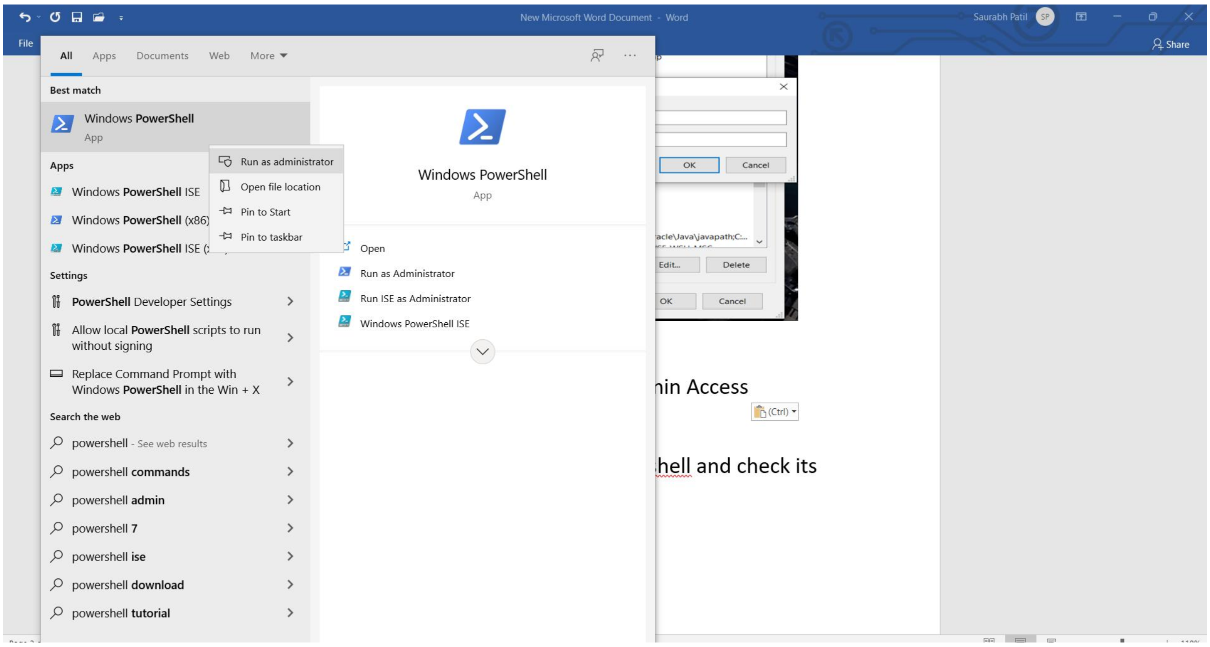
New User Variable

Variable name: Path

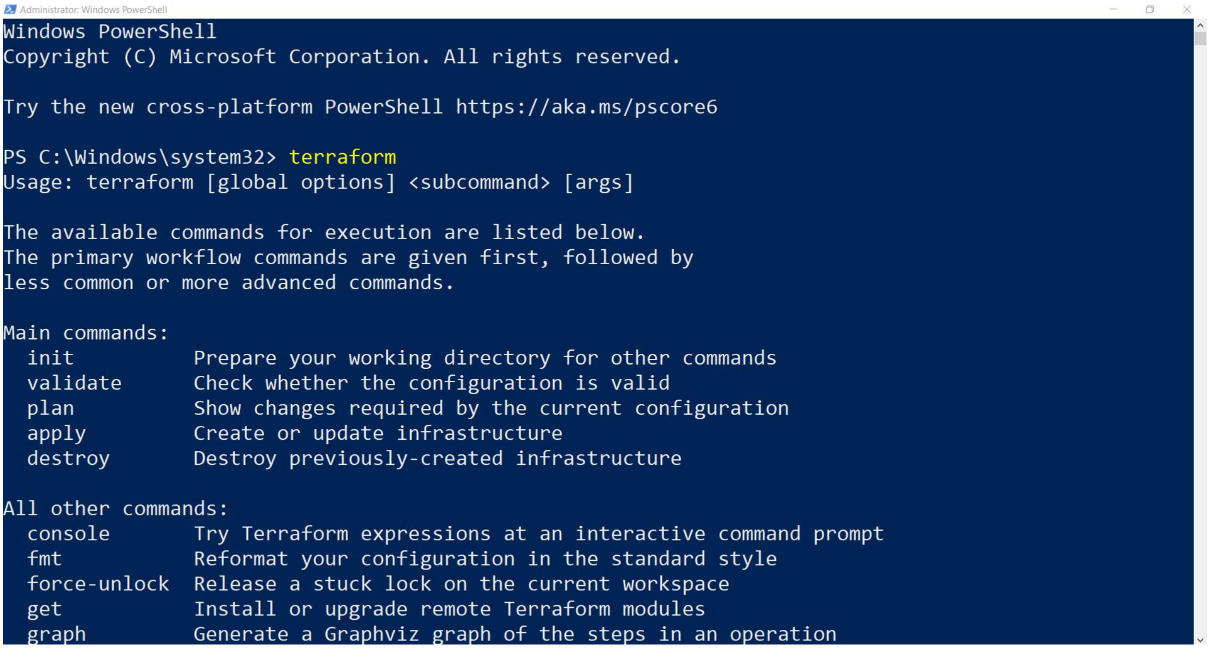
Variable value: C:\Program Files\Terraform

Variable	Value
JAVA_HOME	C:\Program Files\Java\jdk1.8.0_301
JRE_HOME	C:\Program Files\Java\jre1.8.0_301
NUMBER_OF_PROCESSORS	8
OS	Windows_NT
Path	C:\Program Files (x86)\Common Files\Oracle\Java\javapath;C:...

Step 4: Open Powershell with Admin Access



Step 5: Open Terraform in Powershell and check its functionality



```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Windows\system32> terraform
Usage: terraform [global options] <subcommand> [args]

The available commands for execution are listed below.
The primary workflow commands are given first, followed by
less common or more advanced commands.

Main commands:
  init          Prepare your working directory for other commands
  validate      Check whether the configuration is valid
  plan          Show changes required by the current configuration
  apply         Create or update infrastructure
  destroy       Destroy previously-created infrastructure

All other commands:
  console       Try Terraform expressions at an interactive command prompt
  fmt           Reformat your configuration in the standard style
  force-unlock  Release a stuck lock on the current workspace
  get           Install or upgrade remote Terraform modules
  graph         Generate a Graphviz graph of the steps in an operation
```

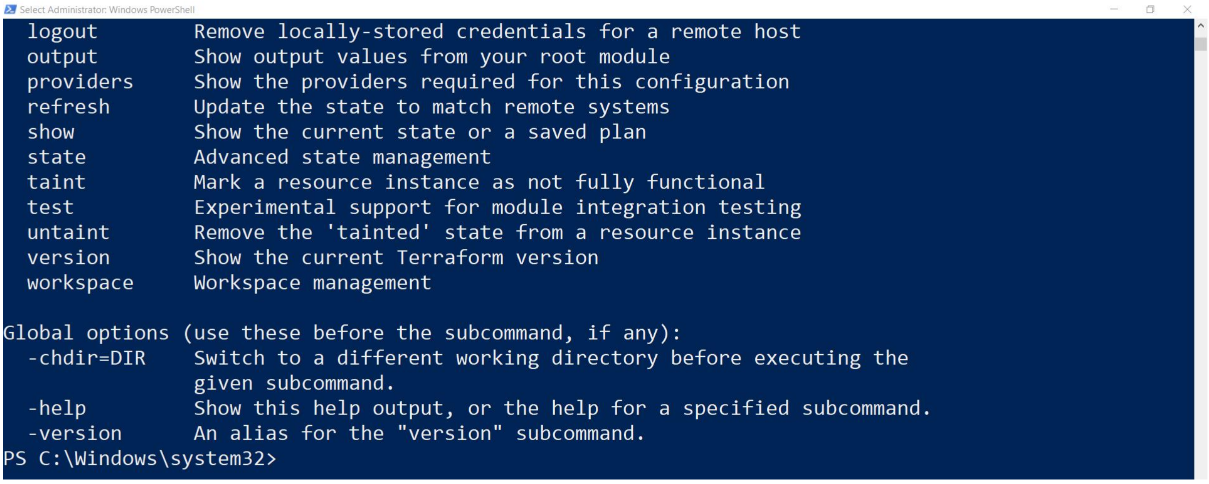

```
  logout        Remove locally-stored credentials for a remote host
  output        Show output values from your root module
  providers     Show the providers required for this configuration
  refresh       Update the state to match remote systems
  show          Show the current state or a saved plan
  state         Advanced state management
  taint         Mark a resource instance as not fully functional
  test          Experimental support for module integration testing
  untaint       Remove the 'tainted' state from a resource instance
  version       Show the current Terraform version
  workspace     Workspace management

Global options (use these before the subcommand, if any):
  -chdir=DIR    Switch to a different working directory before executing the
                given subcommand.
  -help         Show this help output, or the help for a specified subcommand.
  -version      An alias for the "version" subcommand.
PS C:\Windows\system32>
```

CONCLUSION : Hence we can conclude that we have learned and implemented terraform lifecycle, core concepts/terminologies and install it on a Linux Machine.