

## Adv.DevOps Exp 05

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### Adv.DevOps Experiment 5

Aim- To understand terraform lifecycle, core concepts / terminologies and install it on linux machine.

Theory -

Terraform is an open source "Infrastructure as Code" tool, created by HashiCorp.

Terraform enables developers to use high-level configuration language called HCL (HashiCorp Configuration Language) for running an application. It is one of the most popular infrastructure across multiple cloud automation tools available.

Why Terraform ?

- 1) Open source - Terraform is backed by large communities of contributors who build plugins to platform. Regardless of which cloud you use, its easy to find plugins, extensions and professional support.
- 2) Immutable infrastructure - Most infrastructure as code tools create mutable infrastructure, means infrastructure can change to accomodate changes.

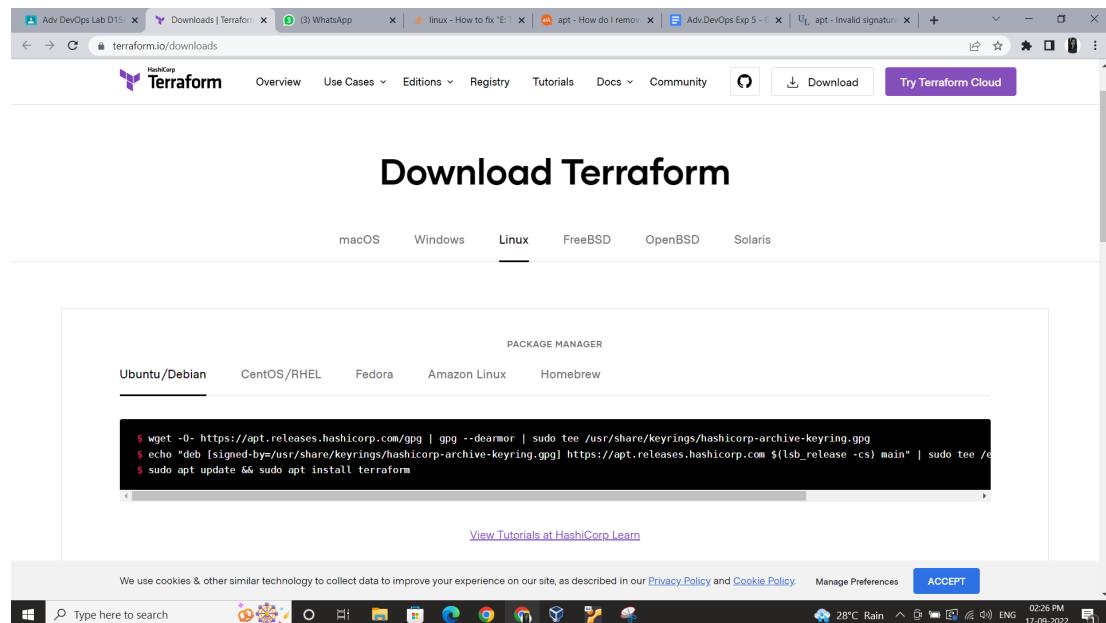
How does Terraform work ?

Terraform allows users to define their entire infrastructure simply by using

	<p>configuration files. When a command is given to deploy and run a server, database or load balancer, Terraform parses the code and translates it into an application programming interface (API) to resource providers.</p>
	<p>Terraform has 2 important components -</p> <ul style="list-style-type: none"> <li>a) Terraform core</li> <li>b) Terraform plugins.</li> </ul>

## Implementation-

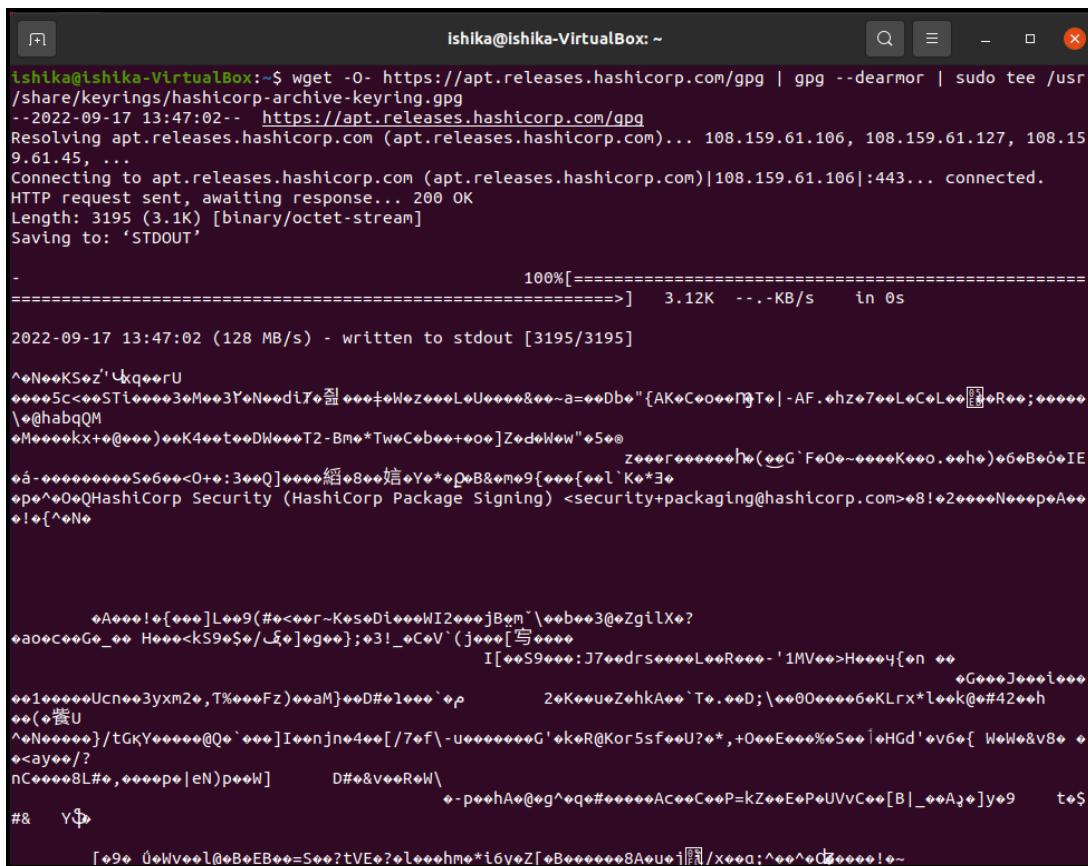
**Step 1- To install Terraform visit website:**<https://www.terraform.io/downloads.html>



Select the Operating System Windows followed by either 32bit or 64 bit based on your OS type.

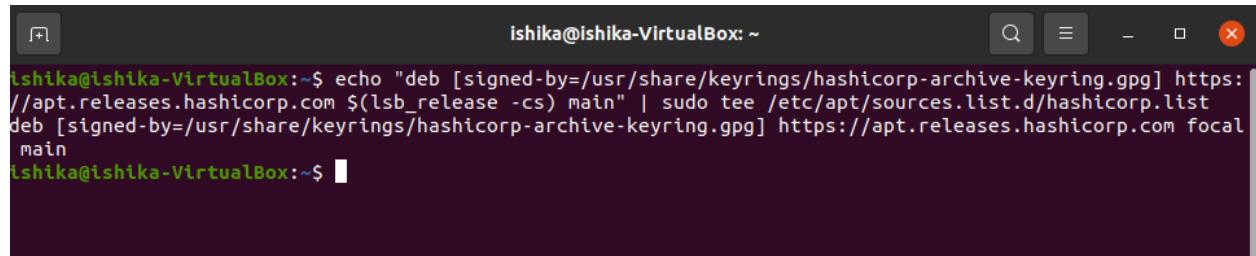
## Step 2- For ubuntu website suggested 3 commands-

```
 wget -O- https://apt.releases.hashicorp.com/gpg | gpg --dearmor | sudo tee  
 /usr/share/keyrings/hashicorp-archive-keyring.gpg
```



```
ishika@ishika-VirtualBox:~$ wget -O- https://apt.releases.hashicorp.com/gpg | gpg --dearmor | sudo tee /usr/share/keyrings/hashicorp-archive-keyring.gpg  
--2022-09-17 13:47:02-- https://apt.releases.hashicorp.com/gpg  
Resolving apt.releases.hashicorp.com (apt.releases.hashicorp.com)... 108.159.61.106, 108.159.61.127, 108.159.61.45, ...  
Connecting to apt.releases.hashicorp.com (apt.releases.hashicorp.com)|108.159.61.106|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 3195 (3.1K) [binary/octet-stream]  
Saving to: 'STDOUT'  
  
- [=====] 100%[=====] 3.12K --.-KB/s in 0s  
  
2022-09-17 13:47:02 (128 MB/s) - written to stdout [3195/3195]  
  
^N@KSz'`kqoerU  
@@@5<@@STi@@@3@M@@3Y@N@@di7@z@ @@@W@z@@@L@U@@@&@@@-a@@Db@ "AK@C@@@nT@|-AF.@hz@7@@L@C@L@@R@@;@@@  
@\@habQM  
@M@@@kx+@@@@)@@K4@@t@@D@W@@T2-Bm@*Tw@C@b@+@@@Z@d@W@W"@@@  
z@@@r@@@h@(@@G`F@0@~@@@K@@.@@h@)@@@B@@IE  
@@-@@@S@6@@<0@@:3@@Q@@@組@8@@信@Y@@*@p@B@&m@9@@@{@@@{@@@K@*E@  
@@p@^@QHashiCorp Security (HashiCorp Package Signing) <security+packaging@hashicorp.com>@8!@2@@@N@@@p@A@@  
@@!@{^@N@  
  
@@A@@!@{@@@]L@@9(#@<@@@r~K@@Di@@@WI2@@@jB@`@@@b@@3@ZgilX@?  
@@ao@c@@G@_@@ H@@@<kS9@@$@/\@g@@];@3!_@C@V@(j@@@[@@@@  
@@I@@@S9@@@:J7@@@drs@@@L@@@R@@@-'1MV@@@H@@@Y@@@n @@  
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@@1@@@Ucn@@3yxm@,T@@@Fz@@@aM@@@D#@l@@@`@p 2@@@K@@@u@Z@hk@@`T@.@@D@;\@@@0@@@6@KL@x@l@@@k@#42@@h  
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@@@N@@@}@/tG@Y@@@@Q@`@@@]I@@@n@n@4@@@/7@f@-u@@@G@`k@R@K@5sf@@U?@*, +@@@E@@@%@@@S@@@i@H@G@`@v@6@@@{ W@W@&v@B@ @  
@@@y@@@/  
nC@@@8L@#,@@@p@|eN@p@@W@ D#@&V@@R@W@  
@@@-p@@h@A@@g@@q@#@@@Ac@@C@@P=kZ@@E@P@UV@C@@[B]_@@A@@y@9 t@S  
#@ Y@  
@@@T@9@ Ú@W@v@@l@B@EB@@=S@@@?tVE@?@l@@@h@*i@6y@Z@B@@@8A@@u@j@/x@@@:@@@^@d@@@@!@~
```

```
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
```



```
ishika@ishika-VirtualBox:~$ echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $(lsb_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list  
deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com focal  
main  
ishika@ishika-VirtualBox:~$
```

## **sudo apt install terraform**

```
ishika@ishika-VirtualBox:~$ sudo apt install terraform
Reading package lists... Done
Building dependency tree
Reading state information...
The following packages were automatically installed and are no longer required:
  linux-image-5.11.0-27-generic linux-modules-5.11.0-27-generic
  linux-modules-extra-5.11.0-27-generic
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  terraform
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 19.9 MB of archives.
After this operation, 63.0 MB of additional disk space will be used.
Get:1 https://apt.releases.hashicorp.com focal/main amd64 terraform amd64 1.2.9 [19.9 MB]
Fetched 19.9 MB in 4s (4,468 kB/s)
Selecting previously unselected package terraform.
(Reading database ... 221905 files and directories currently installed.)
Preparing to unpack .../terraform_1.2.9_amd64.deb ...
Unpacking terraform (1.2.9) ...
Setting up terraform (1.2.9) ...
ishika@ishika-VirtualBox:~$
```

**terraform --version** → Displays installed version of Terraform

```
ishika@ishika-VirtualBox:~$ terraform --version
Terraform v1.2.9
on linux_amd64
ishika@ishika-VirtualBox:~$
```

Conclusion - We successfully installed terraform on Linux machine using command - sudo apt install terraform of version - v1.2.9