GitLab Runner:

1.	**Check system architecture** uname -m [Output like x86_64 means your architecture is amd64]

2.	Download GitLab Runner package [deb means debian] packages are downloaded from the link
	
	`https://gitlab-runner-downloads.s3.amazonaws.com/latest/index.html`
	
	For Debian/Ubuntu, run: curl -LJO "https://gitlab-runner-downloads.s3.amazonaws.com/latest/deb/gitlab-runner_amd64.deb"
	
	After download get like - gitlab-runner_amd64.deb
	
	![terminal screenshot showing curl download of gitlab-runner_amd64.deb]
	``
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$ curl -LJO "https://gitlab-runner-downloads.s3.amazonaws.com/latest/deb/gitlab-runner_amd64.deb"
	  % Total % Received % Xferd Average Speed Time Time Time Current
	                                 Dload Upload Total Spent Left Speed
	100 23.2M 100 23.2M 0 0 175k 0 0:02:15 0:02:15 --:--:-- 107k
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$ ls
	5gnrps gitlab-runner_amd64.deb python-first
	``

3.	Install the package and upgrade as follows
	      sudo dpkg -i gitlab-runner_amd64.deb
	         or
	If there are dependency issues, fix them with
	      sudo apt-get install -f
	
	``
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo dpkg -i gitlab-runner_amd64.deb
	Selecting previously unselected package gitlab-runner.
	(Reading database ... 233917 files and directories currently installed.)
	Preparing to unpack gitlab-runner_amd64.deb ...
	Unpacking gitlab-runner (18.3.1-1) ...
	dpkg: dependency problems prevent configuration of gitlab-runner:
	 gitlab-runner depends on gitlab-runner-helper-images (= 18.3.1-1); however:
	  Package gitlab-runner-helper-images is not installed.
	
	dpkg: error processing package gitlab-runner (--install):
	 dependency problems - leaving unconfigured
	Errors were encountered while processing:
	 gitlab-runner
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$ ls
	5gnrps gitlab-runner_amd64.deb python-first
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo apt-get install -f
	Reading package lists... Done
	Building dependency tree
	Reading state information... Done
	Correcting dependencies... Done
	The following packages were automatically installed and are no longer required:
	  cdebootstrap debian-archive-keyring libdebian-installer-extra4 libdebian-installer4 liblua5.2-0 libssh-gcrypt-4 libwireshark13 libwiretap10 libwsutil11
	Use 'sudo apt autoremove' to remove them.
	The following packages will be REMOVED:
	  gitlab-runner
	0 upgraded, 0 newly installed, 1 to remove and 36 not upgraded.
	1 not fully installed or removed.
	After this operation, 91.9 MB disk space will be freed.
	Do you want to continue? [Y/n] y
	(Reading database ... 233925 files and directories currently installed.)
	Removing gitlab-runner (18.3.1-1) ...
	peafowl@peafowl-OptiPlex-3060:~/gitlearning$
	``

4.	Give it permissions to execute sudo chmod +x /usr/bin/gitlab-runner check the version : gitlab-runner --version

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ gitlab-runner --version
Version:       18.3.1
Git revision: 5a021a1c
Git branch:    18-3-stable
GO version:    go1.24.4 X:cacheprog
Built:         2025-09-04T15:24:16Z
OS/Arch:       linux/amd64
```

5.	Install and start service

sudo gitlab-runner install   & sudo gitlab-runner start & sudo gitlab-runner-status

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$  sudo gitlab-runner install
Runtime platform                          arch=amd64 os=linux pid=217667 revision=5a021a1c version=18.3.1
FATAL: Please specify user that will run gitlab-runner service
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner start
Runtime platform                          arch=amd64 os=linux pid=217677 revision=5a021a1c version=18.3.1
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner status
Runtime platform                          arch=amd64 os=linux pid=217689 revision=5a021a1c version=18.3.1
gitlab-runner: Service is running
peafowl@peafowl-OptiPlex-3060:~/gitlearning$
```

sudo gitlab-runner stop

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner status
Runtime platform                          arch=amd64 os=linux pid=217741 revision=5a021a1c version=18.3.1
gitlab-runner: Service has stopped
peafowl@peafowl-OptiPlex-3060:~/gitlearning$
```

| 6. | **Register a GitLab Runner** : To connect your GitLab Runner to your GitLab project, so it can run jobs defined in your `.gitlab-ci.yml` pipeline file.

- Provide the **GitLab project URL**
- Provide a **registration token** (security!)
- Choose a **description** and **tags**
- Select an **executor** (e.g., `shell`, `ssh`, `docker`)
- (For SSH) Give the remote server details

SSH to the system you want to register a runner. |
|----|---------------------------|

7.	ssh-keygen - Generate SSH keys for secure, passwordless login

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/peafowl/.ssh/id_rsa): yes
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in yes
Your public key has been saved in yes.pub
The key fingerprint is:
SHA256:ewsPUe8hA9bgxWN47VcyIeLwS/3lamOALq+v+QwbaIQ peafowl@peafowl-OptiPlex-3060
The key's randomart image is:
+---[RSA 3072]----+
|        ooo.. .. |
|       ..B=o..o .|
|        +o*o.  +.|
|     . . + +...o |
|      E . S = +.. .|
|       . . + + o . |
|        o B o . = |
|       .   & . o . |
|           ==B     |
+----[SHA256]-----+
```

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ cd /home/peafowl/.ssh/
peafowl@peafowl-OptiPlex-3060:~/.ssh$ ls
authorized_keys  id_rsa  id_rsa.pub  known_hosts  known_hosts.old  rsa
peafowl@peafowl-OptiPlex-3060:~/.ssh$ vi
```

open id_rsa.pub will generate the key

id_rsa → (private key)

id_rsa.pub → (public key)

known_hosts → (SSH fingerprints of previously connected servers)

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDSixgKapXaZ384jyLMP1koczzFvEPwsBO9qYR5tL0Y0wHtMUAtZFRTfGkAPua8ZhTNHYWQirohCuCn9BN8KC1cyh7UTQMBr/91+V4QPvRGOqC5HzS2NtOjlw/qutMfzg17qq1UYAAzkBRguIWn059JmJ+jW8KOxWZq8uS hz7Po0gOUdffXUTzfS+WD6Xa++Zmbil2YnUNnvG4Yu57TZg/8m/pOxgfFYhX12tgyf7dvUbFtJj038600XJQz4mDKtPuKO7j+LV7UkDnJjYdHrAjJvjshgHPCn+TMozcnWKOfS/4QqcDvD4eSZhG/iYPhgWe7lVRNvjsYPKewFgsLCSavA39wwKD0FjeRBZOzbJvxoovFJv jr5cI33MkKKct3RLgsnyDzUxorrk62/LpR6acLMvTcX3EH7Ye3nV+JKIwvJXQiOnQfO/5iLDeMwruMgMmICwuz8NwB/Wh1B7li1t5BHVVPRQTzknHPhsf+1IOWdvbKkqbr17FBQrgcc5fN6eU= peafowl@peafowl-OptiPlex-3060

sudo cp ~/.ssh/known_hosts /root/.ssh/known_hosts   [copied all known host froms source to other destination]

```
peafowl@peafowl-OptiPlex-3060:~/.ssh$ ls
id_rsa  id_rsa.pub  known_hosts  known_hosts.old  rsa
peafowl@peafowl-OptiPlex-3060:~/.ssh$ vi known_hosts
```

---

8.   sudo gitlab-runner register

```
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner register
Runtime platform                    arch=amd64 os=linux pid=223044 revision=5a021a1c version=18.3.1
Running in system-mode.

Enter the GitLab instance URL (for example, https://gitlab.com/):
https://gitlab.com
Enter the registration token:
glrt-waQvMCa19xGPR8MG4PtM0G86MQpwOjE4OGQxNgp0OjMKdTo2Zzg3Zxg.01.1j00b623a
Verifying runner... is valid                    correlation_id=c39a239c01e64292a04ce63539b98490 runner=waQvMCa19
Enter a name for the runner. This is stored only in the local config.toml file:
[peafowl-OptiPlex-3060]: MYRUNNER
Enter an executor: shell, ssh, parallels, docker, docker+machine, docker-autoscaler, virtualbox, docker-windows, kubernetes, instance, custom:
ssh
Enter the SSH server address (for example, my.server.com):
10.1.210.248
Enter the SSH server port (for example, 22):
22
Enter the SSH user (for example, root):
peafowl
Enter the SSH password (for example, docker.io):
Sgtb
Enter the path to the SSH identity file (for example, /home/user/.ssh/id_rsa):
/home/user/.ssh/id_rsa
Runner registered successfully. Feel free to start it, but if it's running already the config should be automatically reloaded!

Configuration (with the authentication token) was saved in "/etc/gitlab-runner/config.toml"
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner status
Runtime platform                    arch=amd64 os=linux pid=223070 revision=5a021a1c version=18.3.1
gitlab-runner: Service is running
peafowl@peafowl-OptiPlex-3060:~/gitlearning$ sudo gitlab-runner list
Runtime platform                    arch=amd64 os=linux pid=223083 revision=5a021a1c version=18.3.1
Listing configured runners                      ConfigFile=/etc/gitlab-runner/config.toml
x86-ue-nc11                         Executor=shell Token=5dd5a3396eb028932cdc409562de05 URL=http://git.wisig.com/
standalone-nas                      Executor=shell Token=EH94MzgHDeoKsJHJ57_r URL=https://gitlab.com/
runner1                             Executor=shell Token=glrtr-4jcjFYwbYWSsk0d3f9429286MQpwOnF3MjNrCnQ6Mw8.01.17033oa4q URL=https://gitlab.com/
MYRUNNER                            Executor=ssh Token=glrt-waQvMCa19xGPR8MG4PtM0G86MQpwOjE4OGQxNgp0OjMKdTo2Zzg3Zxg.01.1j00b623a URL=https://gitlab.com
(reverse-i-search)`start': sudo gitlab-runner ^Cart
peafowl@peafowl-OptiPlex-3060:~/gitlearning$
```

⌄ Runners

Runners are processes that pick up and execute CI/CD jobs for GitLab. What is GitLab Runner?

Project runners ▯ 1   Create project runner ⋮
These runners are assigned to this project.

Assigned project runners

🟢 #49802373 (waQvMCa1)   ✏️ ‖ Delete runner
aug-15
`SSH`

Runner #49802373 (waQvMCa1)   ✏️ ⏸ Pause ⋮

🟢 Online   📦 Project   Created by **lakshmi priya** 10 minutes ago

Description	aug-15	**Maximum job timeout**	None
Last contact	5 minutes ago	**Token expiry** ❓	Never expires
Configuration	None	**Tags**	SSH

Assigned Projects 📋 1 ❓

🔍 Filter projects

P **lakshmi priya / python first** Owner

Runners ◈ 1 ❓   ⌄

Jobs GO 0 ❓

This runner has not run any jobs

Make sure the runner is online and available to run jobs (not paused). Jobs
display here when the runner picks them up.

Here runner is green signal (it is active).

---

9.   **Shell Executor**

- The **Shell executor** runs your CI/CD jobs **directly on the machine where GitLab Runner is installed**.
- It uses the machine's default shell (bash, sh, PowerShell, etc.) to run the commands.
- No need for SSH because everything happens locally.
- Simple to set up for small or local setups.

`shell` : run jobs locally on the runner machine.

SSH Executor

- The **SSH executor** runs jobs on a **remote machine** via SSH.
- GitLab Runner connects over SSH to the remote server you specify (IP, user, password/key).
- Useful when you want to run jobs on a different server than where the runner is installed.
- You provide the SSH details during runner registration.

ssh: Run jobs on a remote server via SSH

if you want to register shell executor(to use the same machine that is running your GitLab instance as a runner for your GitLab CI/CD pipelines.)
follow same steps i)-ix)

In `x)Registering runner... succeeded runner=GR1348941UGsWPY3d`

`Enter an executor: docker-ssh, parallels, shell, ssh, docker-ssh+machine, instance, custom, docker, virtualbox, docker+machine, kubernetes:`

type '**shell**'

then same process for verifying,and debugging

commands:
 sudo gitlab-runner status
 sudo gitlab-runner start

sudo gitlab-runner stop

sudo gitlab-runner list

sudo vi /etc/gitlab-runner/config.toml (To check Listing configured runners, open with sudo mode only)

sudo gitlab-runner unregister --name "x86-ue-nc11"

Turn on instance runners