

Git

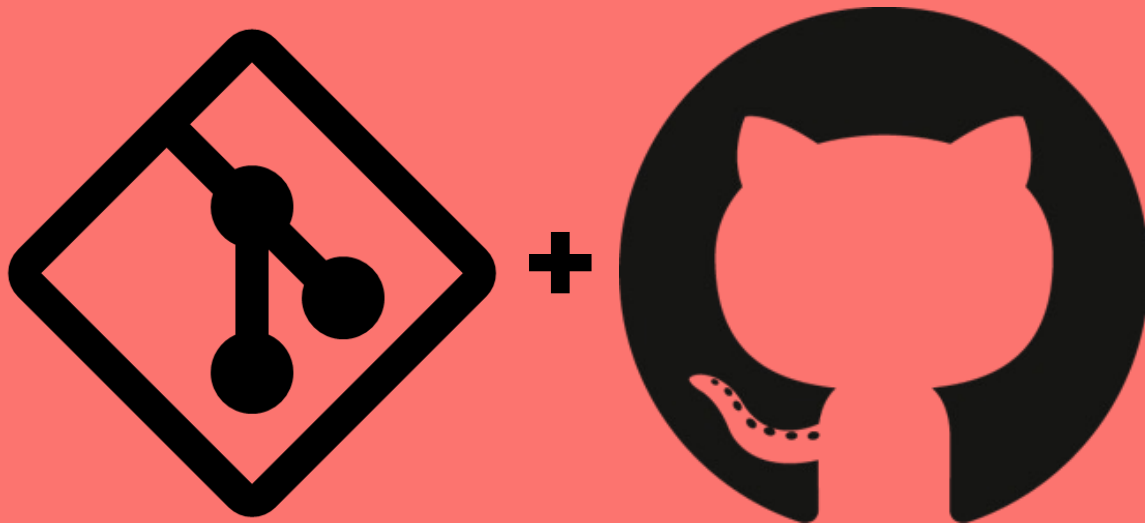
In Practice



Git

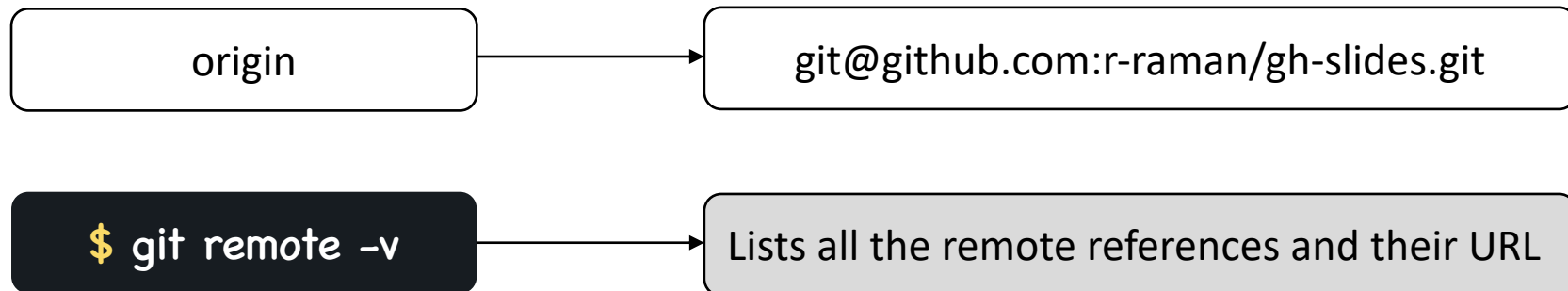
In Practice

1 Origin and Upstream

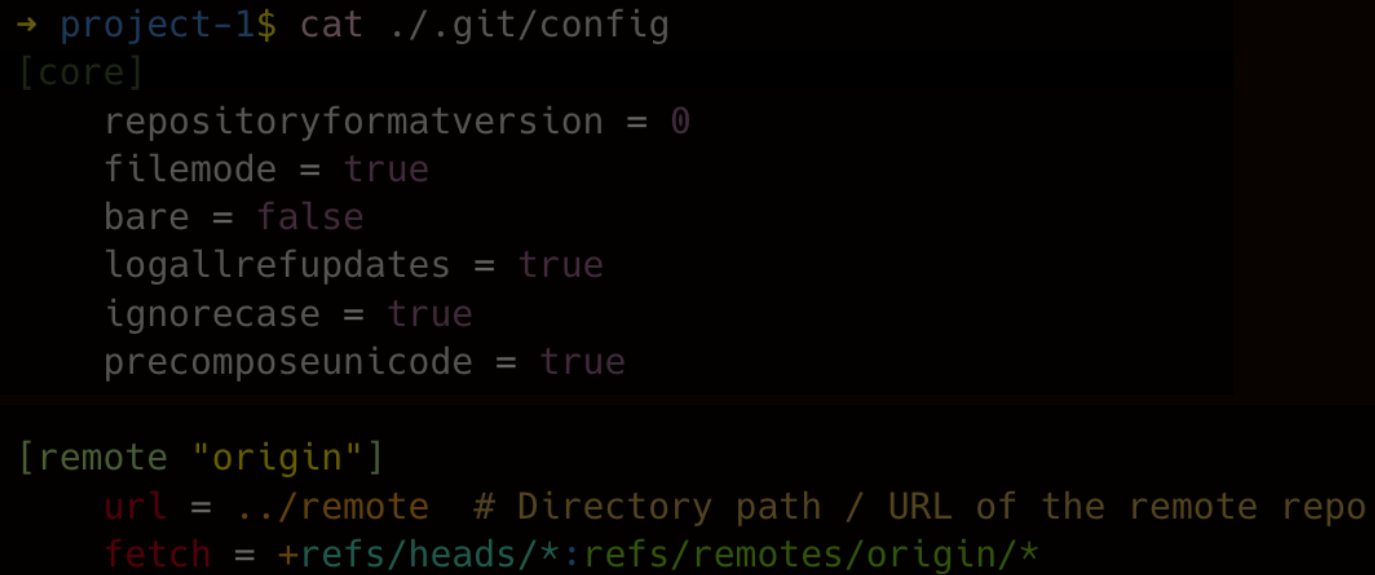


What Is origin?

1. *origin* is a shorthand name for the remote repository that a project was originally cloned from
2. *origin* is an *alias* and is not a property of the repository
3. There's no requirement to name the remote repository *origin*
 - a. The word *origin* is a standard convention
 - b. Another user can have a different name for the same repository
 - c. Meaning, the names/refs of the repository are local to the machine



Command – git remote add



```
→ project-1$ cat ../.git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
    ignorecase = true
    precomposeunicode = true

[remote "origin"]
    url = ../remote # Directory path / URL of the remote repo
    fetch = +refs/heads/*:refs/remotes/origin/*
```

\$ git remote add origin <url>

Command – git remote add

```
.../.git (main)$ tree
.
├── COMMIT_EDITMSG
├── FETCH_HEAD
├── HEAD
├── ORIG_HEAD
├── config
├── description
├── hooks
│   ├── applypatch-msg.sample
│   ├── commit-msg.sample
│   ├── fsmonitor-watchman.sample
│   ├── post-update.sample
│   ├── pre-applypatch.sample
│   ├── pre-commit.sample
│   ├── pre-merge-commit.sample
│   ├── pre-push.sample
│   ├── pre-rebase.sample
│   ├── pre-receive.sample
│   ├── prepare-commit-msg.sample
│   ├── push-to-checkout.sample
│   └── update.sample
├── index
├── info
│   └── exclude
├── logs
│   ├── HEAD
│   └── refs
│       ├── heads
│       │   ├── develop
│       │   └── main
│       └── remotes
│           └── origin
│               └── main
├── objects
│   ├── 3b
│   │   └── 18e512dba79e4c8300
│   ├── 4b
│   │   └── 825dc642cb6eb9a060
│   ├── 73
│   │   ├── 94b8cc9ca916312a79
│   │   └── cdf5662db5d6e2fa44
│   ├── info
│   └── pack
├── refs
│   ├── heads
│   │   ├── develop
│   │   └── main
│   ├── remotes
│   │   └── origin
│   │       └── main
└── tags
```

What Is Upstream?

1. *Upstream* is where the repository is cloned from – eg., origin/master
2. Upstream branches are remote tracking branches
3. Git does not allow editing of upstream branches directly
4. Instead, Git supports linking downstream branches (master) to upstream branches (origin/master) through `--set-upstream` option
5. The `--set-upstream` option converts a local branch to a tracking branch by connecting the remote tracking branch (local remote branch)

Commands – Setting Upstream

```
→ project-1$ cat ../.git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
    ignorecase = true
    precomposeunicode = true

[remote "origin"]
    url = ../remote # Directory path / URL of the remote repo
    fetch = +refs/heads/*:refs/remotes/origin/*

[branch "master"]
    remote = origin
    merge = refs/heads/master
```

\$ git branch --set-upstream-to=<remote>/<local branch>

=

\$ git branch -u <remote> <local branch>

Commands – Setting Upstream

```
$ git fetch --set-upstream-to=<remote>/<local branch>
```

<=>

```
$ git fetch -u <remote> <local branch>
```

Shortcut

```
$ git pull --set-upstream-to=<remote>/<local branch>
```

<=>

```
$ git pull -u <remote> <local branch>
```

Shortcut

```
$ git push --set-upstream-to=<remote>/<local branch>
```


<=>

```
$ git push -u <remote> <local branch>
```

Shortcut

Let us practice

Github



```
→ project-1$ git init  
→ project-1$ git branch -M main # rename master to main  
  
→ project-1$ echo "# gh-slides" >> README.md  
→ project-1$ git add README.md  
→ project-1$ git commit -m "Initial commit"  
  
→ project-1$ git remote add origin git@github.com:r-raman/gh-slides.git  
→ project-1$ git push -u origin main
```

1

2

3

Let us practice