

Git

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Install

- `sudo apt update`
`sudo apt install git`

```
lsampaio@DUD-JumpServer:~$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs git-mediawiki
  git-svn
The following NEW packages will be installed:
  git
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 3.131 kB of archives.
After this operation, 18,8 MB of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git amd64 1:2.34.1-1ubuntu1.4 [3.131 kB]
Fetched 3.131 kB in 1s (5.348 kB/s)
Selecting previously unselected package git.
(Reading database ... 176866 files and directories currently installed.)
Preparing to unpack .../git_1%3a2.34.1-1ubuntu1.4_amd64.deb ...
Unpacking git (1:2.34.1-1ubuntu1.4) ...
Setting up git (1:2.34.1-1ubuntu1.4) ...
```

- `git version`

```
lsampaio@DUD-JumpServer:~$ git version
git version 2.34.1
```


config

- List current global config:
 - `git config --global --list`
- Initial branch name:
 - `git config --global init.defaultBranch main`
- Set the identity of your commits:
 - `git config --global user.name "name"`
 - `git config --global user.email "email@xxx.com"`
- Save your credentials so you don't have to type it all the time:
 - `git config --global credential.helper store`

init

- Create an empty Git repository or reinitialize an existing one;
- `git init [repository-name]`

```
lsampaio@DUD-JumpServer:~/git$ git init lab-git
Initialized empty Git repository in /home/lsampaio/git/lab-git/.git/
lsampaio@DUD-JumpServer:~/git$ ls -la
total 12
drwxrwxr-x  3 lsampaio lsampaio 4096 set 25 12:07 .
drwxr-x--- 20 lsampaio lsampaio 4096 set 25 12:05 ..
drwxrwxr-x  3 lsampaio lsampaio 4096 set 25 12:07 lab-git
```


clone

- Clone a repository into a new directory;
- `git clone <url | path> [repository-name]`

```
lsampaio@DUD-JumpServer:~/git$ git clone https://github.com/lsampaioweb/git-scripts-and-tips.git other-name-repo
Cloning into 'other-name-repo'...
remote: Enumerating objects: 41, done.
remote: Counting objects: 100% (41/41), done.
remote: Compressing objects: 100% (32/32), done.
remote: Total 41 (delta 11), reused 33 (delta 6), pack-reused 0
Receiving objects: 100% (41/41), 1.17 MiB | 2.13 MiB/s, done.
Resolving deltas: 100% (11/11), done.
lsampaio@DUD-JumpServer:~/git$ ls -la
total 16
drwxrwxr-x  4 lsampaio lsampaio 4096 set 25 12:13 .
drwxr-x--- 20 lsampaio lsampaio 4096 set 25 12:05 ..
drwxrwxr-x  3 lsampaio lsampaio 4096 set 25 12:07 lab-git
drwxrwxr-x  5 lsampaio lsampaio 4096 set 25 12:13 other-name-repo
```


add

- Add files to the index/staging area;
- `git add <file1 file2 | folder | . >`
 - The dot means "add all files and folders".

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git add .
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   README.md
    new file:   file.txt
```


status

- Show the working tree status;

- git status

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   README.md

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file.txt

no changes added to commit (use "git add" and/or "git commit -a")
```


restore

- Restore working tree files;
- `git restore <--staged> <file1 file2 | folder | . >`

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git restore --staged README.md
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   file.txt

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   README.md
```


commit

- Record changes to the repository;
- `git commit -m "message"`

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git commit -m "added file.txt"
[main e942dcf] added file.txt
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file.txt
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```


push

- Update remote refs along with associated objects;
- git push:
 - Git will ask for username and password on the first push.

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git push
Username for 'https://github.com': lsampaioweb@gmail.com
Password for 'https://lsampaioweb@gmail.com@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 279 bytes | 279.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/lsampaioweb/git-scripts-and-tips.git
    07375d0..e942dcf  main -> main
```


pull

- Fetch from and integrate with another repository or a local branch;

- git pull

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git pull
Already up to date.
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git pull
remote: Enumerating objects: 10, done.
remote: Counting objects: 100% (10/10), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 9 (delta 1), reused 9 (delta 1), pack-reused 0
Unpacking objects: 100% (9/9), 240.87 KiB | 576.00 KiB/s, done.
From https://github.com/lsampaioweb/git-scripts-and-tips
   4e5ff51..780ceba  main      -> origin/main
Updating 4e5ff51..780ceba
Fast-forward
 file.txt           | 0
 file2.txt          | 0
 file3.txt          | 0
 file4.txt          | 0
 images/git-add.png | Bin 0 -> 35920 bytes
 images/git-commit.png | Bin 0 -> 45884 bytes
 images/git-pull.png  | Bin 0 -> 11482 bytes
 images/git-push.png  | Bin 0 -> 64301 bytes
 images/git-restore-staged.png | Bin 0 -> 54279 bytes
 images/git-status.png | Bin 0 -> 47834 bytes
10 files changed, 0 insertions(+), 0 deletions(-)
delete mode 100644 file.txt
delete mode 100644 file2.txt
delete mode 100644 file3.txt
delete mode 100644 file4.txt
create mode 100644 images/git-add.png
create mode 100644 images/git-commit.png
create mode 100644 images/git-pull.png
create mode 100644 images/git-push.png
create mode 100644 images/git-restore-staged.png
create mode 100644 images/git-status.png
```


log

- Show commit logs;

- git log

```
lsampaio@DUD-JumpServer:~/git/git-scripts-and-tips$ git log
commit 780ceba4df22f54bd094f3e97559a6cf4970aafe (HEAD -> main, origin/main, origin/HEAD)
Author: Luciano Sampaio Martins de Souza <lsampaioweb@gmail.com>
Date:   Fri Sep 23 22:30:21 2022 -0300

    images

commit 4e5ff51ff8f87d182d3ab13c537d42cb1ce95d9c
Author: Luciano Sampaio <lsampaioweb@gmail.com>
Date:   Fri Sep 23 22:26:05 2022 -0300

    file4

commit 47a630cbca3067be2dfff679fe3097bb568879e1d
Author: Luciano Sampaio <lsampaioweb@gmail.com>
Date:   Fri Sep 23 22:19:56 2022 -0300

    other file2

commit fd603304be9a92da89927f44931ac5dc027236f4
Author: Luciano Sampaio <lsampaioweb@gmail.com>
Date:   Fri Sep 23 22:18:56 2022 -0300

    other file

commit e942dcf90800103903fd8b55fd5b61c462954e17
Author: Luciano Sampaio <lsampaioweb@gmail.com>
Date:   Fri Sep 23 22:05:45 2022 -0300
```


branch

- List your branches:
 - `git branch`
 - The "*" shows your current branch;
- Create a branch:
 - `git branch name`
- Delete a branch:
 - `git branch -d name`

branch

```
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch
* main
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch new-feature
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch
* main
  new-feature
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch -d new-feature
Deleted branch new-feature (was a550d95).
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch
* main
```


checkout

- Switch branches or restore working tree files;
- Create a branch and switch to it in just one command:
 - `git checkout -b new-feature;`

```
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch
* main
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git checkout -b new-feature
Switched to a new branch 'new-feature'
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git branch
main
* new-feature
```


merge

- Join two or more development branches together;
- Merge the other branch with your current branch:
 - `git merge other-branch`

merge

```
lsampaio@DUD-JumpServer:~/git/other-name-repo$ touch new-file-on-other-branch.txt
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git status
On branch new-feature
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    new-file-on-other-branch.txt

nothing added to commit but untracked files present (use "git add" to track)
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git add .
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git commit -m "Added a file on other branch"
[new-feature 600c446] Added a file on other branch
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 new-file-on-other-branch.txt
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
lsampaio@DUD-JumpServer:~/git/other-name-repo$ ls -la
total 32
drwxrwxr-x 5 lsampaio lsampaio 4096 set 25 12:40 .
drwxrwxr-x 4 lsampaio lsampaio 4096 set 25 12:13 ..
drwxrwxr-x 8 lsampaio lsampaio 4096 set 25 12:40 .git
-rw-rw-r-- 1 lsampaio lsampaio  90 set 25 12:13 .gitignore
drwxrwxr-x 2 lsampaio lsampaio 4096 set 25 12:13 images
-rw-rw-r-- 1 lsampaio lsampaio 1072 set 25 12:13 LICENSE
-rw-rw-r-- 1 lsampaio lsampaio  232 set 25 12:13 README.md
drwxrwxr-x 2 lsampaio lsampaio 4096 set 25 12:13 topics
lsampaio@DUD-JumpServer:~/git/other-name-repo$ git merge new-feature
Updating a550d95..600c446
Fast-forward
 new-file-on-other-branch.txt | 0
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 new-file-on-other-branch.txt
lsampaio@DUD-JumpServer:~/git/other-name-repo$ ls -la
total 32
drwxrwxr-x 5 lsampaio lsampaio 4096 set 25 12:41 .
drwxrwxr-x 4 lsampaio lsampaio 4096 set 25 12:13 ..
drwxrwxr-x 8 lsampaio lsampaio 4096 set 25 12:41 .git
-rw-rw-r-- 1 lsampaio lsampaio  90 set 25 12:13 .gitignore
drwxrwxr-x 2 lsampaio lsampaio 4096 set 25 12:13 images
-rw-rw-r-- 1 lsampaio lsampaio 1072 set 25 12:13 LICENSE
-rw-rw-r-- 1 lsampaio lsampaio   0 set 25 12:41 new-file-on-other-branch.txt
-rw-rw-r-- 1 lsampaio lsampaio  232 set 25 12:13 README.md
drwxrwxr-x 2 lsampaio lsampaio 4096 set 25 12:13 topics
```


References

- Git Documentation
<https://git-scm.com/doc>

Questions ?



Thank you!

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