git - the simple guide

just a simple guide for getting started with git. no deep shit ;)

Tweet

by Roger Dudler

credits to @tfnico, @fhd and Namics

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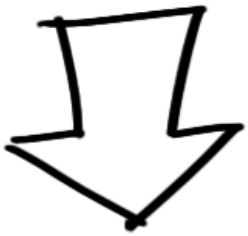
please report issues on github



setup

Download git for OSX

Download git for Windows

Download git for Linux

create a new repository

create a new directory, open it and perform a

```
git init
```

to create a new git repository.

checkout a repository

create a working copy of a local repository by running the command

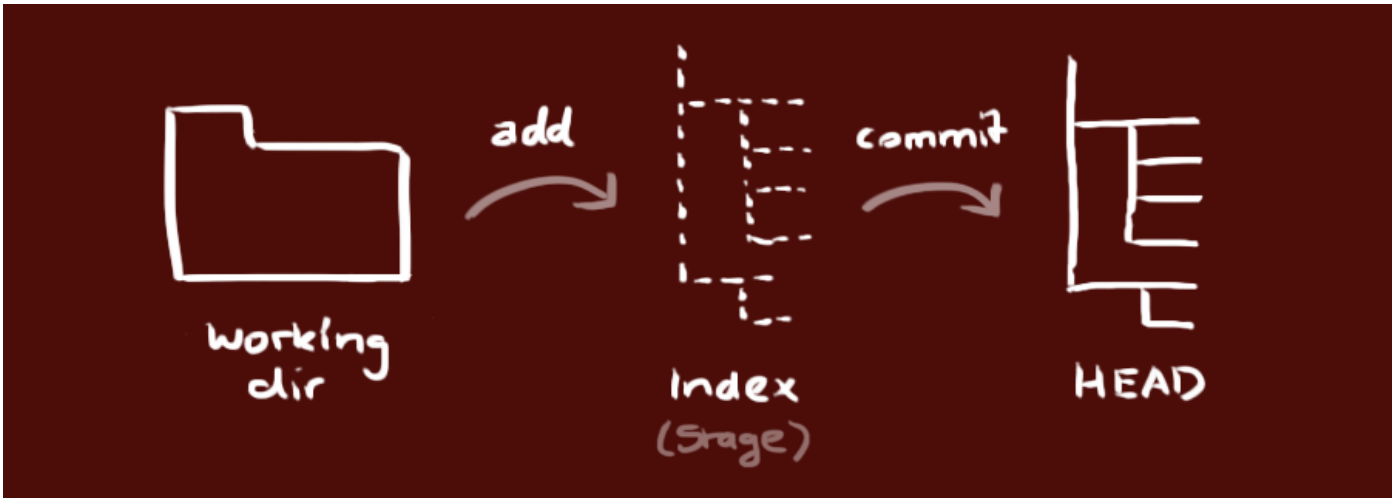
```
git clone /path/to/repository
```

when using a remote server, your command will be

```
git clone username@host:/path/to/repository
```

workflow

your local repository consists of three "trees" maintained by git. the first one is your `Working Directory` which holds the actual files. the second one is the `Index` which acts as a staging area and finally the `HEAD` which points to the last commit you've made.



add & commit

You can propose changes (add it to the **Index**) using

```
git add <filename>
```

```
git add *
```

This is the first step in the basic git workflow. To actually commit these changes use

```
git commit -m "Commit message"
```

Now the file is committed to the **HEAD**, but not in your remote repository yet.

pushing changes

Your changes are now in the **HEAD** of your local working copy. To send those changes to your remote repository, execute

```
git push origin master
```

Change *master* to whatever branch you want to push your changes to.

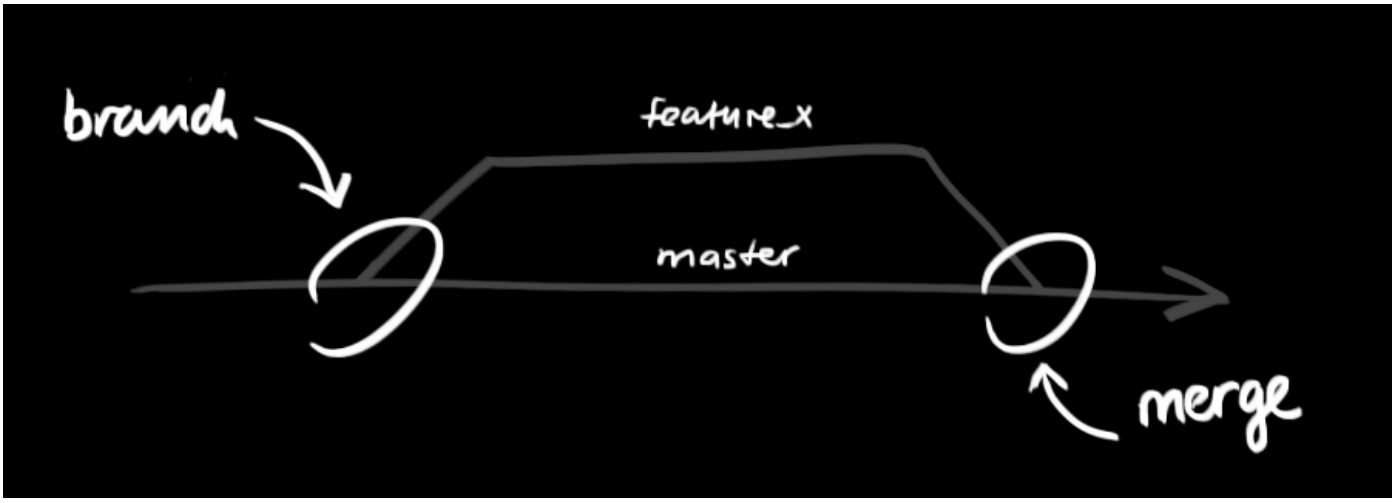
If you have not cloned an existing repository and want to connect your repository to a remote server, you need to add it with

```
git remote add origin <server>
```

Now you are able to push your changes to the selected remote server

branching

Branches are used to develop features isolated from each other. The *master* branch is the "default" branch when you create a repository. Use other branches for development and merge them back to the master branch upon completion.



create a new branch named "feature_x" and switch to it using

```
git checkout -b feature_x
```

switch back to master

```
git checkout master
```

and delete the branch again

```
git branch -d feature_x
```

a branch is *not available to others* unless you push the branch to your remote repository

```
git push origin <branch>
```

update & merge

to update your local repository to the newest commit, execute

```
git pull
```

in your working directory to *fetch* and *merge* remote changes.

to merge another branch into your active branch (e.g. master), use

```
git merge <branch>
```

in both cases git tries to auto-merge changes. Unfortunately, this is not always possible and results in *conflicts*. You are responsible to merge those *conflicts* manually by editing the files shown by git. After

changing, you need to mark them as merged with

```
git add <filename>
```

before merging changes, you can also preview them by using

```
git diff <source_branch> <target_branch>
```

tagging

it's recommended to create tags for software releases. this is a known concept, which also exists in SVN. You can create a new tag named *1.0.0* by executing

```
git tag 1.0.0 1b2e1d63ff
```

the *1b2e1d63ff* stands for the first 10 characters of the commit id you want to reference with your tag. You can get the commit id by looking at the...

log

in its simplest form, you can study repository history using.. `git log`

You can add a lot of parameters to make the log look like what you want.

To see only the commits of a certain author:

```
git log --author=bob
```

To see a very compressed log where each commit is one line:

```
git log --pretty=oneline
```

Or maybe you want to see an ASCII art tree of all the branches,

decorated with the names of tags and branches:

```
git log --graph --oneline --decorate --all
```

See only which files have changed:

```
git log --name-status
```

These are just a few of the possible parameters you can use. For more,

see `git log --help`

replace local changes

In case you did something wrong, which for sure never happens ;), you can replace local changes using the command

```
git checkout -- <filename>
```

this replaces the changes in your working tree with the last content in HEAD. Changes already added to the index, as well as new files, will be kept.

If you instead want to drop all your local changes and commits, fetch the latest history from the server and point your local master branch at it like this

```
git fetch origin
```

```
git reset --hard origin/master
```

useful hints

built-in git GUI

```
gitk
```

use colorful git output

```
git config color.ui true
```

show log on just one line per commit

```
git config format.pretty oneline
```

use interactive adding

```
git add -i
```

links & resources

graphical clients

GitX (L) (OSX, open source)
Tower (OSX)
Source Tree (OSX & Windows, free)
GitHub for Mac (OSX, free)
GitBox (OSX, App Store)

guides

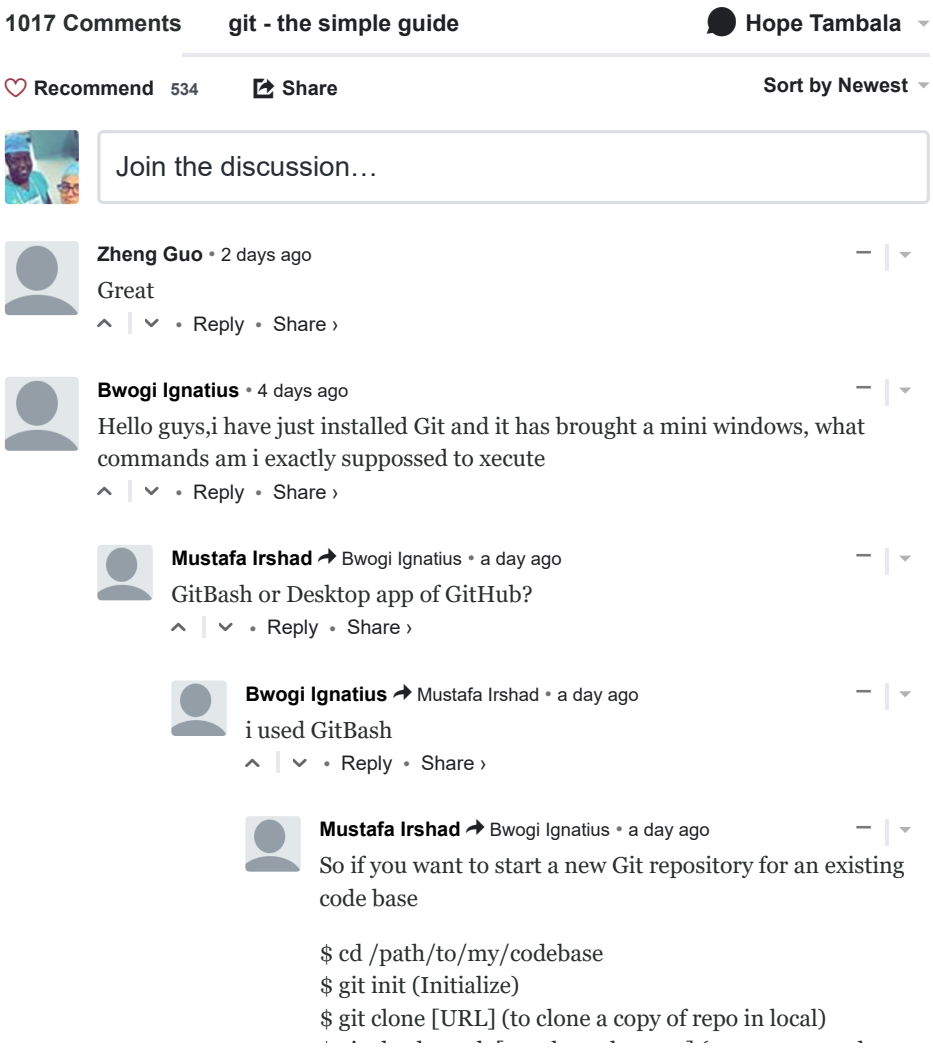
Git Community Book
Pro Git

Think like a git
GitHub Help
A Visual Git Guide

get help

Git User Mailing List
#git on irc.freenode.net

comments



$ git checkout -b [new branch name] (to create new the branch)
then make some changes in local
$ git checkout [branch name] (to switch the branch)
$ git status (to check the status of your changes in local, it should be in RED color)
$ git add . (to add those changes in repo)
$ git status (to check the status of your changes in local, it should be in GREEN color)
$ git commit (to commit those change with some comments/remarks)
then enter :wq
$ git push origin [branch name] (to push those changes)
$ git merge (if you want to merge that branch with Master branch)

Reply • Share ›

Neale • 7 days ago

Thanks - very helpful. N

Reply • Share ›

Rob Pi • 12 days ago

Great! Thanks!

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Cliodyn Cycwatch • 14 days ago

Nice

Reply • Share ›

Alex • 14 days ago

For the Graphical Clients at the end we could add GITKRAKEN, very usefull and working on UNIX too :

https://www.gitkraken.com/

Thanks for that guide !

1 Reply • Share ›

Matt Shelley • 17 days ago

Great post, you just saved me from writing my own list of common commands! :D

Reply • Share ›

Alberth Adolfo Molano Cubillos • 17 days ago

nice one dude really awesome

Reply • Share ›

t • 24 days ago

could you add git fetch and git checkout remote_branch_name?

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Glenn McGrew II • 24 days ago

Thank you, but could you add how to connect to your GitHub account via Git?

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Althaea • 25 days ago

Great guide. Extremely useful! Go from 0 to 120 with Git in a few minutes!

Reply • Share ›

Joshua Burkhalter • a month ago

This is awesome - thank you for putting this very simple explanation of such a potentially complex CLI together. Helps a ton!

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Dariusz Hildebrandt • a month ago

Thank you for your work and this simple explanation.

Reply • Share ›

john • a month ago

Would love to see an advanced version, e.g. the 3 repo sync pattern (fork, clone, branch, push, pull request, checkout master, merge upstrea,master, push origin/master) then the same thing but with a non-master branch (this is where it gets tricky, e.g. because when you clone your fork, although your fork gets the develop branch, your local cloned repo doesnt for some unknown reason)

1 Reply • Share ›

slick555 • a month ago

amazing!!!

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Snail • a month ago

Thank you for this guide!

5 Reply • Share ›

Arielle • 2 months ago

Oh wow. Never thought I would understand Git but this made it so simple. Thank you!

Reply • Share ›

jovenbarola • 2 months ago

Thank you for this guide!

Reply • Share ›

Lydon • 2 months ago

Yes, PERFECT! You are a scholar and a gentleman.

1 Reply • Share ›

Zahid Efe • 2 months ago

You're awesome man, thank you so much!

Reply • Share ›

Rajesh Sri Muthu • 2 months ago

awesome.... new interactive learning.

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Ali • 2 months ago

Can somebody help to create patch file for my changes which is not yet commited or push but present in local

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Martins Divine Okoi • 2 months ago

The best git beginner tutorial I have seen. Nice job

1 Reply • Share ›

Candra Nur Ihsan • 2 months ago

youuu this should be a official basic guidelines, may i repost and translate to my language?

1 Reply • Share ›

Thomas Phifer • 3 months ago
And now I finally "get" git!
2 • Reply • Share ›

Taxi E-saad • 3 months ago
Thank you for your great work
• Reply • Share ›

Amr Saeed • 3 months ago
Thank you for the great tutorial!
• Reply • Share ›

jesus • 3 months ago
Nice tutorial man, thanks!
• Reply • Share ›

David Johns • 3 months ago
Sweet... Probably the best git tutorial I have come across...
• Reply • Share ›

Akouri Ammar • 3 months ago
Thank you so much !
• Reply • Share ›

Alejandro Alexiades • 3 months ago
I love this tutorial, very clear and usefull. Good job!
• Reply • Share ›

moodforaday • 4 months ago
Okay, I get lost right between "create a new repository" and "checkout a repository". I inited a repo and so it's all empty and now I'm checking out the empty repo? Where do my _files_ go? I mean the existing source code for the app I am in the process of writing, which for the moment lives in a folder such as /projects/ThisApp/source? Do I copy them somewhere? Where? Do I always copy them into the "checked out repository", and where is it physically? And, I used to keep backups of that /projects/ folder. Which folders on disk do I keep backup of now?

Never found a guide that answers any of this. They all start with "check out a project from a repo", but what if there is no repo, there is nothing to check out, there is only my own source code on my own physical system?
• Reply • Share ›

Avatar This comment was deleted.

Clive Grant ➚ Guest • 3 months ago
Steph,
This Command line stuff takes me back to the old (MSDOS) days. At the risk of sounding pedantic, I take it the first two lines should refer to projects & c:\projects\ (plural). But why not c:\projects\ThisApp\ ? Do you only need just one local repo, rather than one per project?
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Dario Fumagalli ➚ moodforaday • 3 months ago
The **** FIRST **** thing you have to do, is to backup your files. Seriously. If you are a beginner and use git bad, you could end up deleting

your stuff with no way to restore it.

A clean and simple way to do get git running, after you have backupped your stuff, is:

- go to the directory (on your computer) where you want to store your versioned project.

- make sure it's empty. If you developed unversioned files, it's safest and simplest you just move them out for now.

- initialize an empty repository. A full repository. There is an option to create a repository with no working files, but you don't want that as a beginner.

- check out from remote so you get a mirror of the GitHub / remote repository on your computer.

see more

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Keith Wallace ➚ moodforaday • 4 months ago

Hi moodforaday,
I am also trying to figure out this git thing and am pretty lost so far. However this is what I have figured out:

Your _files_ stay in the folder that you put them in, which is /projects/ThisApp/source. You don't need to copy them anywhere.

Remember when you did 'git init'? You were hopefully in the /projects/ThisApp/source directory at the time...

Git has now made a hidden folder called .git in your /projects/ThisApp/source directory - this is what git uses to store its own files that it uses to keep track of your changes. (you can see it with 'ls -a'.)

When you do 'git add file1.txt' for instance, you aren't copying that file, you're telling git that you want it to monitor any changes when you commit. This 'moves' it into the staging area, aka index, and when you next run 'git commit' it will remember any changes you made between this file and the previously checked out version.

For backup, you'd need to copy the entire folder where your source files are, *including hidden files and directories*.

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moodforaday ➚ Keith Wallace • 4 months ago

Oh lovely, thanks! Makes sense, now I may finally get it :-)

Reply • Share ›

DeezNuts • 4 months ago

Best article about git, simple yet more useful.

2 • Reply • Share ›

Carkod • 4 months ago

shouldn't
git --tag push
Also be included in the tagging section? it took me a while to realize that you have to push the tags....

• Reply • Share ›

reddy910 • 4 months ago

wonderful document.
1 • Reply • Share ›

disqus_SDuHGwj5tN • 4 months ago
In your section:

Checkout a repository
Remote Server

There is a much simpler method that requires no setup on the client, at least under Windows.:

git clone https://github.com/yourid/r...
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hariharan • 4 months ago
Very good material thanks a lot :)
2 • Reply • Share ›

Daniel • 4 months ago
Hi I'm kinda new with git, and I have been facing many issues with my team lately, I was wondering if I'm following the right procedure:

1: take a git pull before working on anything else, or committing anything
2: if I have changes , I use git stash to put them aside, then git pull again, then git stash apply
3: If I got any conflict, I go manually file by file and approve the appropriate change for each using the "VS Code"
4: git add -A
5: git commit
6: git push

They say I comment their code and that it takes a while for them to merge anything from my commits. Also they say they are "basically" following the same procedure.

Am I doing anything wrong that may be causing them conflicts?

Thank you!
• Reply • Share ›

Carlos Aleman • 5 months ago
Thank you!! This is great information :)
• Reply • Share ›

Ashish Gupta • 5 months ago
I think good summary for people who know version control and git. To get a nice introduction, you can check out: