

GitHub

GIT CHEAT SHEET

V1.1.1

Git is the open source distributed version control system that facilitates GitHub activities on your laptop or desktop. This cheat sheet summarizes commonly used Git command line instructions for quick reference.

INSTALL GIT

GitHub provides desktop clients that include a graphical user interface for the most common repository actions and an automatically updating command line edition of Git for advanced scenarios.

GitHub for Windows

<https://windows.github.com>

GitHub for Mac

<https://mac.github.com>

Git distributions for Linux and POSIX systems are available on the official Git SCM web site.

Git for All Platforms

<http://git-scm.com>

CONFIGURE TOOLING

Configure user information for all local repositories

```
$ git config --global user.name "[name]"
```

Sets the name you want attached to your commit transactions

```
$ git config --global user.email "[email address]"
```

Sets the email you want attached to your commit transactions

```
$ git config --global color.ui auto
```

Enables helpful colorization of command line output

CREATE REPOSITORIES

Start a new repository or obtain one from an existing URL

```
$ git init [project-name]
```

Creates a new local repository with the specified name

```
$ git clone [url]
```

Downloads a project and its entire version history

MAKE CHANGES

Review edits and craft a commit transaction

```
$ git status
```

Lists all new or modified files to be committed

```
$ git diff
```

Shows file differences not yet staged

```
$ git add [file]
```

Snapshots the file in preparation for versioning

```
$ git diff --staged
```

Shows file differences between staging and the last file version

```
$ git reset [file]
```

Unstages the file, but preserve its contents

```
$ git commit -m "[descriptive message]"
```

Records file snapshots permanently in version history

GROUP CHANGES

Name a series of commits and combine completed efforts

```
$ git branch
```

Lists all local branches in the current repository

```
$ git branch [branch-name]
```

Creates a new branch

```
$ git checkout [branch-name]
```

Switches to the specified branch and updates the working directory

```
$ git merge [branch]
```

Combines the specified branch's history into the current branch

```
$ git branch -d [branch-name]
```

Deletes the specified branch

GIT CHEAT SHEET

REFACTOR FILENAMES

Relocate and remove versioned files

```
$ git rm [file]
```

Deletes the file from the working directory and stages the deletion

```
$ git rm --cached [file]
```

Removes the file from version control but preserves the file locally

```
$ git mv [file-original] [file-renamed]
```

Changes the file name and prepares it for commit

SUPPRESS TRACKING

Exclude temporary files and paths

```
*.log  
build/  
temp-*
```

A text file named `.gitignore` suppresses accidental versioning of files and paths matching the specified patterns

```
$ git ls-files --other --ignored --exclude-standard
```

Lists all ignored files in this project

SAVE FRAGMENTS

Shelve and restore incomplete changes

```
$ git stash
```

Temporarily stores all modified tracked files

```
$ git stash pop
```

Restores the most recently stashed files

```
$ git stash list
```

Lists all stashed changesets

```
$ git stash drop
```

Discards the most recently stashed changeset

REVIEW HISTORY

Browse and inspect the evolution of project files

```
$ git log
```

Lists version history for the current branch

```
$ git log --follow [file]
```

Lists version history for a file, including renames

```
$ git diff [first-branch]...[second-branch]
```

Shows content differences between two branches

```
$ git show [commit]
```

Outputs metadata and content changes of the specified commit

REDO COMMITS

Erase mistakes and craft replacement history

```
$ git reset [commit]
```

Undoes all commits after [commit], preserving changes locally

```
$ git reset --hard [commit]
```

Discards all history and changes back to the specified commit

SYNCHRONIZE CHANGES

Register a repository bookmark and exchange version history

```
$ git fetch [bookmark]
```

Downloads all history from the repository bookmark

```
$ git merge [bookmark]/[branch]
```

Combines bookmark's branch into current local branch

```
$ git push [alias] [branch]
```

Uploads all local branch commits to GitHub

```
$ git pull
```

Downloads bookmark history and incorporates changes

GitHub Training

Learn more about using GitHub and Git. Email the Training Team or visit our web site for learning event schedules and private class availability.

✉ training@github.com
🌐 training.github.com

VERSION CONTROL

BEST PRACTICES



COMMIT RELATED CHANGES

A commit should be a wrapper for related changes. For example, fixing two different bugs should produce two separate commits. Small commits make it easier for other developers to understand the changes and roll them back if something went wrong.

With tools like the staging area and the ability to stage only parts of a file, Git makes it easy to create very granular commits.

TEST CODE BEFORE YOU COMMIT

Resist the temptation to commit something that you «think» is completed. Test it thoroughly to make sure it really is completed and has no side effects (as far as one can tell). While committing half-baked things in your local repository only requires you to forgive yourself, having your code tested is even more important when it comes to pushing/sharing your code with others.

USE BRANCHES

Branching is one of Git's most powerful features - and this is not by accident: quick and easy branching was a central requirement from day one. Branches are the perfect tool to help you avoid mixing up different lines of development. You should use branches extensively in your development workflows: for new features, bug fixes, ideas...

COMMIT OFTEN

Committing often keeps your commits small and, again, helps you commit only related changes. Moreover, it allows you to share your code more frequently with others. That way it's easier for everyone to integrate changes regularly and avoid having merge conflicts. Having few large commits and sharing them rarely, in contrast, makes it hard to solve conflicts.

WRITE GOOD COMMIT MESSAGES

Begin your message with a short summary of your changes (up to 50 characters as a guideline). Separate it from the following body by including a blank line. The body of your message should provide detailed answers to the following questions:

- What was the motivation for the change?
- How does it differ from the previous implementation?

Use the imperative, present tense («change», not «changed» or «changes») to be consistent with generated messages from commands like git merge.

AGREE ON A WORKFLOW

Git lets you pick from a lot of different workflows: long-running branches, topic branches, merge or rebase, git-flow... Which one you choose depends on a couple of factors: your project, your overall development and deployment workflows and (maybe most importantly) on your and your teammates' personal preferences. However you choose to work, just make sure to agree on a common workflow that everyone follows.

DON'T COMMIT HALF-DONE WORK

You should only commit code when it's completed. This doesn't mean you have to complete a whole, large feature before committing. Quite the contrary: split the feature's implementation into logical chunks and remember to commit early and often. But don't commit just to have something in the repository before leaving the office at the end of the day. If you're tempted to commit just because you need a clean working copy (to check out a branch, pull in changes, etc.) consider using Git's «Stash» feature instead.

VERSION CONTROL IS NOT A BACKUP SYSTEM

Having your files backed up on a remote server is a nice side effect of having a version control system. But you should not use your VCS like it was a backup system. When doing version control, you should pay attention to committing semantically (see «related changes») - you shouldn't just cram in files.

HELP & DOCUMENTATION

Get help on the command line

```
$ git help <command>
```

OFFICIAL GIT WEBSITE

<http://www.git-scm.com/>

FREE ONLINE RESOURCES

<http://www.git-tower.com/learn>

<http://rogerdudler.github.io/git-guide/>

<http://www.git-scm.org/book>