

GIT CHEAT SHEET

presented by **TOWER** > Version control with Git - made easy



CREATE

Clone an existing repository

```
$ git clone ssh://user@domain.com/repo.git
```

Create a new local repository

```
$ git init
```

LOCAL CHANGES

Changed files in your working directory

```
$ git status
```

Changes to tracked files

```
$ git diff
```

Add all current changes to the next commit

```
$ git add .
```

Add some changes in <file> to the next commit

```
$ git add -p <file>
```

Commit all local changes in tracked files

```
$ git commit -a
```

Commit previously staged changes

```
$ git commit
```

Change the last commit

Don't amend published commits!

```
$ git commit --amend
```

COMMIT HISTORY

Show all commits, starting with newest

```
$ git log
```

Show changes over time for a specific file

```
$ git log -p <file>
```

Who changed what and when in <file>

```
$ git blame <file>
```

BRANCHES & TAGS

List all existing branches

```
$ git branch -av
```

Switch HEAD branch

```
$ git checkout <branch>
```

Create a new branch based on your current HEAD

```
$ git branch <new-branch>
```

Create a new tracking branch based on a remote branch

```
$ git checkout --track <remote/branch>
```

Delete a local branch

```
$ git branch -d <branch>
```

Mark the current commit with a tag

```
$ git tag <tag-name>
```

UPDATE & PUBLISH

List all currently configured remotes

```
$ git remote -v
```

Show information about a remote

```
$ git remote show <remote>
```

Add new remote repository, named <remote>

```
$ git remote add <shortname> <url>
```

Download all changes from <remote>, but don't integrate into HEAD

```
$ git fetch <remote>
```

Download changes and directly merge/integrate into HEAD

```
$ git pull <remote> <branch>
```

Publish local changes on a remote

```
$ git push <remote> <branch>
```

Delete a branch on the remote

```
$ git branch -dr <remote/branch>
```

Publish your tags

```
$ git push --tags
```

MERGE & REBASE

Merge <branch> into your current HEAD

```
$ git merge <branch>
```

Rebase your current HEAD onto <branch>

Don't rebase published commits!

```
$ git rebase <branch>
```

Abort a rebase

```
$ git rebase --abort
```

Continue a rebase after resolving conflicts

```
$ git rebase --continue
```

Use your configured merge tool to solve conflicts

```
$ git mergetool
```

Use your editor to manually solve conflicts and (after resolving) mark file as resolved

```
$ git add <resolved-file>
```

```
$ git rm <resolved-file>
```

UNDO

Discard all local changes in your working directory

```
$ git reset --hard HEAD
```

Discard local changes in a specific file

```
$ git checkout HEAD <file>
```

Revert a commit (by producing a new commit with contrary changes)

```
$ git revert <commit>
```

Reset your HEAD pointer to a previous commit

...and discard all changes since then

```
$ git reset --hard <commit>
```

...and preserve all changes as unstaged changes

```
$ git reset <commit>
```

...and preserve uncommitted local changes

```
$ git reset --keep <commit>
```

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.

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.

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.

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.

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`.

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.

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...

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.

HELP & DOCUMENTATION

Get help on the command line

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

FREE ONLINE RESOURCES

<http://www.git-tower.com/learn>
<http://rogerdudler.github.io/git-guide/>
<http://www.git-scm.org/>

Git Cheat Sheet



Git Basics

<code>git init</code> <code><directory></code>	Create empty Git repo in specified directory. Run with no arguments to initialize the current directory as a git repository.
<code>git clone <repo></code>	Clone repo located at <code><repo></code> onto local machine. Original repo can be located on the local filesystem or on a remote machine via HTTP or SSH.
<code>git config</code> <code>user.name <name></code>	Define author name to be used for all commits in current repo. Devs commonly use <code>--global</code> flag to set config options for current user.
<code>git add</code> <code><directory></code>	Stage all changes in <code><directory></code> for the next commit. Replace <code><directory></code> with a <code><file></code> to change a specific file.
<code>git commit -m</code> " <code><message></code> "	Commit the staged snapshot, but instead of launching a text editor, use <code><message></code> as the commit message.
<code>git status</code>	List which files are staged, unstaged, and untracked.
<code>git log</code>	Display the entire commit history using the default format. For customization see additional options.
<code>git diff</code>	Show unstaged changes between your index and working directory.

Undoing Changes

<code>git revert</code> <code><commit></code>	Create new commit that undoes all of the changes made in <code><commit></code> , then apply it to the current branch.
<code>git reset <file></code>	Remove <code><file></code> from the staging area, but leave the working directory unchanged. This unstages a file without overwriting any changes.
<code>git clean -n</code>	Shows which files would be removed from working directory. Use the <code>-f</code> flag in place of the <code>-n</code> flag to execute the clean.

Rewriting Git History

<code>git commit</code> <code>--amend</code>	Replace the last commit with the staged changes and last commit combined. Use with nothing staged to edit the last commit's message.
<code>git rebase <base></code>	Rebase the current branch onto <code><base></code> . <code><base></code> can be a commit ID, a branch name, a tag, or a relative reference to HEAD.
<code>git reflog</code>	Show a log of changes to the local repository's HEAD. Add <code>--relative-date</code> flag to show date info or <code>--all</code> to show all refs.

Git Branches

<code>git branch</code>	List all of the branches in your repo. Add a <code><branch></code> argument to create a new branch with the name <code><branch></code> .
<code>git checkout -b</code> <code><branch></code>	Create and check out a new branch named <code><branch></code> . Drop the <code>-b</code> flag to checkout an existing branch.
<code>git merge <branch></code>	Merge <code><branch></code> into the current branch.

Remote Repositories

<code>git remote add</code> <code><name> <url></code>	Create a new connection to a remote repo. After adding a remote, you can use <code><name></code> as a shortcut for <code><url></code> in other commands.
<code>git fetch</code> <code><remote> <branch></code>	Fetches a specific <code><branch></code> , from the repo. Leave off <code><branch></code> to fetch all remote refs.
<code>git pull <remote></code>	Fetch the specified remote's copy of current branch and immediately merge it into the local copy.
<code>git push</code> <code><remote> <branch></code>	Push the branch to <code><remote></code> , along with necessary commits and objects. Creates named branch in the remote repo if it doesn't exist.

Additional Options +

git config

<code>git config --global user.name <name></code>	Define the author name to be used for all commits by the current user.
<code>git config --global user.email <email></code>	Define the author email to be used for all commits by the current user.
<code>git config --global alias. <alias-name> <git-command></code>	Create shortcut for a Git command. E.g. <code>alias.glog log --graph --oneline</code> will set <code>git glog</code> equivalent to <code>git log --graph --oneline</code> .
<code>git config --system core.editor <editor></code>	Set text editor used by commands for all users on the machine. <code><editor></code> arg should be the command that launches the desired editor (e.g., vi).
<code>git config --global --edit</code>	Open the global configuration file in a text editor for manual editing.

git log

<code>git log -<limit></code>	Limit number of commits by <code><limit></code> . E.g. <code>git log -5</code> will limit to 5 commits.
<code>git log --oneline</code>	Condense each commit to a single line.
<code>git log -p</code>	Display the full diff of each commit.
<code>git log --stat</code>	Include which files were altered and the relative number of lines that were added or deleted from each of them.
<code>git log --author="<pattern>"</code>	Search for commits by a particular author.
<code>git log --grep="<pattern>"</code>	Search for commits with a commit message that matches <code><pattern></code> .
<code>git log <since>..<until></code>	Show commits that occur between <code><since></code> and <code><until></code> . Args can be a commit ID, branch name, HEAD, or any other kind of revision reference.
<code>git log -- <file></code>	Only display commits that have the specified file.
<code>git log --graph --decorate</code>	<code>--graph</code> flag draws a text based graph of commits on left side of commit msgs. <code>--decorate</code> adds names of branches or tags of commits shown.

git diff

<code>git diff HEAD</code>	Show difference between working directory and last commit.
<code>git diff --cached</code>	Show difference between staged changes and last commit

git reset

<code>git reset</code>	Reset staging area to match most recent commit, but leave the working directory unchanged.
<code>git reset --hard</code>	Reset staging area and working directory to match most recent commit and overwrites all changes in the working directory.
<code>git reset <commit></code>	Move the current branch tip backward to <code><commit></code> , reset the staging area to match, but leave the working directory alone.
<code>git reset --hard <commit></code>	Same as previous, but resets both the staging area & working directory to match. Deletes uncommitted changes, and all commits after <commit>.

git rebase

<code>git rebase -i <base></code>	Interactively rebase current branch onto <code><base></code> . Launches editor to enter commands for how each commit will be transferred to the new base.
---	---

git pull

<code>git pull --rebase <remote></code>	Fetch the remote's copy of current branch and rebases it into the local copy. Uses git rebase instead of merge to integrate the branches.
---	---

git push

<code>git push <remote> --force</code>	Forces the <code>git push</code> even if it results in a non-fast-forward merge. Do not use the <code>--force</code> flag unless you're absolutely sure you know what you're doing.
<code>git push <remote> --all</code>	Push all of your local branches to the specified remote.
<code>git push <remote> --tags</code>	Tags aren't automatically pushed when you push a branch or use the <code>--all</code> flag. The <code>--tags</code> flag sends all of your local tags to the remote repo.