



Creating Snapshots

Initializing a repository

`git init`

Staging files

<code>git add file1.js</code>	<code># Stages a single file</code>
<code>git add file1.js file2.js</code>	<code># Stages multiple files</code>
<code>git add *.js</code>	<code># Stages with a pattern</code>
<code>git add .</code>	<code># Stages the current directory and all its content</code>

Viewing the status

<code>git status</code>	<code># Full status</code>
<code>git status -s</code>	<code># Short status</code>

Committing the staged files

<code>git commit -m "Message"</code>	<code># Commits with a one-line message</code>
<code>git commit</code>	<code># Opens the default editor to type a long message</code>

Skipping the staging area

`git commit -am "Message"`

Removing files

<code>git rm file1.js</code>	<code># Removes from working directory and staging area</code>
<code>git rm --cached file1.js</code>	<code># Removes from staging area only</code>

Renaming or moving files

`git mv file1.js file1.txt`



Viewing the staged/unstaged changes

<code>git diff</code>	# Shows unstaged changes
<code>git diff --staged</code>	# Shows staged changes
<code>git diff --cached</code>	# Same as the above

Viewing the history

<code>git log</code>	# Full history
<code>git log --oneline</code>	# Summary
<code>git log --reverse</code>	# Lists the commits from the oldest to the newest

Viewing a commit

<code>git show 921a2ff</code>	# Shows the given commit
<code>git show HEAD</code>	# Shows the last commit
<code>git show HEAD~2</code>	# Two steps before the last commit
<code>git show HEAD:file.js</code>	# Shows the version of file.js stored in the last commit

Unstaging files (undoing git add)

<code>git restore --staged file.js</code>	# Copies the last version of file.js from repo to index
---	---

Discarding local changes

<code>git restore file.js</code>	# Copies file.js from index to working directory
<code>git restore file1.js file2.js</code>	# Restores multiple files in working directory
<code>git restore .</code>	# Discards all local changes (except untracked files)
<code>git clean -fd</code>	# Removes all untracked files

Restoring an earlier version of a file

<code>git restore --source=HEAD~2 file.js</code>
--



Browsing History

Viewing the history

`git log --stat` # Shows the list of modified files
`git log --patch` # Shows the actual changes (patches)

Filtering the history

`git log -3` # Shows the last 3 entries
`git log --author="Mosh"`
`git log --before="2020-08-17"`
`git log --after="one week ago"`
`git log --grep="GUI"` # Commits with "GUI" in their message
`git log -S"GUI"` # Commits with "GUI" in their patches
`git log hash1..hash2` # Range of commits
`git log file.txt` # Commits that touched file.txt

Formatting the log output

`git log --pretty=format:"%an committed %H"`

Creating an alias

`git config --global alias.lg "log --oneline"`

Viewing a commit

`git show HEAD~2`
`git show HEAD~2:file1.txt` # Shows the version of file stored in this commit

Comparing commits

`git diff HEAD~2 HEAD` # Shows the changes between two commits
`git diff HEAD~2 HEAD file.txt` # Changes to file.txt only



Checking out a commit

<code>git checkout dad47ed</code>	<code># Checks out the given commit</code>
<code>git checkout master</code>	<code># Checks out the master branch</code>

Finding a bad commit

<code>git bisect start</code>	
<code>git bisect bad</code>	<code># Marks the current commit as a bad commit</code>
<code>git bisect good ca49180</code>	<code># Marks the given commit as a good commit</code>
<code>git bisect reset</code>	<code># Terminates the bisect session</code>

Finding contributors

<code>git shortlog</code>	
---------------------------	--

Viewing the history of a file

<code>git log file.txt</code>	<code># Shows the commits that touched file.txt</code>
<code>git log --stat file.txt</code>	<code># Shows statistics (the number of changes) for file.txt</code>
<code>git log --patch file.txt</code>	<code># Shows the patches (changes) applied to file.txt</code>

Finding the author of lines

<code>git blame file.txt</code>	<code># Shows the author of each line in file.txt</code>
---------------------------------	--

Tagging

<code>git tag v1.0</code>	<code># Tags the last commit as v1.0</code>
<code>git tag v1.0 5e7a828</code>	<code># Tags an earlier commit</code>
<code>git tag</code>	<code># Lists all the tags</code>
<code>git tag -d v1.0</code>	<code># Deletes the given tag</code>

Branching & Merging



Managing branches

git branch bugfix	# Creates a new branch called bugfix
git checkout bugfix	# Switches to the bugfix branch
git switch bugfix	# Same as the above
git switch -C bugfix	# Creates and switches
git branch -d bugfix	# Deletes the bugfix branch

Comparing branches

git log master..bugfix	# Lists the commits in the bugfix branch not in master
git diff master..bugfix	# Shows the summary of changes

Stashing

git stash push -m "New tax rules"	# Creates a new stash
git stash list	# Lists all the stashes
git stash show stash@{1}	# Shows the given stash
git stash show 1	# shortcut for stash@{1}
git stash apply 1	# Applies the given stash to the working dir
git stash drop 1	# Deletes the given stash
git stash clear	# Deletes all the stashes

Merging

git merge bugfix	# Merges the bugfix branch into the current branch
git merge --no-ff bugfix	# Creates a merge commit even if FF is possible
git merge --squash bugfix	# Performs a squash merge
git merge --abort	# Aborts the merge



Viewing the merged branches

`git branch --merged` # Shows the merged branches

`git branch --no-merged` # Shows the unmerged branches

Rebasing

`git rebase master` # Changes the base of the current branch

Cherry picking

`git cherry-pick dad47ed` # Applies the given commit on the current branch



Collaboration

Cloning a repository

git clone url

Syncing with remotes

git fetch origin master

Fetches master from origin

git fetch origin

Fetches all objects from origin

git fetch

Shortcut for "git fetch origin"

git pull

Fetch + merge

git push origin master

Pushes master to origin

git push

Shortcut for "git push origin master"

Sharing tags

git push origin v1.0

Pushes tag v1.0 to origin

git push origin --delete v1.0

Sharing branches

git branch -r

Shows remote tracking branches

git branch -vv

Shows local & remote tracking branches

git push -u origin bugfix

Pushes bugfix to origin

git push -d origin bugfix

Removes bugfix from origin

Managing remotes

git remote

Shows remote repos

git remote add upstream url

Adds a new remote called upstream

git remote rm upstream

Removes upstream



Rewriting History

Undoing commits

<code>git reset --soft HEAD^</code>	# Removes the last commit, keeps changed staged
<code>git reset --mixed HEAD^</code>	# Unstages the changes as well
<code>git reset --hard HEAD^</code>	# Discards local changes

Reverting commits

<code>git revert 72856ea</code>	# Reverts the given commit
<code>git revert HEAD~3..</code>	# Reverts the last three commits
<code>git revert --no-commit HEAD~3..</code>	

Recovering lost commits

<code>git reflog</code>	# Shows the history of HEAD
<code>git reflog show bugfix</code>	# Shows the history of bugfix pointer

Amending the last commit

`git commit --amend`

Interactive rebasing

`git rebase -i HEAD~5`