

Getting Started

Start a new repo:
git init

Clone an existing repo:
git clone <url>

Prepare to Commit

Add untracked file or unstaged changes:
git add <file>

Add all untracked files and unstaged changes:
git add .

Choose which parts of a file to stage:
git add -p

Move file:
git mv <old> <new>

Delete file:
git rm <file>

Tell Git to forget about a file without deleting it:
git rm --cached <file>

Unstage one file:
git reset <file>

Unstage everything:
git reset

Check what you added:
git status

Make Commits

Make a commit (and open text editor to write message):
git commit

Make a commit:
git commit -m 'message'

Commit all unstaged changes:
git commit -am 'message'

Move Between Branches

Switch branches:
git switch <name>

OR
git checkout <name>

Create a branch:
git switch -c <name>

OR
git checkout -b <name>

List branches:
git branch

List branches by most recently committed to:
git branch --sort=-committerdate

Delete a branch:
git branch -d <name>

Force delete a branch:
git branch -D <name>

Diff Staged/Unstaged Changes

Diff all staged and unstaged changes:
git diff HEAD

Diff just staged changes:
git diff --staged

Diff just unstaged changes:
git diff

Diff Commits

Show diff between a commit and its parent:
git show <commit>

Diff two commits:
git diff <commit> <commit>

Diff one file since a commit:
git diff <commit> <file>

Show a summary of a diff:
git diff <commit> --stat
git show <commit> --stat

Ways to refer to a commit

Every time we say <commit>, you can use any of these:

| | |
|-------------------|------------------|
| * a branch | main |
| * a tag | v0.1 |
| * a commit ID | 3e887ab |
| * a remote branch | origin/main |
| * current commit | HEAD |
| * 3 commits ago | HEAD^^ or HEAD~3 |

Discard Your Changes

Delete unstaged changes to one file:
git restore <file>

OR
git checkout <file>

Delete all staged and unstaged changes to one file:
git restore --staged --worktree <file>

OR
git checkout HEAD <file>

Delete all staged and unstaged changes:
git reset --hard

Delete untracked files:
git clean

'Stash' all staged and unstaged changes:
git stash

Edit History

"Undo" the most recent commit (keep your working directory the same):
git reset HEAD^

Squash the last 5 commits into one:
git rebase -i HEAD~6

Then change "pick" to "fixup" for any commit you want to combine with the previous one

Undo a failed rebase:
git reflog BRANCHNAME

Then manually find the right commit ID in the reflog, then run:
git reset --hard <commit>

Change a commit message (or add a file you forgot):
git commit --amend

Code Archaeology

Look at a branch's history:
git log main

git log --graph main
git log --oneline

Show every commit that modified a file:
git log <file>

Show every commit that modified a file, including before it was renamed:
git log --follow <file>

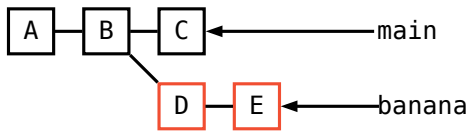
Find every commit that added or removed some text:
git log -G banana

Show who last changed each line of a file:
git blame <file>

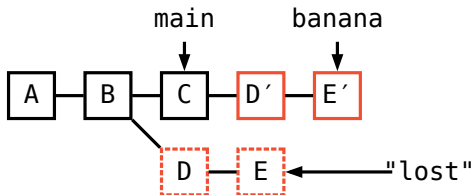
Combine Diverged Branches

Combine with rebase:
git switch banana
git rebase main

Before:

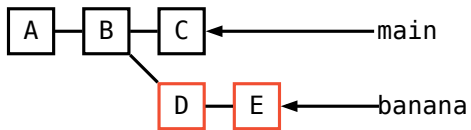


After:

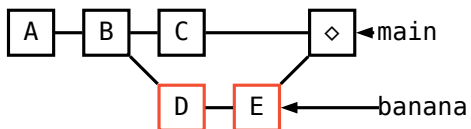


Combine with merge:
git switch main
git merge banana

Before:

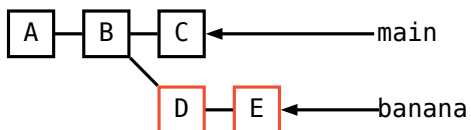


After:

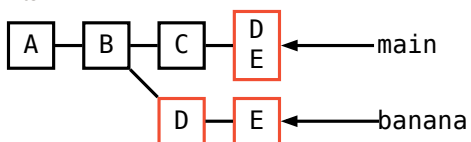


Combine with squash merge:
git switch main
git merge --squash banana
git commit

Before:



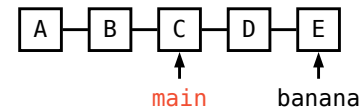
After:



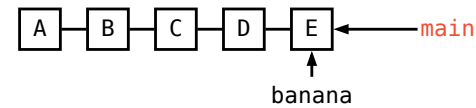
Bring a branch up to date with another branch
(aka "fast-forward merge"):

git switch main
git merge banana

Before:

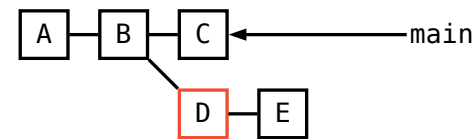


After:

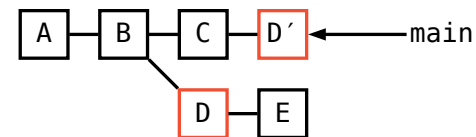


Copy one commit onto the current branch:
git cherry-pick <commit>

Before:



After:



Restore an Old File

Get the version of a file from another commit:
git checkout <commit> <file>
OR
git restore <file> --source <commit>

Add a Remote

git remote add <name> <url>

Push Your Changes

Push the
main

branch to the remote
origin

:

git push origin main

Push the current branch to its remote "tracking
branch":
git push

Push a branch that you've never pushed before:
git push -u origin <name>

Force push:
git push --force-with-lease

Push tags:
git push --tags

Pull Changes

Fetch changes (but don't change any of your
local branches):
git fetch origin main

Fetch changes and then rebase your current
branch:
git pull --rebase

Fetch changes and then merge them into your
current branch:
git pull origin main
OR
git pull

Configure Git

Set a config option:
git config user.name 'Your Name'

Set option globally:
git config --global ...

Add an alias:
git config alias.st status

See all possible config options:
man git-config

Important Files

Local git config:
.git/config

Global git config:
~/.gitconfig

List of files to ignore:
.gitignore