

Description:

Introduction:

Github is an open-source code platform that allows us to collaborate with others developers through [Git](#), the most popular decentralized VCS (Version Control System), although, there are other VCS like [Subversion](#) for a more centralized approach.

This is **quick guide to collaborate** on Github through Git but mainly as a reference for **basic/other commands** which are meant to be used on a git terminal.

While not so user friendly, using the **terminal** allows us to use **more commands**, to **modify** their **syntax** and to provide them with many different **options, arguments or objects** and to chain several commands successively on **unix-like** systems.

The most popular ones are MAC OS and Linux, but Windows users can also use the [Gitbash](#) emulator provided by Git with its download.

Table of Contents

- [Github Contributions](#)
 - [Fork vs Clone](#)
 - [Contributions without permissions](#)
 - [Contributions with permissions](#)
- [Git Commands](#)
 - [Definitions](#)
- [Other Commands](#)
 - [Contributors](#)
 - [References](#)

Github Contributions

Fork vs Clone:

- **Fork**: Merge with original repo is possible with a pull request.
- **Clone**: Merge with original repo is only achieved by pushing to fork and then a pull request.

Contributions without permissions:

Note: It is better to fork a repository before cloning it due to [copyrights](#) when the *user is NOT declared as a contributor*.

General steps:

1. [Fork](#) repository.
2. [Clone](#) forked repository.
3. Make Changes in Local.
4. [Push](#) to Personal Remote.
5. [Pull Request](#) to Original Remote.

Contributions with permissions:

Note: It is a faster option to clone the original repository without a previous fork of the project if the *user IS declared as a contributor*.

General steps:

1. [Clone](#)
2. Make Changes in Local.
3. [Push](#) to Personal Remote.

Refer to *Github official documentation* for more information related to contributions.

Git Basic Commands



The following is a list of common git commands based on the [Git Documentation](#).

Note: if you don't understand a term, check out the [definitions](#) section below.

Basic	Command	Description
1. help	1. git help 2. git help <command> 3. git help -a	1. List <i>common commands</i> . 2. Display help on git <i>command</i> . 3. List all available <i>commands</i> .
2. init	1. git init 2. git init -b <branch> 3. git init <subdir.> 4. git init --bare <subdir.> 5. git init --template= <template-dir.> 6. git init --shared [=(-options)]	1. Initialize <i>git</i> repo in folder. 2. Override <i>branch name</i> (<i>config default set if none</i>). 3. Initialize a git repo inside a new subdir. 4. Initialize a git bare repo inside new subdir. 5. Specify <i>dir.</i> from which <i>templates</i> will be used. 6. Make <i>git readable/writable</i> by users (<i>see options</i>).
3. clone	1. git clone <URL> 2. git clone --no-hardlinks <dir.> 3. git clone <URL> <dir.> 4. git clone <URL> --branch <branch> --single-branch	1. Clone <i>remote</i> default branch with <i>URL</i> . 2. Clone <i>local</i> repo for <i>backup</i> purposes.

Basic	Command	Description
	5. git clone --bare 6. git clone --mirror 7. git clone --template= <temp_dir.> <dir.> 8. git clone --depth= <depth>	3. Clone <i>remote</i> <i>default branch</i> in <i>dir.</i> 4. Clone <i>remote</i> <i>single branch</i> with repo <i>URL</i> . 5. Clone <i>remote</i> with <i>no remote-tracking</i> & <i>config</i> . 6. Clone --bare with <i>remote tracking</i> & <i>config</i> .. 7. Clone set <i>template</i> in dir. (see 2. <i>git init</i>). 8. Clone truncated to a number of <i>revisions</i> .
4. config	1. git config 2. git config --global pull.rebase true 3. git config --global ff no 4. git config ff no 5. git config remote.origin.prune true 6. git config --global fetch.prune true 7. git config --global user.name <username> 8. git config --global user.email <e-mail> 9. git config --system user.name <project> 10. git config --get user.name 11. git config -l 12. git config -e	1. Display git <i>global config</i> (<i>create if none</i>). 2. Set the <i>pull</i> command as <i>rebase</i> globally. 3. Disable <i>fast-forward</i> merge for <i>local</i> repos. 4. Disable <i>fast-forward</i> merge in <i>local</i> repo. 5. Set <i>auto-prune</i> with <i>fetch</i> & <i>pull</i>. 6. Set <i>auto-prune</i> w/ <i>fetch</i> for <i>local</i> repos.

Basic	Command	Description
		<p>7. Set <i>author</i> to commits for <i>local</i> repos.</p> <p>8. Set <i>email</i> to commits for <i>local</i> repos.</p> <p>9. Set <i>author</i> for all git users.</p> <p>10. Get <i>author/email</i> from <i>global/system</i>.</p> <p>11. List all variables set in config. file.</p> <p>12. Edit config files from <i>global/system</i></p>
5. checkout	1. git checkout <branch> 2. git checkout -b <feature> 3. git checkout -b <branch> <origin/branch> 4. git checkout -- <file> 5. git checkout - 6. git checkout <branch>~n <file>	1. Switch to <i>branch</i> in working tree. 2. Create and switch to <i>feature</i> (or any) branch. 3. Clone <i>remote</i> branch and switch. 4. Discard <i>changes</i> in file to match current branch. 5. Switch to last checkout. 6. Reverts local file in branch <i>n commits</i> (e.g. <i>n=2</i>).
6. fetch	1. git fetch <origin> 2. git fetch <origin> <branch> 3. git fetch --all 4. git fetch --dry-run 5. git fetch --append	1. Fetch <i>all</i> . 2. Fetch <i>branch</i> . 3. Fetch all <i>branches</i> in repo. 4. Show output but <i>without fetching</i> .

Basic	Command	Description
	6. git fetch --depth= <depth> 7. git fetch -f 8. git fetch --prune	5. Fetch without overwriting (.git/FETCH_HEAD). 6. Limit fetching to <i>n</i> depth commits (e.g. <i>n</i> =3). 7. Fetch even if it's not descendant of remote branch. 8. Remove unexistant remote-tracking branches.
7.merge	1. git merge <branch> 2. git merge <branch> <target_branch> 3. git merge --no-ff <branch> 4. git merge --continue 5. git merge --allow-unrelated-histories 6. git merge -base [-a] <commit_id> <commit_id> 7. git merge -s resolve <branch-1> <branch-2> 8. git merge -s recursive -X ours OR theirs <branch> 9. git merge -s octopus <branch-1> <branch-n> 10. git merge -s ours <branch-1> <branch-n> 11. git merge -s subtree <branch-1> <branch-2>	1. Fast-forward merge branch with HEAD (linear) . 2. Fast-forward merge branch to tip of target . 3. Maintain commit history , may not fast-fwd. 4. Conclude conflicting merge . 5. Merge indep. projects by overriding safeties. 6. Find ancestor on <i>n</i> commits for a 3-way merge. 7. 3-way merge 2 branch HEADs . 8. 3-way merge >1 common ancestors for tree. 9. Merges more than 2 branch HEADs .

Basic	Command	Description
		10. Merges <i>multiple branches tip</i> in HEAD. 11. Reflect B tree <i>structure</i> as subtree of A.
8. rebase	1. git rebase <base> 2. git rebase -i <base> 3. git rebase --continue 4. git rebase --abort 5. git rebase -i HEAD~n 6. git rebase --onto <newbase> 7. git rebase --allow-empty 8. git rebase --edit-todo 9. git rebase --stat 10. git rebase -p 11. git rebase <branch> -s <strategy> 12. git rebase <branch> -s <recursive> -X <option>	1. Rebase branch into <i>base</i> . 2. Rebase branch <i>interactively on base</i> . 3. Continue rebase after <i>resolving merge conflict</i> . 4. Abort & return HEAD to original position. 5. Interactive rebase of <i>last n commits</i> . 6. Rebase branch into <i>base</i> other than upstream. 7. Allow empty msg <i>commits</i> to be created. 8. Edit the <i>list of commits</i> to be rebased. 9. Show diffstat of what changed upstream. 10. Recreate commits instead of flattening. 11. Use the given merge strategy.

Basic	Command	Description
		12. Use recursive merge with a valid <i>option</i> .
9. pull	1. git pull 2. git pull <URL> 3. git pull <origin> <branch> 4. git pull --rebase <origin> <branch> 5. git pull --ff-only 6. git pull --no-ff 7. git pull -s <strategy> -X <option>	1. Fetch & merge <i>remote-tracking</i> with local. 2. Clone, fetch & merge remote's <i>URL</i> with local. 3. Fetch & merge <i>remote branch</i> with local. 4. Fetch & rebase <i>branch</i> . 5. Update <i>branch</i> without a merge commit. 6. Pull & commit even for <i>fast-forwards (linear)</i> . 7. Same strategies and options as for merge last 5.
10. add	1. git add -A 2. git add . 3. git add <file> 4. git add -n <file> 5. git add --v 6. git add -force 7. git add -p 8. git add -i 9. git add -e	1. Add all changes in files to stage. 2. Add changes without <i>deletions</i> for stage. 3. Add file to stage. 4. Show if file is <i>unexistant</i> . 5. Ignore indexing <i>errors</i> for git add. 6. Allows to add <i>ignored</i> files.

Basic	Command	Description
		7. Patch hunks <i>interactively</i> from <i>index to tree</i> ¹ . 8. Patch changes <i>interactively</i> from <i>index to tree</i> . 9. Interactive patch mode vs diff editor.
11. commit	1. git commit -m <msg> 2. git commit --date= <date> 3. commit -i <msg> 4. git commit --dry-run 5. git commit -v 6. git commit --amend 7. git commit -s	1. Overwrite commit <i>msg</i> . 2. Override author's <i>date</i> in commit. 3. Commit <i>changes & unstaged</i> content. 4. List only <i>committed, uncommitted & untracked</i> paths. 5. Show differences between <i>HEAD</i> and <i>commit</i> . 6. Modify the most recent commit <i>msg</i> . 7. Add author signature at the end of commit <i>msg</i> .
12.push	1. git push 2. git push -u <origin> <branch> 3. git push --all 4. git push <origin> --delete <branch> 5. git push --force 6. git push --force-with-lease 7. git push --prune <origin refs/heads/*> 8. git push --mirror	1. Push <i>commits</i> . 2. Push <i>commits</i> and set as <i>upstream</i> . 3. Push <i>all commits</i> . 4. Delete <i>remote-tracking</i> branch. 5. Push <i>commits</i> and <i>destroy all unmerged</i> changes. 6. Push and <i>destroy personal unmerged</i>

Basic	Command	Description
		<p>changes.</p> <p>7. Remove <i>remote</i> without local counterpart.</p> <p>8. Overwrite <i>remote</i> with local branches.</p>
13. pull request	1. git request-pull <branch> <URL> <feature>	1. Pull request for changes between tag and feature.
14. branch	1. git branch 2. git branch -r 3. git branch -a 4. git branch <branch> 5. git branch -d <branch> 6. git branch -D <branch> 7. git branch -f <branch> <feature> 8. git branch --show-current 9. git branch --set-upstream-to 10. git branch / grep -v <branch(es)> / xargs git branch -D	1. See <i>local</i> branches. 2. See <i>remote</i> branches. 3. See <i>local and remote</i> branches. 4. Create <i>branch</i> and name it. 5. Delete <i>unmerged</i> branch. 6. Delete <i>merged & unmerged</i> branches. 7. Rewrite local <i>branch</i> with <i>feature</i> branch. 8. Show <i>current</i> branch in local. 9. Make an existing git branch track a <i>remote</i> . 10. Delete <i>all</i> branches excepting selected.
15. diff	1. git diff 2. git diff --staged 3. git diff HEAD	1. Check for differences in <i>local</i> & <i>remote-tracking</i> .

Basic	Command	Description
	4. git diff --color-words 5. git diff <branch> <feature> <file> 6. git diff <commit_id> <commit_id> <file> 7. git diff --stats 8. git diff-files 9. git diff stash@{n} <branch>	2. Check for differences in <i>local</i> & <i>staged</i> changes. 3. Check for differences in <i>work dir.</i> & <i>last commit.</i> 4. Highlight <i>changes</i> with <i>color</i> granularity. 5. Check for differences in a file between <i>two branches</i> . 6. Check for differences in a file between <i>two commits</i> . 7. Show <i>insertions</i> & <i>deletions</i> in staged and <i>local</i> . 8. Compare <i>files</i> in the <i>working tree</i> ² . 9. Compare <i>stash n</i> with <i>branch</i> .
16. log	1. git log -n 2. git log --oneline 3. git log -p --follow -- <file> 4. git log --oneline --decorate 5. git log --stats 6. git shortlog 7. git log --pretty=format:"%cn committed %h on %cd" 8. git log --after= <yyyy-m-d> --before= <yyyy-m-d> 9. git log --author= <username>	1. Display <i>logs</i> from last 1,2,..n commits. 2. Show <i>IDs</i> from commits. 3. Show <i>commits</i> on a <i>file</i> . 4. Display <i>commits~branches</i> . 5. Show <i>insertions</i> & <i>deletions</i> . 6. Display <i>commits</i> first coding line by

Basic	Command	Description
		<p>author.</p> <p>7. Customized log (<i>show author, hash & date</i>).</p> <p>8. Search for <i>commits</i> in <i>range</i>.</p> <p>9. Search for <i>commits</i> by <i>author</i>.</p>
17. revert	1. git revert <commit_id> 2. git revert <commit_id> --no-edit 3. git revert -n <commit_id> 4. git revert -n <HEAD>~n 5. git revert -n <HEAD>~n .. <HEAD>~m	1. Invert commit & <i>commit undone changes</i>. 2. Reverts without a new <i>commit msg</i>. 3. Invert <i>changes</i> & <i>stage only</i>. 4. Revert <i>n commits</i>. 5. Revert from <i>n→m commits</i> [<i>n,m</i>].
18. reset	1. git reset <file> 2. git reset --mixed <HEAD>~n 3. git reset --mixed <commit-id> 4. git reset --hard <HEAD>~n 5. git reset --soft <HEAD>~n 6. git reset -p	1. Untrack <i>file</i>. 2. Unmerge & uncommit but <i>don't unstage</i> (<i>default</i>). 3. Mixed with <i>commit hash</i> (<i>default</i>). 4. Undo all <i>n changes</i>. 5. Hard reset but able to <i>recover changes</i> with <i>git commit</i>. 6. Patch interactively (<i>git add -p inverse</i>).
19. stash	1. git stash 2. git stash push -m <msg> 3. git stash list 4. git stash list --stat	1. Saves work dir. from <i>local</i> & <i>hard reset</i>.

Basic	Command	Description
	5. git stash apply 6. git stash pop -n 7. git stash drop -n	2. Saves work dir. from local <i>with msg</i> & hard reset. 3. List <i>stashed</i> changes as an index [n] 4. Show summary of <i>changes</i> in <i>stash list</i> 5. Recover <i>stash[0]</i> from <i>work dir.</i> 6. Recover <i>stash n</i> & delete it from <i>stash list</i> . 7. Delete <i>stash n</i> from <i>stash list</i> .
20. status	1. git status 2. git status -s 3. git status -b	1. List (un)staged, (un)tracked changes (work dir., stage & modif.). 2. Status in <i>short format</i> . 3. Status on a <i>branch</i> .
21. touch	1. git touch <name.ext>	1. Create file with <i>extension</i> (e.g test.txt).
22. switch	1. git switch <branch> 2. git switch -c <branch> 3. git switch -c <branch> <commit_id>	1. Switch to <i>branch</i> . 2. Create a new <i>branch</i> and switch. 3. Grow branch from <i>commit</i> .
23. cd	1. cd ~/ <home> 2. cd ~/ <home> / <dir..> 3. cd ~/ <home> / <dir..> / <subdir..>	1. Change dir. to <i>home</i> (e.g ~/Desktop) 2. Change dir. to a <i>folder</i> in <i>home</i> .

Basic	Command	Description
		3. Change dir. to n <i>sub-folders</i> in <i>home</i> .
24. ls	1. ls 2. ls -la	1. List subfolders in <i>dir</i> . 2. List subfolders in <i>dir</i> with <i>hidden files</i> .
25. rm	1. git rm <file> 2. rm <file>	1. Remove file from <i>git tracking & local</i> . 2. Remove file from <i>local only</i> .
26. mv	1. git mv <file.ext> <new-filename.ext> 2. git mv <file.ext> ~/<home> / <dir.1> / <subdir.>	1. Rename file with the same <i>extension</i> . 2. Move file from dir.1 to subdir. (inside dir.1)
27. mkdir	1. mkdir ~/<home> / <dir.> / <subdir.>/<new_dir.>	1. Create dir. <i>in path</i> .
28. remote	1. git remote 2. git remote -v 3. git remote rename <old-name> <new-name> 4. git remote add <URL>	1. List <i>remote branches</i> . 2. List <i>remote branches</i> with <i>URL</i> . 3. Rename <i>remote</i> . 4. Connection with <i>repo</i> with <i>URL</i> .
29. gitk	1. gitk 2. gitk HEAD...FETCH_HEAD	1. Show Git GUI for <i>commits</i> . 2. Show Git GUI for <i>all users</i> since last push.

Note: Remember to call branches by their names in your commands (see 14. branch).

Tip: <main> is the default name for remote repositories as <master> is for local.

Definitions:

- **Origin:** Primary *working dir. of remote* repositories by *default*.
- **Fetch:** Fetch is a *safe pull* version because local *files aren't merged* until they are reviewed, checked out & merged.
- **Revert:** Revert is *safer than reset*, checkout to *discard* (see 5.4 checkout), etc., because commit *history isn't erased* but an inverted commit is appended.
- **Feature:** Feature represents a *branch of developments* in progress with their descriptions.
- **Rebase:** Rebase is a *rewritten branch* from another but keep in mind it is *not a good practice to rewrite public commits history (remote repositories)*.
Creating a backup branch is a good idea. This would allow us to perform a hard reset if the resulting rebase is unexpected.
- **Base:** It is a commit *id, branch, tag*, or a relative *reference* to HEAD (e.g. HEAD~3).

See Also:

[Glossary](#)

If you are interested in learning more about git commands you can check out the list below and refer to [git documentation](#).

Other Commands:

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- **git am** ~ Splits patches from a mailbox into commit msg, author and patches to apply them to branch.
e.g: `git am --keep-cr --signoff < a_file.patch` *to apply patch as commit.*
 - **git apply** ~ Apply a patch to files and add them to the index.
e.g: `git apply < a_file.patch` *to apply patch to files.*
 - **git archive** ~ Combine multiple files in a single file but removes git data.
e.g: `git archive --format=zip --output=archive.zip HEAD` *to create a zip file with all*

files in HEAD.

- **git bisect** ~ Binary search algorithm to find commit in project history which caused a bug.
e.g: `git bisect start` *to start the search.*
- **git blame** ~ Show what revision and author last modified each line of a file.
e.g: `git blame <file>` *to show the last author of each line in file.*
- **git bugreport** ~ Create a report to send to git mailing list.
e.g: `git bugreport -o report.txt` *to create a report and save it to report.txt.*
- **git bundle** ~ Move objects and refs by archive.
e.g: `git bundle create <file> <branch>` *to create a bundle with branch.*
- **git cat-file** ~ Provide content or type and size information for repository objects.
e.g: `git cat-file -p <commit>` *to show the content of commit.*
- **git check-attr** ~ Display git attributes.
e.g: `git ls-files | xargs git check-attr myAttr` *to show if an attribute is set for all the files in repo & overcome limit of 1024 files.*
- **git check-mailmap** ~ Show canonical names and email addresses of contacts.
e.g: `git check-mailmap user1 <user1@domain.com>` *to show the canonical name and email address of user1.*
- **git check-ref-format** ~ Ensure that a reference name is well formed.
e.g: `git check-ref-format --branch @{-1}` *print the name of the previous branch.*
- **git check-ignore** ~ Debug gitignore files.
e.g: `git check-ignore -v <file>` *to show the gitignore file that ignores file.*
- **git cherry** ~ Find commits not merged upstream.
e.g: `git cherry -v <branch>` *to show the commits not merged in branch.*
- **git cherry-pick** ~ Apply the changes introduced by some existing commits.
e.g: `git cherry-pick <commit_id>` *to apply the changes of commit to current branch.*
- **git citool** ~ Graphical alternative to git-commit.
e.g: `git citool` *to open the graphical commit tool.*
- **git clean** ~ Remove untracked files from the working tree.
e.g: `git clean -i` *to interactively remove untracked files.*
- **git clone** ~ Clone a repository into a new directory.
e.g: `git clone <URL> <dir.>` *to clone a repo with URL into directory.*
- **git column** ~ Display data in columns.
e.g: `git column --mode=html <file>` *to display file in html columns.*
- **git commit** ~ Record changes to the repository.
e.g: `git commit -m <msg>` *to commit with msg.*
- **git commit-graph** ~ Write and verify a commit-graph file.
e.g: `git show-ref -s | git commit-graph write --stdin-commits` *to write a commit-*

graph file for reachable commits.

- **git commit-tree** ~ Create a new commit object.
e.g: git commit-tree <tree> -m <msg> *to create a commit with tree and msg.*
- **git config** ~ Get and set repository or global options.
e.g: git config --global user.name <name> *to set the global user name.*
- **git count-objects** ~ Count unpacked number of objects and their disk consumption.
e.g: git count-objects -v *to show the number of objects and their size.*
- **git credential** ~ Retrieve and store user credentials.
e.g: git credential fill *attempt to add "username" and "password" attributes by reading config credential helpers.*
- **git credential-cache** ~ Helper to temporarily store passwords in memory.
e.g: git config credential.helper cache *to set credentials automatic authentication & returns username/password blanks to fill.*
- **git credential-store** ~ Helper to store credentials on disk to reduce time to fill.
e.g: git config --global credential.helper store *to save credentials in plaintext PC disk, everyone in PC can read it (warning).*
- **git cvsexportcommit** ~ Export a single commit to a CVS checkout.
e.g: git cvsexportcommit <commit_id> *to export commit to a CVS directory.*
- **git cvsimport** ~ Create a new git repository from a CVS checkout.
e.g: git cvsimport -v -d <cvsroot> <module> <project> *to create a new git repository from a CVS checkout.*
- **git cvsserver** ~ Server for CVS clients to connect to and use Git repositories.
e.g git cvsserver --base-path=<path> <repo> *to start the git cvsserver.*
- **git daemon** ~ A really simple server for Git repositories.
e.g: git daemon --reuseaddr --base-path=<dir.> --export-all *to restart server & look for repos in dir. to export.*
- **git describe** ~ Describe specific commits with their hash.
e.g: git describe <commit_id> *to describe commit (HEAD by default).*
- **git diff** ~ Show changes between commits, commit and working tree, etc.
e.g: git diff --stat *to show the summary of the changed files.*
- **git diff-files** ~ Show changes between index and working tree.
e.g: --diff-algorithm={minimal} *to include the smallest possible diff are included.*
- **git diff-index** ~ Compare a tree to the working tree or index.
e.g: git diff-index --compact-summary HEAD *to show the summary of the changed files in HEAD.*
- **git diff-tree** ~ Compares the content and mode of the blobs found via two tree objects.

e.g: `git diff-tree --shortstat HEAD` to show the summary of the changed files in HEAD.

- **git difftool** ~ Show changes using common diff tools.

e.g: `git difftool --tool-help` to show the list of available tools.

- **git fast-export** ~ Dumps the given revisions in a form suitable to be piped with fast-import.

e.g: `git fast-export --all` to export all data.

- **git fast-import** ~ Reads data stream from std. input and writes it into one or more packfiles.

e.g: `git fast-import --max-pack-size=1G` to import data into a packfile of size 1G (default is unlimited)

- **git fetch** ~ Download objects and refs from another repository.

e.g: `git fetch --dry-run` to show output without making any changes.

- **git fetch-pack** ~ Receive missing objects from another repository.

e.g: `git fetch-pack --prune --all` to fetch all objects and prune refs that are missing on the remote.

- **git filter-branch** ~ Rewrite branches.

e.g: `git filter-branch --tree-filter 'rm -f *.txt'` HEAD to remove all .txt files.

- **git filter-repo** ~ Quickly rewrite Git repository history.

\ **e.g:** `git filter-repo --invert-paths --path 'README.md'` to remove all files except README.md.

- **git fmt-merge-msg** ~ Produce a merge commit message.

e.g: `git fmt-merge-msg -m` Use msg instead of branch names for the first line of the log message.

- **git for-each-ref** ~ Iterate over references.

e.g: `git for-each-ref --format='%(refname)'` refs/heads to list all branches.

- **git format-patch** ~ Prepare patches for e-mail submission.

e.g: `git format-patch -root <commit>` to format everything up from start until commit.

- **git fsck** ~ Verifies the connectivity and validity of the objects in the database.

e.g: `git fsck --cache` to check the connectivity and validity of the objects in the cache.

- **git gc** ~ Cleanup unnecessary files and optimize the local repository.

e.g: `git gc --force` to force garbage collection.

- **git get-tar-commit-id** ~ Extract commit ID from an archive created using git-archive.

e.g: `git get-tar-commit-id <file>` to extract most recent commit ID from file.

- **git grep** ~ Print lines matching a pattern.

e.g: `git grep -n 'print' <file>` to print lines containing 'print' and their line numbers.

- **git gui** ~ A portable graphical interface to Git.
e.g: `git gui citool --no-commit` Checks for unmerged entries on index and exits gui without committing.
- **git hash-object** ~ Compute object ID and optionally creates a blob from a file.
e.g: `git hash-object -w --path <file>` to write the blob to the object database and print its hash.
- **git help** ~ Display help information about Git.
e.g: `git help -all` to display all git commands.
- **git http-fetch** ~ Download objects and refs from another repository via HTTP.
e.g: `git http-fetch -v <[URL]/refs>` to report all refs downloaded in repo with URL.
- **git http-backend** ~ Server side implementation of Git over HTTP.
e.g: `git http-backend --help` to display help for http-backend.
- **git imap-send** ~ Send a collection of patches from stdin to an IMAP folder.
e.g: `git imap-send git format-patch --cover-letter -M --stdout origin/master | git imap-send` to send patches from origin/master to IMAP folder once the commits are ready to send.
- **git index-pack** ~ Build pack index file for an existing packed archive.
e.g: `git index-pack --max-input-size=1G` to build pack index file and die if the pack is larger than 1G (or any).
- **git init** ~ Create an empty Git repository or reinitialize an existing one.
e.g: `git init -b <branch-name>` to create an empty local Git repository with given branch name.
- **git init-db** ~ Create an empty Git repository or reinitialize an existing one.
e.g: `git init-db --config <config-file>` to create an empty local Git repository with given config file.
- **git instaweb** ~ Instantly browse your working repository in gitweb.
e.g: `git instaweb --httpd=python --port=8080` to start a python web server on port 8080.
- **git interpret-trailers** ~ Parse trailer lines from text.
e.g: `git interpret-trailers --check <file>` to check if file contains trailer lines (similar to RFC 822 e-mail headers)
- **git log** ~ Show commit logs.
e.g: `git log --oneline --decorate --graph --all` to display all commits in a nice format.
- **git ls-files** ~ Show information about files in the index and the working tree.
e.g: `git ls-files -u` to show unmerged files.
- **git ls-remote** ~ List references in a remote repository.
e.g: `git ls-remote <[URL]/refs>` to display references in a remote repository URL

associated with commits IDs.

- **git ls-tree** ~ List the contents of a tree object.
e.g: `git ls-tree -d <tree>` *to list the named tree only, without its children.*
- **git mailinfo** ~ Extracts patch and authorship from a single e-mail message.
e.g: `git mailinfo -k <msg> <patch>` *Removes unnecessary headers from msg and writes the result to patch.*
- **git mailsplit** ~ Splits a single mailbox into a list of files.
e.g: `git mailsplit -o<directory> <mbox>` *to split given mbox file in directory as individual msg files.*
- **git merge** ~ Join two or more development histories together.
e.g: `git merge --allow-unrelated-histories <branch>` *override the check for unrelated histories with common ancestors and merge.*
- **git merge-base** ~ Find as good common ancestors as possible for a merge.
e.g: `git merge-base --is-ancestor <commit_id> <commit_id>` *to check if first commit_id is an ancestor of the second and return 0 if true and 1 if not.**
- **git merge-file** ~ Run a three-way file merge.
e.g: `git merge-file <current_file> <base_file> <other_file>` *incorporate changes from other_file into current_file, using base_file as common base*
- **git merge-index** ~ Run a merge for files in the index.
e.g: `git merge-index -o -a <file>` *to run a merge for all files in index that need it & write result to file.*
- **git merge-tree** ~ Show three-way merge without touching index.
e.g: `git merge-tree <base-tree> <branch1> <branch2>` *Reads the trees & outputs the result of merge without storing results in index.**
- **git mergetool** ~ Run merge conflict resolution tools to resolve merge conflicts.
e.g: `git mergetool --tool-help` *to list available tools.*
- **merge-index** ~ Run a merge for files in the index.
e.g: `git merge-index -o <file>` *to run a merge for files in the index that need merging and write the result to file.*
- **git mktag** ~ Create a tag object.
e.g: `git mktag <mytag>` **to create a tag object with given tag name and die if the connection to the object store fails.*
- **git mktree** ~ Build a tree-object from ls-tree formatted text.
e.g: `git mktree --batch <file>` *to create more than one tree object from a file.*
- **git mv** ~ Move or rename a file, a directory, or a symlink.
e.g: `git mv -v <source> <destination>` *to move source to destination and display the result of the move.*

- **git name-rev** ~ Find symbolic names for given revs.
e.g: `git log | git name-rev --annote-stdin` to retrieve author, date and commit hash from the logs.
- **git notes** ~ Add or inspect object notes.
e.g: `git notes add -m <msg> <commit>` to add a note/msg to commit.
- **git pack-objects** ~ Create a packed set of objects from one or more packed archives compressed
. **e.g:** `git pack-object --all-progress-implied` to create a packed set of objects from one or more packed archives compressed.
- **git pack-redundant** ~ Find redundant pack files for piping to xargs rm.
e.g: `git pack-redundant --all --i-still-use-this` to find all redundant pack files in repo (nominated for removal).
- **git pack-refs** ~ Pack heads and tags for efficient repository access.
e.g: `git pack-refs --all` to pack heads and tags that are already packed
- **git patch-id** ~ Compute unique ID for a patch.
e.g: `git patch-id <file>` to compute unique ID for a patch.
- **git prune** ~ Prune all unreachable objects from the object database.
e.g: `git prune --expire <time>` to prune all unreachable objects from the object database that are older than time.
- **git prune-packed** ~ Prune loose objects that are already in pack files.
e.g: `git prune-packed -n` to prune loose objects that are already in pack files and display what would be done.
- **git pull** ~ Fetch from and integrate with another repository or a local branch.
e.g: `git pull <remote> <local>` to fetch from and integrate with local branch.
- **git push** ~ Update remote refs along with associated objects.
e.g: `git push` to update remote refs along with associated objects.
- **git range-diff** ~ Show changes between two commit ranges.
e.g: `git range-diff <commit_1> <commit_2>` to show changes between two commit ranges
- **git read-tree** ~ Reads tree information into the index.
e.g: `git read-tree -m <tree-ish1> <tree-ish2> <tree/ish3>` to read tree information into the index and merge the trees.
- **git rebase** ~ Reapply commits on top of another base tip.
e.g: `git rebase -i <base> <branch>` to rebase interactively a branch on base.
- **git receive-pack** ~ Receive what is pushed into the repository.
Note: This command is not meant to be invoked directly.
- **git reflog** ~ Manage reflog information.
e.g: `git reflog show` to show the reflog for the current branch like log.

- **git remote** ~ Manage set of tracked repositories.
e.g: `git remote add <remote> <URL>` *to add a remote named remote with URL.*
- **git remote-ext** ~ External helper to communicate with a remote, used by default with clone, push, remote add & where.
Note: This command is not used normally by end users but it is instead invoked when interacting with remote repos.
- **git remote-fd** ~ Helper to communicate with a remote repository when calling git fetch, push or archive.
Note: This command is not invoked by end users but scripts calling commands to setup a bidirectional socket with remotes.
- **git repack** ~ Pack unpacked objects in a repository or for pack reorganization.
e.g: `git repack -a -d -f --depth=250 --window=250` Single pack repo by removing redundant packs & reusing existing deltas. Set up 250mb depth and window (default=10,50).
- **git replace** ~ Create, list, delete refs to replace objects.
e.g: `git replace --graft <commit_id> <new-parent>` *to create a new commit with commit content but by replacing its parent with new-parent.*
- **git request-pull** ~ Request upstream to pull changes into their tree.
e.g: `git request-pull <upstream_commit_id> <URL>` *to make a pull-request starting from commit to repo URL to be pulled from.*
- **git rerere** ~ Reuse recorded resolution of conflicting merges.
e.g: `git rerere diff` *to show the recorded state of resolution, what you've started with and what you've ended up with.*
- **git reset** ~ Reset current HEAD to the specified state.
e.g: `git reset --soft HEAD~n` *to make a hard reset n commits back but able to recover changes with git commit.
- **git rev-list** ~ Lists commits by building commit ancestry graphs. *e.g:* `git rev-list <commit_id> ^ HEAD --count` *to count the number of commits between commit_id and HEAD.*
- **git rev-parse** ~ Ancillary plumbing command for parameters.
e.g: `git rev-parse --short HEAD` *to get the short version hash of HEAD.*
- **git revert** ~ Revert some existing commits.
e.g: `git revert HEAD~n` *to revert the last n commits.*
- **git rm** ~ Remove files from the working tree and from the index.
e.g: `git rm <file>` *to remove file from remote and local.*
- **git send-email** ~ Send a collection of patches as emails.
e.g: `git send-email --from=<sender> --to=<recipient> --compose` *to send email from sender address to recipient by invoking a text editor.*

- **git shortlog** ~ Summarize 'git log' output.
e.g: git shortlog -s -n *to show the number of commits per author.*
- **git show** ~ Show various types of objects.
e.g: git show --expand-tabs=n *to show repository with tabs expanded to n.*
- **git show-branch** ~ Show branches and their commits.
e.g: git show-branch--all *to show all branches and their commits.*
- **git stage** ~ Stage file contents for the next commit.
e.g: git stage--clear *to clear the staging area.*
- **git stash** ~ Stash the changes in a dirty working directory away.
e.g: git stash--keep-index *to stash the changes in a dirty working directory away but keep the index.*
- **git status** ~ Show the working tree status.
e.g: git status--short *to show the working tree status in short format.*
- **git strip-space** ~ Remove unnecessary whitespace.
e.g: git strip-space--comment-lines *to remove unnecessary whitespace from comment lines.*
- **git submodule** ~ Initialize, update or inspect submodules.
e.g: git submodule--depth=1 *to initialize, update or inspect submodules with depth 1.*
- **git tag** ~ Create, list, delete or verify a tag object signed with GPG.
e.g: git tag --annotate *to create, list, delete or verify a tag object signed with GPG.*
- **git unpack-file** ~ Unpack a packed archive.
e.g: git unpack-file --list *to list the contents of a packed archive.*
- **git unpack-objects** ~ Unpack objects from a packed archive.
e.g: git unpack-objects --all *to unpack all objects from a packed archive.*
- **git update-index** ~ Register file contents in the working tree to the index.
e.g: git update-index--refresh *to register file contents in the working tree to the index.*
- **git update-ref** ~ Update the object name stored in a ref safely.
e.g: git update-ref--no-deref *to update the object name stored in a ref safely.*
- **git update-server-info** ~ Update auxiliary info file to help dumb servers.
e.g: git update-server-info--force *to update the file even if it is not necessary.*
- **git upload-archive** ~ Send archive back to git-upload-archive on the other end.
e.g: git upload-archive *to send archive back to git-upload-archive on the other end.*
- **git upload-pack** ~ Send objects packed back to git-upload-pack on the other end.
e.g: git upload-pack *to send objects packed back to git-upload-pack on the other end.*
- **git var** ~ Show a Git logical variable.
e.g: git var -l *to show a Git logical variable.*

- **git verify-commit** ~ Check the GPG signature of commits.
e.g: `git verify-commit <commit>` to check the GPG signature of commits.
- **git verify-pack** ~ Check the GPG signature of packed objects.
e.g: `git verify-pack` to check the GPG signature of packed objects.
- **git verify-tag** ~ Check the GPG signature of tags.
e.g: `git verify-tag <tag>` to check the GPG signature of tags.
- **git web--browse** ~ Show a file or directory from web browser.
e.g: `git web--browse <URL>` to show a file or directory from a web browser.
- **git whatchanged** ~ Show logs with difference each commit introduces.
e.g: `git whatchanged --stat` to show logs with difference each commit introduces.
- **git write-tree** ~ Create a tree object from the current index.
e.g: `git write-tree --missing-ok` to create a tree object from the current index.

Contributors:



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Contributions are appreciated! 

References:

1. [Git](#)
2. [Linux Man](#)
3. [Ubuntu Manuals](#)
4. Official Git Pro [ebook](#). Chacon, S and Straub, B. (2022).

To preview Github README.md uncommitted files: [Github Render](#) Convert local README.md → html → pdf (optional).

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on roaming path: C:/<user-name>/AppData/Roaming/Code/User
git init & echo \$(\$git rev-parse);pwd) to: *retrieve path*

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