Git Cheat Sheet

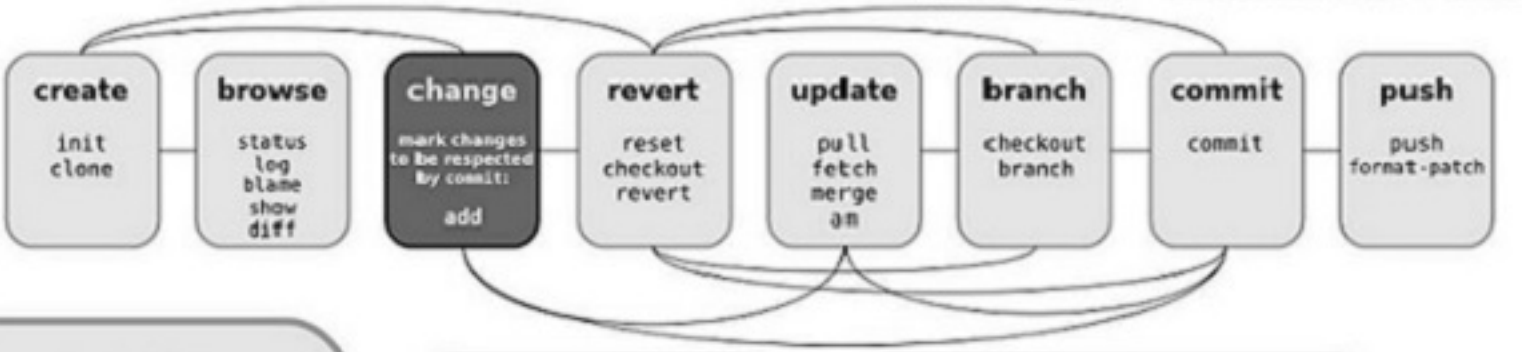
by Jan Krüger <jk@jk.gs>, http://jan-krueger.net/git/
Based on work by Zack Rusin

Basics

Use git help [*command*] if you're stuck.

master	default devel branch
origin	default upstream branch
HEAD	current branch
HEAD^	parent of HEAD
HEAD~4	great-great grandparent of HEAD
foo..*bar*	from branch *foo* to branch *bar*

(left to right) Command Flow



Create

From existing files

```
git init
git add .
```

From existing repository

```
git clone ~/old ~/new
git clone git://...
git clone ssh://...
```

View

```
git status
git diff [oldid newid]
git log [-p] [file|dir]
git blame file
git show id (meta data + diff)
git show id:file
git branch (shows list, * = current)
git tag -l (shows list)
```

Revert

In Git, revert usually describes a new commit that undoes previous commits.

```
git reset --hard (NO UNDO)
        (reset to last commit)
git revert branch
git commit -a --amend
        (replaces prev. commit)
git checkout id file
```

Publish

In Git, commit only respects changes that have been marked explicitly with add.

```
git commit [-a]
        (-a: add changed files automatically)
git format-patch origin
        (create set of diffs)
git push remote
        (push to origin or remote)
git tag foo
        (mark current version)
```

Update

```
git fetch (from def. upstream)
git fetch remote
git pull (= fetch & merge)
git am -3 patch.mbox
git apply patch.diff
```

Branch

```
git checkout branch
        (switch working dir to branch)
git merge branch
        (merge into current)
git branch branch
        (branch current)
git checkout -b new other
        (branch new from other and switch to it)
```

Useful Tools

```
git archive
        Create release tarball
git bisect
        Binary search for defects
git cherry-pick
        Take single commit from elsewhere
git fsck
        Check tree
git gc
        Compress metadata (performance)
git rebase
        Forward-port local changes to remote branch
git remote add URL
        Register a new remote repository for this tree
git stash
        Temporarily set aside changes
git tag
        (there's more to it)
gitk
        Tk GUI for Git
```

Conflicts

Use add to mark files as resolved.

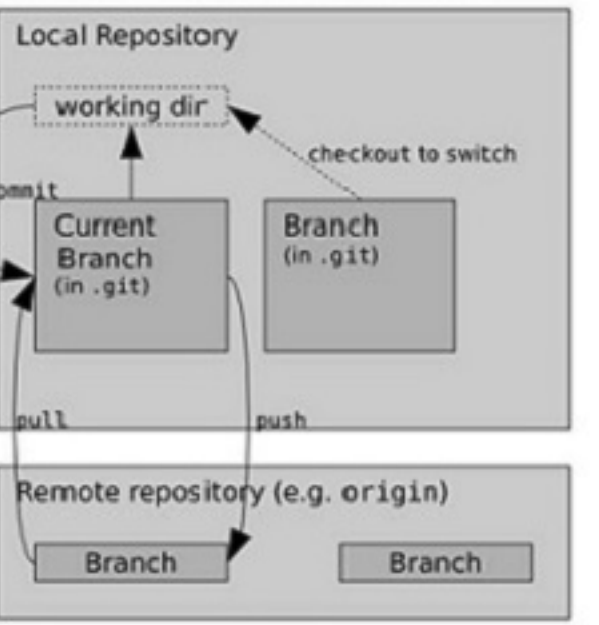
```
git diff [--base]
git diff --ours
git diff --theirs
git log --merge
gitk --merge
```

Tracking Files

```
git add files
git mv old new
git rm files
git rm --cached files
```

(stop tracking but keep files in working dir)

Structure Overview



Git Cheat Sheet

Setup

Set the name and email that will be attached to your commits and tags

```
$ git config --global user.name "Danny Adams"
$ git config --global user.email "my-email@gmail.com"
```

Start a Project

Create a local repo (omit <directory> to initialise the current directory as a git repo

```
$ git init <directory>
```

Download a remote repo

```
$ git clone <url>
```

Make a Change

Add a file to staging

```
$ git add <file>
```

Stage all files

```
$ git add .
```

Commit all staged files to git

```
$ git commit -m "commit message"
```

Add all changes made to tracked files & commit

```
$ git commit -am "commit message"
```

Basic Concepts

main: default development branch
origin: default upstream repo
HEAD: current branch
HEAD^: parent of HEAD
HEAD~4: great-great grandparent of HEAD

By @DoableDanny

Branches

List all local branches. Add -r flag to show all remote branches. -a flag for all branches.

```
$ git branch
```

Create a new branch

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

Switch to a branch & update the working directory

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

Create a new branch and switch to it

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

Delete a merged branch

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

Delete a branch, whether merged or not

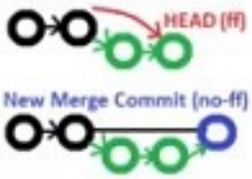
```
$ git branch -D <branch>
```

Add a tag to current commit (often used for new version releases)

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

Merging

Merge branch a into branch b. Add --no-ff option for no-fast-forward merge



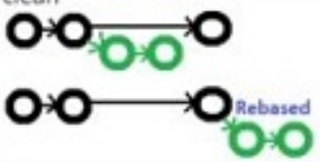

```
$ git checkout b
$ git merge a
```

Merge & squash all commits into one new commit

```
$ git merge --squash a
```

Rebasing

Rebase feature branch onto main (to incorporate new changes made to main). Prevents unnecessary merge commits into feature, keeping history clean




```
$ git checkout feature
$ git rebase main
```

Interatively clean up a branches commits before rebasing onto main

```
$ git rebase -i main
```

Interatively rebase the last 3 commits on current branch

```
$ git rebase -i Head~3
```

Undoing Things

Move (&/or rename) a file & stage move

```
$ git mv <existing_path> <new_path>
```

Remove a file from working directory & staging area, then stage the removal

```
$ git rm <file>
```

Remove from staging area only

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

View a previous commit (READ only)

```
$ git checkout <commit_ID>
```

Create a new commit, reverting the changes from a specified commit

```
$ git revert <commit_ID>
```

Go back to a previous commit & delete all commits ahead of it (revert is safer). Add --hard flag to also delete workspace changes (BE VERY CAREFUL)

```
$ git reset <commit_ID>
```

Review your Repo

List new or modified files not yet committed

```
$ git status
```

List commit history, with respective IDs

```
$ git log --oneline
```

Show changes to unstaged files. For changes to staged files, add --cached option

```
$ git diff
```

Show changes between two commits

```
$ git diff commit1_ID commit2_ID
```

Stashing

Store modified & staged changes. To include untracked files, add -u flag. For untracked & ignored files, add -a flag.

```
$ git stash
```

As above, but add a comment.

```
$ git stash save "comment"
```

Partial stash. Stash just a single file, a collection of files, or individual changes from within files

```
$ git stash -p
```

List all stashes

```
$ git stash list
```

Re-apply the stash without deleting it

```
$ git stash apply
```

Re-apply the stash at index 2, then delete it from the stash list. Omit stash@{n} to pop the most recent stash.

```
$ git stash pop stash@{2}
```

Show the diff summary of stash 1. Pass the -p flag to see the full diff.

```
$ git stash show stash@{1}
```

Delete stash at index 1. Omit stash@{n} to delete last stash made

```
$ git stash drop stash@{1}
```

Delete all stashes

```
$ git stash clear
```

Synchronizing

Add a remote repo

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

View all remote connections. Add -v flag to view urls.

```
$ git remote
```

Remove a connection

```
$ git remote remove <alias>
```

Rename a connection

```
$ git remote rename <old> <new>
```

Fetch all branches from remote repo (no merge)

```
$ git fetch <alias>
```

Fetch a specific branch

```
$ git fetch <alias> <branch>
```

Fetch the remote repo's copy of the current branch, then merge

```
$ git pull
```

Move (rebase) your local changes onto the top of new changes made to the remote repo (for clean, linear history)

```
$ git pull --rebase <alias>
```

Upload local content to remote repo

```
$ git push <alias>
```

Upload to a branch (can then pull request)

```
$ git push <alias> <branch>
```

Git Cheat Sheet

Git is a version control system.

The essentials: Using Git	
`git clone`	Clone a Git repository to your local computer
`git fetch`	Fetch changes from a remote repository
`git pull`	Fetch and merge changes from a remote repository
`git status`	See a summary of local changes, remote commits, and untracked files.
`git diff`	See specific local changes. Use **`--name-only`** to see filenames.
`git add`	Stage changes to tracked and untracked files.
`git commit`	Create a new commit with changes previously added.
`git push`	Send changes to your configured remote repository (like GitLab or GitHub).

Important options: Keeping things organized	
`git reset HEAD --`	Get back to the last known commit and unstage files.
`git add -u`	Add only updated, previously committed files.
`git log --graph --oneline`	See a pretty branch history. Create an alias (**git lg**) for easy access.

Basic branching: Branches represent a series of commits	
`git branch --all`	List all local and remote branches
`git checkout bugfix`	Change to an existing branch called **bugfix**
`git checkout -b dev main`	Make and checkout a branch called **dev** based on **main**
`git checkout main` `git merge dev`	Merge branch changes from **dev** into **main**

Pushing changes: Sending data from your local repository to a remote repository	
`git remote -v`	View all configured remotes
`git push origin HEAD`	Push commits located at the HEAD of your repo to the **origin** repo
`git push origin +HEAD`	Push commits, forcing remote to adopt local changes
`git push origin -d dev`	Delete **dev** branch from remote after pushing changes

Matt Broberg & Seth Kenlon

Opensource.com

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The Simple Git Cheat Sheet – A Helpful Illustrated Guide

The Centralized Git Workflow

- Every coder has own copy of project
- Independence of workflow
- No advanced branching and merging needed

Git Master Branch

Alice

Remote Repository:
Master Branch

Bob

git init

Create new repository

Clone

git clone alice@host:/path/repos

Clone repository

Clone

git clone bob@host:/path/repos

git add main.py

Add file „main.py“ to project

„new file“

git commit -m “new file”

Commit change and add message „new file“ to the master branch

git push origin master

Send master branch to remote repository

Push

„new file“

Pull

git pull

Update local repository with master branch

„new file“

git add *

Add all changes to master

git rm main.py

Remove file „main.py“ from master branch

git commit -m “add 2, rem 1”

„add 2, rem 1“

Commit change and add message to the master

git push origin master

Send master branch to remote repository

Push

„add 2, rem 1“

finxter

„A Puzzle A Day to Learn, Code, and Play!“