GitHub
GIT CHEAT SHEET

Git is the free and open source distributed version control system that's responsible for everything GitHub related that happens locally on your computer. This cheat sheet features the most important and commonly used Git commands for easy reference.

INSTALLATION & GUIS

With platform specific installers for Git, GitHub also provides the ease of staying up-to-date with the latest releases of the command line tool while providing a graphical user interface for day-to-day interaction, review, and repository synchronization.

GitHub for Windows
https://windows.github.com

GitHub for Mac
https://mac.github.com

For Linux and Solaris platforms, the latest release is available on the official Git web site.

Git for All Platforms
http://git-scm.com

SETUP

Configuring user information used across all local repositories

```
git config --global user.name “[firstname lastname]”
```
set a name that is identifiable for credit when review version history

```
git config --global user.email “[valid-email]”
```
set an email address that will be associated with each history marker

```
git config --global color.ui auto
```
set automatic command line coloring for Git for easy reviewing

SETUP & INIT

Configuring user information, initializing and cloning repositories

```
git init
```
initialize an existing directory as a Git repository

```
git clone [url]
```
retrieve an entire repository from a hosted location via URL

STAGE & SNAPSHOT

Working with snapshots and the Git staging area

```
git status
```
show modified files in working directory, staged for your next commit

```
git add [file]
```
add a file as it looks now to your next commit (stage)

```
git reset [file]
```
unstage a file while retaining the changes in working directory

```
git diff
```
diff of what is changed but not staged

```
git diff --staged
```
diff of what is staged but not yet committed

```
git commit -m “[descriptive message]”
```
commit your staged content as a new commit snapshot

BRANCH & MERGE

Isolating work in branches, changing context, and integrating changes

```
git branch
```
list your branches. a * will appear next to the currently active branch

```
git branch [branch-name]
```
create a new branch at the current commit

```
git checkout
```
switch to another branch and check it out into your working directory

```
git merge [branch]
```
merge the specified branch's history into the current one

```
git log
```
show all commits in the current branch's history

INSPECT & COMPARE

Examining logs, diffs and object information

`git log`

show the commit history for the currently active branch

`git log branchB..branchA`

show the commits on branchA that are not on branchB

`git log --follow [file]`

show the commits that changed file, even across renames

`git diff branchB...branchA`

show the diff of what is in branchA that is not in branchB

`git show [SHA]`

show any object in Git in human-readable format

TRACKING PATH CHANGES

Versioning file removes and path changes

`git rm [file]`

delete the file from project and stage the removal for commit

`git mv [existing-path] [new-path]`

change an existing file path and stage the move

`git log --stat -M`

show all commit logs with indication of any paths that moved

IGNORING PATTERNS

Preventing unintentional staging or commiting of files

```
logs/
*.notes
pattern*/
```

Save a file with desired patterns as .gitignore with either direct string matches or wildcard globs.

`git config --global core.excludesfile [file]`

system wide ignore pattern for all local repositories

SHARE & UPDATE

Retrieving updates from another repository and updating local repos

`git remote add [alias] [url]`

add a git URL as an alias

`git fetch [alias]`

fetch down all the branches from that Git remote

`git merge [alias]/[branch]`

merge a remote branch into your current branch to bring it up to date

`git push [alias] [branch]`

Transmit local branch commits to the remote repository branch

`git pull`

fetch and merge any commits from the tracking remote branch

REWRITE HISTORY

Rewriting branches, updating commits and clearing history

`git rebase [branch]`

apply any commits of current branch ahead of specified one

`git reset --hard [commit]`

clear staging area, rewrite working tree from specified commit

TEMPORARY COMMITS

Temporarily store modified, tracked files in order to change branches

`git stash`

Save modified and staged changes

`git stash list`

list stack-order of stashed file changes

`git stash pop`

write working from top of stash stack

`git stash drop`

discard the changes from top of stash stack

Git Cheat Sheet

GitLab

01 Git configuration

```
$ git config --global user.name “Your Name”
```

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

```
$ git config --global user.email “you@example.com”
```

Set the e-mail address that will be attached to your commits and tags.

```
$ git config --global color.ui auto
```

Enable some colorization of Git output.

02 Starting A Project

```
$ git init [project name]
```

Create a new local repository. If **[project name]** is provided, Git will create a new directory name **[project name]** and will initialize a repository inside it. If **[project name]** is not provided, then a new repository is initialized in the current directory.

```
$ git clone [project url]
```

Downloads a project with the entire history from the remote repository.

03 Day-To-Day Work

```
$ git status
```

Displays the status of your working directory. Options include new, staged, and modified files. It will retrieve branch name, current commit identifier, and changes pending commit.

```
$ git add [file]
```

Add a file to the **staging** area. Use in place of the full file path to add all changed files from the **current directory** down into the **directory tree**.

```
$ git diff [file]
```

Show changes between **working directory** and **staging area**.

```
$ git diff --staged [file]
```

Shows any changes between the **staging area** and the **repository**.

```
$ git checkout -- [file]
```

Discard changes in **working directory**. This operation is **unrecovera-ble**.

```
$ git reset [file]
```

Revert your **repository** to a previous known working state.

```
$ git commit
```

Create a new **commit** from changes added to the **staging area**.
The **commit** must have a message!

```
$ git rm [file]
```

Remove file from **working directory** and **staging area**.

```
$ git stash
```

Put current changes in your **working directory** into **stash** for later use.

```
$ git stash pop
```

Apply stored **stash** content into **working directory**, and clear **stash**.

```
$ git stash drop
```

Delete a specific **stash** from all your previous **stashes**.

04 Git branching model

```
$ git branch [-a]
```

List all local branches in repository. With **-a**: show all branches (with remote).

```
$ git branch [branch_name]
```

Create new branch, referencing the current **HEAD**.

```
$ git checkout [-b][branch_name]
```

Switch **working directory** to the specified branch. With **-b**: Git will create the specified branch if it does not exist.

```
$ git merge [from name]
```

Join specified **[from name]** branch into your current branch (the one you are on currently).

```
$ git branch -d [name]
```

Remove selected branch, if it is already merged into any other. **-D** instead of **-d** forces deletion.

05 Review your work

```
$ git log [-n count]
```

List commit history of current branch. **-n count** limits list to last **n** commits.

```
$ git log --oneline --graph --decorate
```

An overview with reference labels and history graph. One commit per line.

```
$ git log ref..
```

List commits that are present on the current branch and not merged into **ref**. A **ref** can be a branch name or a tag name.

```
$ git log ..ref
```

List commit that are present on **ref** and not merged into current branch.

```
$ git reflog
```

List operations (e.g. checkouts or commits) made on local repository.

06 Tagging known commits

```
$ git tag
```

List all tags.

```
$ git tag [name] [commit sha]
```

Create a tag reference named **name** for current commit. Add **commit sha** to tag a specific commit instead of current one.

```
$ git tag -a [name] [commit sha]
```

Create a tag object named **name** for current commit.

```
$ git tag -d [name]
```

Remove a tag from local repository.

07 Reverting changes

```
$ git reset [--hard] [target reference]
```

Switches the current branch to the **target reference**, leaving a difference as an uncommitted change. When **--hard** is used, all changes are discarded.

```
$ git revert [commit sha]
```

Create a new commit, reverting changes from the specified commit. It generates an **inversion** of changes.

08 Synchronizing repositories

```
$ git fetch [remote]
```

Fetch changes from the **remote**, but not update tracking branches.

```
$ git fetch --prune [remote]
```

Delete remote Refs that were removed from the **remote** repository.

```
$ git pull [remote]
```

Fetch changes from the **remote** and merge current branch with its upstream.

```
$ git push [--tags] [remote]
```

Push local changes to the **remote**. Use **--tags** to push tags.

```
$ git push -u [remote] [branch]
```

Push local branch to **remote** repository. Set its copy as an upstream.

Commit	an object
Branch	a reference to a commit; can have a **tracked upstream**
Tag	a reference (standard) or an object (annotated)
Head	a place where your **working directory** is now

A Git installation

For GNU/Linux distributions, Git should be available in the standard system repository. For example, in Debian/Ubuntu please type in the **terminal**:

```
$ sudo apt-get install git
```

If you need to install Git from source, you can get it from git-scm.com/downloads.

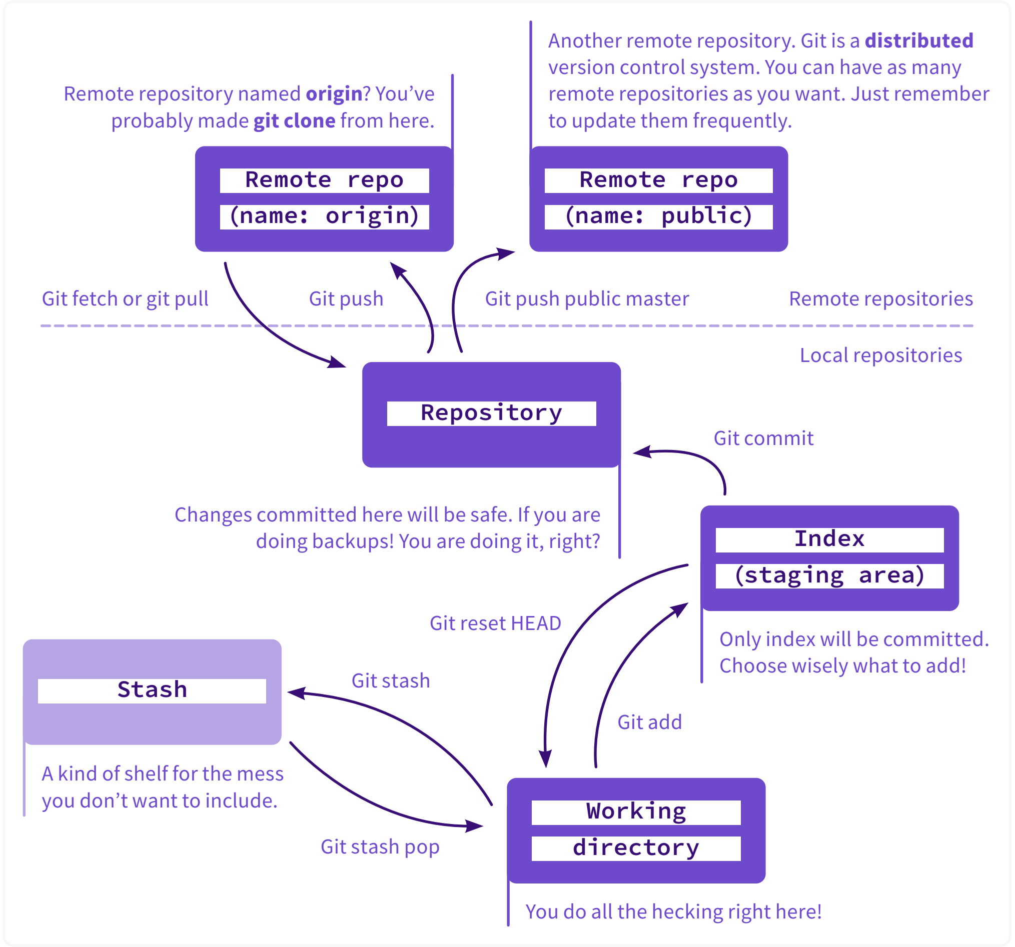
An excellent Git course can be found in the great **Pro Git** book by Scott Chacon and Ben Straub. The book is available online for free at git-scm.com/book.

B Ignoring Files

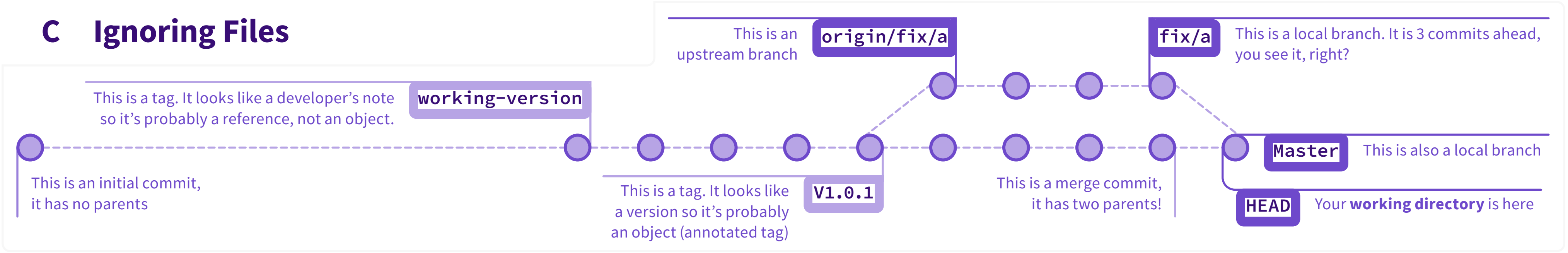
```
$ cat .gitignore
/logs/*
!logs/.gitkeep
/tmp
*.swp
```

Verify the .gitignore file exists in your project and ignore certain type of files, such as all files in **logs** directory (excluding the **.gitkeep** file), whole **tmp** directory and all files ***.swp**. File ignoring will work for the directory (and children directories) where **.gitignore** file is placed.

D The zoo of working areas


Remote repository named **origin**? You've probably made **git clone** from here.
Another remote repository. Git is a **distributed** version control system. You can have as many remote repositories as you want. Just remember to update them frequently.
Remote repo (name: origin)
Remote repo (name: public)
Git fetch or git pull
Git push
Git push public master
Remote repositories
Local repositories
Repository
Git commit
Changes committed here will be safe. If you are doing backups! You are doing it, right?
Index (staging area)
Git reset HEAD
Only index will be committed. Choose wisely what to add!
Stash
Git stash
Git add
A kind of shelf for the mess you don't want to include.
Git stash pop
Working directory
You do all the hecking right here!

C Ignoring Files


This is an upstream branch
origin/fix/a
fix/a
This is a local branch. It is 3 commits ahead, you see it, right?
This is a tag. It looks like a developer's note so it's probably a reference, not an object.
working-version
Master
This is also a local branch
This is an initial commit, it has no parents
This is a tag. It looks like a version so it's probably an object (annotated tag)
V1.0.1
This is a merge commit, it has two parents!
HEAD
Your **working directory** is here