GitLab

GIT CHEAT SHEET

1. 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.

2. STARTING A PROJECT

```
$ git init [project name]
```
Create new local repository. If [project name] is provided, Git will create a new directory named [project name] and will initialize a repository inside it. If [project name] is not provided, then a new repository is initialized in current directory.

```
$ git clone [project url]
```
Downloads a project with entire history from the remote repository.

B. IGNORING FILES

```
$ cat .gitignore
/logs/*
!logs/.gitkeep
/tmp
*.swp
```
Thanks to this file Git will ignore all files in **logs** directory (excluding the **.gitkeep** file), whole **tmp** directory and all files *****.swp**. Described file ignoring will work for the directory (and children directories) where **.gitignore** file is placed.

3. DAY-TO-DAY WORK

```
$ git status
```
See the status of your work. New, staged, modified files. Current branch.

```
$ git diff [file]
```
Show changes between **working directory** and **staging area**.

```
$ git diff --staged [file]
```
Show changes between **staging area** and **index** (repository commited status).

```
$ git checkout -- [file]
```
Discard changes in **working directory**. This operation is **unrecoverable**.

```
$ git add [file]
```
Add a file to the **staging** area. Use . instead of full file path, to add all changes files from current directory down into directory tree.

```
$ git reset [file]
```
Get file back from **staging** area to working directory.

```
$ git commit
```
Create new commit from changes added to the staging area. Commit **must have** a message!

```
$ git rm [file]
```
Remove file from **working directory** and add deletion to **staging area**.

```
$ git stash
```
Put your current changes into **stash**.

```
$ git stash pop
```
Apply stored **stash** content into **working directory**, and clear **stash**.

```
$ git stash drop
```
Clear **stash** without applying it into **working directory**.

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 want or need to install Git from source, you can get it from https://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 https://git-scm.com/book.

4. GIT BRANCHING MODEL

```
$ git branch [-a]
```
List all local branches in repository. With -a: show all branches (with remote).

```
$ git branch [name]
```
Create new branch, referencing the current **HEAD**.

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

5. 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 references labels and history graph. One commit per line.

`$ git log ref..`

List commits that are present on current branch and not merged into **ref**. A **ref** can be e.g. 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 (like checkouts, commits etc.) made on local repository.

8. SYNCHRONIZING REPOSITORIES

`$ git fetch [remote]`

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

`$ git fetch --prune [remote]`

Remove 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.

And this is the past. Here was chaos, where no version control was used. Don't live in chaos! Use Git!

6. 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]`
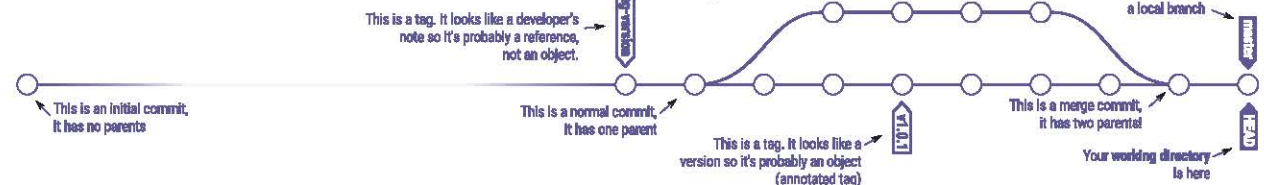
Remove a tag from a local repository.

7. REVERTING CHANGES

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

Switch current branch to the **target reference**, and leaves a difference as an uncommited changes. When **--hard** is used, all changes are discarded.
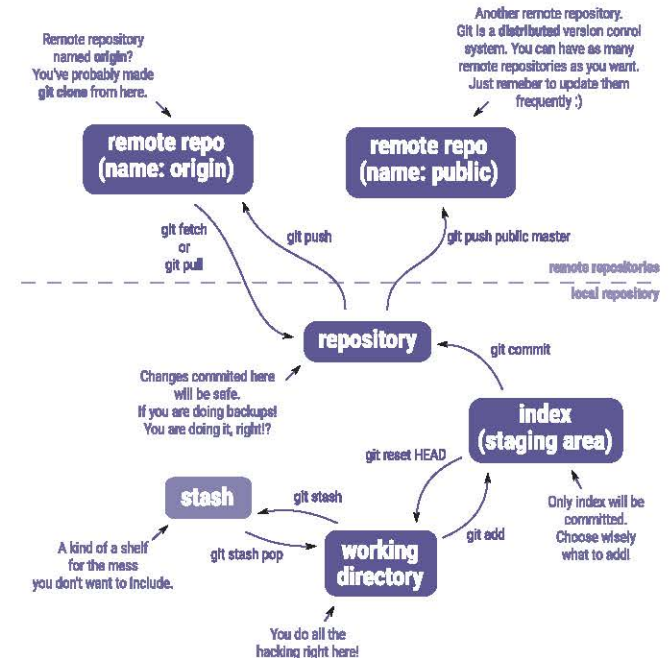
`$ git revert [commit sha]`

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

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

C. 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 remeber 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 repository

Changes commited here will be safe. If you are doing backups! You are doing it, right!?

repository

git commit

index (staging area)

git reset HEAD

stash

git stash

A kind of a shelf for the mess you don't want to include.

git stash pop

working directory

git add

Only index will be committed. Choose wisely what to add!

You do all the hacking right here!

D. COMMITS, BRANCHES AND TAGS

This is a local branch. It is 3 commits ahead, you see it, right?

This is an upstream branch

This is a tag. It looks like a developer's note so it's probably a reference, not an object.

This is also a local branch

This is an initial commit, it has no parents

This is a normal commit, it has one parent

This is a tag. It looks like a version so it's probably an object (annotated tag)

This is a merge commit, it has two parents!

Your working directory is here