

# Git Cheat Sheet

## Configuration

### User Information

Git uses a set of user name and user email to sign the commit messages developed by the developer, as such these are required fields that are better configured globally when working from a personal or dedicated computer.

```
$ git config --global user.name "[your_name]"
$ git config --global user.email [your_email]
```

Important to notice that if using your full name when setting the user name the command should not forget to use the "" to enclose a string that accepts spaces on it.

### Text Editor

You can configure the default text editor that will be used when Git needs you to type in a message. If not configured, Git uses your systems default editor.

```
$ git config --global core.editor [editor]
```

### Merge Tool

The right merging tool can save a lot of time and errors when having to merge non fast-forward codes. There is a plethora of merge tools available, however I strongly recommend meld for its intuitive use and simple but effective graphical capability.

```
$ git config --global merge.tool [tool_name]
```

### Save on typing

If you are using HTTPS URL to push your changes to a given repository the Git server will ask for confirmation through your username and password for every command accessing the repo. The command below will store the credentials in memory for a few minutes and will perform the validation automatically. The automatically validation process only happens after an initial manual validation and will last for a couple of minutes.

```
$ git config --global credential.helper cache
```

## Working with Remotes

### Tracking

Checking out a local branch from a remote-tracking branch automatically creates what is called a tracking branch (and the branch it tracks is called an upstream branch). Tracking branches are local branches that have a direct relationship to a remote branch. If you're on a tracking branch and type git pull, Git automatically knows which server to fetch from and branch to merge into.

### Cloning Remotes

The command display a list of the commits in the repository. By default it shows the SHA-1 number, the commit message and the author of the commit. Of relevant use is the option `-oneline` which display a brief version of the above message description that consist of the SHA-1 number and the commit message

```
$ git clone https://github.com/dmiralles2009/git-cheat-sheet.git
```

The command is ideal when trying to go back to previous states as it shows the SHA-1 number required for the checkout action.

### Adding Remotes

Git repositories can be hosted locally or remotely. Git makes an special distinction for repositories hosted remotely in its interface. When a repository is created locally and it is desired to hosted remotely after its creation, a remote addition is required with:

```
$ git remote add <remote.name> <url>
```

Notice that traditionally the remote name is defined as `origin`, but this is only an identifier. Nothing stops you from using another name for your remote repositories.

### Inspecting Remotes

The command is ideal when trying to get some information about the remote `<remote_name>`. The command prints a relationship of the remote branches that are being tracked and its local origins.

```
$ git remote show <remote_name>
```

## Local and Remote Branches

Checking out a local branch from a remote-tracking branch automatically creates what is called a tracking branch (and the branch it tracks is called an upstream branch). Tracking branches are local branches that have a direct relationship to a remote branch.

```
$ git checkout -b [branch] [remote]/[branch]
```

This command is ideal when for example checking out a branch to perform a bug fix, because it will set the upstream state automatically.

### Deleting Branches

#### Remotes Branches

After work on a given branch has been completed, and the user wants to delete that deprecated branch, the git push command can be used for deletions as in:

```
$ git push origin --delete <branch.name>
```

Notice that `branch_name` refers to the remote branch that is targeted in the deletion.

### Local Branches

After work on a given branch has been completed, and the user wants to delete that deprecated branch, the git push command can be used for deletions as in:

```
$ git branch (-d | -D) [-r] <branch.name>
```

The -d option delete the branch only if it is fully merged to its tracking or upstream branch, however the -D option deletes it regarding its state. In here the `branch_name` refers to the local branch that is targeted in the deletion.

## Additional Tools

### Stashing

Stashing lets to record the current state of the working directory and the index locally without affecting the HEAD pointer. This is very useful when you want to save the code (you do not consider it ready to commit) but want to go back to a clean working directory. The command saves your local modifications away and reverts the working directory to match the HEAD commit.

```
$ git stash save
```

The previous command will save your work locally so that you can easily change your effort to other branches if needed. Once work has been completed

```
$ git stash list
```

```
$ git stash apply stash@[stash_number]
```

### Renaming, copying and removing

```
$ git log <options>
```

```
$ git mv [old_file_name] [new_file_name]
```

Git is not very good in renaming automatically things, in order to do so a move operation is performed

```
$ git rm [options] <file_name>
```

Of particular interest is the option `--cached`, which will remove the file from the git repository but keep it in your file system.

### Logs

The command display a list of the commits in the repository. By default it shows the SHA-1 number, the commit message and the author of the commit. Of relevant use is the option `-oneline` which display a brief version of the above message description that consist of the SHA-1 number and the commit message

```
$ git log <options>
```

The command is ideal when trying to go back to previous states as it shows the SHA-1 number required for the checkout action.

## gitk

Even though is not officially part of the Git software, the gitk tool is an excellent visualizer of a repository history. Simply run gitk on the terminal and a display with all commit history will be displayed. However one of the most useful features of

gitk is to show the difference between commits given its SHA-1 number.

```
$ gitk [from] [to]
```

In here from and to refer to the SHA-1 number of the targeting commits.

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