A brief tutorial to Git

Miroslav Šimko
Nuclear Physics Institute
of the Czech Academy of Sciences

January 13–19, 2019

About Git

- Version Control System (VCS)
  ... simmilar to CVS used at STAR
- Co-developed by Linus Torvalds
- Good at
  - Distributed (not having to be on the same network)
  - Code maintenance
  - Back up (Github, etc.)
  - Coordination of multiple people
  - Multiple versions of code

About Git

- Version Control System (VCS)
  ... simmilar to CVS used at STAR
- Co-developed by Linus Torvalds
- Good at
  - Distributed (not having to be on the same network)
  - Code maintenance
  - Back up (Github, etc.)
  - Coordination of multiple people
  - Multiple versions of code

What git does

- Keeps track of code history
- Makes “snapshots” of your files
- You choose when to take a snapshot
- You can visit any snapshot at any time
- Who changed what when
- You can create multiple versions

What git does

- Keeps track of code history
- Makes “snapshots” of your files
- You choose when to take a snapshot
- You can visit any snapshot at any time
- Who changed what when
- You can create multiple versions

How to install

- Debian (Ubuntu, . . .)
  `$ sudo apt-get install git`
- Fedora, . . .
  `$ sudo yum install git`
- Mac . . . already installed, *probably*
- Windows
  `http://git-scm.com/download/win`

- `git config --global user.name 'blah'`
-
  `git config --global user.email 'blah@fjfi.cvut.cz'`

How to install

- Debian (Ubuntu, . . .)
  `$ sudo apt-get install git`
- Fedora, . . .
  `$ sudo yum install git`
- Mac . . . already installed, *probably*
- Windows
  `http://git-scm.com/download/win`

- `git config --global user.name 'blah'`
-
  `git config --global user.email 'blah@fjfi.cvut.cz'`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Basic commands

- `$ git init` `%starts git repository`
- `$ git add <file>` `%tracks changes in <file>`
- `$ git commit -a -m` `%snapshot of the code`
- `$ git status` `%what you did lately`
- `$ git log` `%log of all commits`
- `$ git checkout <ID>` `%go to a commit`
- `$ git clone <repo>` `%downloads a repo`
- `$ git push` `%uploads code to a remote`
- `$ git pull` `%downloads code from a remote`

Github

- Also Gitlab, Bitbucket, ...

Branching

- `git checkout -b <branchName>`
  `% Creates a branch`
- `git merge`
- `$ git push --set-upstream <remote> <branch>`
- `$ git cherry-pick <commit>`
  `% Useful for two versions of similar code`

Branching

- `git checkout -b <branchName>`
  `% Creates a branch`
- `git merge`
- `$ git push --set-upstream <remote> <branch>`
- `$ git cherry-pick <commit>`
  `% Useful for two versions of similar code`