Haecksen Geekend

Git Workshop for Beginners

chjana

Be Ready!

- Install Git:
  - https://git-scm.com/book/en/v2/Getting-Started-Installing-Git

  - for windows: https://tortoisegit.org/download/

- Get your GitHub Account: https://github.com/join

- Setup your Github ssh credential: https://docs.github.com/en/authentication/connecting-to-github-with-ssh/generating-a-new-ssh-key-and-adding-it-to-the-ssh-agent

Plan for today :-)

- Part 1: UI, Command line interface, repo (40min)
- Part 2: Staging and commits (20min)
- Part 3: Syncing with the remote host (10min)
- Part 4: Branch and merge (40min)

- Many group activities, Interactive
- The first personal repository at GitHub

Part 1: UI, Commands and Repo

- **Conceptual Understanding of Git**
- Examples of Basic Commands
- Exercises

What is Git for?

- Version Control
- Collaboration
- Workflow

What can do with Git? - Repo

```
heuna@teekanne  ~/Signal-Android  master  ls
pntool   core-util       image-editor  paging              build.gradle        gradle.properties  LICENSE        README.md
pp       device-transfer libsignal     reproducible-builds CONTRIBUTING.md     gradlew            NOTICE         settings.gradle
uildSrc  gradle          lintchecks    video               dependencies.gradle gradlew.bat        pkcs11.config
```

```
master  origin/master  v5.24.14  Bump version to 5.24.14
Updated language translations.
Fix address list for sender key messages.
v5.24.13  Bump version to 5.24.13
Updated language translations.
Improve handling of badly-serialized data.
v5.24.12  Bump version to 5.24.12
Updated language translations.
```

```
Update verify identity UI.
Save receipt timestamps on sms/mms database.
v5.22.8  Bump version to 5.22.8
Revert "Update URL for reaching Signal chat server."
v5.22.7  Bump version to 5.22.7
Updated language translations.
Update libsignal-client to 0.9.0
v5.22.6  Bump version to 5.22.6
```

Sign up

signalapp / **Signal-Android** Public

A private messenger for Android.

signal.org

GPL-3.0 License

21.2k stars 5.1k forks

Star Notifications

Code Issues 1.4k Pull requests 210 Actions Projects

master Go to file

pkcs11.config	3 years ago
settings.gradle	19 days ago

README.md

Signal Android

Signal is a messaging app for simple private communication with friends.

Signal uses your phone's data connection (WiFi/3G/4G) to communicate

What can do with Git? - Hosting

```
heuna@teekanne ~/Signal-Android master ls
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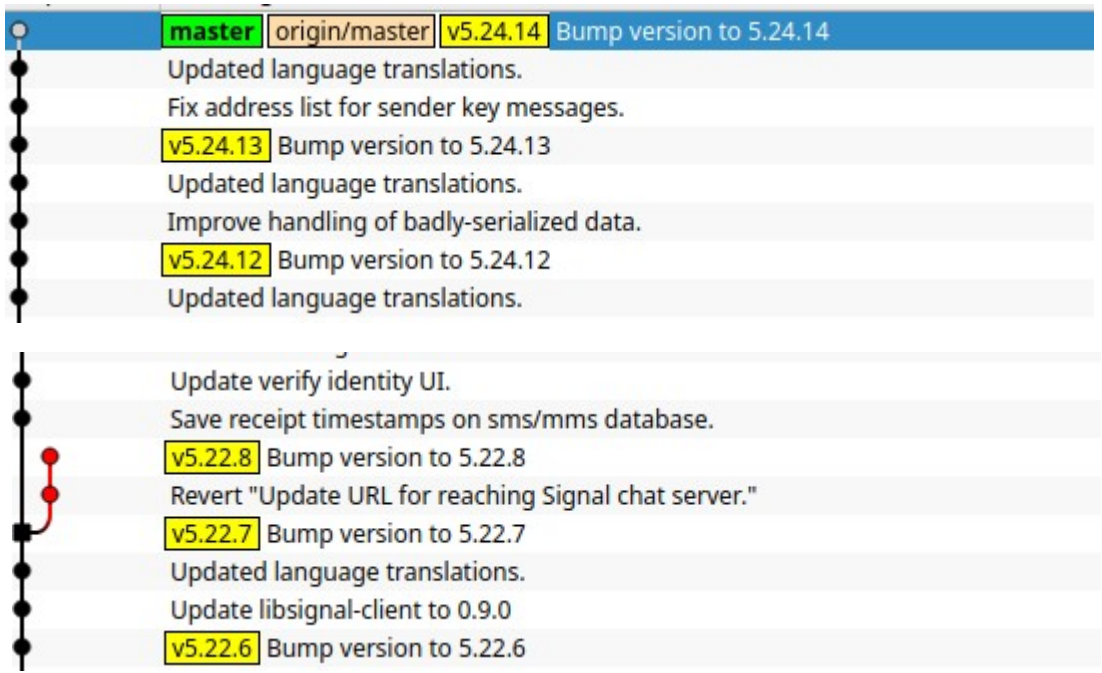
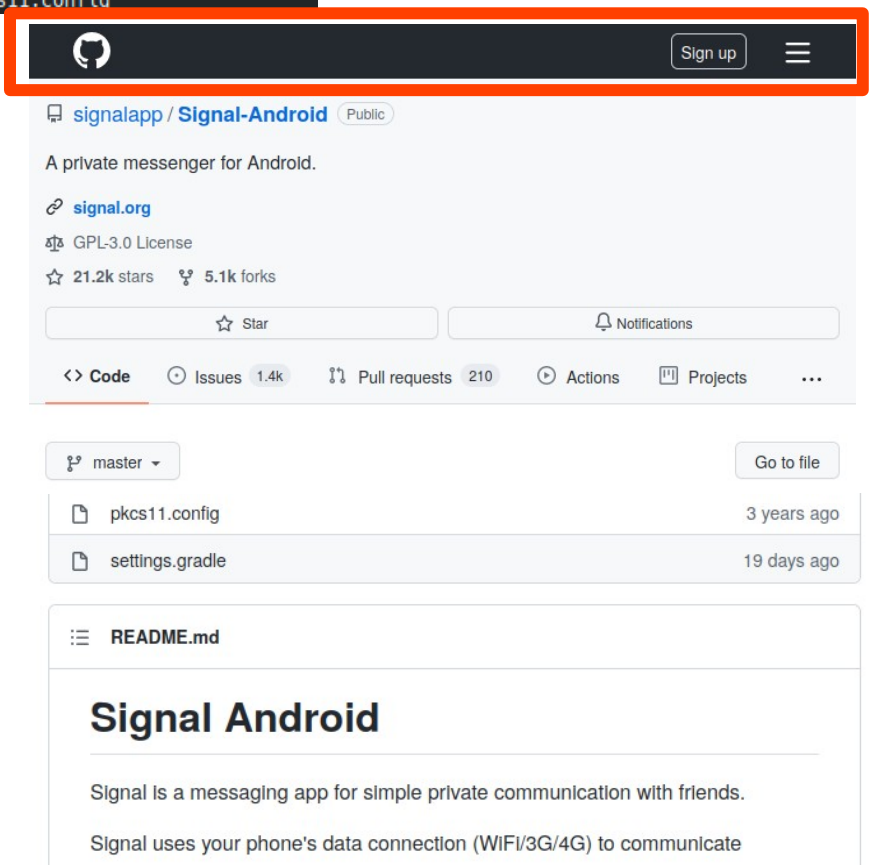
buildSrc   gradle           lintchecks    video                dependencies.gradle  gradlew.bat        pkcs11.config
```





What can we do with Git? - Commits

```
heuna@teekanne ~/Signal-Android master ls
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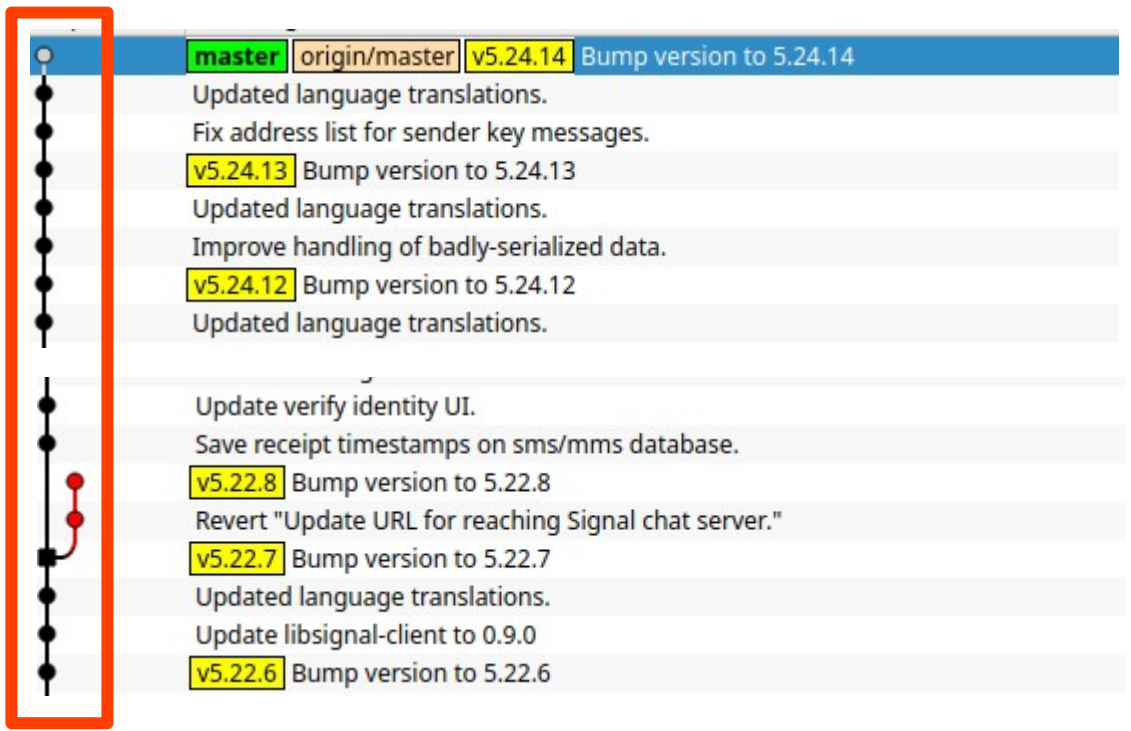

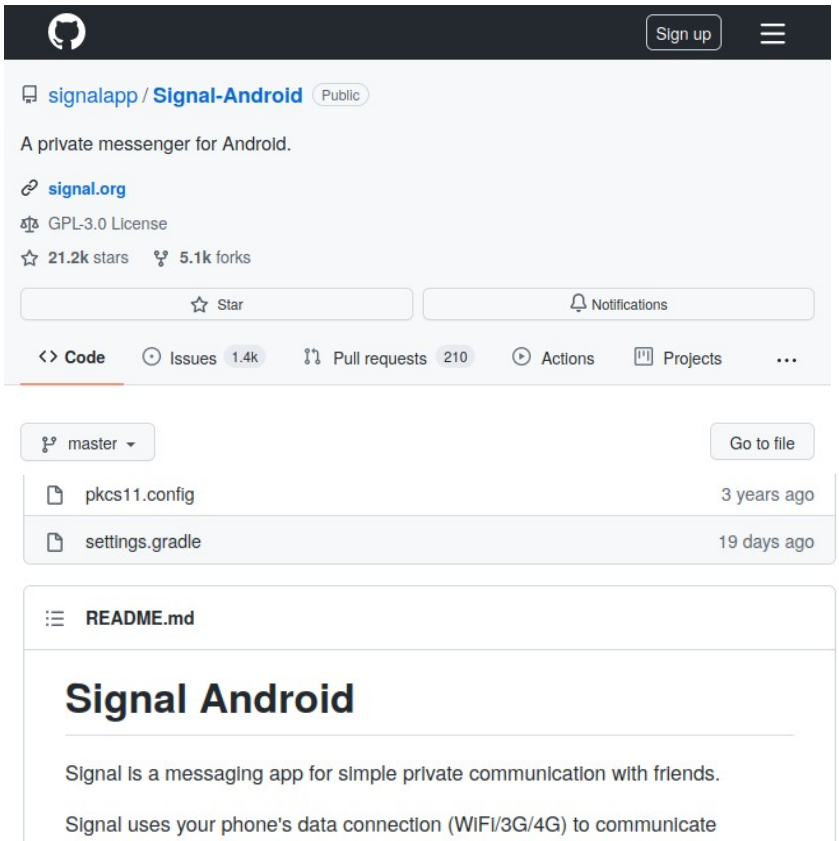

What can we do with Git? - Branch

```
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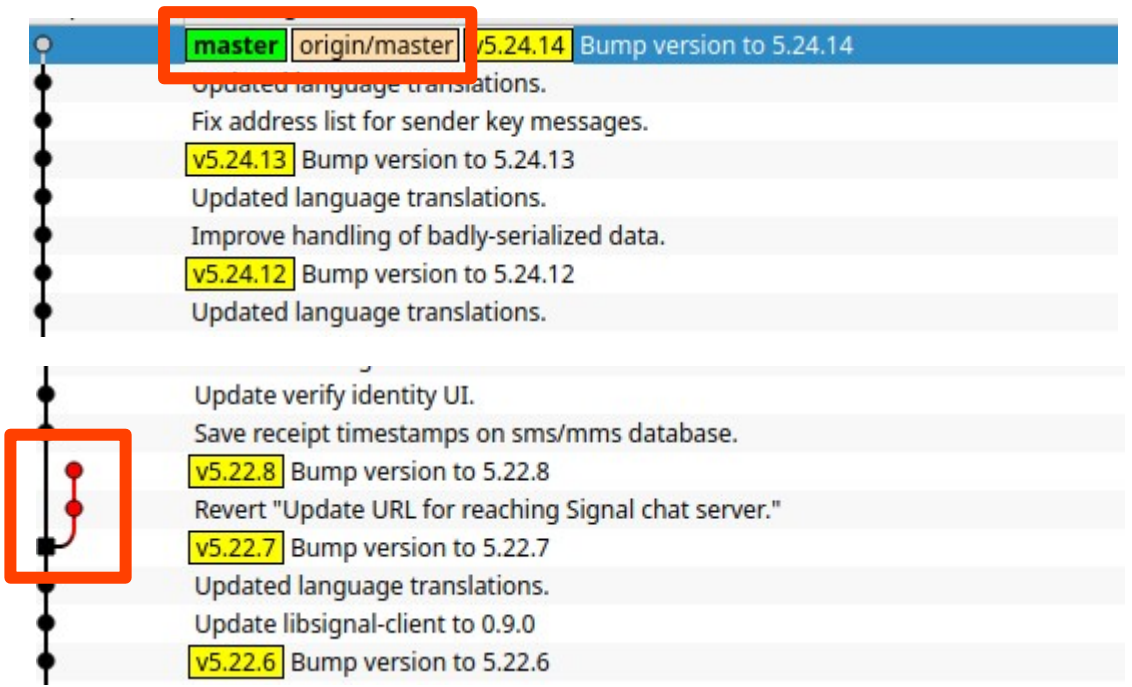

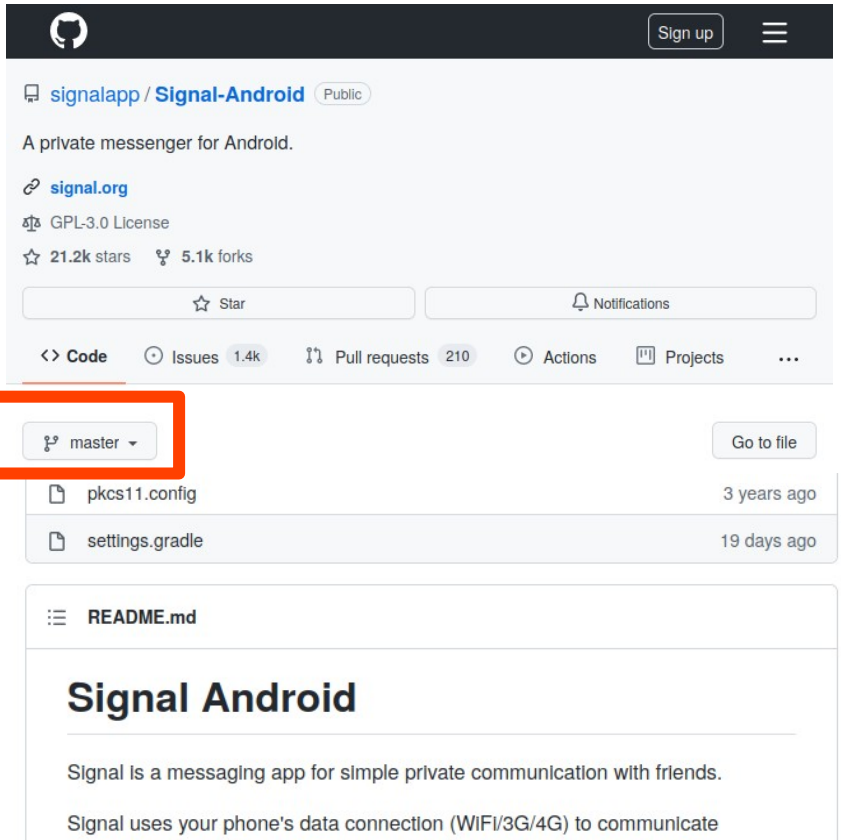

What can we do with Git? - Tag

```
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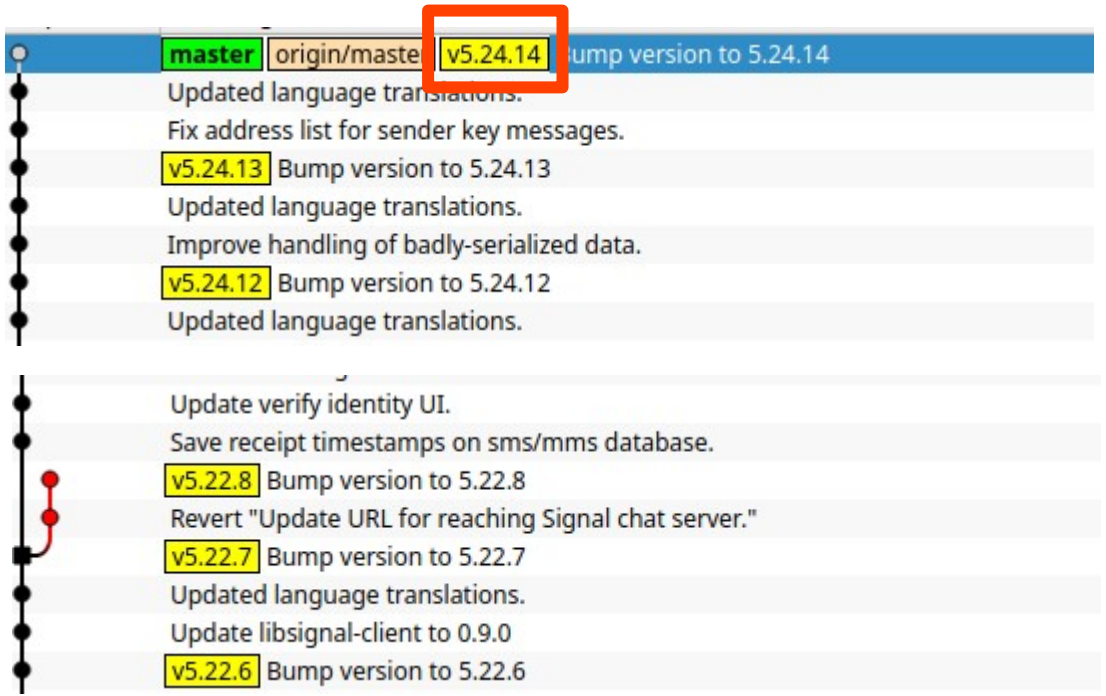

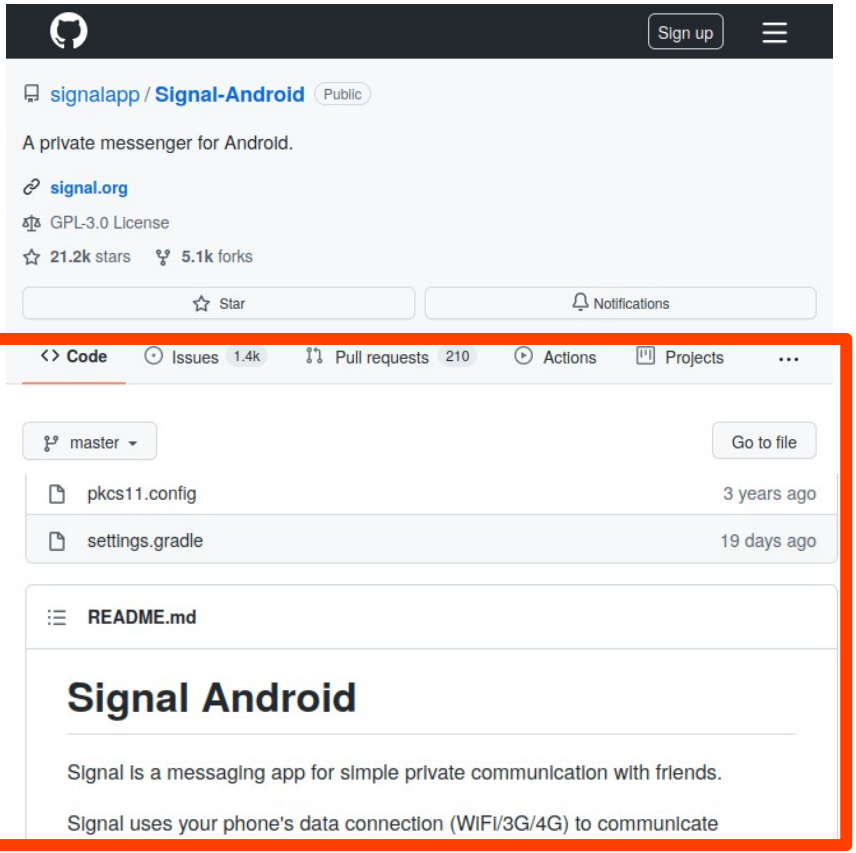

What can we do with Git? - and more

```
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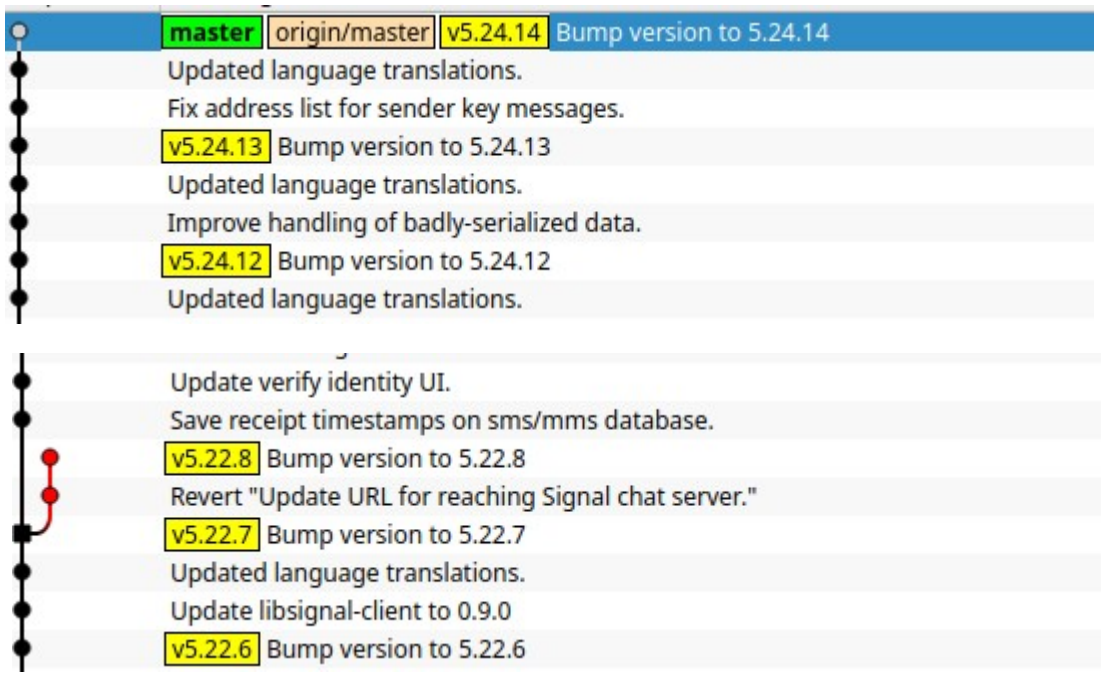
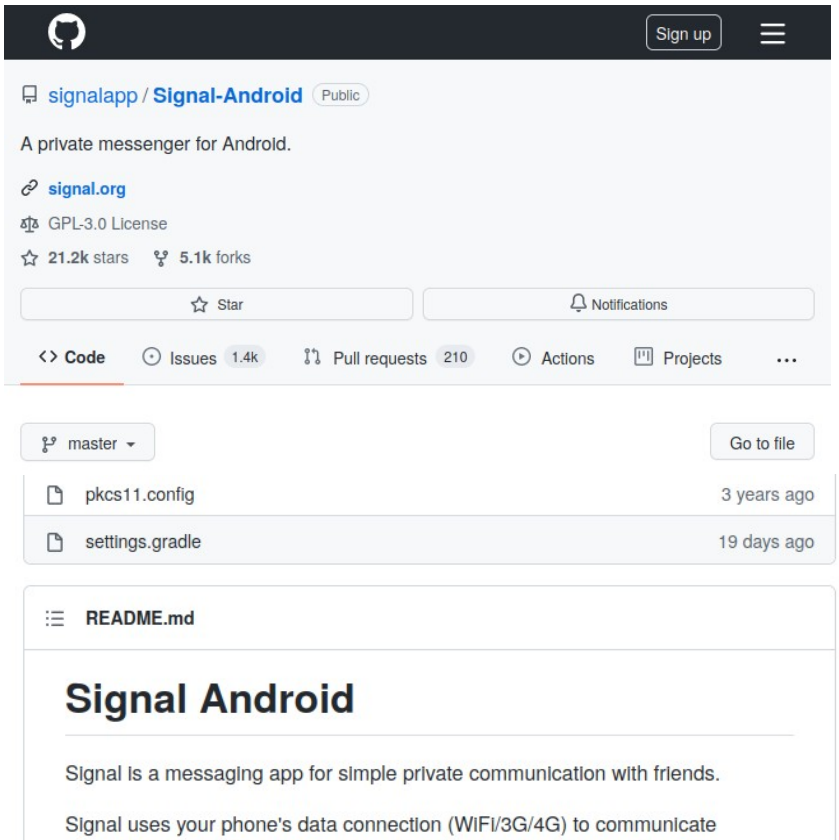




Part 1

- Conceptual Understanding of Git
- **Examples of Basic Commands**
- Exercises

Cloning

- git clone <repository_address>

- To see the results, try
  - ls
  - Check out via git log or gui-clients
    - https://git-scm.com/downloads/guis

Create New Repo

- mkdir <directory_name>
- git Init

Part 1

- Conceptual Understanding of Git
- Examples of Basic Commands
- **Exercises**

Exercises

group-a. clone your favorite open source repository and check the history with a gui-client or `git log`

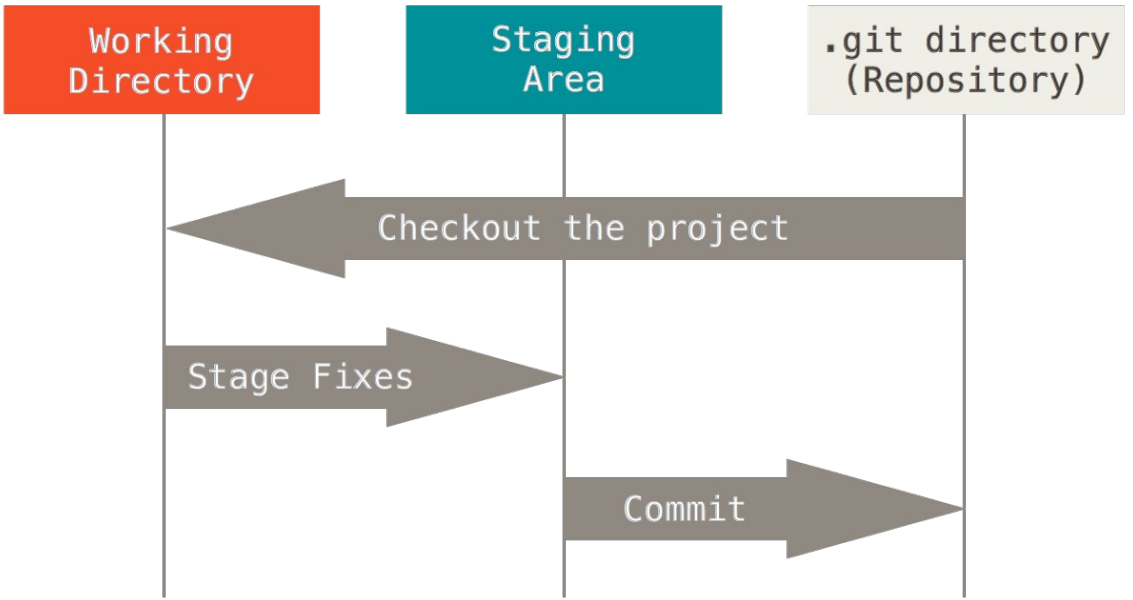
group-b. create your own repository and check out what happened in the directory by trying `ls -al`

Part 2: Staging, Commits

- **Conceptual Understanding of Git**
- Examples of Basic Commands
- Exercises

How can Git do this cool things?

- Patches : difference of the codes
- Commits with unique hashes
- Stages

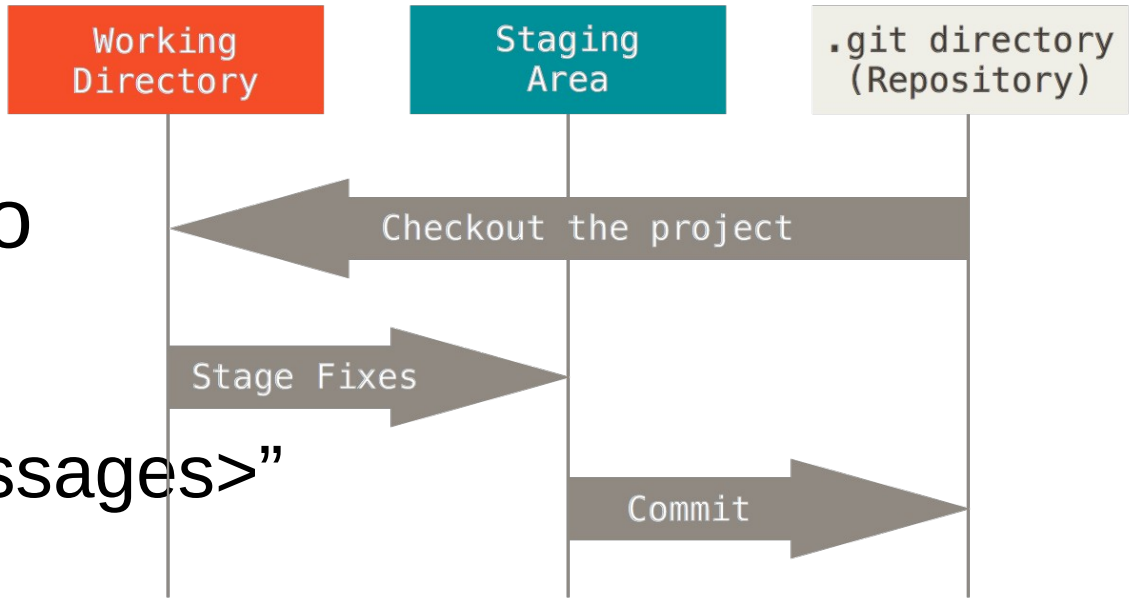


Part 2

- Conceptual Understanding of Git
- **Examples of Basic Commands**
- Exercises

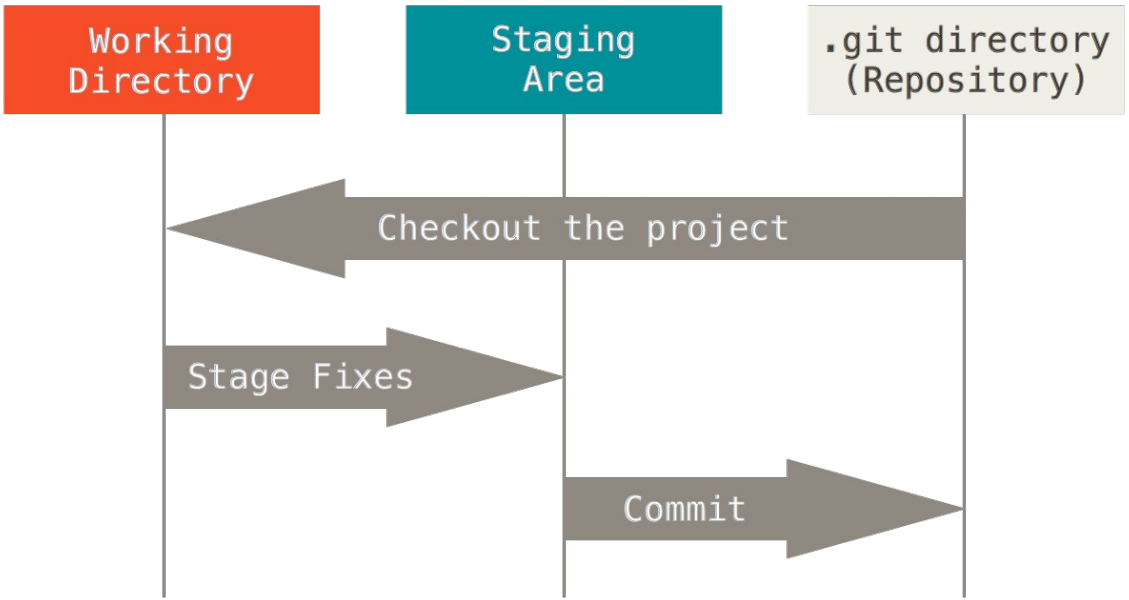
Commit – adding the history

- From working directory to staging area
  - git add <file>
  - git add -p
- From staging area to repository
  - git commit -m “<messages>”
  - git commit –amend



Status check

- git diff
- git status



Part 2

- Conceptual Understanding of Git
- Examples of Basic Commands
- **Exercises**

Git config for the first time user

- git config --global user.name “John Doe”
- git config --global user.email “john@doe.com”

Exercises

Each group in pair programming.

- Add a file named “Readme.md” of which has contents “### My first repo”.

- add the file into the stage

- commit the change

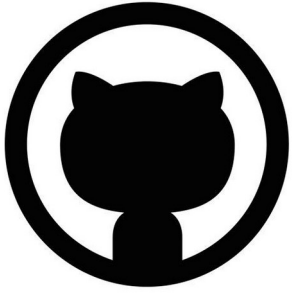
- check out the history

Part 3: Remote Host

- **Conceptual Understanding of Git**
- Examples of Basic Commands
- Exercises

Hosting Services

- GitHub
- GitLab
- Self hosting ...



Exercise Together

- Create own repo at Github

Part 3

- Conceptual Understanding of Git
- **Examples of Basic Commands**
- Exercises

Syncing with Remote

- git push <remote> <branch>
- git pull <remote> <branch>

- git push / git push -u <remote> <branch>
- git pull / git pull <remote> <branch>

Part 3

- Conceptual Understanding of Git
- Examples of Basic Commands
- **Exercises**

Exercises

Each group in pair programming.

- push the new commit in the created repo to the created github remote

Part 4: Branching and Merging

- **Conceptual Understanding of Git**
- Examples of Basic Commands
- Exercises

What can we do with Git? - Branch

```
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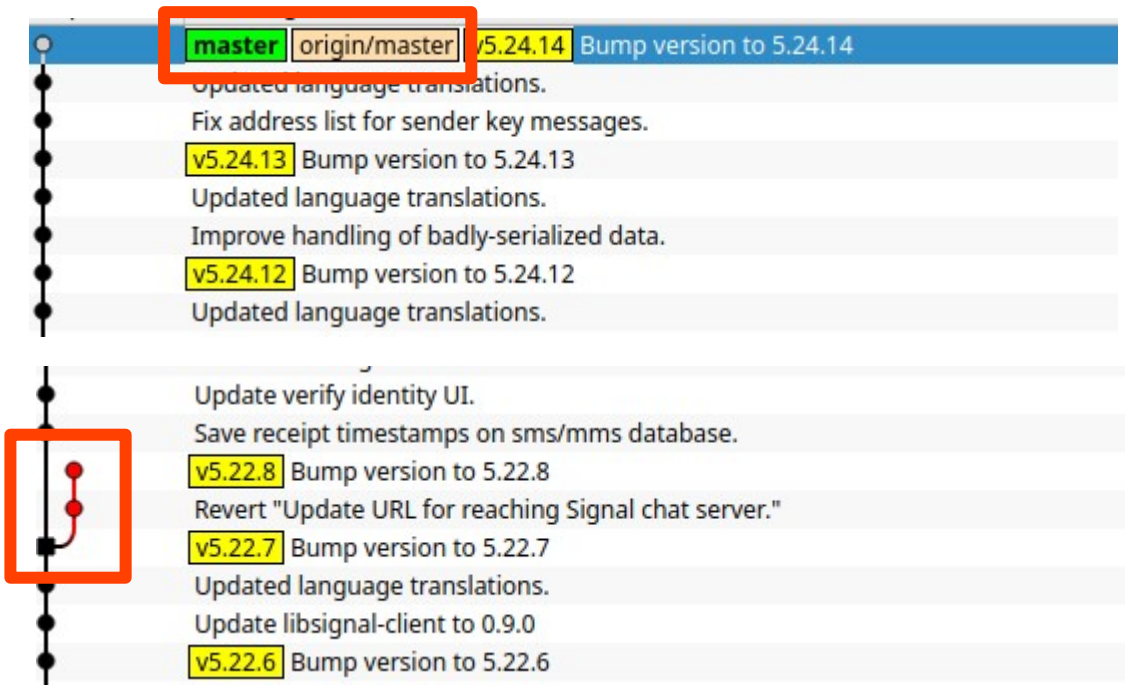

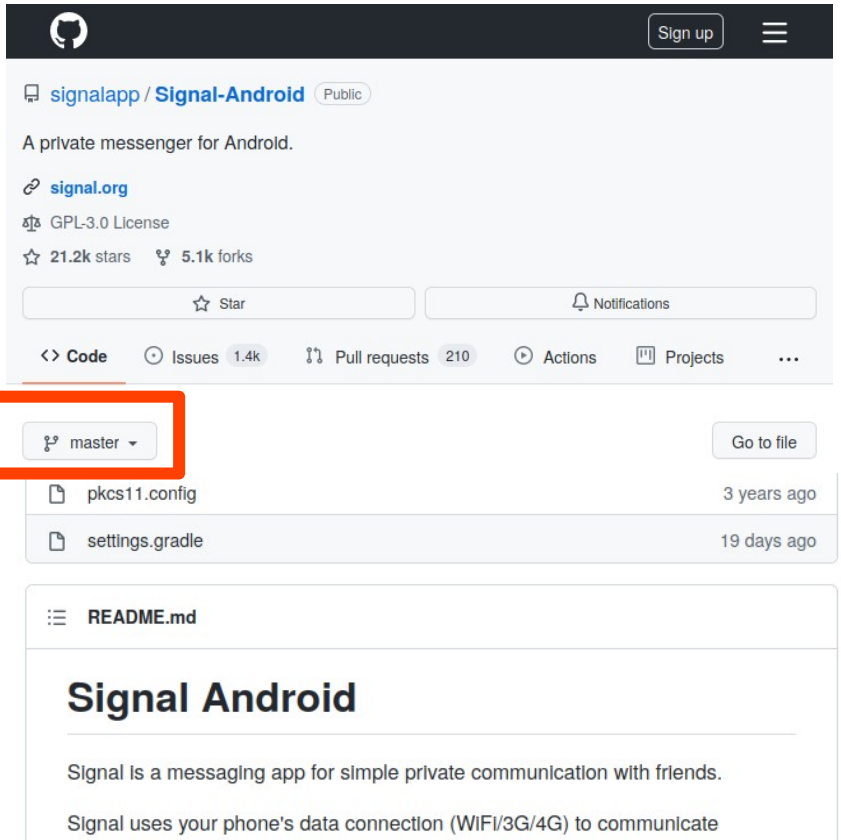

Part 4

- Conceptual Understanding of Git
- **Examples of Basic Commands**
- Exercises

Branch

- git branch <new_branch>
- git switch <other_branch>
- git checkout -b <new_branch>

- git branch
- git branch –all

Part 4

- Conceptual Understanding of Git
- Examples of Basic Commands
- **Exercises**

Group Challenge Exercises

- Each group
  - fork the repository hahey/geekend_gitworkshop
  - clone the repository
  - change the branch for the team
  - edit the introduction of the participant list and commit
  - push to the forked branch

Exercise Together

- Send two pull requests to the repo hahey/geekend_gitworkshop
  - One to the main branch
  - One to the team branch

Demo

- Code reviews in the pull requests
- Merging Branch
- Merge Conflicts
- Looking up the command by `git --help`
- Rebasing
- Best Practice: a linear history