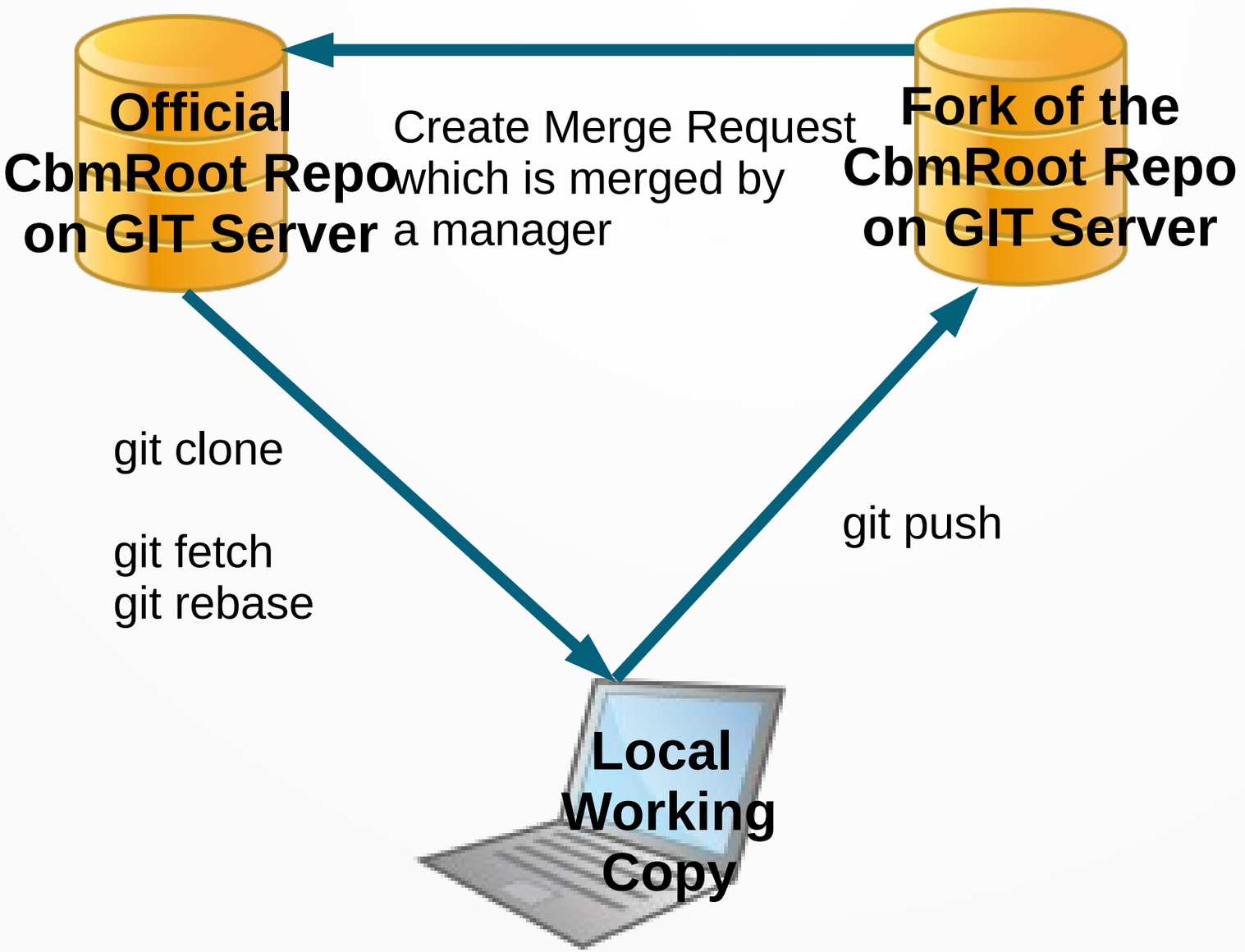
Merge Request Workflow in GitLab

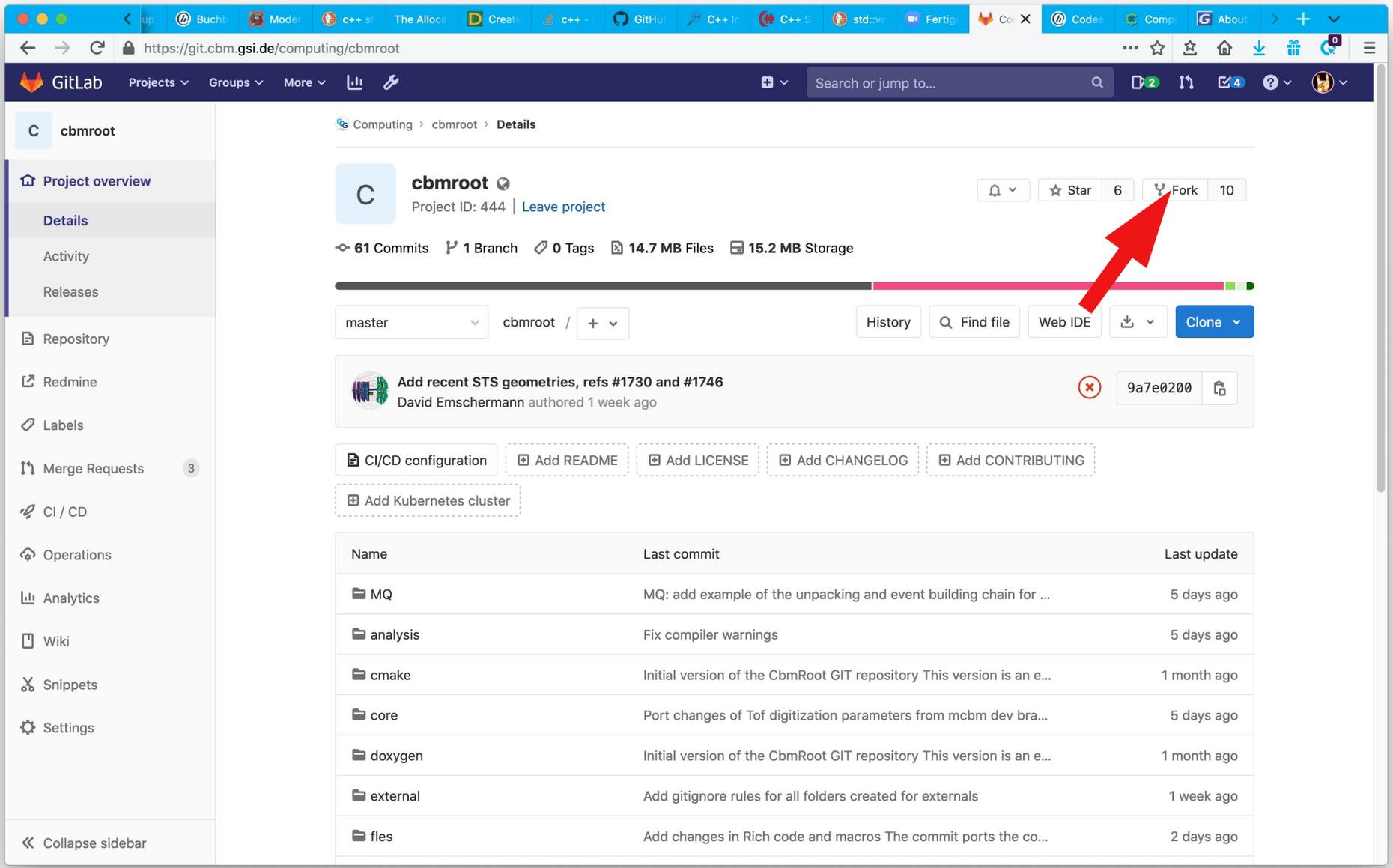
Workflow For Developers Final Picture



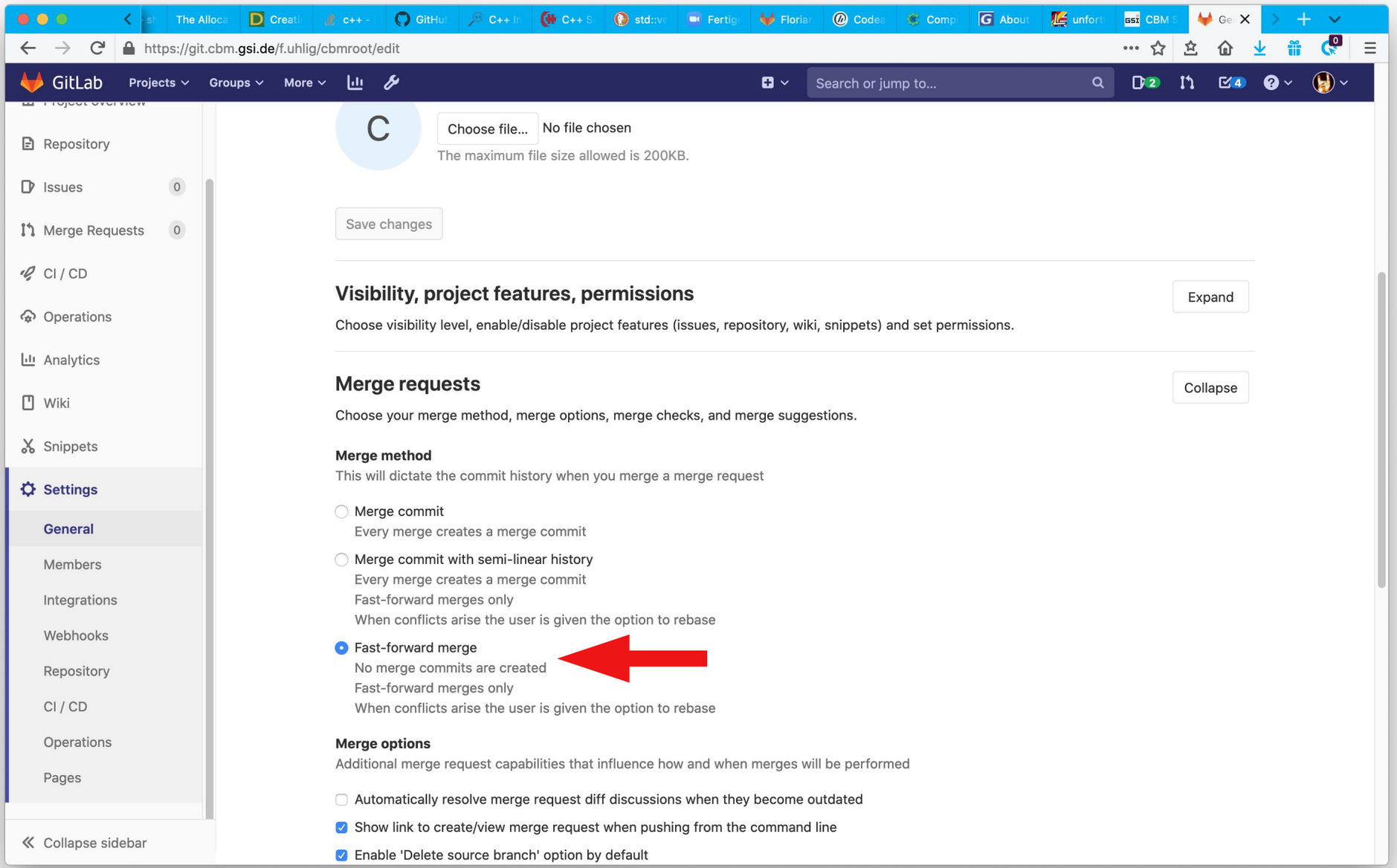
User → Developer

- How to get some changes into the repository?
- Create a copy of the official repository on the Git Server in your user account
  - Creating a fork of the official repository
  - Has to be done only once
  - Since this is done using a web server will show now some screenshots
    - Navigate to the official repository at https://git.cbm.gsi.de/computing/cbmroot
    - Click on the “fork” button
    - Creates a copy of the official repository in your user account

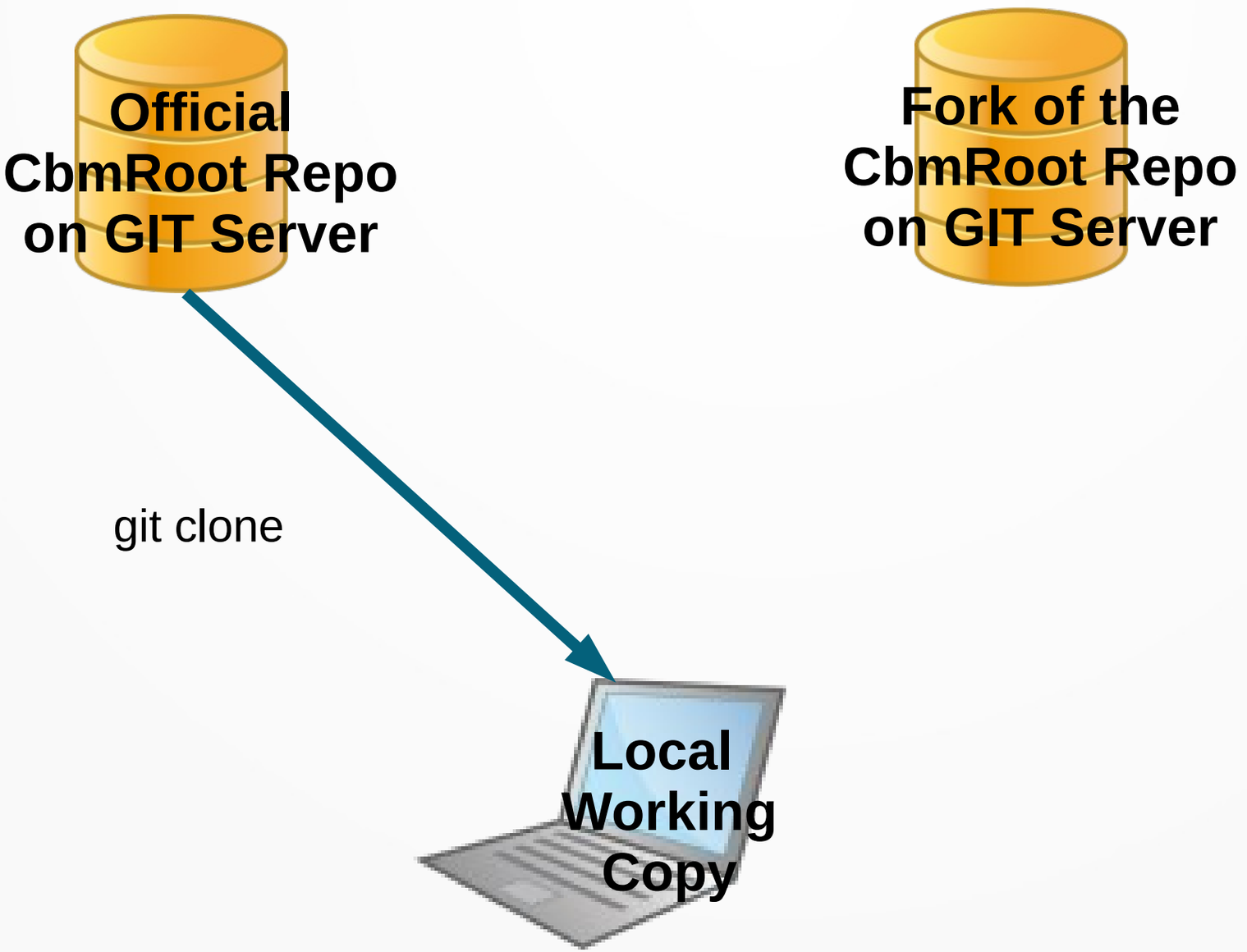
Fork The Repository



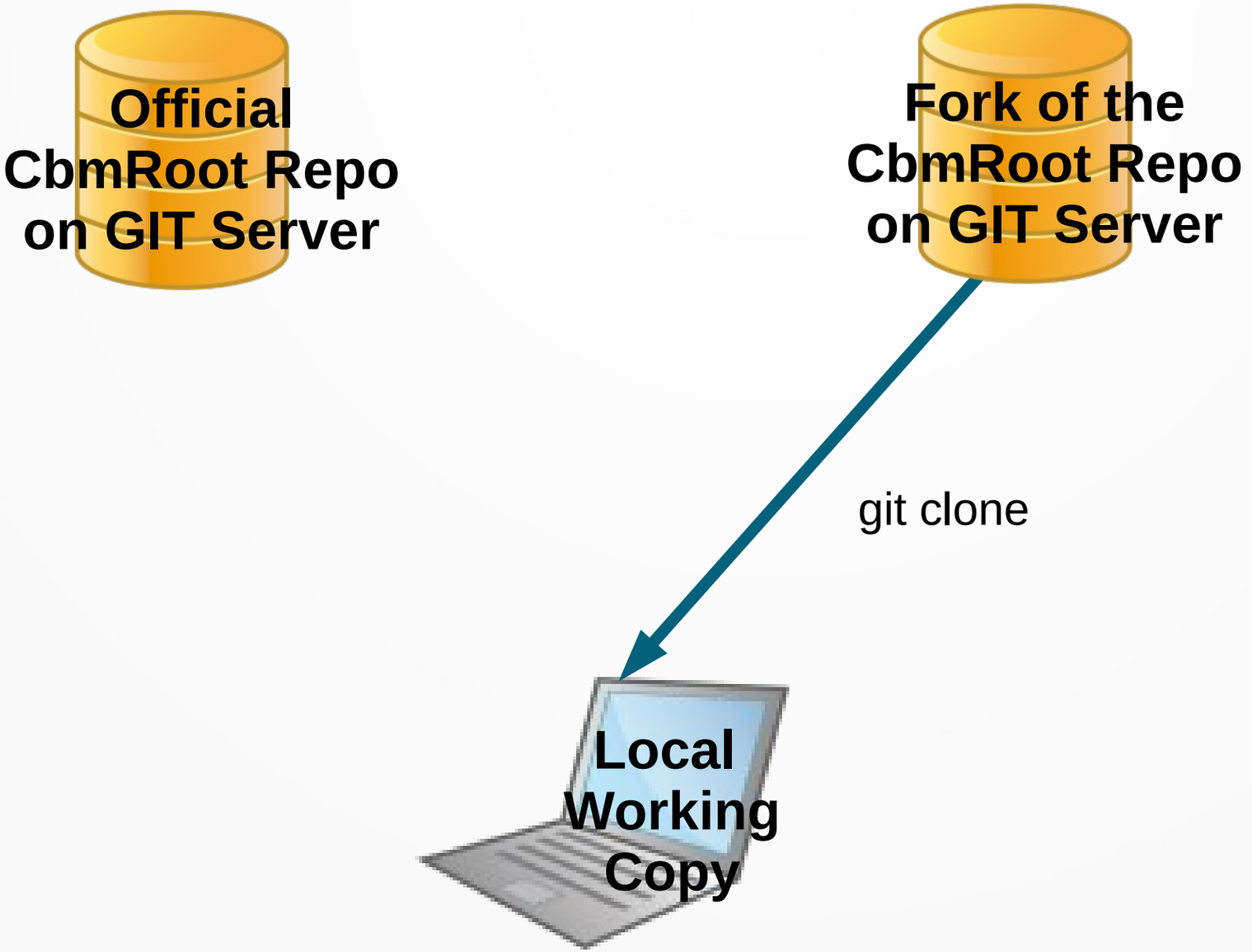
Choose the correct settings



After Creating the Fork



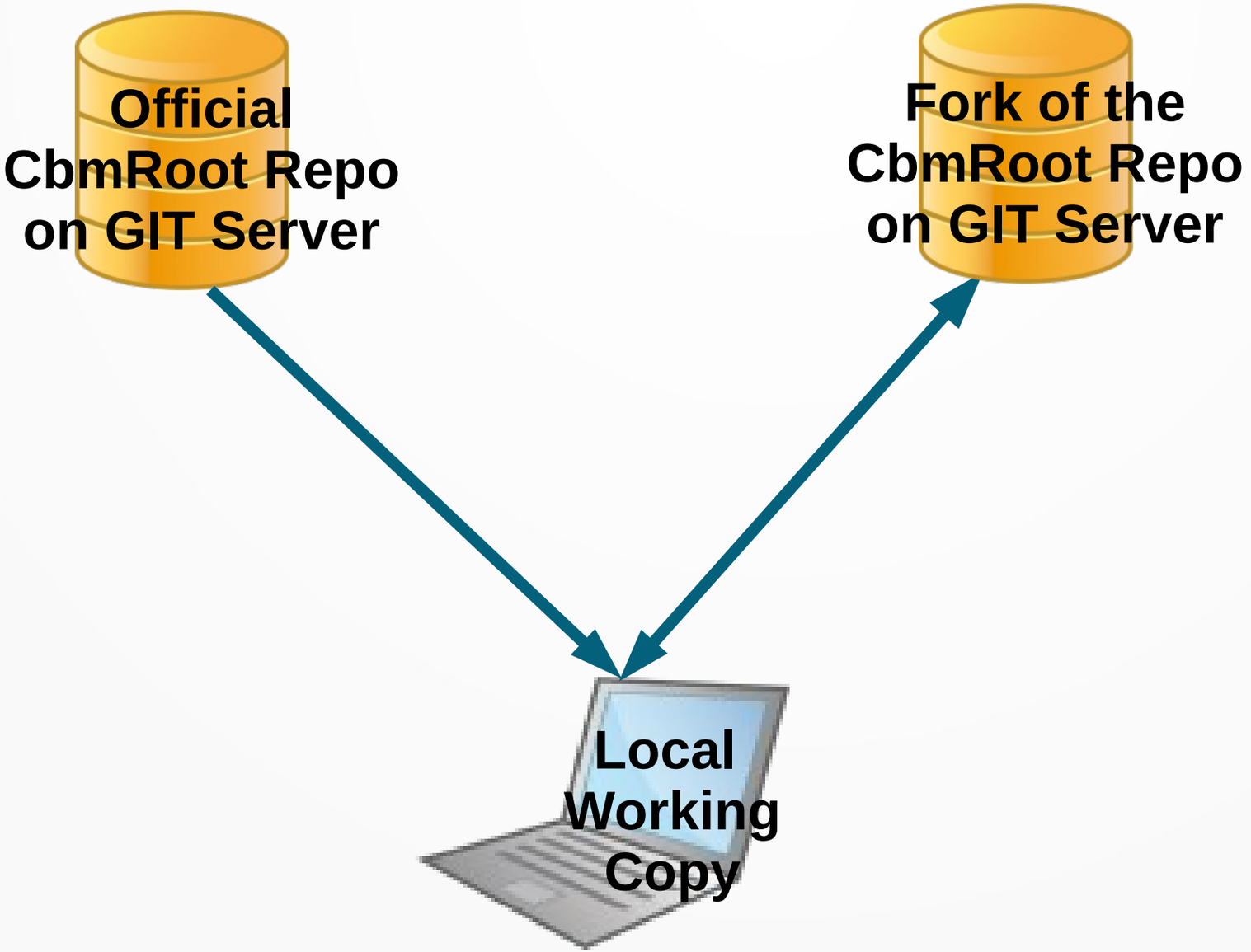
After Creating the Fork



Naming Conventions

- The repository which was used for the clone of the local working copy is automatically named “origin”
- “Origin” is only a name
- “Origin” may point either to your fork or to the official repository
  - Very unfortunate situation since people use the same name for two completely different things
- Everybody should use the same convention
  - Connect the second repository
  - Change the names of the repositories

Connecting the Second Repository

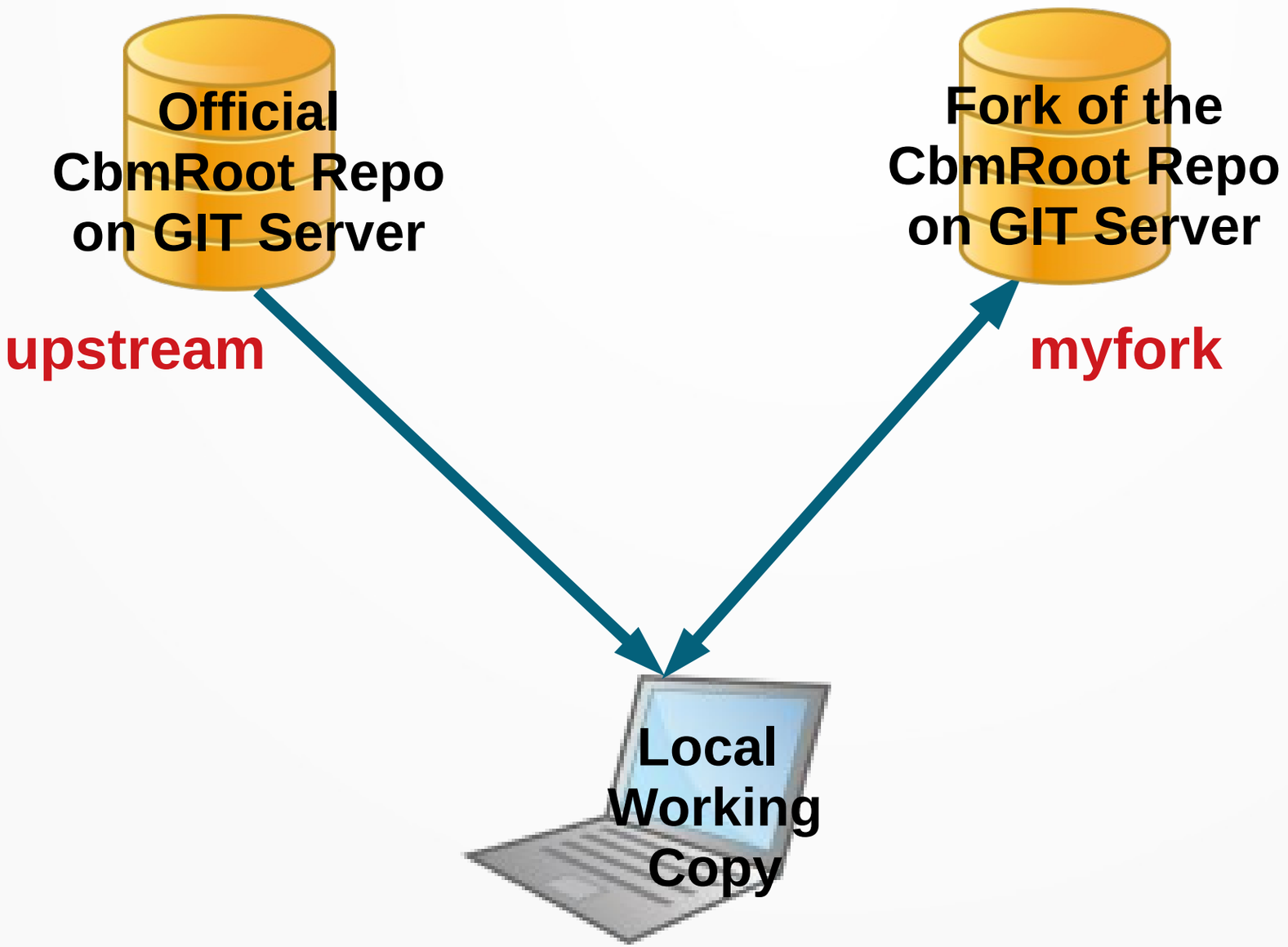


Connecting the second Repository

- You can have many remote repositories connected to your local working copy
- Local copy cloned from official repository
  - git remote add myfork https://git.cbm.gsi.de/f.uhlig/cbmroot

    myfork is only a name which indicates my repository fork
  - git remote rename origin upstream
- Local copy cloned from your fork
  - git remote add upstream https://git.cbm.gsi.de/computing/cbmroot
  - git remote rename origin myfork

Connecting the Second Repository



Upload My Local Copy To The Server

- In the following I assume that you Know how to work with git locally
  - git add <file>
  - git commit
- How to get your changes to your fork
  - git push <repository name> <local branch>:<repository branch>
  - git push myfork mybranch:mybranch
    - Will upload my local branch to my cbmroot fork on our git server

Workflow

Official GIT Repo

#5

#4

#3

#2

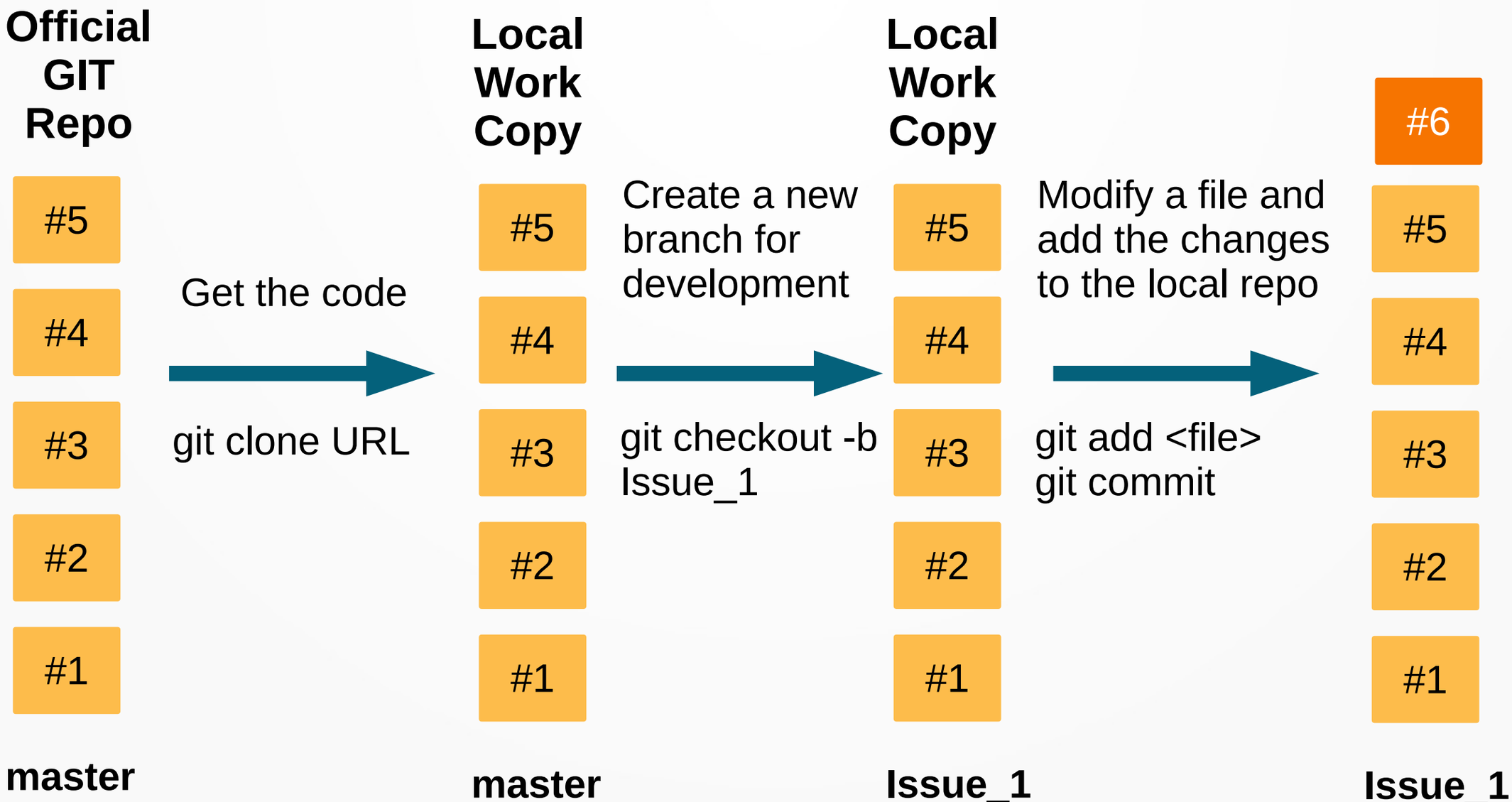
#1

master

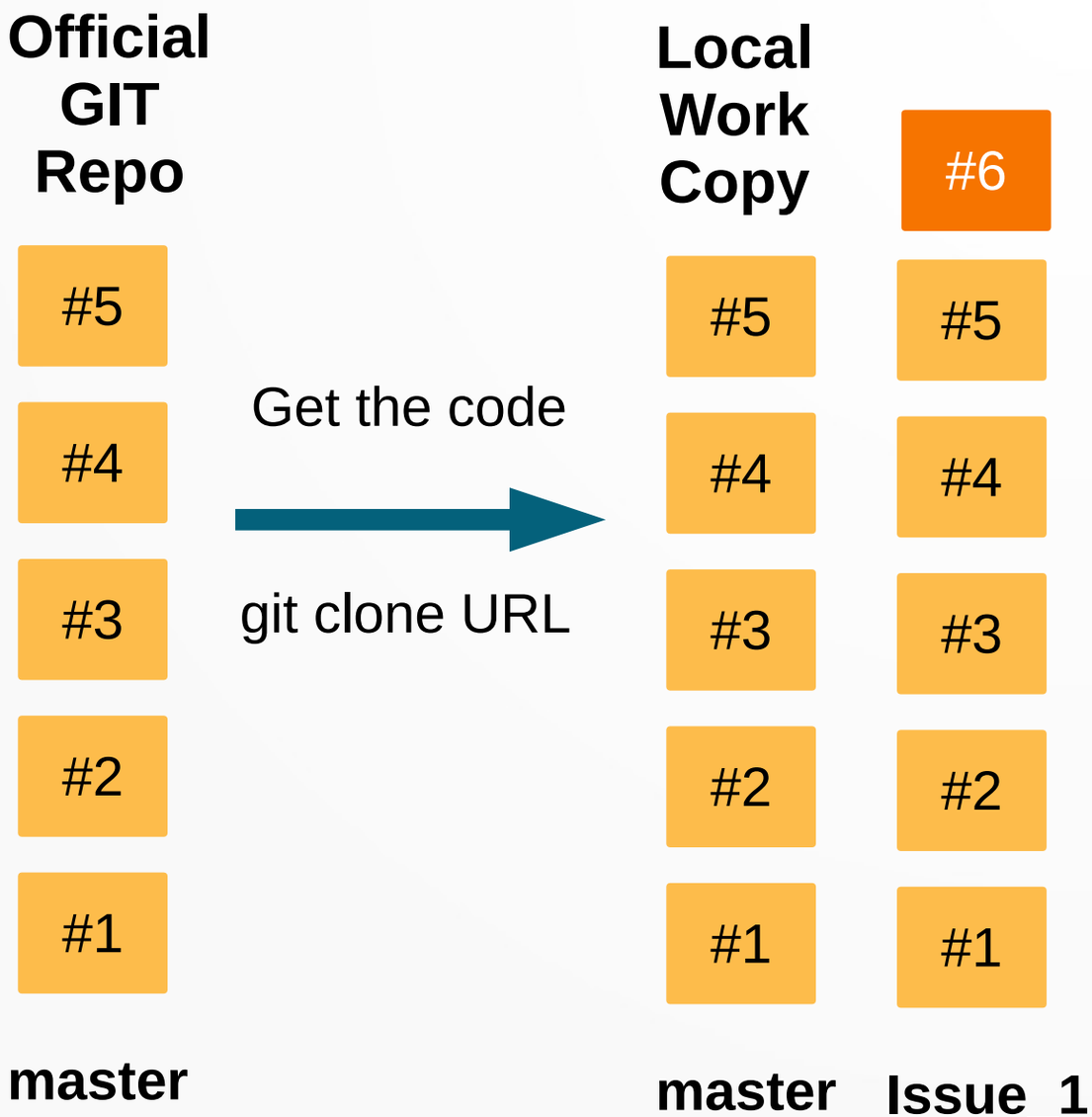
Workflow

Official GIT Repo
#5
#4
#3
#2
#1
master
Get the code
git clone URL
Local Work Copy
#5
#4
#3
#2
#1
master

Workflow


Official GIT Repo
#5
#4
#3
#2
#1
master
Get the code
git clone URL
Local Work Copy
#5
#4
#3
#2
#1
master
Create a new branch for development
git checkout -b Issue_1
Local Work Copy
#5
#4
#3
#2
#1
Issue_1
Modify a file and add the changes to the local repo
git add <file>
git commit
#6
#5
#4
#3
#2
#1
Issue_1

Workflow


Official GIT Repo
#5
#4
#3
#2
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master
Get the code
git clone URL
Local Work Copy
#5
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master
#6
#5
#4
#3
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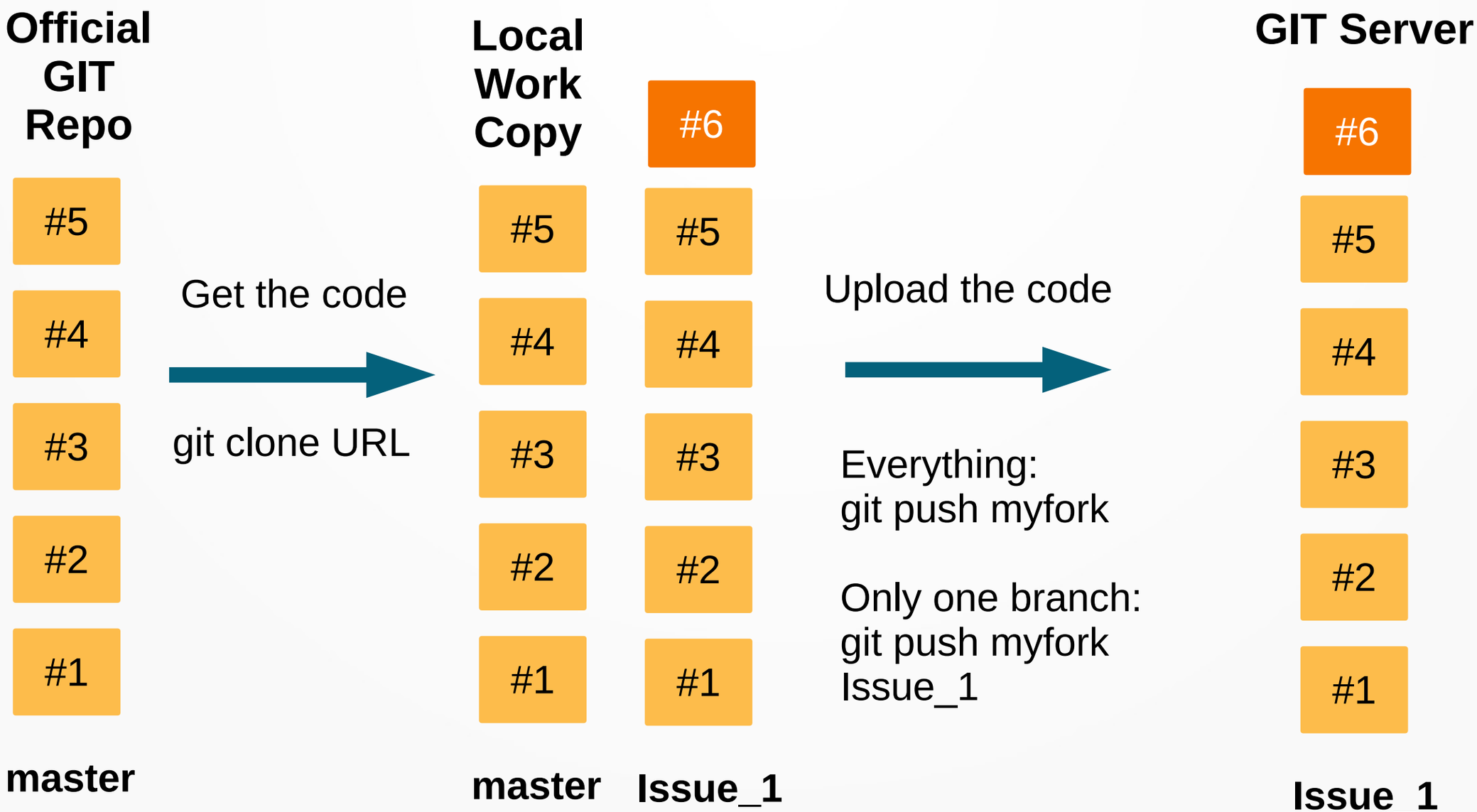
#1
Issue_1

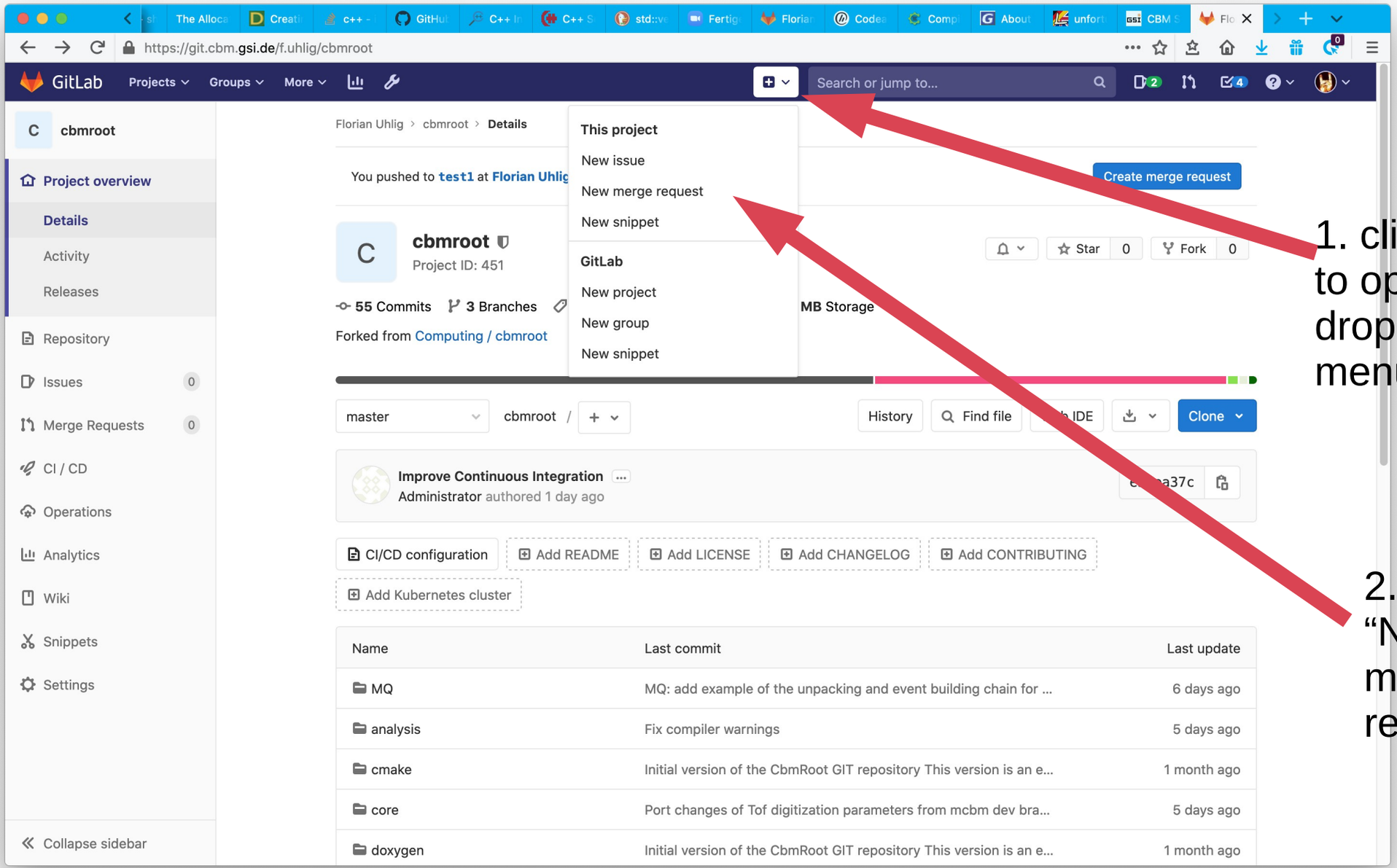
Workflow


Official GIT Repo
#5
#4
#3
#2
#1
master
Get the code
git clone URL
Local Work Copy
#5
#4
#3
#2
#1
master
#6
#5
#4
#3
#2
#1
Issue_1
Upload the code
Everything:
git push myfork
Only one branch:
git push myfork
Issue_1
Fork on GIT Server
#6
#5
#4
#3
#2
#1
Issue_1

Create A Merge Request

- Navigate to your fork on the GIT server
  - For me the URL is https://git.cbm.gsi.de/f.uhlig/cbmroot
  - Click on “New merge request” from the “new” menu
  - Choose the proper source and target branches
    - The source branch in our example is Issue_1 from my fork of cbmroot
    - The target branch is always master from computing/cbmroot
  - Click on compare branches and continue
    - If everything is correct you can submit the merge request
    - Problems are discussed later
  - Now we come to the screenshots

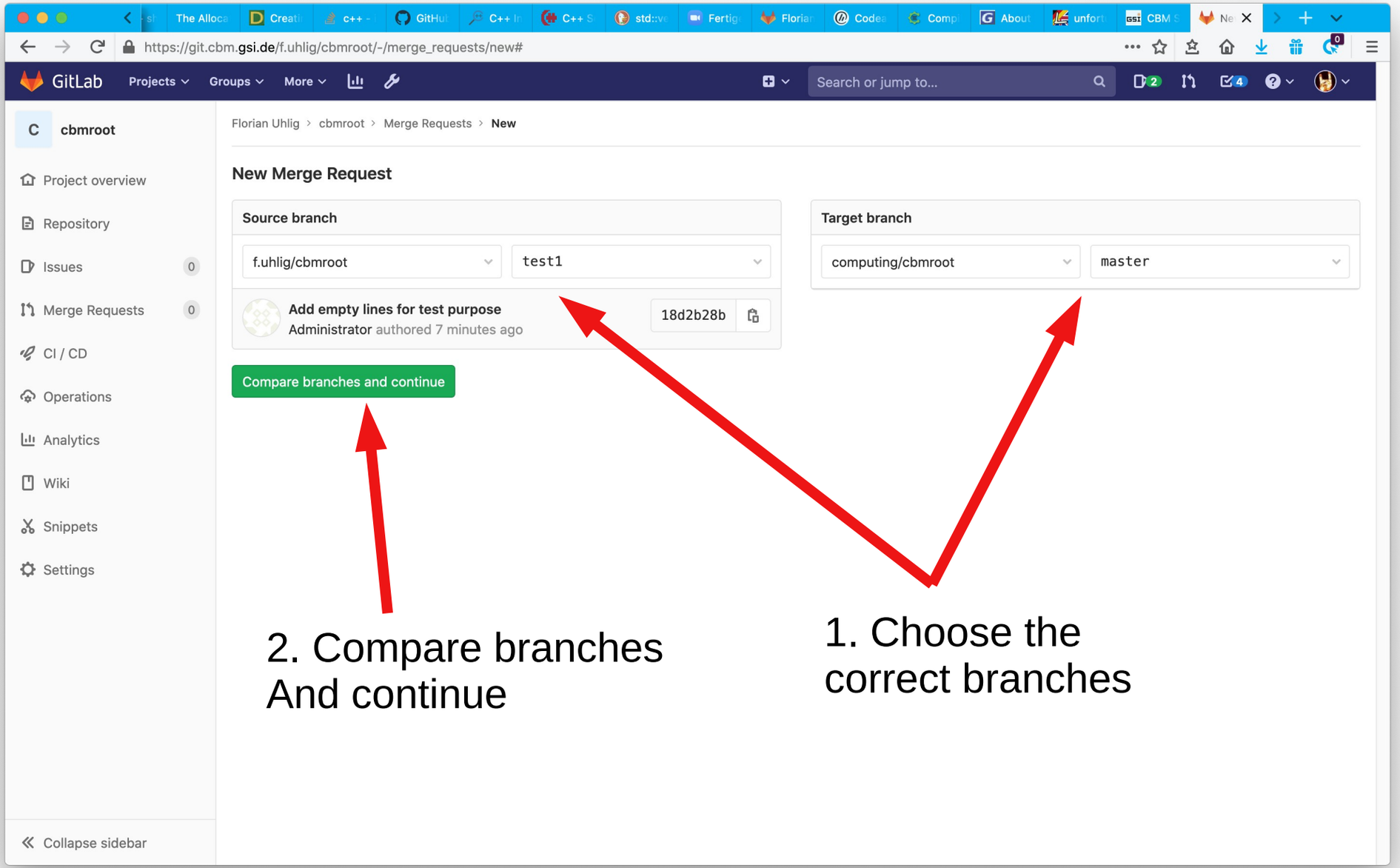
Merge Request



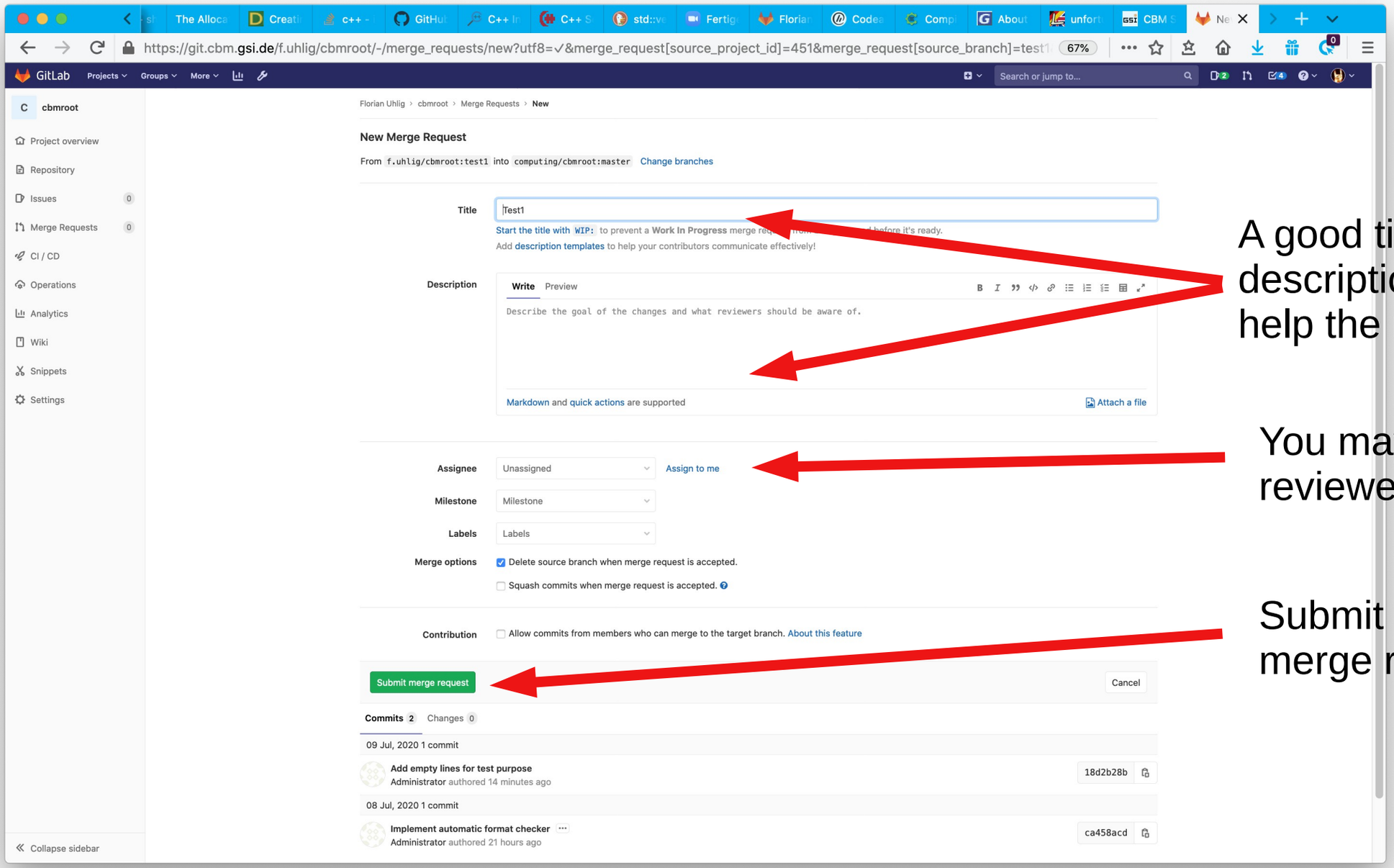
1. click here to open the drop down menu

2. choose “New merge request”

Merge Request



Merge Request



A good title and description will help the reviewer

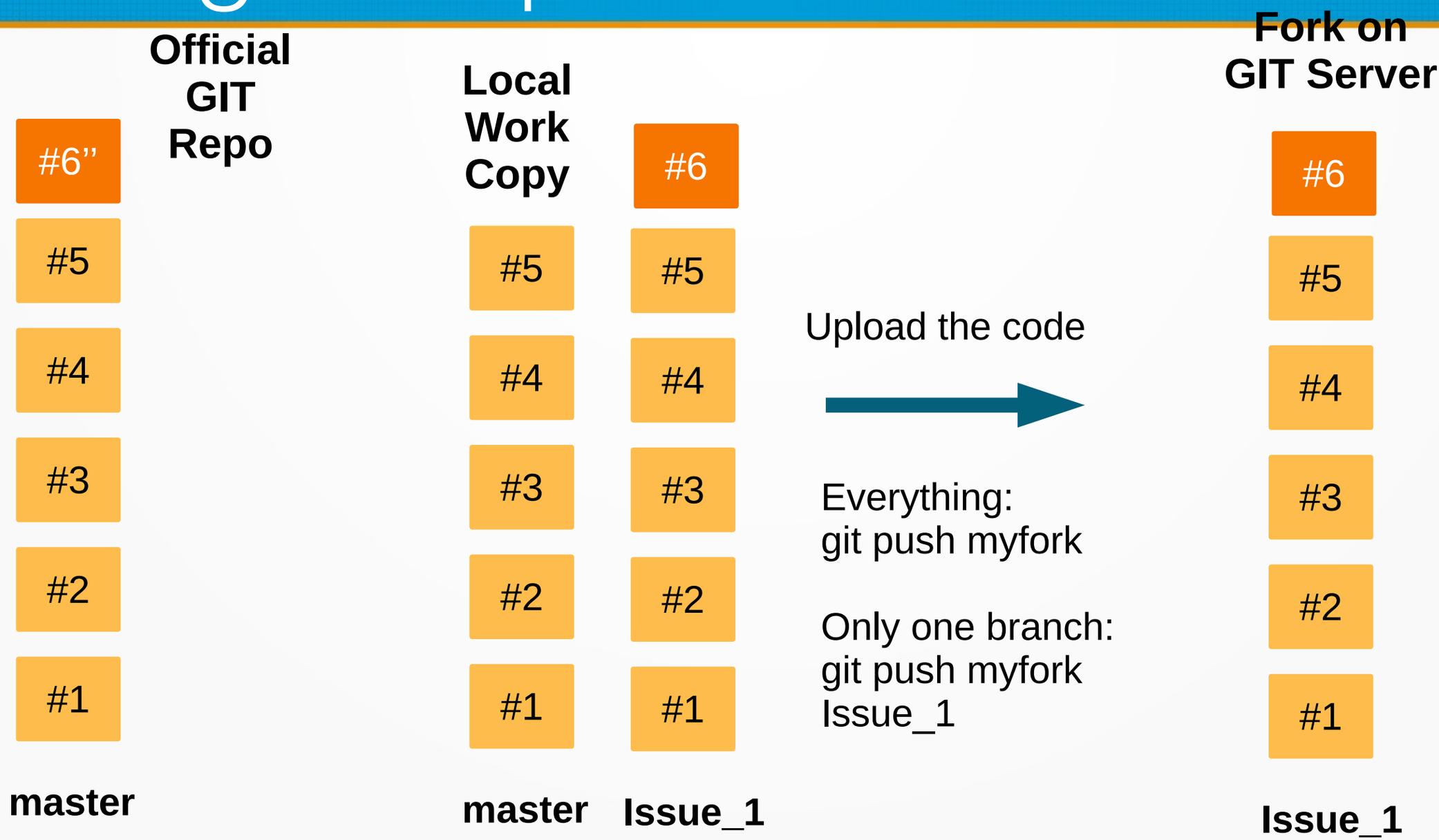
You may add a reviewer

Submit the merge request

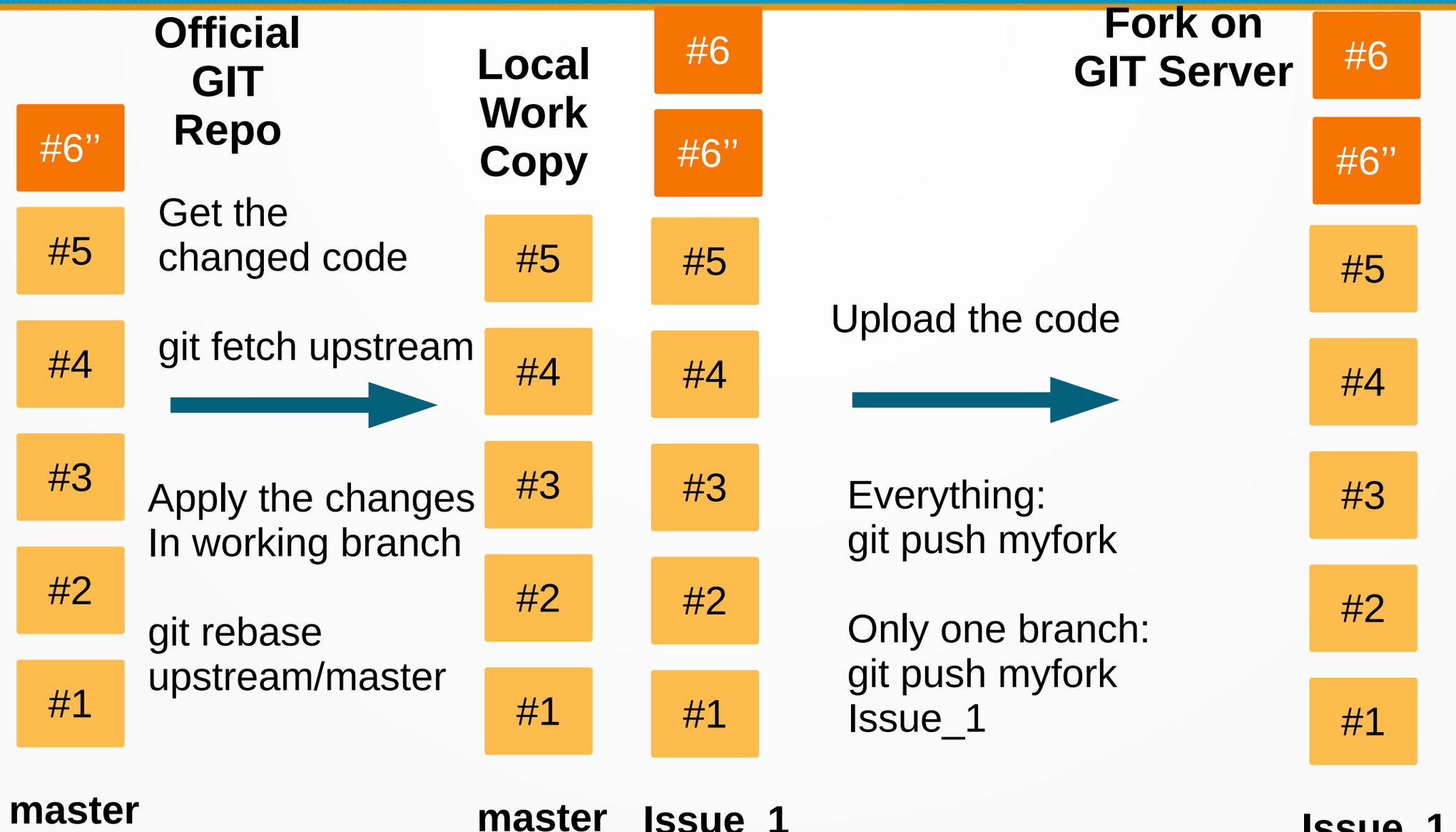
Merge Request Feedback

- After the merge request is submitted there are several steps
  1) Check if the code is compliant with our code formatting rules
  2) Test if the code can be compiled and if the tests succeed
  3) Reviewer will check the code and give feedback and may request changes
- All above stages may fail which will need updates from you
- Do the changes and push the changes to the same branch
  - The update of the branch will trigger steps 1-3 again
  - Repeat until the merge request is accepted and merged
  - Relax

Merge Request Conflict



Solution


Official GIT Repo
Local Work Copy
Fork on GIT Server
#6”
#5
#4
#3
#2
#1
#6
#6”
#5
#4
#3
#2
#1
#6
#6”
#5
#4
#3
#2
#1
Get the changed code
git fetch upstream
Apply the changes In working branch
git rebase upstream/master
Upload the code
Everything: git push myfork
Only one branch: git push myfork Issue_1
master
master
Issue_1
Issue_1