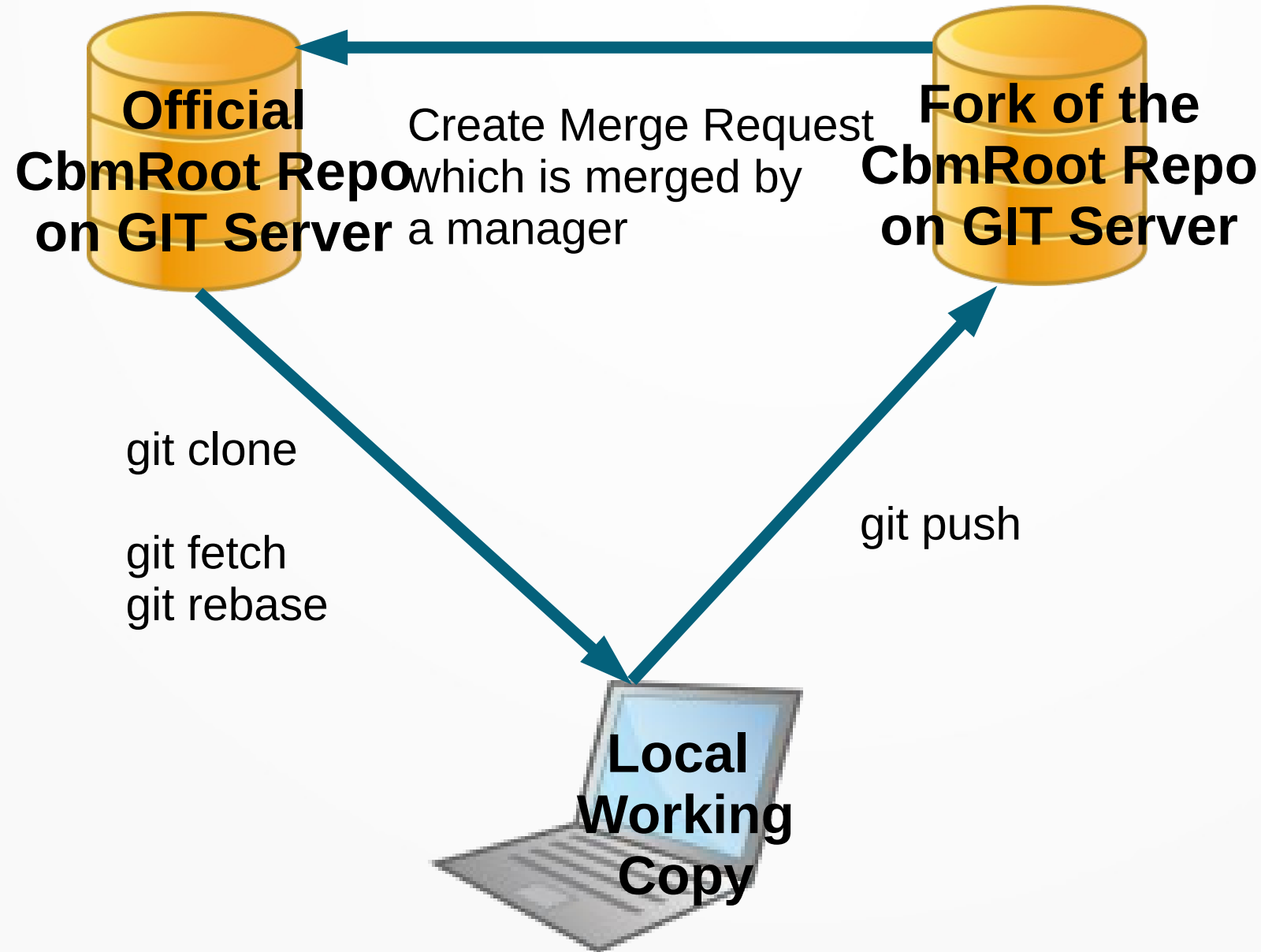


Merge Request Workflow in GitLab

Workflow For Developers

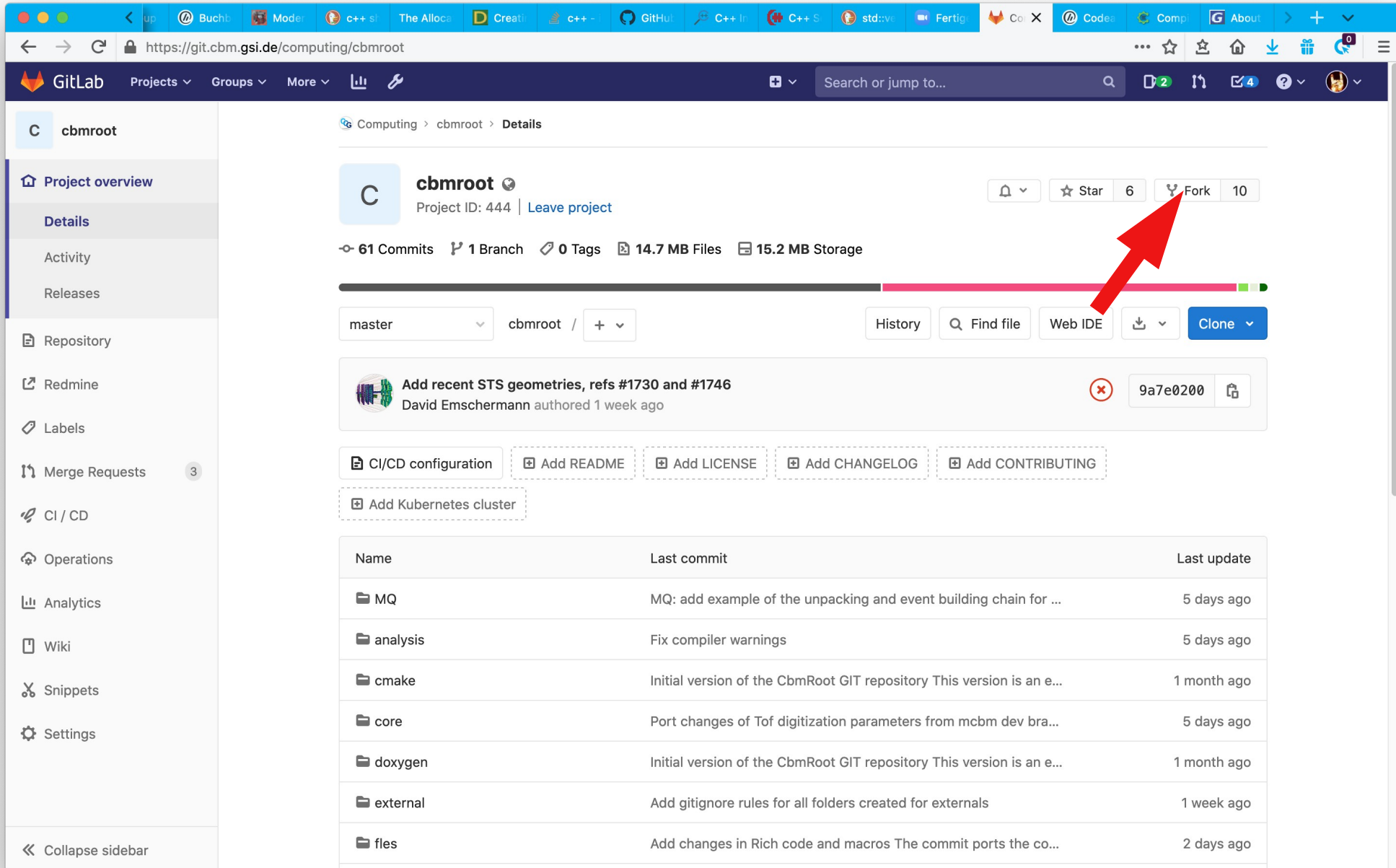
Final Picture



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

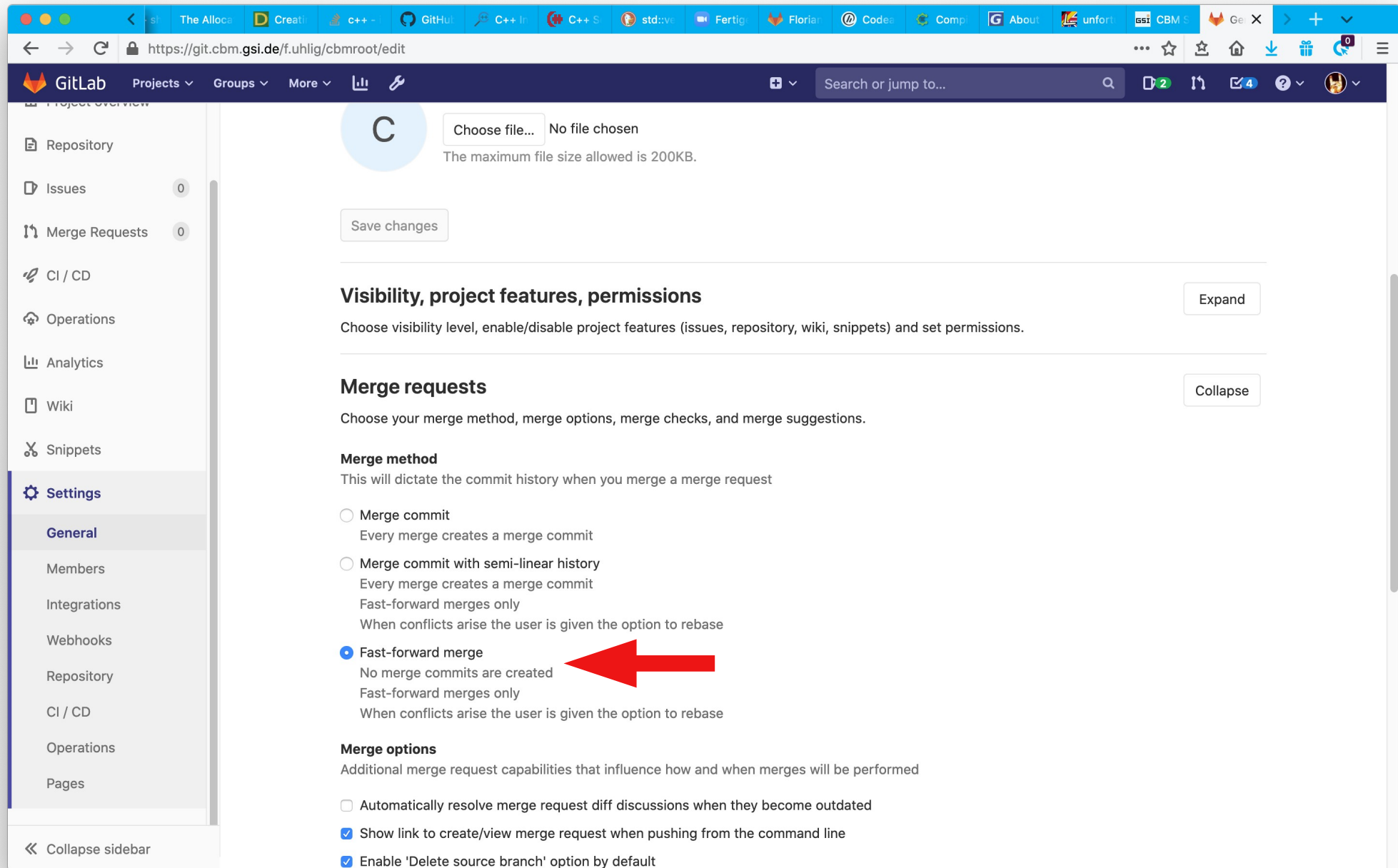
Fork The Repository



The screenshot shows the GitLab web interface for the 'cbmroot' repository. The left sidebar contains navigation links: Project overview, Details, Activity, Releases, Repository, Redmine, Labels, Merge Requests (3), CI / CD, Operations, Analytics, Wiki, Snippets, and Settings. The main content area displays the repository details for 'cbmroot' (Project ID: 444). It shows 61 Commits, 1 Branch, 0 Tags, 14.7 MB Files, and 15.2 MB Storage. A red arrow points to the 'Fork' button in the top right corner of the repository header. Below the repository header, there is a section for 'Add recent STS geometries, refs #1730 and #1746' by David Emschermann, authored 1 week ago, with a commit hash of 9a7e0200. Below this, there are buttons for 'CI/CD configuration', 'Add README', 'Add LICENSE', 'Add CHANGELOG', 'Add CONTRIBUTING', and 'Add Kubernetes cluster'. At the bottom, there is a table listing the repository's structure and recent commits.

Name	Last commit	Last update
MQ	MQ: add example of the unpacking and event building chain for ...	5 days ago
analysis	Fix compiler warnings	5 days ago
cmake	Initial version of the CbmRoot GIT repository This version is an e...	1 month ago
core	Port changes of Tof digitization parameters from mcbm dev bra...	5 days ago
doxygen	Initial version of the CbmRoot GIT repository This version is an e...	1 month ago
external	Add gitignore rules for all folders created for externals	1 week ago
files	Add changes in Rich code and macros The commit ports the co...	2 days ago

Choose the correct settings



The screenshot shows the GitLab web interface for a project named 'cbmroot'. The left sidebar contains navigation links: Repository, Issues, Merge Requests, CI / CD, Operations, Analytics, Wiki, Snippets, and Settings. The 'Settings' section is expanded, showing sub-sections: General, Members, Integrations, Webhooks, Repository, CI / CD, Operations, and Pages. The 'Merge requests' section is selected, displaying options for merge method and merge options. A red arrow points to the 'Fast-forward merge' option, which is selected.

Visibility, project features, permissions Expand

Choose visibility level, enable/disable project features (issues, repository, wiki, snippets) and set permissions.

Merge requests Collapse

Choose your merge method, merge options, merge checks, and merge suggestions.

Merge method

This will dictate the commit history when you merge a merge request

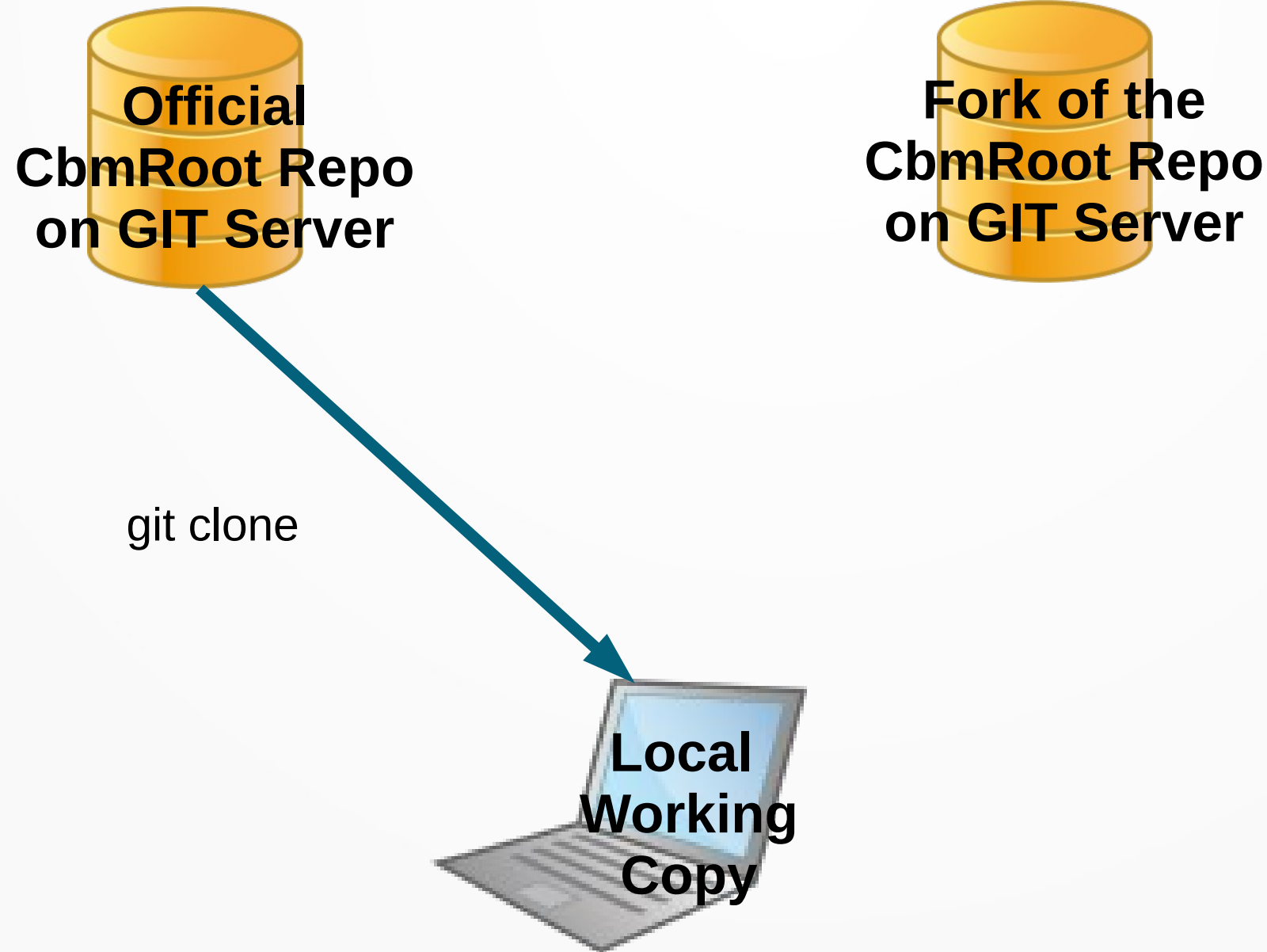
- ☐ Merge commit
Every merge creates a merge commit
- ☐ Merge commit with semi-linear history
Every merge creates a merge commit
Fast-forward merges only
When conflicts arise the user is given the option to rebase
- ☒ Fast-forward merge
No merge commits are created
Fast-forward merges only
When conflicts arise the user is given the option to rebase

Merge options

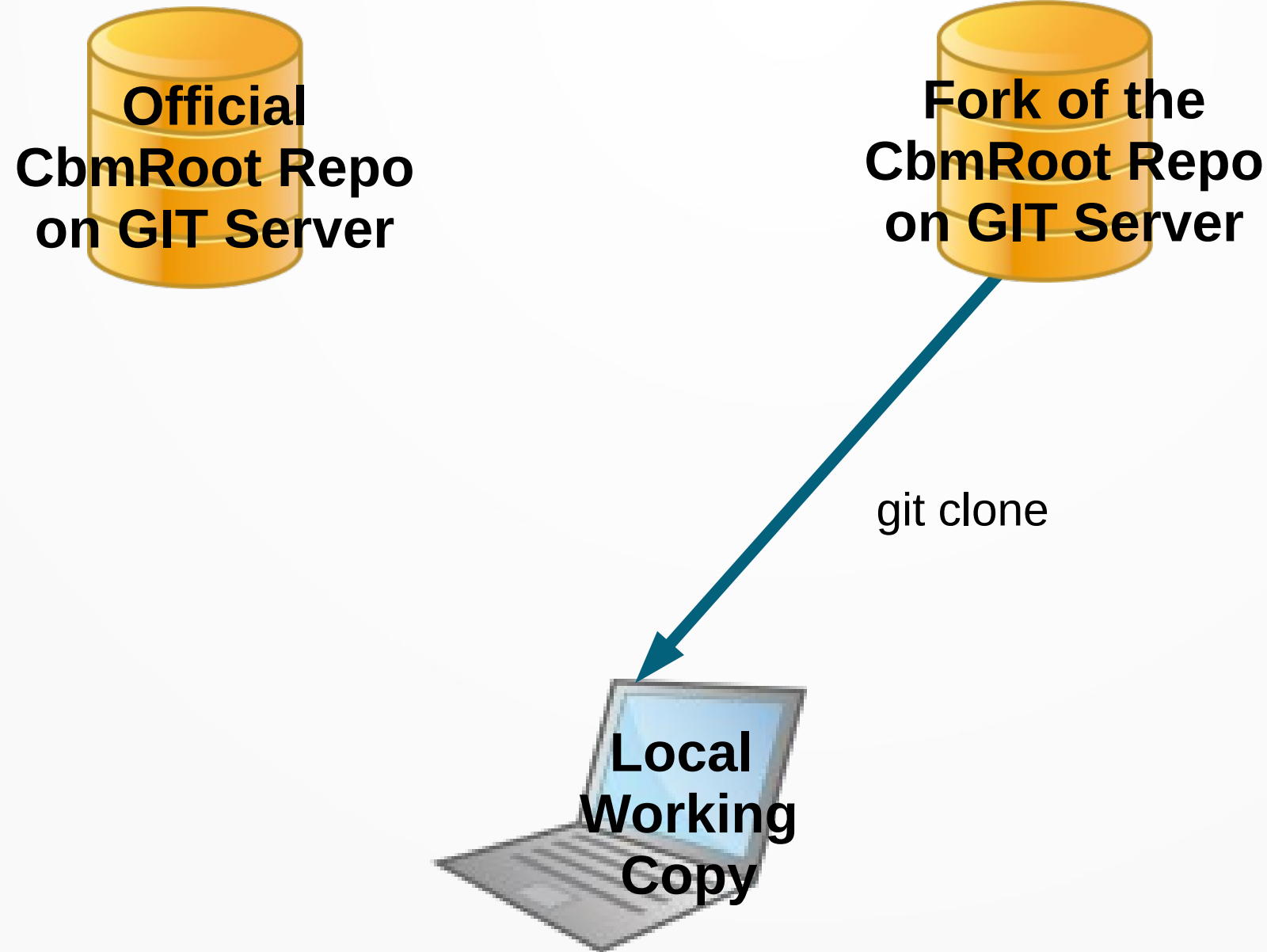
Additional merge request capabilities that influence how and when merges will be performed

- ☐ Automatically resolve merge request diff discussions when they become outdated
- ☒ Show link to create/view merge request when pushing from the command line
- ☒ Enable 'Delete source branch' option by default

After Creating the Fork



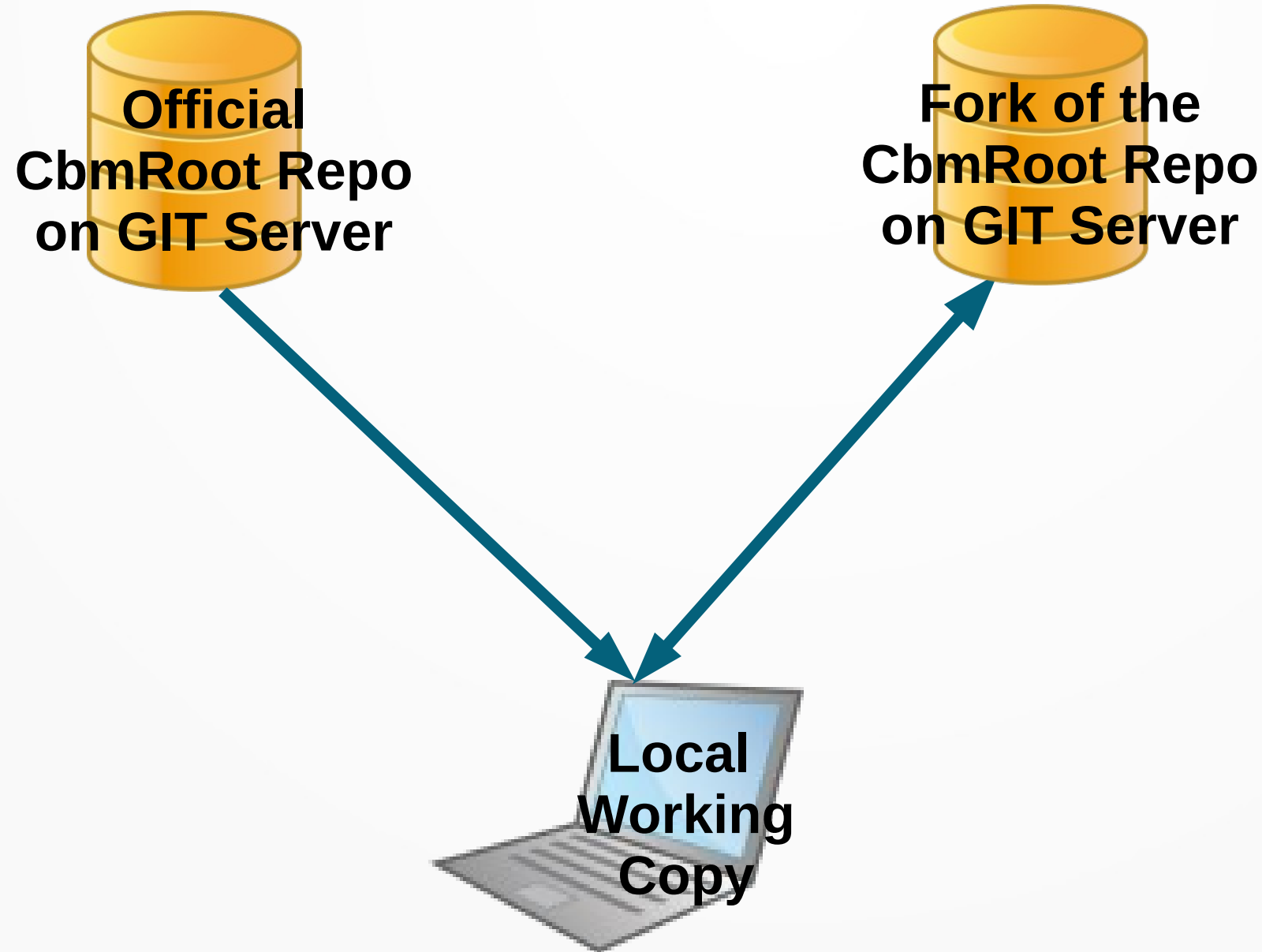
After Creating the Fork



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

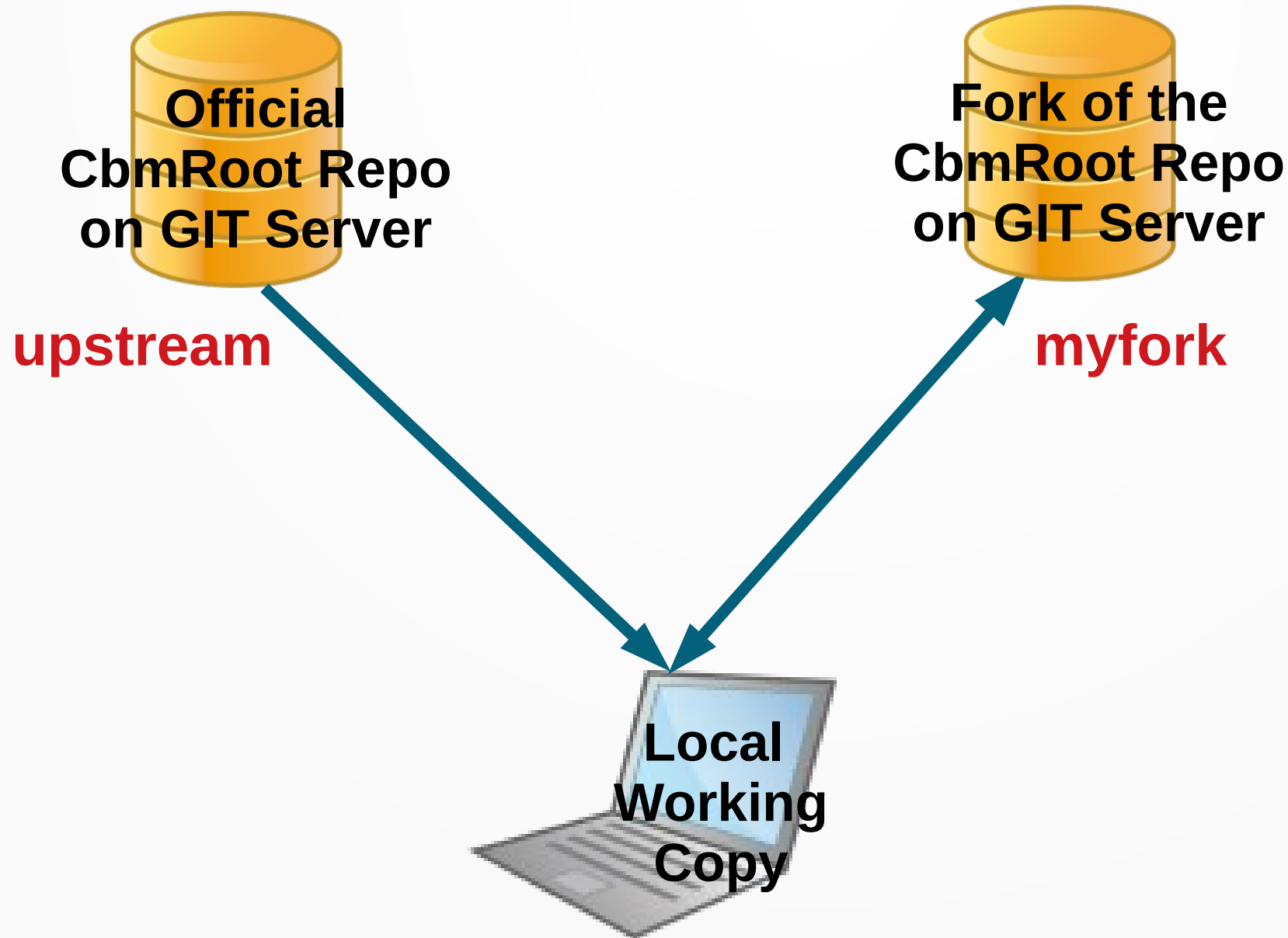
Connecting the Second Repository



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

#1

master

Get the code



git clone URL

**Local
Work
Copy**

#5

#4

#3

#2

#1

master

#6

#5

#4

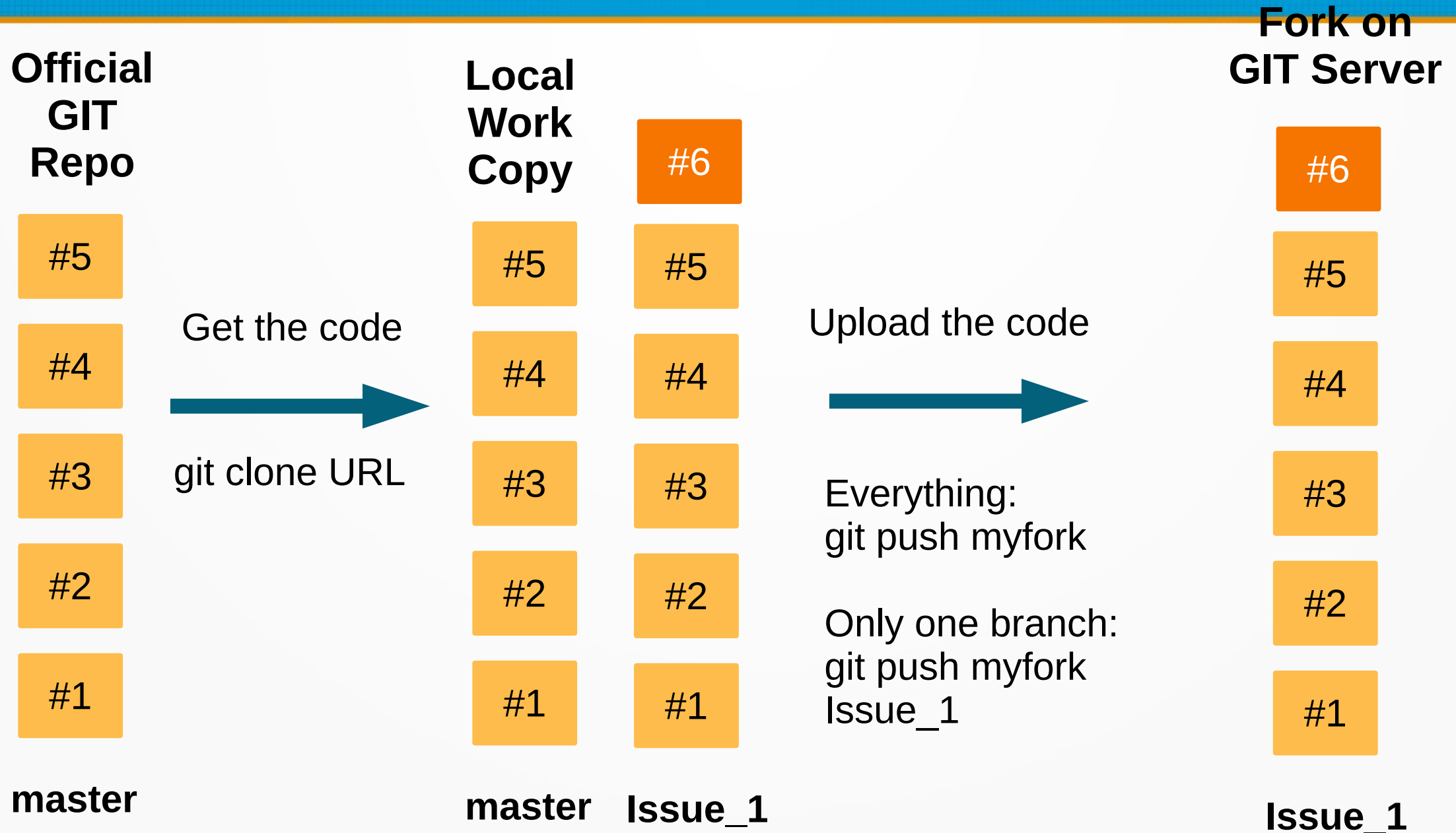
#3

#2

#1

Issue_1

Workflow



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"

GitLab Projects Groups More Search or jump to...

cbmroot

Project overview Details Activity Releases

Repository Issues 0 Merge Requests 0 CI / CD Operations Analytics Wiki Snippets Settings

Florian Uhlig > cbmroot > Details

You pushed to test1 at Florian Uhlig

cbmroot Project ID: 451

55 Commits 3 Branches

Forked from Computing / cbmroot

This project

- New issue
- New merge request
- New snippet

GitLab

- New project
- New group
- New snippet

MB Storage

Create merge request

master cbmroot / +

History Find file IDE Clone

Improve Continuous Integration Administrator authored 1 day ago

CI/CD configuration Add README Add LICENSE Add CHANGELOG Add CONTRIBUTING

Add Kubernetes cluster

Name	Last commit	Last update
MQ	MQ: add example of the unpacking and event building chain for ...	6 days ago
analysis	Fix compiler warnings	5 days ago
cmake	Initial version of the CbmRoot GIT repository This version is an e...	1 month ago
core	Port changes of ToF digitization parameters from mcbm dev bra...	5 days ago
doxygen	Initial version of the CbmRoot GIT repository This version is an e...	1 month ago

Merge Request

The screenshot shows the GitLab web interface for creating a new merge request. The browser address bar shows the URL `https://git.cbm.gsi.de/f.uhlig/cbmroot/-/merge_requests/new#`. The left sidebar contains navigation links: Project overview, Repository, Issues (0), Merge Requests (0), CI / CD, Operations, Analytics, Wiki, Snippets, and Settings. The main content area is titled 'New Merge Request' and includes the following elements:

- Source branch:** A dropdown menu showing 'f.uhlig/cbmroot' and a text input field containing 'test1'.
- Target branch:** A dropdown menu showing 'computing/cbmroot' and a text input field containing 'master'.
- Commit information:** A box showing a commit icon, the text 'Add empty lines for test purpose', 'Administrator authored 7 minutes ago', and a commit hash '18d2b28b' with a copy icon.
- Action button:** A green button labeled 'Compare branches and continue'.

Two red arrows originate from the bottom of the screen and point to specific elements:

- Arrow 1 points to the 'Target branch' dropdown menu.
- Arrow 2 points to the 'Compare branches and continue' button.

Numbered instructions are placed below the arrows:

1. Choose the correct branches
2. Compare branches And continue

Merge Request

The screenshot shows the 'New Merge Request' form in GitLab. The form is titled 'New Merge Request' and shows the source branch 'f.uhlig/cbmroot:test1' being merged into the target branch 'computing/cbmroot:master'. The form includes a 'Title' field with the value 'Test1', a 'Description' field with a placeholder 'Describe the goal of the changes and what reviewers should be aware of.', and a 'Submit merge request' button. Red arrows point from the text annotations to the 'Title' field, the 'Description' field, the 'Assignee' dropdown, and the 'Submit merge request' button.

GitLab Projects Groups More Search or jump to...

cbmroot

- Project overview
- Repository
- Issues 0
- Merge Requests 0
- CI / CD
- Operations
- Analytics
- Wiki
- Snippets
- Settings

Florian Uhlig > cbmroot > Merge Requests > New

New Merge Request

From f.uhlig/cbmroot:test1 into computing/cbmroot:master [Change branches](#)

Title

Start the title with **WIP:** to prevent a Work In Progress merge request from being merged before it's ready.
Add [description templates](#) to help your contributors communicate effectively!

Description Write Preview

Describe the goal of the changes and what reviewers should be aware of.

Markdown and quick actions are supported [Attach a file](#)

Assignee [Assign to me](#)

Milestone

Labels

Merge options ☒ Delete source branch when merge request is accepted.
☐ Squash commits when merge request is accepted. [?](#)

Contribution ☐ Allow commits from members who can merge to the target branch. [About this feature](#)

[Submit merge request](#) [Cancel](#)

Commits 2 **Changes 0**

09 Jul, 2020 1 commit

Add empty lines for test purpose
Administrator authored 14 minutes ago 18d2b28b [View](#)

08 Jul, 2020 1 commit

Implement automatic format checker [...](#)
Administrator authored 21 hours ago ca458acd [View](#)

A good title and description will help the reviewer

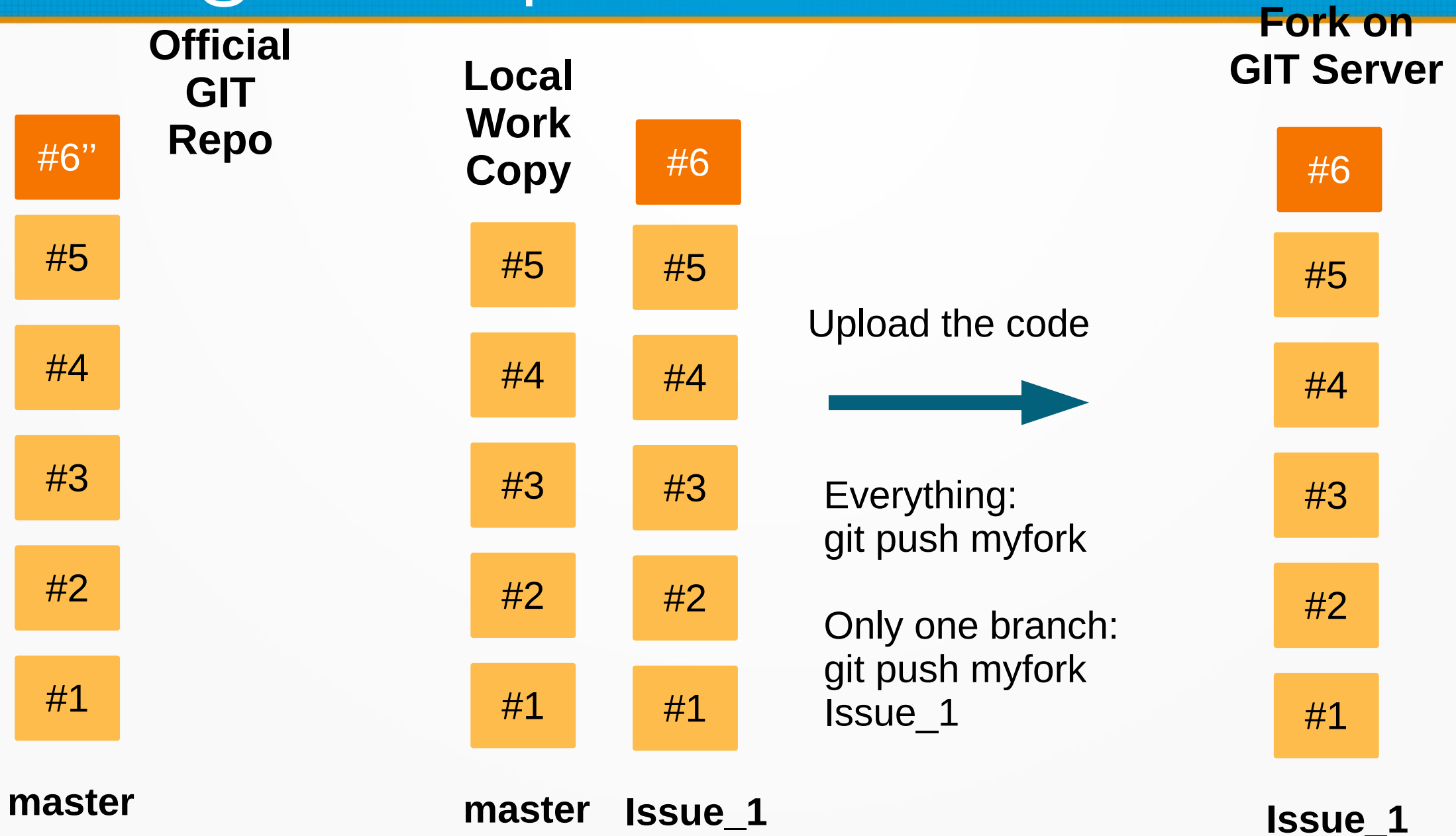
You may add a reviewer

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

