



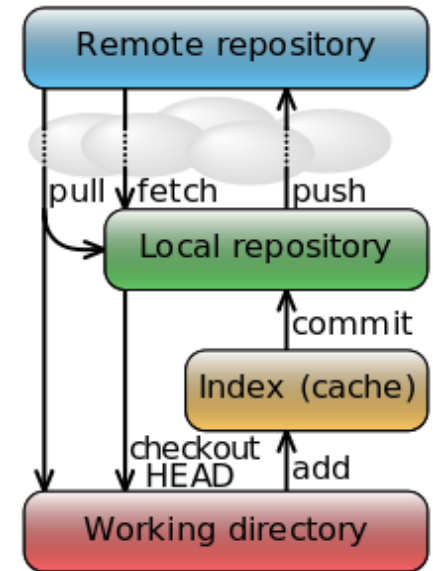
Git

"Git is just..... git ☺"

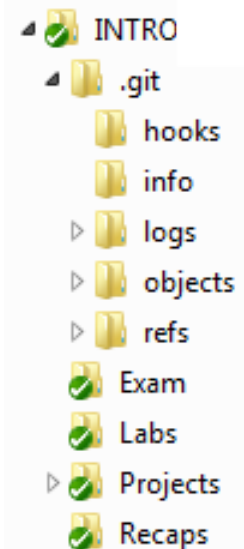
Prof. Erich Styger
erich.styger@hslu.ch
+41 41 349 33 01

About Git

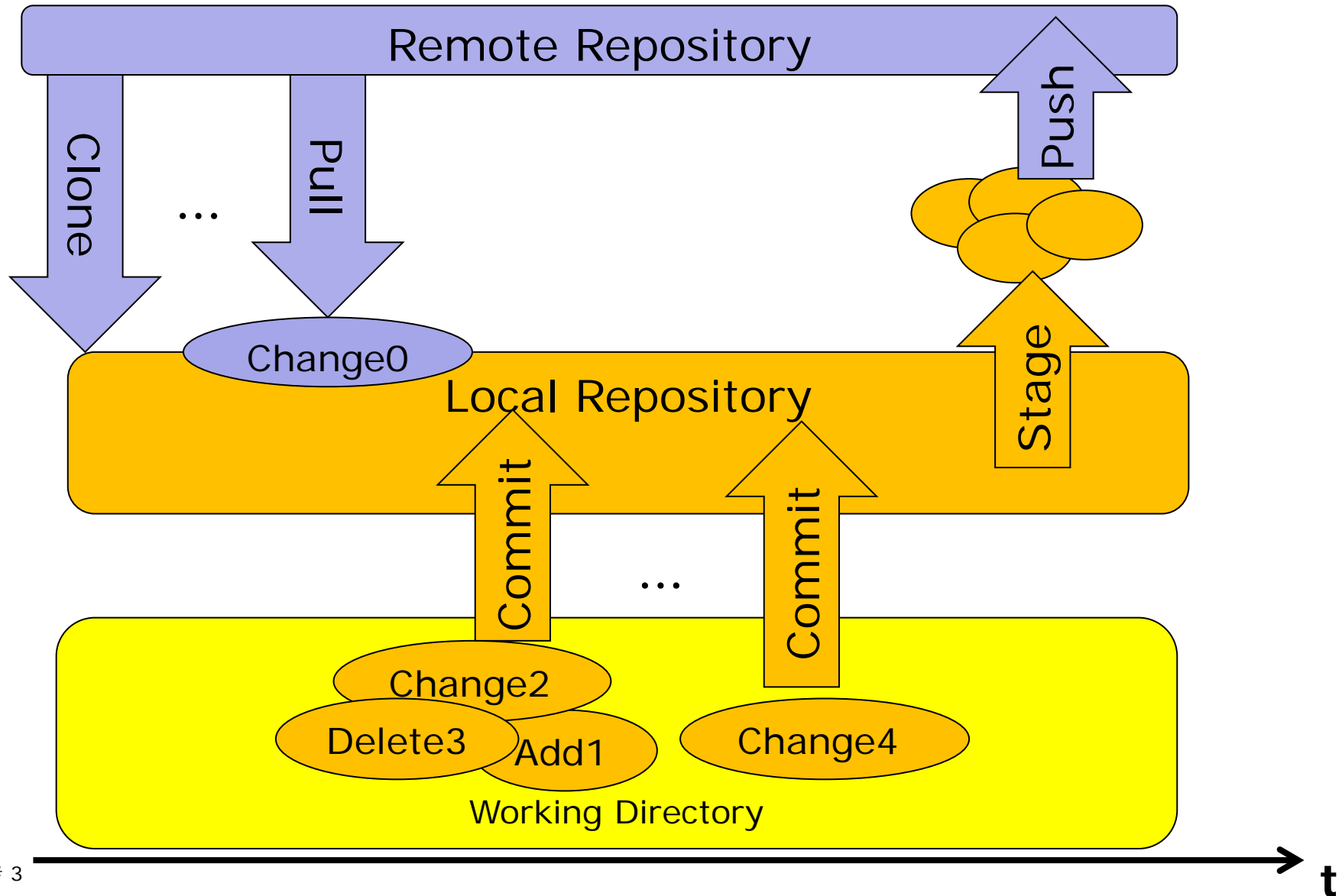
- By Linus Torvalds (GPL2)
- Local repository (.git, Metadata)
- Working tree: Files/Folders on .git level
- **Index**: collection of 'added' and file changes → staged
- **Staged** and unstaged files can co-exist
- 'commit': → .git/objects
- 'push'/'synch'
- SVN: revision numbers
- Git: SHA1 (160bit) hex numbers
 - 77f76087ddeb12d9005d6676a1d54085f232a32f



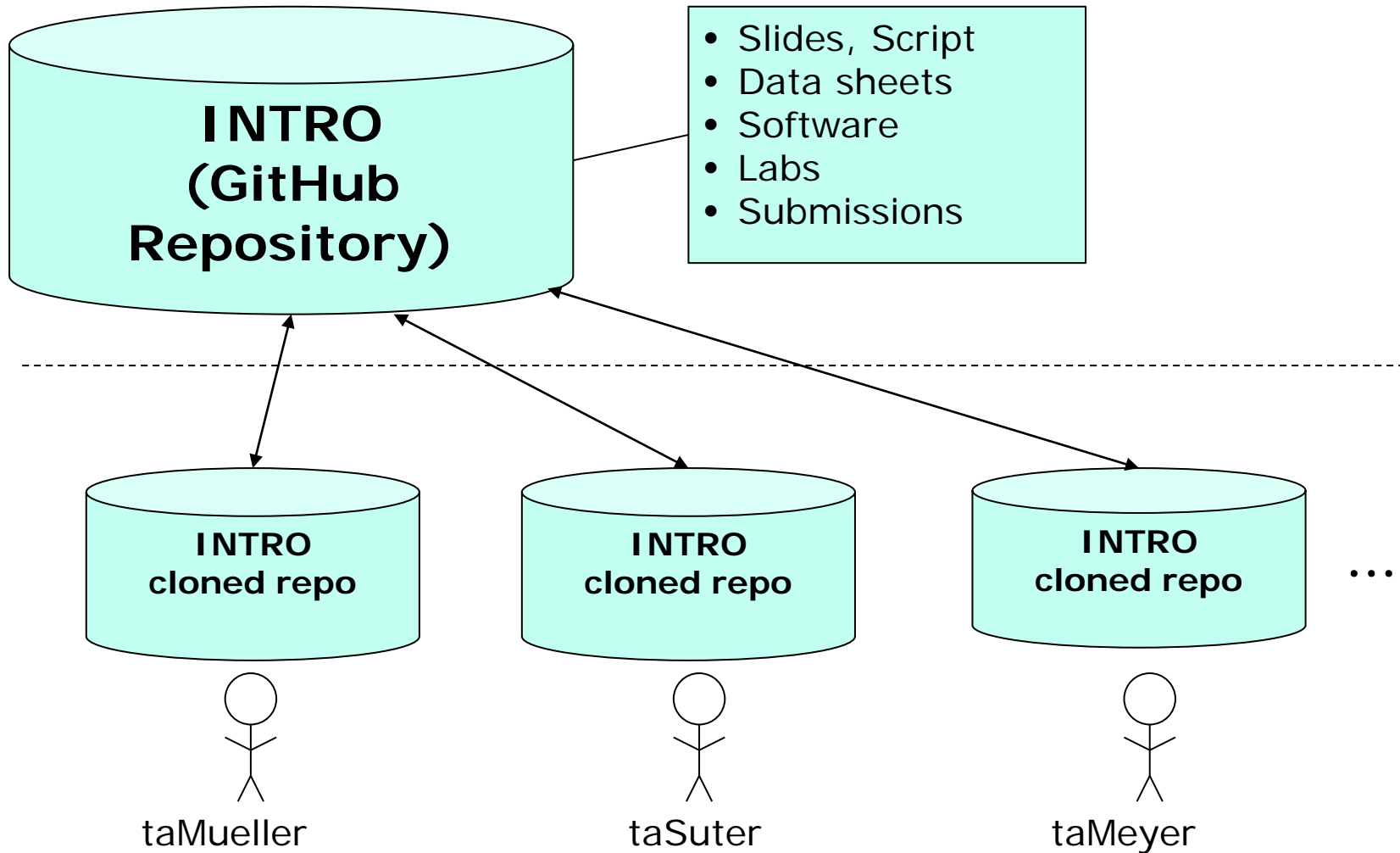
Source: Wikipedia



Typical Git Workflow

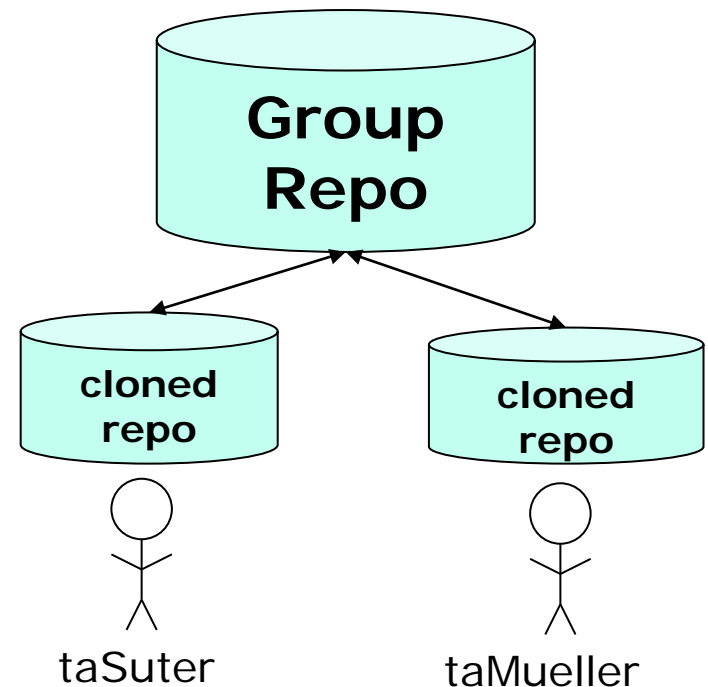


INTRO Git Setup



Group Repository Setup

- Public (free) or Private (paid) repo
 - Public
 - Everyone on the Internet can see it
 - Private
 - Owner controls access
- Your group account
 - Group repo on GitHub
 - Or: add Files to INTRO repo
 - Projects\Groups



Git Clients

- TortoiseGit
 - Explorer extension
 - Pros: easy for SVN users, good user interface, powerful
 - Cons: difficult password caching
- **eGit**
 - Eclipse plugin
 - Pros: development flow integration
 - Cons: only for 'simple' tasks
- **SourceTree**
 - Standalone application
 - Multiple Repositories in one view
- Many different clients available 😊



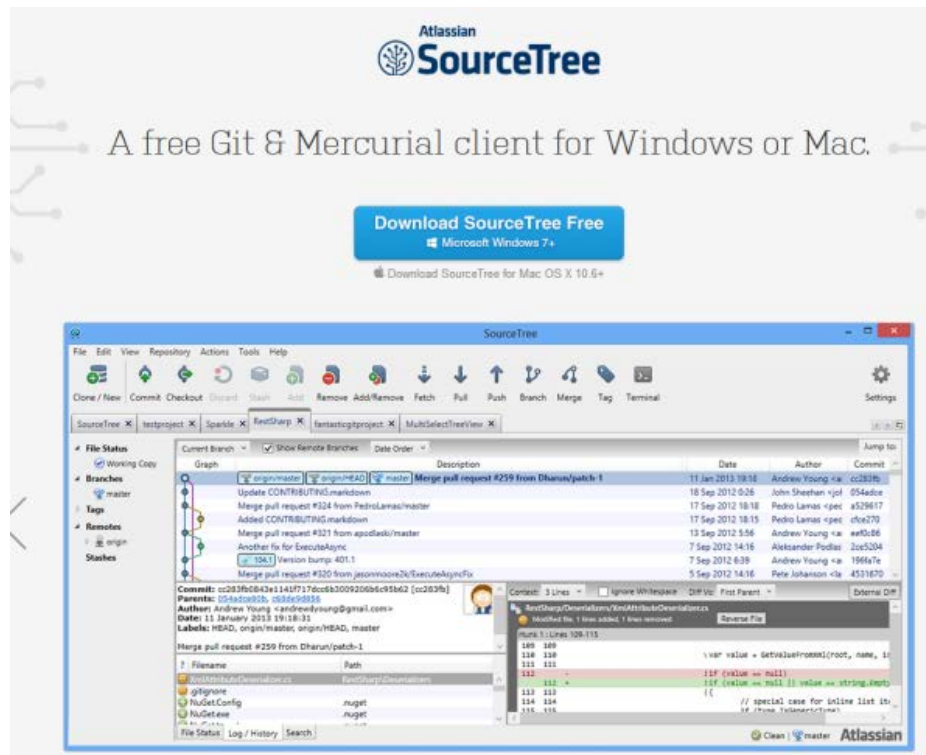
SourceTree

"A nice client would be nice."

Prof. Erich Styger
erich.styger@hslu.ch
+41 41 349 33 01

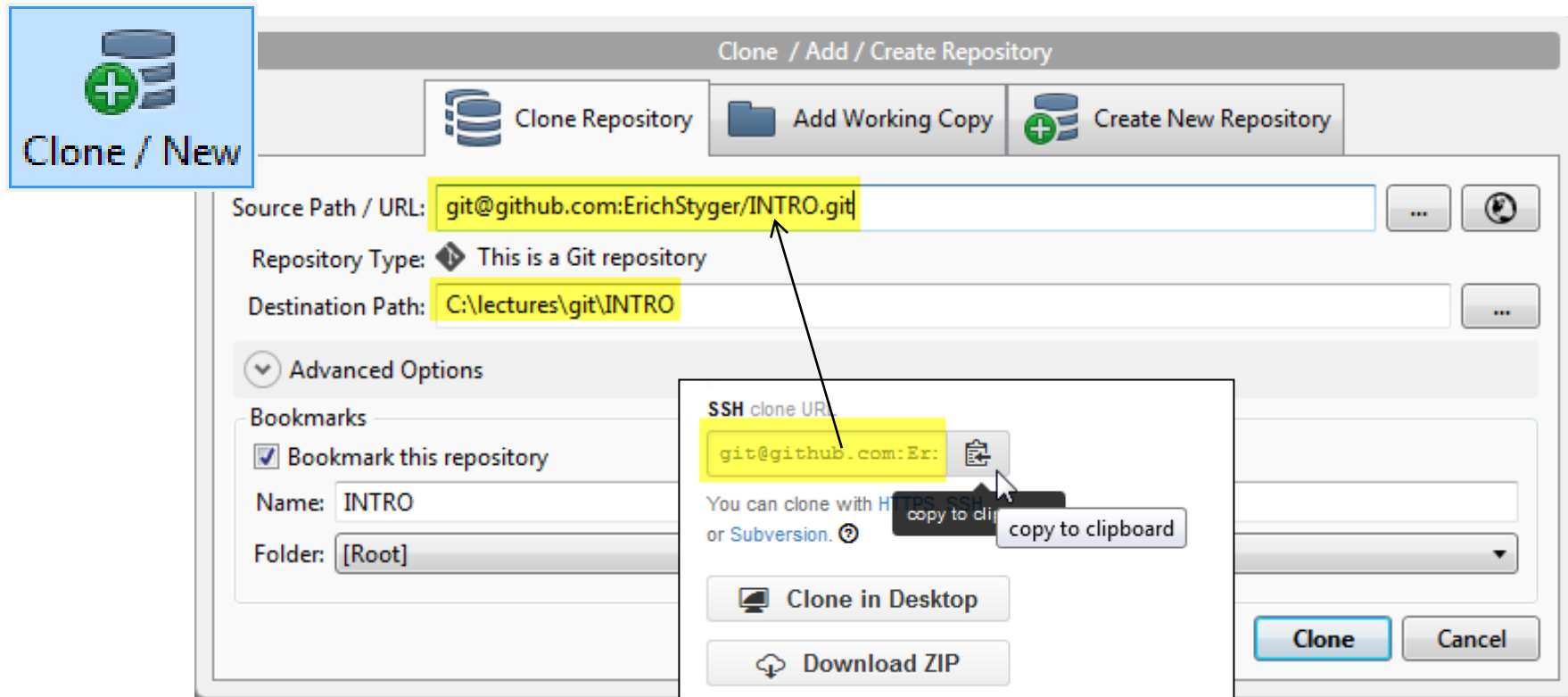
Installation

- Download latest version from web
- <https://www.atlassian.com/software/sourcetree/overview>
- <http://sourcetreeapp.com/>
- (free) registration required (reminder after 30 days)



Adding Repo in SourceTree

- Create folder where you want to have the local repo(s)
 - E.g. C:\Lectures\git\INTRO
- Clone Repo (File > Clone)
 - Copy URL from GitHub to Clipboard



Eclipse Workspace, Projects & Repos

- **Workspace**

- Contains Eclipse settings (.metadata folder)
 - Which projects, tabs, colors, windows, ...
 - List of projects
- Recommendation: name it e.g. 'wsp_Intro'

- **Project folders** can be 'anywhere'

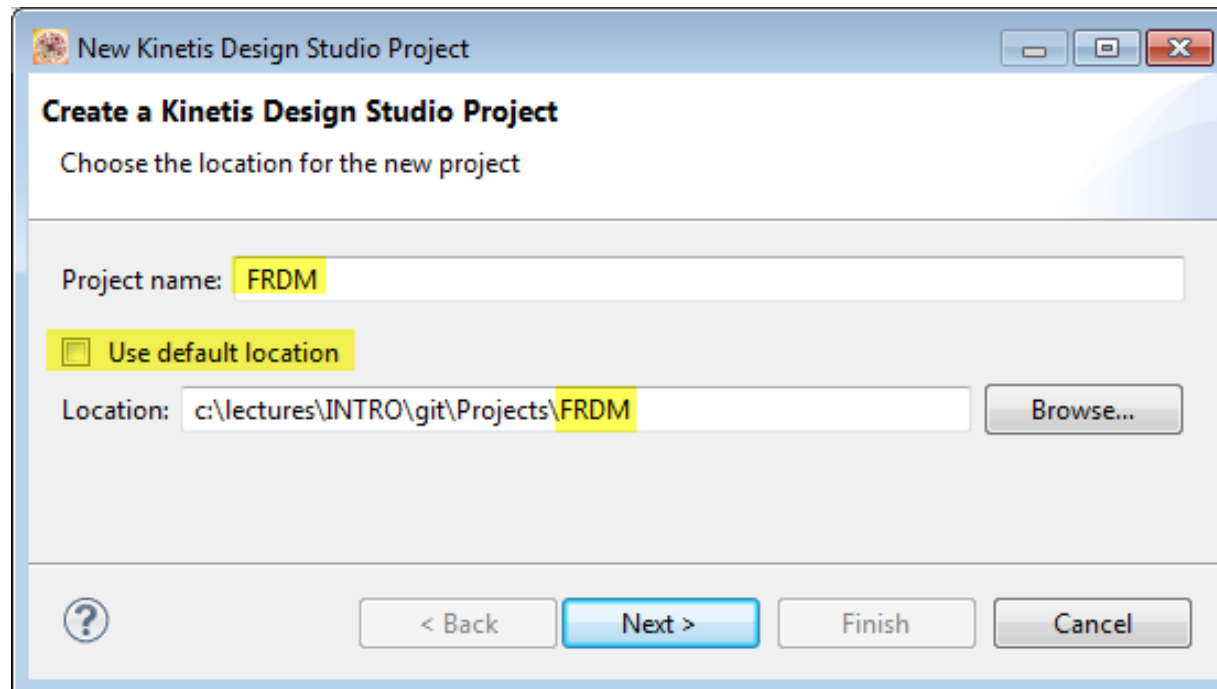
- By default, projects are created in workspace
- Recommendation: separate workspace and project folders, especially if working with version control systems

- Example:

- Projects in
 - C:\Lectures\INTRO\git\Projects
- Wsp in
 - C:\Lectures\INTRO\wsp_Intro

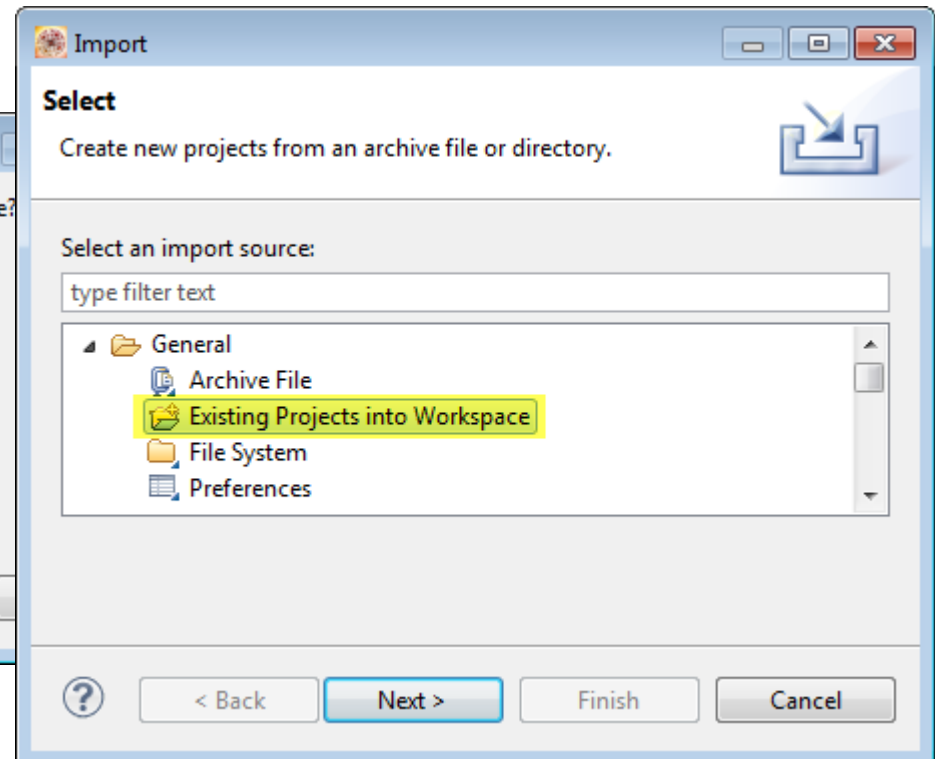
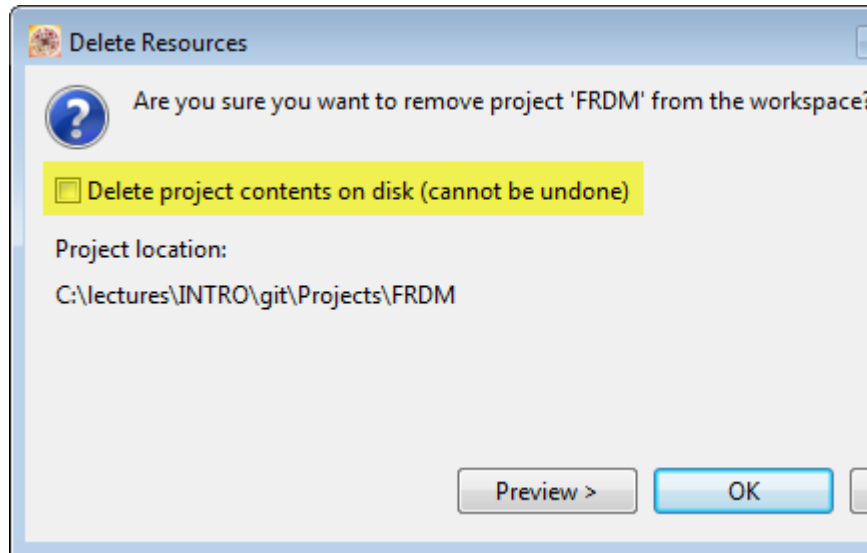
Eclipse Project Creation Outside Workspace

- Cannot create project in non-empty folder!
- Project Creation outside workspace
 - Give Project Name
 - Uncheck 'use default location'
 - Enter path with project name at the end
 - Will create project in that folder



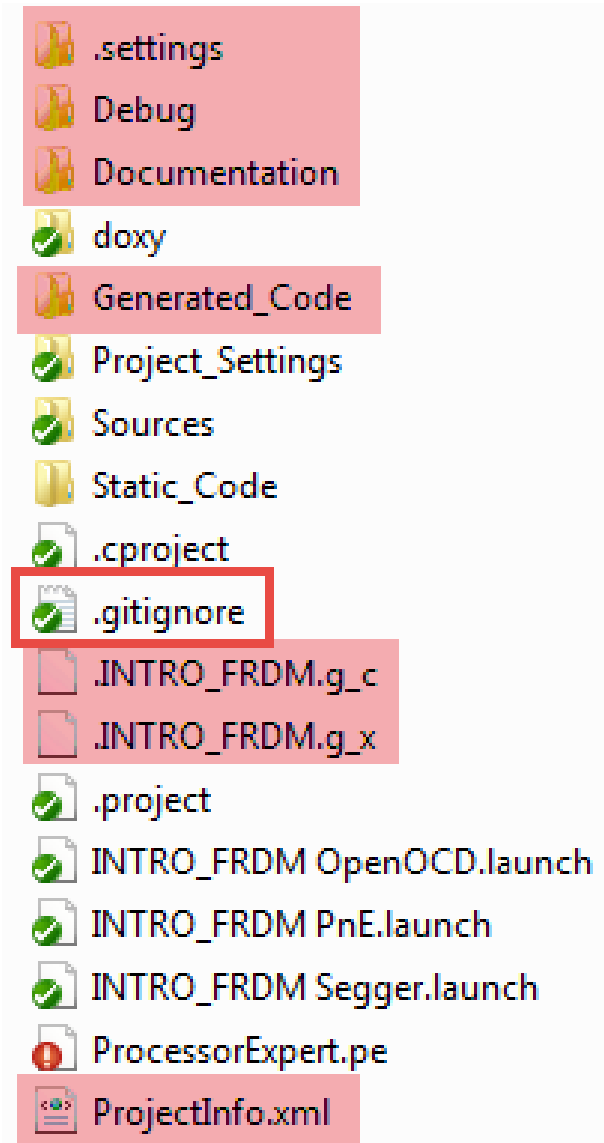
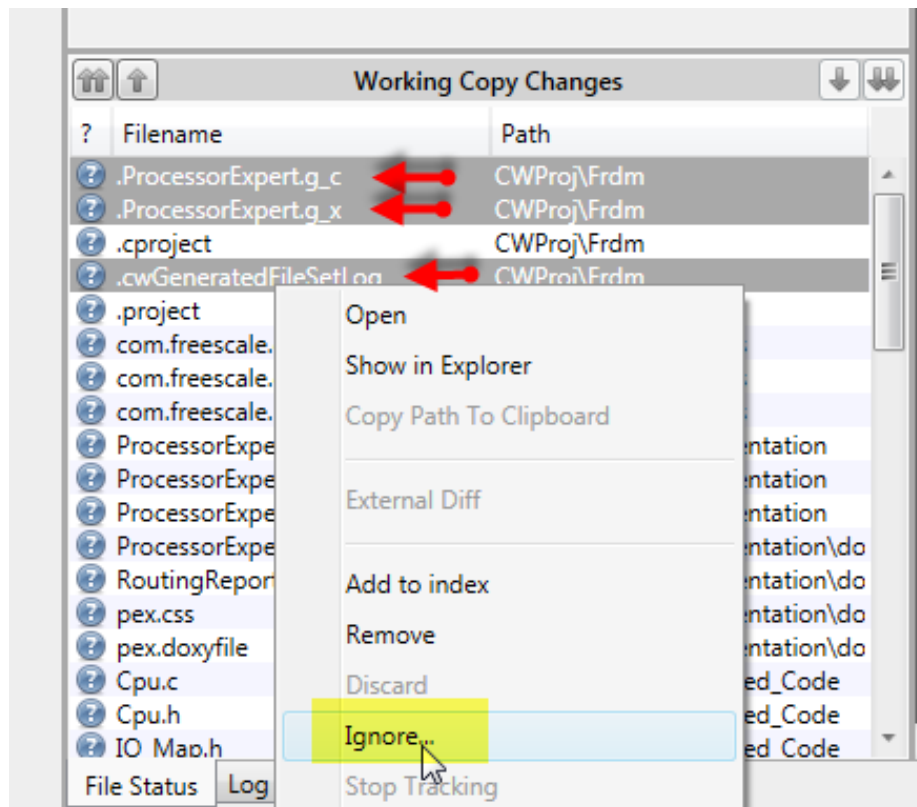
Eclipse Project Move (to Git Location)

- Delete project (but NOT from disk)
- Move project to git project folder
- Add Project again with *File > Import > General Existing Projects*



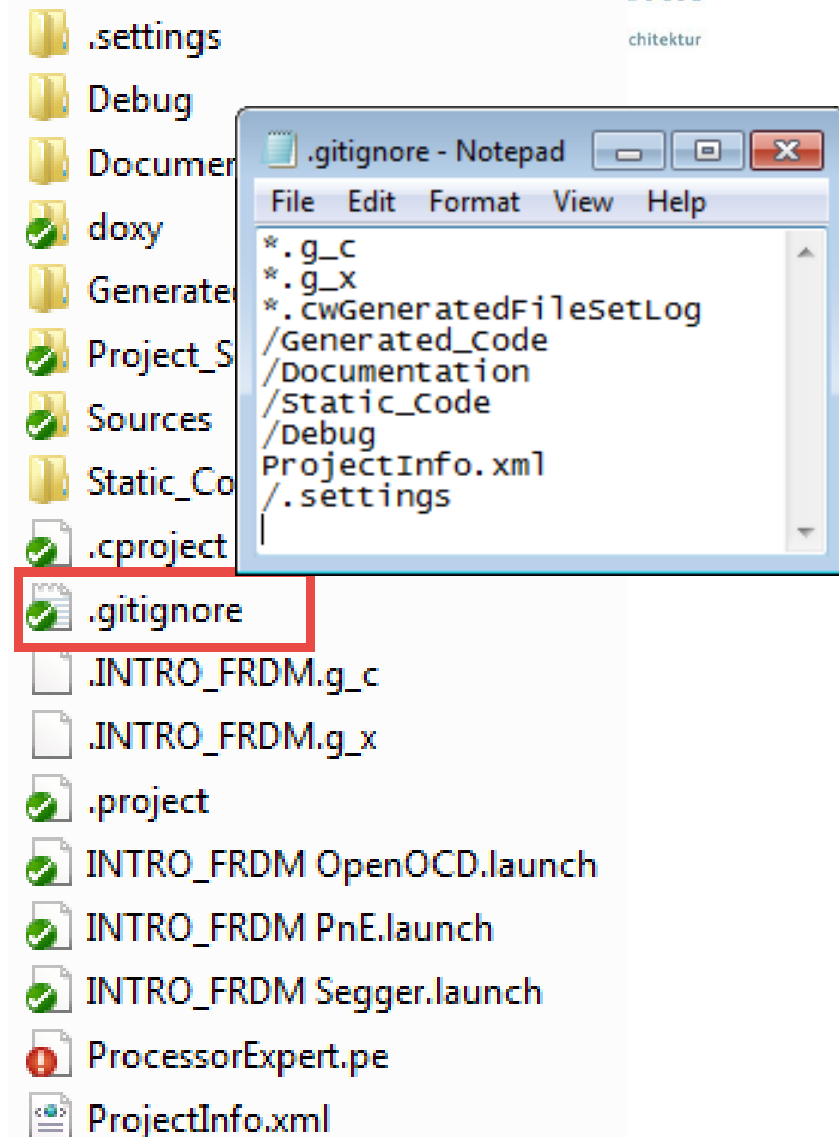
Ignoring Files

- Do NOT put derived files into VCS!
- Write .ignore file (copy existing)



Ignoring files

- **.gitignore** File ignores files and folders
- Multiple levels
 - Whole repository (root)
 - On Folder level (inside repository)
- Recommendation: .gitignore inside project
- Copy existing .gitignore
- NOTE: path in .gitignore file is **relative** to ignore file location



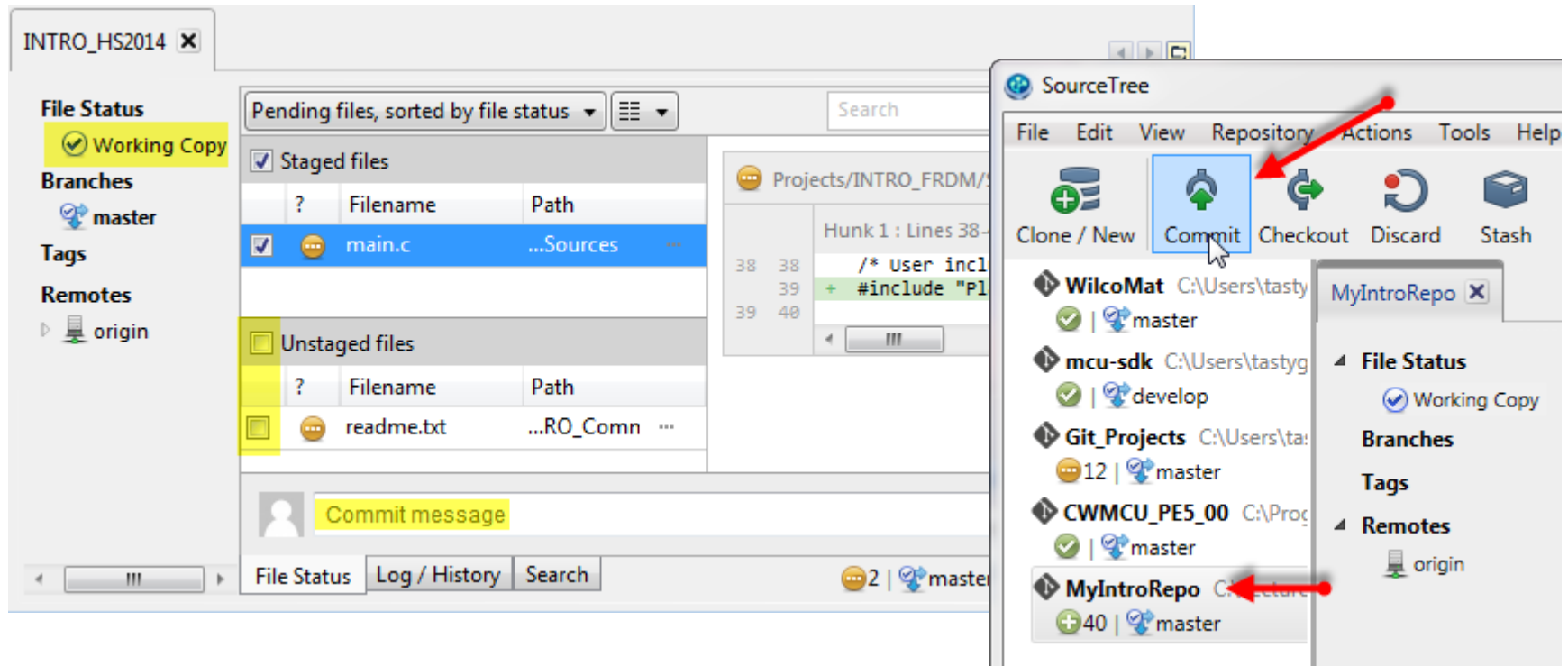
.gitignore Format

- Processed top to bottom
- Blank lines: ignored
- #: starts comment
 - # this is a comment
- Linie item: ignore file/folder/pattern
- !: negates the pattern
 - !/myFile.txt

```
# ignore generated code and all text files ...  
/Generated_Code  
/*.txt  
# ... except 'readme.txt'  
!/readme.txt
```

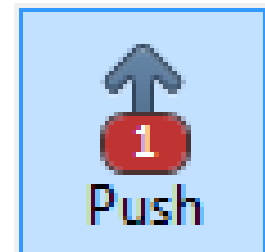
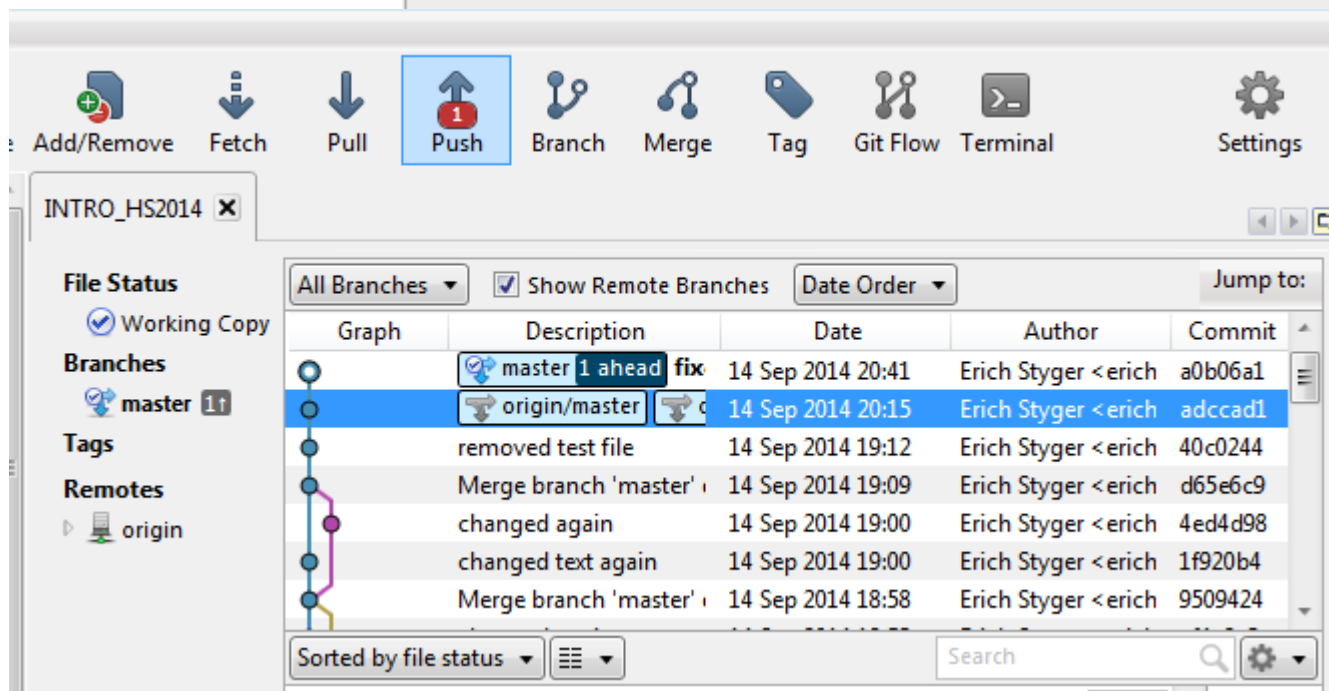
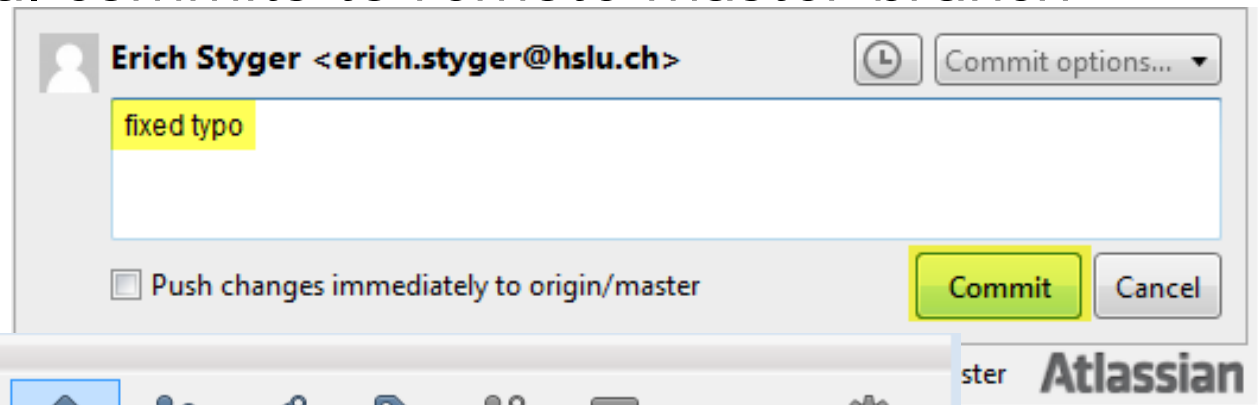

Staging & Commit (SourceTree)

- Select 'Working Copy'
- Stage Files: 'put them on the stage for commit'
- Check your files!!!!!!
- Commit with Commit message



Commit and Push

- Commit with useful message
- Then push local commits to remote master branch



Other Actions

- **Fetch**

- Get remote status information

- **Pull**

- Get remote updates

- **Discard/Revert**

- Undo a local change

- **Delete**

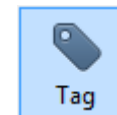
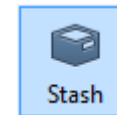
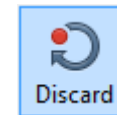
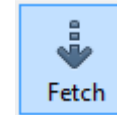
- Deletes a file from the index/disk

- **Stash**

- Save local changes away for later usage
- Restore state later

- **Tag**

- Mark with a label



Check: Can you do this?

- Do you need a server or not?
- Cloning repository into multiple/different folders?
- File committed, but should have been ignored?
- What if I have file deleted on disk?
 - Delete it in repository?
 - Undo deletion?
- File changed, but want to revert change?
- How to verify you have everything you need in repository?
- Find out what is the difference/change?
- How to resolve conflict?
- How to 'simulate' a conflict?

Lab: Git and SourceTree/eGit (45")

- Install SourceTree (Desktop Client)
- Install eGit (Eclipse Client)
- Clone INTRO repository
- Create your own git repository and clone it
 - Or use INTRO repository
- Move your wsp projects to git location
- Commit/Push to repository
- Get familiar with resolving conflicts/push/pull

