

Some GIT Basics

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September 23, 2022

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Introduction

MinGW Basics

Git

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- “Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency. ”
- Version control systems track changes to files and allow you to go back to earlier versions thus creating backups as well.
- Git is not the first or only available version control system (VCS): CVS, Bitbucket, and Subversion are wellknown
- Git was developed by the Linux creator Linus Torvalds to maintain the Linux kernel

Centralized versus Distributed VCS

- Subversion is a centralized vcs, it uses a central server. Only this server has the full history of all files
- All developers get special snapshots from this server.
- Backing up the server is essential!
- Git is a distributed vcs, so all clients (developers) have the complete repository on their machines.
- I personally used Subversion for a long time (and still use it for some projects) but mostly have migrated to Github.
- Github = a central platform where I can put my projects, but not the “central server” like with Subversion

Working with Git

In the following we will look at various use cases for working with Git

- Create new repositories¹
- Add files to the repository
- Making changes to the repository
-

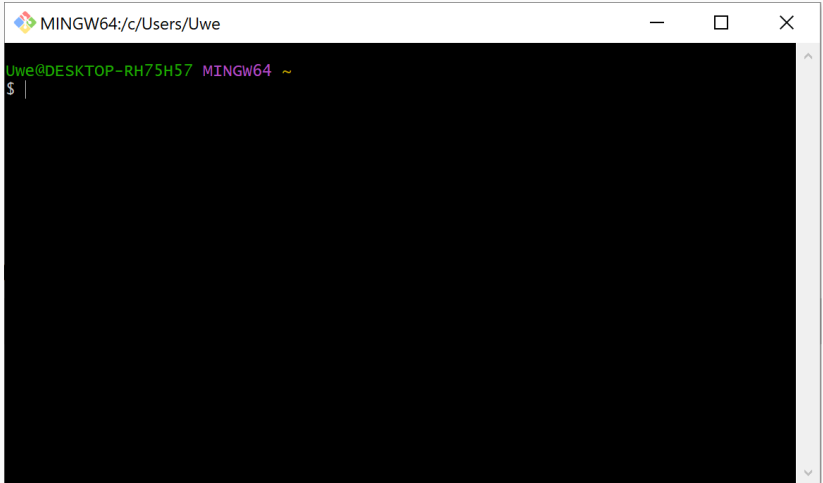
Remark: Git can be quite complex, normally you need only a few commands.

¹The project structure you manage with Git

MinGW Basics

Running Git

- You find Git 2.28 on your desktop
- When you start it you land here:

A screenshot of a MINGW64 terminal window. The title bar at the top shows the MINGW64 logo and the path "MINGW64:/c/Users/Uwe". The terminal area has a black background with green text. The prompt "Uwe@DESKTOP-RH75H57 MINGW64 ~" is displayed, followed by a green dollar sign "\$" and a vertical cursor bar. A vertical scrollbar is visible on the right side of the terminal window.

```
MINGW64:/c/Users/Uwe
Uwe@DESKTOP-RH75H57 MINGW64 ~
$ |
```


- MinGW = Minimal GNU² for Windows
- A shell that ports many Unix/Linux tools to Windows
- This is not Git, Git is just a commandline tool that can be used within MinGW
- It contains a few Linux tools as well
- To move in this MinGW environment you need to use Linux commands

²“GNU is not Unix” = Open-Source stuff

Basic MinGW commands

pwd In which directory are we?

ls List all files and folders

cd go to some specific directory

mkdir create a new directory

Remarks:

- There are no drive letters in MinGW
- / is the root directory
- Windows drive letters are (invisible) directories below this root directory
- so `cd /c` takes you to the `C:\` directory

Git

Create new Repositories

Create a directory, change to that directory and init the repository. The directory may already contains some files

```
cd /e # go to the e: drive

mkdir myfirstgitrepo # create empty directory

cd myfirstgitrepo # go to the directory

git init . # create repo (with a 'master' branch)
```

git status

Use `git status` whenever you want to know something about the current state of the repository

```
Uwe@DESKTOP MINGW64 /e/myfirstgitrepo (master)
$ git status
On branch master

No commits yet

nothing to commit (create/copy files and use
"git add" to track)
```