Git

Git is the version control software used in the workshop.

Installation

- Go to the following link and choose the correct version for your operating system: https://git-scm.com/downloads.
- Following the download, run the installer as per usual on your machine.
- Windows: You may leave all selection widgets at their default values.

Check installation

You can check that git has been succefully installed:

• Open a terminal/command prompt and type git. (Hit the [Enter] key to terminate the command entry.)

If git is installed then you should see the following:

```
(base) ~/rsc/rsd-workshop(prep-material-day-i x) git
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           <command> [<args>]
These are common Git commands used in various situations:
start a working area (see also: git help tutorial)
  clone
            Clone a repository into a new directory
            Create an empty Git repository or reinitialize an existing one
  init
work on the current change (see also: git help everyday)
            Add file contents to the index
  add
            Move or rename a file, a directory, or a symlink
  mν
  restore
            Restore working tree files
            Remove files from the working tree and from the index
examine the history and state (see also: git help revisions)
            Use binary search to find the commit that introduced a bug
  bisect
  diff
             Show changes between commits, commit and working tree, etc
             Print lines matching a pattern
  arep
  log
             Show commit logs
  show
             Show various types of objects
  status
            Show the working tree status
grow, mark and tweak your common history
            List, create, or delete branches
  branch
  commit
            Record changes to the repository
  merge
             Join two or more development histories together
            Reapply commits on top of another base tip
  rebase
  reset
             Reset current HEAD to the specified state
  switch
             Switch branches
             Create, list, delete or verify a tag object signed with GPG
  tag
collaborate (see also: git help workflows)
   fetch
            Download objects and refs from another repository
             Fetch from and integrate with another repository or a local branch
  pull
            Update remote refs along with associated objects
  push
'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system
```

Notes for Windows

In your Search bar, type git-bash and start the git-bash executable. This brings up a terminal window. If you cannot locate the git-bash launcher, go to "Start Menu -> Git -> Git Bash". You may want to create a shortcut on the Desktop or add it to the taskbar.





\$ git

and observe the output given above.

Python

This workshop uses Python as the example programming language, however, the ideas and principles covered extend and apply to any language.

To install Python we will use **Anaconda**. Anaconda is a python distribution (similar as how Ubuntu is a distribution of Linux). It bundles the python interpreter with numerous libraries, addons, and development environments such as jupyter.

Installation

- Go to the following link https://www.anaconda.com/download/ and select Python 3.
- Following the download, run the installer as per usual on your machine.

Windows users Below are some screenshots for installing anaconda under windows. Most importantly, select "Install for: Just me".

O Anaconda3 2020.11 (64-	Anaconda3 2020.11 (64-bit) Setup		_		\times
O ANACONDA.	Select Installation Please select the Anaconda3 2020.	on Type type of installatio 11 (64-bit).	n you would like	to perfor	m for
Install for: Just Me (recommended) All Users (requires admin) n privileges)				
Anaconda, Inc. ————		< Back	Next >	Canc	el

Next, accept the suggested installation path.

ANACONDA.	Choose Instal Choose the fol	I Location Ider in which to ins	tall Anacon	da3 20	20.11 (64	H-bit)
Setup will install Anaconda	3 2020. 11 (64-bit)) in the following f	older. To in	stall in a	a differen	t
folder, click Browse and se	lect another folde	r. Click Next to co	ntinue.			
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Finally, select "Add Anaconda3 to my PATH environment variable" despite the warning.

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Advanced Options Advanced Options Add Anaconda 3 t Not ecommended. If menu and select "An Anaconda get found cause problems requ Register Anacond This will allow other p PyCharm, Wing IDE, detect Anaconda as	o my PATH environment variable nstead, open Anaconda3 with the W aconda (64-bit)". This "add to PATH" before previously installed software, iring you to uninstall and reinstall Ana la3 as my default Python 3.8 rograms, such as Python Tools for W PyDev, and MSI binary packages, to the primary Python 3.8 on the system	indows Start option makes , but may aconda. isual Studio o automatically m.		
Anaconda, Inc. ————	< Back	Install •	Cano	el

Test your python installation

In a terminal window (windows: git-bash), enter the command

\$ python -c "import sys; print(sys.version)"



Editor

There are several editors that allow us to edit files such as python scripts, LaTex files etc. For this workhop the suggested editor is VS code.

If you prefer to use a different editor skip this part.

Installation

• Go to the following link https://code.visualstudio.com and click download.

Install python extension for VSCode

- Open VS code.
- Bring up the Extensions view by clicking on the Extensions icon in the Activity Bar on the side of VS Code.
- There type "Python" and select and install the first hit returned from the search.



GitLab

In this workshop, we will use GitLab, a code sharing service. The GWDG offers free GitLab accounts to all MPI employees. To interact with the code on GitLab, we will use git, the version control system.

To login to GitLab, use this website: https://gitlab.gwdg.de/users/sign_in. Use the tab titled "eMail-address", do not use the tab "Standard". Enter your email address and password into the login dialog of the eMail-address tab.

əb.gwdg.de/users/sign_in	
GitLab	
PROVIDED BY	eMail-address Standard
	eMail-address Username
FOR	Paseward
Niedersachsen	Password
GEORG-AUGUST-UNIVERSITÄT	Remember me
	Sign in
How can Luca Citl ah?	Sign in with
now call i use GitLaD?	AcademicID
The following user groups can login directly to GitLab by entering their email address and password into the login dialog of the eMail-address tab	C Remember me

- Students and employees of the all Universities in Niedersachsen
- Employees of the Max Planck Society who work at institutes connected to GWDG Identity Management

Please do not use the Standard tab to login.

Check list

- \Box Python
- \Box Git
- $\hfill\square$ VS code (or any other editor)
- \Box GitLab