**g**1t

# **Self** Hosted Git

UMD Homelab Club Meeting 2025/02/17

## https://git-scm.com/

Version control - tracking, organizing, managing changes to a project (solo or collaboratively)

What is git?

What is GitHub?

# Online software development platform that uses git for version control, and provides many other additional features.

https://github.com/

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## GitHub Example:

→ GitHub Pages used to build the club's website

https://suddenlysixam.club/

# UMD Homelab Club	meetings upcoming_meetings	/ 2025-02-17-meeting.md		æ		
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Why use git in general?

- Version control & history
  - See when changes were made and by who
  - Rollback to previous versions
- Backup & disaster recovery (DR)
- Collaboration or multi-device (multiple working copies)
   Team workflows / approval processes
- etc.

Why self host?

- Services like GitHub may be paid (or paid for additional features or resources
- Control your own data & who can access it
- Local homelab services can access without general access to the internet

# Let's get git set up on the Raspberry Pi!

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Install packages:

# sudo apt update sudo apt upgrade

## sudo apt install git

(Note: git should already be installed, but we should make sure! (Note: if you run into problems, make sure your internet connection is working properly, and then check the next slide)

#### (If needed) Time setup:

Note - if your time is not syncing like mine was, stop and start NTP:

sudo timedatectl set-ntp False
timedatectl status
sudo timedatectl set-ntp True
timedatectl status

Ensure the time is correct, then go back and retry the previous commands

Enable SSH:

#### sudo raspi-config

#### Arrow key to '3 Interface Options' and hit Enter

#### Arrow key to 'I1 SSH' and hit Enter

#### Arrow key to 'Yes' and hit Enter

(Note: You can also do this through the Preferences menu under 'Raspberry Pi Configuration') (Note: There are other protocols that you can use other than SSH if you want - more info at <u>https://qit-scm.com/book/en/v2/Git-on-the-Server-The-Protocols</u>) (See also: the Remote Access presentation for how you would access this away from home)

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Set up the repo:

# mkdir -p ~/devel/test-repo cd ~/devel/test-repo git init --bare

(Note: *pwd* and <del>ls</del> are also helpful commands here just to see what we are doing) (Note: The -*p* flag creates any intermediate directories as required) (Note: You can choose a different directory path, I have chosen to put this under ~/devel/ for this demo.)

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Find IP address:

# Find the pi's IP address: ifconfig

(Note: we are looking for the IP address for its ethernet or wifi connection, e.g. eth0)

```
git setup:
```

#### On a different device:

### (move to or make a directory for the repo, method depends on OS)

git init
git remote add test-repo <username>@<pi-ip>:~/devel/test-repo
git remote -v

(Note: make sure you substitute the values in <> with the appropriate ones based on your setup)
(Note: you can also use this repository locally on the same device - this demonstration is adding the
additional step of accessing it on a different device)
(Note: There are other protocols that you can use other than SSH if you want - more info at
https://git-scm.com/book/en/v2/Git-on-the-Server-The-Protocols)

git setup:

### Still on a different device:

vi test.txt

(Add any text you want, save & quit)

git status git add test.txt git commit -m "My first commit" git push test-repo master

(Note: if you run into access trouble, make sure you have correctly enabled SSH) (Note: if you run into other problems, make sure you check the next slide)

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git setup:

If you have never used git before on the device you are pushing from, and run into problems, you may need to configure git

git config --global user.name "<Name>"
git config --global user.email "<email>"

(Note: make sure you substitute the values in <> with the appropriate ones based on your setup)

git setup:

### Still on a different device:

# (We can create a different folder to test that it is working)

#### git clone <username>@<pi-ip>:~/devel/test-repo

(Note: if you run into access trouble, make sure you have correctly enabled SSH) (Note: There are other protocols that you can use other than SSH if you want - more info at <u>https://git-scm.com/book/en/v2/Git-on-the-Server-The-Protocols</u>)

#### Some GUI options - there are many more!:







#### GitLab

https://about.gitlab.com/

#### Gitea

#### https://about.gitea.com/

GitBucket

https://gitbucket.github.io/

## Let's briefly demo Gitea on the Raspberry Pi

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Install Docker:

### Install docker via the apt repository:

#### https://docs.docker.com/engine/install/debian/ #install-using-the-repository

(Note: If you are using Raspberry Pi OS (64-bit) like we are, you will need to use the Debian instructions as linked above, and not the Raspberry Pi OS (32-bit) instructions. You will also need to substitute in the OS version as described in the steps, which you can find on the pi by running *hostnamectl*) (Note: If you are running a different OS or version, follow that OS's instructions)

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Configure Gitea:

sudo mkdir -p /opt/stacks/gitea/ cd /opt/stacks/gitea sudo vi compose.yaml

#### Configure Gitea:

services:

- server: image: gitea/gitea:latest container\_name: gitea environment:
  - USER\_UID=1000
  - USER\_GID=1000
  - GITEA\_\_database\_\_DB\_TYPE=mysql
  - GITEA\_\_database\_\_HOST=db:3306
  - GITEA\_\_database\_\_NAME=gitea
  - GITEA\_\_database\_\_USER=gitea
- GITEA\_\_database\_\_PASSWD=gitea restart: always

networks:

- gitea

volumes:

- ./gitea:/data
- /etc/timezone:/etc/timezone:ro
- /etc/localtime:/etc/localtime:ro

ports:

- "3000:3000"
- "222:22"

depends\_on:

- db

db :

- image: mysql:8
  restart: always
  environment:
  - MYSQL\_ROOT\_PASSWORD=gitea
- MYSQL\_USER=gitea
- MYSQL\_PASSWORD=gitea
- MYSQL\_DATABASE=gitea

networks:

- gitea volumes:
- ./mysql:/var/lib/mysql

networks: gitea:

external: false

For copy & paste-ability: <a href="https://suddenlysixam.club/meetings/upcoming\_meetings/2025-02-17-meeting.html">https://suddenlysixam.club/meetings/upcoming\_meetings/2025-02-17-meeting.html</a>

(Note: normally you would want to do some additional configuration here, such as changing the username and password. We are not for the sake of this demo)

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Configure Gitea:

### sudo docker compose up -d

Navigate to http://localhost:3000 in a web
browser - create a user & configure as you
wish!

## Thank you!

## Don't forget to join the Discord!

https://discord.gg/H6MsBwSTwZ

