Edinburgh Napier
UNIVERSITY

GIT

Dr Simon Wells
s.wells@napier.ac.uk
http://www.simonwells.org

TL/DR

Edinburgh Napier UNIVERSITY

- The appropriate place to store code is in a source code repository managed by appropriate tools. Git is such a s set of tools for managing (Git) source code repositories.

Edinburgh Napier UNIVERSITY

AIMS

- At the end of this (sub-section) of the topic you will:
  - Understand Git a little better :D
  - Perhaps be a more effective user of Git on account of the above.

Edinburgh Napier
UNIVERSITY

OVERVIEW

- What Git is
- Making a local clone
- Making Changes & updating the local repository
- Pushing local changes to a remote repository
- Pulling changes from a remote repository to your local repo.

Edinburgh Napier UNIVERSITY

GIT

- A **distributed, version control system** (free software, GPL2)
- Works well on any kind of text file (but particularly focussed on source code & textual development artefacts)
- Invented (2005) by the same guy that invented Linux (to manage the Linux Kernel source code)
- Does a lot, but:
  - tracks changes to files, & lets you return to any historical point in your development
  - distribution - hand in assignments, collaborate with others (e.g. team project)
  - backup - you don't want to lose your work before the deadline
  - portfolio - can make your work public & demonstrate a professional skill

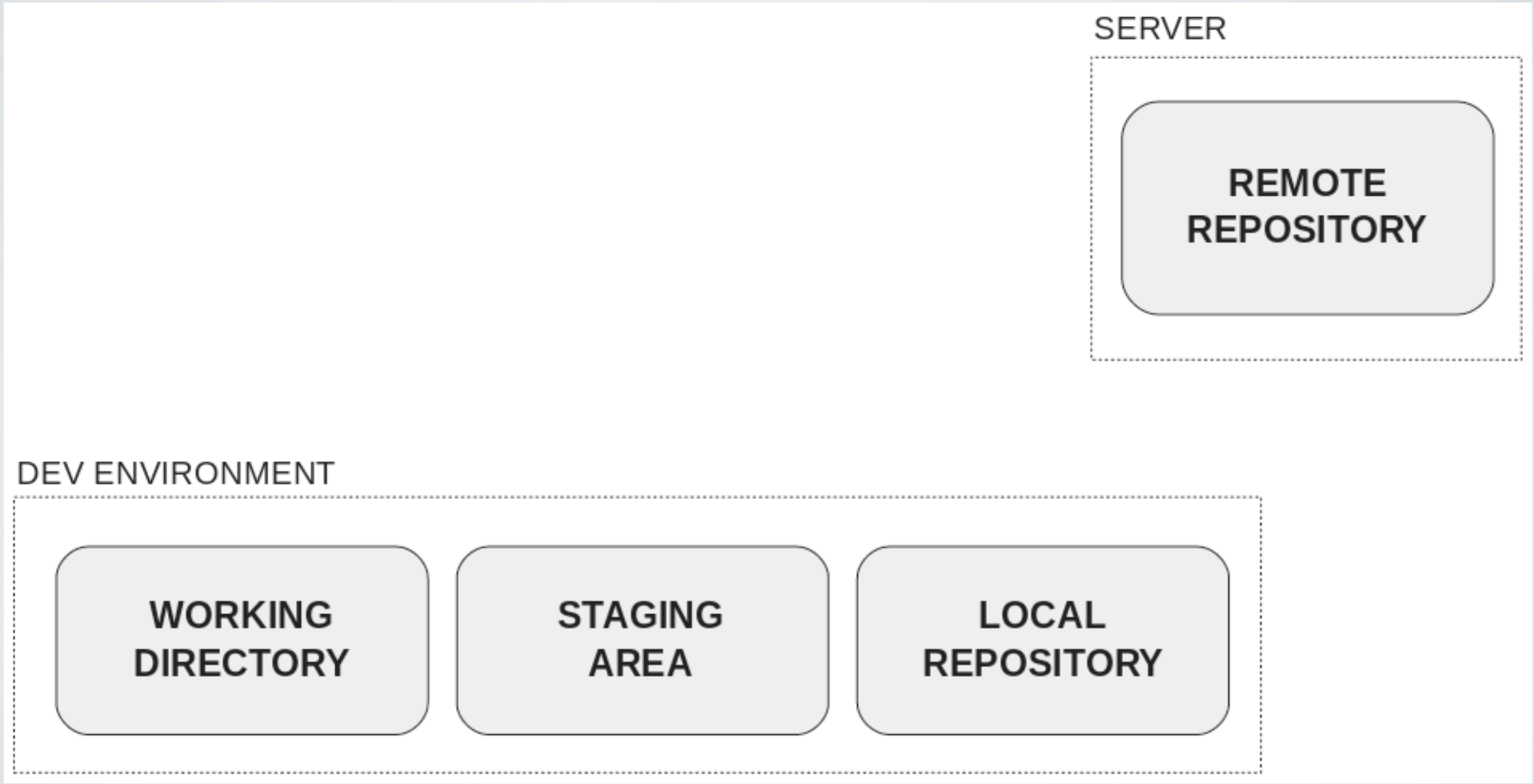
Edinburgh Napier UNIVERSITY

GIT REPOSITORIES

- A folder (& it's children) containing
  - source code (working branch)
  - Git configuration information (in hidden files)
  - The entire history of commits (hidden but accessible via Git commands)
  - Possibly many more branches (copies of your files so you can test different approaches/enhancements)
  - There is no primary repository, every clone, whether local or remote is a full Git repository and can be the source for new development

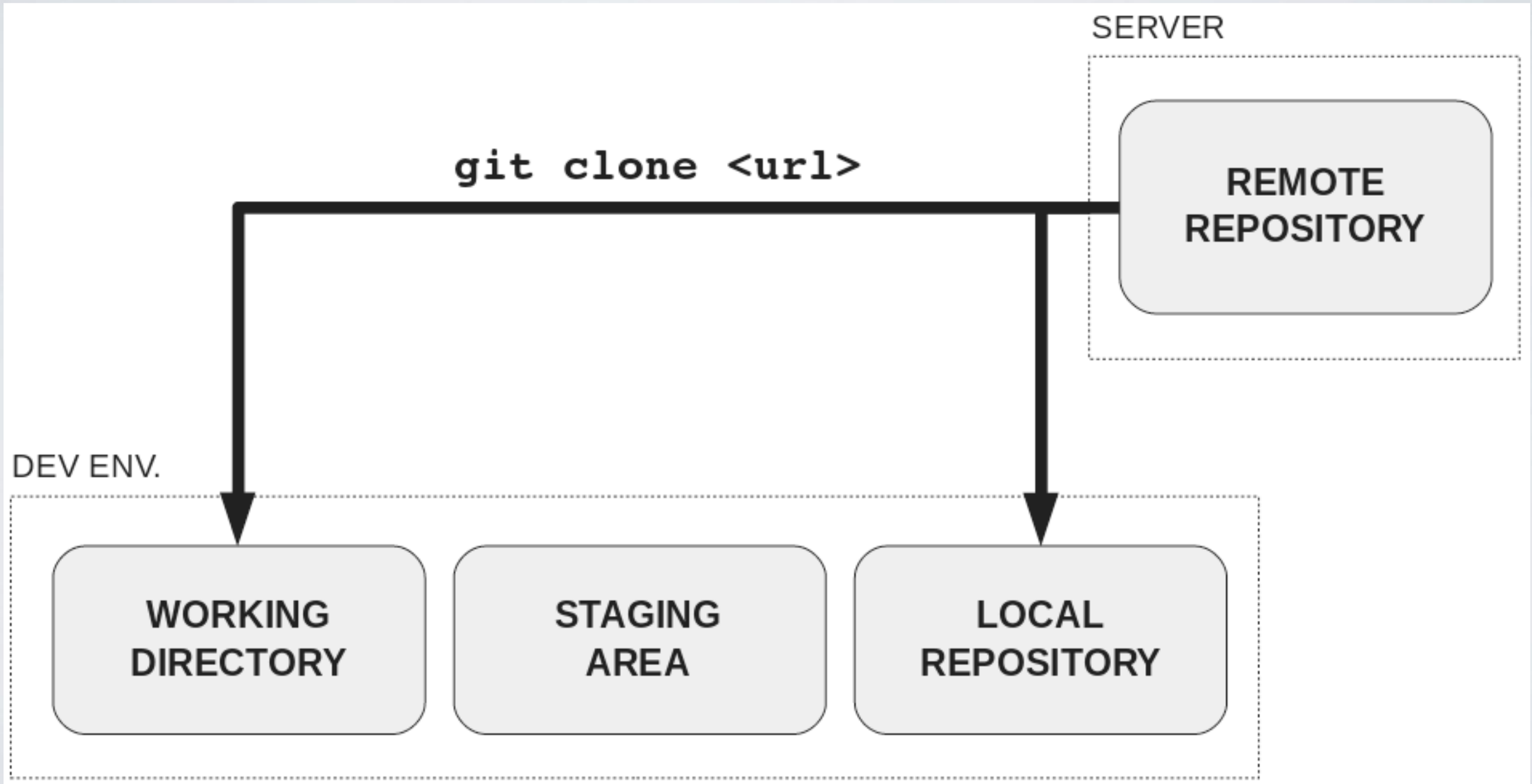
A DISTRIBUTED VERSION CONTROL SYSTEM

Edinburgh Napier UNIVERSITY

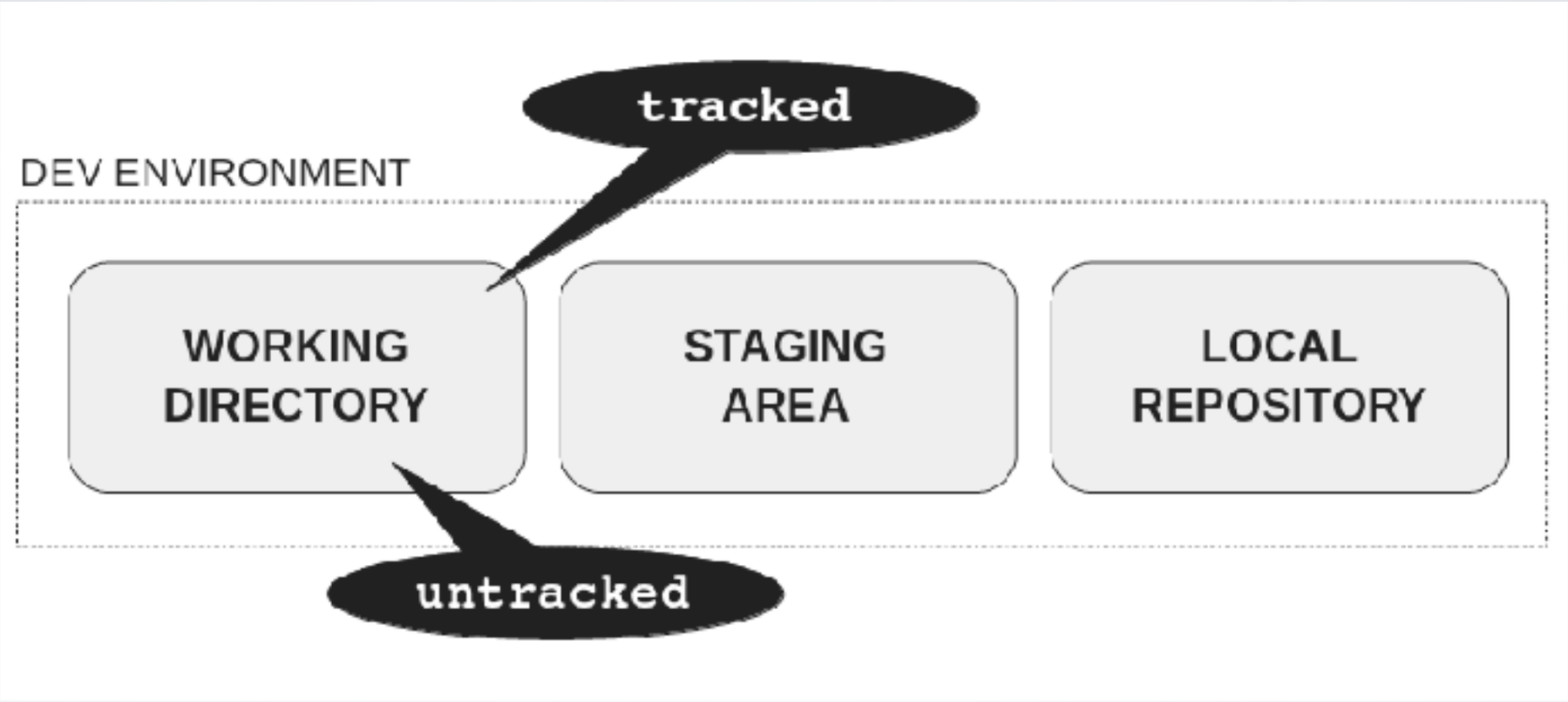


Edinburgh Napier UNIVERSITY

CLONING A REPOSITORY



MAKING CHANGES IN THE WORKING DIRECTORY

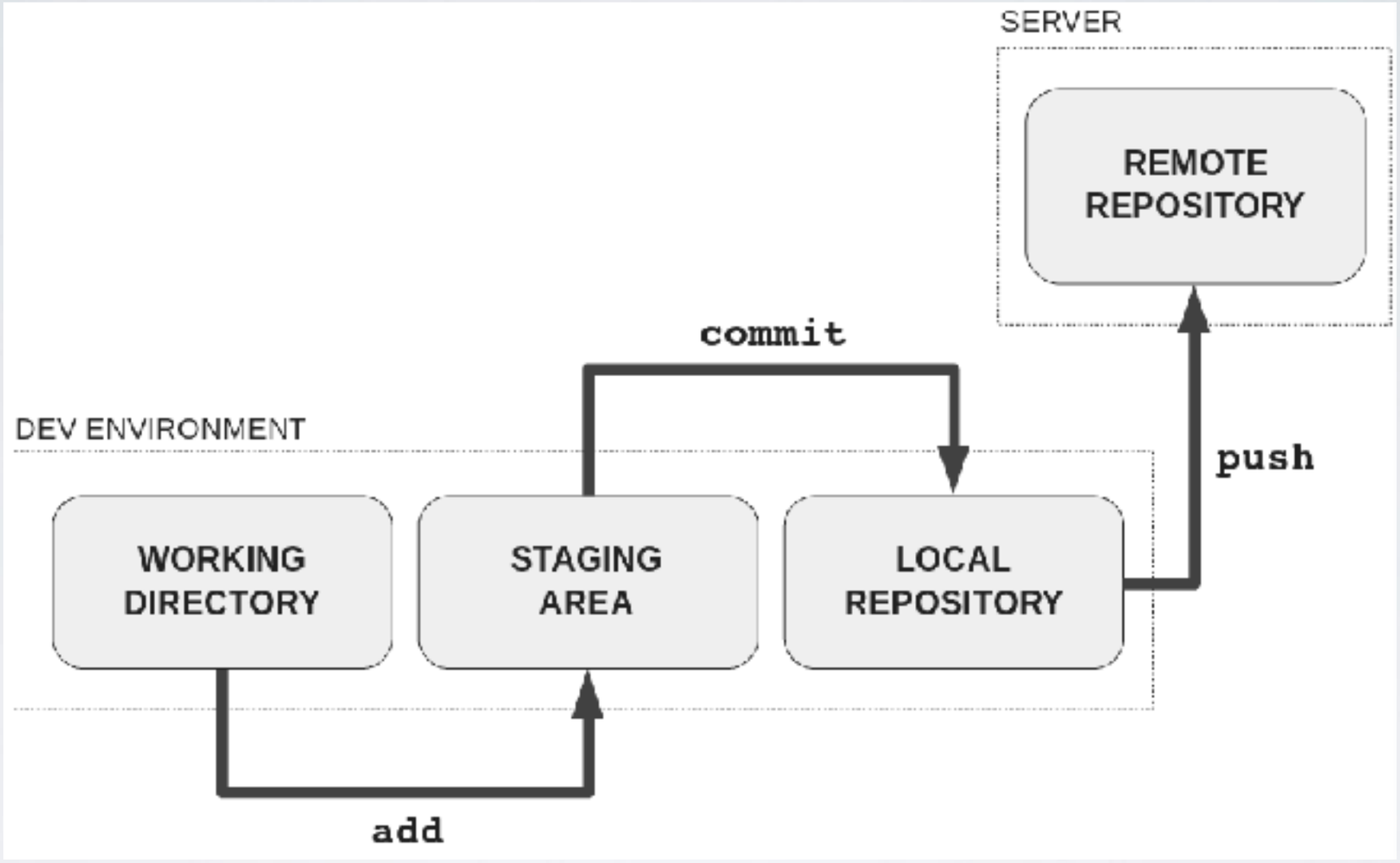


- There are 2 types of files in the working directory:

  Tracked: files that Git knows about.

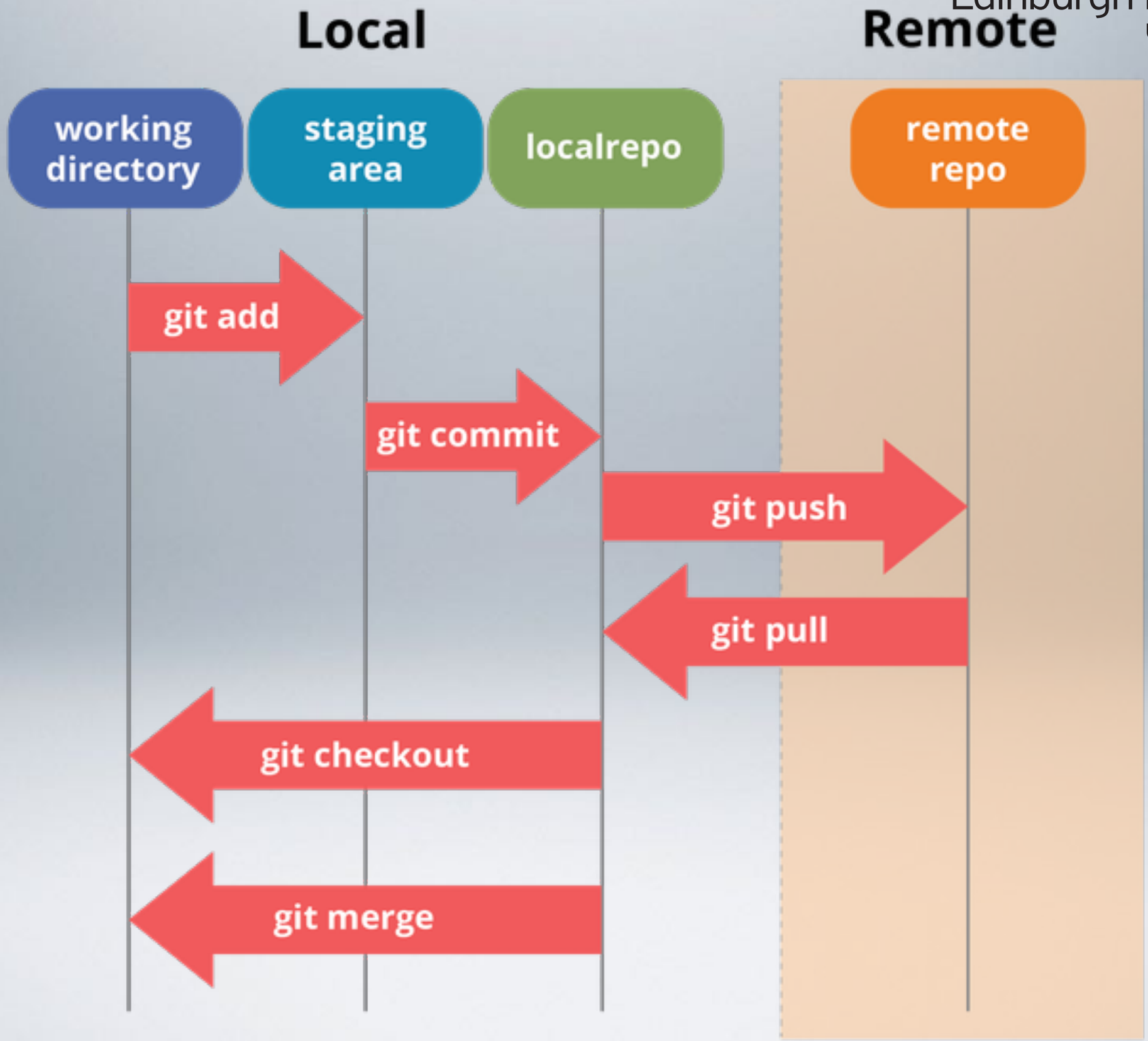
  Untracked: files that have still not been added, so Git doesn't know about.

UPDATING THE REMOTE REPOSITORY

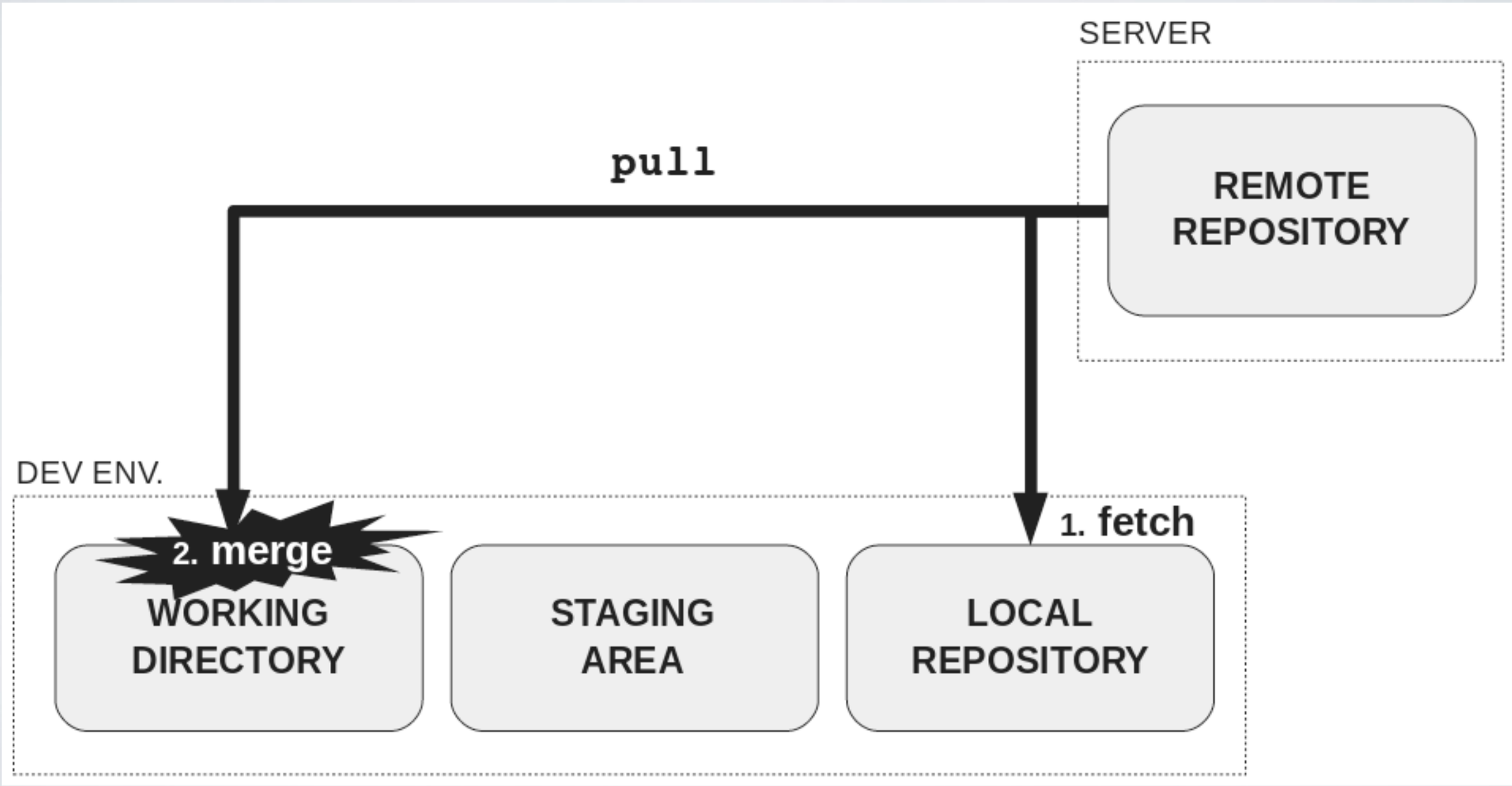


- As changes are ready in the working directory, they must be added in the staging area.
- When there is a set of changes with a single purpose in the staging area, it's the time to create a commit with a message about that purpose in the local repository.
- When there are one or several commits in the local repository ready to be shared with the rest of the world, they must be pushed to the remote repository.

Edinburgh Napier UNIVERSITY



UPDATING THE DEVELOPMENT ENVIRONMENT



Edinburgh Napier UNIVERSITY

RESOURCES

- This set of slides based upon Rachel M. Carmena's "How to Teach Git"

- Rachel M. Carmena's "Git Challenges" - simple exercises that clarify the core patterns of interaction with Git

- https://git-scm.com/

Edinburgh Napier
UNIVERSITY

SUMMARY

- What Git is
- Making a local clone
- Making Changes & updating the local repository
- Pushing local changes to a remote repository
- Pulling changes from a remote repository to your local repo.