An Introduction to Git Version Control

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Clarissa Garvey, Emory University

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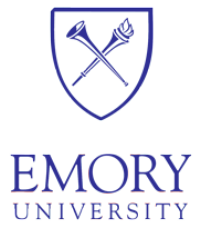
Overview

Contents:



What is Git?

- Version Control Systems (VCSs)
  - "Using a VCS (...) means that if you screw things up or lose files, you can generally recover easily."
    - Backup
    - Revert state
    - Collaborate
    - Low overhead
- Git is a Distributed VCS
  - Each user has a local repository

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Why you should use Git

- Easy to quickly change back to old versions of a file
- Easy to see differences between file versions
- Enables experimentation on source code
- Easy collaboration, even in the same file
- Allows advisers to easily see progress in projects
- Easy to share work with others
- Allows for quick annotation of changes to files
- It's great!

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How Git Handles Data

- Data as snapshots
  - Contrasts with Δs
- Files are stored locally
  - Current files in base directory
  - Metadata in .git file
- Almost everything is undoable

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3-Tier Model

- Tracked vs. untracked files
- Modified
  - There are unstaged changes to files since the last commit
- Staged
  - A snapshot of the file has been taken with the intent to commit later
- Committed
  - The changes have been saved permanently in the .git file with added metadata

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Getting Git

Linux (if not pre-installed)

- `apt-get install git`
- `yum install git-core`

Mac

- With MacPorts:

  ```
  sudo port install git-core +svn +doc +bash_completion
  ```

- With a GUI installer:
  `http://code.google.com/p/git-osx-installer`

Windows

- Git bash + GUI installer: `http://msysgit.github.com/`

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Basic Git commands

Demo!

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