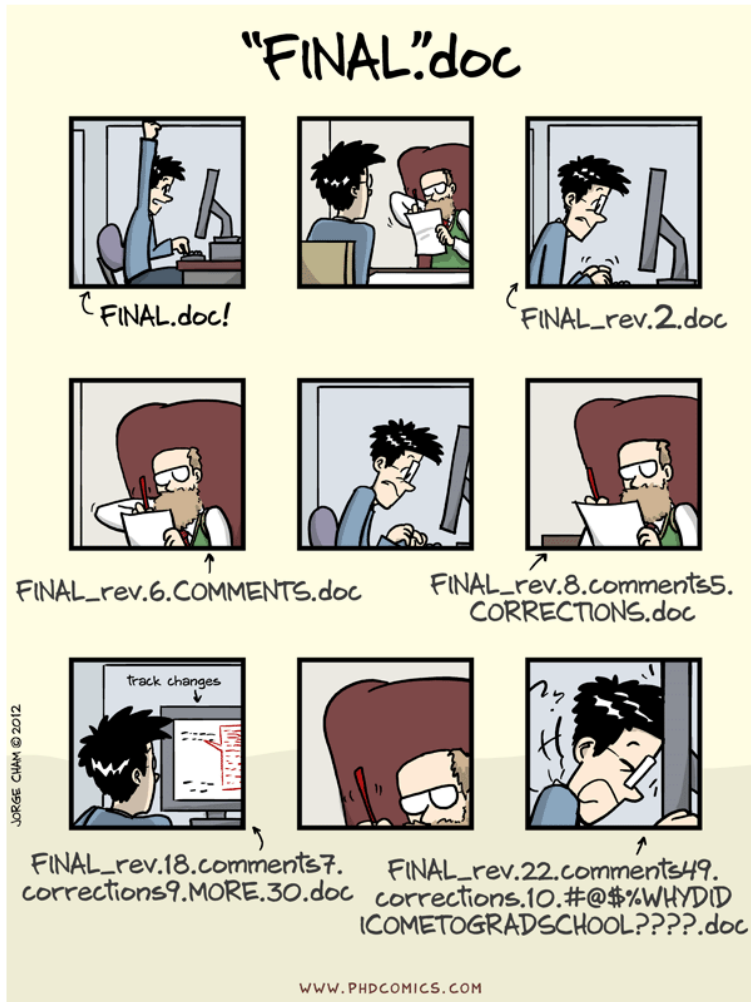


Introduction to Scientific Computing

Meeting 12

Version Control with git



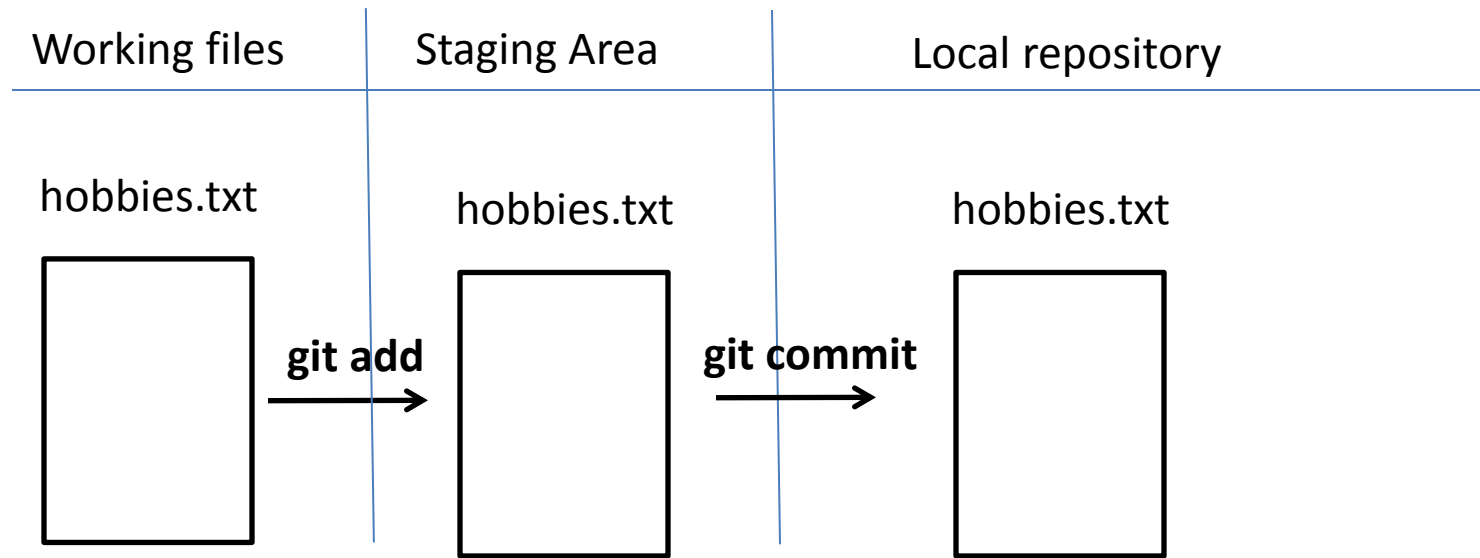
Jeremiah Lant, Hydrologist
USGS Kentucky Water Science Center
jlant@usgs.gov

Last Meeting Objectives

1. Explore the history of a version controlled file
2. Learn how to recover old version of a file.
3. Learn what a remote repository is
4. Sign up with a hosting site:
 1. GitHub (<https://github.com/>) or
 2. Bitbucket (<https://bitbucket.org/>)
5. Set up a remote repository on hosting site of your choice and push a local repository up to the remote repository.

Last Meeting Review

- **Make a local git repository** called “my-hobbies”. Make a file called “hobbies.txt” to track under version control.
- **Explore the history** of hobbies.txt
 - **git diff HEAD~1 hobbies.txt**
 - **git diff *unique-identifier* hobbies.txt**
- **Recover old versions** of hobbies.txt
 - **git checkout HEAD hobbies.txt**
 - **git checkout *unique-identifier* hobbies.txt**



Last Meeting Review – GitHub vs. Bitbucket

- **Public repositories** - Anyone can view the repository, but you choose who can commit.
- **Private repositories** - You choose who can view and commit to the repository.
- **GitHub** - <https://github.com/>
 - Pricing plan based on **number of private repositories**.
- **Bitbucket** - <https://bitbucket.org/>
 - Pricing plan based on **number of users**.
- **Recommendations**
 - Use Bitbucket for personal work to eliminate any confusion with the USGS GitHub account for USGS work.
 - Using multiple hosting sites is good for expanding what you know.

Today's Objective

- 1. Set up a remote repository on hosting site of your choice and push a local repository up to the remote repository.**
- 2. Learn how to push changes to and pull changes from a remote repository.**

Create a remote repository and push local repository to remote

- **Create** a remote repository called “my-hobbies”
 - Make sure that directory names match between local and remote repo.
- **Add** a link to the remote repository in your local repository
\$ cd meetings/meeting-9/my-hobbies
\$ git remote add origin https://jlant@bitbucket.org/jlant/my-hobbies.git
\$ git remote -v
- **Push** local files (in master branch) to your remote repository.
\$ git push origin master
 - The name “origin” is a local nickname for your remote repository
 - Go to your remote repository and check that it worked.

Local repo

Remote repo (Bitbucket)

/meetings/meeting-9/my-hobbies/

<https://your-bitbucket/my-hobbies/>

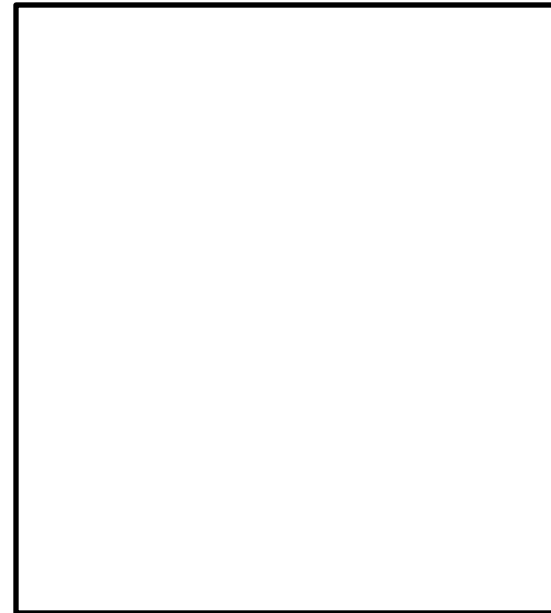
hobbies.txt



git push



hobbies.txt



Local repo

Remote repo (Bitbucket)

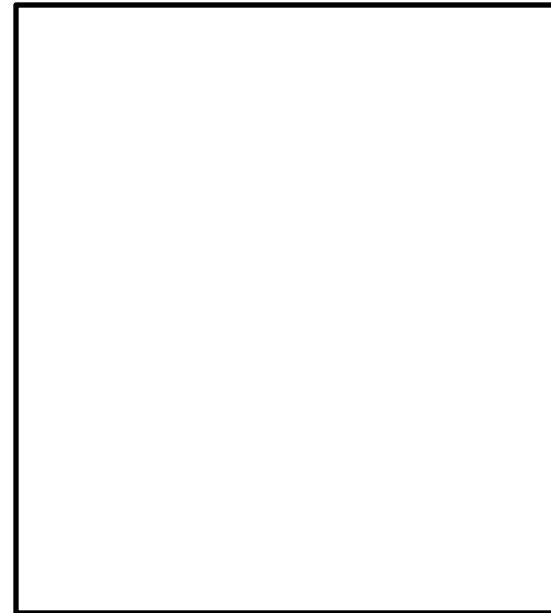
/meetings/meeting-9/my-hobbies/

<https://your-bitbucket/my-hobbies/>

hobbies.txt



hobbies.txt



git pull



Create a local and remote Git repository for a bash script

- Create git repositories (local and remote) for a bash script from scratch.
- **git remote add origin** <https://your-bitbucket-address/your-repo-name.git>
- **git push** copies changes from a local repository and “pushes” them to a remote repository.

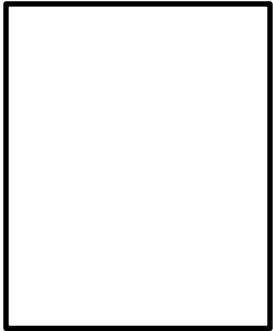
Collaborating with others using Git

- **git pull** copies changes from a remote repository and “pulls” them to a local repository.
- **git clone** copies a remote repository and creates a local repository with a remote called **origin**.
- Simulate working with a collaborator using another copy of a repository on the local machine.

Local repo

/path/to/bash-scripts/

peaks_nwisdv.sh



Bob's local repo

/path/to/bash-scripts/

Remote repo (Bitbucket)

<https://your-bitbucket/bash-scripts/>

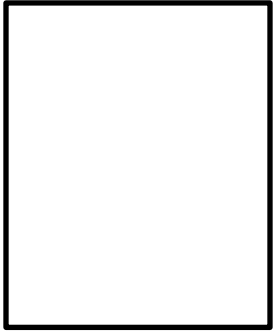
peaks_nwisdv.sh



Local repo

/path/to/bash-scripts/

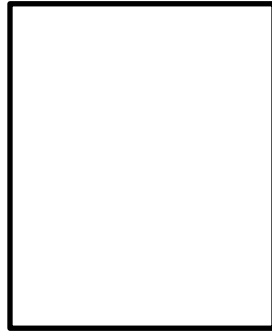
peaks_nwisdv.sh



Bob's local repo

/path/to/bash-scripts/

peaks_nwisdv.sh



Remote repo (Bitbucket)

<https://your-bitbucket/bash-scripts/>

peaks_nwisdv.sh



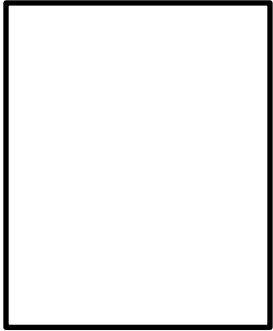
git clone



Local repo

/path/to/bash-scripts/

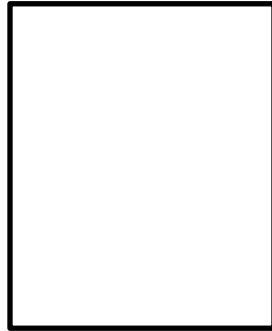
peaks_nwisdv.sh



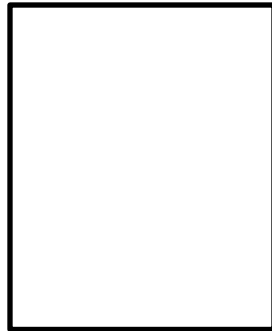
Bob's local repo

/path/to/bash-scripts/

peaks_nwisdv.sh



README.txt



Remote repo (Bitbucket)

https://your-bitbucket/bash-scripts/

peaks_nwisdv.sh



README.txt



git push



Local repo

Bob's local repo

Remote repo (Bitbucket)

/path/to/bash-scripts/

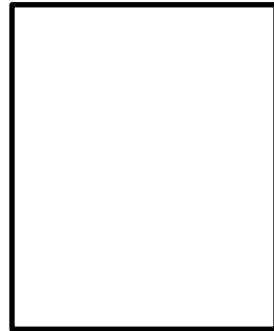
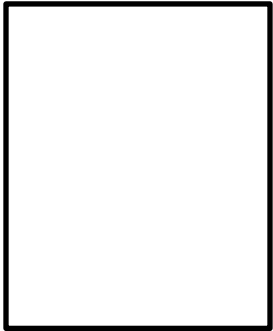
/path/to/bash-scripts/

https://your-bitbucket/bash-scripts/

peaks_nwisdv.sh

peaks_nwisdv.sh

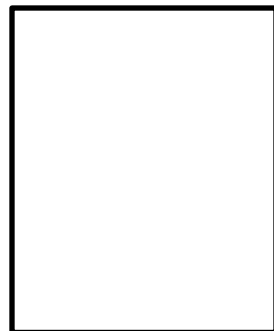
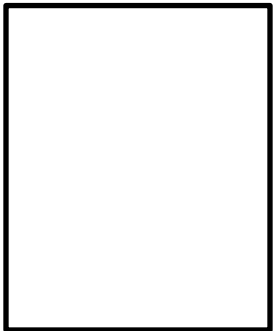
peaks_nwisdv.sh



README.txt

README.txt

README.txt



git pull



Summary

- Remote repositories are versions of your project that are hosted on the Internet or network somewhere.
- A local Git repository can be connected to one or more remote repositories.
- **git remote add origin** `https://your-bitbucket-address/your-repo-name.git`
- **git push** copies changes from a local repository and “pushes” them to a remote repository.
- **git pull** copies changes from a remote repository and “pulls” them to a local repository.
- **git clone** copies a remote repository and creates a local repository with a remote called **origin**.

Next meeting

- Introduction to Python

