Git Basics

Taken from a complete n00b

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Outline

What is git?

- From Git's Website: "Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later."
- Keep track of stuff! Software projects, documentation, anything really.
- git is decentralized version control. The repository is on your local machine, always.
  - This means that if you are on the road and need to roll back to an older version, no problem! Just type the commands.
- "Ry's Git Tutorial" free kindle book. I read half of it. It's amazing for $0.

Installing Git

- Windows
  - Got to `https://git-scm.com/download/win` and download the installer.
  - This will install the Git shell and setup the windows environment for Git.
- Linux
  - Should be installed by default. If not, use your distributions package manager to install Git from the repositories.
  - Example: Ubuntu, type sudo apt-get install git
- OSX
  - I don't know. Google it.

How to use git? GUI or CLI?

- The most universal way of using git is via the command line
- A lot of git GUIs are very nice. A visual really helps with branches.
- GitKraken is pretty cool looking! Cross platform and free (I think?).
- giggle and gitg both look pretty nifty as well.
- There are tons. To get you started check out `https://git-scm.com/downloads/guis`
- What makes sense for your project?

WTF does staging in git mean?

- In git you must "stage" or "unstage" items prior to commits.
- Think of this as "setting the stage" for your commit.
- All my stuff is set, now I'm ready to do my thing!
- This is very important when using git as to make sure everything you do or don't want added to your project is or is not added.

Basic Commands

- git init
  - This is what you would use to typically start a NEW git repository.
  - Suppose you wanted to start a project called CoolProject in /home/OSSEM/Projects/
  - You would use the command git init CoolProject
  - Just like that the CoolProject directory is made along with all of the repository files/folders.
- git clone
  - Used to clone a repository.
  - Lets clone the DC Darknet Github defcon24 repo with git clone https://github.com/thedarknet/defcon24.git
  - The ENTIRE contents, including branches and commit histories, will be cloned to your working directory. How cool!
- git status
  - Display the state of the current branch.
  - Also displays the current branch. Just in case you forgot.
  - Files that have been added or deleted from the repo.
- git add
  - Simply add files or directories to a stage.

commit

- You must stage your items in your repo prior to commiting.
- All unstaged items will not be brought into the commit.
- This command will take your current staged items and commit your changes!
- Git forces you to say something about the commit.
- If only the command git commit is typed, git will launch the editor of your choice defined by the $EDITOR environment variable
- After entering your message into the editor, git will continue with the commit.
- It is also recommmended that you run git status prior to commiting to ensure that everything is there.
- Your name and email typically should be set before submitting a commit.

What is a branch?

- A branch is an independent line of development.
- Say you want to try this one "thing" out without touching the master branch.
  - Cool story, bro. Make a branch!
- git branch branch_name will make a branch called branch_name.

merge and push

- merge
  - This command merges your changes on the current branch to the master branch.
  - If there is conflicts, git will tell you about the conflicts and also report in the file exactly where the conflict is. Helpful if it is source code.
- push
  - This command takes your commits and pushes them to the remote repository.
  - Of course you must have permission to submit changes to the result repo...
  - You config file must be set up prior to pushing!

Who cares?

- Without a doubt people in this room who deal with software care.
- How about OSSEM? Could we use git for...
  - Badge reader
  - Presentation templates
  - By-laws. Do we even have those?
  - Keeping track of projects