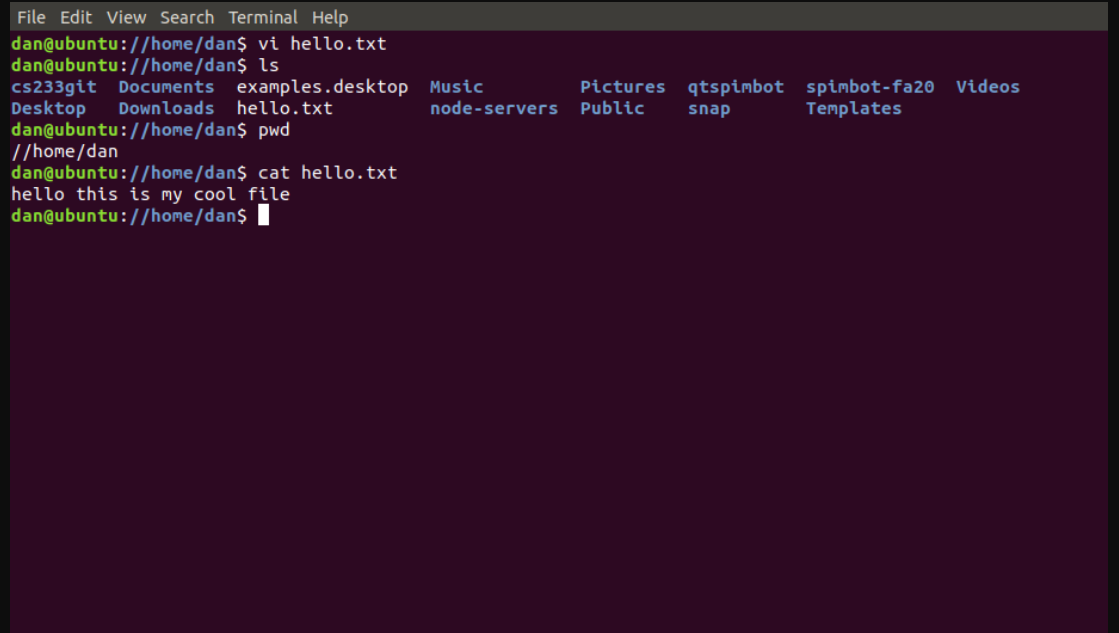# Intro to Bash, CTFs

WiCyS Illinois

Workshop overview

- Learn a little about what Bash/the command line is
- Walk through intro CTF problems teaching you some useful Bash commands

The command-line interface (CLI): what is it?

- Text-based way to interact with a computer

- Can be to interact with your operating system

- Can be application-based
  - Ex: could download SQL shell

The command-line interface (CLI): what is it?

- Some things you will probably use the CLI for:
  - Editing code
  - Compiling code
  - Making new files
  - Automating something to run
  - Downloading new packages
  - Watching movies (`telnet towel.blinkenlights.nl`)
  - Hacking

The command-line interface (CLI): what is it?

- **Not all CLIs use the same language.**
- Some common shells used
  - Bash
  - Powershell
  - Zsh

Basic Bash commands

`ssh -p <port_number> <username>@<address>`
- Used to log in to a remote machine

`pwd` (print working directory)
- Prints path to current directory

`ls` (list)
- Lists files in the current directory
- Variations: ls -a (list all)

`cd <path_name>` (change directory)
- Variations: cd ..

`cat <file_name>` (short for concatenation)
- Prints content of the file

Bash commands
for searching

* (wildcard)
  - e.g. *.txt

find
  - eg. find -name *filename*.txt

grep (global regular expression print)
  - grep <string> <file_name>
  - e.g. grep "member" member_list.txt

Editing files

- Different editors exist

- Two popular ones: vim*, emacs
  - Vim cheatsheet: https://www.fprintf.net/vimCheatSheet.html
  - Emacs cheatsheet: https://www.gnu.org/software/emacs/refcards/pdf/refcard.pdf

  *To make vim have more features/better UX, you can edit your vimrc or look at other work like https://github.com/amix/vimrc

A terminal you can play with: EWS

- SSH: you can log into a remote machine and access its command-line, if you don't have a local place to use Bash

- To SSH into your UIUC-issued machine:
  - ssh OUR_NETID@linux.ews.illinois.edu

- Alternatively, try the shell at https://cs-education.github.io/sys/#VM

Bandit wargames

- Progressive levels to learn to apply Bash commands
- Each level's solution gives the key for the next level

https://overthewire.org/wargames/bandit/

Level 0

The goal of this level is for you to log into the game using SSH. The host to which you need to connect is **bandit.labs.overthewire.org**, on port **2220**. The username is **bandit0** and the password is **bandit0**. Once logged in, go to the Level 1 page to find out how to beat Level 1.

Level 0 --> Level 1

The password for the next level is **stored in a file called readme located in the home directory**. Use this password to log into bandit1 using SSH. Whenever you find a password for a level, use SSH (on port 2220) to log into that level and continue the game.

Level 1 --> Level 2

The password for the next level is **stored in a file called "-"** located in the **home directory**.

Level 2 --> Level 3

The password for the next level is **stored in a file called spaces** in this filename located in the **home directory**.

Level 3 --> Level 4

The password for the next level is stored in a **hidden file** in the **inhere directory**.

Level 4 --> Level 5

The password for the next level is **stored in the only human-readable file** in the **inhere directory**. Tip: if your terminal is messed up, try the "reset" command.