BYOD: Bring Your Own Device

Developing C on Your Own Machine
Computer Science I

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Introduction

Using the lab computers will always be an option. However, you may want to untether yourself from the lab and develop on your own machine, either desktop or laptop. There are many options for doing this, the following are only a few suggestions.

Both of these suggestions have you make a connection to your "Z-drive" on the CSE server. This is a remote file system where you can store all of your files, but interact with them as if they were on your computer. It is similar to plugging in a memory stick: it will appear as yet another drive on your computer that you can drag-drop files from/to and open/save files on.

These suggestions still have you compiling and running on the CSE server from the command line. This saves you from having to install your own C compiler/development software. Also, there are many libraries that your labs and exercises may require. All of these have been installed for you already on the CSE server. If you choose to go your own way and install alternative software, you may have difficulty installing libraries if you don't know what you're doing.

Windows

1. Connect to your Z: drive using the following FAQ:
   https://cse.unl.edu/faq-section/windows#node-290
   This only works on campus; off campus you'd need to setup a VPN.
2. Install Atom IO https://atom.io/, a free code/text editor. Use this editor to edit files on your Z drive once connected.

   Note: once installed, you should change the default line ending for atom.io. To do this:

a) Click `File` → `Settings`

b) Click `Packages`

c) "Search" for `line-ending-selector`

d) Under Settings, select `LF` instead of `CRLF`

3. Download and install Putty, a "Secure Shell Client":
   http://www.putty.org/
   Once you've written your program(s), login to the CSE server using Putty and compile and run your programs on the CSE server.

Mac

1. Connect to your Z: drive using the following FAQ:
   https://cse.unl.edu/faq-section/macintosh#node-295
   This only works on campus; off campus you'd need to setup a VPN.
2. Install Atom IO https://atom.io/, a free code/text editor. Use this editor to edit files on your Z drive once connected.
3. Use Terminal (Apps → Utilities → Terminal) to login to the CSE server and compile and run on the CSE server. To login, type `ssh login@cse.unl.edu` where `login` is replaced with your CSE login.

Getting Started

1. In atom, create a new file named `hello.c` and be sure to save it on your Z: drive after you've connected. You can also create directories on your Z: drive to better organize your code.
2. Edit the new file to have the following contents.

```c
#include <stdlib.h>
#include <stdio.h>

int main(int argc, char **argv) {

  printf("Hello World!\n");
  return 0;
}
```

3. Using putty (windows) or terminal (mac), compile your file using:
   `gcc hello.c`

4. Run your program:
   `./a.out`

Virtual Private Network

In order to access your Z drive from off campus, you'll need to use a VPN (Virtual Private Network). UNL's VPN service (and the required software) can be found here: https://its.unl.edu/services/vpn/

Alternatives

The following are some alternatives if you want to explore further. All of them are cross-platform solutions. Keep in mind that you will need to install and troubleshoot various required libraries yourself if you choose these.

- Eclipse for C/C++ is a full Integrated Development Environment (IDE): https://www.eclipse.org/downloads/eclipse-packages/
- Code::Blocks is another IDE for for C/C++: http://www.codeblocks.org/
- Sublime Text is an excellent code editor but is commercial: https://www.sublimetext.com/
- If you are off campus and need to transfer files between your own machine and the CSE server, you can use an SFTP (Secure File Transfer Protocol) client. We recommend FileZilla: https://filezilla-project.org/ (download the *client*, not the server). For the host, use `sftp://cse.unl.edu` and use your cse login and password.
- Another alternative is to use an online or cloud IDE. Various products and websites exist for this and vary according to cost and functionality. You might try:
  - REPL.it: https://codeboard.io/
  - Codeboard: https://codeboard.io/
  - Online GDB: https://www.onlinegdb.com/online_c_compiler
  - Gitpod: https://gitpod.io/