

# Using the omega server

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## Software installation

**Install *Ivanti (previously named Pulse Secure VPN)*** . Run Ivanti before you connect to omega.

“omega“ is a UTA server that runs Linux. All students have access to it. To run your code on omega you will need to:

- *transfer files* (from your machine to the omega server and back).
  - o You can use [Filezilla](#) for both MAC and Windows. Here is the OIT link for installing Filezilla [https://uta.service-now.com/kb\\_view.do?sysparm\\_article=KB0010276](https://uta.service-now.com/kb_view.do?sysparm_article=KB0010276), and the direct link <https://filezilla-project.org/download.php?type=client> . In the installation process, at the end, it will ask if you want to make Bing and Opera your default search engines. Make sure the boxes are unchecked.)
  - o (Instead of Filezilla, for Windows you can use [WinSCP](#) and for MAC you can use Fugu.)
- *run commands* to compile and run your code through a terminal window:
  - o MAC computers may connect from their terminal using “ssh -X <netid>@omega.uta.edu” (for x-windows support) or “ssh <netid>@omega.uta.edu”
  - o Windows:
    - Windows 10 has built-in SSH. Open Command Prompt and run:
      - "ssh <netid>@omega.uta.edu" e.g. "ssh [astefan@omega.uta.edu](#)".
      - it will ask about certificates,
      - just type "yes" and hit enter.
      - next type your NetID password.
    - If the Windows version does not have built in SSH , you can use [Putty](#). When connecting with Putty use:
      - Hostname: [yourNetID@omega.uta.edu](#) (E.g. I will use [astefan@omega.uta.edu](#))
      - Port: 22
      - When asked (in the terminal) type your NetID password (your UTA password)

## Working with omega

You can create and edit files on omega, but it is easier to edit them on your machine and copy them on omega. Use Filezilla (or WinSCP) to transfer the files you need to omega. Organize your files on omega as well by using folders for each homework assignment.

For information on how to navigate and use a Linux system (delete files, create and navigate directories,... ) do a Google search for “tutorials on Unix commands”. Here is one from [GeeksforGeeks](#). The main commands you need are: cd, ls, cat, pwd, clear, mkdir, rmdir, rm, cp, mv, man. There are other useful Unix commands.

OIT (Office of Information Technology) webpage: <https://oit.uta.edu/support/index.php>. Location: 2<sup>st</sup> floor of Central Library.

See next page:

## Example code development:

1. Write a simple C program, 'hw0\_task1.c' on your machine. Test that it runs on your machine.

```
//===== Example file:
#include <stdio.h>
int main(){
    printf("Hello world!\n");
    return 0;
}
//=====
```

2. Connect with [Ivanti/Pulse Secure VPN](#). It is needed to access Omega if off campus (sometimes even if on campus WiFi, in extreme cases).
  - a. For Ivanti/Pulse Secure VPN you will need to use a 2-factor Authentication. See <https://blog.uta.edu/oit/2019/09/13/sign-up-for-netidplus-for-students/>
  - b. If you need additional help with the multiple factor Authentication, please see OIT.
3. Log on to omega
4. Upload your 'hw0\_task1.c' file using Filezilla
  - a. Ideally you should create a directory, e.g. 'hw0' (on omega) and put the file in there.
5. Compile your program from the omega terminal window. (For more information on how to compile your code on omega, look for tutorials on compiling C code on Linux or Unix.) E.g.:

```
gcc -std=c99 -g hw0_task1.c
```

Here we used:
  - the `-g` flag to collect debugging information (needed for debugging and for Valgrind) and
  - `-std=c99` to use the c99 compiler.
6. Run your code:
  - a. Normal run (here :

```
./a.out
```
  - b. Run with Valgrind:

```
valgrind --leak-check=full ./a.out
```
7. You should see the output.

If you only compile and run code on omega (but not edit it) remember to:

- **Modify** file on your machine
- **Upload** it to omega.(You may need to REFRESH the side of your local machine in order to upload the most recent version of the file.)
- **Recompile** on omega
- **Run** run on omega.

Otherwise you will run the old code from omega, instead of the one you just modified on your machine.

There are text editors, Pico and vi, on omega that you can use if you want to edit files directly on omega. There are several online tutorials and cheat sheets with commands for using them. Do your own search.