

How to Make Your Life Easier

Hi there! We noticed that there was quite a bit of confusion about ssh, VMs, coding on your own computer, etc. so we thought we would try to clear a few things up. We would like to stress that no matter what method you use to develop code for CS241, we **INSIST THAT YOU TEST ALL YOUR FINAL CODE ON YOUR VM**. The autograding environment is similar to your VM, thus even though your code “works” on your machine, it may not work on the VMs and thus for the autograder.

SSH

SSH is a network protocol for initiating text-based shell sessions on a remote machine. In plain English, this basically means you can access another machine remotely, sending information via the command line. SSH is normally completely text-based, but one can use something called X11 forwarding to use applications like gedit that have a graphic interface on

VMs

A Virtual Machine is an emulation of a computer system. Your personal VMs in this class are hosted somewhere on a server and are completely separate from your EWS account. You can use ssh to access your VM via the command line. (If you really love graphical interfaces, use fastX to check out how cool your VM looks!)

How We Have Things Laid Out

We can divide our entire development environment for the class into 3 parts: your own computer, your personal VM, and EWS. EWS is essentially the same environment you are on when you log into one of the computers in the labs. Your personal VM is what we showed you how to ssh into during lab, and is where you should be testing if not developing your code as well.

Developing on Windows

If you would like to remotely access EWS or your 241 VM on your Windows computer, I recommend Xming and PuTTY.

Download PuTTY here:

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

Download Xming here:

<http://sourceforge.net/projects/xming/?source=directory>

This is a great tutorial on how to use and install Xming and PuTTY. It should have all the required steps you need:

<https://wiki.utdallas.edu/wiki/display/FAQ/X11+Forwarding+using+Xming+and+PuTTY>

There are also great things like **Sublime** and **Notepad++** that can use **SFTP** to allow you to modify and save remote files. You could also look into **Cywin** or a Windows Side SVN handler (SVN Tortoise)

Developing on Mac/Linux

Connecting Mac/Linux is pretty easy because they share the same UNIX architecture as EWS and your VM.

It really should just be as easy as opening a terminal and typing:

ssh -X <Hostname>

You should now be able to use programs with a graphic interface by starting them from the command line by typing for example:

gedit <filename>

gedit should then open. It really is that easy.

Remember, you can exit ssh by using the command:

logout

FastX

If you do not want to deal with all of that, **FastX** is a program that lets you have a GUI interface to a remote Linux Client. The UofI Webstore offers it for free; check it out and see if you like it.

<https://it.engineering.illinois.edu/user-guides/remote-access/connecting-ews-linux-fastx>

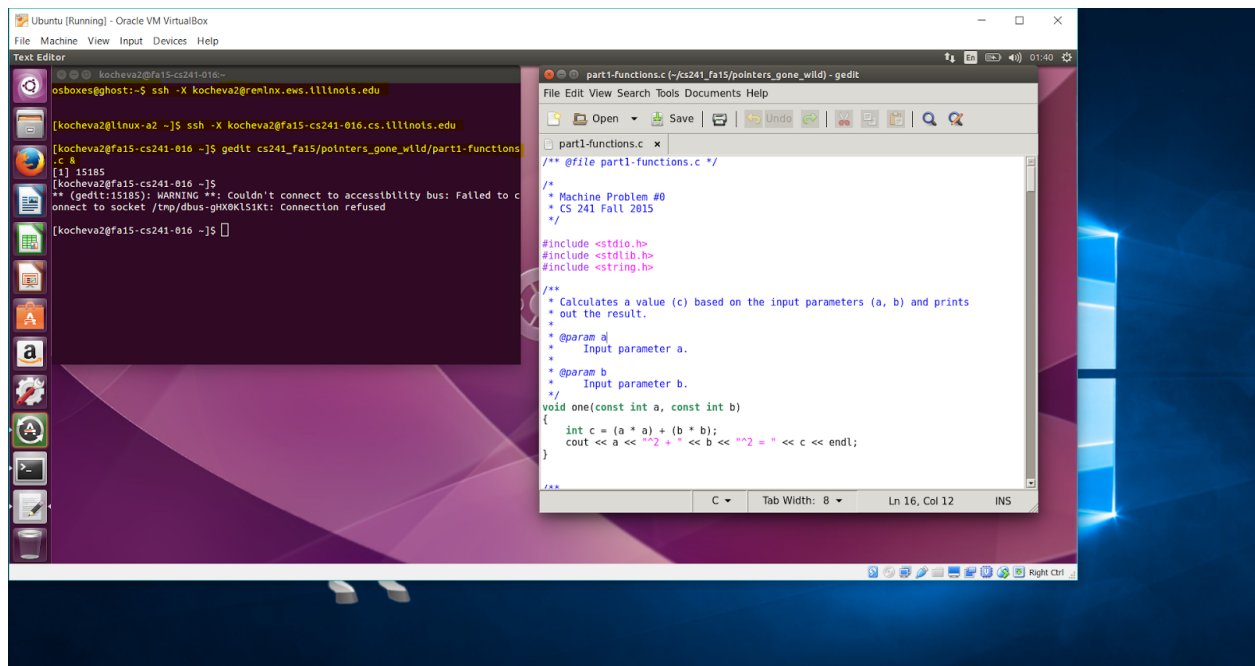
I AM OFF CAMPUS AND CANNOT CONNECT TO THE VM, HELP!

You can use a VPN (Virtual Private Network) to access on campus resources and then use Putty or SSH directly into your VM.

<http://techservices.illinois.edu/services/virtual-private-networking-vpn/download-and-set-up-the-vpn-client>

OR, you can SSH twice. First into your EWS account and then into your personal VM.

Doing Things In Linux: Look, it works!



Doing Things In Windows: Look, it works!

```
kocheva2@fa15-cs241-016:~  
Using username "kocheva2".  
[kocheva2@linux-a2 ~]$ ssh -X kocheva2@fa15-cs241-016.cs.illinois.edu  
Last login: Fri Sep  4 21:07:00 2015 from linux-a2.ews.illinois.edu  
[kocheva2@fa15-cs241-016 ~]$ gedit cs241_fa15/vm_info.txt 2>/dev/null &  
[1] 19161  
[kocheva2@fa15-cs241-016 ~]$
```

```
*vm_info.txt (~/.cs241_fa15) - gedit  
File Edit View Search Tools Documents Help  
New Open Save Print Undo Redo Cut Copy Paste Find Replace  
*vm_info.txt X  
Hello Student with Netid kocheva2!  
  
We are pleased to tell you that your VM for CS 241 Fall 2015 is ready!  
We will be using this VM in every part of the course, so please become familiar with it.  
This machine will have all the things you will need to develop on it and you will have full  
sudo access to it! The hostname is  
fa15-cs241-016.cs.illinois.edu  
and you can log in with your netid as the user and the password is your AD password. This  
means you can go into a congratulations on you for actually reading in this text file. if  
you are reading this, you have no life. cs241 rox my sox seriously though stop reading my  
stuff this is weird alec will never read this. butts are funny. totes hilar they make me  
lmao get it haha. butts .butts butts butts. ok back to the normal words now tell alec I say  
hi! tersinal right now and do  
'ssh kocheva2@fa15-cs241-016.cs.illinois.edu'  
to check it out! Do not worry about this too much, since we will help you set things up in  
Thursday's Lab.  
  
241 Course Staff :)
```

Of course, there are many other ways to do things too. You could just work on your own machine or in EWS and upload all of your work to SVN and then open your VM and pull down all of your saved files and test, but we think that is tedious. If you have anything interesting you would like to add, please post below and share with your classmates; you will also be helping future students. If anything is unclear, either post below with a follow up or ask your TAs/CAs/fellow students!