CS370
How to get remote access to edlab machines using a Windows PC

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You will need to install an ssh client and an Xserver to be able to use full matlab functionality remotely through Windows machines.
To run only the command line version of matlab without displaying images installing only the ssh client should suffice. However, since you will be working with images in this course, you will need to install Xserver so that images can be displayed on your local machine via X11 forwarding.
This document may be of help if you are trying to install an ssh client and Xserver for the first time on your Windows machine. This document talks about Putty as the ssh client and Cygwin as the Xserver.

1 Cygwin

Cygwin can be downloaded from `http://www.cygwin.com`.
Click on *'Setup.exe'*. Click on *Save*. Once the Setup.exe is saved, Run it. Follow the instructions on screen. Click on *'Install from the internet'* when the appropriate window comes up. Choose any mirror that you think is closest in the mirrors list. This is the server from which the necessary packages will be downloaded before installation.
You will then need to choose the packages to install. Note that Xserver is not installed by default and you will have to specifically choose the packages required for Xserver. Specifically, in the *X11* category choose xorg-server, xinit, xorg-docs, X-start-menu-icons. If you like, also choose openssh package from the *Net* category. Note that when a package is chosen to be included, you will see a version number. If you see *Skip* it means this package is not selected for installation. Click on the package to toggle between the skip and version number.
Do go over the detailed instructions along with screenshots found at `http:`

//x.cygwin.com/docs/ug/setup-cygwin-x-installing.html.
Click Next after all required packages are selected. If you are prompted with a message that there are dependencies that need to be resolved, ensure that there is a check mark on *'Select required packages'* and click Next.
The packages take some time to download and will install automatically.
Cygwin is now installed.

2 Putty

Putty is a free ssh client available at http://www.chiark.greenend.org.uk/~sgtatham/putty/. Download the putty.exe file from http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html.
Run the exe file after saving it. You can use Putty to ssh to the machines in edlab. Look at the edlab webpage http://www-edlab.cs.umass.edu for details about the machine names.

2.1 X11 forwarding and saving your session

To display images, you will need to enable X11 forwarding. When you run the putty.exe file, you will see category *SSH*. Click on the + to its left. Then click on *X11*. If *'Enable X11 forwarding'* is not checked, check it. You will have to ensure X11 is enabled each time you run putty. To avoid having to do this each time you log in, you can save the session.
Click on *Session* category. Choose a *Host Name* from edlab you would like to connect to and enter the name. Under *Saved Sessions* textbox, enter a new name. Now click on *'Save'*. Your session should now be saved. Click on *'Open'* to connect to the edlab host.
When you use putty the next time, you should see your saved session name in the *Saved Sessions* list. Click on it and then click *'Load'*. This loads your saved settings along with the X11 forwarding setting.

3 To run putty and Cygwin together

(1) First you should start the Xserver from Cygwin. Run Cygwin by clicking on the the Desktop icon (or wherever you saved it). In the terminal that opens type the command *startxwin*. This will start the "XWin Server". Ignore any terminals that this command opens. In the System tray to the bottom right of your screen, you should see an icon that looks like an *X*. This means that the XWin Server is running.
(2) Now you can run putty with X11 enabled as explained above. Click on *Open*. When prompted, enter your edlab username and password. You should now be connected to the edlab host you chose.
(3) To test if X11 forwarding is working correctly, type *xterm* in the putty terminal after you have connected to the edlab host. A new terminal should open on your Windows machine. If that happens, you are ready to run matlab (either in its full environment or with the -nojvm flag as explained in the matlab-starter.pdf document in the course webpage).
If a new terminal does not open, then it means either Xserver is not running currently or not installed correctly. Ensure you have "XWin Server" running as mentioned in the first step in this section. If your installation did not work properly, go over section 1 again and reinstall Cygwin. Make sure you have selected all the required packages for Xserver to run.
If a new terminal opened when you typed *xterm* command, you should now be able to run matlab as explained in the matlab-starter.pdf by typing commands in the putty window (You can close the xterm window opened in step 3 - it was just a test). Note that if you run matlab with its full environment (without the -nojvm flag) it could take a long time to display and respond to commands.
For corrections in this document, or clarifications, email the TA. Your feedback is welcome and will help future students.