EE 2703 Applied Programming Lab
Jan - May 2017

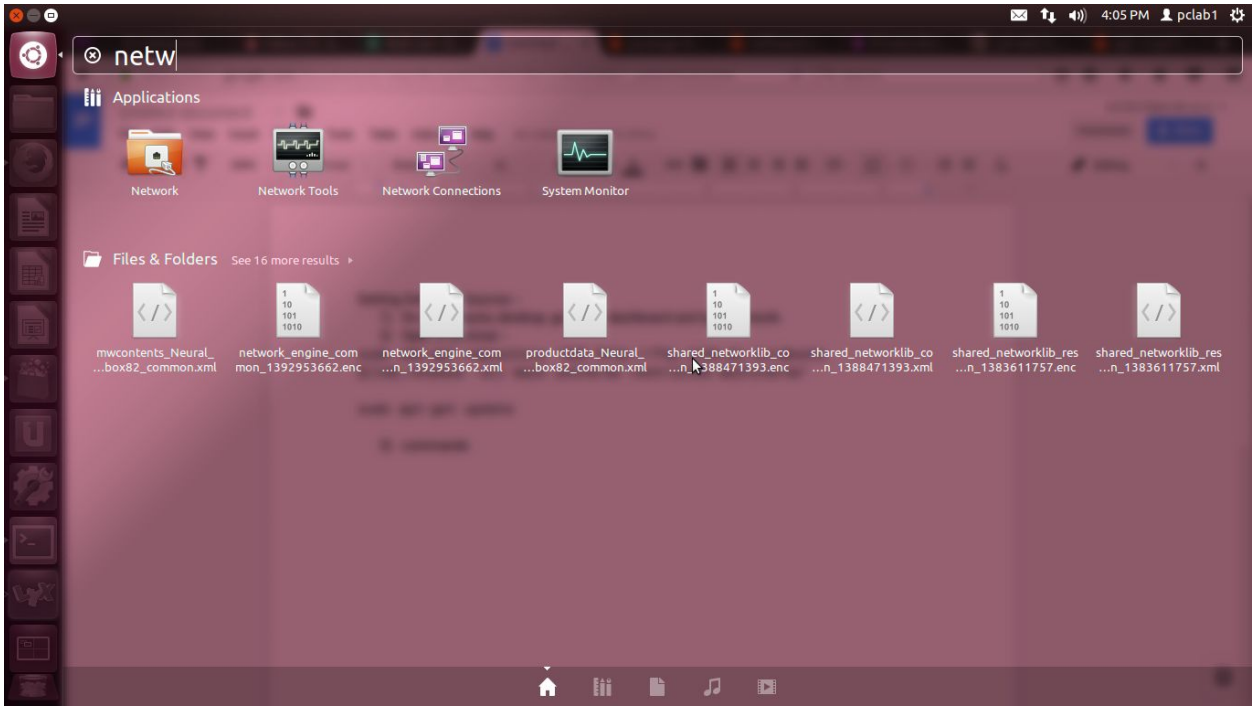
This document provides the steps to install the following -

(1) Python modules such as numpy, scipy and matplotlib
(2) LaTeX, and LyX (along with noweb)

Accessing Internet on Ubuntu through NetAccess -

Follow these steps below to configure internet settings so that you can browse the internet and download packages using the command line.

1) On your Ubuntu desktop, go to the dashboard (shortcut - windows key) and type 'Network'.



2) Select the first application 'Network'.
3) Go to network proxy. In method drop down menu, give 'None' and click on 'Apply system wide'.
4) You will have to give the admin password to authenticate. (This is the password you provide at login.)

Note: Steps 5 to 7 are for Firefox users. Firefox has the option to override the system network settings. In order to prevent that from happening, follow the steps mentioned below in Firefox. For Google Chrome users, they can just skip the Firefox settings part since Chrome uses system proxy settings by default.

5) Open Firefox. Go to Edit -> Preferences.
6) In the window, go to 'Advanced' tab and click on Network -> Settings.
7) Select 'No proxy'.
8) Now in your browser, login to netaccess and check that you are connected to the internet.

Setting up Software Sources -

Ubuntu connects to certain servers to download packages for installing them on your system. For a fast download, connect to the server nearest to you. There are 3 servers in India and IIT Madras has one of them. The steps below will configure the system to connect to the IITM server. You may choose any other server as you wish.
Ensure that you've logged into NetAccess and able to connect to the internet. Otherwise, repeat the steps given above.

1) Open a terminal (shortcut - Ctrl + Alt + T) and run the following commands -

```
sudo add-apt-repository "deb http://ftp.iitm.ac.in/ubuntu
    $(lsb_release -sc) main universe restricted multiverse"
sudo apt-get update
```

There's a *single* space between http://ftp.iitm.ac.in/ubuntu and `$(lsb_release -sc)`.

Installing Python specific packages -

If you've never used python before (which is most likely the case), you will have to go through this. Follow the steps below to install numpy, scipy, and matplotlib. This is a COMPULSORY step because all the assignments in this course use Python.

1) Open a terminal and run the following commands -
```
sudo apt-get install python-matplotlib
sudo apt-get install python-scipy
Sudo apt-get install ipython
```
2) Enter your admin password, if need be. You will also be asked if you want to download or not. Say 'yes'.
3) Installing matplotlib automatically installs numpy.

Installing LyX and noweb -

LyX is a front end program for LaTeX. It provides a graphical interface so that you don't have to type the commands, as is the case with LaTeX. You will be using LyX to write your reports and to explain your code.
These steps below will help you install LyX (intro to LyX in Assignment 3) and noweb (LyX add-on to include your code in the documents.) The LaTeX installation steps are available here. I'm putting them down here for convenience.

Note: It is assumed that you have never installed LyX before. If you have installed it before, make sure that it's the latest version. The latest version, at the time of writing this document, is v2.2.2 (compatible with Ubuntu 16.10 Yakkety Yak). You can check the compatible version for your Ubuntu version here. In order to remove your old installation, run the 2 steps below -

```
sudo apt-get remove lyx
sudo apt-get autoremove
```

Provide your password when asked for.

1) Open a terminal (Ctrl - Alt - T) and install LaTeX using:
   ```
   sudo apt-get install texlive
   ```
2) Add the repository from which LyX can be downloaded:
   ```
   sudo add-apt-repository ppa:lyx-devel/release
   sudo apt-get update
   ```
3) Install LyX by running -
   ```
   sudo apt-get install lyx
   ```
4) After successfully installing LyX, install noweb -
   ```
   sudo apt-get install noweb
   ```