Lecture Instructions

Note: For detailed instructions on Downloading and Installing VirtualBox and Vagrant, refer to the Handouts in this lecture for your Operating System. It also contain instructions to setup Vagrant environment in your system.
Throughout this course we'll be using Vagrant as our environment for homework exercises. Vagrant enables us to have a consistent deployment environment for all students. This makes validating the correctness of a homework solution a lot easier. It will also aid you when asking and answering questions on the discussion forum as you know all of your peers have a near identical environment.
Vagrant requires an hypervisor or virtual environment provider to operate. For this purpose we use VirtualBox.
Below you'll find instructions on how to install Vagrant and VirtualBox on Windows, OSX and Linux.

General Notes

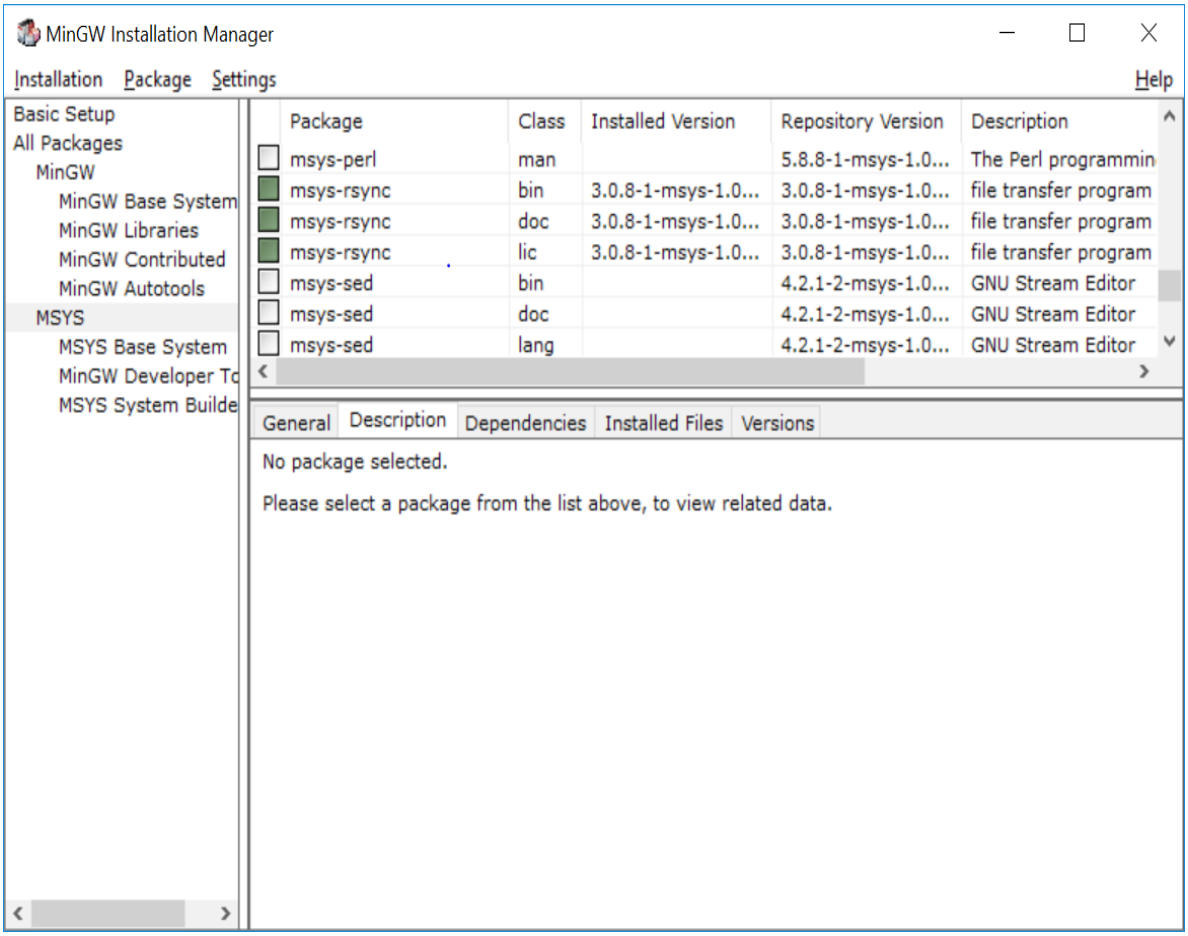
- The installation of the Vagrant environment takes, in a fast network (49Mbps download, 194Mbps upload), around 2:33 minutes to complete. Account for a considerably longer time on slower networks!
- The video instructions might not reflect the exact commands required for your workstation operating system.
- The Vagrant environment files are made available as a downloadable zip file.
- Windows OS 7 and 32-bit systems are not supported.

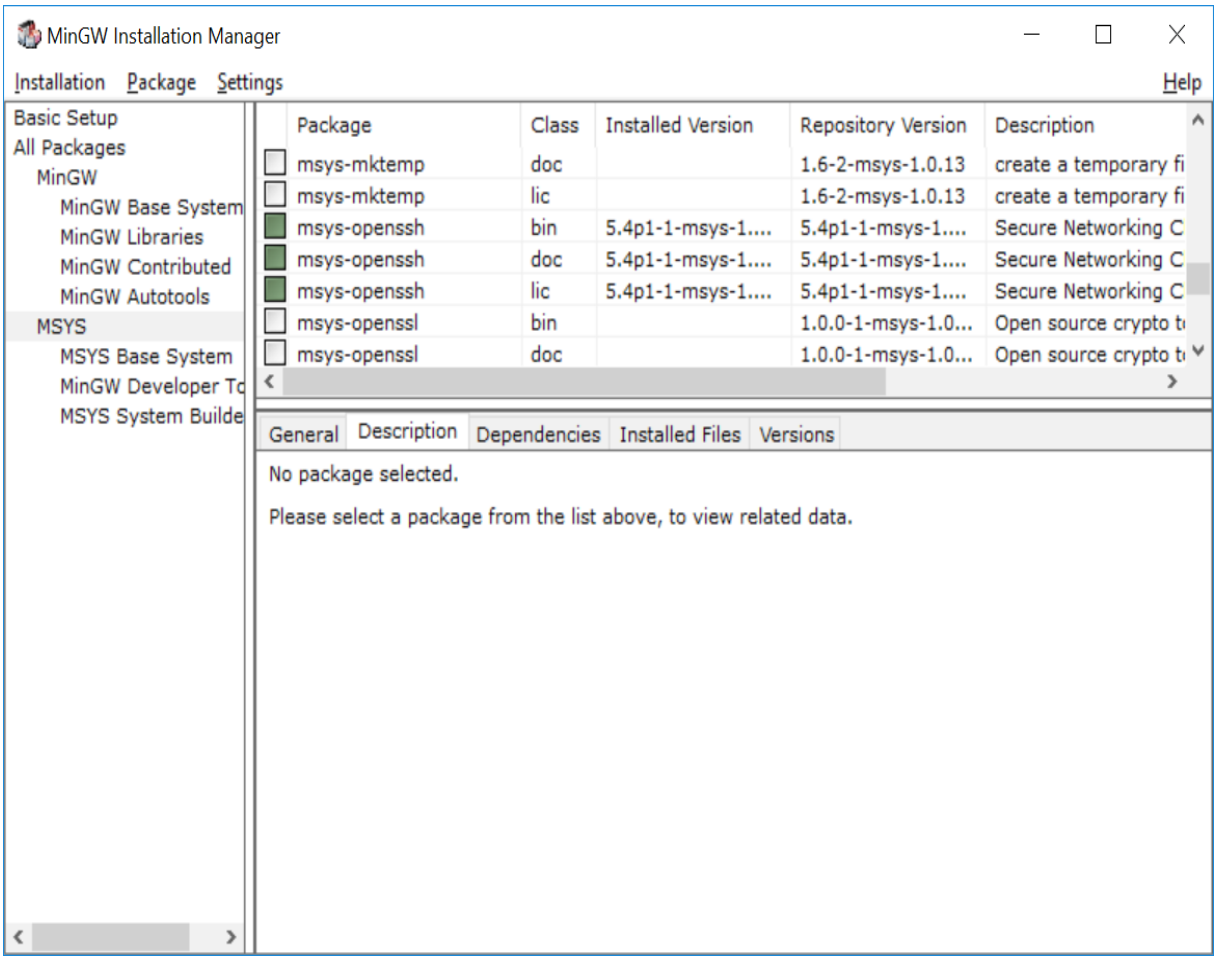
Installing Vagrant on OSX or Linux

1. Install VirtualBox
   Download and installation should be straightforward. Go to the VirtualBox downloads page, download the setup binary for your appropriate OS, and run the installer.
   If you run into issues installing VirtualBox on a recent version of MacOS, you may want to look at this knowledge article.
2. Install Vagrant
   After VirtualBox has been installed you can go ahead and download and install Vagrant.

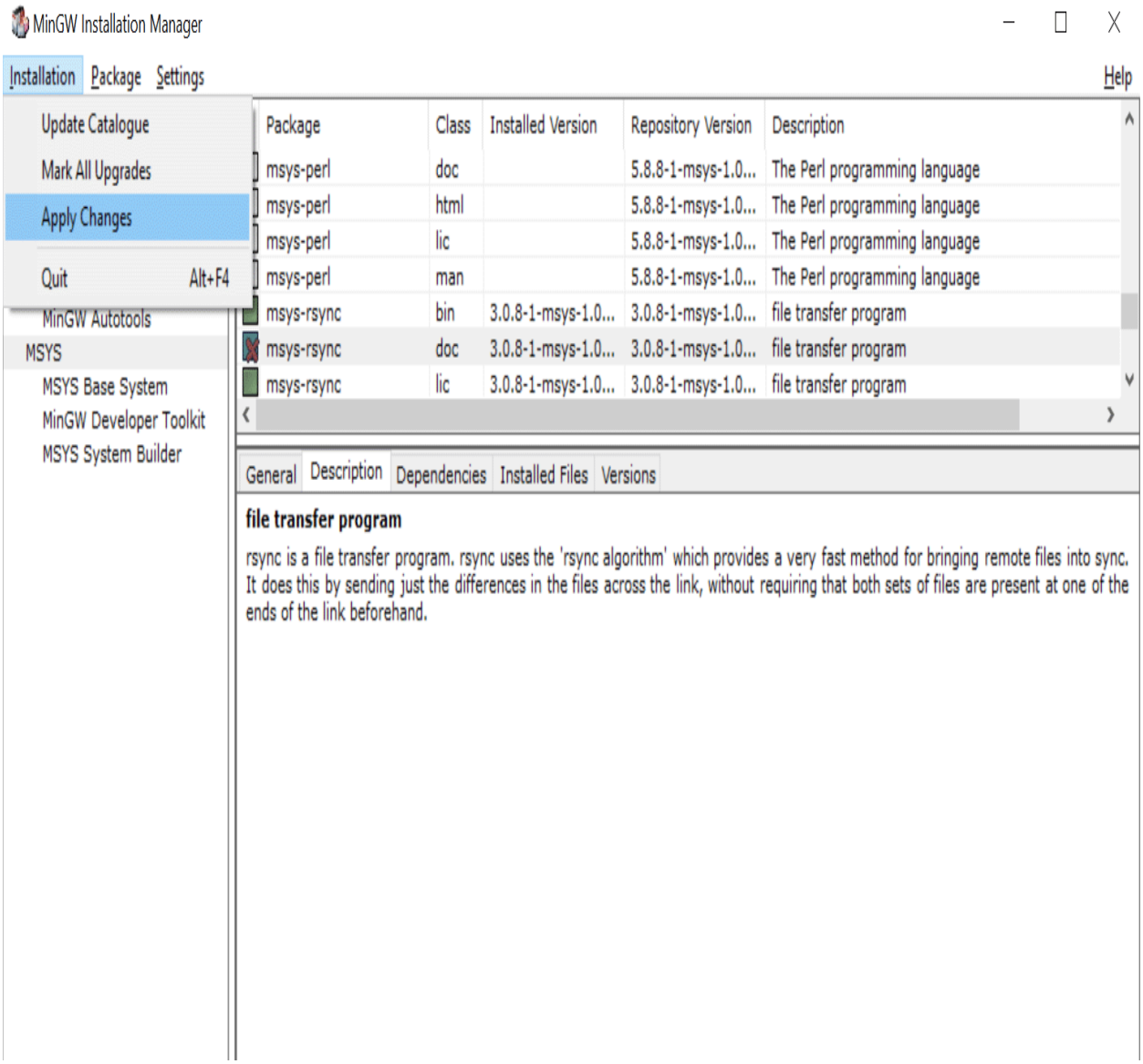
Installing Vagrant on Windows

1. Install VirtualBox
   Download and installation should be pretty straightforward. Go to the VirtualBox downloads page, download the setup binary for Windows hosts, and run the installer.
2. Install MinGW
   Vagrant requires two important command-line tools: `rsync` and `ssh`. These command-line tools allow us to connect to our virtual machine and to sync files between our host and virtual machines. MinGW is a set of GNU utilities for software development on Windows. We'll use MinGW to install both `rysnc` and `ssh` onto our Windows machine.
   You should download and run the MinGW Installer (mingw-get-setup.exe).
3. Install rsync and ssh
   The last step of the installation of MinGW is to specify the packages you want to install. From here you can mark `rsync` and `ssh` for installation like so:



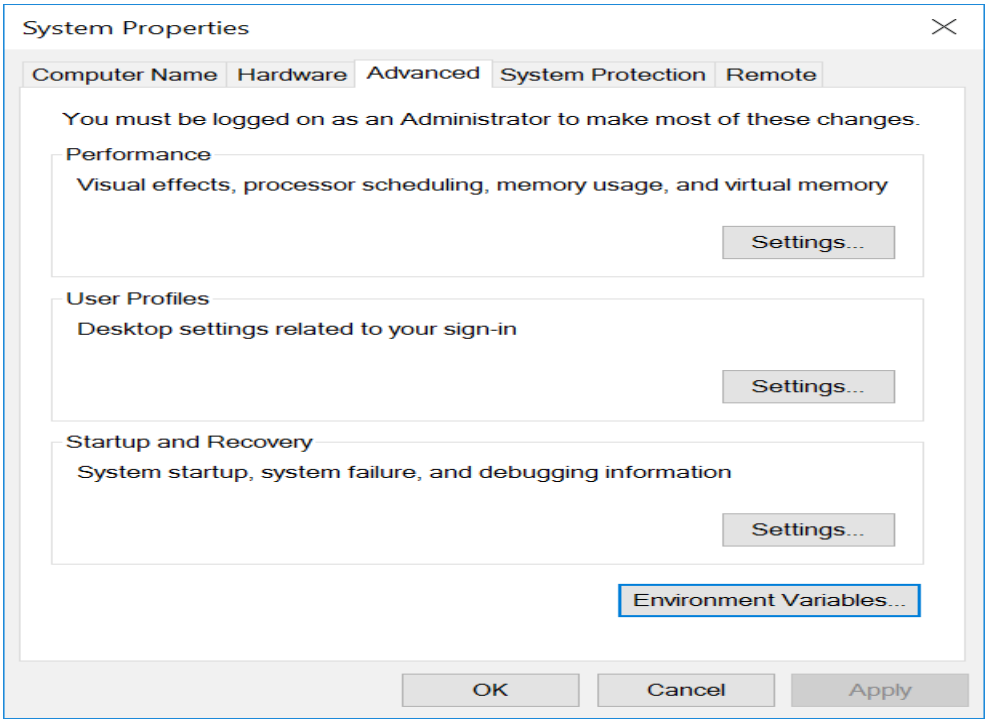


After marking the packages for installation you can go ahead and apply the changes:

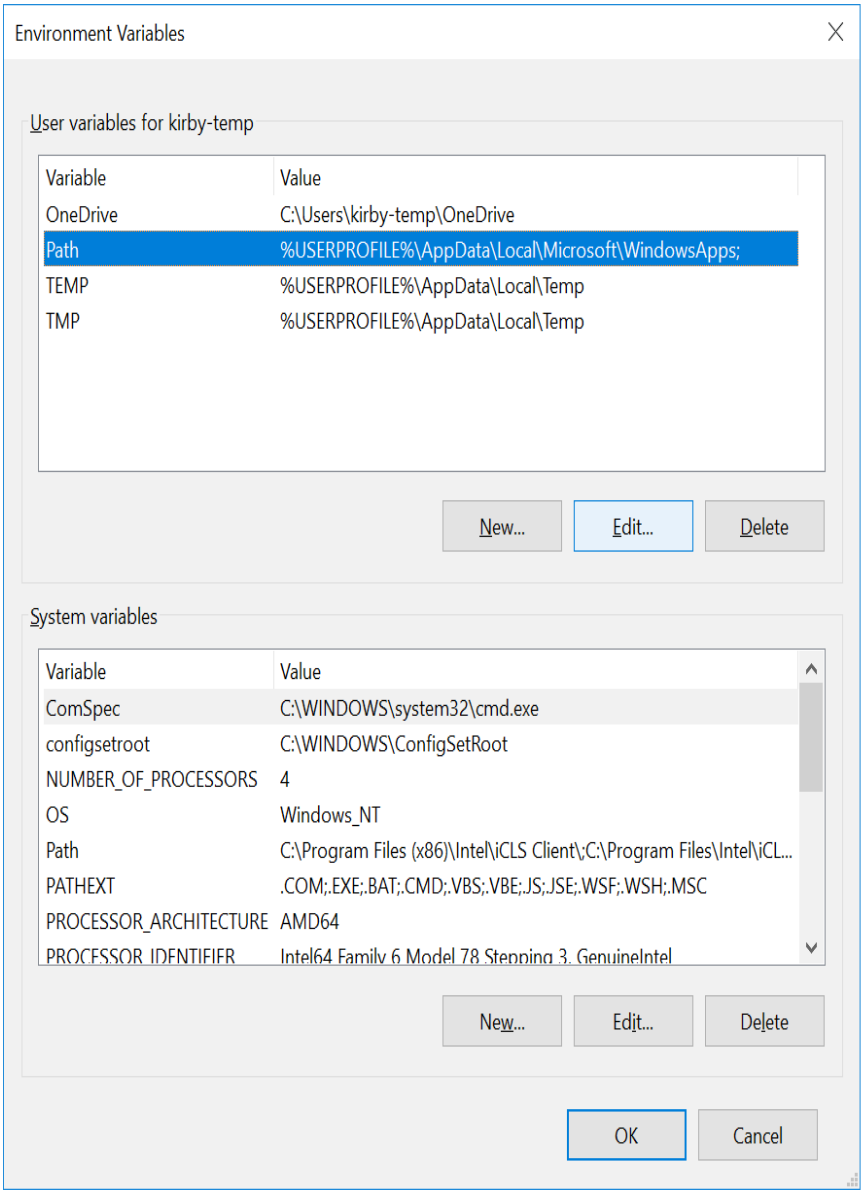


Assuming you've kept the default installation path `rsync` and `ssh` should be installed to the `C:\MinGW\msys\1.0\bin` directory. In order for these tools to be accessible via the command-line (and Vagrant) you'll need to add this directory to your PATH environment variable.

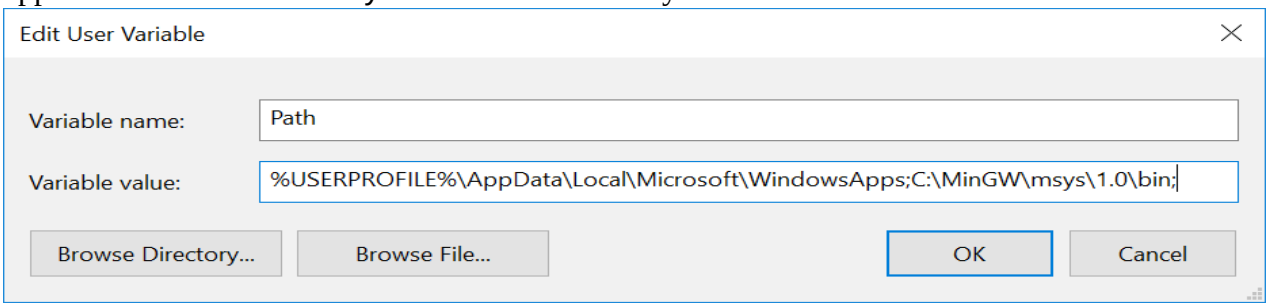
First go to Advanced system settings under System Properties and click "Environment Variables...":



From there select the "Path" variable and click "Edit...".



Directories in the PATH environment variable are deliminated by semicolons. You can now append the `C:\MinGW\msys\1.0\bin` directory to the end of the "Variable value."



You can confirm that `rsync` and `ssh` are both successfully installed and accessible via your PATH by launching the command prompt (`cmd`) and running `rsync` and `ssh` respectively. Both commands should output usage information. If you receive an error about not being recognized as an internal or external command then you'll need revisit the steps above.

4. Install Vagrant
   After all of the above prerequisites have been installed you can go ahead and download and install Vagrant. This will require a restart of your machine.

After downloading the Handouts (provided in the next Lab), extract the zip folder in your current working directory.
From the directory `m103/m103-vagrant-env`, we can bring up the Vagrant environment:

```
m103-vagrant-env$ vagrant up
 COPY
```

After bringing up the environment, we can provision Vagrant (to download datasets, validation scripts, etc.):

```
m103-vagrant-env$ vagrant provision
 COPY
```

Once the environment is provisioned, we can connect with `ssh`:

```
m103-vagrant-env$ vagrant ssh
 COPY
```

As you complete labs in this course, you will be asked to run validation scripts that check your work. These validators are stored inside the VM. You can run these validators from anywhere within the Vagrant environment. Do not run these validators from within a Mongo shell.
If you need to re-download these scripts, run the following command (from Vagrant):

```
vagrant@m103:~$ download_validators
```