**Install Oracle VirtualBox**

1. Navigate to <https://www.virtualbox.org/wiki/Download_Old_Builds_5_1>. VM 5.2.10 is still in development and is unavailable for Windows.
2. Select x86/MAD64, for VirtualBox 5.1.34. Save the exe to a location, where you can access it. Run the exe as an Administrator.
3. Take the default options, navigate through the screens, and click Install.

**Install Ubuntu on an oracle VM**

1. Navigate to <https://www.ubuntu.com/download/desktop>. Click Download. Click “Not now. Take me to the download.”
2. Save the iso, to a directory, where you can access it. The download may take a couple of minutes.
3. Launch Oracle VirtualBox, if you haven’t done so already.
4. Click New, in the upper left corner. Enter a name for the VM: Team-White
5. Type: Linux, Version: ubuntu (64-bit)
6. Memory: 4096 MB
7. Hard Disk File Type: VHD
8. Storage: Fixed Size
9. File Size: 20.00 GB
10. Click Create
11. After the VM has been created, right click the VM and click Settings
12. Select System and move optical to the top of the boot order
13. Select the processor tab and give the VM two processors. Click OK
14. Highlight the VM and click Start.
15. Click the folder icon and navigate to the directory where the Ubuntu ISO is located.
16. Select the file. Click Open. Click Start.
17. Click the X to close any informational messages that may appear. Maximize the window.
18. Click Install Ubuntu
19. Check “Download updates while installing Ubuntu”. Click Continue.
20. Select “Erase disk and install Ubuntu.” Click Install Now.
21. On “Write the changes to disks?”, click Continue.
22. In “Where Are you?”, enter Austin. Select Austin, TX, from the menu options. Click Continue.
23. “Keyboard Layout”: Click Continue.
24. Your Name: TMWhite
25. Enter a password: Anything you want. Click Continue
26. When the installation completes, click Restart Now.
27. Click File, close, and select power off the machine.
28. Right Click Settings. Select Storage and move Hard Disk to the top of the boot order. Click Ok.
29. Start the machine.
30. Enter your password and logon to the VM.

**Terminal Windows**

1. Select the Search Your Computer icon in the upper left corner.
2. Type terminal
3. Select Terminal
4. Right Click the Terminal Icon towards the bottom left corner and select “Lock to Launcher.”
5. In the terminal window, enter cd Documents, to navigate to the Documents folder
6. Enter “sudo apt-get update” (no quotation marks. Enter your password. Wait for the install to complete.

**Python**

1. Enter “which python” (no double quotes), and you should see /usr/bin/python
2. Enter “python –version”, and you should see 2.7.12

**Git**

1. Enter “sudo apt-get install git-core. Enter your password and enter Y.
2. Verify the install by typing git –version, and you should see git version 2.7.4

**Icarus Verilog**

1. Enter “sudo apt-get install iverilog
2. Verify the install by typing which iverilog. You should see /usr/bin/iverilog

**Download the project to your Documents folder (ONLY IF YOU DO NOT HAVE A LOCAL COPY)**

1. From the terminal window, enter: git config –global http.sslverify false.
2. In the terminal window, enter: git clone <https://github.com/grantslape/CS3339-MIPS32.git>
3. Enter your username and password. Wait for the download to finish.

**Project Setup**

1. Sudo apt-get install python-pip. This will install PIP. Enter your password and enter Y to continue.
2. **Make sure to navigate to the project root**
3. Type cd CS3339-MIPS32 and press enter.
4. Type: pip install virtualenv. Enter your password and enter Y. Press Enter. This will install virtualenv.
5. Type virtualenv venv and press enter. This will create a virtual environment for running python
6. Type: source venv/bin/activate. This will activate the virtual environment for python.
7. Type: pip install -r requirements.txt, to install the prerequisites for the project.
8. **At the project root,** cd venv/share/myhdl/cosimulation/Icarus. Press enter.
9. Type “Make.” Press enter
10. Type cd ../../../../.. Press enter.
11. Type mv venv/share/myhdl/cosimulation/Icarus/myhdl.vpi ./lib Press enter.
12. Type: export PYTHONPATH=’/home/<username>/Documents/CS3339-MIPS32/’ Press enter.
13. Verify the path by typing “echo $PYTHONPATH.” You should see the current working directory.
14. Type: test/test\_all\_modules.py