

# Becoming Familiar with the RASP Tools Suite for FPAA's

## Class Website:

<http://users.ece.gatech.edu/phasler/ECE6435/>

## Virtual Machine Download Website:

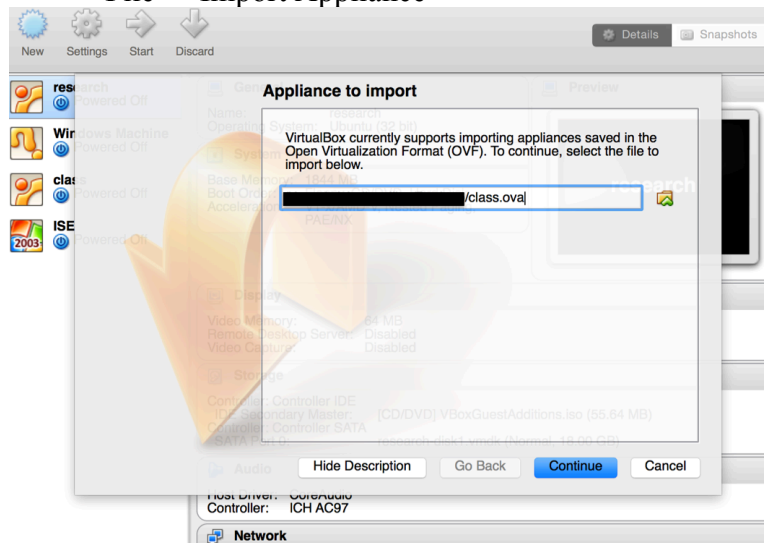
[http://users.ece.gatech.edu/phasler/start/tools/v1/FPAA\\_VM\\_download.html](http://users.ece.gatech.edu/phasler/start/tools/v1/FPAA_VM_download.html)

Setup: [Use links on Virtual Machine (VM) Download Website]

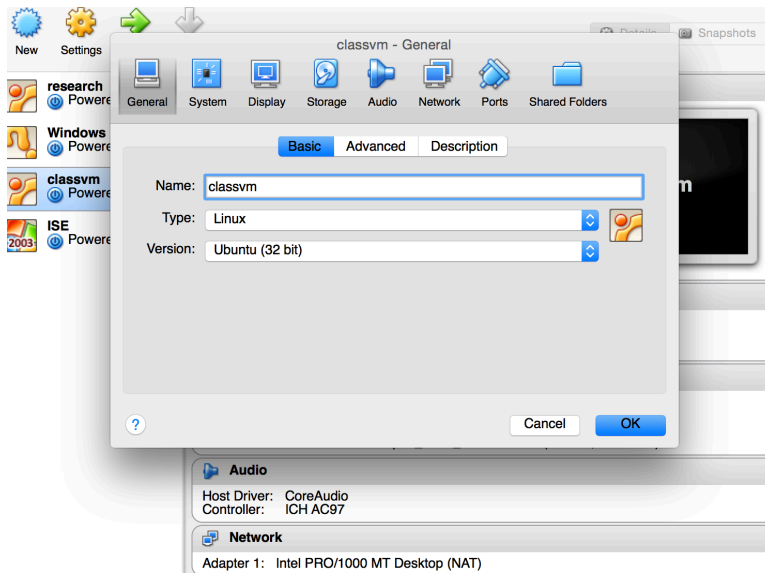
- Download/Install Virtual Box Platform Packages 4.3.20 (latest version)
- Download/Install Virtual Box Extension Pack 4.3.20 (latest version)
- Download Virtual Machine: OVA file for Virtual

## 1. Launch and Import Virtual Machine

File -> Import Appliance

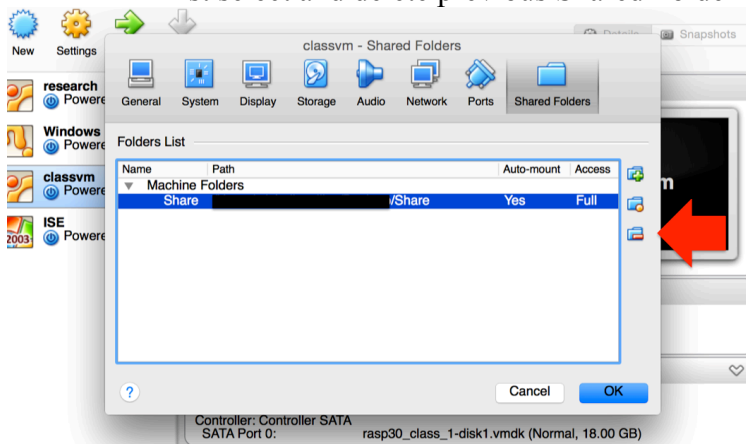


2. Select classvm in left-hand windowpane of Virtual Box and click Settings  
->You can change the name of the VM



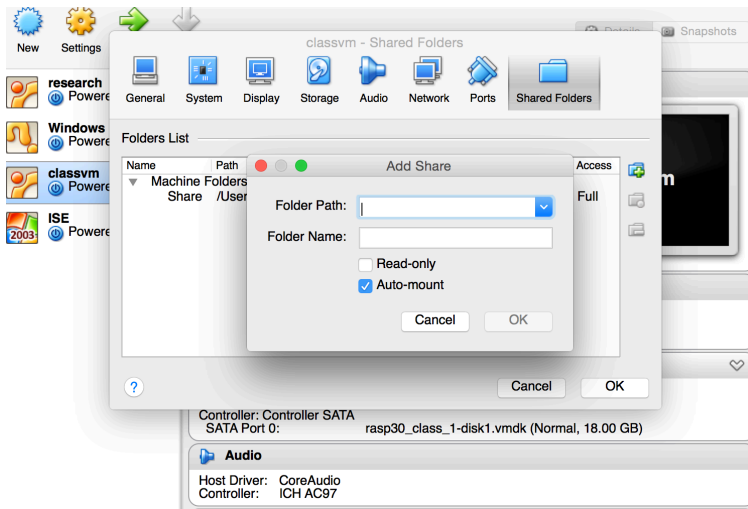
3. Create a Shared Folder [Allows transferring of files from host machine to VM]

→ First select and delete previous Shared Folder



→ Make/Select an exiting folder

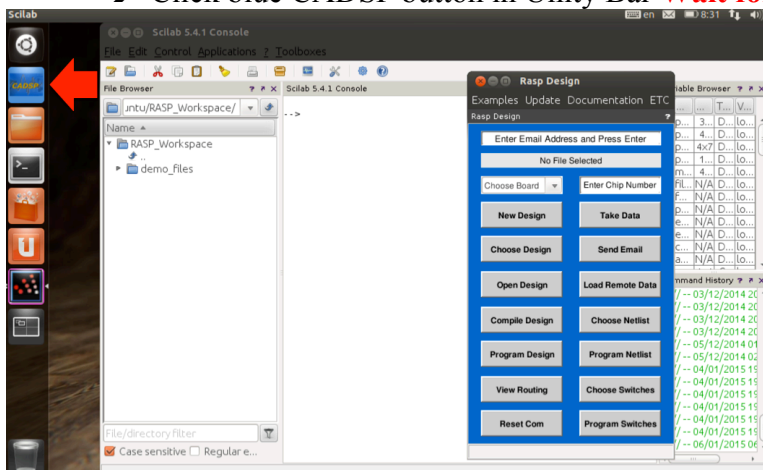
→ Auto-mount should be selected



4. Select the VM and press the green Start Button next to Settings

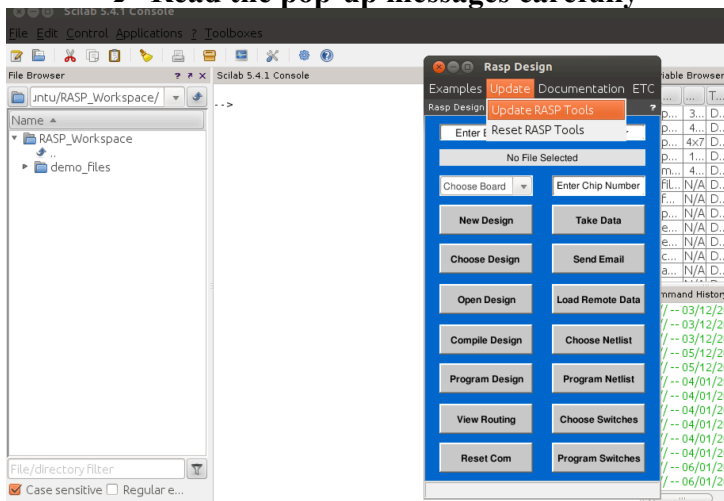
➔ Password is “reverse”

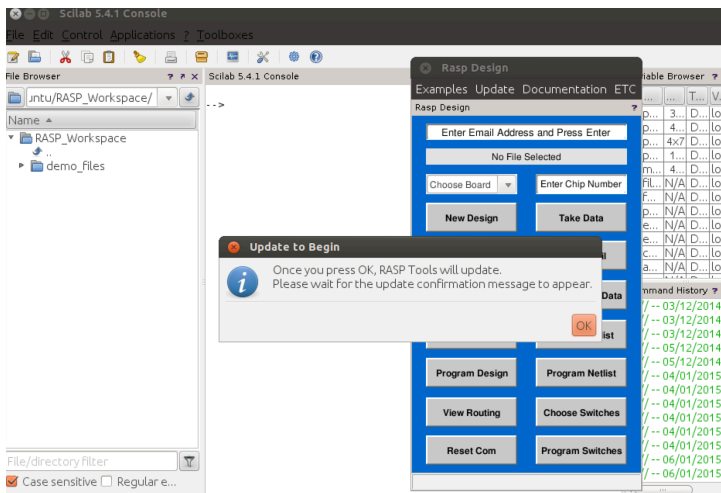
➔ Click blue CADSP button in Unity Bar **Wait for the tools to load**



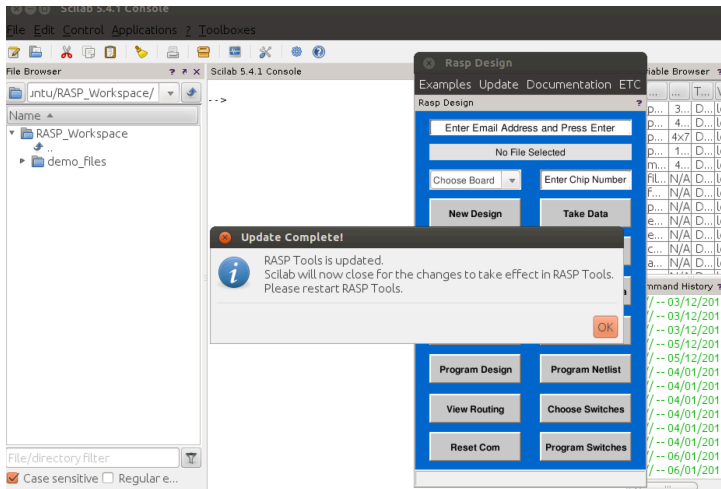
5. Update RASP Tools to the latest version (**You must be connected to the Internet**)

➔ **Read the pop-up messages carefully**



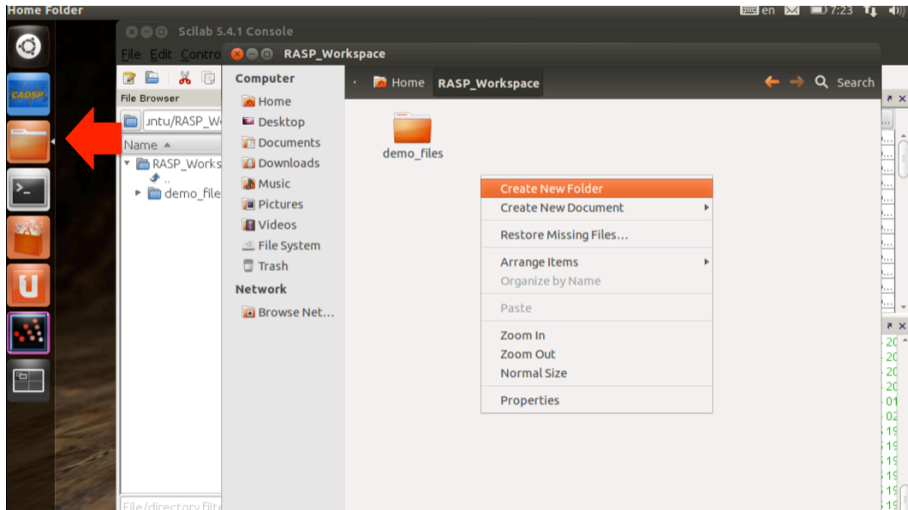


**Wait for the Update Complete message! ...Press ok, and then launch the Tools again.**

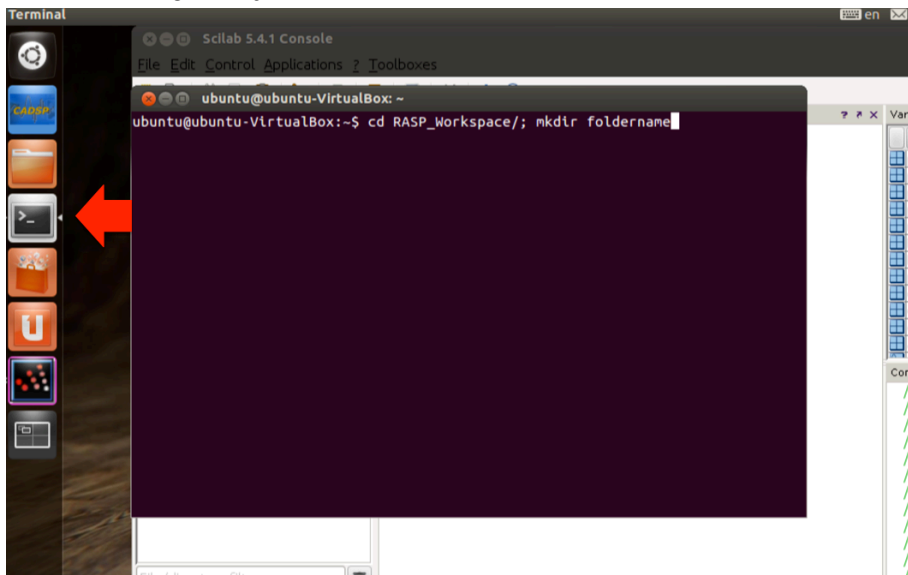


Note:

1. Notice that the default directory is RASP\_Workspace
  - \* We encourage you to make a folder for each of your designs to stay organized
2. You can make Folders different ways (**Create a Folder for your assignment**)
  - Folder Icon è Navigate to RASP\_Workspace and right click for menu



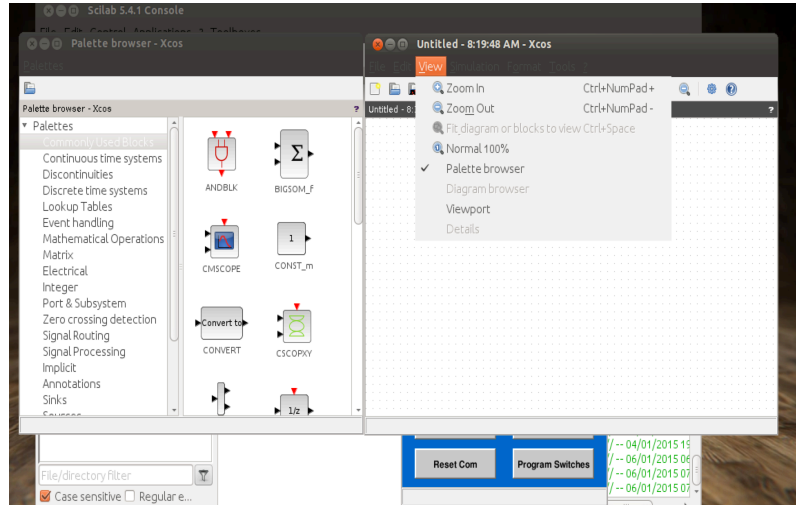
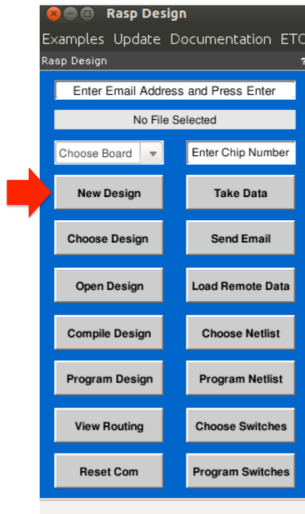
→ Terminal



## Assignment

Take measurements using our remote system.

1. Create a New Design

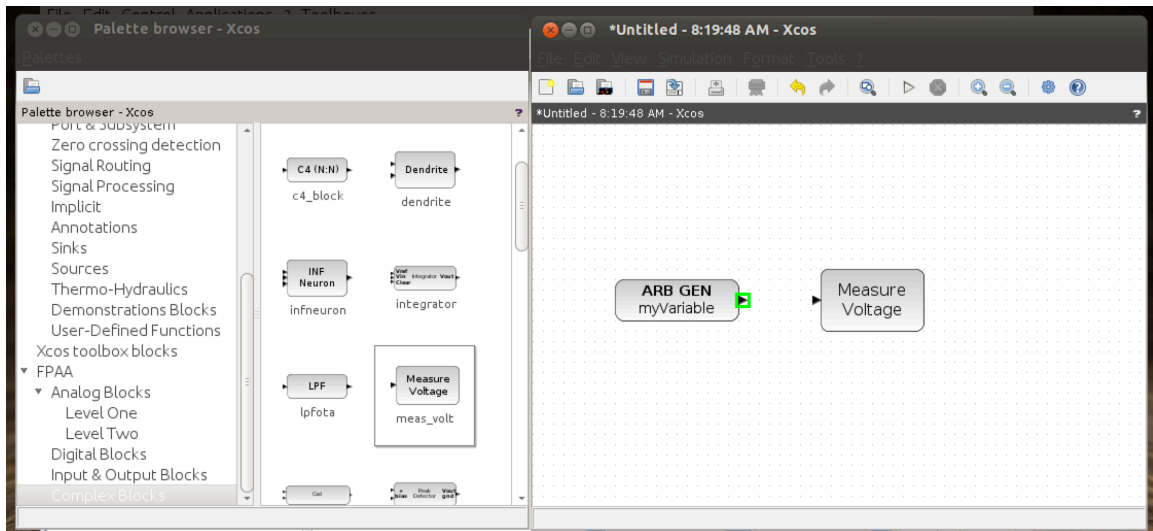


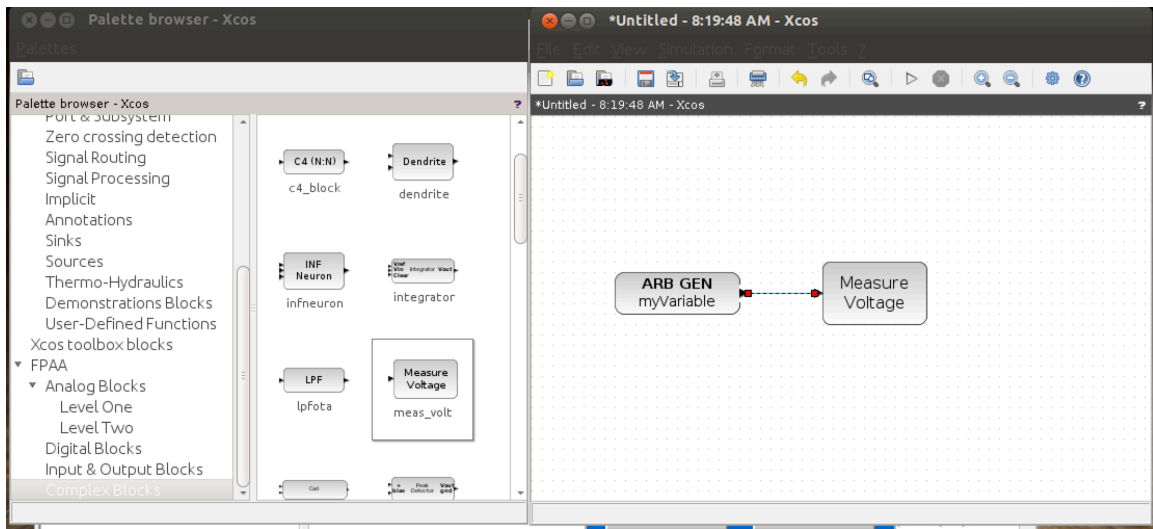
Note:

- Palette Browser contains Scilab standard blocks
- Palette Browser contains RASP Tools library of blocks
  - Scroll down to view Palette “FPAA”
- Palette Browser can always be opened from View Tab → Palette browser

## 2. Drag and drop blocks to Xcos window

- ➔ Arbitrary Waveform Generator block (Input & Output Blocks)
- ➔ Voltage Measurement (Complex Blocks)
- ➔ Click arrow then drag line connector to other arrow

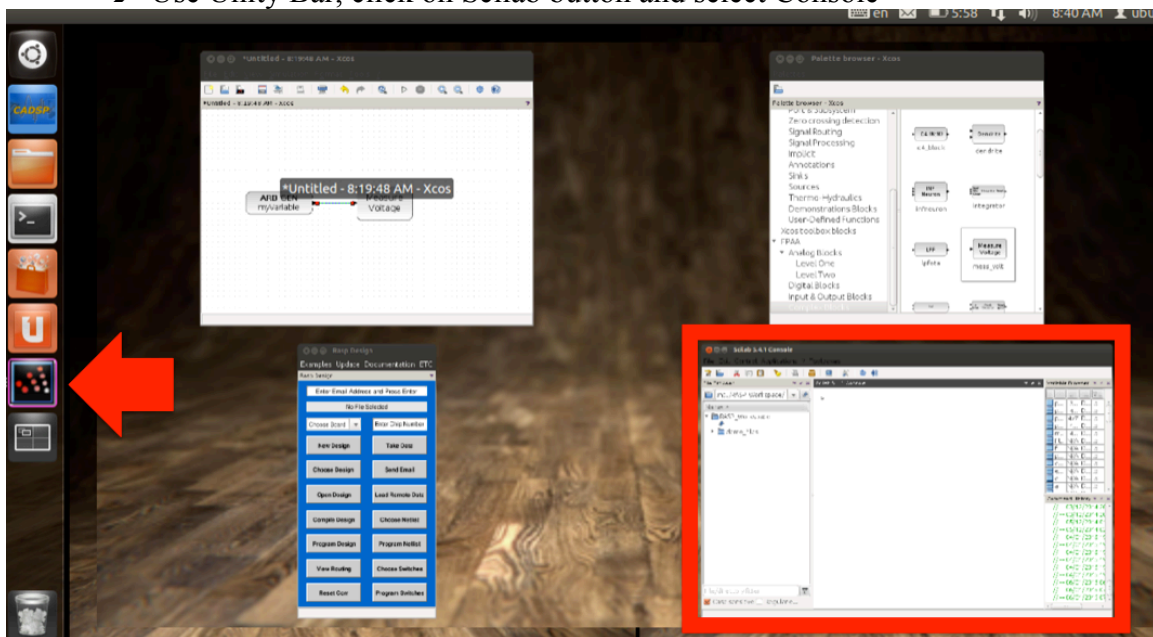




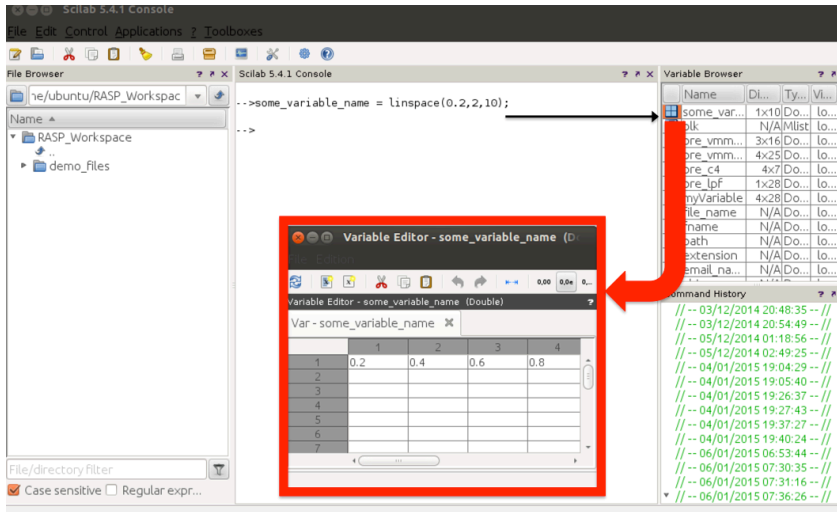
### 3. Navigate to the Scilab Console

Either

- ➔ Alt+Tab (keep pressing tab until you highlight “Scilab 5.4.1 Console”)
- ➔ Use Unity Bar, click on Scilab button and select Console



4. Create a variable containing a vector of voltage values (Min: 0.2 V, Max: 2.5V)
  - ➔ Using a “;” after a command will not display the result in the console
  - ➔ After pressing Enter, your variable will appear in the Variable Browser
  - ➔ By double clicking on the variable, the Variable Editor will appear

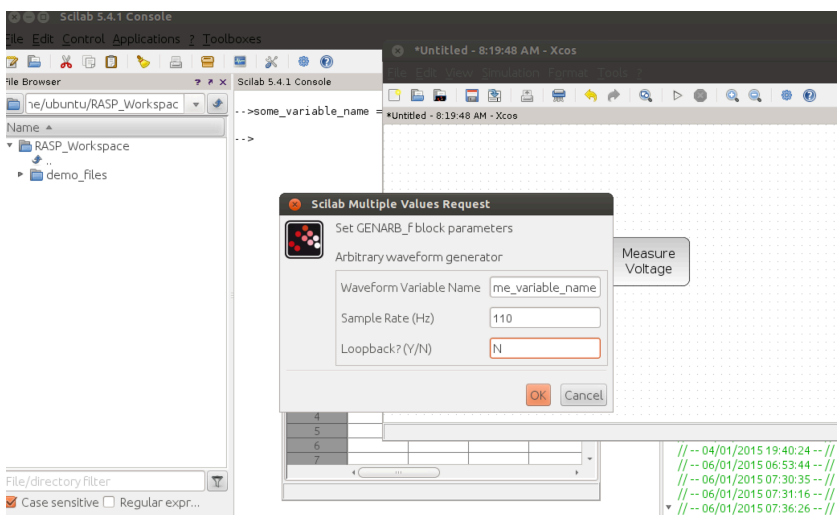


\*Help on linspace:

$[v]=\text{linspace}(x1,x2 [,n])$

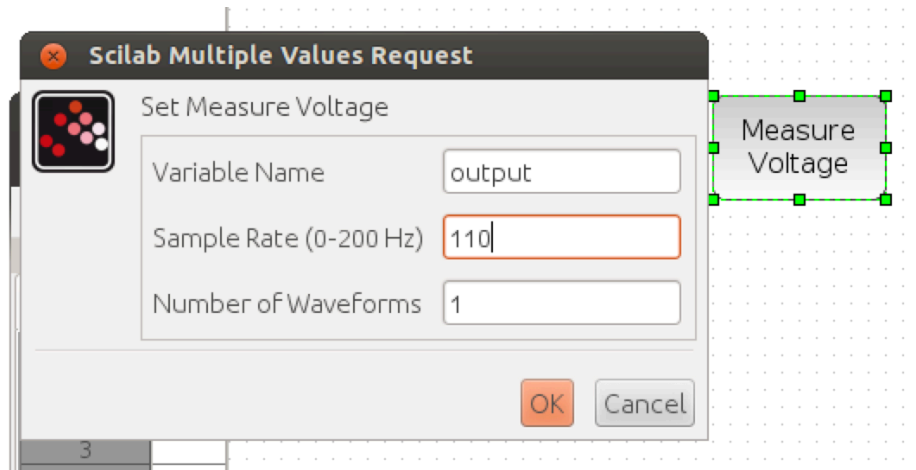
Linearly spaced vector. `linspace(x1, x2)` generates a row vector of `n` (default value=100) linearly equally spaced points between `x1` and `x2`.

5. Navigate to the Xcos window and change Arbitrary Generator block's parameters
  - ➔ Choose One:
    - Double click the block • Right click on the block and select “Block Parameters” • Press Ctrl+B
  - ➔ Change all three parameters and press OK
    - Type in the variable you created
    - Use a Sample Rate < 200
    - Change Loopback to “N”



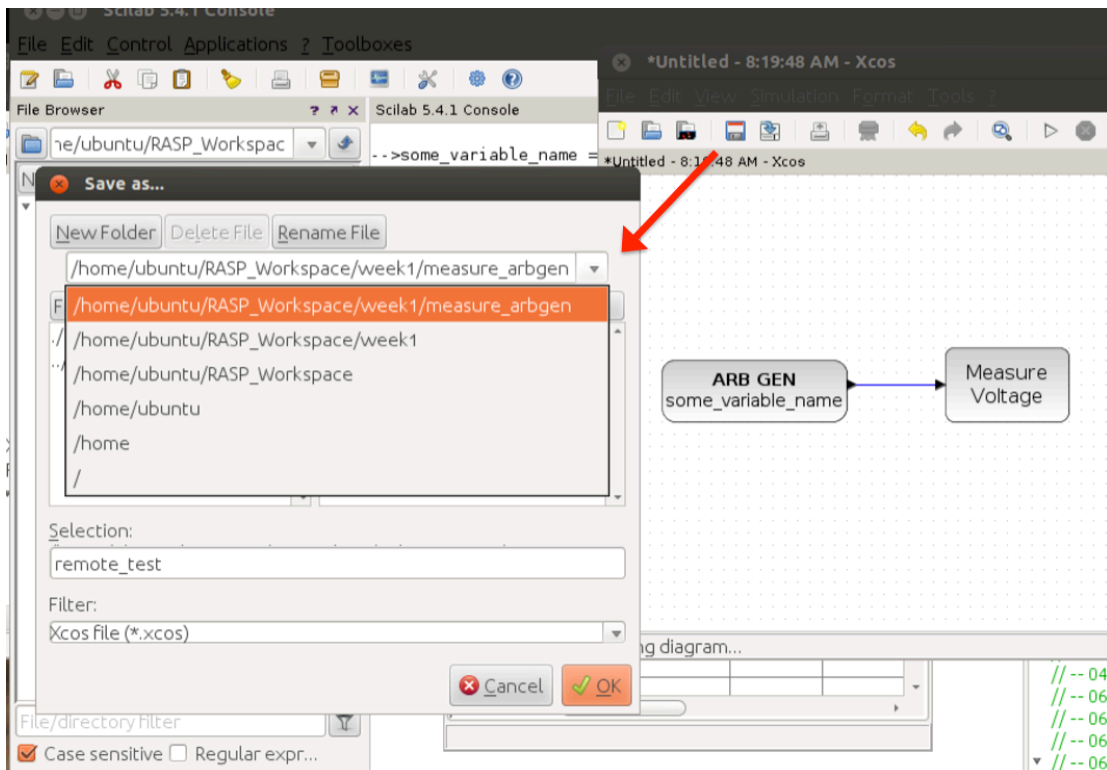


6. Change Measure Voltage block's Sample Rate parameter to the value you chose for Arbitrary Waveform Generator and press OK

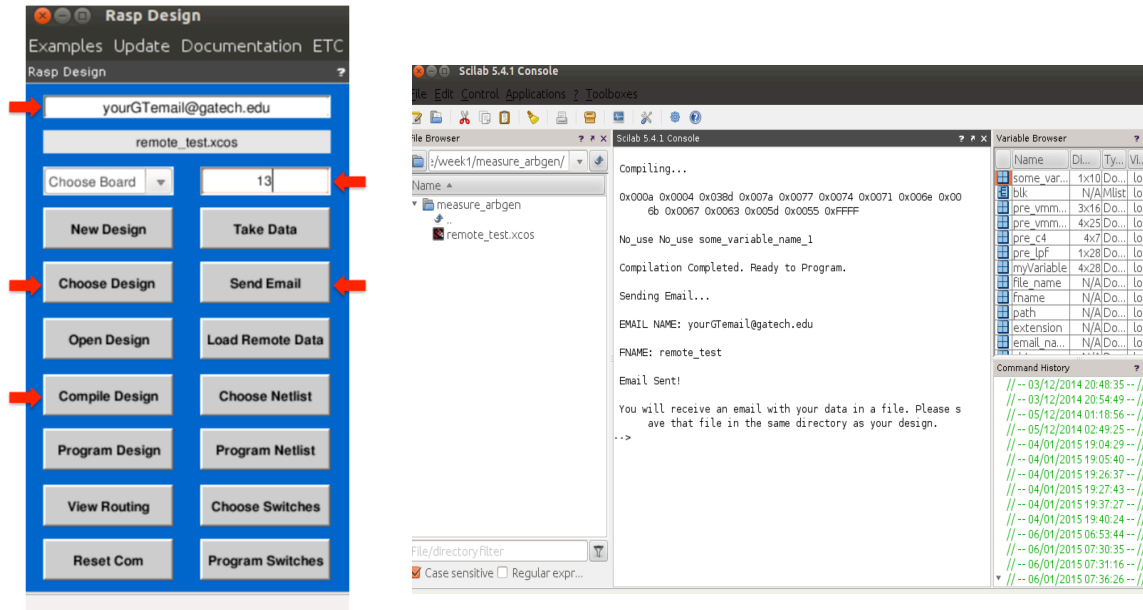


7. Save your Design

- Use File → Save as... OR Save icon in the toolbar
- Navigate to the folder you created and under Filter choose "Xcos file (\*.xcos)"



8. Go to the main blue GUI (Rasp Design)
  - Type your GT email address (Press Enter)
  - Type "13" for chip number (Press Enter)
  - Choose your design
  - Compile your design
  - Send email



\*You will receive an email with your results from the remote system

## 9. Load your results into Scilab

- Rasp Design GUI
  - Choose your design name
  - Type chip number (Press Enter)
- Load Remote Data
  - Download and Save results.zip attachment to your Shared Folder on host machine
  - Move zip file to your design folder (Use File icon or Terminal)
  - Press Load Remote Data on GUI

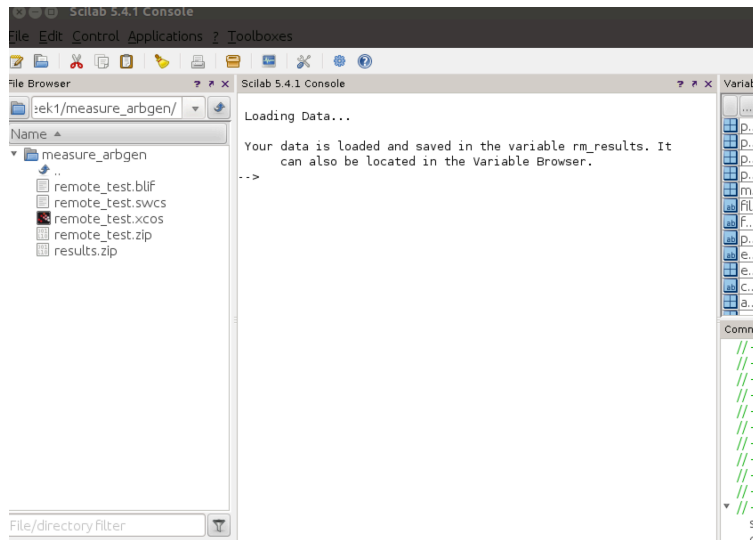
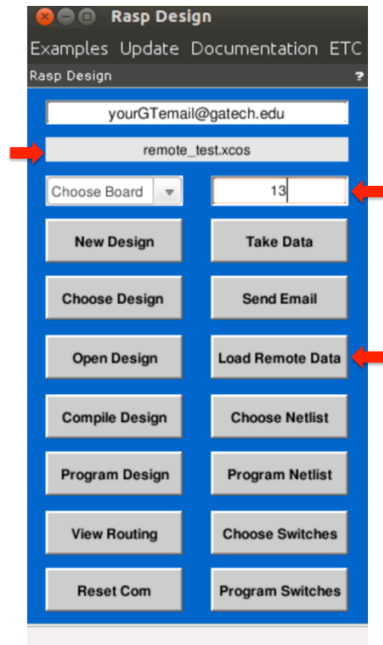
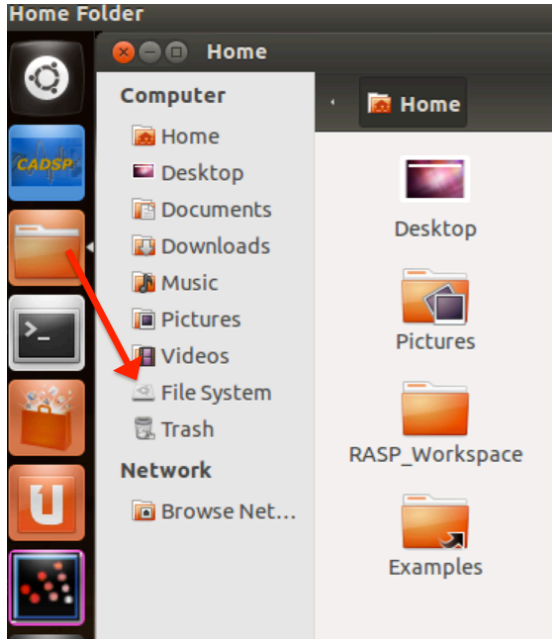
```
ubuntu@ubuntu-VirtualBox: ~
ubuntu@ubuntu-VirtualBox:~$ mv /media/sf_<Shared Folder Name>/results.zip /home/ubuntu/RASP_Workspace/<design folder location>
```

For Example,

```
ubuntu@ubuntu-VirtualBox: ~
ubuntu@ubuntu-VirtualBox:~$ mv /media/sf_Share/results.zip /home/ubuntu/RASP_Workspace/week1/measure_arbgen/
ubuntu@ubuntu-VirtualBox:~$
```

If using File icon to relocate zip file...

- File System → media folder → sf\_<Your Shared Folder Name>



10. Look at your results via the Console

Either Type

→ rm\_results (results appear in Console)

→ editvar rm\_results (results appear in Variable Editor)