

# Becoming Familiar with the RASP Tools Suite for FPAAs

## Class Website:

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

## Virtual Machine Download Website:

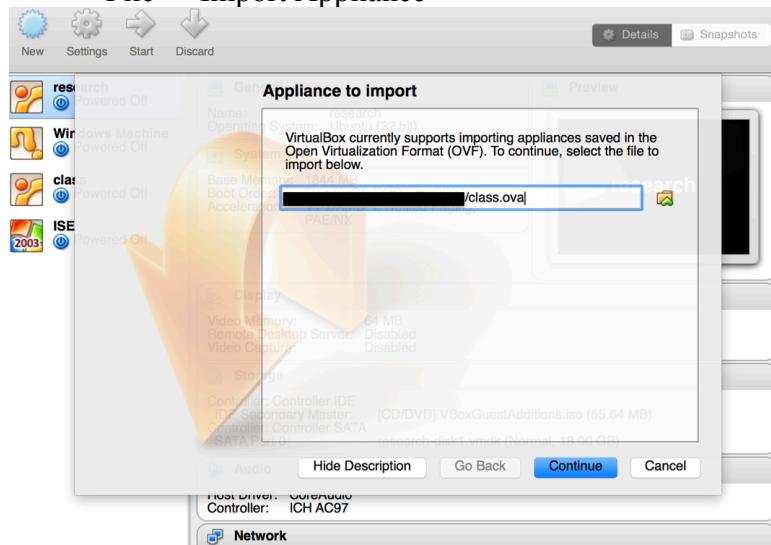
[http://users.ece.gatech.edu/phasler/start/tools/v1/FPAA\\_VM\\_download.html](http://users.ece.gatech.edu/phasler/start/tools/v1/FPAA_VM_download.html)

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

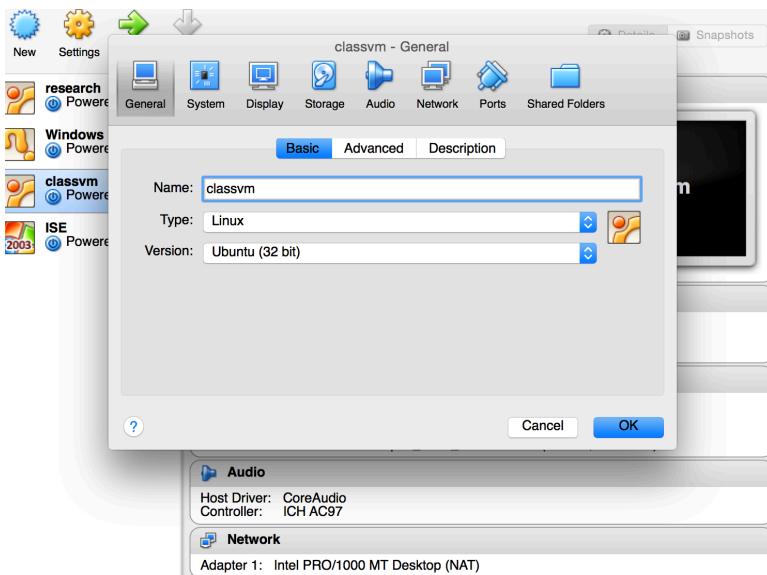
## 1. Launch and Import Virtual Machine

File -> Import Appliance



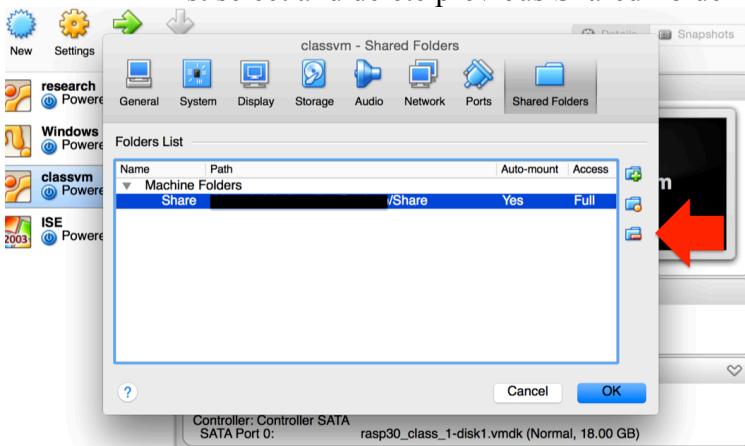
## 2. Select classvm in left-hand windowpane of Virtual Box and click Settings

->You can change the name of the VM



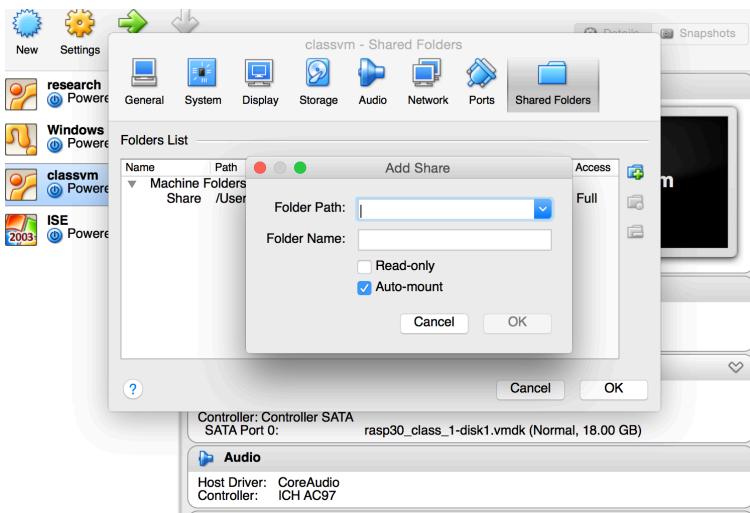
### 3. Create a Shared Folder [Allows transferring of files from host machine to VM]

→ First select and delete previous Shared Folder



→ Make/Select an existing folder

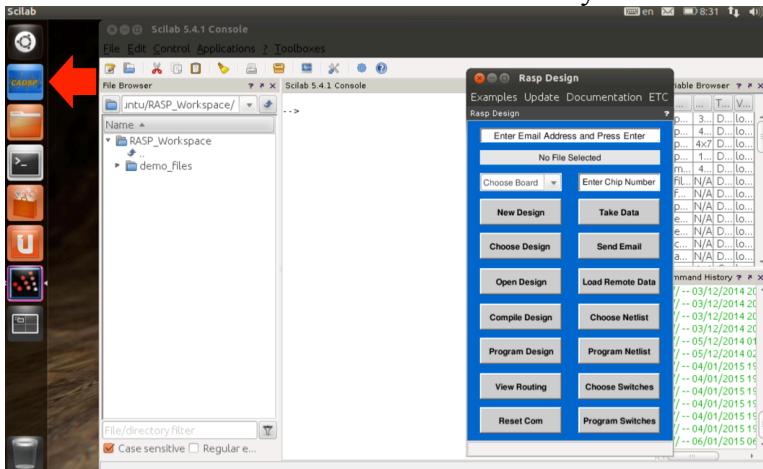
→ Auto-mount should be selected



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

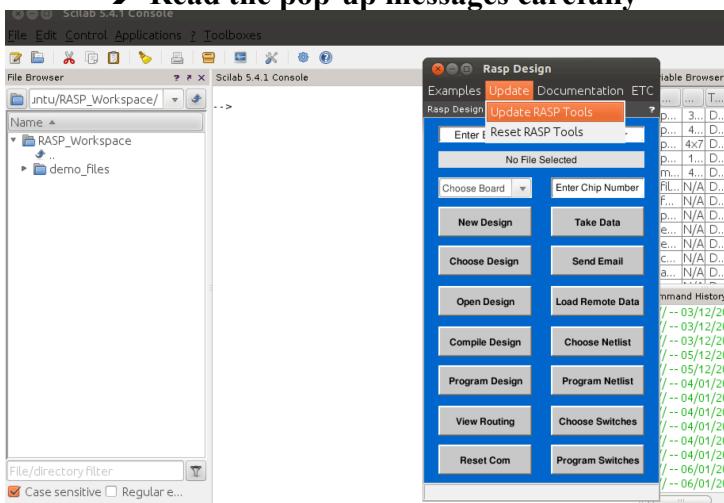
→ Password is “reverse”

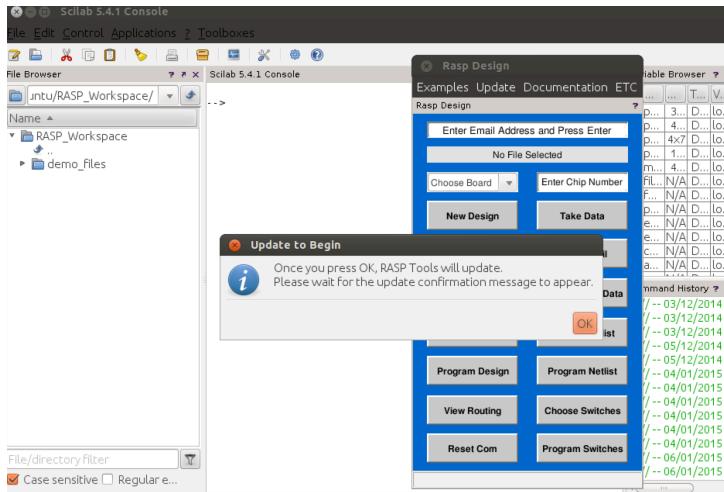
→ Click blue CADSP button in Unity Bar **Wait for the tools to load**



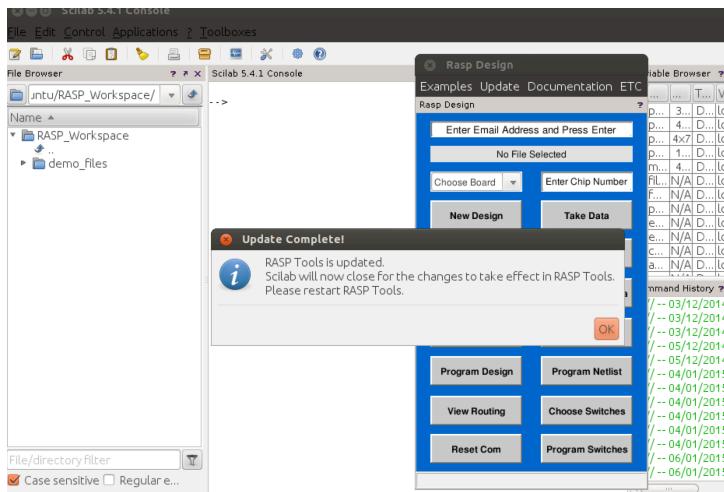
5. Update RASP Tools to the latest version (**You must be connected to the Internet**)

→ Read the pop-up messages carefully



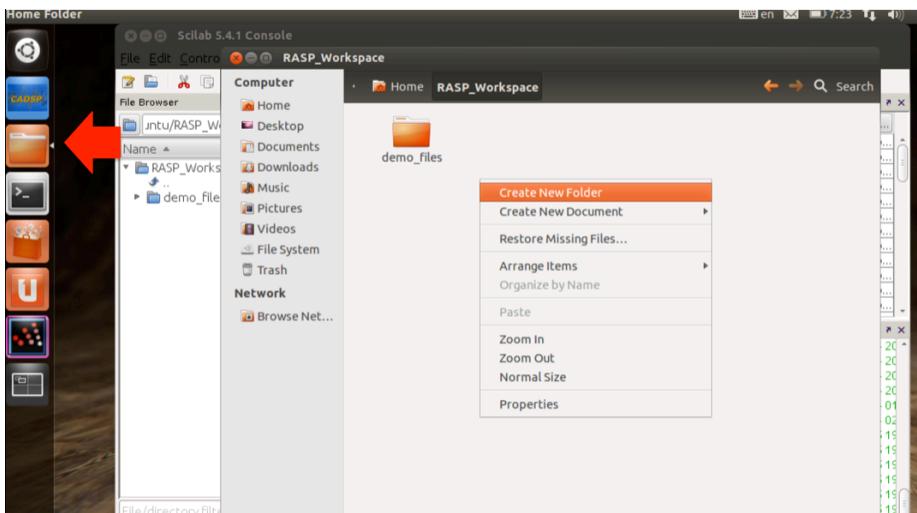


**Wait for the Update Complete message! ...Press ok, and then launch the Tools again.**

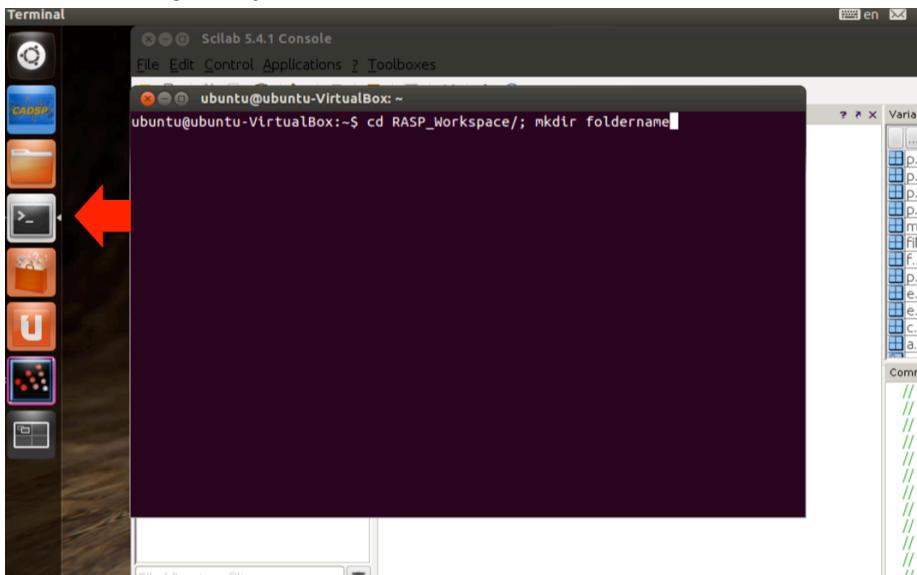


**Note:**

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



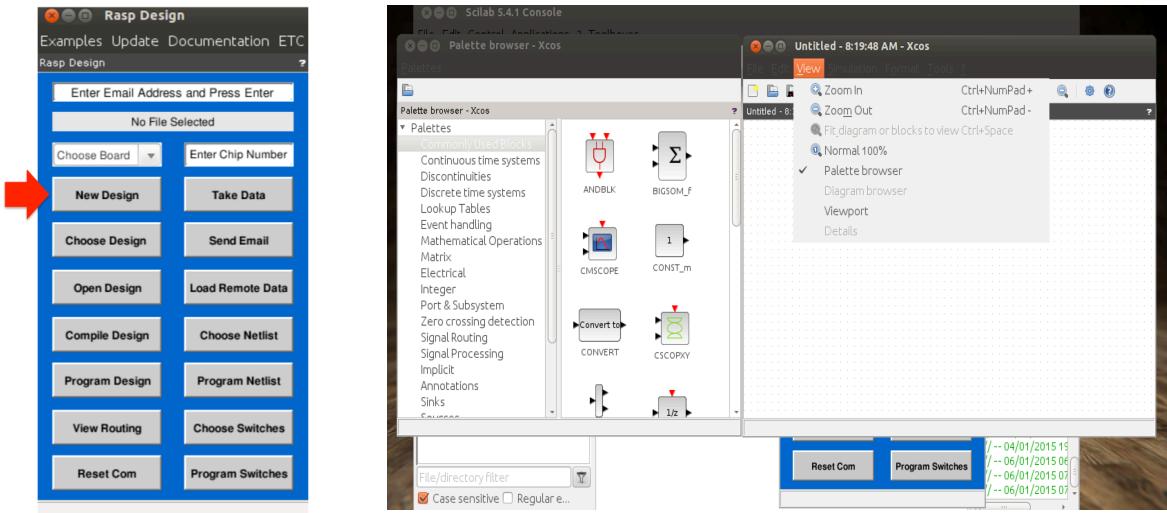
→ Terminal



## Assignment

Take measurements using our remote system.

1. Create a New Design

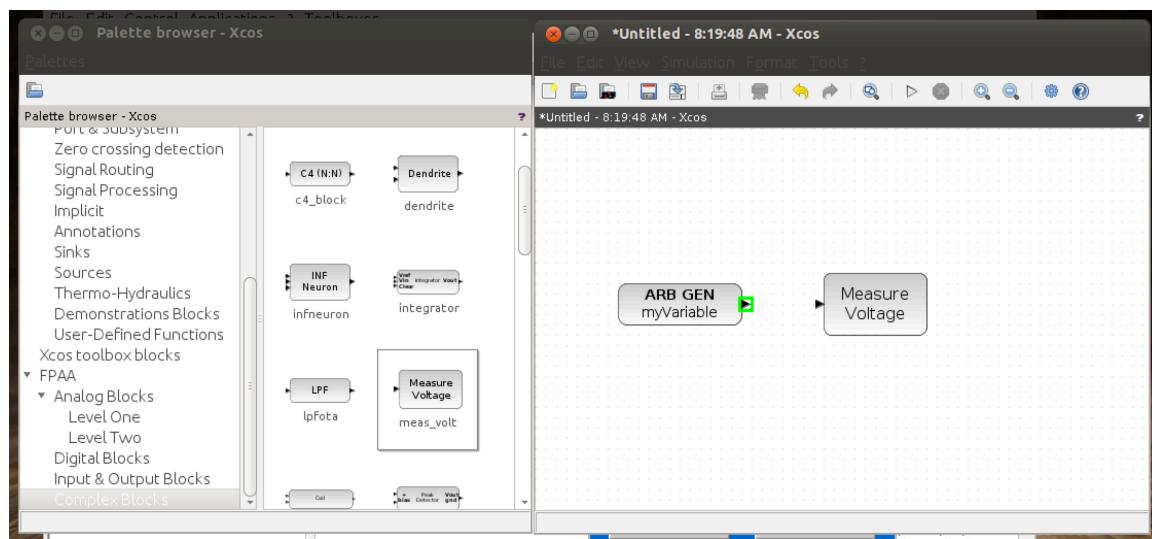


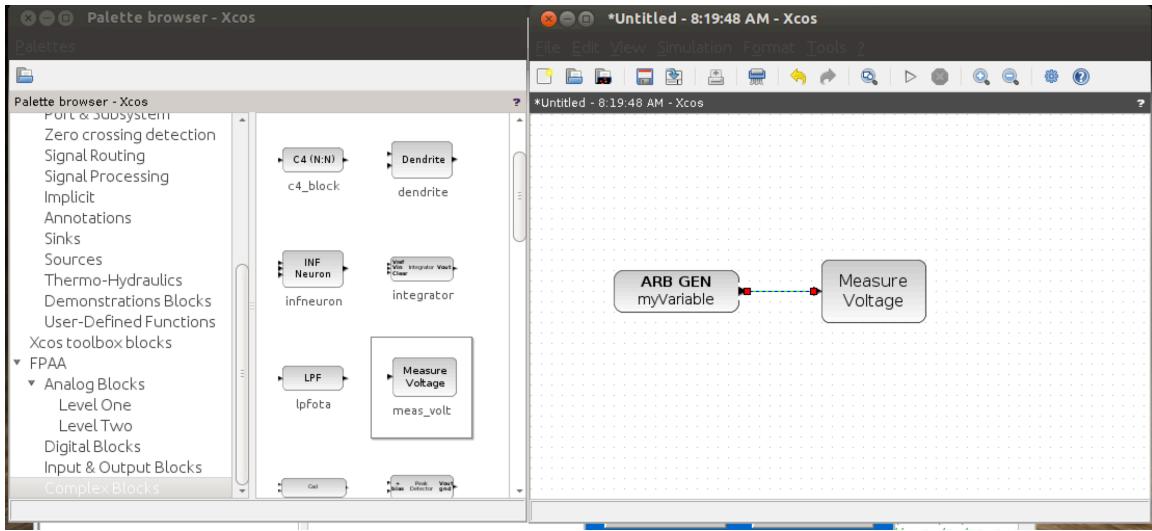
Note:

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

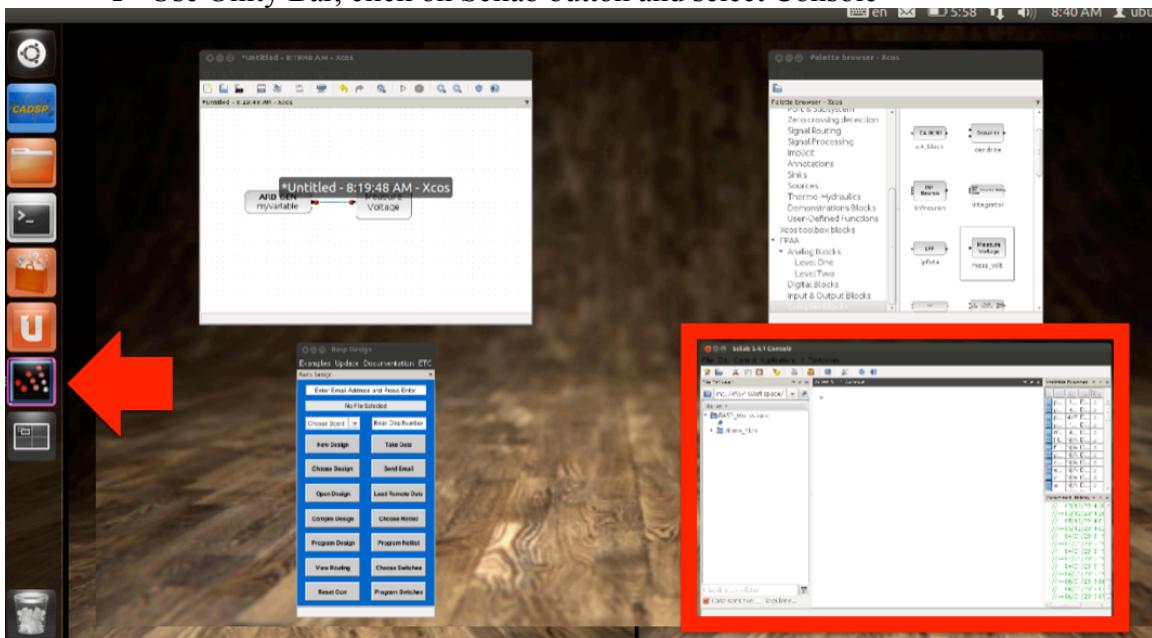




### 3. Navigate to the Scilab Console

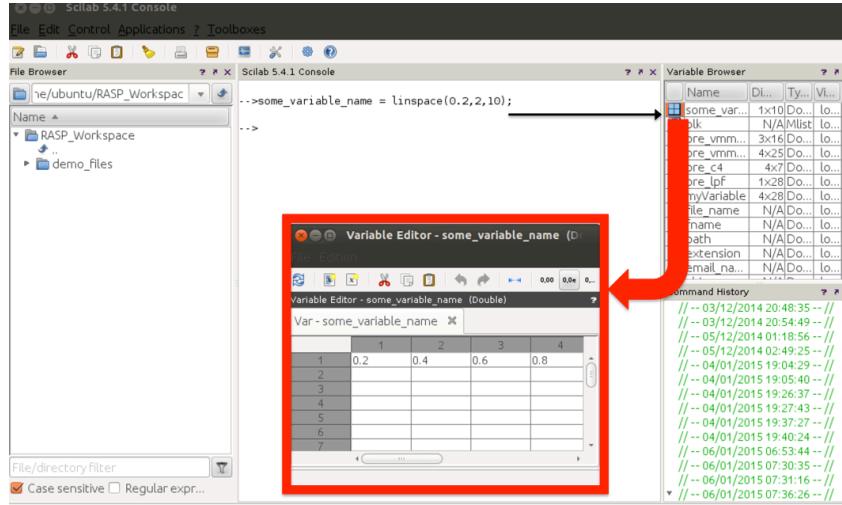
Either

- ➔ 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



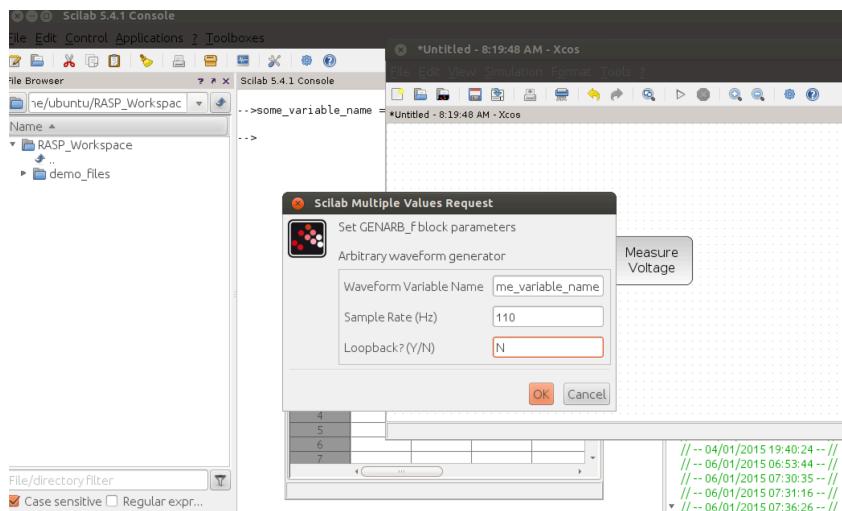
\*Help on linspace:

`[v]=linspace(x1,x2 [,n])`

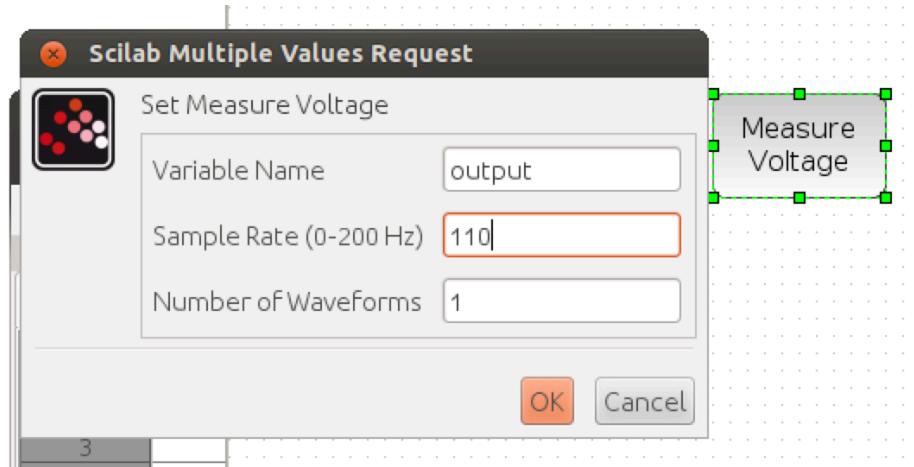
Linearly spaced vector. linspace(x1, x2) generates a row vector of n (default value=100) linearly equally spaced points between x1 and x2.

#### 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”

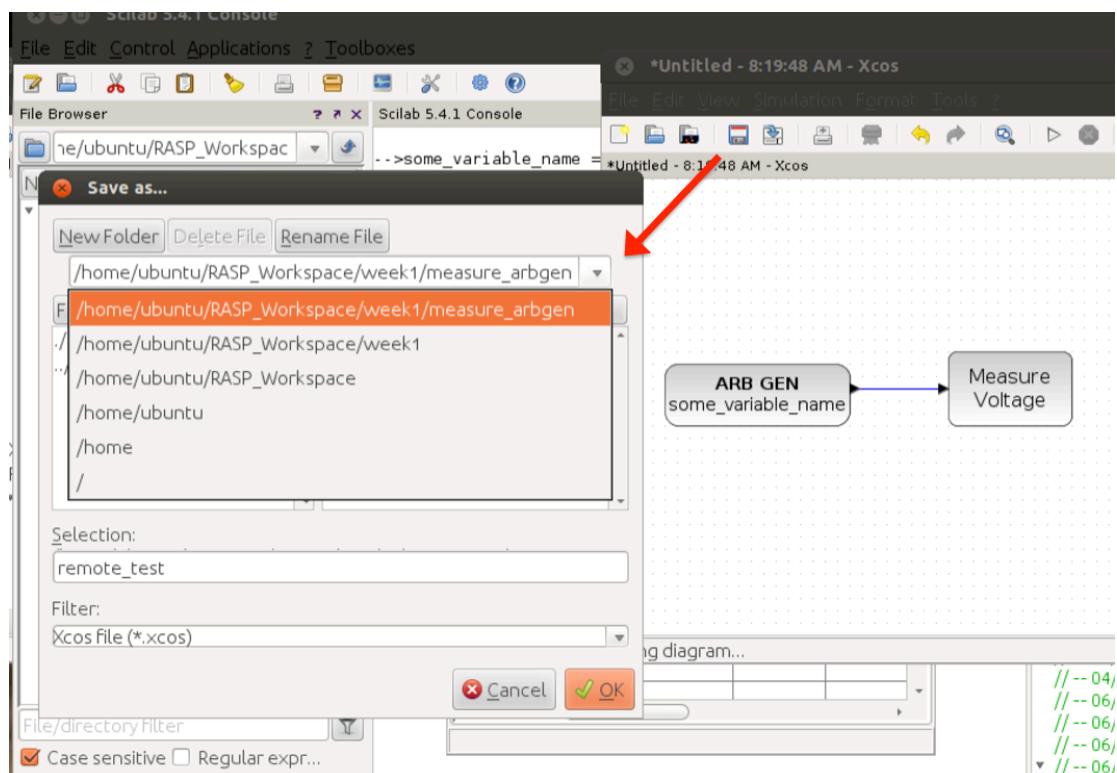


6. Change Measure Voltage block's Sample Rate parameter to the value you chose for Arbitrary Waveform Generator and press OK



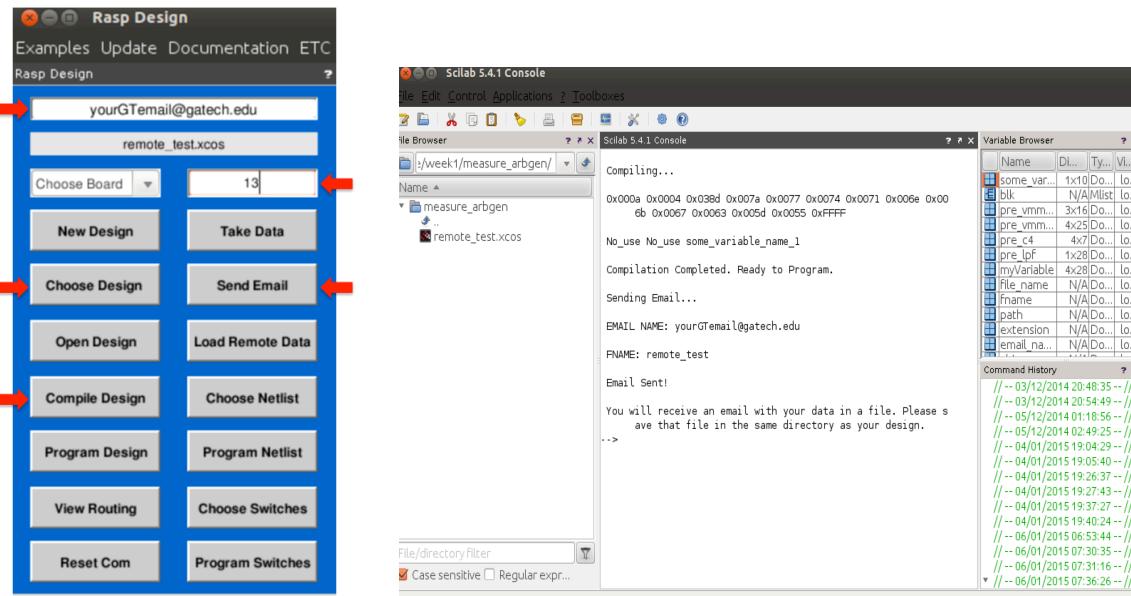
## 7. Save your Design

- Use File è 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

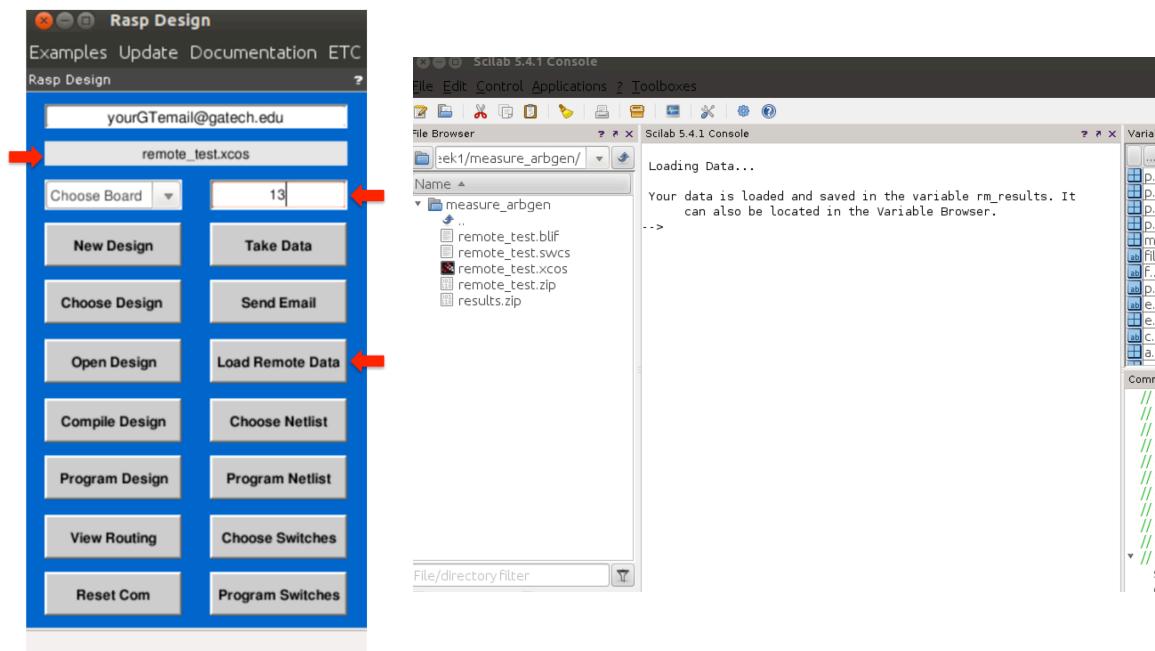
```
ubuntu@ubuntu-VirtualBox:~$ mv /media/sf_<Shared Folder Name>/results.zip /home/ubuntu/RASP_Workspace/<design folder location>
```

For Example,

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

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)