

## Sequence of Operation

### Installing Program Dependencies

1. Go to [www.anaconda.org/download/](http://www.anaconda.org/download/)
2. Verify that anaconda python is installed and added to your environment variables.
  - Open your terminal or command prompt
  - Type “python –version”
  - If there an error, please check and reinstall
  - Watch this YouTube video on installing anaconda python in the event of errors, <https://www.youtube.com/watch?v=dgjEUcccRwM>
3. Now install pip
  - Watch this YouTube video on installing pip <https://www.youtube.com/watch?v=zPMrOIEMqpo>
4. Once python and pip have been installed and added to environment variables, verify using the following steps.
  - Open Command Prompt
  - Type “python –version” this should display the python version installed on your pc.
  - Type “pip –version” this should display the pip version installed on your pc.
5. Install the following modules using pip by typing the following commands in command prompt.
  - “pip install pythonnet” – This allows the python program to use .NET framework.
  - “pip install pyautogui” – This library is used by commands 1 and 3. Can be ignored if not needed.
6. Next go to the link below and install Waveforms.
  - <https://reference.digilentinc.com/reference/software/waveforms/waveforms-3/start> - This will allow GUI interface with the Analog Discovery Waveforms.

### Source Code Modifications

Some commands on the interface will generate an error if run without making the modifications under this section. Specifically, Command ID # 1 and 3, these commands interface directly with the Waveforms GUI.

1. Open “lazarus.py” from the source codes.
2. In “def rise():” change the file path to the full file path of the source code directory on your pc.
  - “C:/Users/Warlock/Desktop/ ” will change to match the full path of the current directory location.
  - “/Lazarus 2/Backup.dw3fwork” will remain the same.

## Power Supplies

Please be gentle when plugging in supplies to avoid the platform ripping off, platform was glued down and held with 3M Command Strips.

1. Plug in the power Supplies. You will need the following:
  - +3.3 V
  - +5.0 V
  - +15.0 V
  - -15.0 V
2. Banana plugs are needed for the power supply ports.

## Program Configurations

1. On the USB Port to the Side Push the buttons to Enable the following
  - SDP
  - ADK
2. Open the PLL GUI (ADF4158-9) and program the PLL's one after the other.
  - First push the button to turn on the Horn.
  - Once connected go to the Main Controls Tab
  - Click File -> Load Configuration
  - Navigate to the Lazarus 2 directory and choose ADF4159\_HORN.
  - Click Write All Registers in the bottom right corner.
  - Push the horn button again on the system to disconnect the horn.
  - Repeat the steps above but for the PLL, use ADF4159\_PLL.
3. Next open your command prompt. Navigate to the Folder titled Project Lazarus.
4. Begin Program by typing:
  - Python main.py
5. The interface should work as intended now.
6. In the event of errors please read the error throwback and check the steps for missteps.

If further assistance is needed please contact Frank M, preferably by email.

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