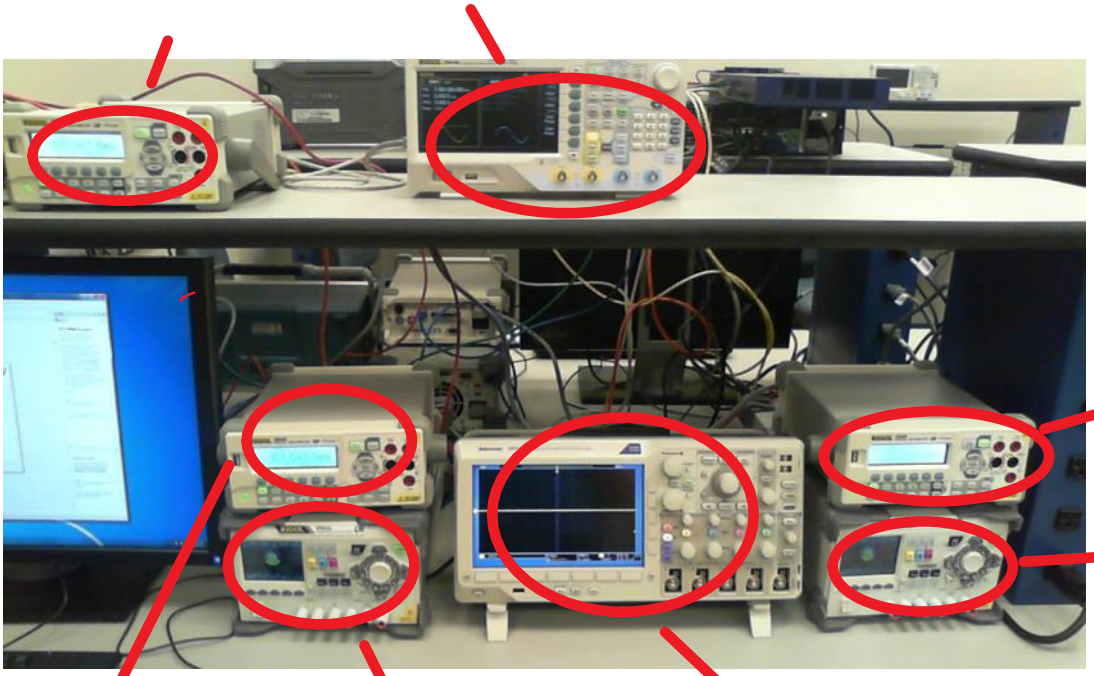
Equipment location

Friday, July 26, 2013 13:58

DMM
DM3068UL
(Upper Left)
192.168.1.3

Function Generator
DG4162
192.168.1.7



DMM
DM3068LR
(Lower Right)
192.168.1.4

Power supply
DP831LR
(Lower Right)
192.168.1.9

DMM
DM3068LL
(Lower Left)
192.168.1.5

Power supply
DP831LL
(Lower Left)
192.168.1.8

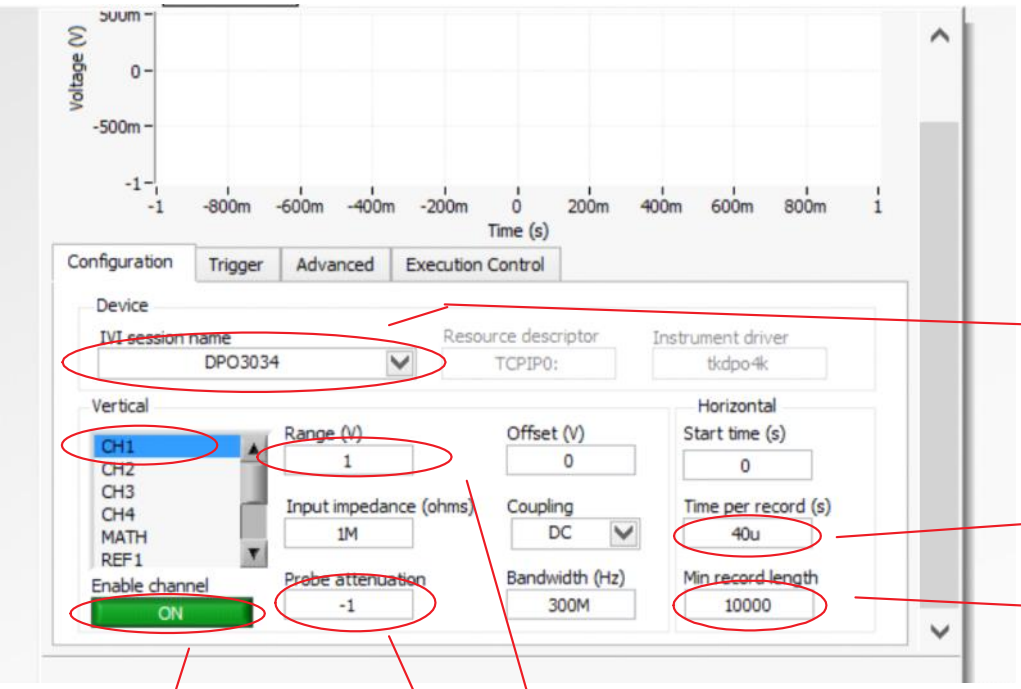
Oscilloscope
DPO3034
192.168.1.6

Bench layout and equipment names and IP address for National Instrument Signal Express

Scope setup

Monday, July 29, 2013 21:44

Configuration Tab:



Select the device, in this case the DPO3034 scope

set the time per record to 10* time /Div

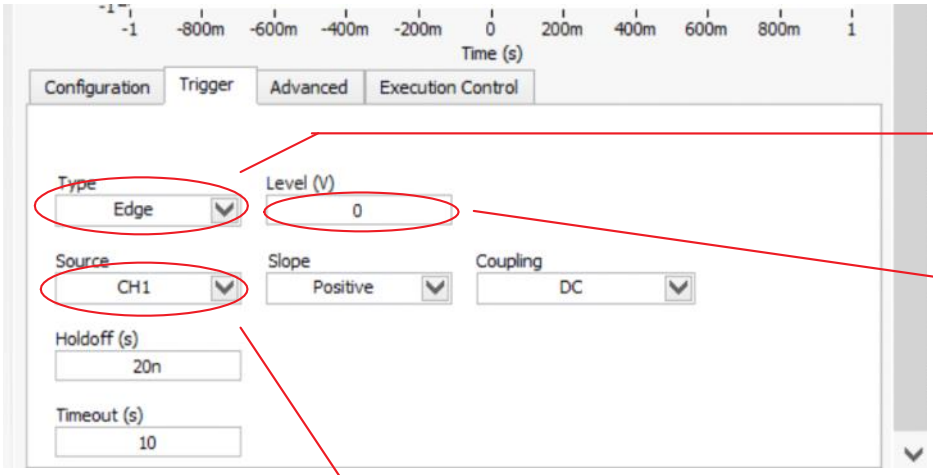
Set max record length to 1000

- Select the channel and set on or off

Set range (V) to the V/Dev * 10

Set probe attenuation to 1 or 10 based on the probe type

Trigger Tab:

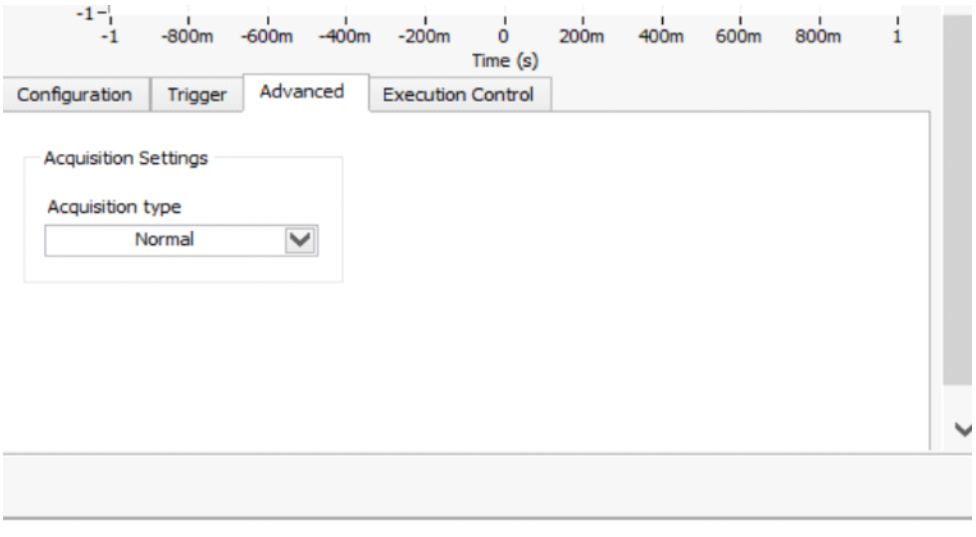


Must be edge or line

Set to a voltage that is within the range of the input signal

Must be a channel that has a signal to trigger on The step will fail with a time out error if there is no signal.

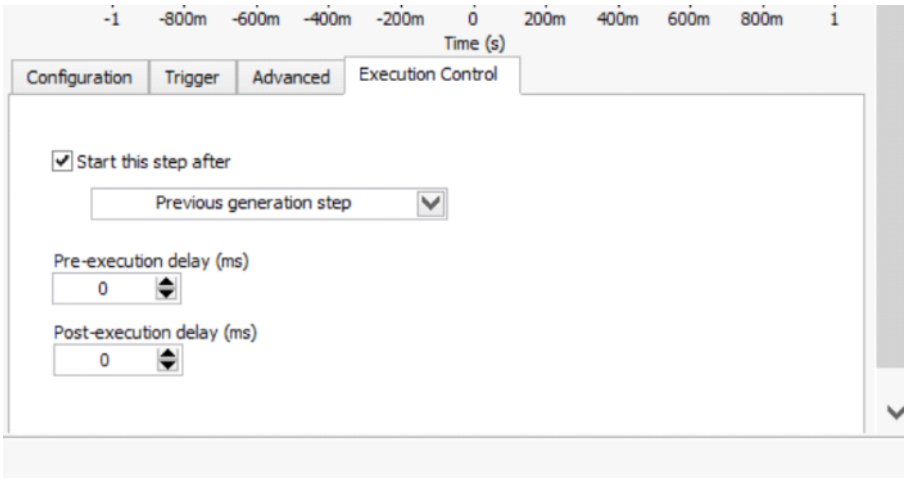
Advanced Tab: no change



No change to this tab

Execution Control:

No Change to the execution tab

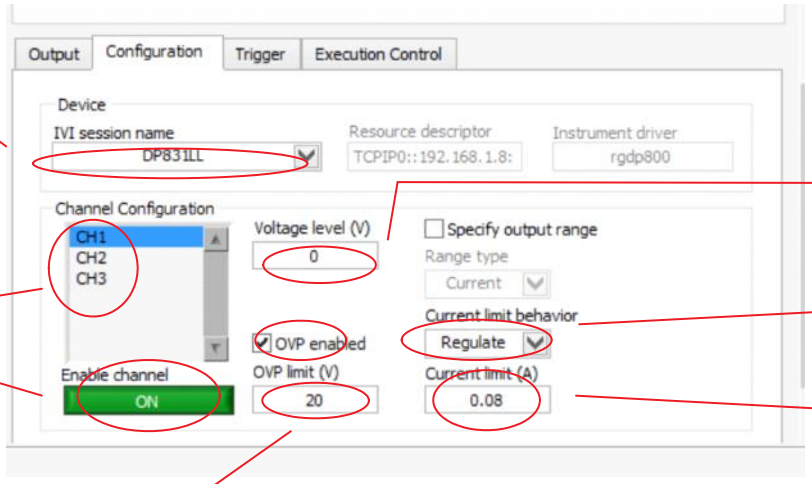


Setting DC power supply

Friday, August 2, 2013 07:30

Configuration tab

Select the power supply you wish to control.
DP831LL (Lower Left)
DP831LR (Lower Right)



If this step will set a static power supply voltage. Then set Voltage level to the voltage that you need.

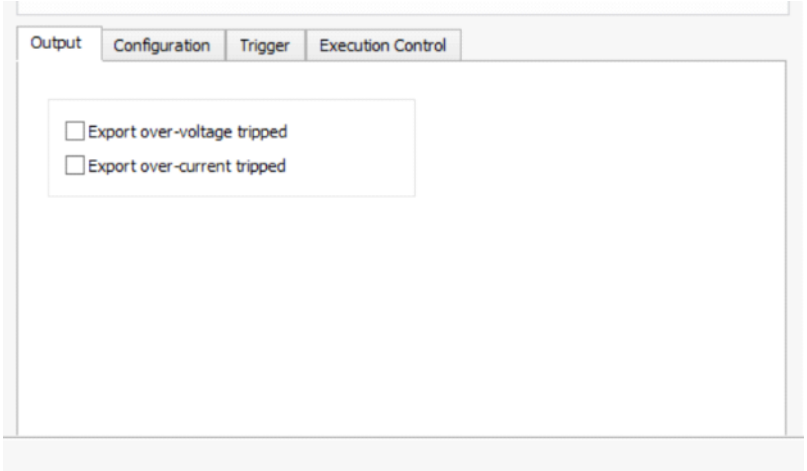
Select each power supply and turn on or off as needed
CH1 = 8V
CH2 = +30V
CH3 = -30V

Set current limit behavior to Regulate on all three of the supplies

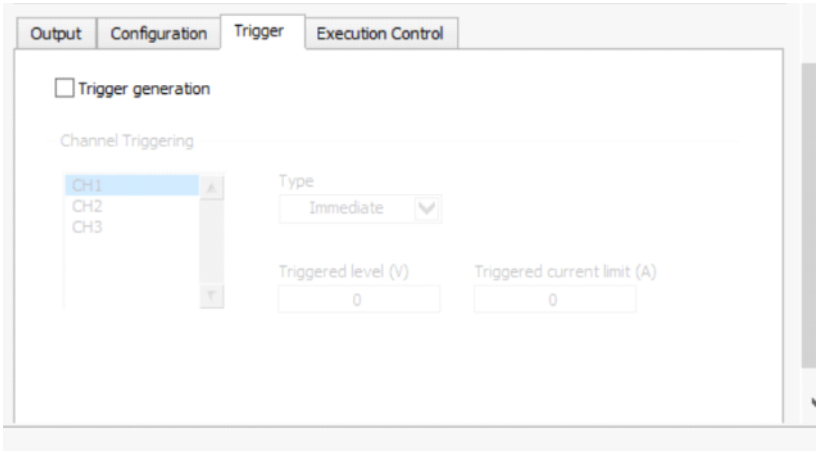
Set the Current limit to 0.20 (200mA) on all supplies

Must enable OVP (over voltage protection)
To set the OVP limit.
Set the limits to:
CH1 limit = 8
CH2 limit = 30
CH3 limit = 30

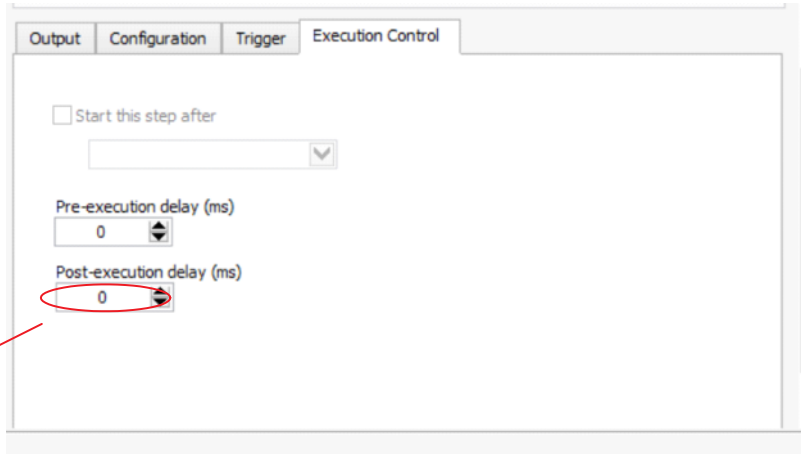
Output Tab:
No change



Trigger Tab:
No change



Execution Control Tab:



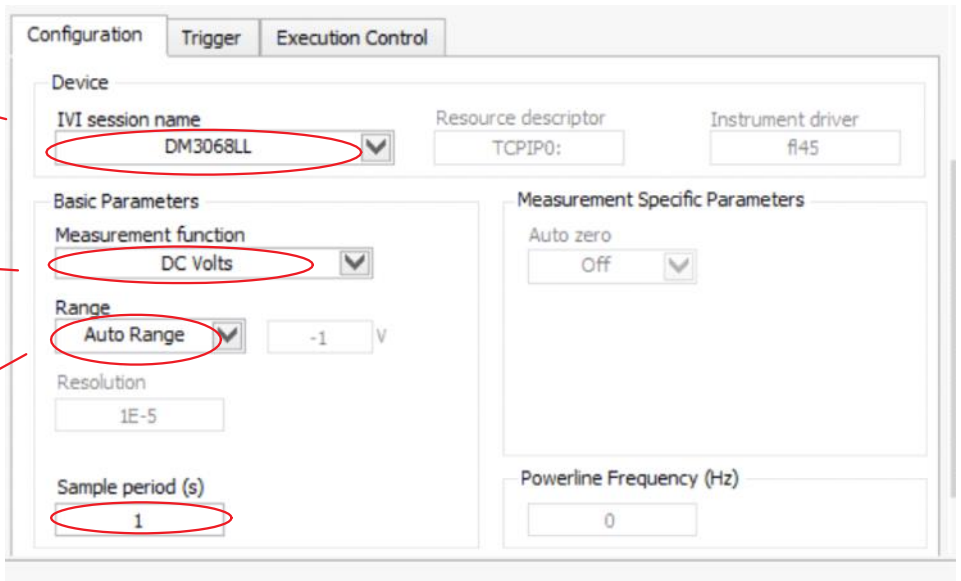
Set Post-execution delay to 1500ms

Configuration Tab

Select the DMM:
DMM3068LL
DMM3068LR
DMM3068UL

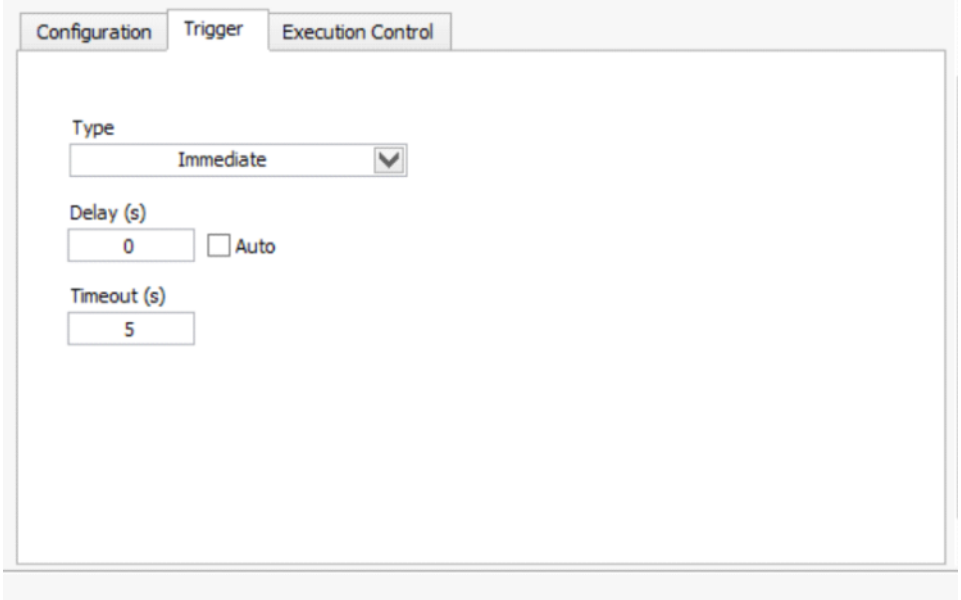
Select the Measurement Function:
AC Volts
DC Volts
AC Current
DC Current

Set Range to Auto



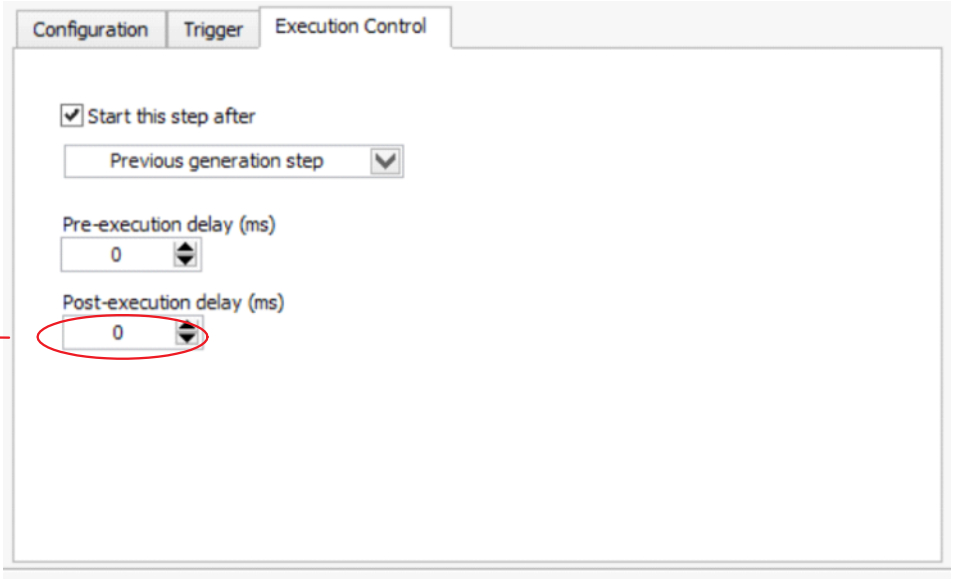
Set the sample period to 0

Trigger Tab
No Change



Execution Tab

Set Post-execution delay to 400ms

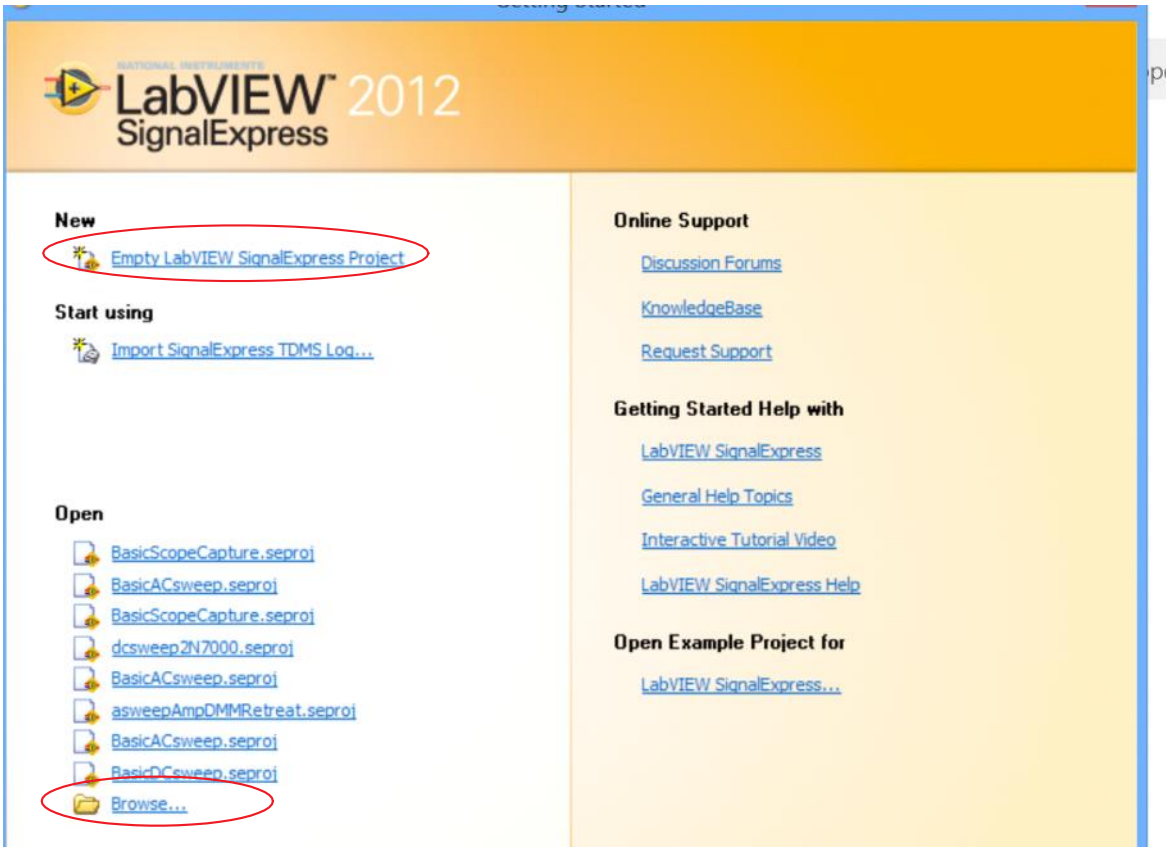


Starting a project

Thursday, September 12, 2013 09:29

Opening a project

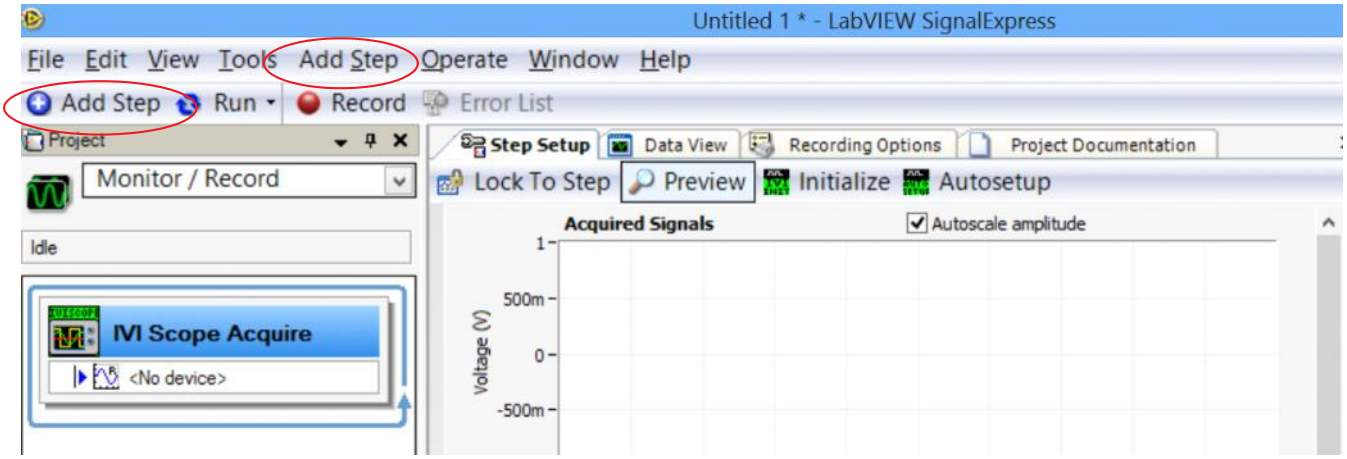
Select an empty project or Browse to saved project



Adding a Step

For an empty project or adding to an existing project
Open the **Add Step** tab and select the type of step you would like to add to your project.

The steps will allow you to acquire data from the laboratory instruments, control the generation of signals and voltages for your experiment setup. The Processing and Analysis steps allow you manipulate the collected data. The Execution steps allow you to control the flow of your project.
Note: the cursors do not work with the XY graph.

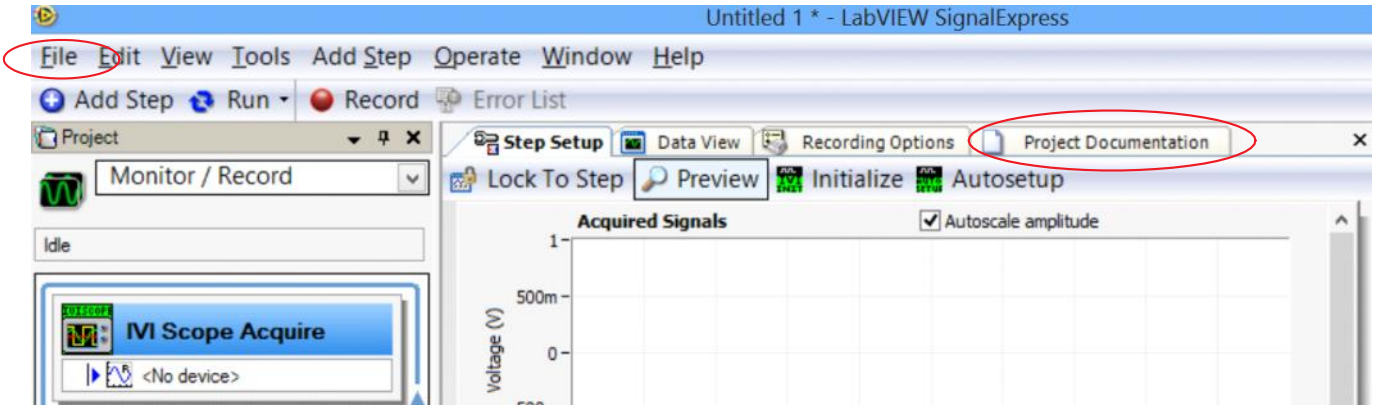


Save your project

After you are finished writing your Signal Express project select the **File** Tab and select **Save Project As…** save it to your flash drive.

Project Documentation

The **Project Documentation** tab will open a document that can be saved and printed later. You can enter descriptions and included plot generated by your projects.
When finished with document select the **File** tab. Select **Export** then **Export Documentation to HTML**



Remember to save everything that you will need later to your Flash memory drive.

Scope capture

BasicScopeCapture.seproj

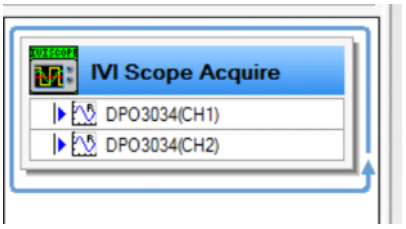
Copy this project to your flash drive and modify.

Start National Instruments SignalExpress select an empty project. Under file tab Open Project browse to C:SEprojects and load project BasicAScopeCature.
Copy BasicAScopeCature project, select the file tab, and "Save Project As" to your flash drive and modify the project for your lab exercises needs. Since you saved it to your flash drive. Bring it back to class the next time so you can reuse it.

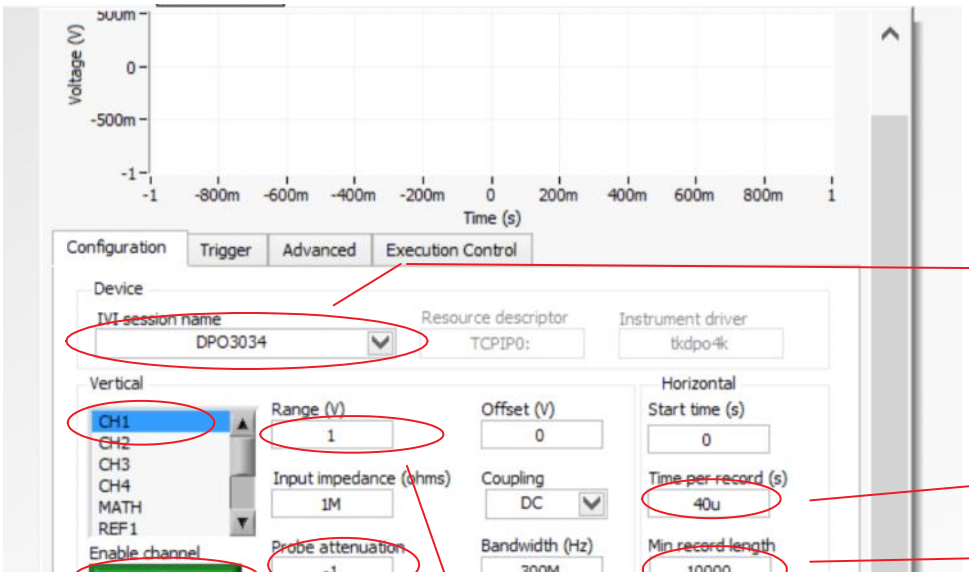
Manually setup the scope to display the waveform you would like to capture. Use the settings From the vertical V/DIV to set the range value. The horizontal TIME/DIV to set the time per record.

Project

A single acquire step all that is needed
Run once

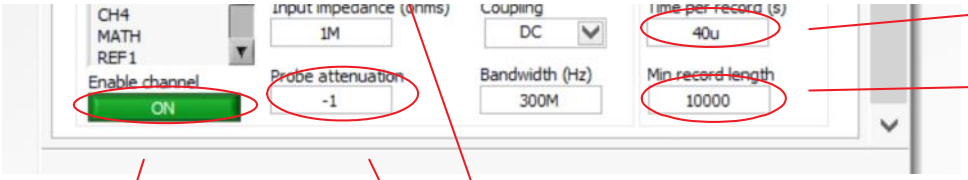


Configuration Tab



Select the device, in this case the DPO3034 scope

Set the time per record to 10* time /Div



10* time /Div

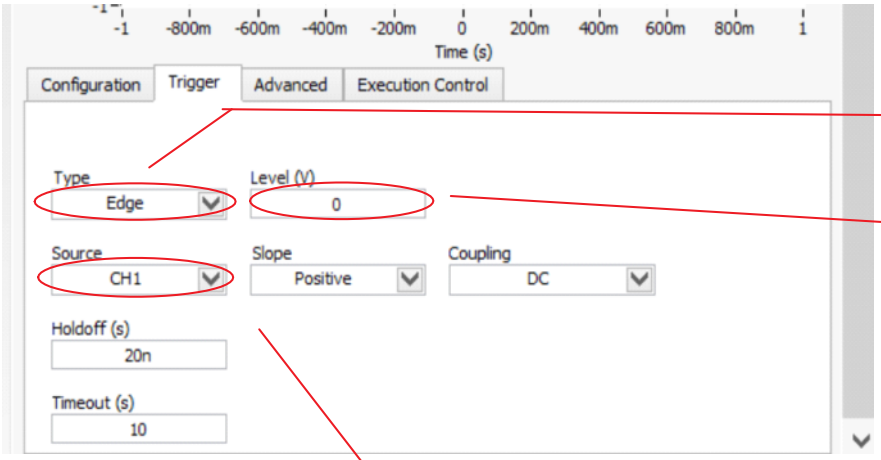
Set max record length to 1000

Select the channel and set on or off

Set range (V) to the 10 * V/Dev

Set probe attenuation to 1 or 10 based on the probe type

Trigger Tab

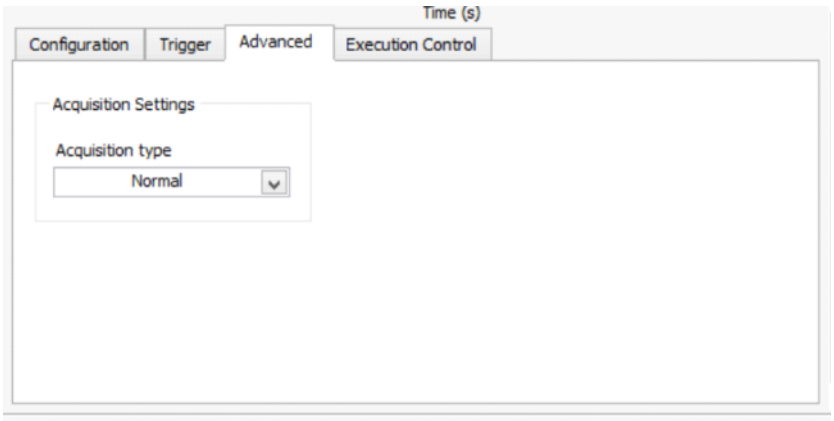


Must be edge or line

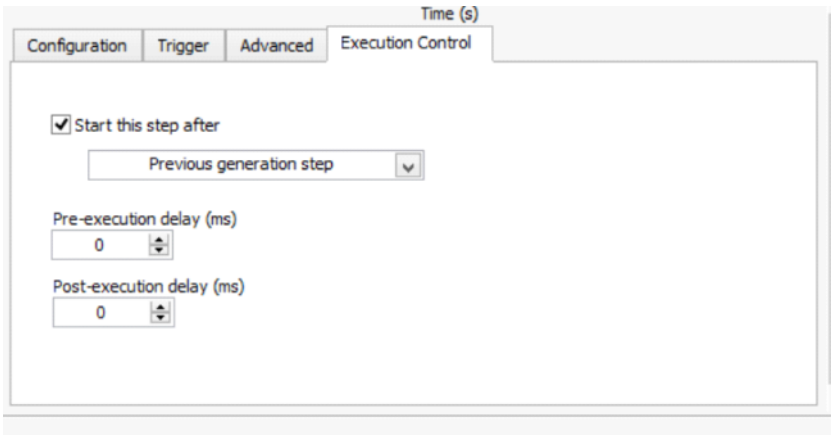
Set to a voltage that is within the range of the input signal

Must be a channel that has a signal to trigger on The step will fail with a time out error if there is no signal.

Advanced Tab No change

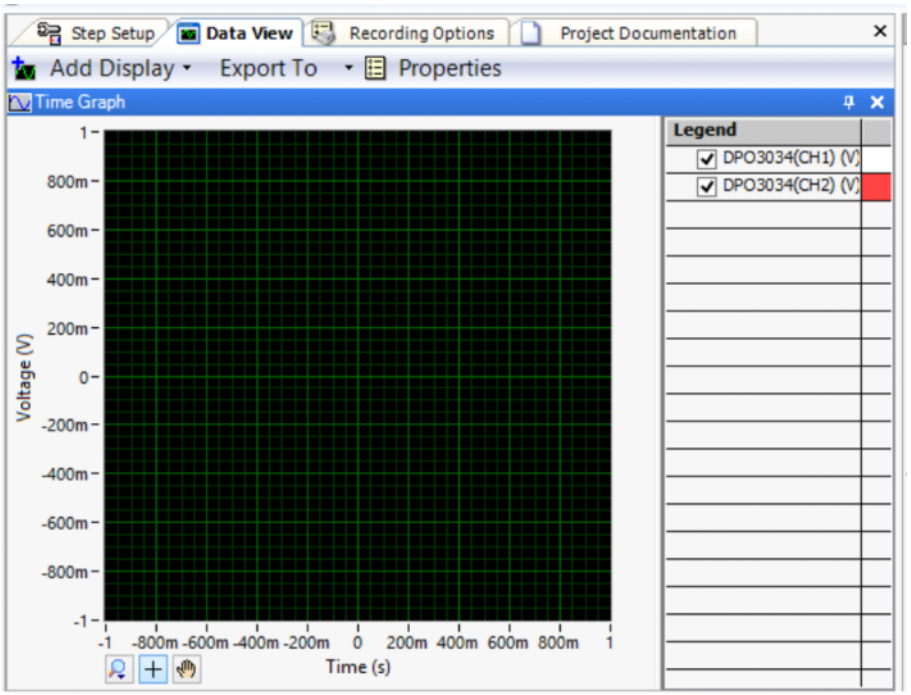


Execution Control Tab No Change



Data View Panel

To add a signal to data view right click in black area, select signal, select add signal.
To add the Legend right click in black area, select visible item, select legend.


Step Setup
Data View
Recording Options
Project Documentation
Add Display
Export To
Properties
Time Graph
Legend
DPO3034(CH1) (V)
DPO3034(CH2) (V)
Voltage (V)
1
800m
600m
400m
200m
0
-200m
-400m
-600m
-800m
-1
-1 -800m -600m -400m -200m 0 200m 400m 600m 800m 1
Time (s)

Signal express project BasicACsweep

Tuesday, July 30, 2013 13:34

Copy this project to your flash drive and modify.

Note: the cursors do not work with the XY graph.

Start National Instruments SignalExpress select an empty project. Under file tab Open Project browse to C:SEprojects and load project BasicACsweep.
Copy BasicACsweep project, select the file tab, and "Save Project As" to your flash drive and modify the project for your lab exercises needs. Since you saved it to your flash drive. Bring it back to class the next time so you can reuse it.
.

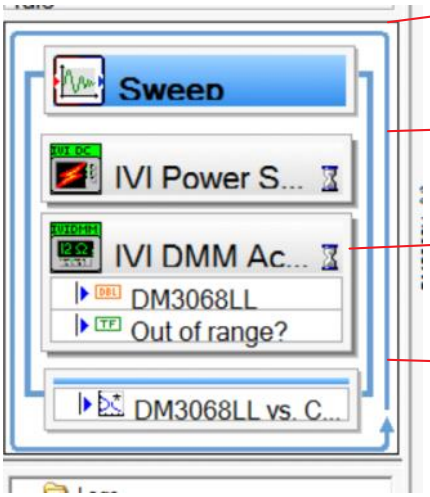
Signal express project BasicDCsweep

Tuesday, July 30, 2013 13:34

Copy this project to your flash drive and modify.

Note: the cursors do not work with the XY graph.

Start National Instruments SignalExpress select an empty project. Under file tab Open Project browse to C:SEprojects and load project BasicDCsweep.
Copy BasicDCsweep project, select the file tab, and "Save Project As" to your flash drive and modify the project for your lab exercises needs. Since you saved it to your flash drive. Bring it back to class the next time so you can reuse it.



Execution Control step "sweep"

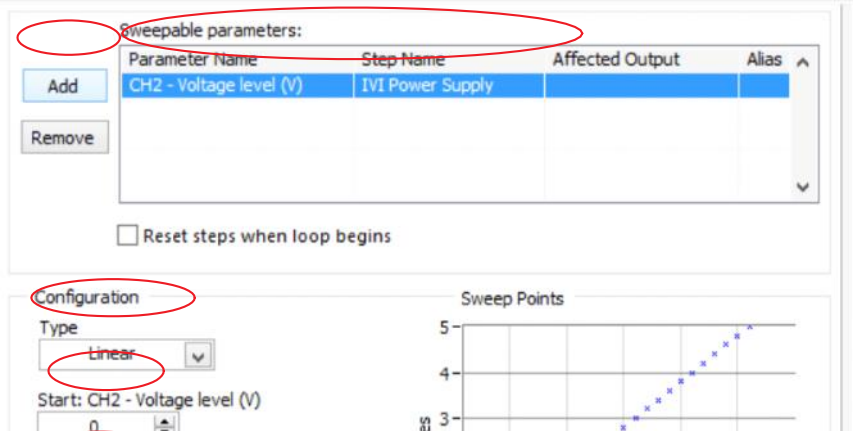
Generate Signals step "IVI Power Supply"

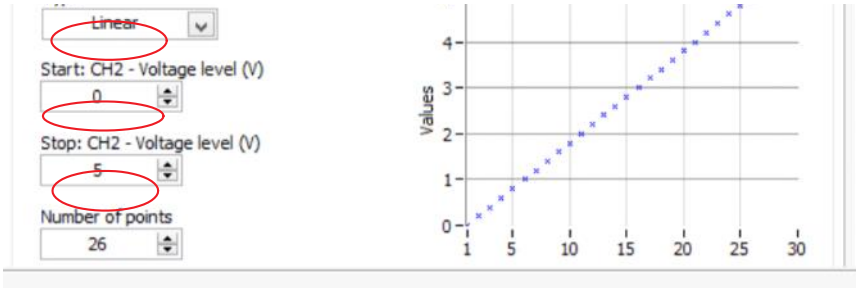
Acquire Signals step "IVI DMM Acquire"

Output variable set in the sweep step

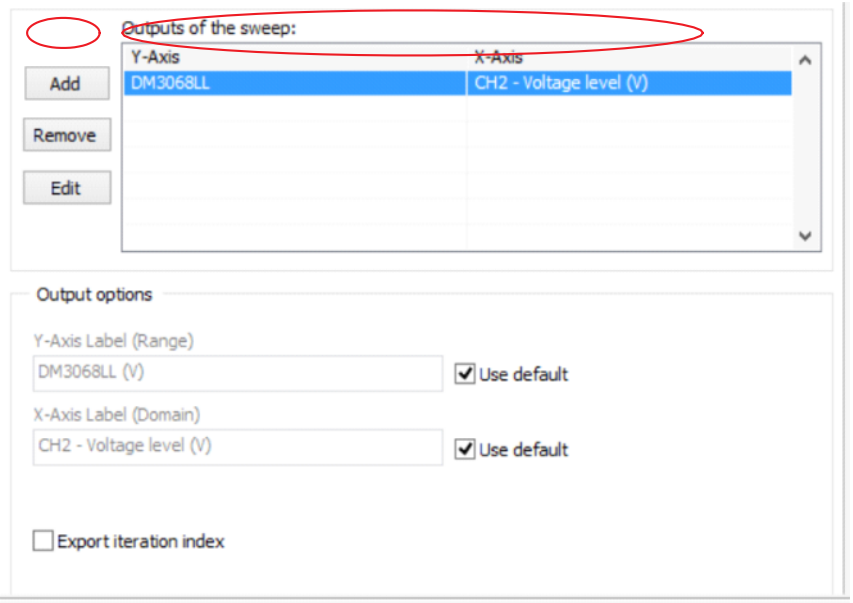
Execution Control "sweep" step

Sweep Configuration tab





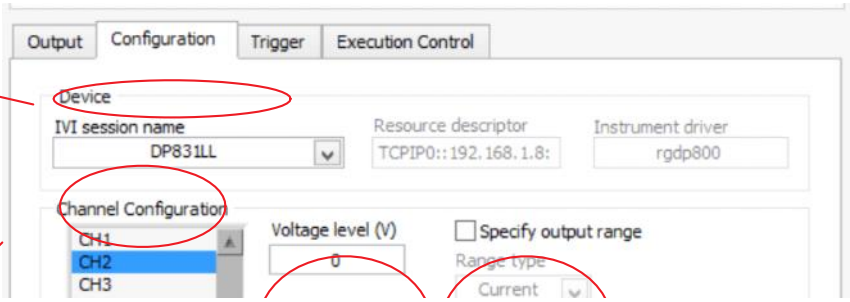
Sweep Output tab



IVI Power Supply step

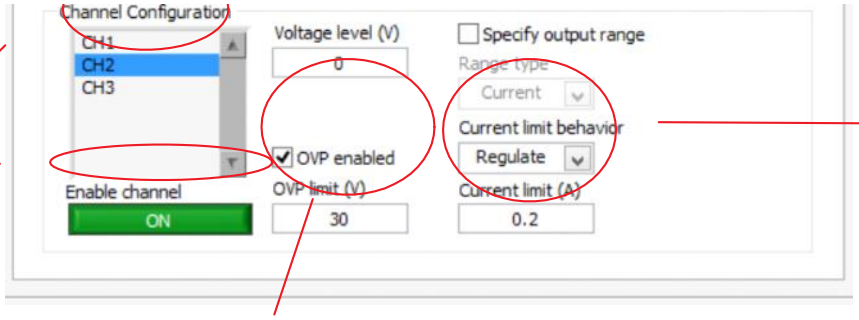
Configuration tab

Select the power supply you wish to control.
DP831LL (Lower Left)
DP831LR (Lower Right)



Set current limit behavior

Right)



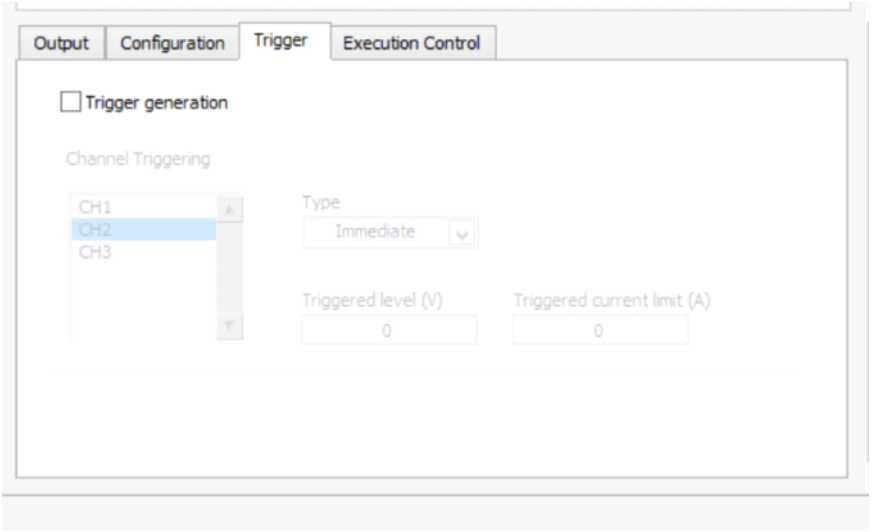
Select each power supply and turn on or off as needed
CH1 = 8V
CH2 = +30V
CH3 = -30V

Set current limit behavior to Regulate on all three of the supplies

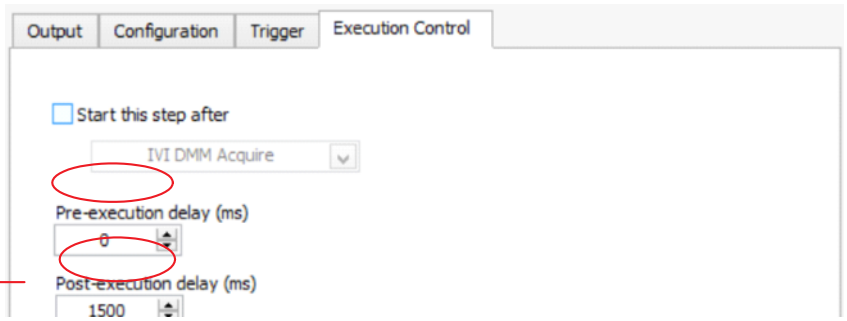
Set the Current limit to 0.20 (200mA) on all supplies

Must enable OVP (over voltage protection)
To set the OVP limit.
Set the limits to:
CH1 limit = 8
CH2 limit = 30
CH3 limit = 30

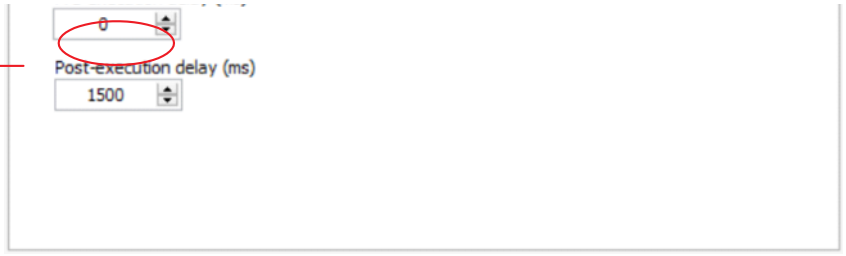
Trigger tab No change



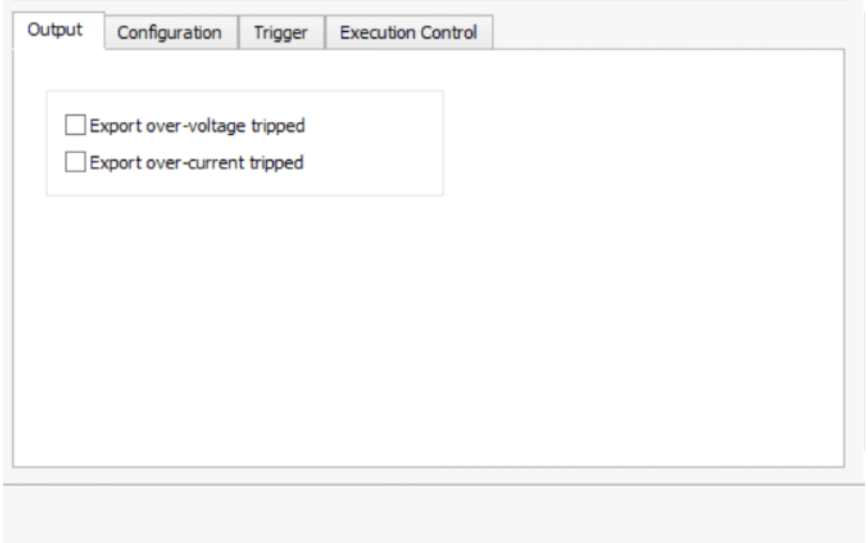
Execution tab



Set Post-execution delay to 1500ms



Output tab No change



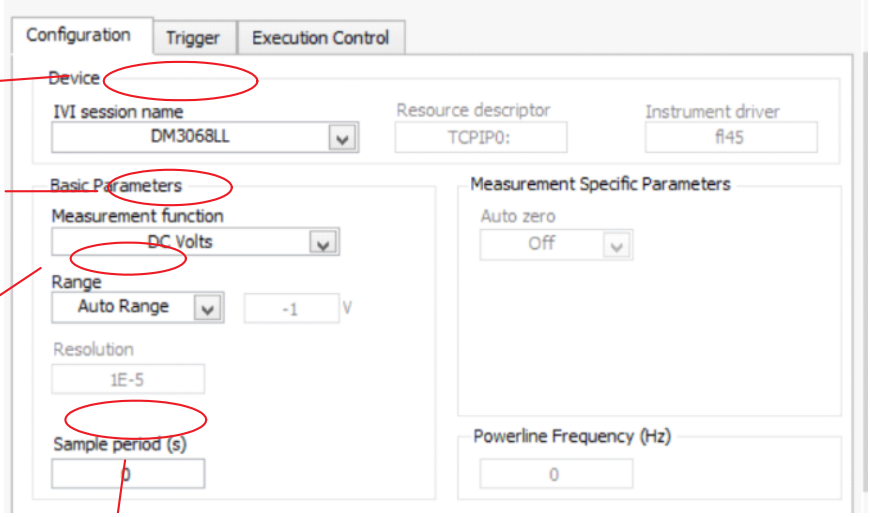
IVI DMM Acquire step

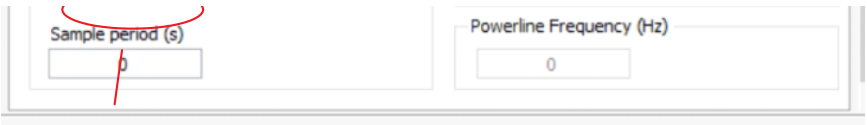
Configuration tab

Select the DMM:
DMM3068LL
DMM3068LR
DMM3068UL

Select the Measurement Function:
DC Volts
DC Current

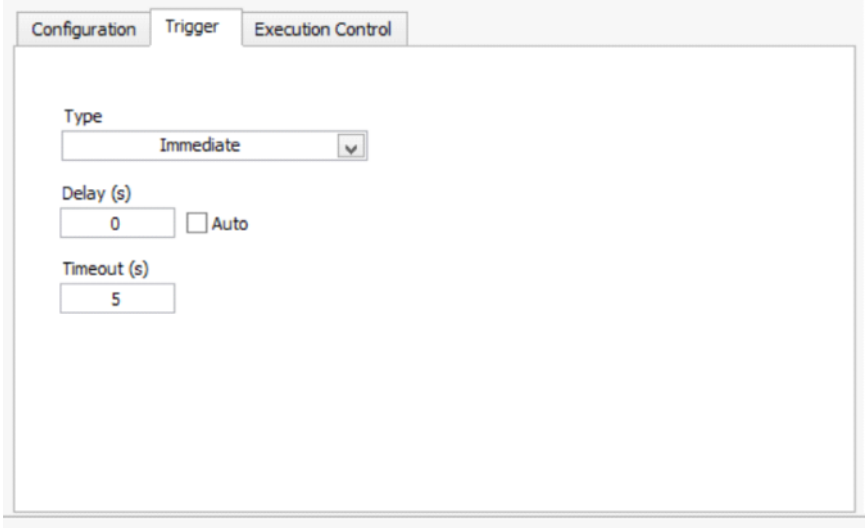
Set Range to Auto



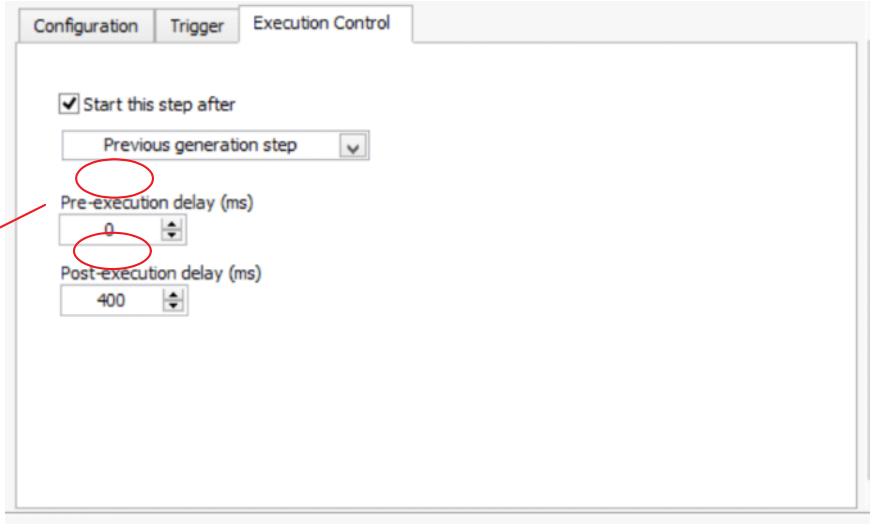


Set the sample period to 0

Trigger tab No change



Execution Control tab



Set Post-execution delay to 400ms

Project Documentation

Tuesday, July 30, 2013 13:35

Open the project Documentation tab.
Include both student's names, bench number, date, descriptions, and answers to questions.

Saving a single plot that's updated each time the project is run.
To save a single plot drag the data from the project Step setup window to the open project document. The plot in the document will update each time you run the project.

Saving multiple plots.
To save multiple plots to the project documentation open the Operate tab and select Create Snapshot. Select the signal that you want to save. Now drag it over from window at the bottom left to the project document that you are working with.

Marking the plots with the cursors.
Cursors can be enabled by selecting the plot in project document then right click on the plot select visible items, select cursors.

Printing the project document.
Open the File tab and Export Project Documentation as HTML. Include both student's names, bench number, date, descriptions, and answers to questions. Save the project document to your flash to be printed.