

# EE-206

# Systemes de mesure

# Getting started

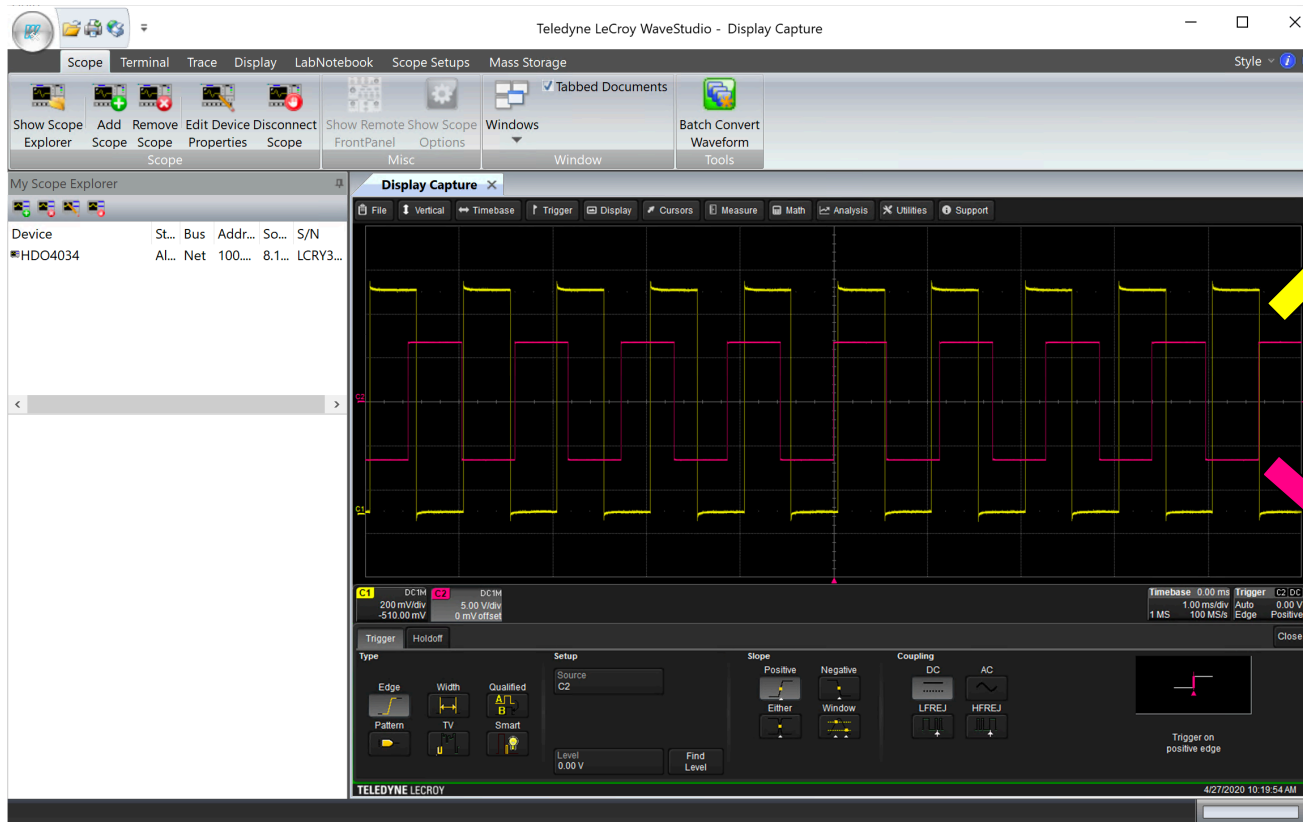
When you enter in your *remote laboratory PC*, you should find on the desktop an app called LeCroy tool.

This app enables us to check what is on the screen of the oscilloscope in real-time.

Today, we will use it as a verification that our code is actually working.

# Scope configuration

On the scope, you should have two signals:

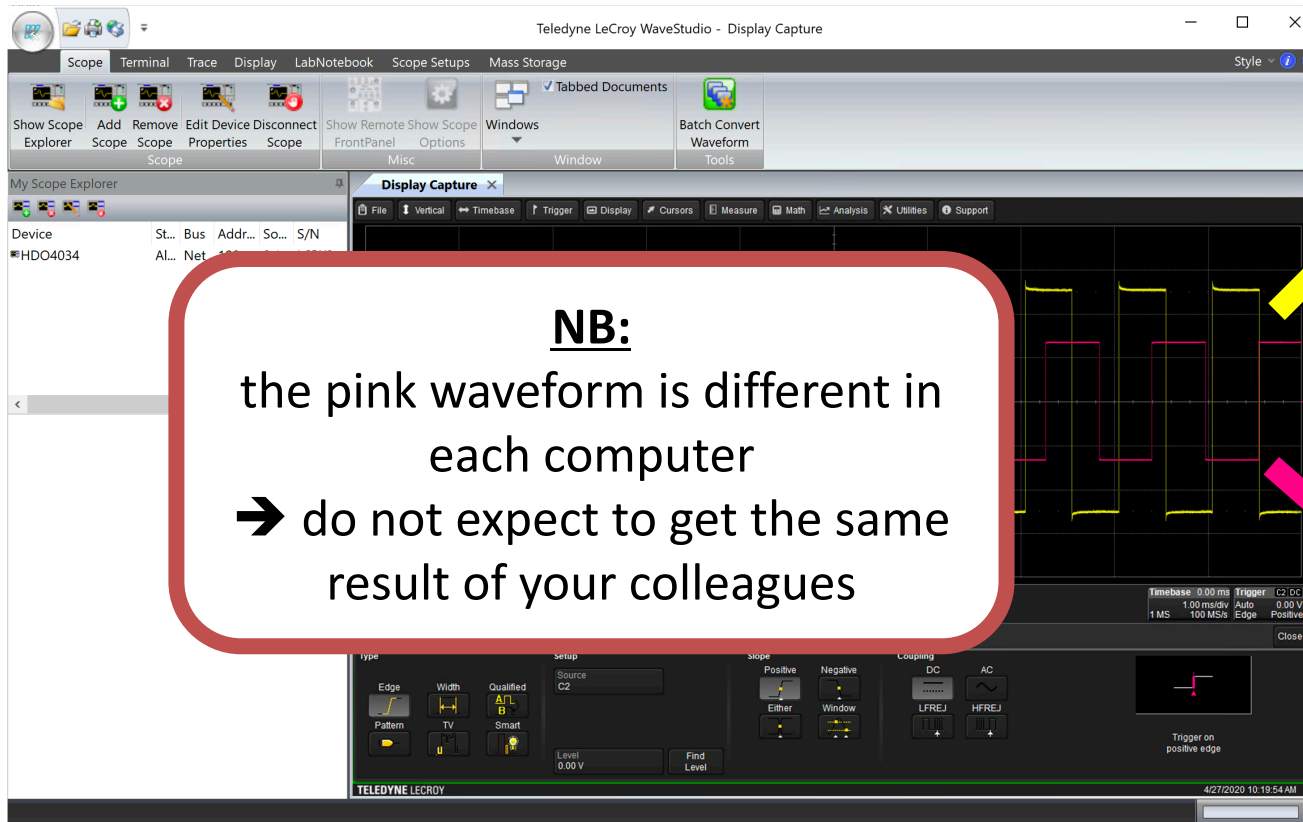


Channel 1:  
the signal  
we want to  
use as a  
“trigger”, i.e.  
to set the  
time  $t=0$

Channel 2:  
the signal  
we want to  
measure

# Scope configuration

On the scope, you should have two signals:



Channel 1:  
 the signal we want to use as a “trigger”, i.e. to set the time  $t=0$

Channel 2:  
 the signal we want to measure

# NI-MAX

Now, open NI MAX to check the oscilloscope is connected:

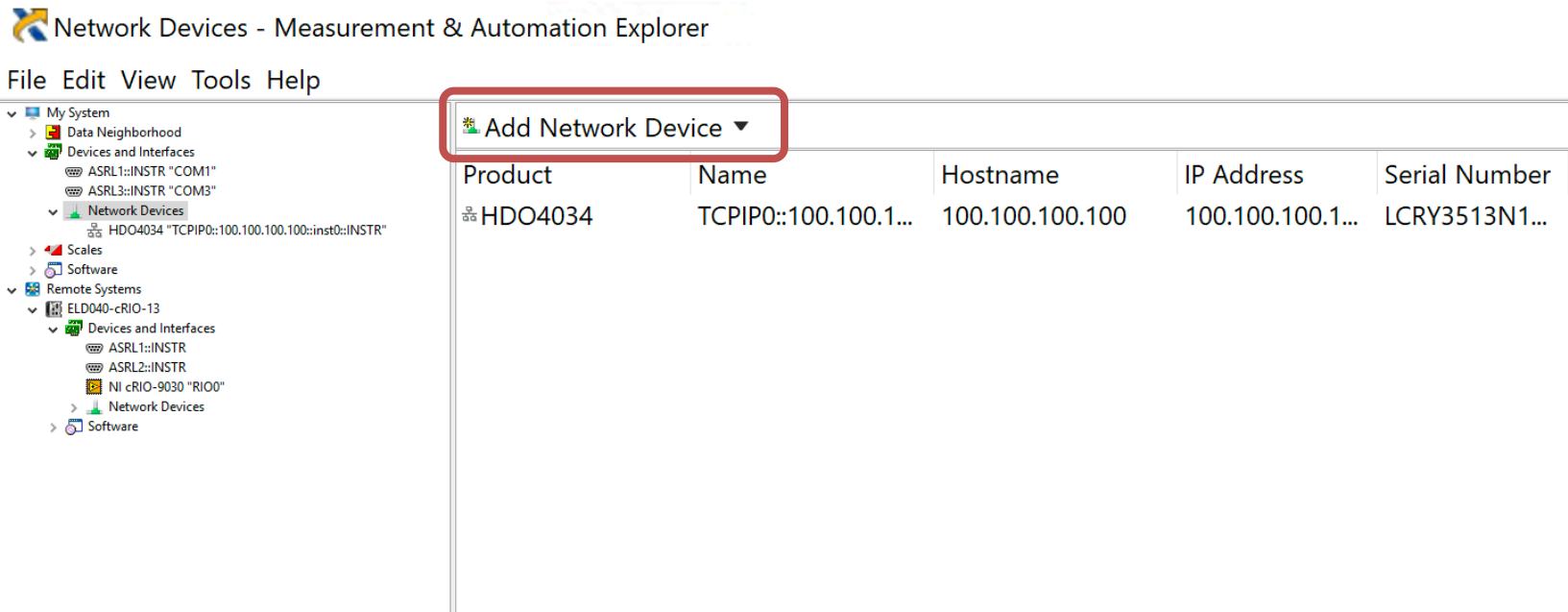
Network Devices:  
as the scope is connected via LAN

The screenshot shows the NI-MAX interface. On the left is a tree view under 'My System'. A red arrow points to the 'Network Devices' folder under 'Devices and Interfaces'. The right pane shows a table of network devices.

Product	Name	Hostname	IP Address	Serial Number
HDO4034	TCPIP0::100.100.1...	100.100.100.100	100.100.100.1...	LCRY3513N1...

# NI-MAX

If it is not connected click on Add Network Device and select LAN



The screenshot shows the NI-MAX Network Devices interface. The title bar reads "Network Devices - Measurement & Automation Explorer". Below the title bar is a menu bar with "File", "Edit", "View", "Tools", and "Help". On the left is a tree view showing the system hierarchy. The "Network Devices" folder is expanded, showing a list of devices. A red box highlights the "Add Network Device" button. The main area displays a table of network devices.

Product	Name	Hostname	IP Address	Serial Number
HDO4034	TCPIP0::100.100.1...	100.100.100.100	100.100.100.1...	LCRY3513N1...

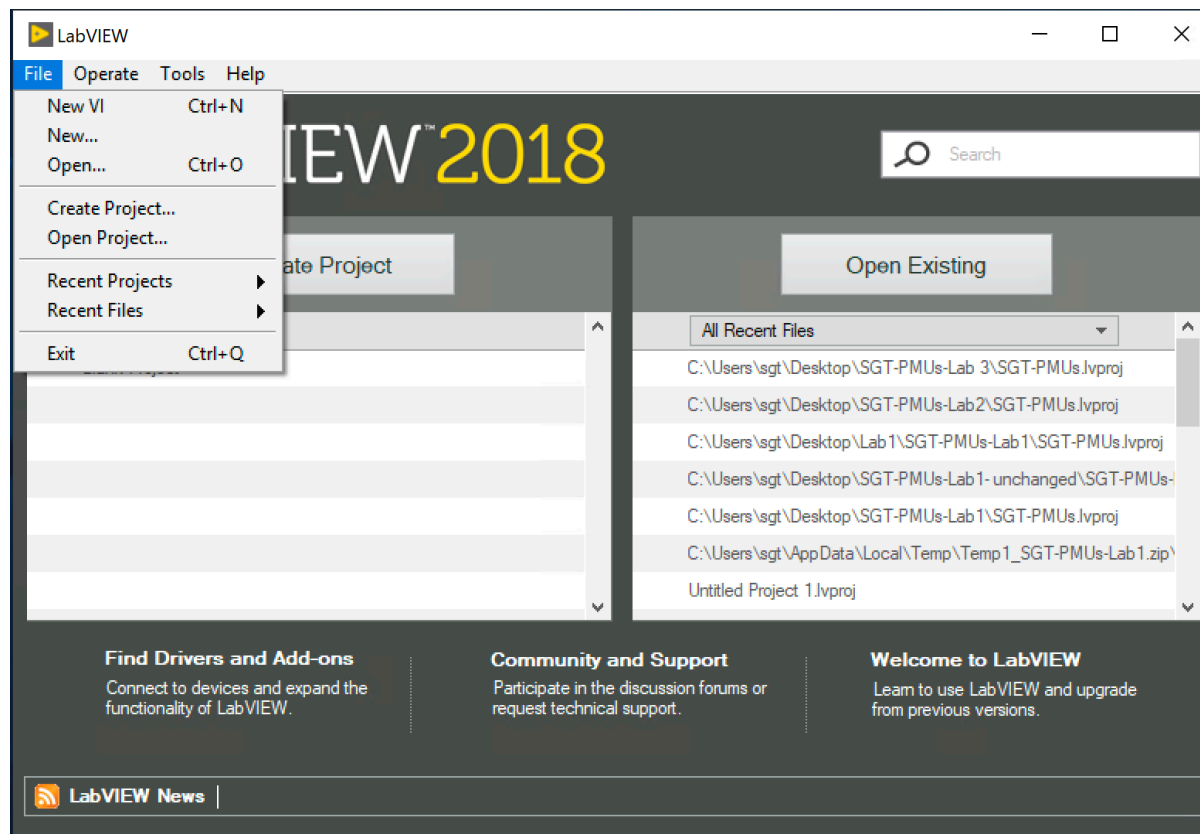
# TCP-IP address

Check the TCP-IP address of the instrument and write it down → we will use it later!

The screenshot shows the Measurement & Automation Explorer (MAX) interface. The title bar reads "HDO4034 'TCPIP0::100.100.100.100::inst0::INSTR' - Measurement & Automation Explorer". The menu bar includes "File", "Edit", "View", "Tools", and "Help". A red arrow points to the selected device in the left-hand tree view: "HDO4034 'TCPIP0::100.100.100.100::inst0::INSTR'". The right-hand pane displays the device's configuration. At the top, there are buttons for "Save", "Refresh", and "Open VISA Test Panel". Below these, the device's name "TCPIP0::100.100.100.100::inst0::INSTR" is shown in a red-bordered box. The "Device Type:" is listed as "TCP/IP VXI-11 Instrument". The "VISA Alias on My System:" field is empty. At the bottom, the "Device Status" section indicates "This static device is working properly."

# Start LabVIEW

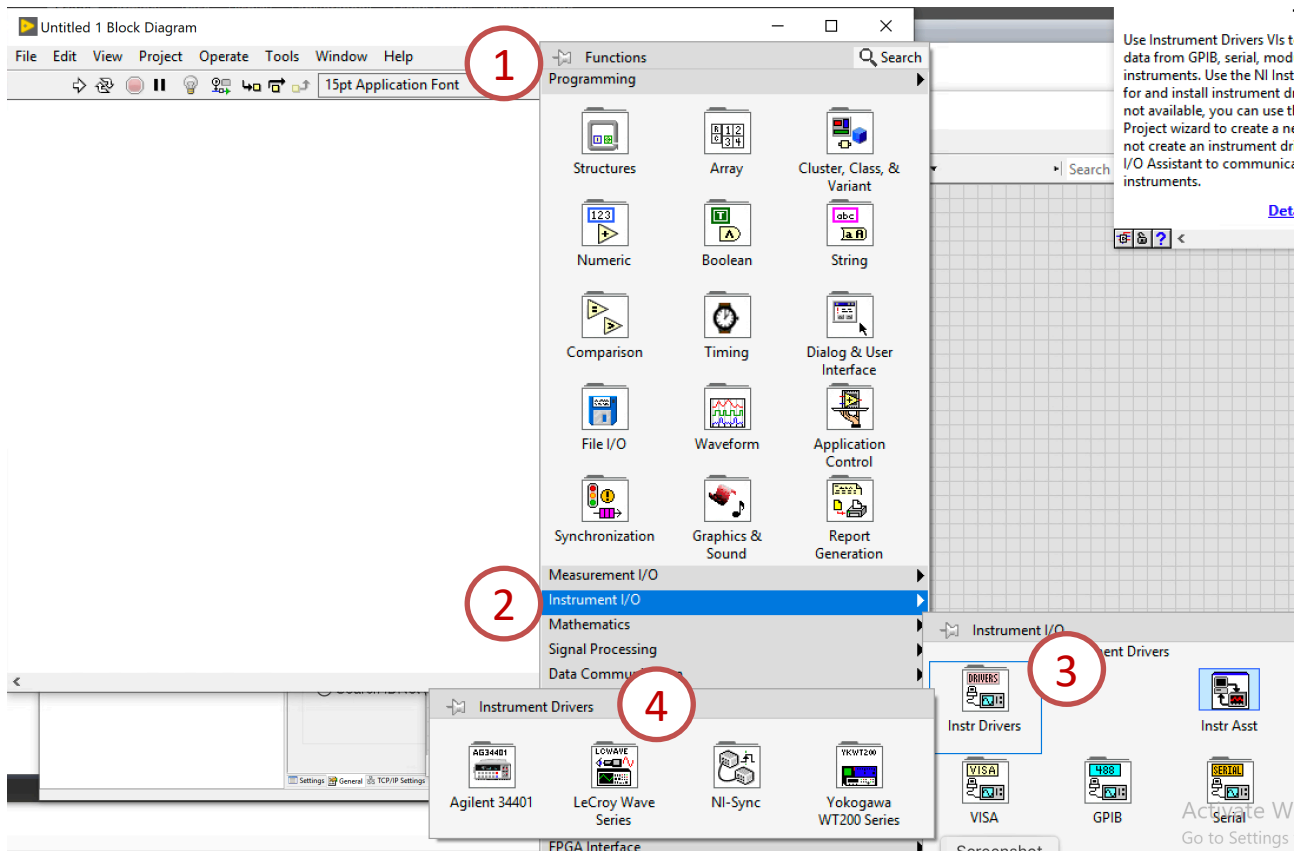
Launch LabVIEW 2018: File → New VI





# LabVIEW library

In a blank VI look for the instrument driver library:

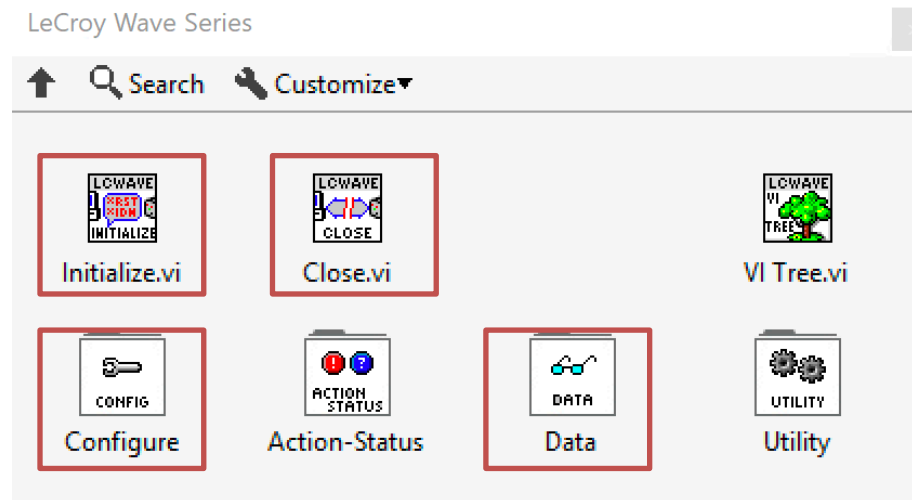


1. open the Functions palette
2. Instrument I/O folder
3. Instrument Drivers folder
4. LeCroy Wave Series folder

NB: if not present, you need to install it as shown in Lesson 4!!!

# Library overview

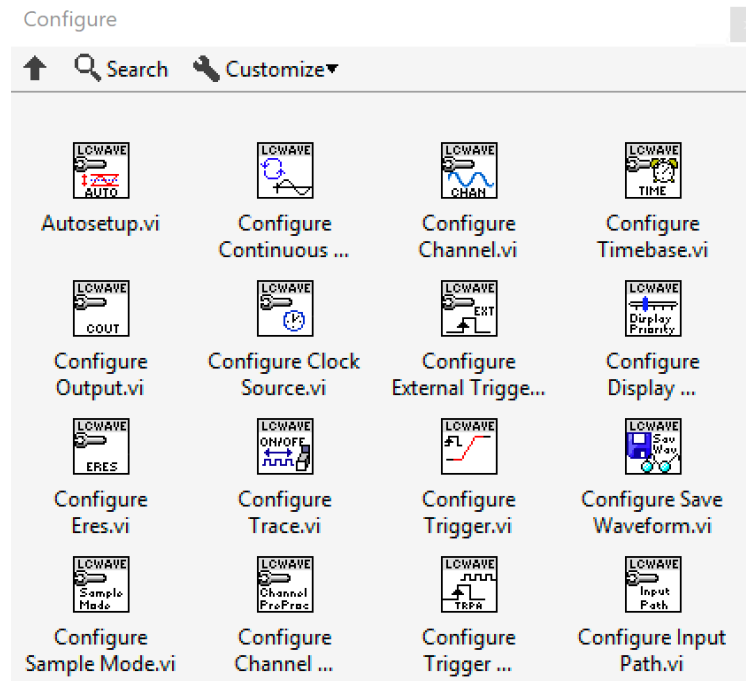
If you open the LeCroy Wave Series library:



NB: in the context help you will find more information about each block.

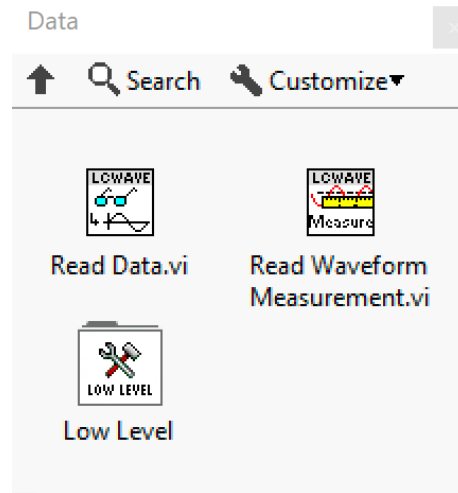
# Configure tools

In the Configure folders you find many controls to set the vertical scale (configure channel) or horizontal scale (configure time-base) or trigger (configure trigger).



# Data tools

In the Data folder you find the possibility to fetch data from the scope.



# Scope VISA reference

In order to control the scope from LabVIEW you need to provide its VISA Reference:

1. take the TCP-IP Address, e.g. 100.100.100.100
2. typically, LabVIEW will set by default a string like:  
**TCPIP0::100.100.100.100::inst0::INSTR**
3. change the header of this address into:  
**VICP::100.100.100.100::inst0::INSTR**

# 1<sup>st</sup> exercise

In the first exercise we want to:

- set the communication with the scope
- auto-setup vertical and horizontal scales
- read the data and plot on a waveform graph

# 2<sup>nd</sup> exercise

In the second exercise we want to:

- set the communication with the scope
- set the vertical scale for channel 1 and channel 2
- set the time-base
- set the trigger on channel 1
- read the data and plot on a waveform graph

# Assignment

Prepare a short report (1-2 pages) where you put the screenshots of the 2 exercise codes.

Brief comment on the difference between 1<sup>st</sup> and 2<sup>nd</sup> exercise approach towards instrument control and how they affect what you see in the result.