

Overview

This application note will detail the installation instructions and LabVIEW programming examples for Associated Research's IVI Instrument Driver.

STEP 1: IVI Instrument Driver Setup

Instructions on downloading and installing IVI Instrument Drivers from Associated Research's website. Download and install Shared Components from IVI Foundation Website.

STEP 2: Creating LabVIEW ActiveX Object

Create ActiveX object inside of LabVIEW to establish communication with the instrument.

STEP 3: Sample Code Connecting to 8200 Series Instrument

Sample LabVIEW code to initialize and send "TEST" command to the instrument.

STEP 1 - IVI Instrument Driver Setup

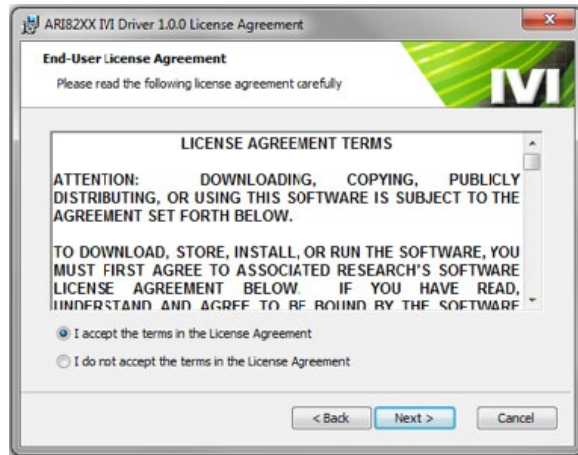
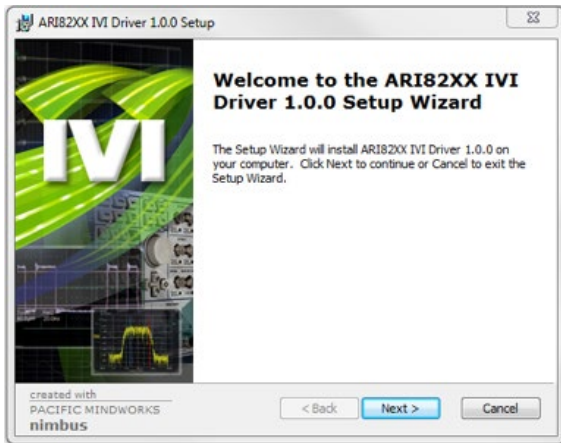
Associated Research instrument drivers are available to download at our website. Please follow the link below to download the drivers.

<http://www.arisafety.com/products/software-solutions/instrument-drivers/>

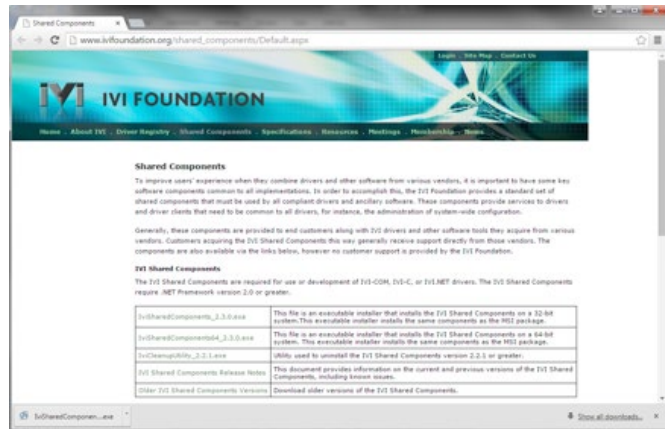
The drivers are also included in the USB stick that contains the product manual.

After downloading, run the self-extracting setup file and you will see the following screens.

Proceed with the software installation.

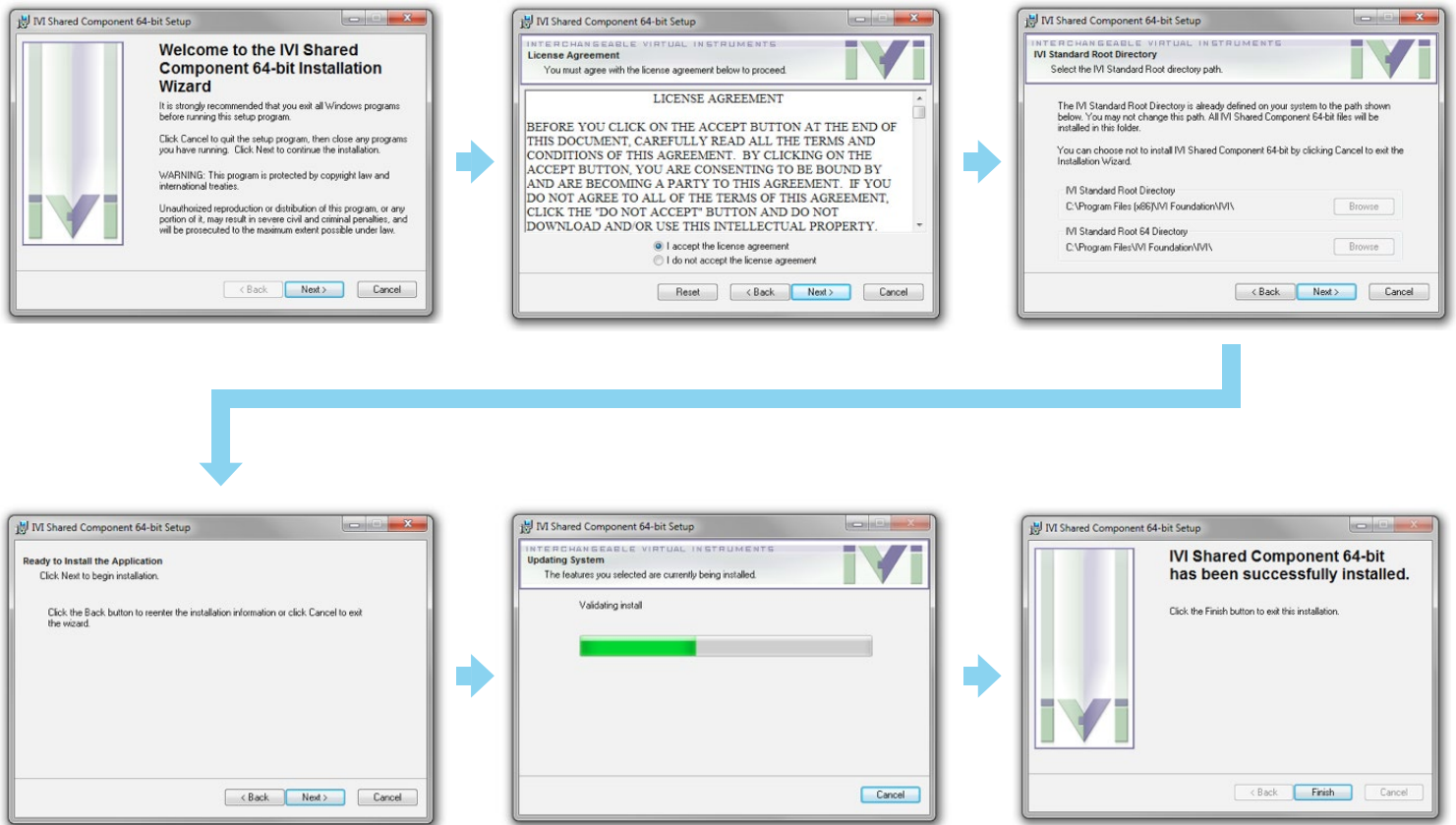


The setup will detect if IVI Shared Components are installed. If prompted with the following screen, visit The IVI Foundation Website to download.

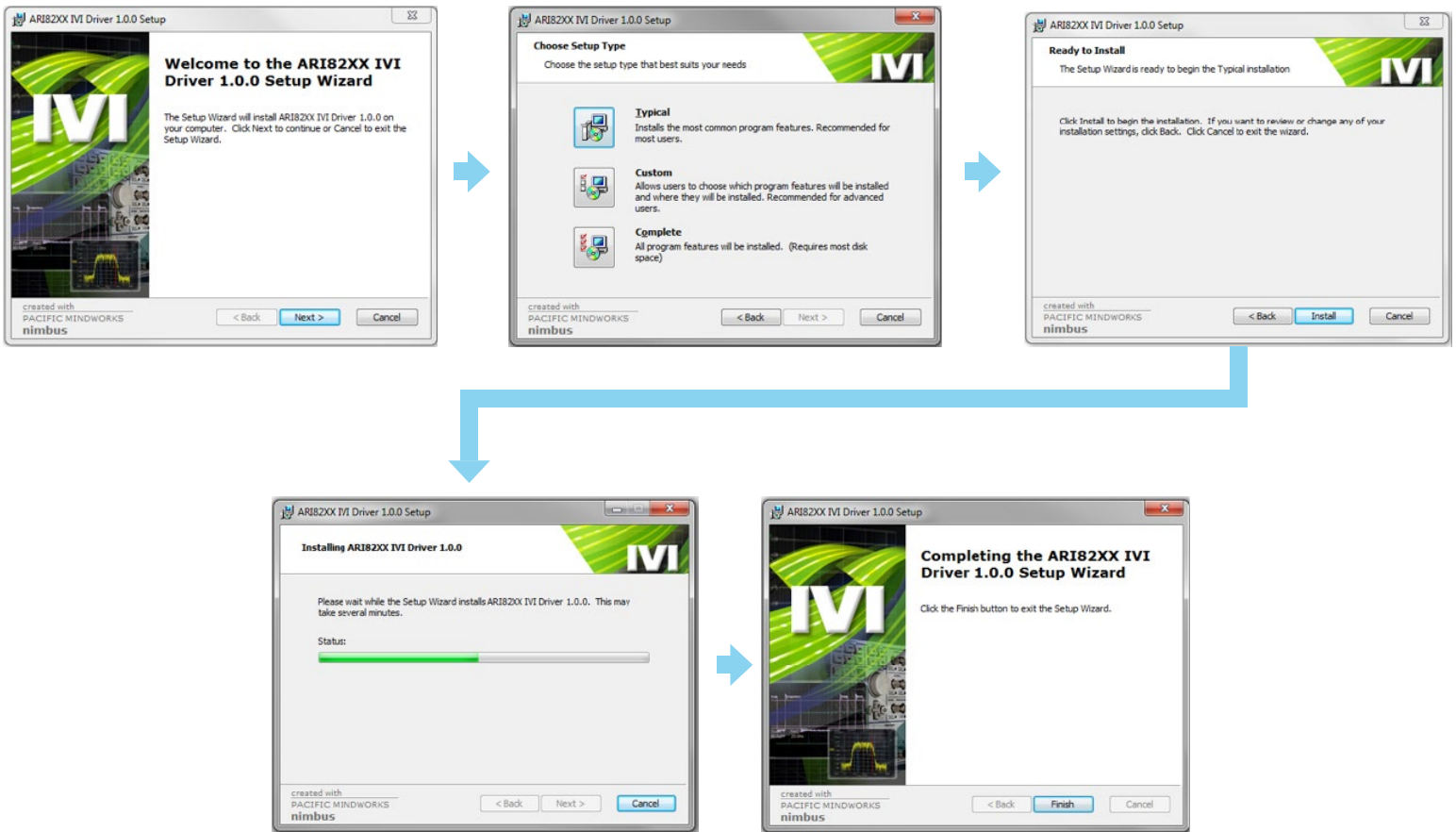


http://www.ivifoundation.org/shared_components/Default.aspx

Download the latest IVI Shared Components either 32-bit or 64 bit version. After downloading, install the shared components by following the on screen instructions.



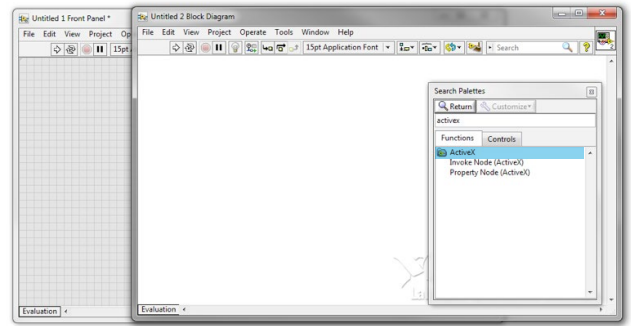
After installing the shared components, restart the IVI Driver installation by re-launching the instrument driver MSI or EXE file.



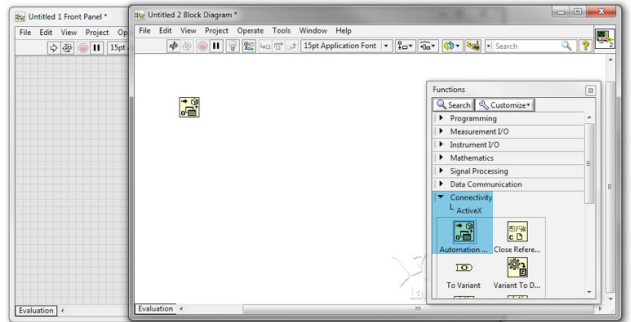
The Associated Research’s IVI drivers are stored in a subdirectory of the IVI Foundation folder. The default directory is located at **C:\Program Files\IVI Foundation\IVI\Drivers**.

STEP 2: Creating LabVIEW ActiveX Object

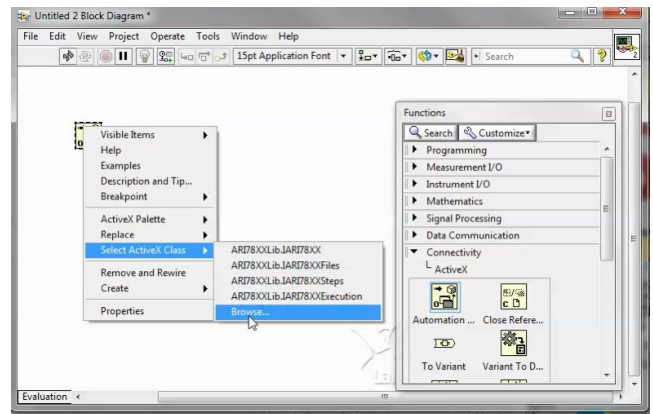
Open LabVIEW and create a new VI. Click on View menu to bring up the Function Palette. Use the search function to find **ActiveX** Functions.



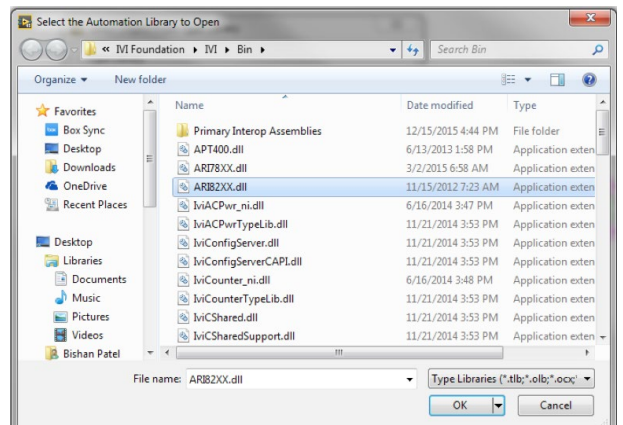
Double Click ActiveX Folder to bring up additional functions under Connectivity. Drag the **Automation Open** function icon onto the block diagram window.



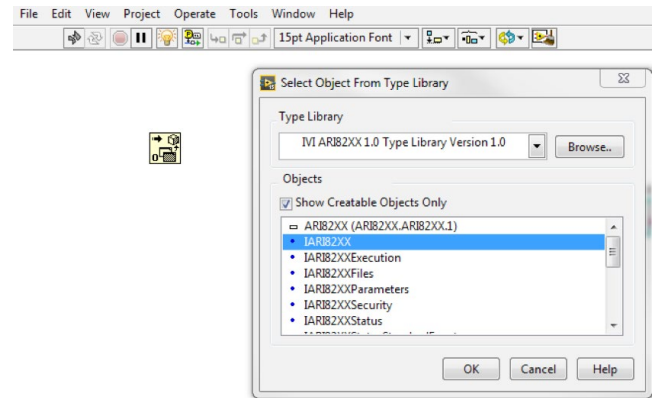
Right Click on the Automation Open Icon to bring up additional menus. Select the **ActiveX Class** options then select **Browse**.



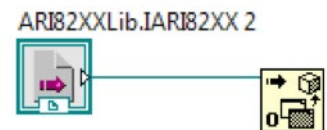
In the next window browse to the location of the IVI drivers. The default location is at **C:\Program Files\IVI Foundation\IVI\Bin**, next select the appropriate .DLL file. For our example we will be using the **ARI82XX.dll**



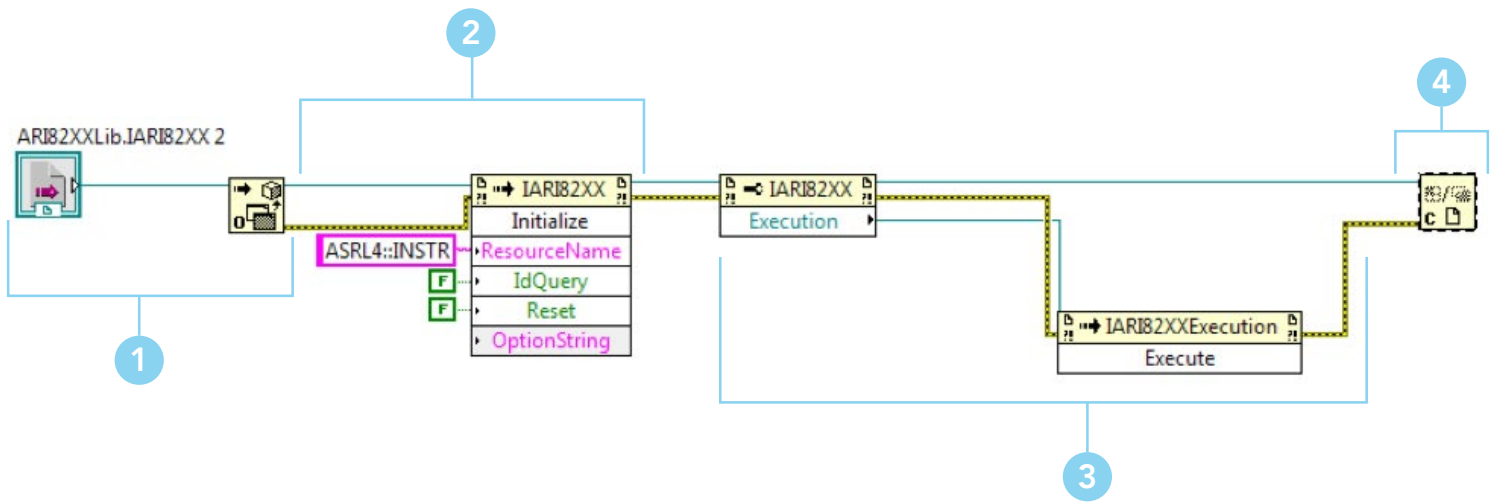
Once the .DLL file is loaded additional options show up under **"Objects"**, Select the **IARI82XX** to load the object will all functionality.



Click OK to finish linking **Automation Open** Block with the **ARI78XX** object.



Quick Reference (See following page for full instructions)
STEP 3: Sample Code Connecting to 8200 Series Instrument



1 Using Function Palette, search for ActiveX Functions and create an “automation Open” function.
 a. Right-Click the Automation Open icon and select “Select ActiveX Class” then Browse.
 b. Browse to C:\Program Files\IVI Foundation\IVI\Bin\AR I82XX.dll file.
 c. On the next windows under Objects, select “IARI82XX”.

2 Using Function Palette, add an “Invoke Node” and connect the “Automation Refnum” from step 1 to “reference” input.
 a. Browse to select the “Initialize” method to invoke.
 b. Create constants for “ResourceName”, “IdQuery” and “Reset”.
 c. Use figure 1 for different types of COM ports.

ASRL4::INSTR

TCP/IP::192.168.1.113::10001::INSTR

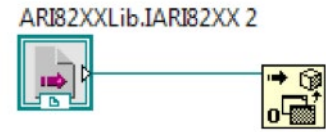
GPIB::8::INSTR

3 Using Function Palette, add a “Property Node” and connect the “reference out” from step 2 to “reference” input.
 a. Browse to select “Execution” property.
 b. Add an “Invoke Node” and connect the “Execution from step 3(a) to “reference” input.
 c. Browse to select the “Execute” method.

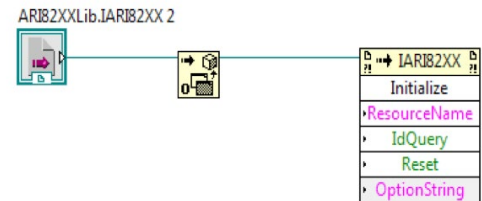
4 Using Function Palette, add a “Close Reference Node” and connect the “reference out” from Step 3(a) to “reference” input.
 a. Connect “Error Out” from Automation Open node all the way through to “Error IN” of Close Reference node.

STEP 3: Sample Code Connecting to 8200 Omnia® II Series Instrument

Start with Automation Open Block linked to the ARI78XX DLL as described in Step 2 of this document.

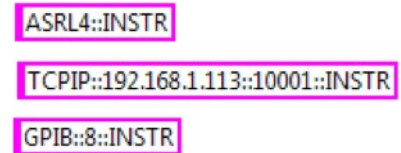


Use the Function Palette to insert an **Invoke Node** next to the Automation Open block. Next connect the **"Automation Refnum"** to **"reference"** input of the Invoke Node as shown in the image on the right.



Left-Click on the Invoke Node Method section and select browse which brings up additional options. Select **"Initialize"** from the list of methods and click OK.

Right-Click **ResourceName**, next click on Create menu and select Constant. Enter the string "ASRL4::INSTR" for instrument located at COM port 4 in our example.

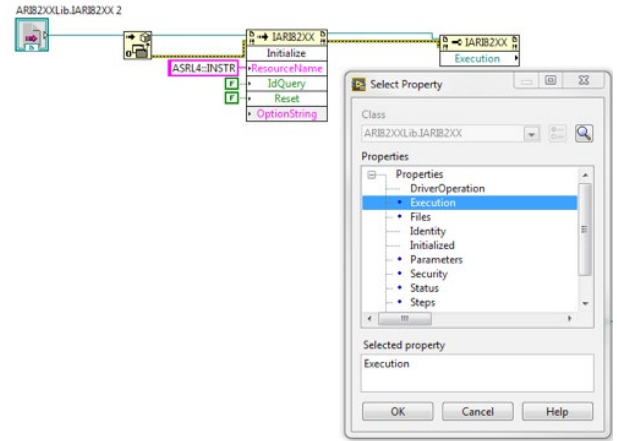


Communication Type	Resource Name String	Parameter to Edit
Serial (USB or RS-232)	ASRL4::INSTR	Replace "4" with the correct COM port
TCPIP	TCPIP::192.168.1.113::10001::INSTR	Replace "192.168.1.113" with correct IP address
GPIB	GPIB::8::INSTR	Replace "8" with correct GPIB address

Right-Click **IdQuery**, next click on Create menu and select **Constant** (Defaults to False)

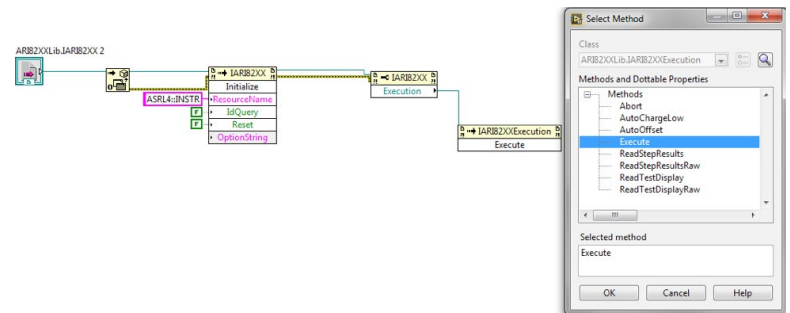
Right-Click **Reset**, next click on Create menu and select **Constant** (Defaults to False)

Use the Function Palette to insert a **Property Node**. Next connect the "reference out" of Initialize node to "reference" input of the new Property Node as shown in the image on the right.



Left-Click on the Property Node's **Property** section and select **browse** which brings up additional options. Select "Execution" from the list of properties and click OK. This node is used to send "TEST" command to Omnia II series instruments.

Use the Function Palette to insert an **Invoke Node**. Next connect the "Execution" to "reference" input of the Invoke Node as shown in the image on the right.



Left-Click on the Invoke Node Method section and select browse which brings up additional options. Select "**Execute**" from the list of methods and click OK.

Use the Function Palette to insert a **Close Reference Node**. Next connect the "reference out" of Execution node to "reference" input of the Close Reference node.

Connect "Error Out" from Automation Open node all the way through to "Error In" of Close Reference node. Making sure each Error In/Out on each node is connected.

