Configuring an Instrument

Goal

Configure an instrument and use an instrument driver to communicate effectively with it.

Description

Use Measurement & Automation Explorer to find and configure an instrument. Install the corresponding instrument driver and run an example driver VI.

In this exercise, the Agilent 34411A digital multimeter will be used as the instrument. The corresponding instrument driver will be downloaded and used.

Note An Agilent 34411A digital multimeter and a National Instruments GPIB-USB-HS controller is used in this exercise. If you do not have an Agilent 34411A digital multimeter, you can use any message-based instrument to complete this exercise.

Implementation

1. Open Measurement & Automation Explorer (MAX).

   ❏ Open LabVIEW.

   ❏ Select **Tools»Measurement & Automation Explorer**.

2. Find the instrument in MAX.

   ❏ Click the arrow beside My System in the left column of the Explorer.

   ❏ Click the arrow beside Devices and Interfaces.

   ❏ Select GPIB0 (GPIB-USB-HS) or the name of your controller.

   ❏ If this instrument does not appear in the list, make sure it is connected to the computer and press <F5> to refresh the list.

   ❏ Click the **Scan for Instruments** button on the top of the MAX interface.

   ❏ The device will be shown in the **Connected Instruments** panel at the bottom of the interface.

❑ If this instrument does not appear in the list, make sure it is connected to the GPIB controller and click the **Scan for Instruments** button.
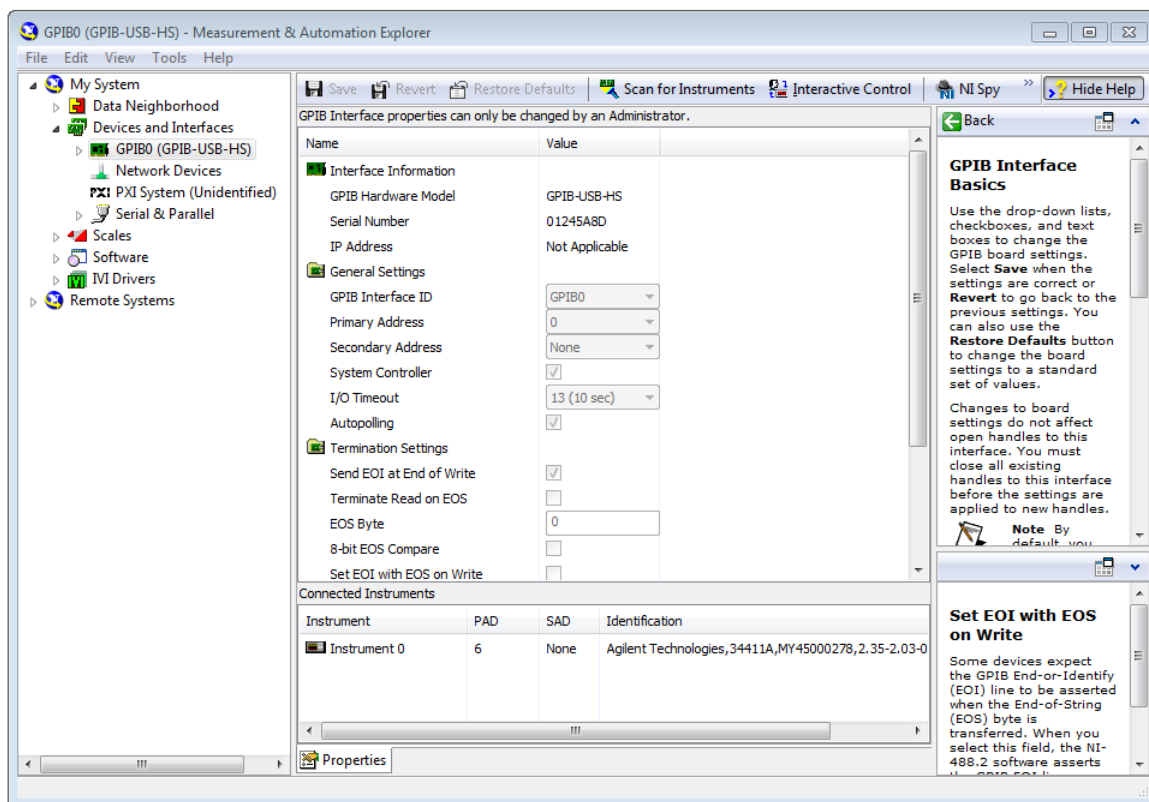

Figure 1. MAX Hardware Setup

3. Find and install the instrument driver.

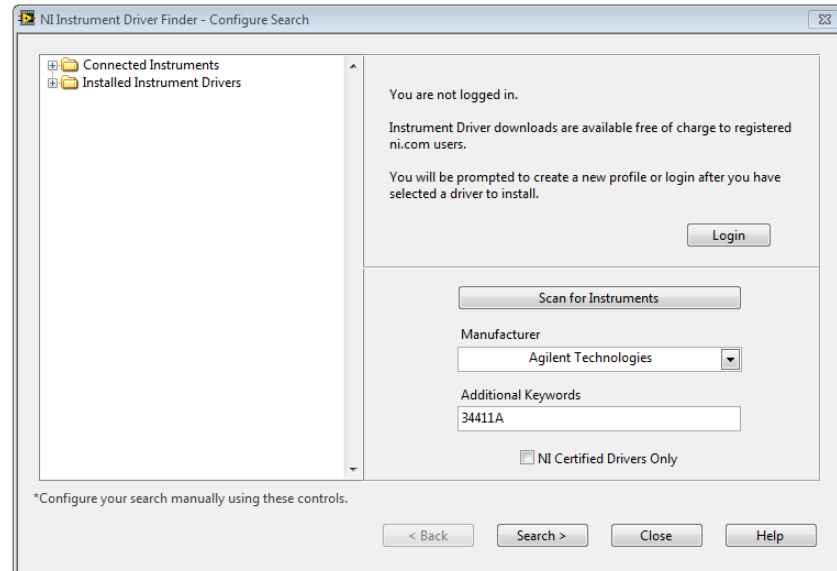   ❑ From the LabVIEW Getting Started window, select **Tools» Instrumentation»Find Instrument Drivers**.

Figure 2. Instrument Driver Finder

4. Login to an ni.com profile.

    ❑ Click the **Login** button and login to an ni.com profile.

    ❑ If you do not have a profile, select **No, I need to create a profile**, and then click **Create Profile**.

5. From the **NI Instrument Driver Finder**, select the instrument.

    ❑ On the left column of the interface, expand the **Connected Instruments** folder.

    ❑ Select **Agilent Technologies** or the name of your device's manufacturer.

📝 **Note** If you do not find an appropriate instrument driver for your device, skip the remaining steps and launch the Instrument I/O Assistant.

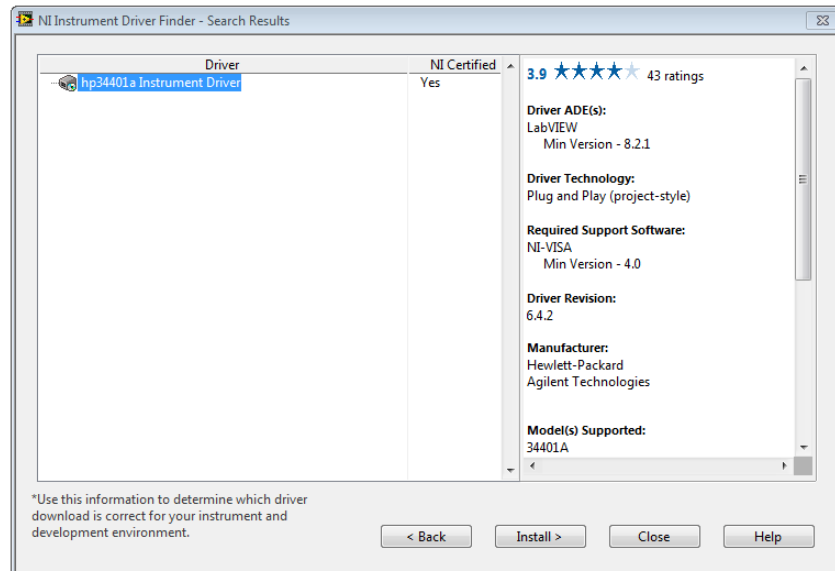❑ Double click the 34411A device to automatically fill in the Manufacturer and Additional Keywords fields.

Figure 3. Instrument Driver Selection

6. Install the instrument driver for your device.

❑ Click **Search**.

❑ Select the **hp33401a Instrument Driver** and click **Install**.

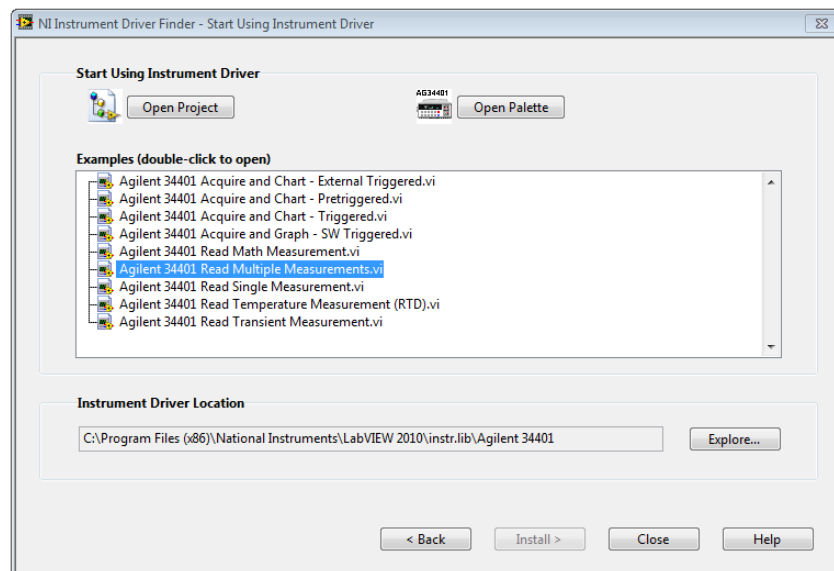❑ After the installation, click **Start** to use this driver.

Figure 4. Instrument Driver Example VIs

Note If you are using an instrument other than the Agilent 33411A digital multimeter, open an example for your device and run it. You have completed this exercise. Skip the following steps.

7. Double click **Agilent 33401 Read Multiple Measurements.vi**.

8. Read in 5 AC voltage measurements from the Agilent 34411A device.

   ❑ Click the arrow on the VISA resource name and select the GPIB address for the Agilent 34411A device.

   ❑ Select **AC Voltage** in the **Function** control.

   ❑ Change the value of the Sample Count to 5.
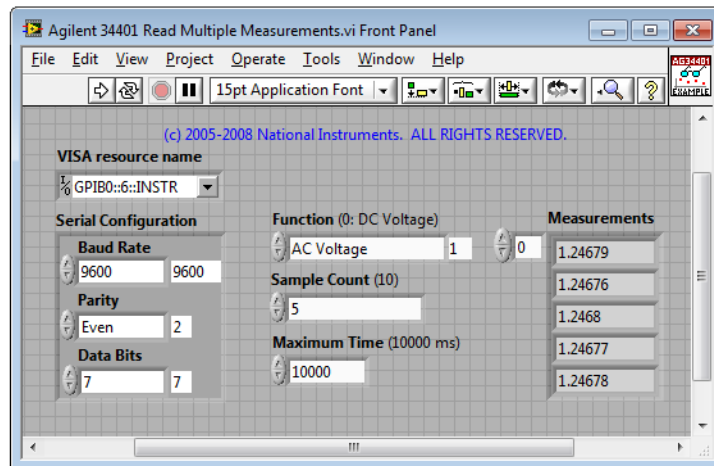
9. Click the **Run** button to read 5 AC voltage values.

Figure 5. Read Multiple Measurements VI Front Panel

End of Exercise

Notes