

Prerequisites

- [NI-VISA](#)
- NI MAX
- PXI VNA software
- [LabVIEW](#)

The VISA library is a widely used software input-output interface in the field of test and measurement for controlling devices from a personal computer. It contains a library of functions for programs such as LabVIEW to control the instrument. NI-VISA can be downloaded here: <https://www.ni.com/visa/>

NI MAX is needed to configure the analyzer and the interface. NI MAX is included with NI-VISA. No additional downloads are necessary.

PXI VNA software is the main VNA application needed to drive the analyzer module. It takes raw measurements from the analyzer module and processes them into complex S-parameters which can be represented in different display formats. The PXI VNA software must always be running when automating the analyzer module via LabVIEW.

LabVIEW is the primary programming environment for the PXI S5090 network analyzer. A licensed version of the software can be downloaded here: <http://www.ni.com/en-us/support/downloads/software-products/download.labview.html#305508>

Steps to configure LabVIEW for PXI VNA

- 1) To enable remote control of the analyzer, select either HiSLIP server or Socket server in the settings of the VNA application.

HiSLIP

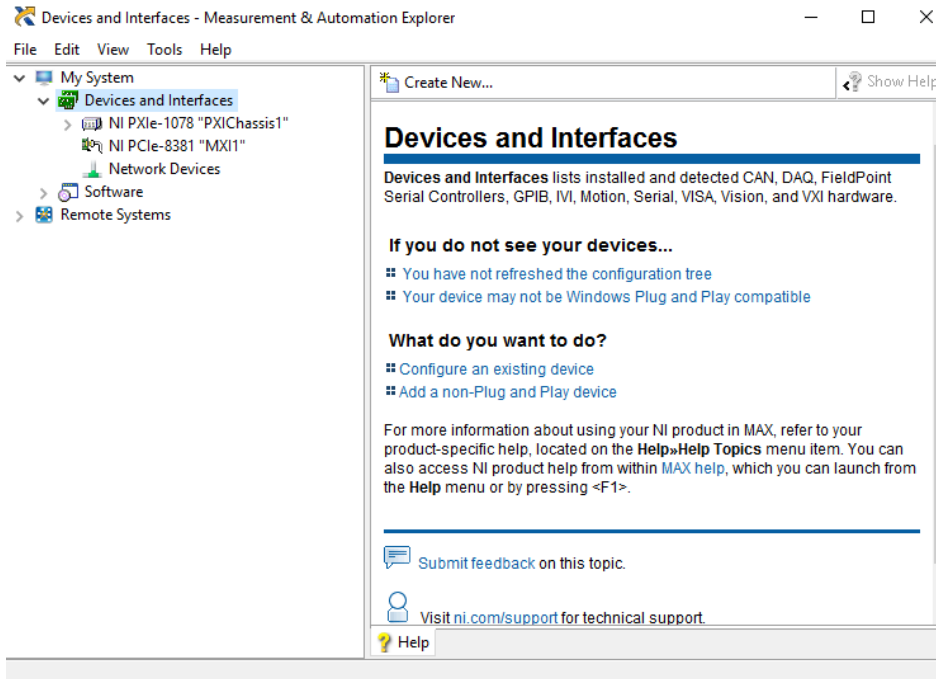
System > Misc Setup > Network Remote Control Settings > HiSLIP Port - 4880 (default) > HiSLIP Server - ON

Socket Server

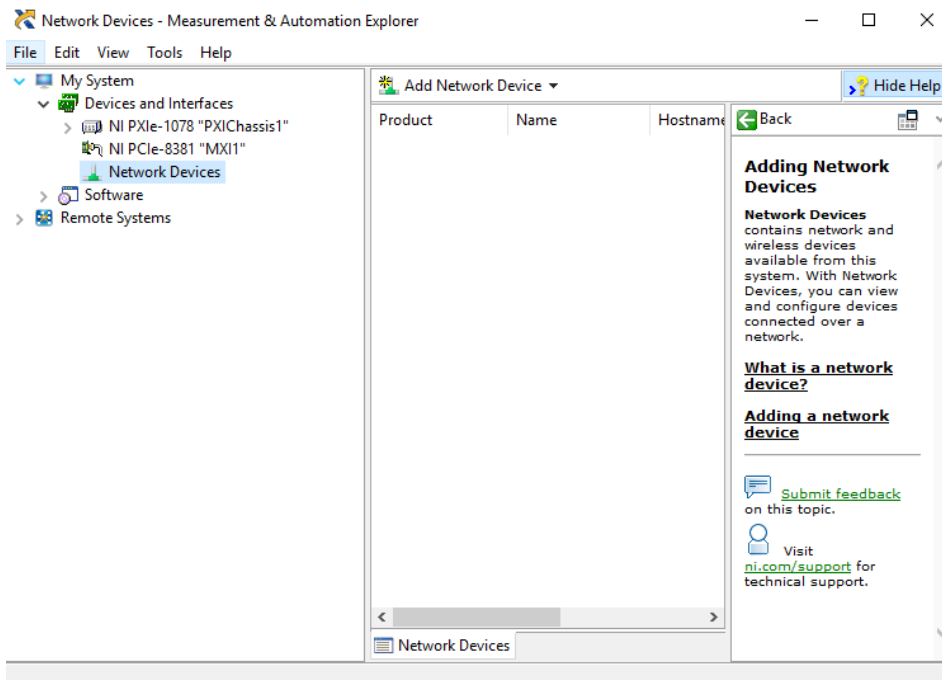
System > Misc Setup > Network Remote Control Settings > Socket Port - 5025 (default) > Socket Server - ON

HiSLIP server and Socket server use various network protocols based on the TCP/IP protocol. HiSLIP is a specialized protocol developed for measuring and test equipment. TCP/IP Socket is a general-purpose protocol.

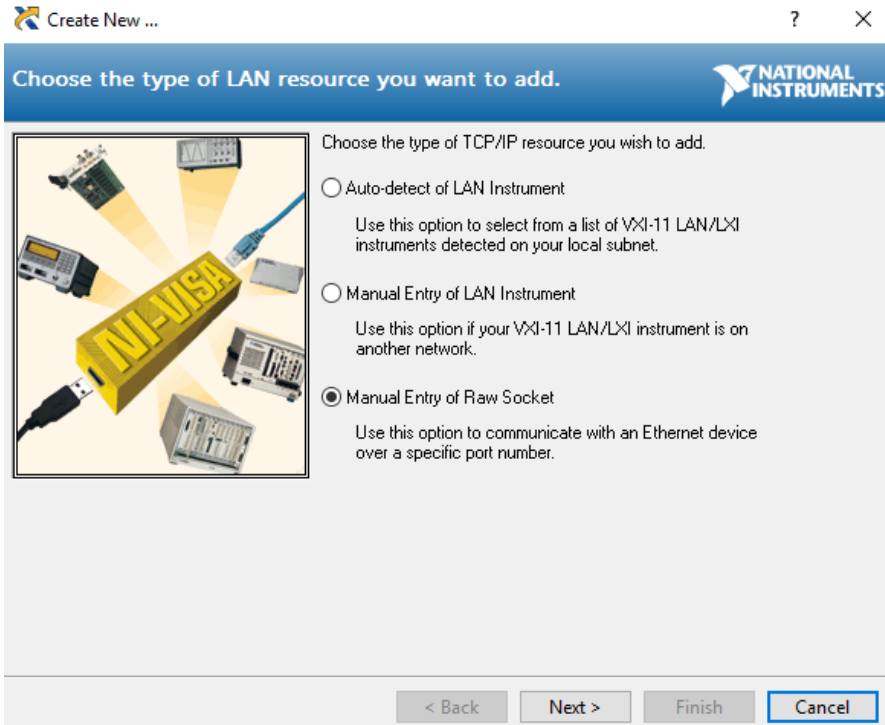
- 2) Launch NI MAX and navigate to 'Devices and Interfaces' tab to see the list of connected instruments.



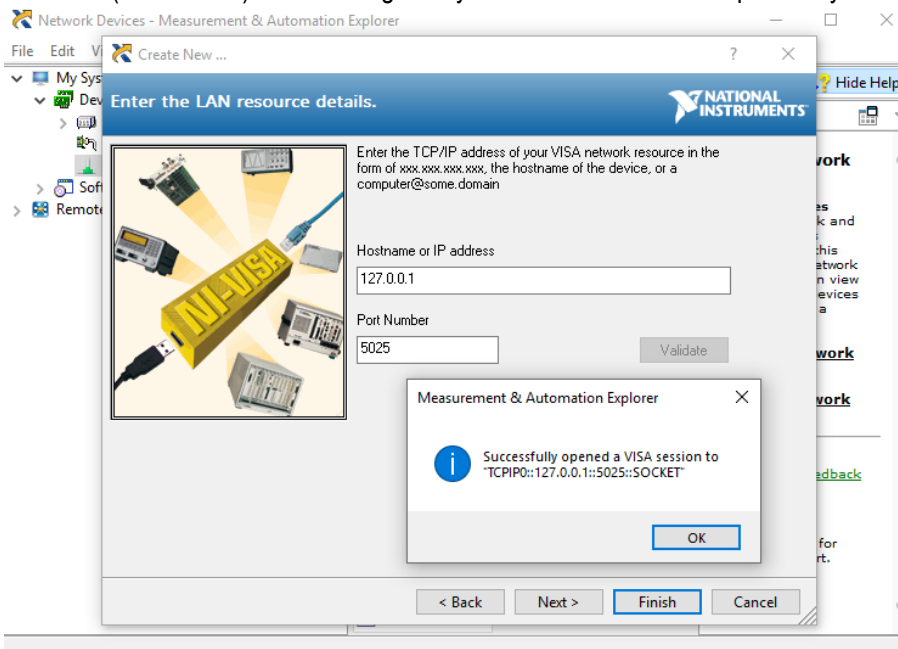
- 3) Automation of the network analyzer is based on the TCP/IP protocol. Hence, select 'Network Devices' under 'Devices and Interfaces' tab and add the 'Network Device' using 'VISA TCP/ IP Resource'.



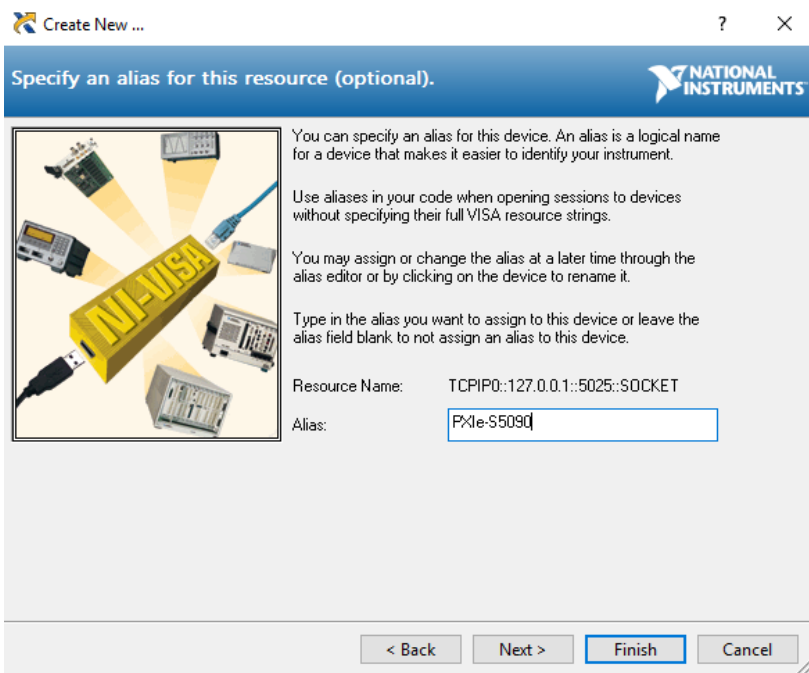
- Choose either 'Manual Entry of LAN Instrument' or 'Manual Entry of Raw Socket' to add the VISA resource and click 'Next.'



- IP address would be the actual address of the computer running the application if automating remotely, or 127.0.0.1 (or localhost) if automating locally. 'Validate' button can help to verify the connection quickly.

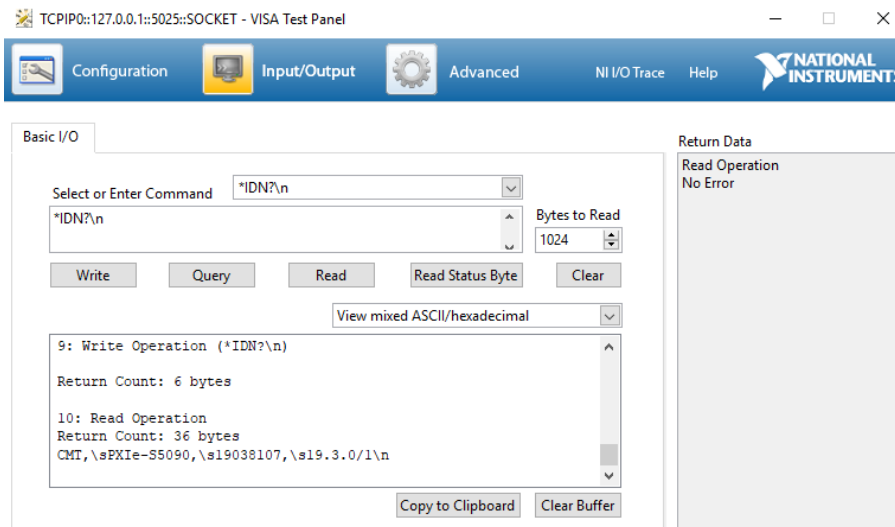


Note: Adding an 'Alias' name makes it easier to identify your instrument.

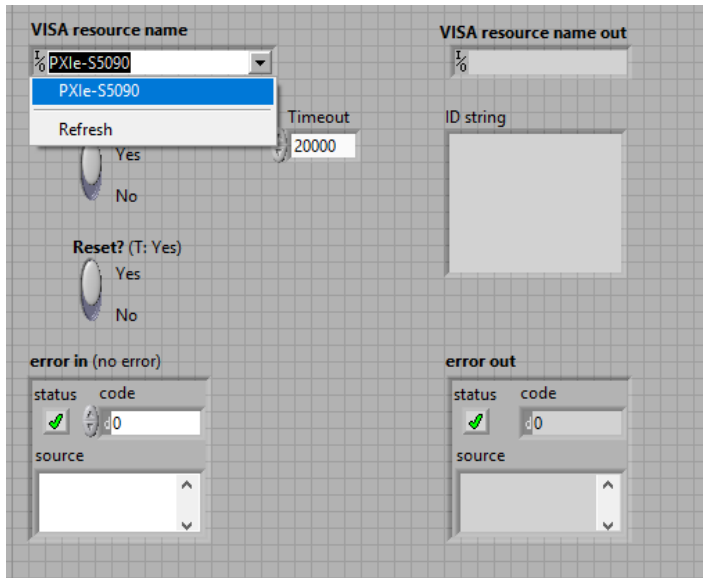


Once 'Finish' button is clicked, the VNA software is ready to begin automating.

- 6) The newly created VISA resource should be displayed under 'Devices and Interfaces'. Using the 'VISA Test Panel', automation commands can be tested. Here is an example of *IDN? query to check the device connection.



- 7) At this point, the instrument should be ready to be controlled from LabVIEW. Using the VISA VI, you can initialize the connection. The VISA resource name created using NI MAX should appear in the drop-down



Further information on tutorials and examples of LabVIEW programs can be found here:

<http://www.ni.com/academic/students/learn-labview/>
<http://www.ni.com/getting-started/labview-basics/examples>