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Ethernet Application of GE PACE Series Pressure Indicators/Controllers Application Note

AN0001

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Approvals

Checked Feroz Bhaiji	**Instrument Engineering** Phil Bradley	

Application Note

Ethernet Application of GE PACE Series Pressure Indicators/Controllers

GE PACE Series pressure indicator/controller has an Ethernet port for remote communication. The communication is via SCPI (Standard Commands for Programmable Instrumentation). This note gives users a quick start to instrument LAN connection, confirm the connection, and finally send a universal SCPI command "*IDN?" to instrument and read back the instrument's identification.

Since GE PACE Series is VISA (Virtual Instrument Software Architecture) compliant, once the connection and identity is confirmed, it is just another instrument to the customer's test and measurement (T&M) system. There is no difference with other devices on the system, such as GPIB, RS232, or USB devices. Therefore this note does not touch on SCPI commands of GE PACE Series. There is a user's guide on that topic:

GE PACE SCPI Remote Communications Manual - K0472.

This note will take a PACE1000 as example and guide users on things to do on the instrument and on the PC. The tools used by this note are free downloadable LAN terminals. Readers of this note do not need any programming skills.

At the instrument

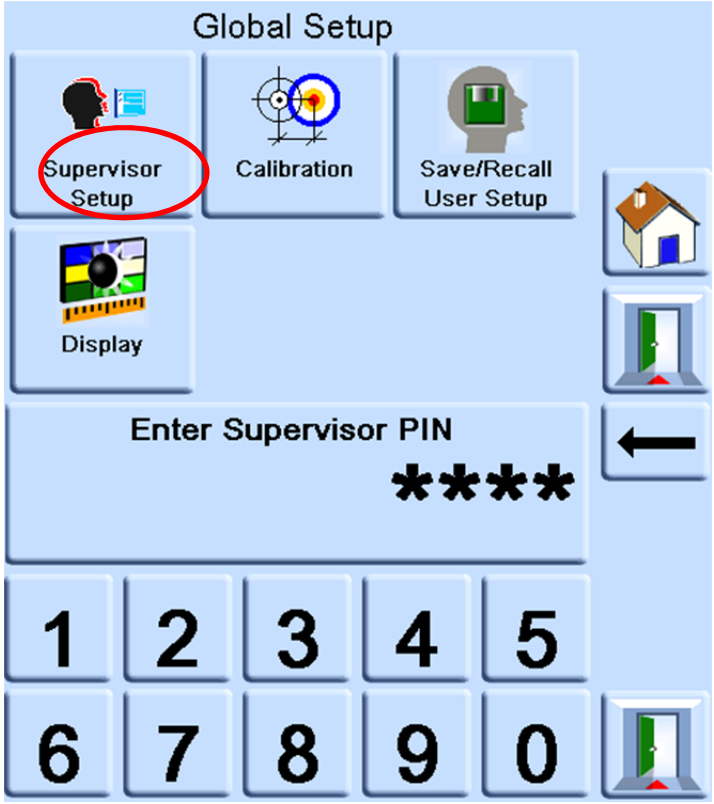
Connect the instrument to a LAN or one-to-one to a PC.

Instrument connected

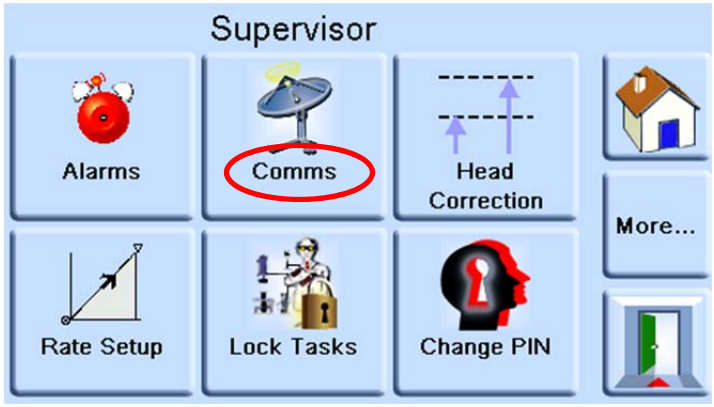
LAN configuration settings on touch-sensitive display as following.

Global Setup

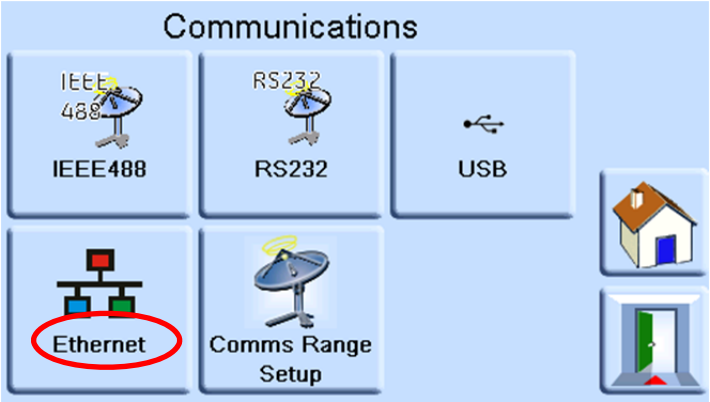
Supervisor Setup (default pass word 0268)



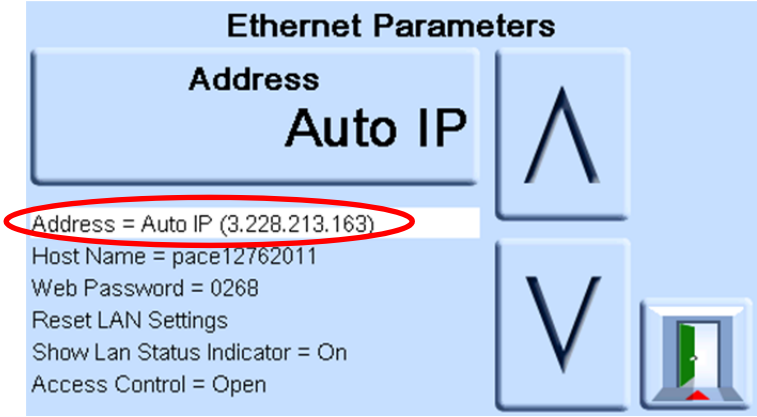
Communications



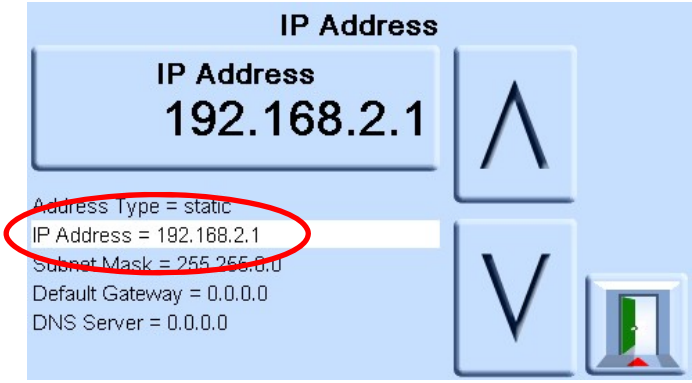
Ethernet

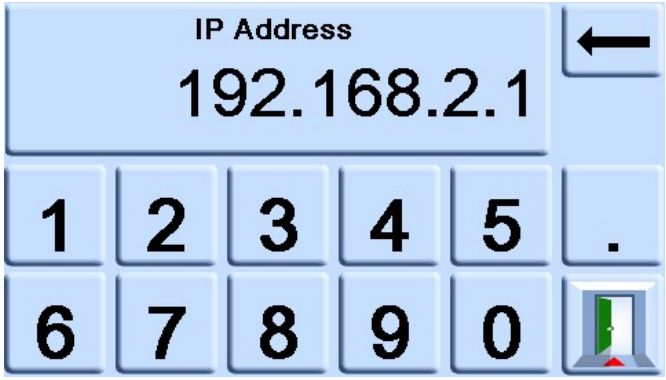


Ethernet parameters and show LAN Status Indicator = On

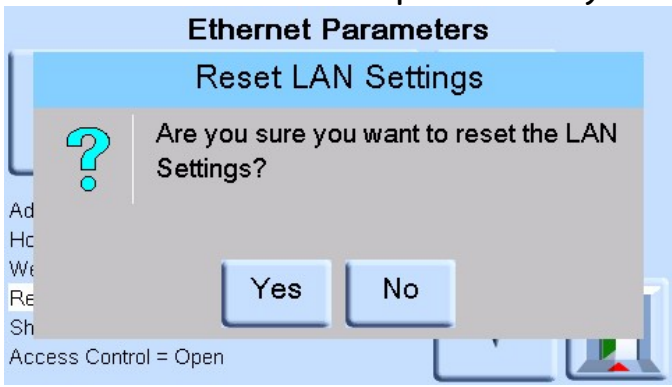


Once the instrument is connected to the LAN, it will be automatically assigned an IP address. This works fine on most occasions. However, if the PACE is switched off and on again and there are other changes during this period on the LAN, the IP address may be changed. As a result, some programs which ran perfectly before may get an error now. It is therefore sometimes desirable to be able to manually assign an IP address to the instrument. To do this, press the address button > address type, select static Address Type, and change the IP address as required.





User can reset the Ethernet parameters by



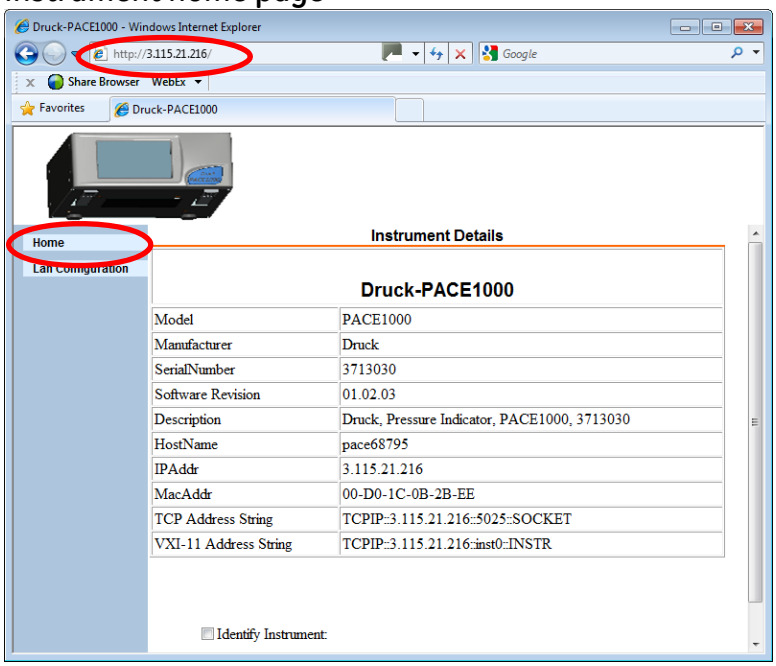
LAN Status Indicator shows up

This indicator confirms the connection from instrument front panel.

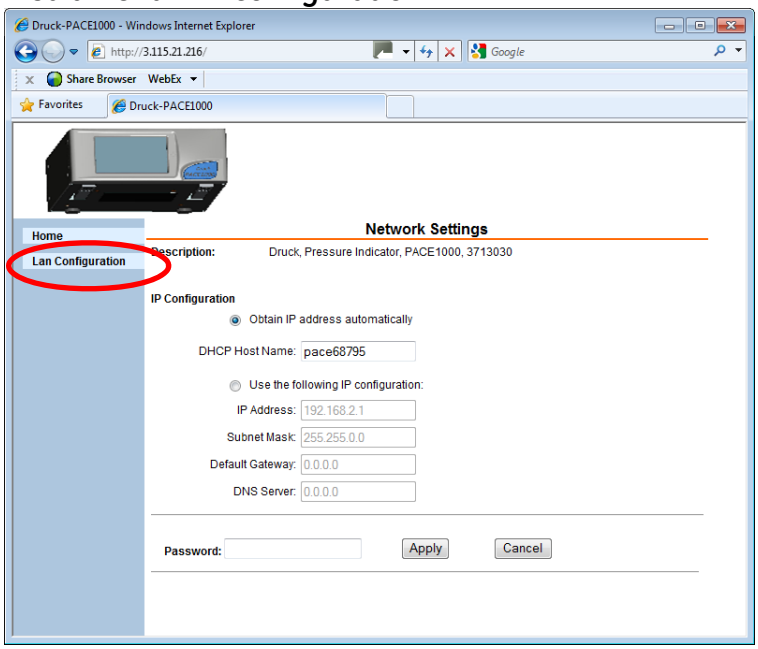
Confirmation of connection from PC

Once the IP address of the instrument is known, confirmation of the LAN connection can be confirmed through PC by using an internet browser, such as

Instrument home page



Instrument LAN configuration



Sending "*IDN?" to the instrument

1. VXI-11 and socket

GE PACE Series instrument support VXI-11 and socket communication. The following Agilent application notes have a brief introduction on both protocols and a comparison between the two; these are:

1. Using Linux to Control LXI Instruments Through VXI-11, Agilent Application Note 1465-28

2. Using Linux to Control LXI Instruments Through TCP, Agilent Application Note 1465-29

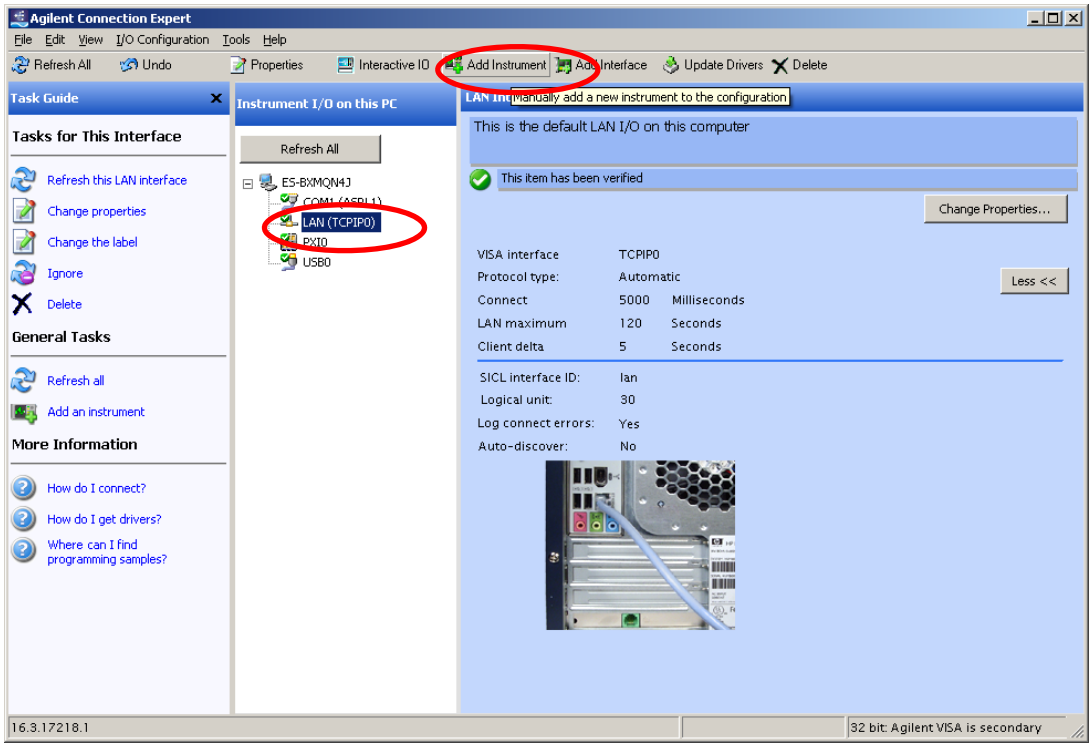
Above articles also describe how to send and read ASCII text based message to the instrument, so that a programmer can write their own terminal programs, since common terminals such as telnet and hyper terminal cannot be used due to the VXI-11 or socket layers.

There are some free downloadable terminal utilities. This note will take some examples next.

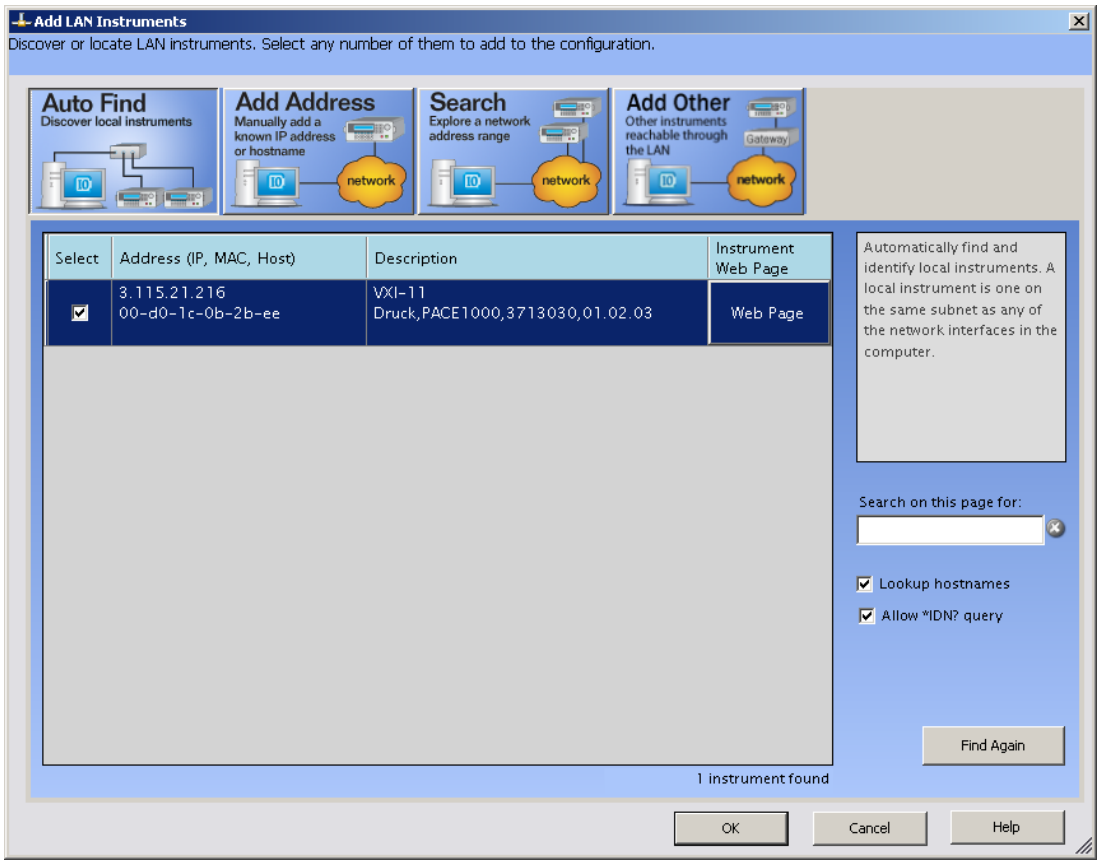
2. Agilent Connection Expert

Down load and run Agilent Connection Expert

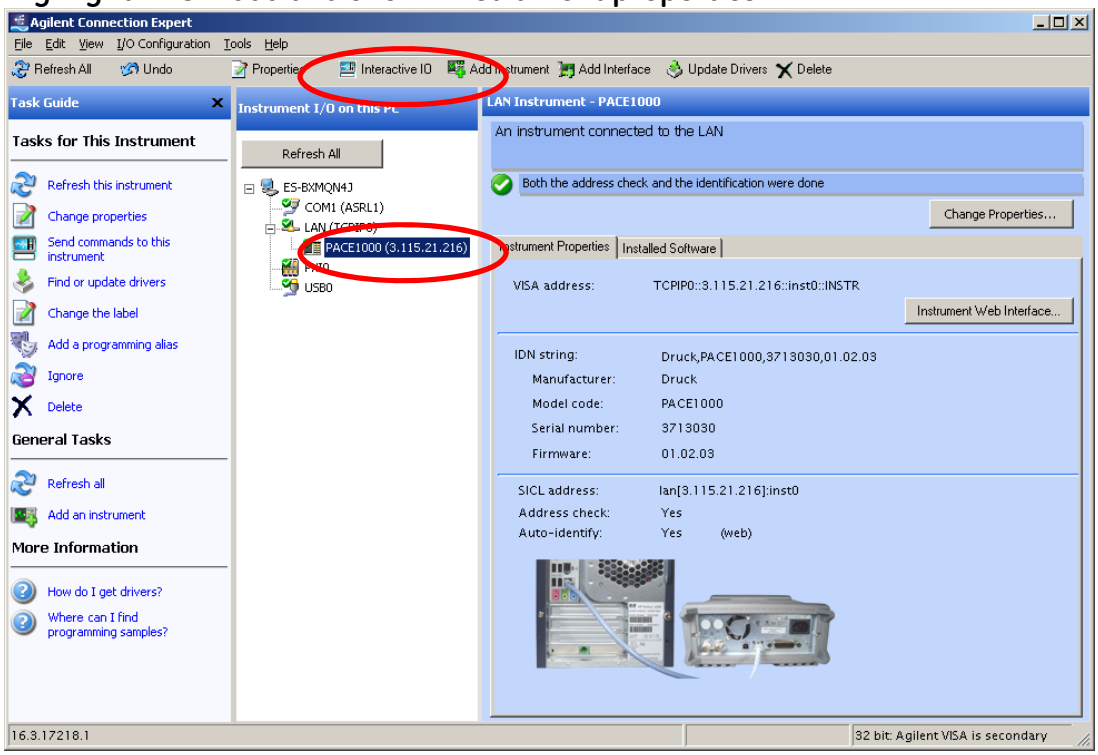
Add instrument to LAN



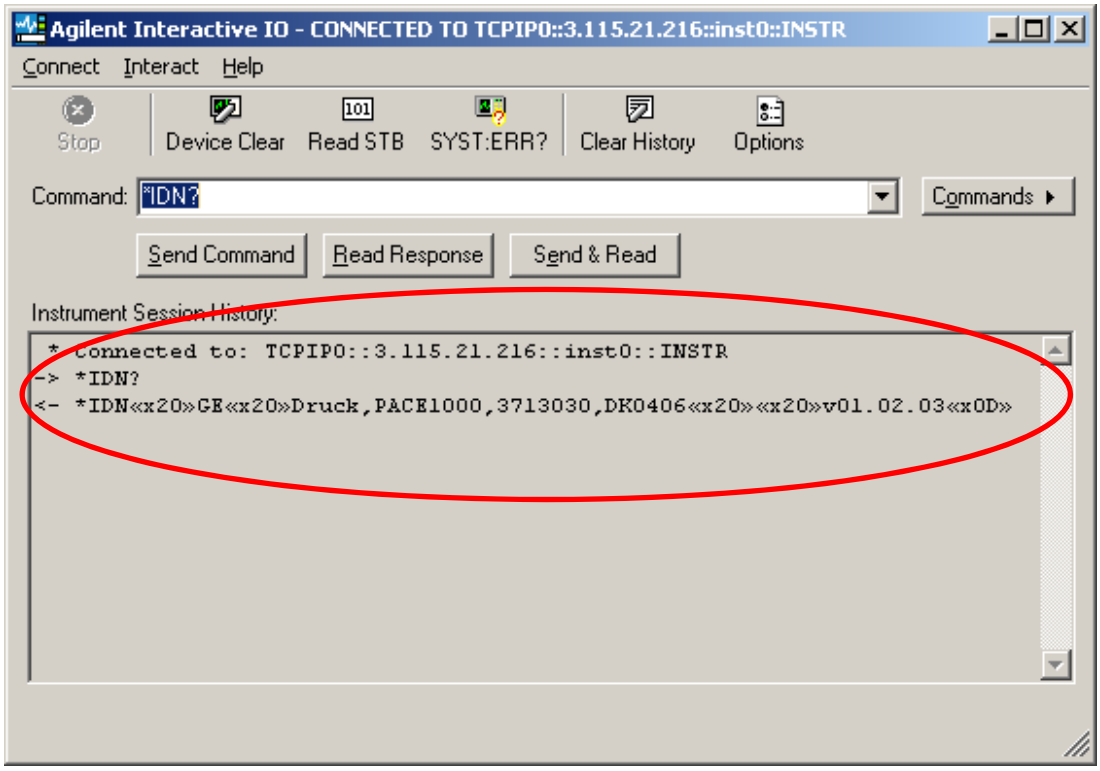
Auto find PACE instrument



Highlight PACE1000 and shown instrument properties



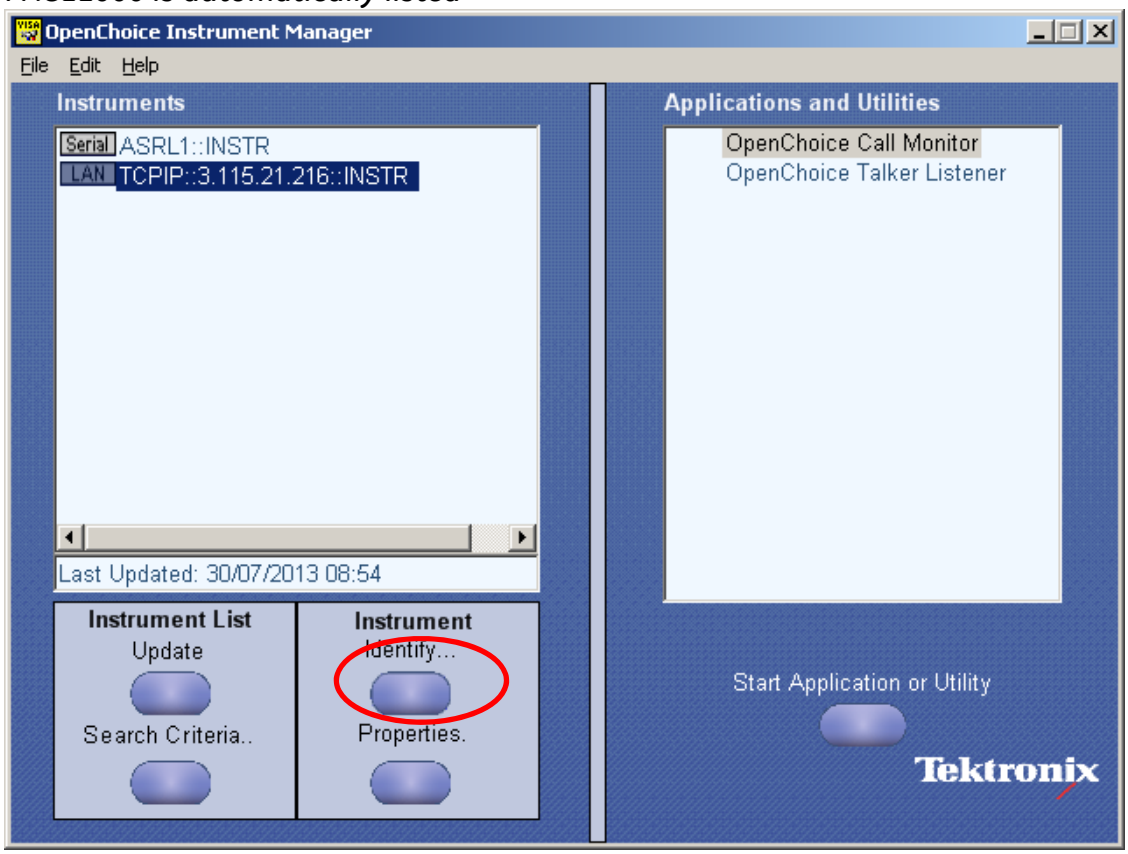
Run Interactive IO and send “*IDN?” to PACE1000 and read back



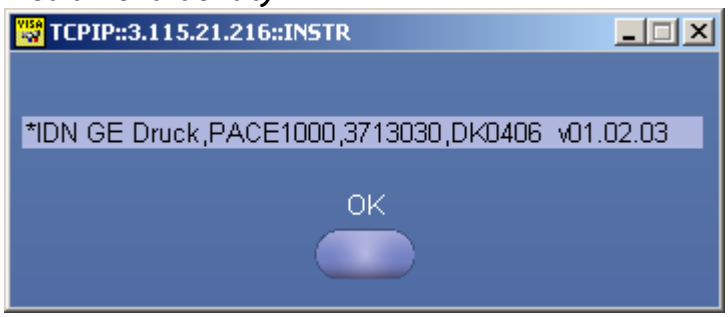
3. Tektronix OpenChoice

Download and run OpenChoice Instrument Manager

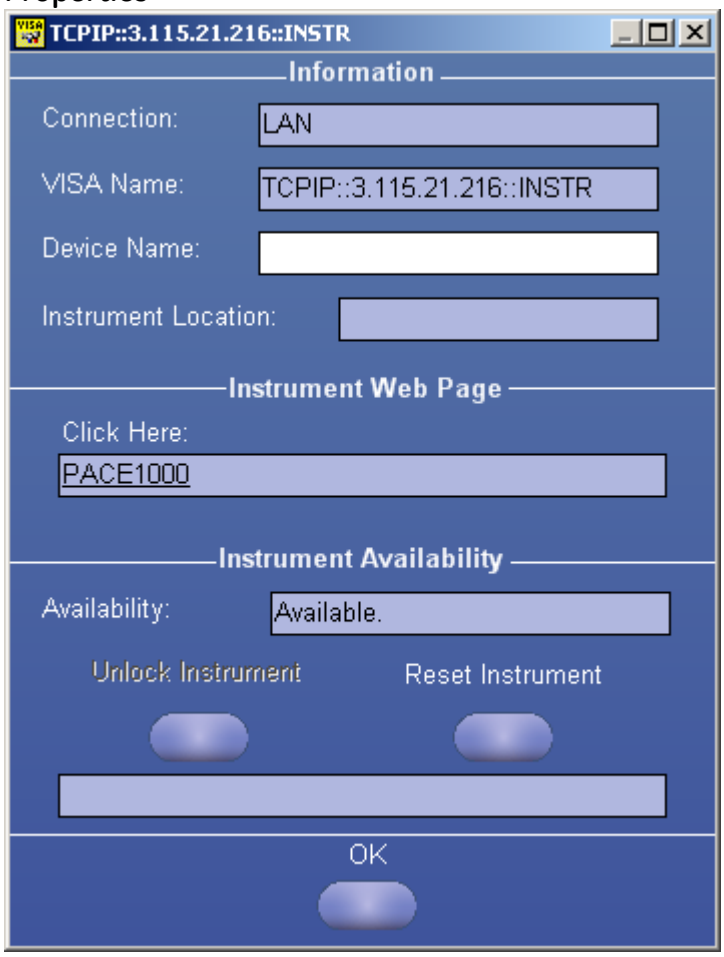
PACE1000 is automatically listed



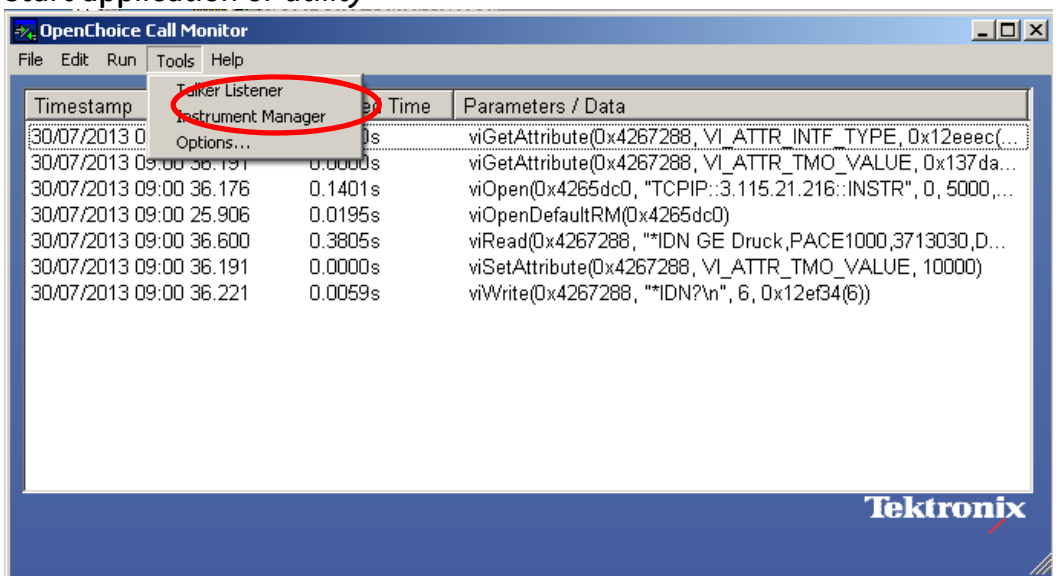
Instrument Identity



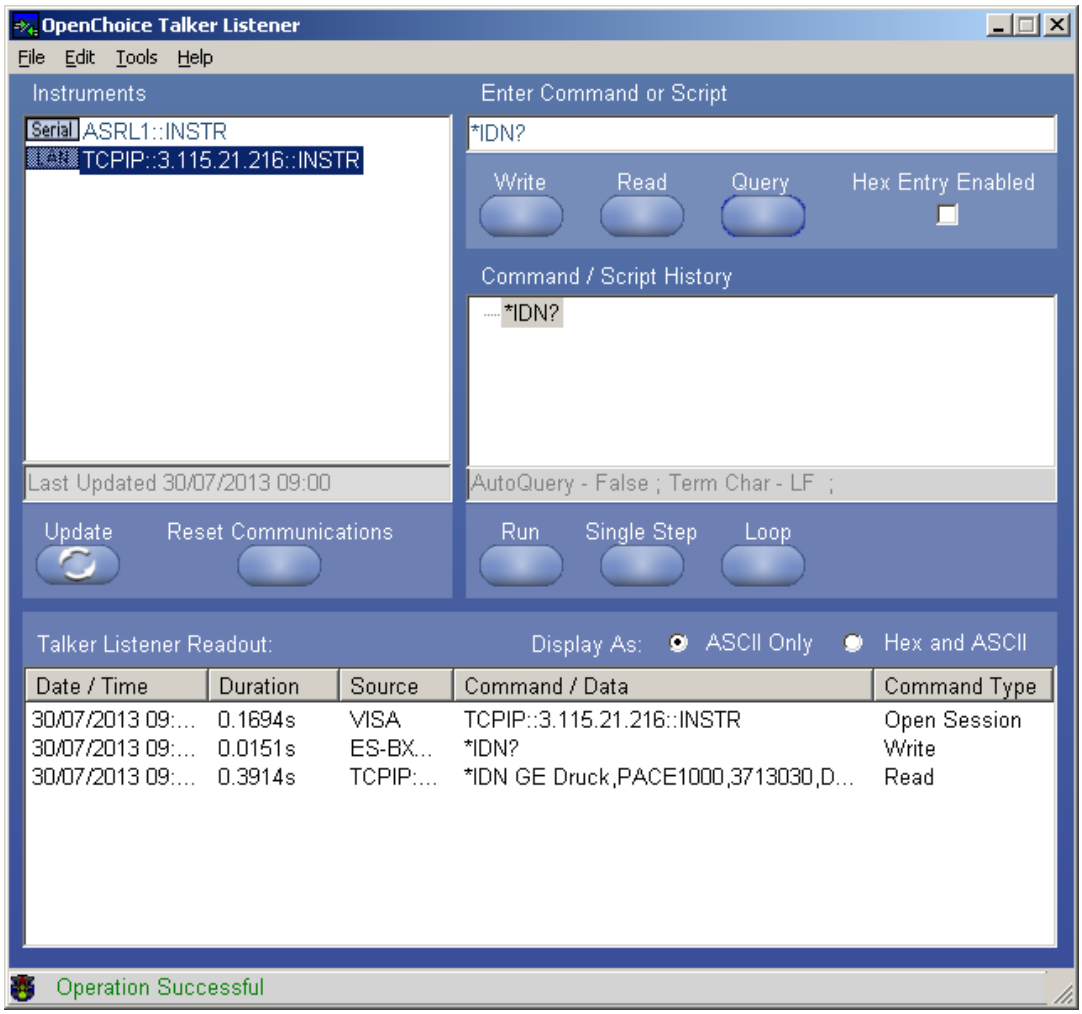
Properties



Start application or utility

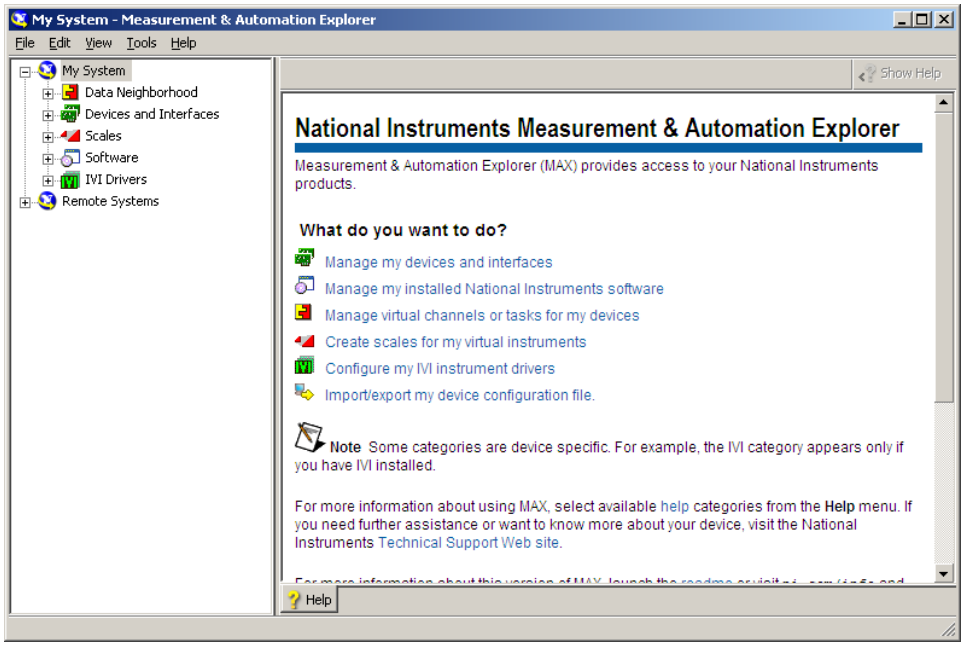


Talker listener sent "*IDN?" and listened back

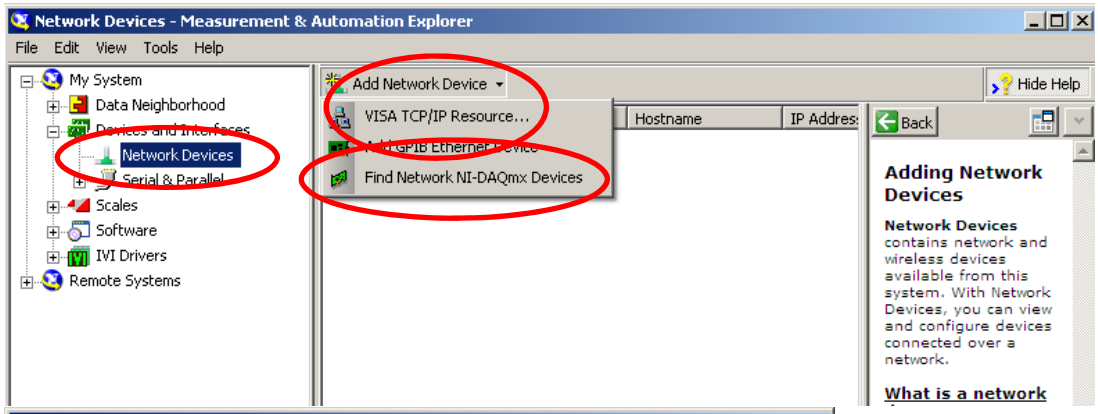


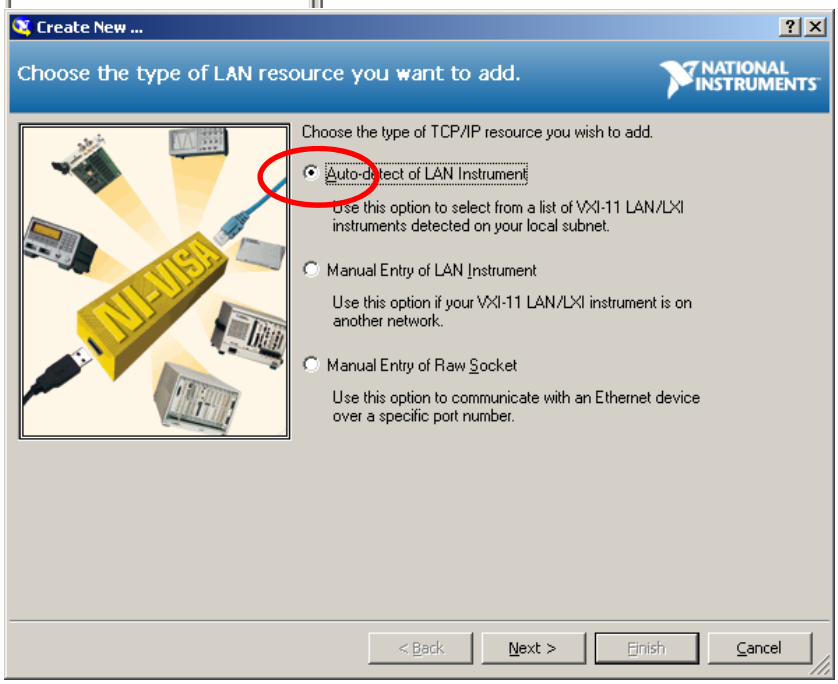
4. National Instruments MAX

NI MAX

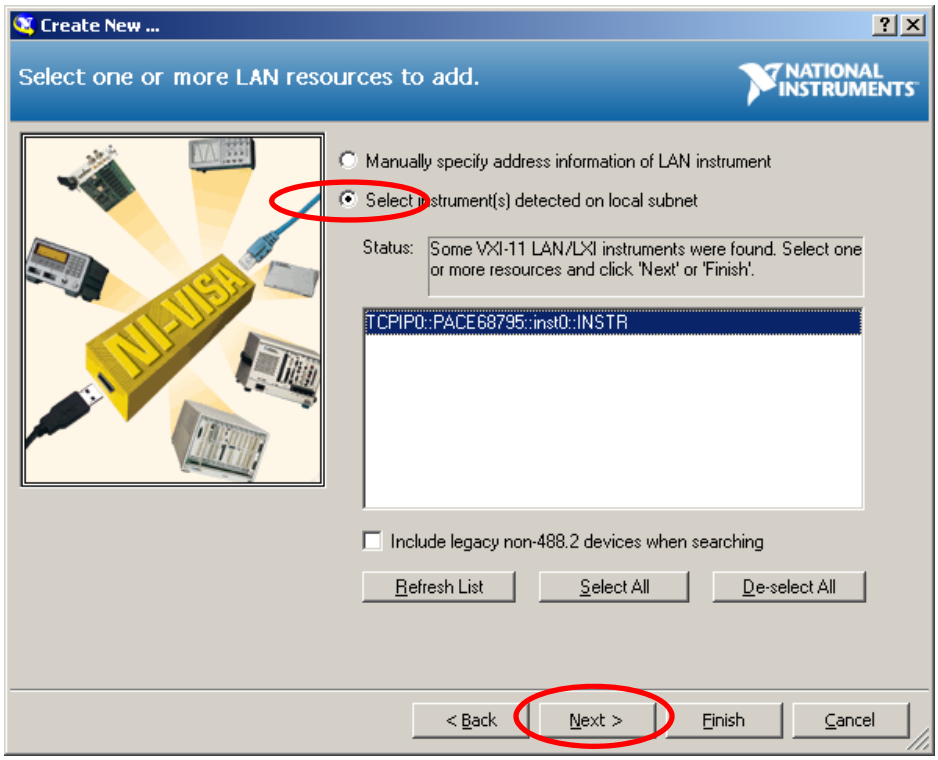


Add network device to LAN

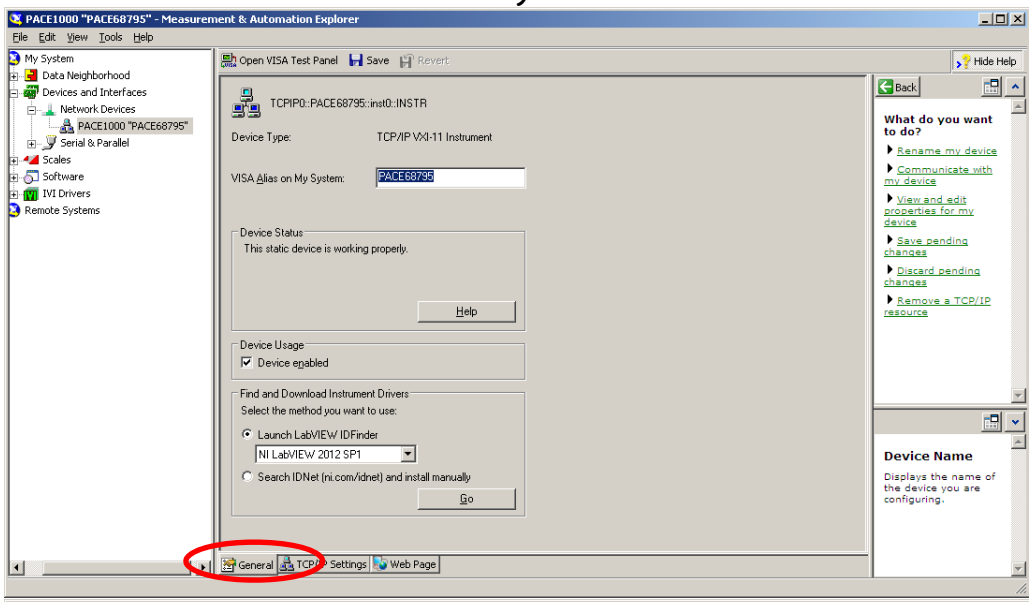


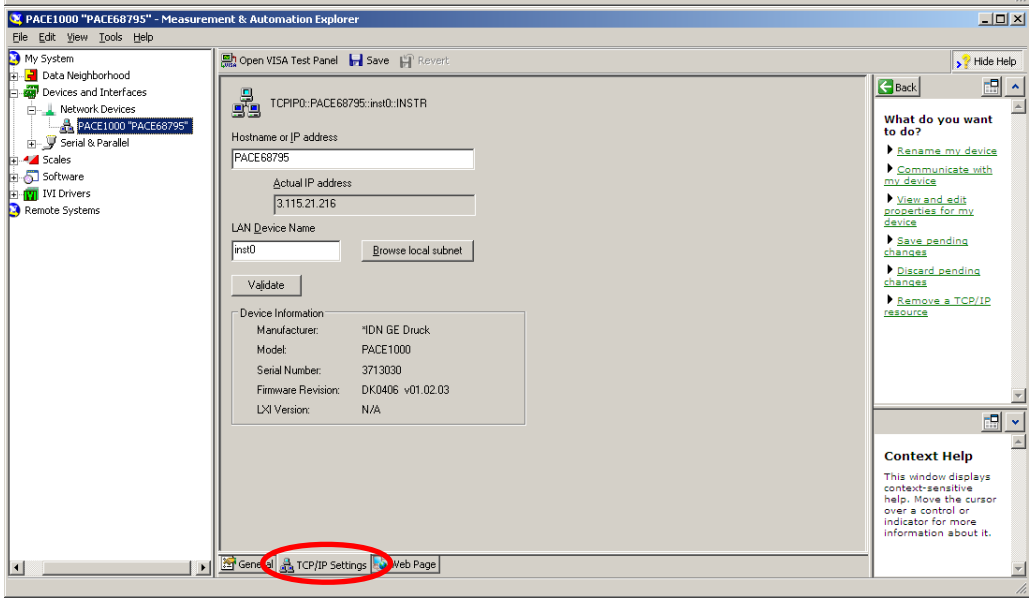


Select the PACE instrument

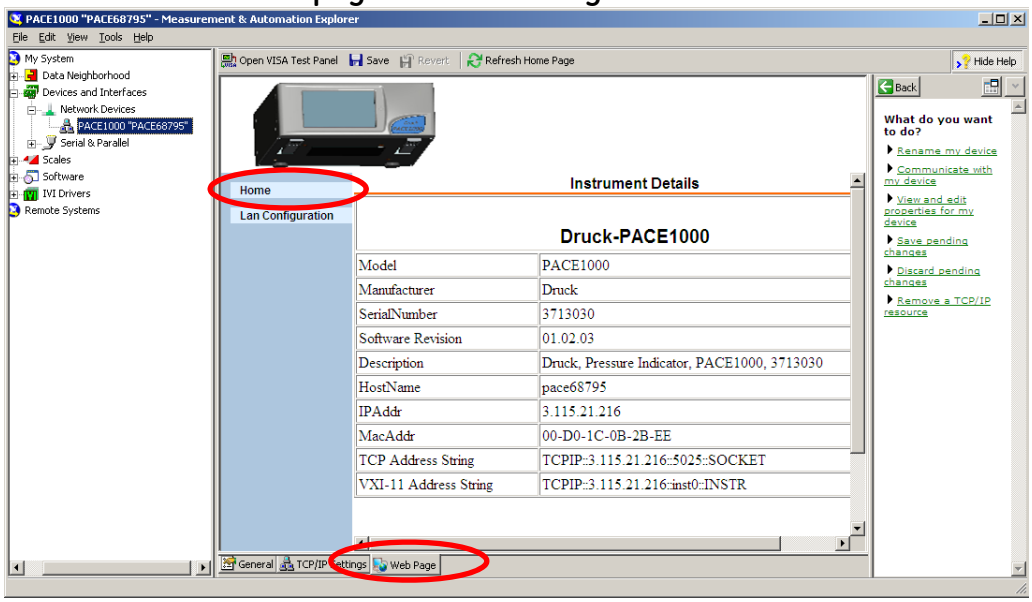


The instrument information shown by MAX

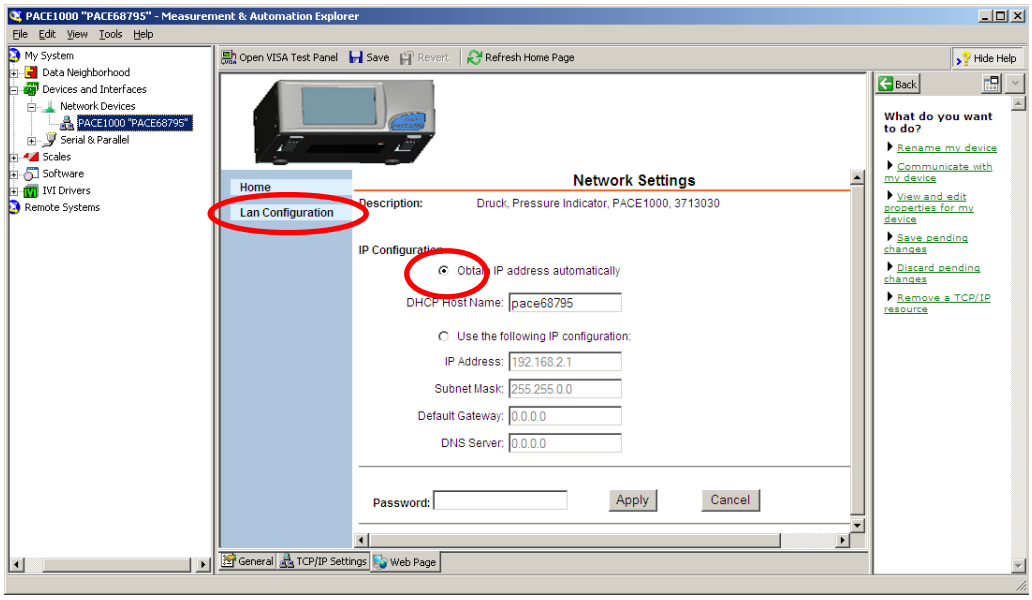




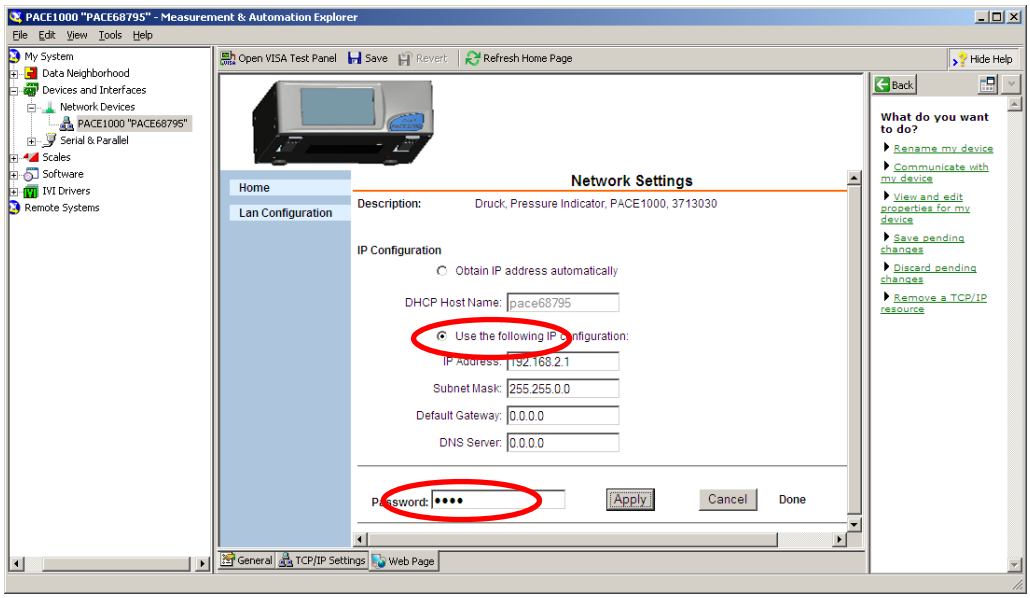
The instrument home page and LAN configuration



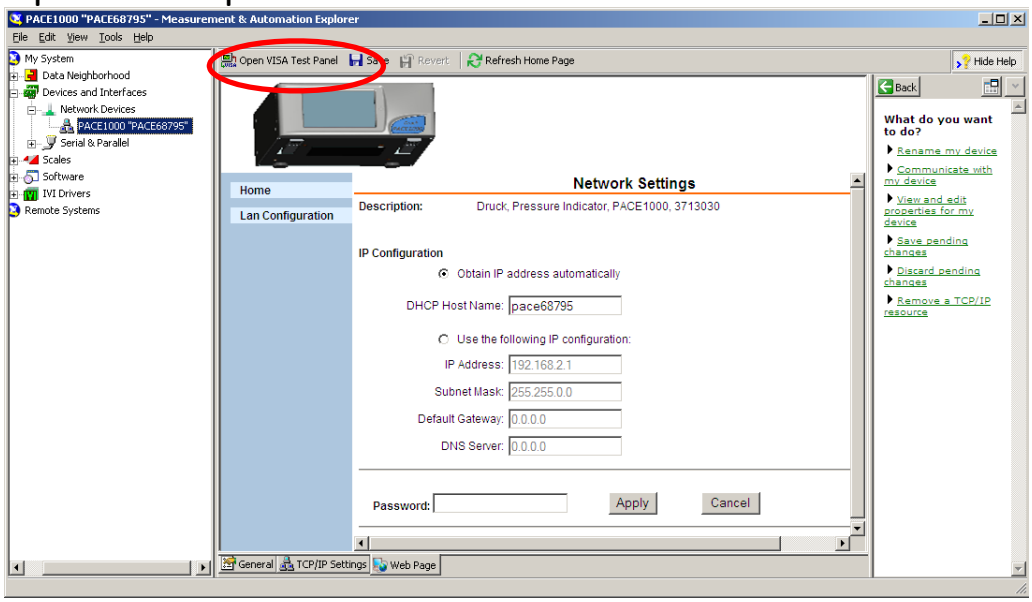
Automatic IP address

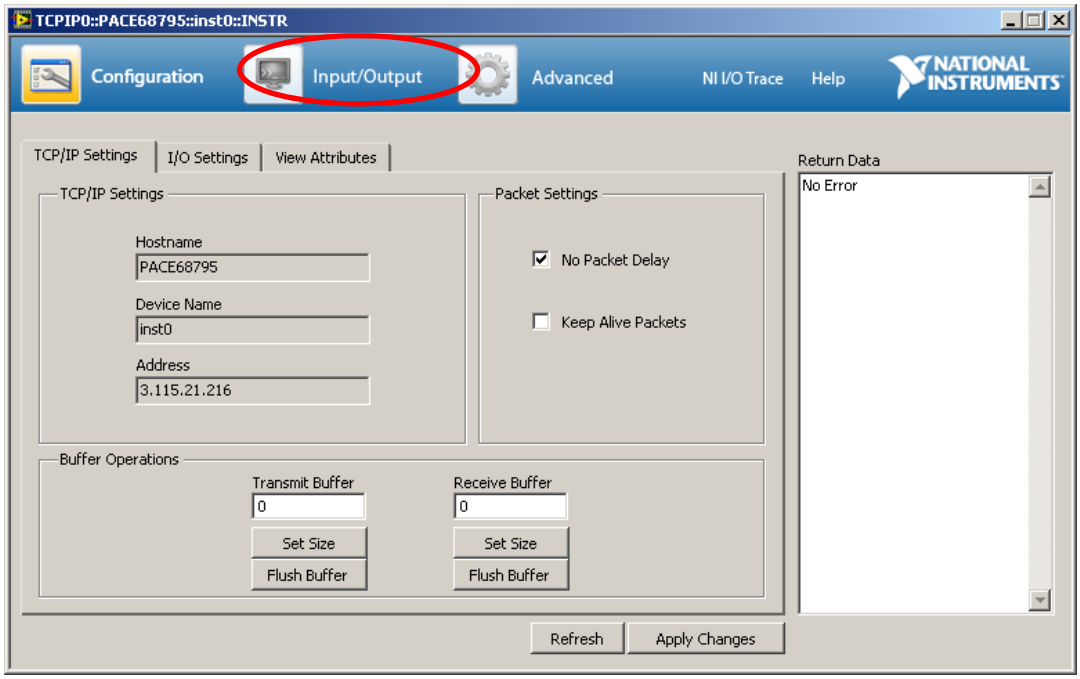


Manual IP address

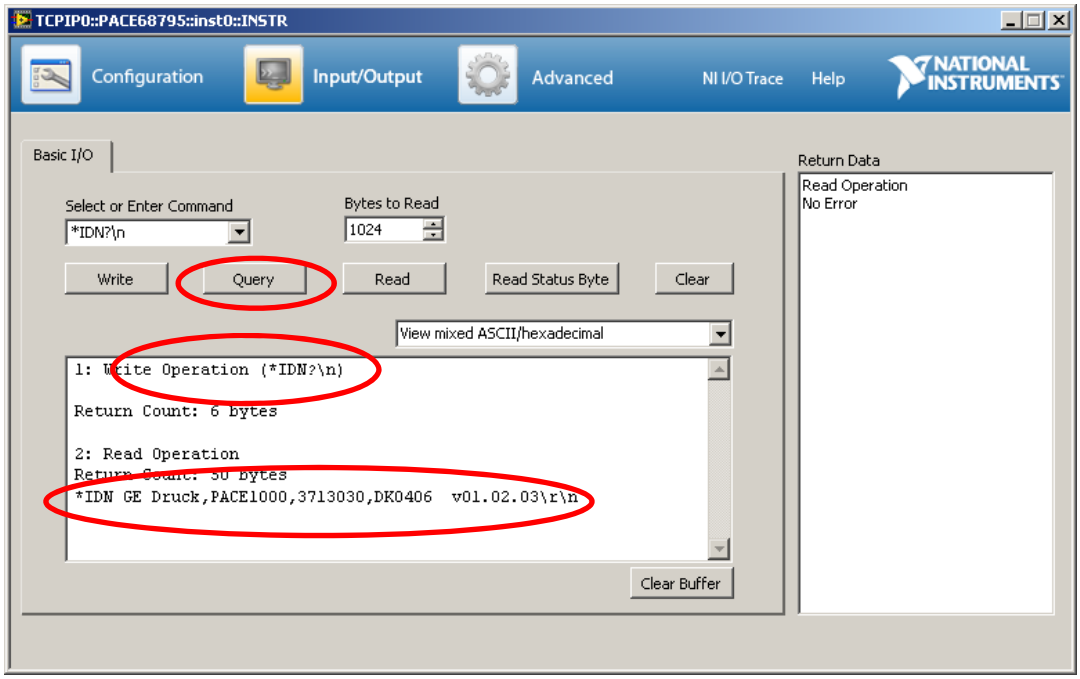


Open VISA test panel





Send "*IDN?" to the instrument and listens back

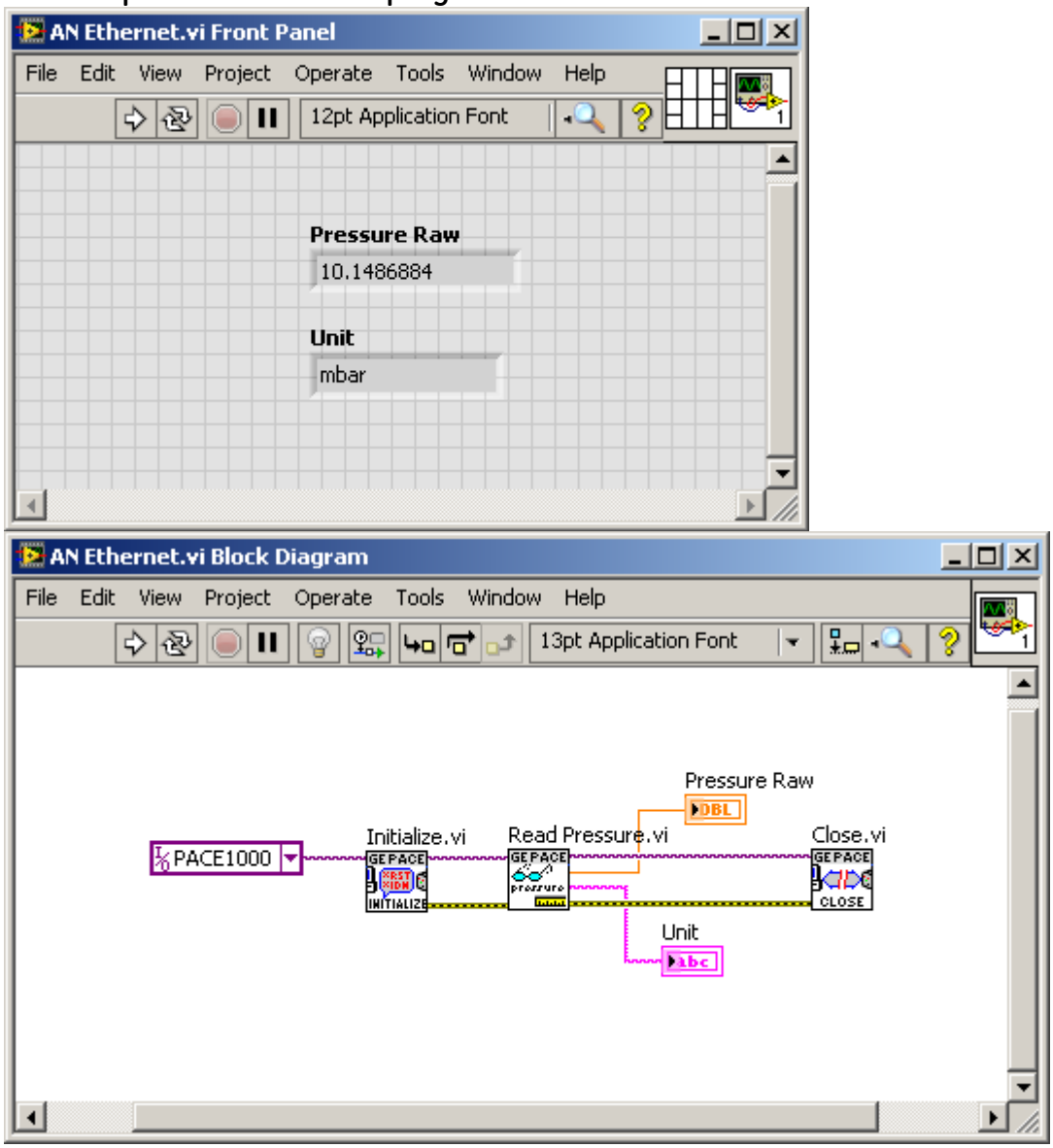


To a LabVIEW programmer

Once a GE PACE series instrument is connected to a LAN network, it can be controlled remotely by SCPI commands using any programming language, just the same as GPIB or RS232 devices.

A piece of information to LabVIEW programmers, there are GE PACE series LabVIEW drivers on Nation Instrument driver's site. An application program can be developed quickly without much programming skills. The follow program is such an example. It drags and drops a 'Read Pressure.vi' from the GE PACE1000 driver's library and adds two indicators. It reads the instrument. It is now easy and convenient to read the pressure measurements from you desktop computer in your office, whilst the instrument may be in a laboratory in another building.

An example LabVIEW driver program



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