SMART LINC QUICK START GUIDE

Software Installation.....2

Launching SmartLinc Exec for Windows.....2

Creating A Program.....2

Editing Object Properties.....4

Connecting the PC/Laptop to the SmartLinc Device.....5

Establishing Communication Between SmartLinc Exec and the SmartLinc Device.....10

Preparing a Program for Upload to the SmartLinc Device.....14

Uploading a Program to the SmartLinc Device.....16

Scanner Calibration.....18

Viewing Scanner Measurements.....22

SmartLinc Exec Configuration Software Installation:

Launch the installer by double clicking the "SmartLincExec-n.n.n.n.exe" file. The "n.n.n.n" part of the installer's filename represents the version of SmartLincExec about to be installed.

If an earlier version of SmartLincExec is already installed, it is not required that the existing version be uninstalled as the installer will update only the necessary files.

Accept all the default installation switches and folders unless you wish to place them in special locations.

After installation completes, SmartLincExec can be launched from the links created in the Start Menu (via the Start Button).

In addition, the installer creates links for:

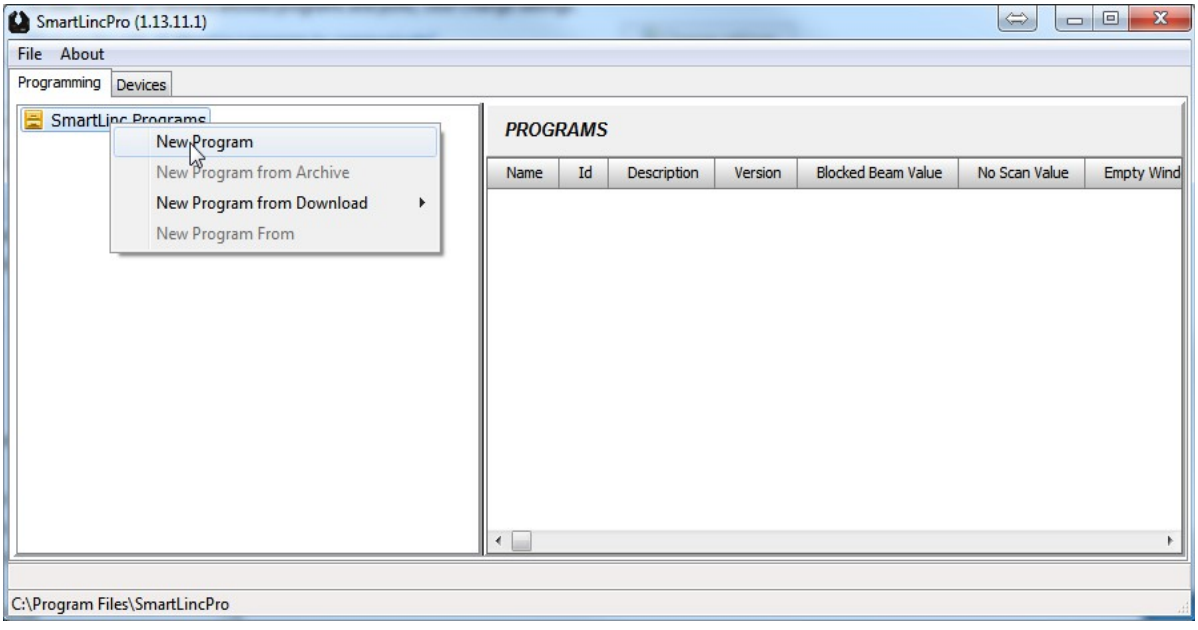
- Putty: a diagnostic utility that LaserLinc support may used via TeamViewer to access the SmartLinc device operating system.
- WinSCP Installer: a diagnostic tool that LaserLinc support may be use via TeamViewer to access files in the SmartLinc device.
- SmartLincExec Update Tool: A tool which is used to check for and install SmartLincExec updates as well as scanner database files. Requires an internet connection.

Running SmartLincExec:

Click the SmartLincExec link in the Windows Start Menu.

Creating A Program:

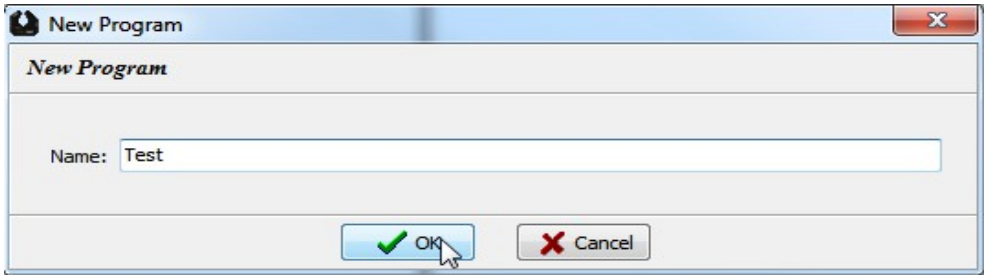
All objects are created by right clicking object icons in the left pane of the application. To create a program, right click the "SmartLinc Programs" container and select "New Program" from the drop down menu.



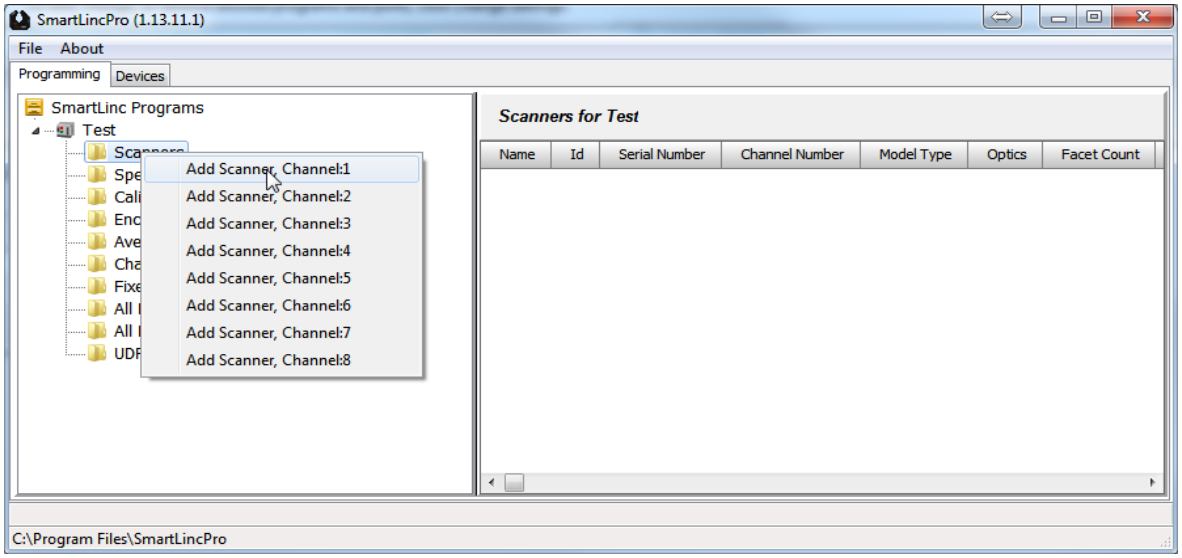
(continued...)

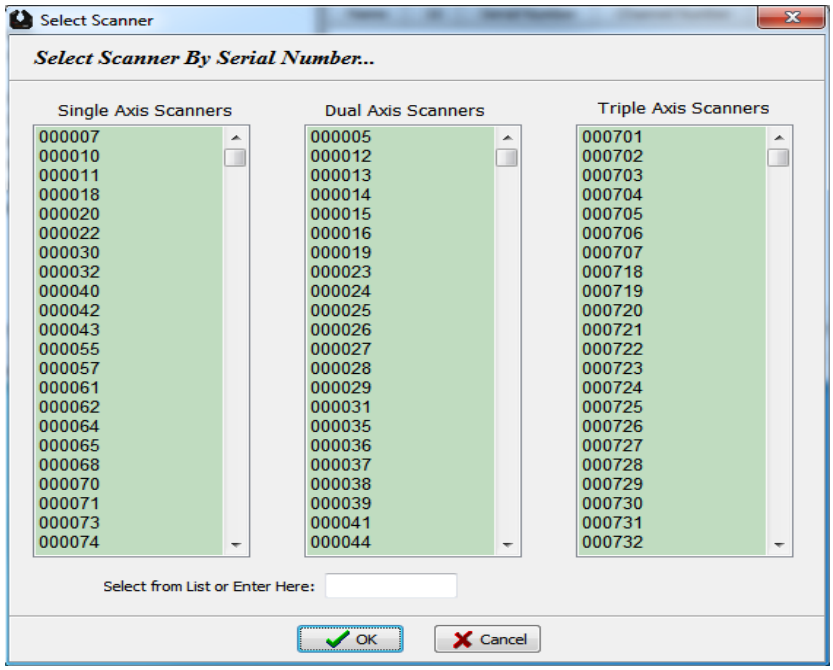
Creating A Program (continued...)

Enter the program name in the dialog box and click “Ok”:



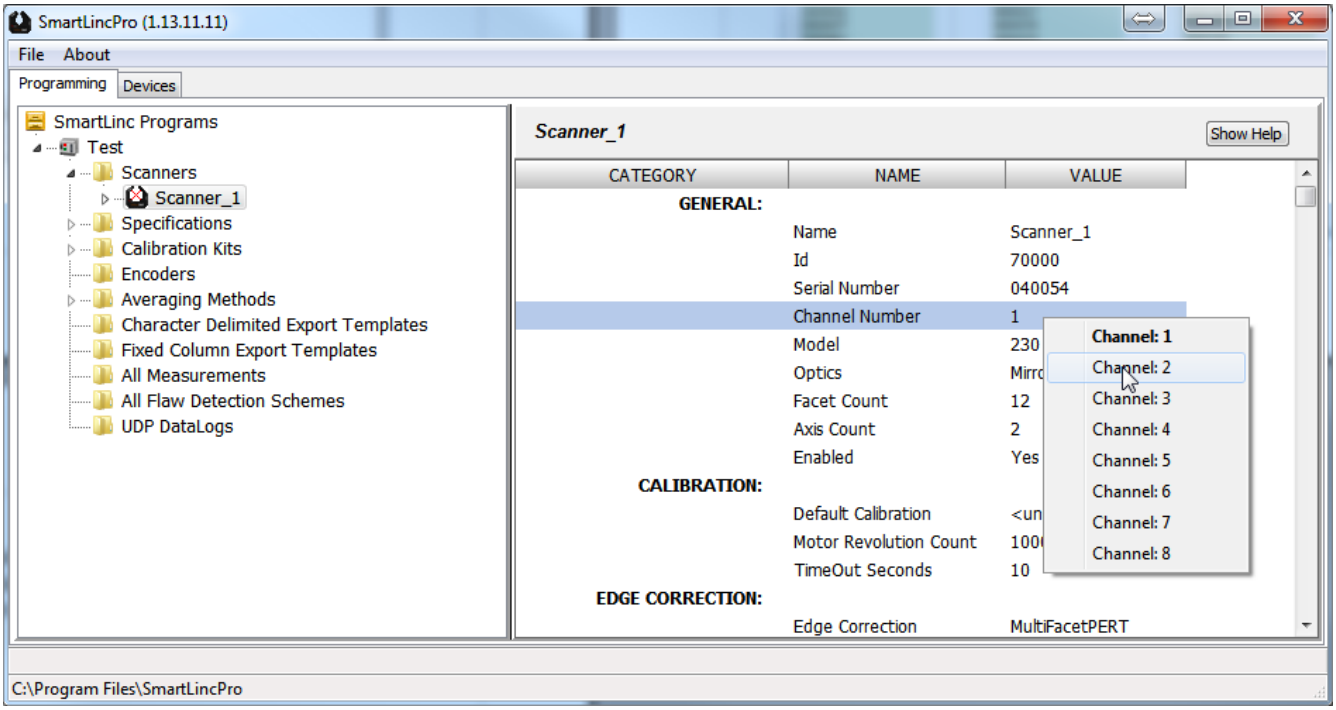
Proceed to build the program by right clicking on the containers of the desired objects. For instance, to add a scanner, right click “Scanners”, select the desired channel and select a unit from the lists provided or manually enter the serial number of the scanner.





Editing Object Properties:

All object property modifications are performed in the right hand pane of the "Programming" tab Clicking the desired object in the left pane displays its properties in the right detail pane. To modify an object property, double click or right click the property line in the right hand pane.



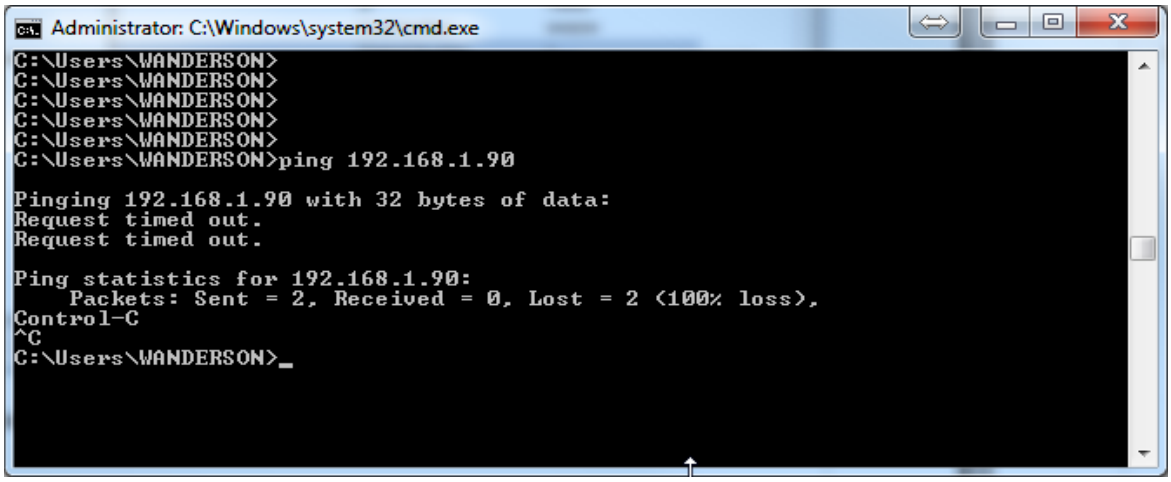
Please note, some properties are fixed value and cannot be modified.

Connecting the PC/Laptop to the SmartLinc Device:

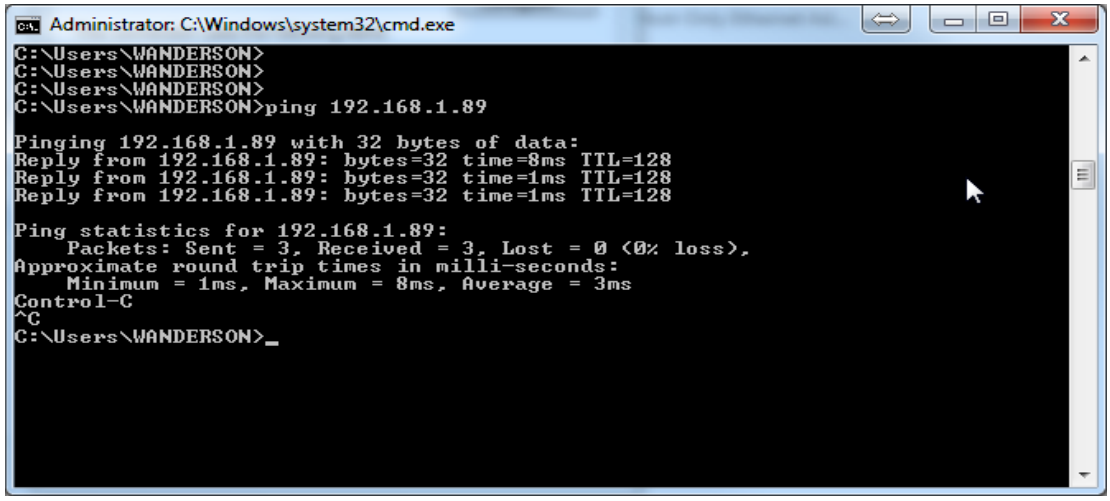
As delivered, the SmartLinc device's network configuration is:

IP: 192.168.1.50
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

The easiest method to connect SmartLincExec to the SmartLinc device is with a USB to Ethernet adapter. Fix the IP address of the USB/Ethernet adapter to an unused address having 192.168.1 as the first 3 address values and select an unused value other than 50 and in the range 2 and 254 for the last value. To verify the selected IP is not in use, launch Windows cmd shell (cmd) and execute the "ping" command as demonstrated below. If the IP address is not being used by another device, "Request timed out" will be reported as indicated and the USB/Ethernet adapter may be safely set to the tested IP address. Press <ctrl> <c> to terminate the ping command.



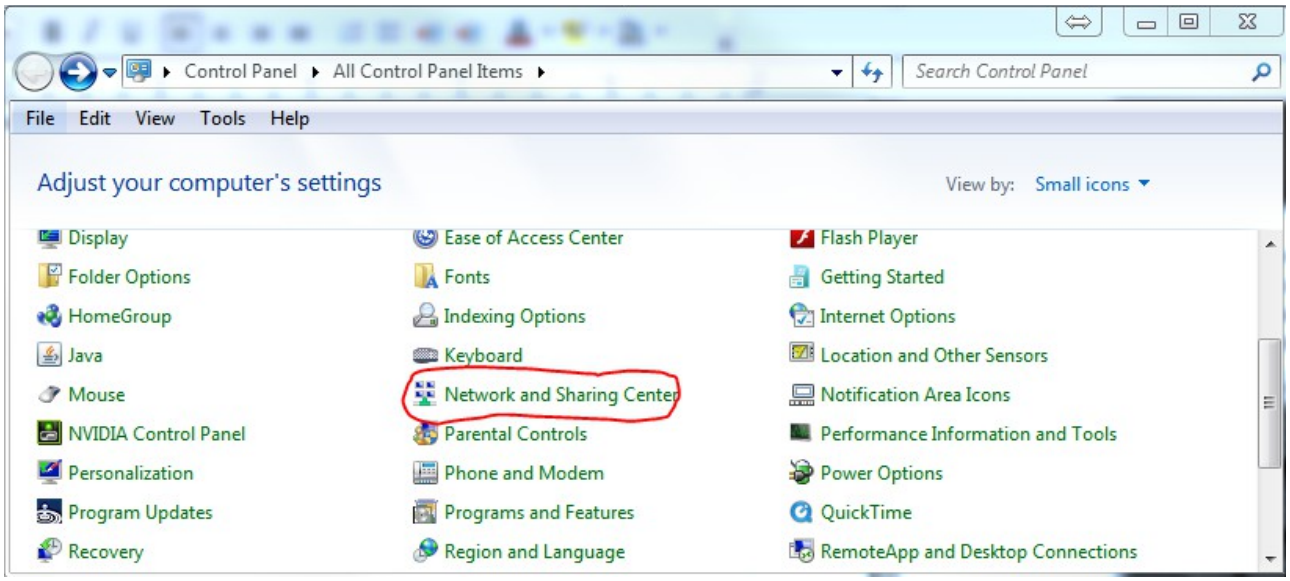
If the IP address tested is being used by another device the response time in milliseconds will be displayed. In the example below, the device at 192.168.1.89 has a reported response time of 1 to 8 milliseconds. Since this IP is already assigned to another device on the 192.168.1 network, this address cannot be assigned to the USB/Ethernet adapter.



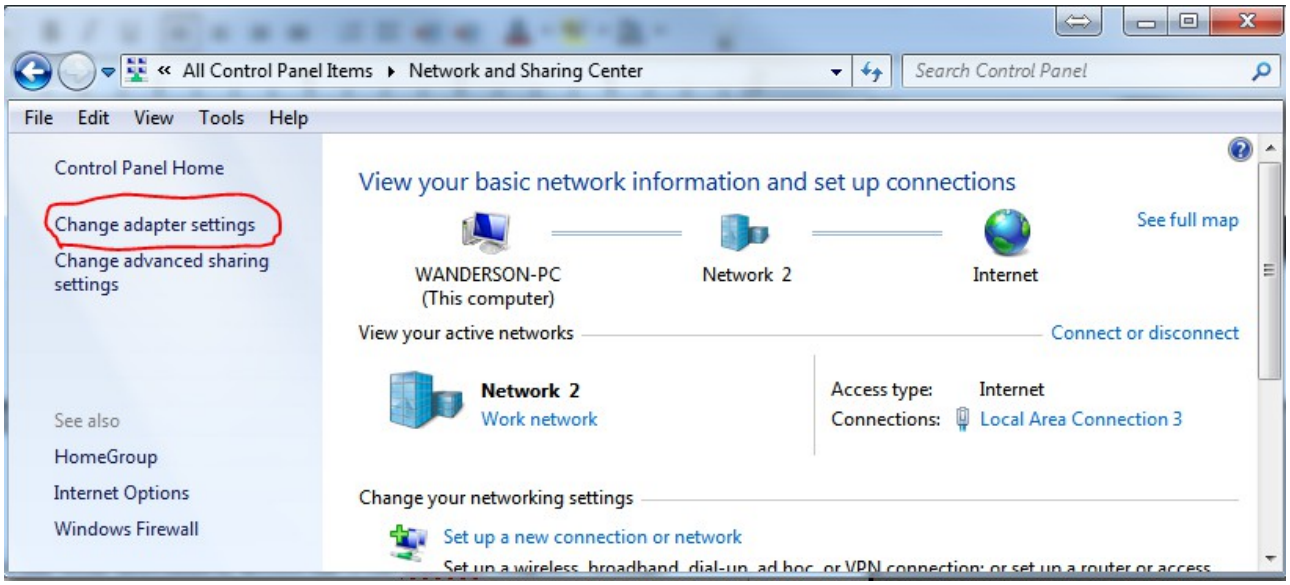
(continued...)

Connecting the PC/Laptop to the SmartLinc Device (continued...)

Once an unused IP address has been determined for the USB/Ethernet adapter, access the adapter's settings through Windows Control Panel, Network and Sharing Center (windows7)



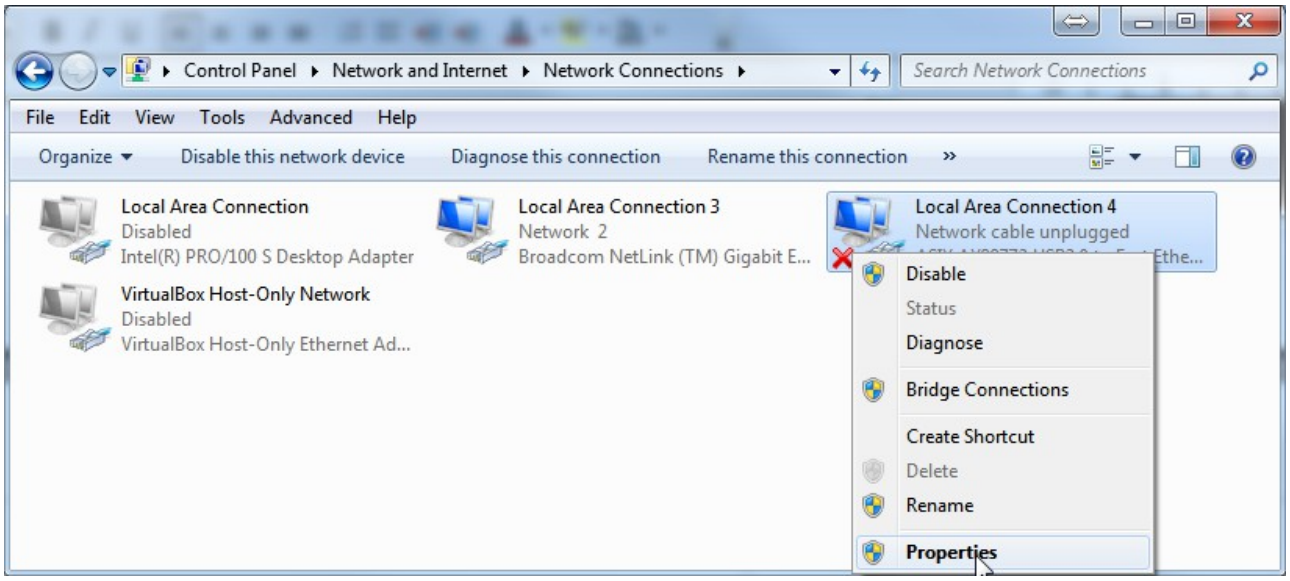
...click on the “Change adapter settings” link



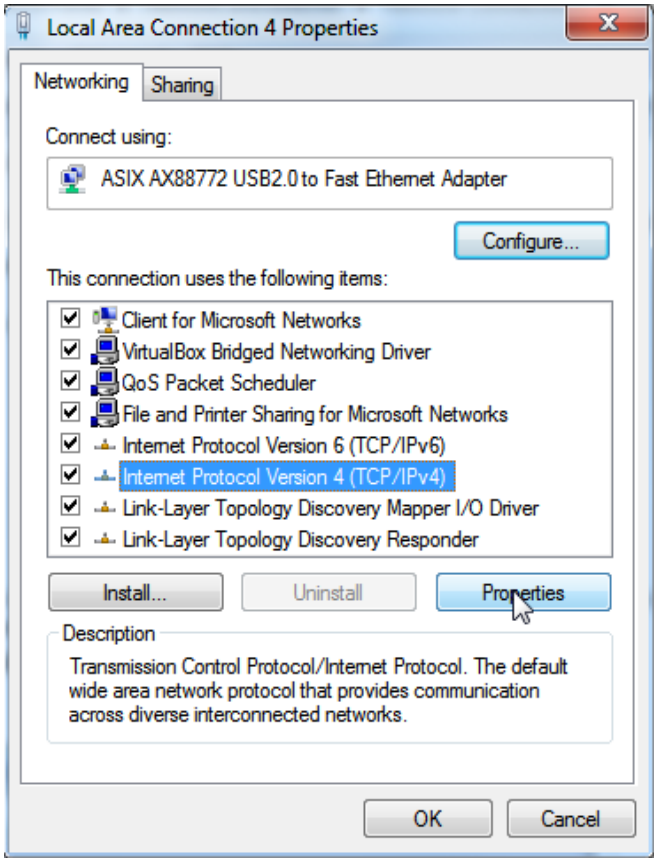
(continued...)

Connecting the PC/Laptop to the SmartLinc Device (continued...)

Right click the adapter and select “Properties”



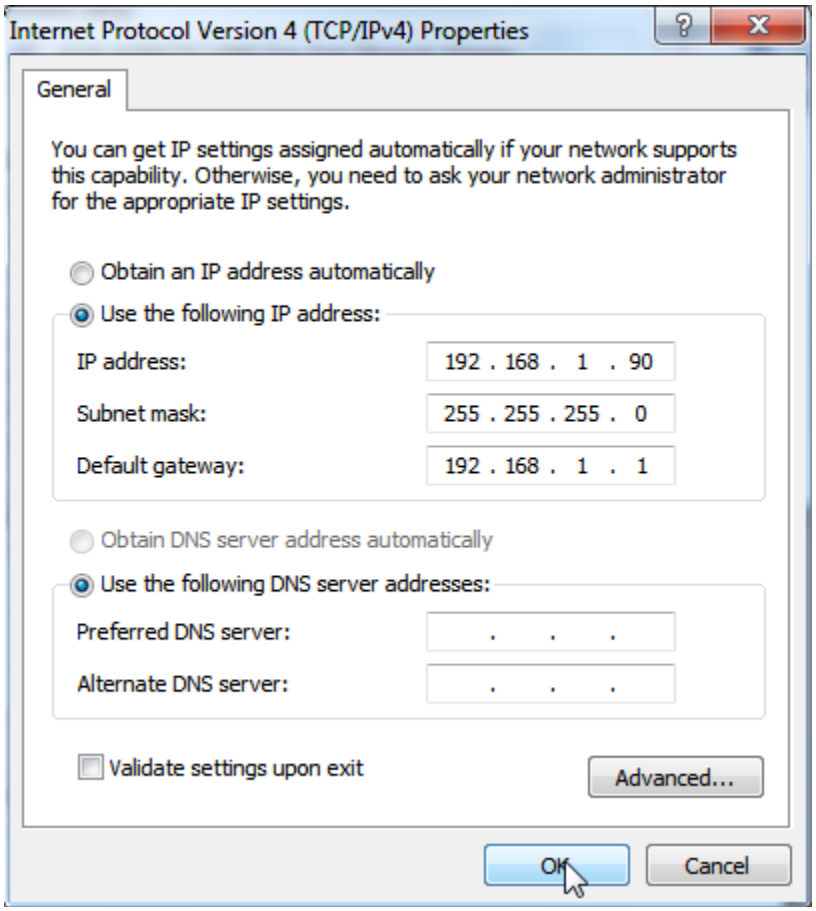
Select “Internet Protocol Version 4 (TCP/IPv4) and click the “Properties” button



(continued...)

Connecting the PC/Laptop to the SmartLinc Device (continued...)

Click the "Use the following IP address" radio button, enter the available IP address, subnet mask and default gateway as indicated below and click the "OK" button. The USB/Ethernet adapter is now ready to communicate with the SmartLinc device.

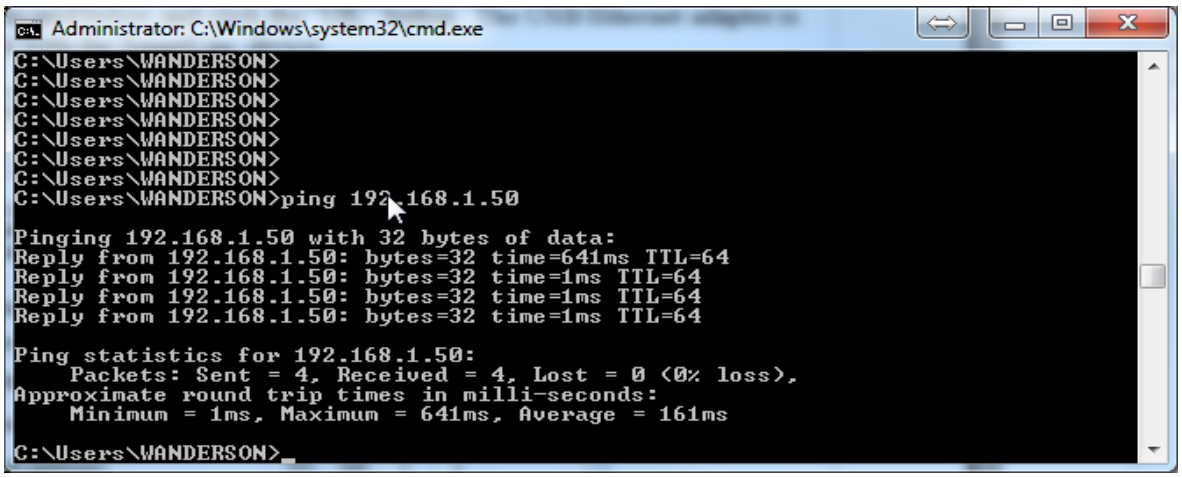


If the onboard ethernet adapter of the PC/Laptop is not using the 192.168.1 metric, there are other methods of configuring the onboard adapter to have multiple IP addresses which will allow it to communicate with the SmartLinc device. However, these advanced methods sometimes fail and the dialog screens between windows versions can greatly differ further complicating the configuration. Therefore, these alternate methods are not covered in this document.

Connecting the PC/Laptop to the SmartLinc Device (continued...)

To verify communication between the PC/Laptop and the SmartLinc device, connect the device to 120vac power, connect a network cable from the device to the USB/Ethernet adapter and turn the device on. A short beep should be heard a few seconds after power is enabled. The unit requires about 45 seconds to boot after which the Windows "ping" command can be used to test the network connection between the USB/Ethernet adapter and the SmartLinc device.

Launch the Windows command shell (cmd). If connecting to a factory fresh device, type "ping 192.168.1.50 <enter>" else use the device's IP with the ping command. If the USB/Ethernet adapter has been properly installed and configured, all cables connected, the device is powered and booted, and the correct IP entered, the device will respond as indicated below with its response time. As before, if the device is not visible to the ping command, "address is unreachable" or "Request timed out" will be displayed. In such a case, verify the USB/Ethernet adapter is properly recognized by Windows and is "enabled" (see Network and Sharing Center link in Control Panel).

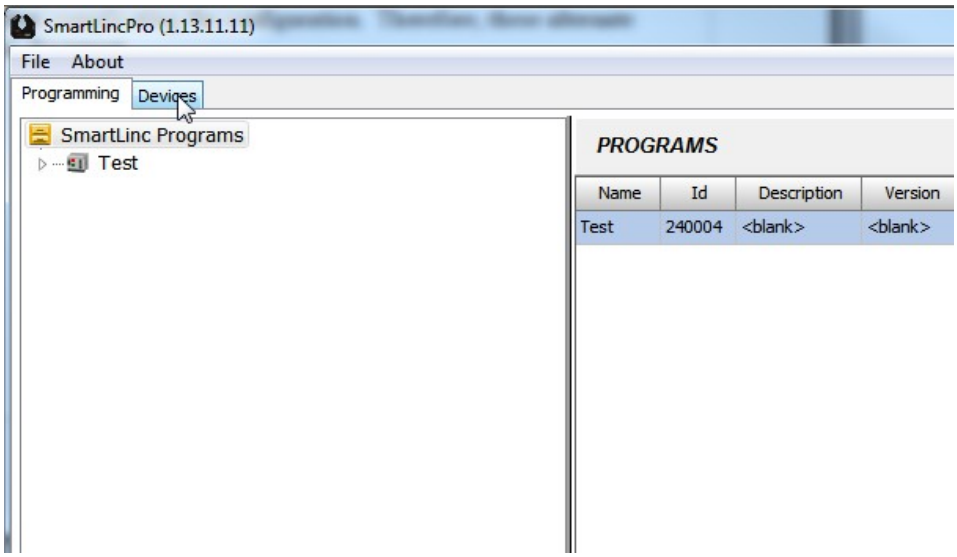


If the device's IP is unknown, SmartLincPro for Windows can be used to identify all SmartLinc devices connected the PC/Laptop.

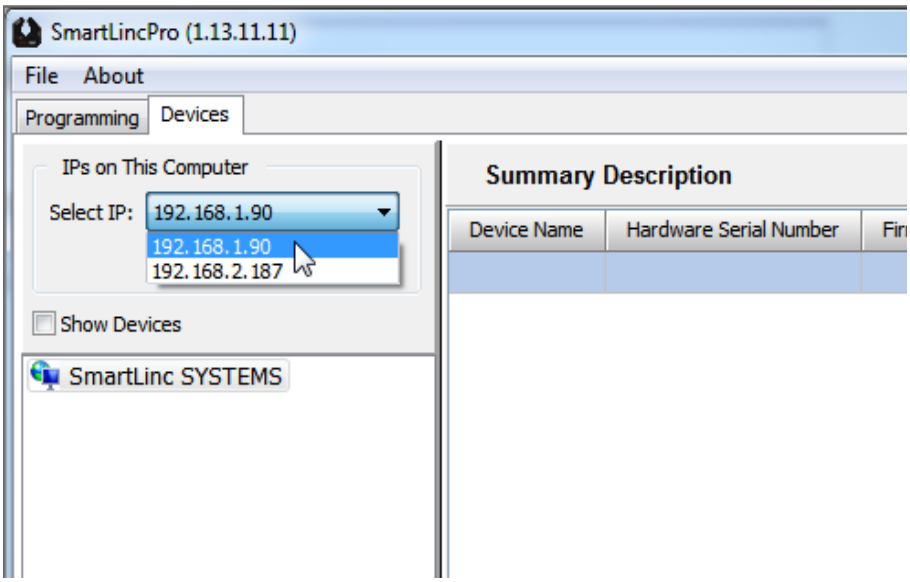
Establishing Communication Between SmartLincPro and the SmartLinc Device:

Once Windows is able to "see" the device on the network (see previous section), communication between SmartLincExec and the SmartLinc device(s) can be established. Therefore, this procedure assumes the device is powered up and connected to the PC/Laptop's USB/Ethernet adapter.

Launch SmartLincExec and click the "Device" tab.



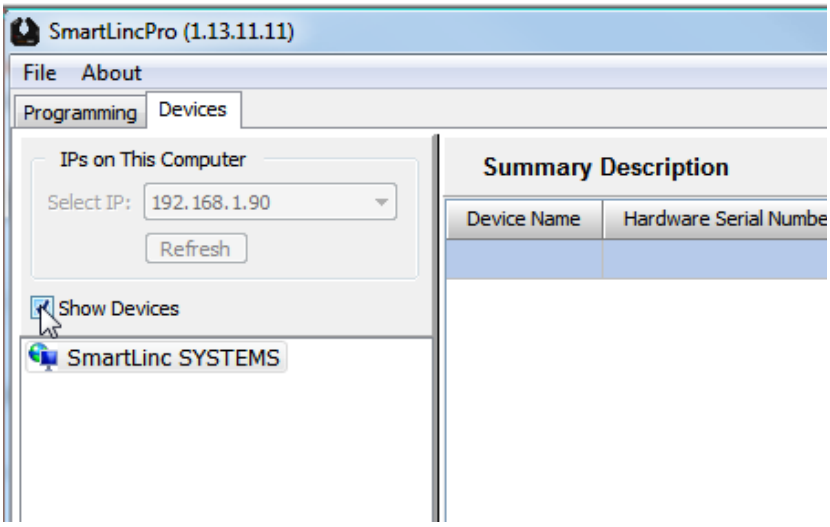
Select the USB/Ethernet adapter from the combo box that is connected to the SmartLinc device :



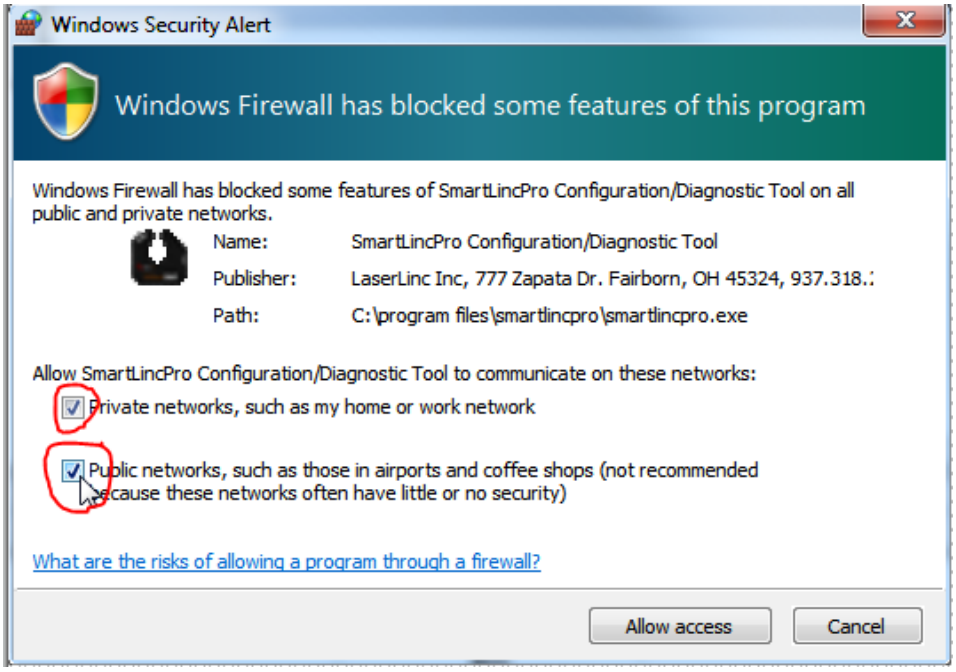
(continued...)

Establishing Communication Between SmartLincExec and the SmartLinc Device (continued...)

Check the "Show Devices" checkbox:



In Windows 7, a Firewall dialog appears. Verify that both Private and Public networks are enabled. If either are disabled (not checked), SmartLincExec will fail to communicate to the device. Click the "Allow Access" button after checking both boxes.



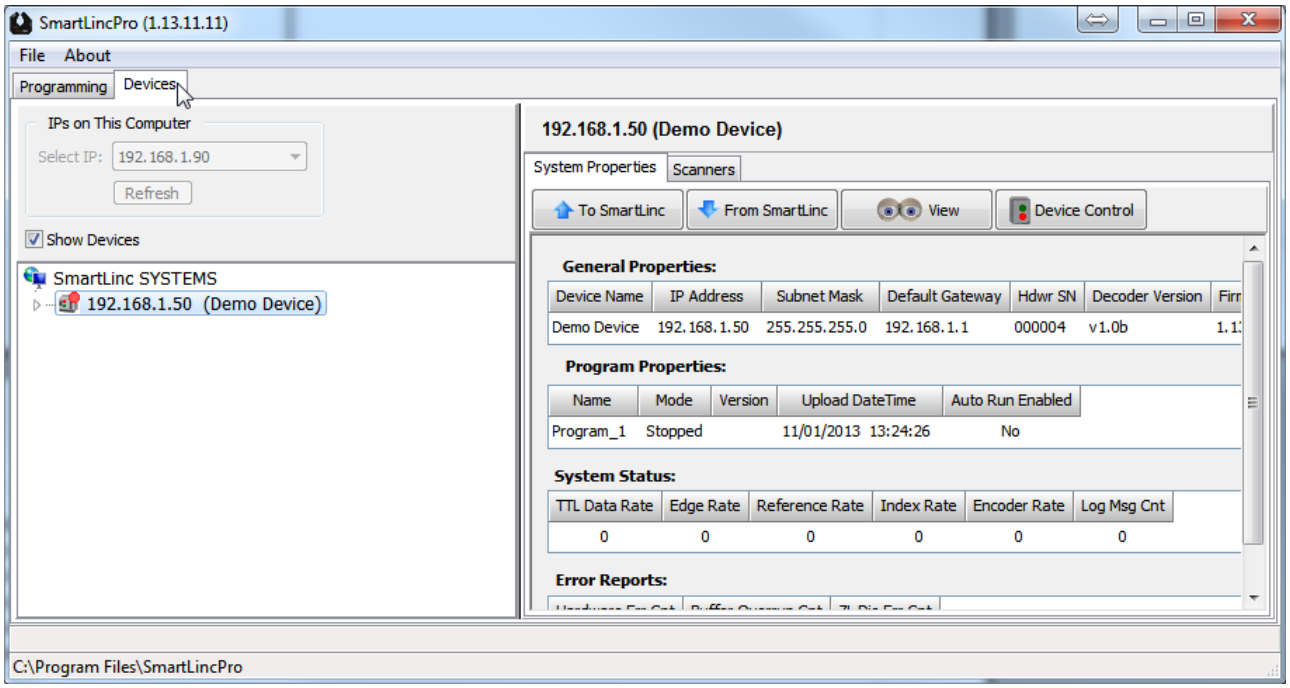
In other versions of Windows, this dialog may not appear and it may be necessary to manually modify these network settings in the Firewall. Firewall settings are accessible via the Control Panel.

(continued...)

Establishing Communication Between SmartLincExec and the SmartLinc Device (continued...)

Once the "Show Devices" check box is checked, SmartLincExec broadcasts a UDP "tickler" every half second. Upon receiving the tickler, each SmartLinc device connected to the PC/Laptop begins sending a UDP status response once per second. The devices cease broadcasting their status response if another tickler is not received within two seconds of the previous tickler. Unchecking the "Show Devices" check box stops the tickler broadcast from SmartLincExec which subsequently causes all connected SmartLinc devices to cease broadcasting their status response.

With the "Show Devices" checked, ALL connected SmartLinc devices will appear in the left pane, regardless of IP address. In this case, there is only the single 192.168.1.50 device connected. Selecting the device displays the information contained in the UDP status response sent by the device.



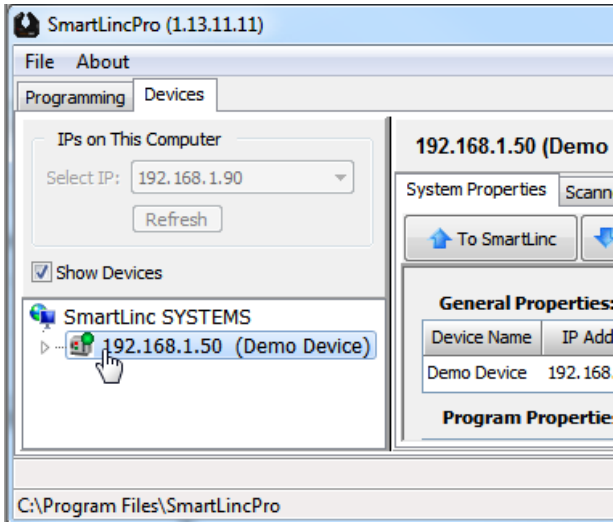
It is important to note that all SmartLinc devices respond to the UDP tickler, regardless of IP address. Therefore, this method of identification can be used to expose the IP address of a SmartLinc device for which the IP is not known. UDP protocol communication is not IP specific.

However, it is also important to note that to issue CONTROL commands from SmartLincExec to a SmartLinc device and to receive responses to specific command requests, the IP address in the "Set IP" combo box MUST HAVE the same first three address values as that of the device. This is because the CONTROL communication interface uses TCP protocol which is IP specific. Therefore, if clicking on any of the CONTROL buttons (To SmartLinc, From SmartLInc, View, Device Control) does not produce a drop down menu, it will most likely be due to a mismatch of the first three address values of the device IP and the IP address selected in the combo box. To remedy this, one must either connect the device to a different adapter having the matching metric or manually change the IP of the connected adapter using ControlPanel -> Network and Sharing Center (windows7).

(continued...)

Establishing Communication Between SmartLincExec and the SmartLinc Device (continued...)

As received from LaserLinc, the SmartLinc device has a default program already installed. The unit is configured to be in "Stopped" mode on startup (see the Auto Run Enabled property in the above image). Hence, the device icon displayed in the left pane will have a blinking red dot. Once the processing is started, either by setting the device's AutoRun feature to true, or manually starting it from the "Device Control" button, a solid green dot will appear on the device icon indicating the device is actively processing scanner input.

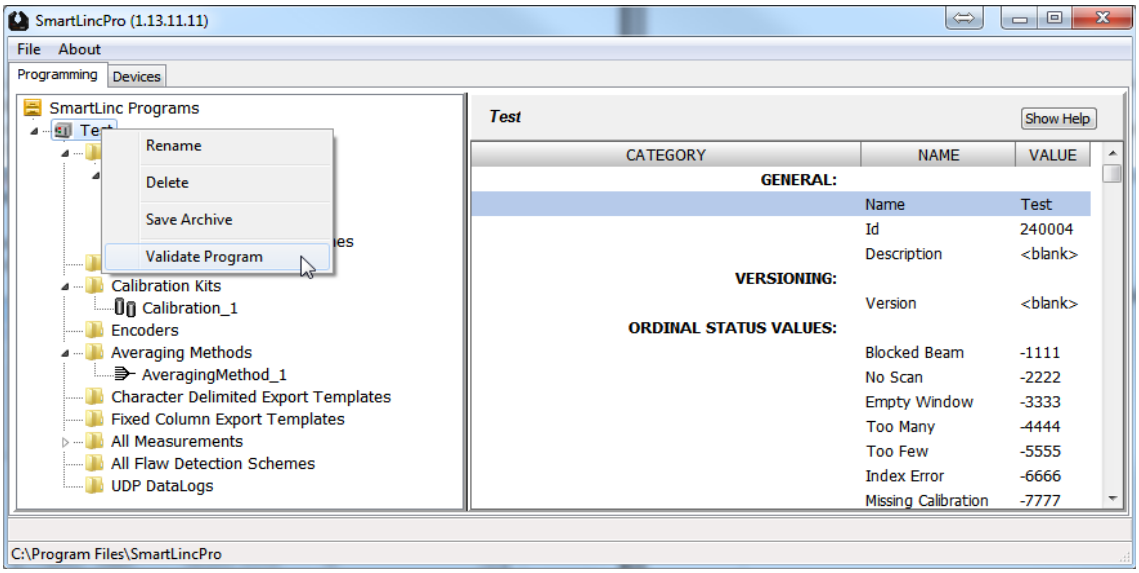


Preparing a Program for Upload to the SmartLinc Device:

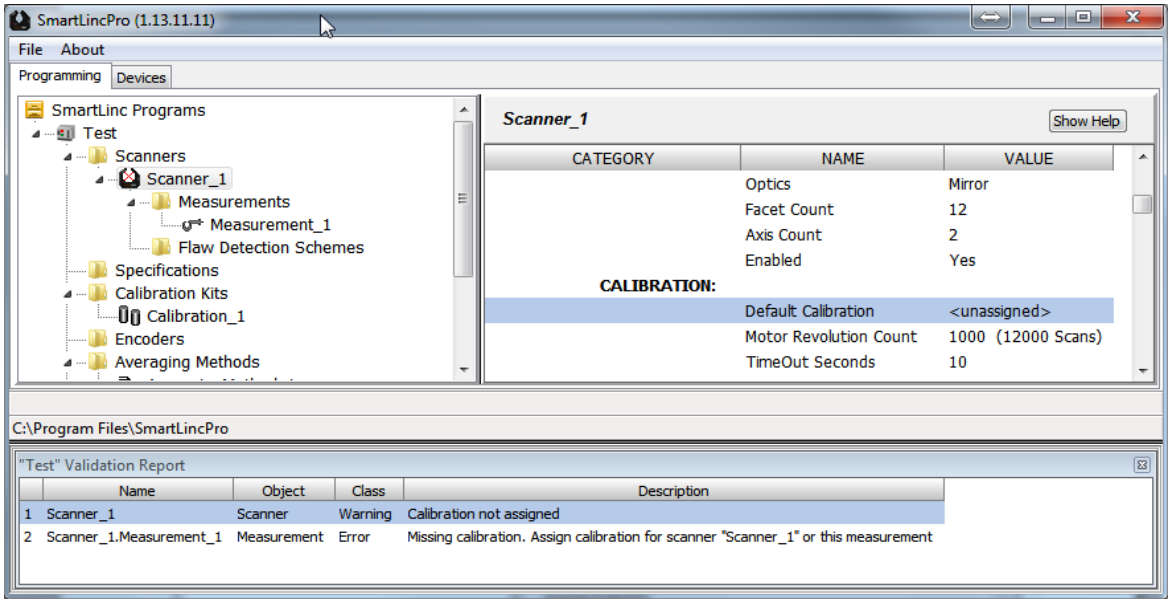
A valid program must contain certain essential elements. A minimum program configuration requires:

- One Scanner. Each scanner defined requires:
  - a calibration kit with two pin sizes
  - an averaging method
  - one measurement

To check if a program is valid before uploading, in the "Programming" tab, right click the program and select "Validate Program".



Warnings and errors, if present are displayed in a panel at the bottom of the application. In this example, a calibration has not been assigned to the scanner.



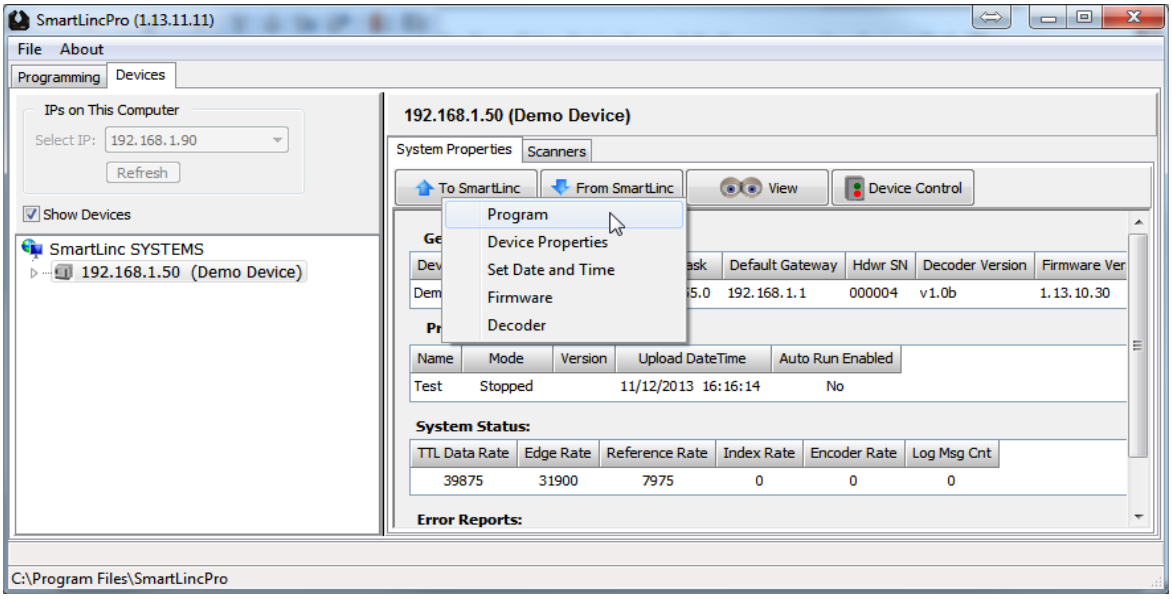
(continued...)

Preparing a Program for Upload to the SmartLinc Device(continued...)

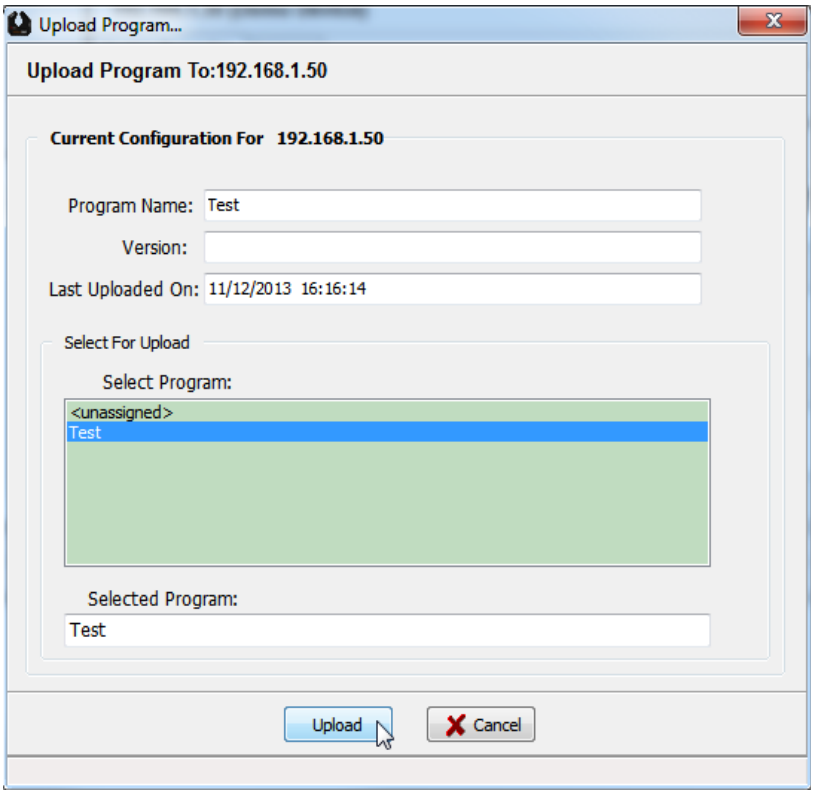
If any warnings or errors are identified, the first offending object is automatically selected in the left explorer pane and the offending property is highlighted in the right detail pane. See previous image having Scanner_1 object selected and Default Calibration property highlighted. Clicking on each Warning/Error in the Validation Report panel will select each object/property for modification.

Uploading a Program to the SmartLinc Device:

- Connect to the SmartLinc device (see previous topic "Establishing Communication Between SmartLinkExec and the SmartLink Device"
- Select the device in the left explorer pane.
- Click the "To SmartLinc" button and select "Program" from the drop down menu.



Select the desired program and click the "Upload" button.



Uploading a Program to the SmartLinc Device (continued)...

Upon clicking the "Upload" button, SmartLincExec performs a validation of the program. If any errors are present, the Programming tab will be automatically selected, the Validation Report displayed and the offending property selected.

Uploading a valid program usually takes only a few seconds. A message box is displayed indicating success/failure.

Scanner Calibration:

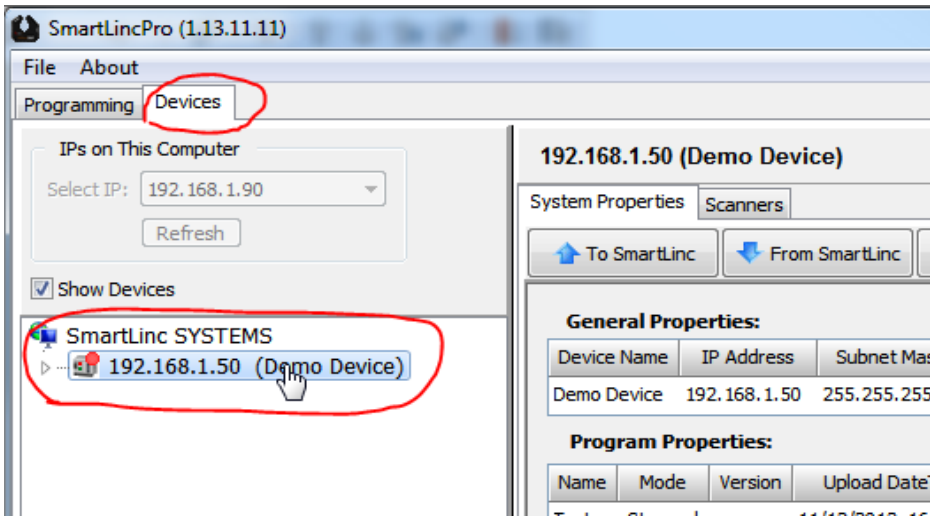
Overview:

- Every scanner must be calibrated before it can generate measurements.
- Each scanner is uniquely identified by its serial number (SN).
- Calibration data, identified by scanner SN and pin diameter is permanently stored in the SmartLinc device after calibration. Therefore, once calibrated, the device does not require recalibration unless the scanner is refurbished, the device electronics/firmware are replaced/updated, or the calibration pin diameters have been modified.
- Calibration is interactively performed using SmartLincExec. The pins of the selected calibration are presented in the order in which they appear in their configuration as viewed in right hand property detail pane of the Programming tab.

Calibration Procedure:

This procedure assumes the currently loaded program has been configured with the correct scanners, the scanners have been connected to the correct cable connectors on the SmartLinc device, the scanners are powered up, and SmartLincExec is connected and communicating with the device.

From the "Devices" tab, select the program in the left explorer pane containing the scanner(s) requiring calibration.

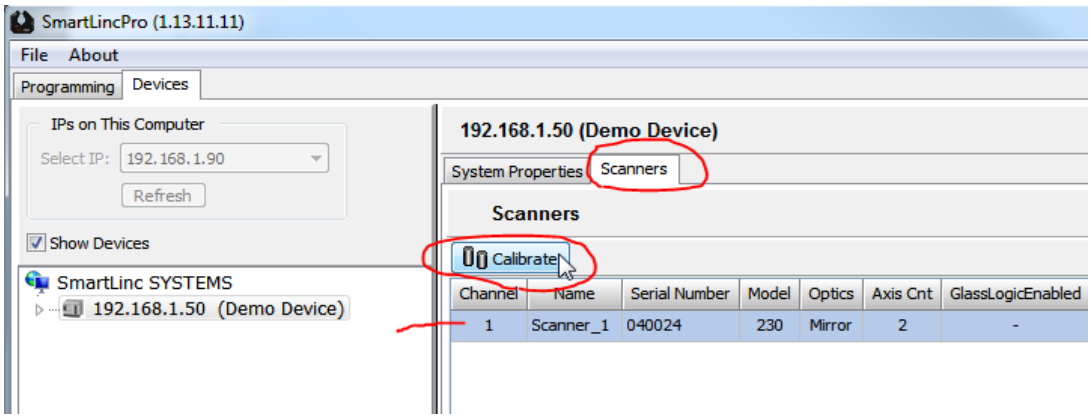


(continued...)

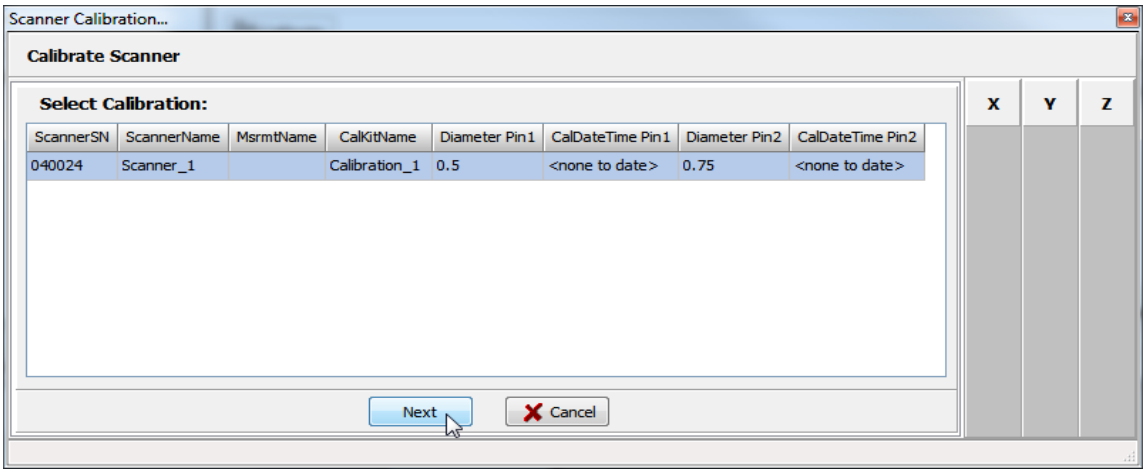
Scanner Calibration (continued...)

Calibration Procedure (continued)

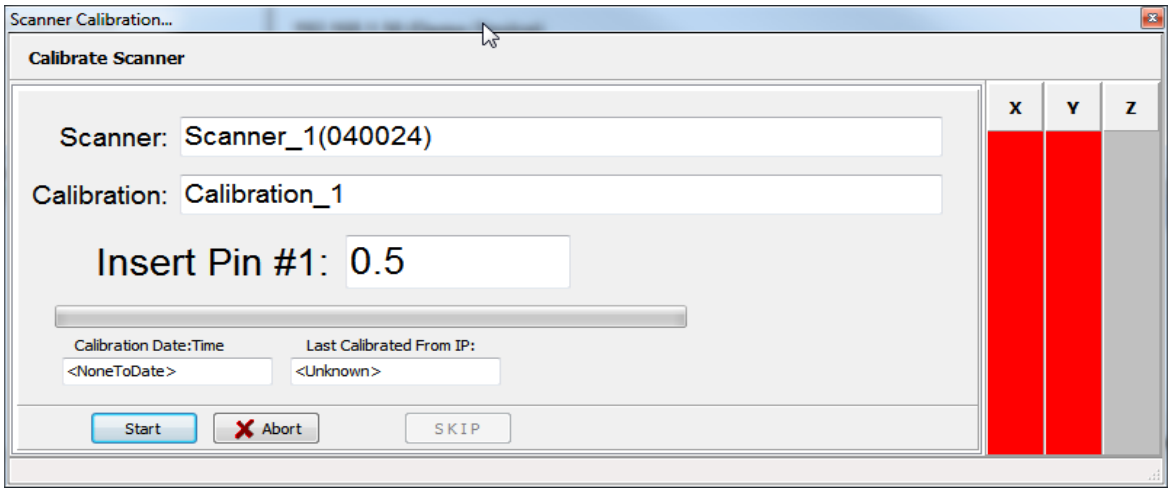
Click the "Scanners" tab in the right pane, select the desired scanner and click the "Calibrate" button. In this example, there is only one scanner from which to select.



From the "Select Calibration" dialog, select the desired scanner and the calibration set from the grid and click the "Next" button.



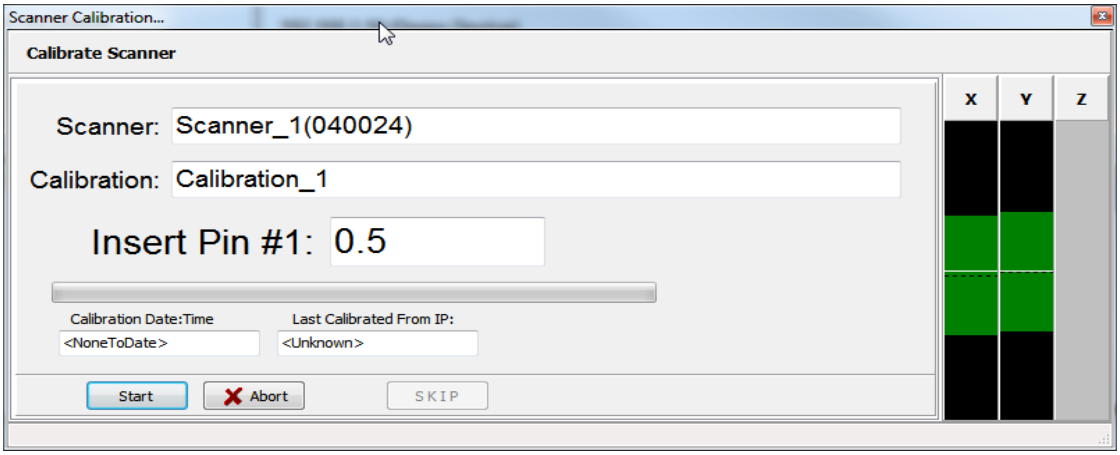
With no pin in the field, the position indicators on the right will display all red.



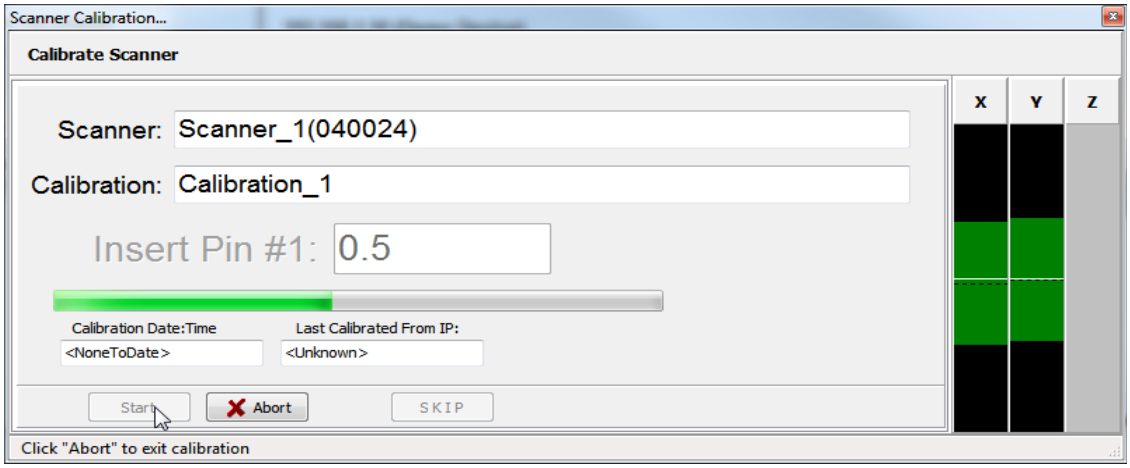
Scanner Calibration (continued...)

Calibration Procedure (continued)

Insert the indicated pin into the scanner field. If within the window boundaries, a green bar representing the diameter of the pin will be positioned relative to the window edges for each axis. If the pin bridges a window edge, the bar will display red. Locate the pin such that it is in the desired position (which may not necessarily be the center of each axis) and click the "Start" button.



As the device is collecting scanner data, the calibration dialog updates the progress bar.

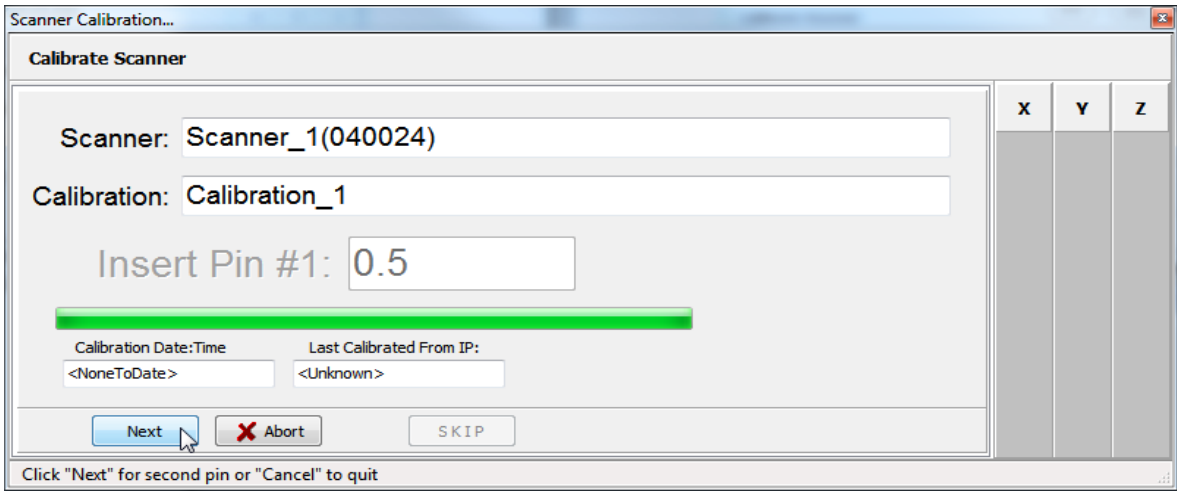


(continued)

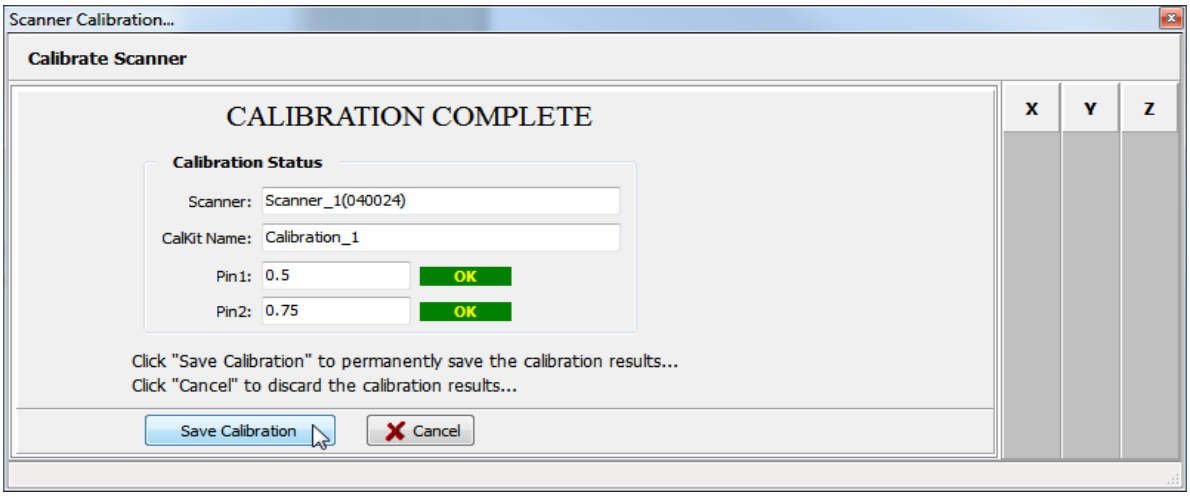
Scanner Calibration (continued...)

Calibration Procedure (continued)

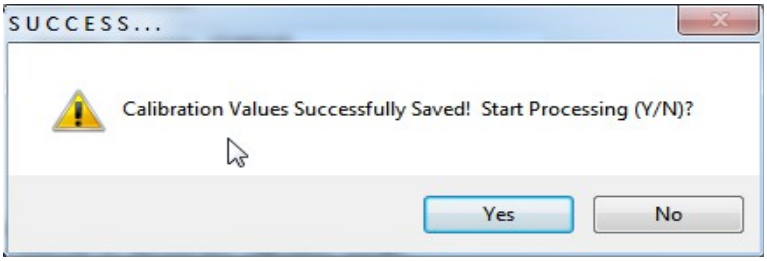
Upon completion, the position indicators turn gray and the status bar indicates the next action to be taken. Click the "Next" button to advance to the second pin.



Repeat the same procedure for the second pin as the first. Upon completion, click "Save Calibration" to have the SmartLinc device save the calibration data. Note, the calibration data is recorded on the SmartLinc device and not to the PC/Laptop.



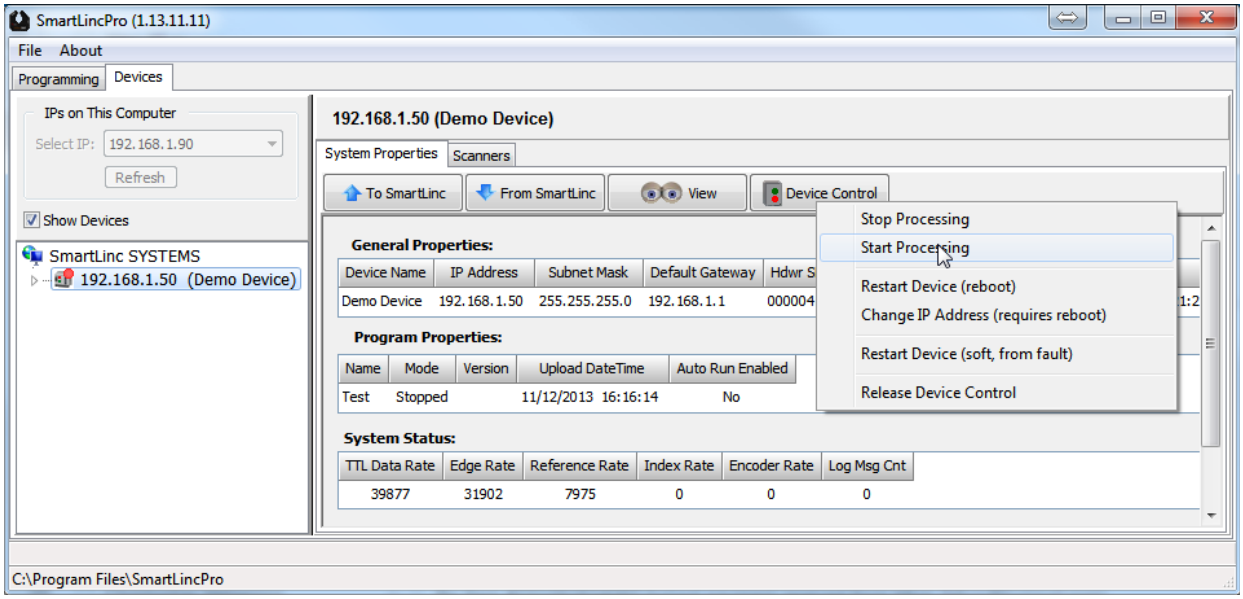
After saving the calibration data, one can choose to start processing or have it remain in Stopped state. If still testing the program, or there are more scanners to calibrate or more program changes to make, click "No". If the program is ready to run and process scanner data, click "Yes"



Viewing Scanner Measurements:

While the SmartLinc device is in "stopped" mode, scanner measurements are not included in the UDP status broadcasts that are sent in response to the tickler broadcasts of SmartLincExec. Therefore, to view scanner measurements, processing must be started and by placing the device into "RunEnabled" mode.

To start processing using the currently installed program, select the "Devices" tab, select the desired device in the left explorer tree, select the "System Properties" tab in the right pane, click the "Device Control" button and select "Start Processing". Click the "Yes" button when the confirmation dialog appears.



The device icon in the left pane explorer tree will change from having a blinking red dot (indicating stopped mode), to a solid green dot. In the right pane, select the "Scanner" tab and click on the scanner for which measurements are to be viewed. Values are updated once per second.