

# TROUBLESHOOTING INSTRUMENT CONNECTIVITY

## PURPOSE

The goal of this document is to troubleshoot connectivity issues that may arise between SCIREQ software and the inExpose or any peripheral inExpose devices such as the CSR.

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## SCOPE

This document pertains to the following products & services:

Product	From Version	To Version
flexiWare	8.0	Current

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# 1. DATA COLLECTION CONFIGURATIONS

Three possible configurations exist for data collection when using SCIREQ instruments:

- » **Stand-alone:** In this configuration, the instrument is connected directly to the host computer via a crossover cable or to a network hub. The host computer and network hub are not connected to the institution's network. This configuration offers the more robust solution but lacks the convenience of easy data transfer to the network
- » **Dual card:** The host computer must contain at least two network cards for this configuration. One card is used to connect to the instrument via a crossover cable and the other is used to connect to the institution's network. This solution offers ease of data transfer through the network but is less stable since processes such as firewalls, virus checkers, and network traffic can interfere with data collection. For optimal performance, disabling the network card used to connect to the network, as well as all virus checkers or firewalls may be desired during data collection
- » **Networked:** In this configuration, both the host computer and the instrument are connected to the institution's network. Communication between the host computer and the instrument occurs through the network. In this configuration, the host computer requires only one network card, but data collection could be affected by high volumes of network traffic, virus checkers, and firewalls. Consequently, a networked configuration offers the least stable solution; however, data can be easily archived to the network

## 1.1 STAND-ALONE CONFIGURATION

For the instrument to properly function in this configuration, please ensure that:

- » The computer has at least one Ethernet card
- » A crossover cable is used to connect the host computer and the instrument. The crossover cable provided by SCIREQ is yellow
- » If a network hub is used to connect the devices, crossover ethernet cables are not required. Regular ethernet cables (grade **CAT5E grade or better**) may be used
- » Instrument IP address is static and set to 192.168.1.200 (flexiVent), 192.168.1.210 (inExpose), 192.168.1.230 (CSR/CSRi) unless it has been changed to accommodate multiple networked units. See [Section 3.3](#) for instructions

## 1.2 DUAL CARD CONFIGURATION

For the instrument to properly function in this configuration, please ensure that:

- » The computer has at least two Ethernet cards

- » A crossover cable is used to connect the host computer and the instrument. The crossover cable provided by SCIREQ is yellow
- » If a network hub is used to connect the devices, crossover ethernet cables are not required. Regular ethernet cables (grade **CAT5E grade or better**) may be used
- » Instrument IP address is static and set to 192.168.1.200 (flexiVent), 192.168.1.210 (inExpose), 192.168.1.230 (CSR/CSRi) unless it has been changed to accommodate multiple networked units. See [Section 3.3](#) for instructions
- » The network card used to connect to the Instrument has a static IP address set to 192.168.1.1. See [Section 3.1](#) for instructions
- » The second Ethernet card is used to connect to the network. It is to be configured as per an institution's network administrator's instructions

### 1.3 NETWORKED CONFIGURATION

For the instrument to properly function in this configuration, please ensure that:

- » The computer has at least one Ethernet card
- » There is no cable between the computer and data collection instrument
- » Card used to connect to the network is configured as per an institution's network administrator's instructions
  - flexiWare instruments require port 5001 UDP is open, as well as the range of 49152-65535
  - *broadcast* must be allowed on UDP so that instruments can be "discovered"
- » Instrument IP address assigned by an institution's network administrator is static
- » Instrument is connected to the network with a regular network cable with a grade of **CAT5E or better** and not the crossover cable

## 2. COMMON CONNECTION PROBLEMS

### 2.1 UNABLE TO CONNECT TO DATABASE

#### 2.1.1 PROBLEM

After successful installation of the flexiWare software, it is unable to load or successfully connect to the database file or the system(s) for experimentation. The actual displayed error message may vary.

#### 2.1.2 POSSIBLE CAUSES AND SOLUTIONS

- » Verify that the database exists on the host computer. The default location of the database in flexiWare 8.1.3 and earlier is: *C:\ProgramData\SCIREQ\Database\*. Note that the folder *ProgramData* is a hidden folder and will require the user to select "View Hidden Folders" to view it. The default database location in flexiWare 8.2 and later is: *C:\Users\Public\Documents\SCIREQ\flexiWare Data\Experiments*
- » The Windows Firewall settings have not been successfully turned off. To verify the settings, go to Control Panel -> Windows Firewall
- » User Account Control (UAC) may not have been disabled. To verify, go to Control Panel -> User Accounts -> Turn on UAC on or off/ Change UAC settings->Set UAC to *Never notify* (**Error!**)

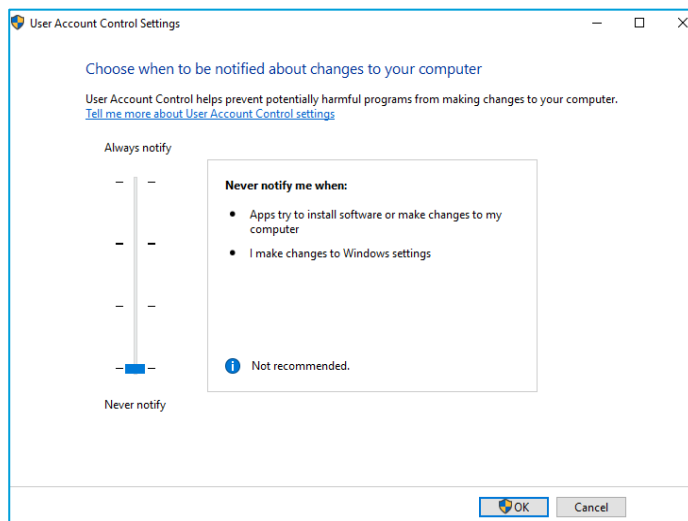


Figure 2-1: User account control settings

**Reference source not found.)**

Please note: the computer must be be-started after changing these settings for them to take effect.

An earlier Firebird server version was previously installed and not updated correctly

A dialog box indicates the compatible Firebird software version that should be installed with the respective flexiWare software (Figure 2-2). This dialog box occurs during the flexiWare software installation process.

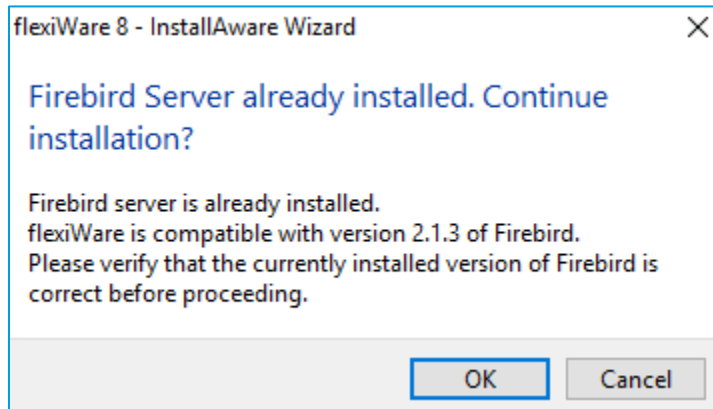


Figure 2-2: Compatible Firebird version with the flexiWare version to be installed

Verify if an earlier Firebird server version has been installed on the computer, as well as if it is running under background services. The version of Firebird installed is listed within the *Apps and Features* window, accessed when uninstalling the software (Figure 2-3). If an earlier version of Firebird exists on the computer, uninstall it and re-run the installer for flexiWare software to re install Firebird again.

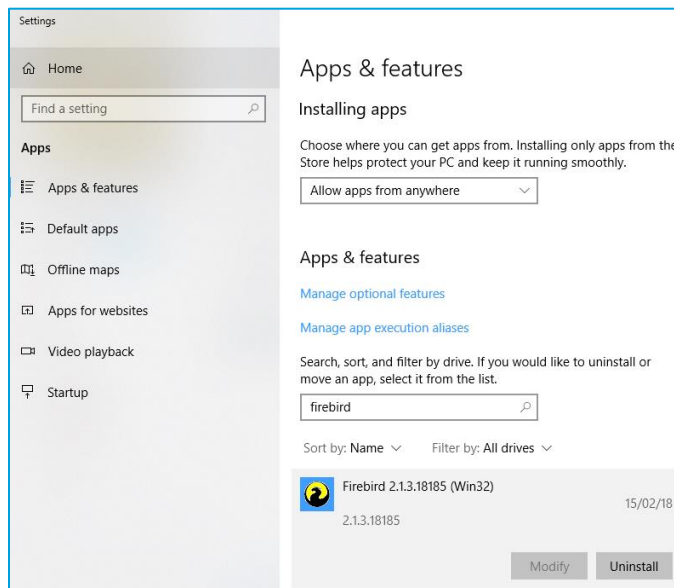


Figure 2-3: Version of Firebird installed on the computer displayed in the control panel

To confirm the status of the Firebird services, right-click on the taskbar, then select Task Manager. The Services tab shows the status for both *FirebirdServerDefaultInstance* and *FirebirdGuardianDefaultInstance*, per Figure 2-4 below.

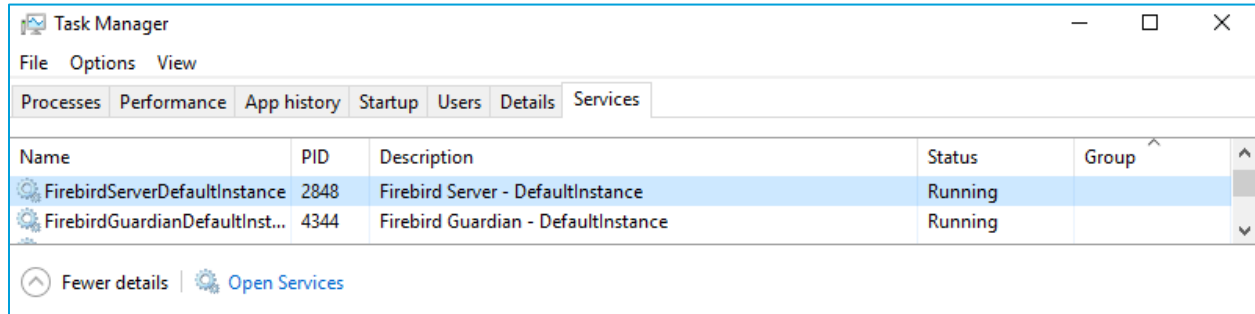


Figure 2-4: Both Firebird Server and Guardian should be running in the background

**NOTE:** Occasionally, it may be required to stop the Firebird background services prior to uninstalling the Firebird program. To stop the services, right-click on the service name in the *Services* tab and select *Stop Service*. For Non-English Windows versions, it is advised to change the current system locale to that of English (Canada) before doing so. To change language settings navigate to: Control Panel -> Region and Language as shown in Figure 2-5.

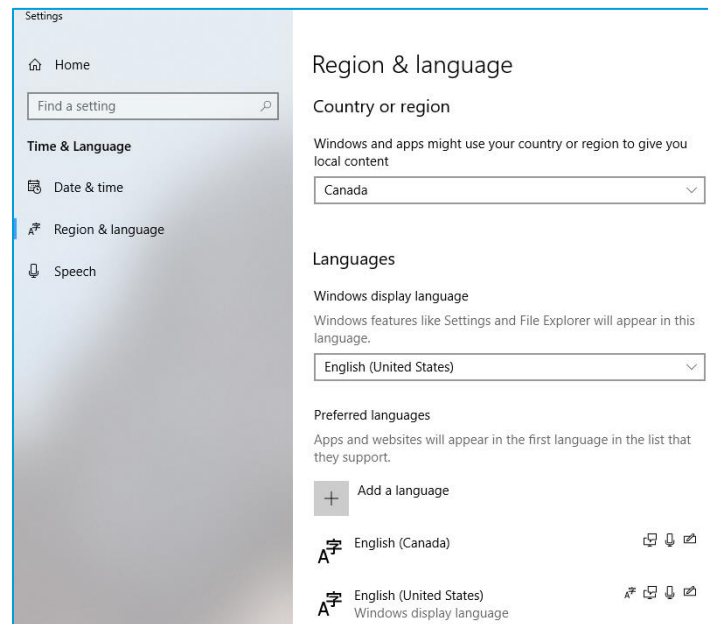


Figure 2-5: Modify Language for non-Unicode programs to English

## 2.2 INSTRUMENT COULD NOT BE LOCATED

### 2.2.1 PROBLEM

flexiWare is unable to locate the instrument at the specified IP address, resulting in the error message seen in Figure 2-6.

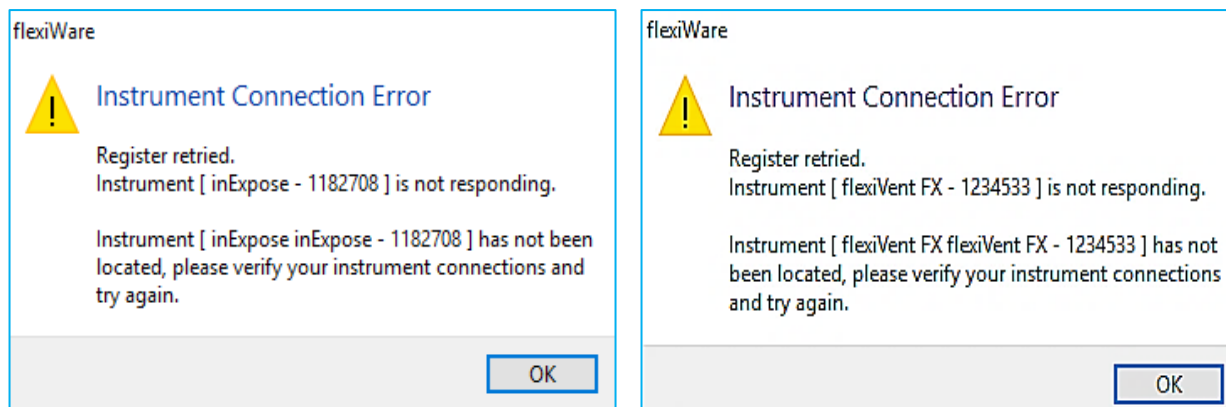


Figure 2-6: Register retired for inExpose (left) or flexiVent (right)

### POSSIBLE CAUSES AND SOLUTIONS

There are several possible causes to this problem.

- » The instrument does not have power
  - Verify that the instrument is connected to the power source by confirming that the power cable is in the Power socket (Figures 2-7 & Figure 2-8)



Figure 2-7: Power (BLACK), Ethernet (BLUE or YELLOW), & Trigger (GREY/RED) cables on the back of the inExpose





Figure 2-8: Power (BLACK) and Ethernet (BLUE or YELLOW) cables on the back of the flexiVent

- If the inExpose is correctly powered up, the LEDs (power, and talk) should be unlit, but the green power LED should intermittently flash on and off (Figure 2-9)



Figure 2-9: Reset button & LED on the front of the inExpose when the system is available for connection or connected to the software

- If the flexiVent is correctly powered, the visual display should display the unit's serial number, current software versioning and show that the unit is in Idle ([Figure 2-10](#))

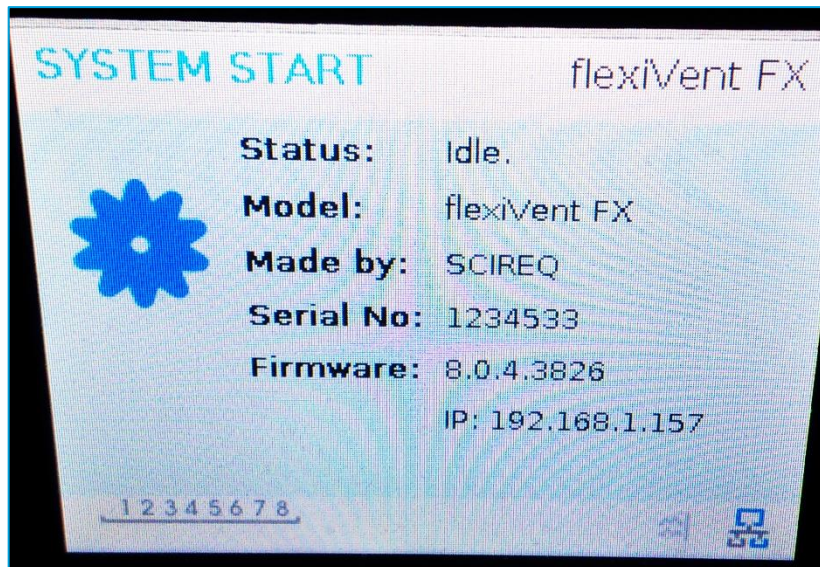


Figure 2-10: LED display on the front of the flexiVent when available for connection

- » The connection cable is missing, or the wrong type is being used
  - If using the stand-alone or dual network card configuration, a crossover cable must be used (SCIREQ provides a yellow cross-over cable) connecting the computer and the instrument. Use of a Network Hub requires a grade CAT5E grade or better. Lower grade cables will result in unreliable or absent communication
- » The host computer is looking for the instrument at the incorrect IP address
  - To correct this, go into System Settings dialogue (Tools -> Systems Settings) of flexiWare to confirm that the instrument IP address is correctly set ([Figure 2-11](#)). The SCIREQ default instrument IP address should be in use unless it has been changed to accommodate multiple networked units. Default addresses are: 192.168.1.200 (flexiVent), 192.168.1.210 (inExpose), 192.168.1.230 (CSR/CSRi) For instructions on changing or verifying the set IP see [Section 3.3](#).
- » For users working with multiple systems via a networked configuration, ensure that flexiWare software configuration settings match the base unit that connection is being attempted with
  - Refer to the flexiWare user manual, Section: *Configuring Instruments & Systems*

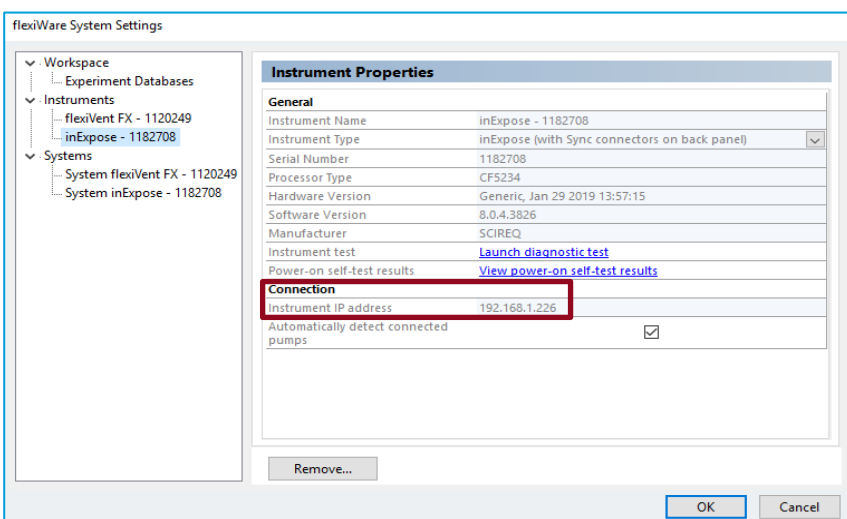


Figure 2-11: System Settings dialog; Instrument IP highlighted in red box

## 2.3 REVIEWING A NETWORK USING THE COMMAND PROMPT

If the IP setting is unknown or if communication between the unit and software has been unreliable or absent, it may be necessary to review the current settings and assure that the computer is able to find the unit. This may be done via the Computer Command line tool. The Command line is easily found by searching *Command Prompt* into the Windows search bar.

- » After opening the Command Prompt a user may review all available networks by using the command: `arp -a` or `ipconfig/all` as shown in [Figure 2-12](#) and [Figure 2-13](#)

- » This will allow users to confirm the IP address associated to the flexiVent, inExpose and/or CSR(i)

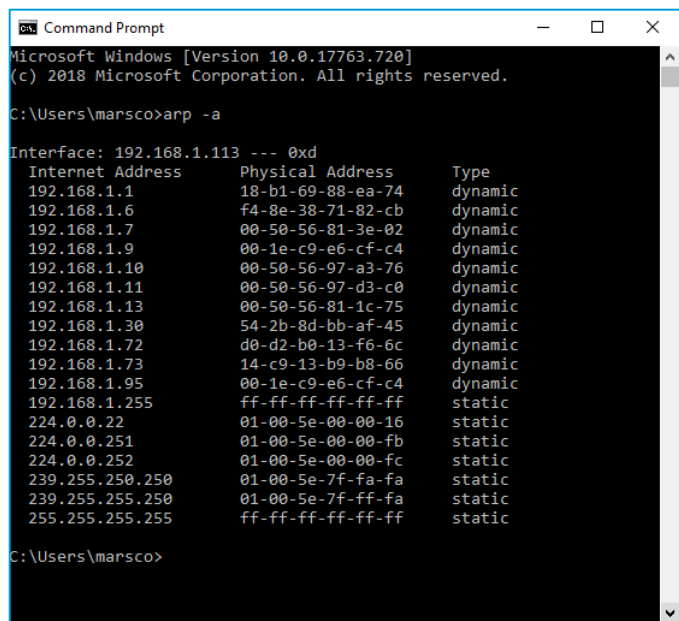


Figure 2-12: Command Prompt with arp -a command results

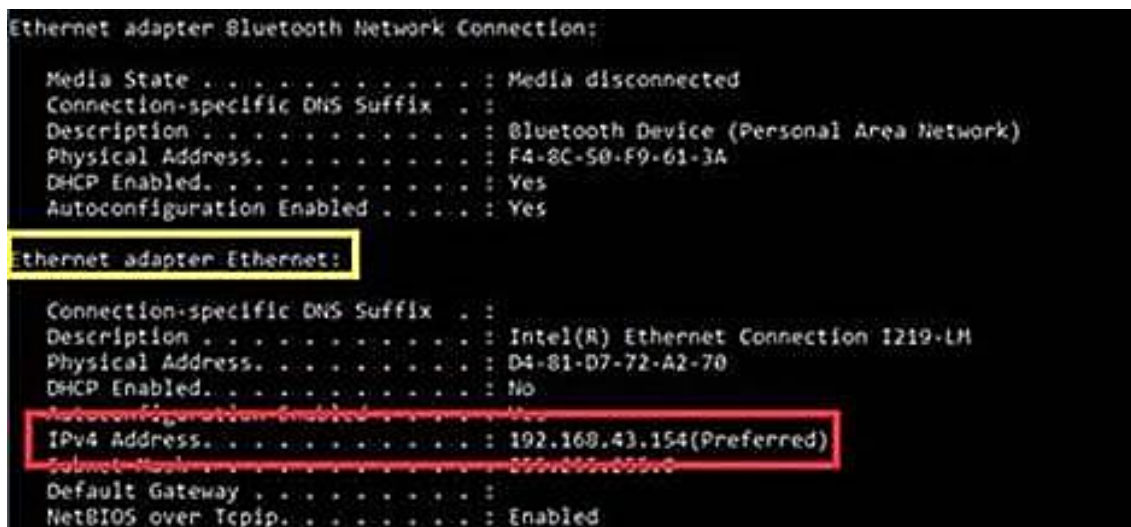
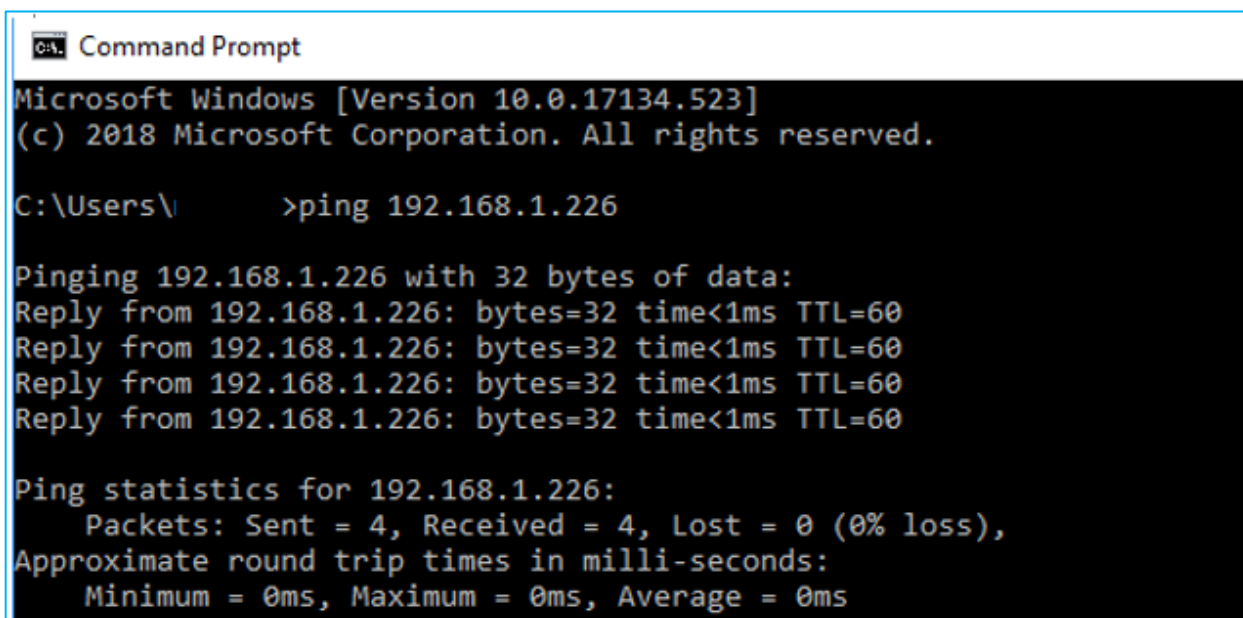


Figure 2-13: Example of return from `ipconfig /all` when a flexiVent is connected, in *Idle* and able to communicate fully with flexiWare. Note that the flexiVent used in the example above has a custom IP setup and the address in the red box will be different depending upon the default device IP (see section 1).

- » The instrument using the command: `ping 192.168.1.XXX` using the IP address of the instrument where the XXX are shown as in Figure 2-14



```
C:\> Command Prompt
Microsoft Windows [Version 10.0.17134.523]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\> ping 192.168.1.226

Pinging 192.168.1.226 with 32 bytes of data:
Reply from 192.168.1.226: bytes=32 time<1ms TTL=60
Reply from 192.168.1.226: bytes=32 time<1ms TTL=60
Reply from 192.168.1.226: bytes=32 time<1ms TTL=60
Reply from 192.168.1.226: bytes=32 time<1ms TTL=60

Ping statistics for 192.168.1.226:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Figure 2-14: Command-Prompt after successfully Pinging the instrument

- » Unsuccessful pinging is most often caused by non-permissive computer settings, network settings, or an improper IP having been entered

## 2.4 NO COMPATIBLE SYSTEM FOUND

### 2.4.1 PROBLEM

Upon selecting the template and entering the operator's name in the Session Properties dialog, the error message in Figure 2-14 appears.

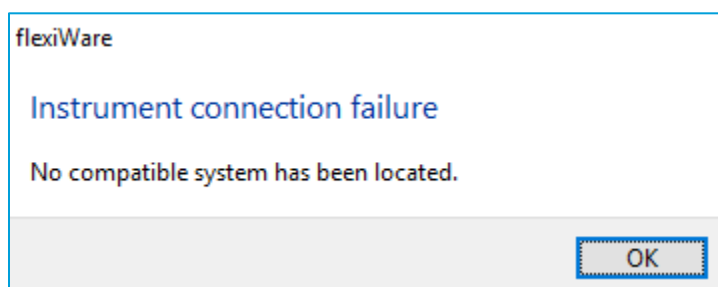


Figure 2-14: Instrument connection failure

## 2.4.2 CAUSE AND SOLUTION

- » An incompatible template is chosen. To operate the flexiVent, please select templates with 'FX' in the title. When working with the inExpose, select templates with 'IX' in the title. More details on template choice is found in the *flexiWare User Manual*, section 5.2: Experiment Templates
- » The secondary device has not been added correctly in both *Instrument* and *System* sections of the flexiWare System settings (see [Section 2.2.1](#))

**NOTE:** If working with extensions (ex. PD, NPFE), be sure that the extension is connected prior to turning on the system.

## 2.5 AUXILLARY PORT CONFIGURATION ISSUES

Errors may occur when a template is chosen which includes extensions but flexiWare is unable to detect a transducer in the specified port. The necessary transducers are dictated by the template selected for the experimentation session and the ports associated with each accessory is shown in the comments section of the Session Properties dialog that appears after selection of the template.

In the inExpose, the most common extensions are the particle density transducer (PD) and Micro Dust Pro (MDP). An example aux port error with the inExpose where calibration of the tool is required is shown in [Figure 2-15](#).

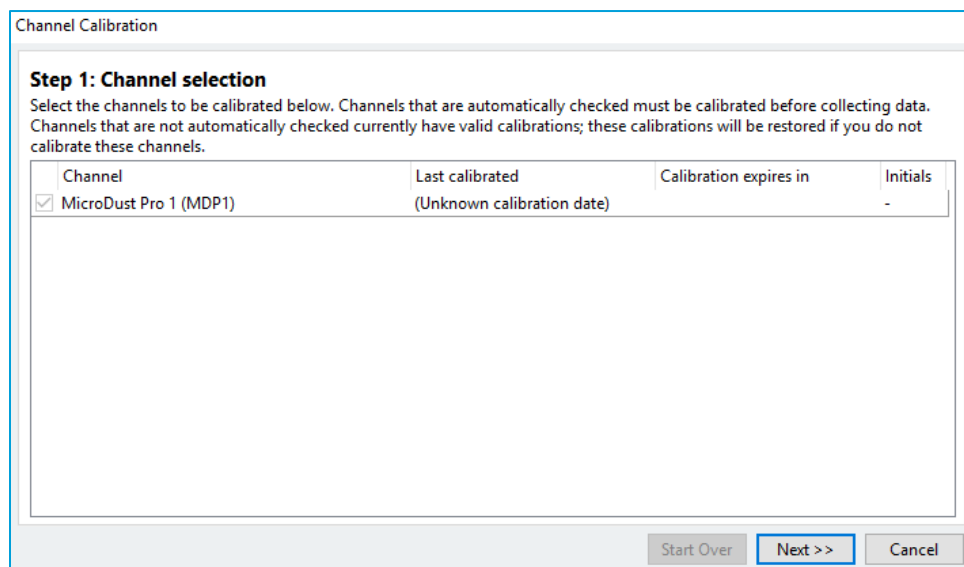


Figure 2-15: Channel Selection when the External device is not connected to the inExpose

In the flexiVent, the NPFE should be on (its power system is separate from the power supplied to the flexiVent) and properly connected to the flexiVent prior to turning on the base unit. Extensions such as vital signs monitoring devices should also be connected properly, as indicated by the template comment box before proceeding. An example aux port error with the flexiVent where calibration of the tool is not required is shown in [Figure 2-16](#).

### 2.5.1 POSSIBLE CAUSES AND SOLUTIONS

- » The transducer is plugged into the wrong auxiliary port. Verify the auxiliary port connections dictated by the template, typically shown in the session properties dialog immediately after template selection. If uncertain on the auxiliary ports assigned to the transducer in question, contact SCIREQ TechSupport
- » The transducer is plugged into the right auxiliary port but is not being detected by the flexiWare software. To confirm that it is the transducer that is faulty, attach another transducer into the specific auxiliary port. Start an experimentation session using an appropriate template for the replacement device and requires a transducer in the auxiliary port in question. If the error message does not appear, the transducer of the first accessory is faulty and needs to be sent back SCIREQ for repairs or replaced
- » If the error occurs, regardless of the accessory used, the port itself may be damaged. The unit may be returned to SCIREQ for repair or a Custom Template can be developed where the accessory is moved to a different port. Please contact SCIREQ Technical support for more information

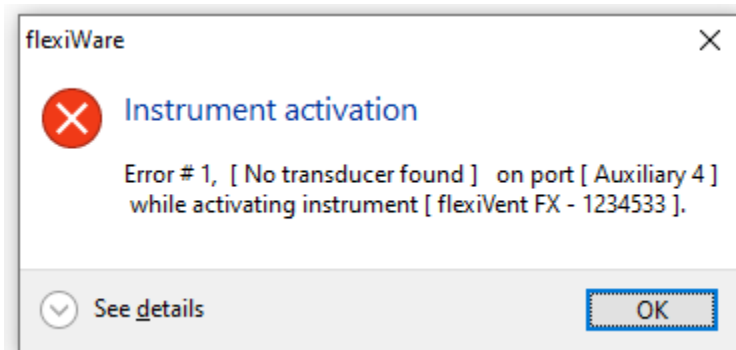


Figure 2-16: Channel Selection when the External device is not connected to the flexiVent

## 2.6 INCOMPATIBLE FIRMWARE

The software version running on the host computer is not compatible with the firmware version running on the instrument (Figure 2-17).

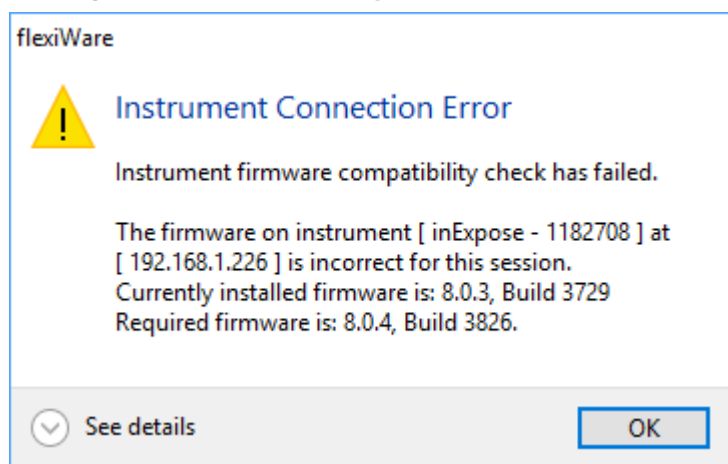


Figure 2-17: Incompatible firmware error message

### 2.6.1 CAUSE AND SOLUTION

The firmware has not been updated after updating the software. After the error shown in Figure 2-17, from flexiWare 8.0.4 onwards, the software will automatically prompt the user for permission to launch the *Instrument Updater* tool. Click on *Yes* to proceed.

If *No* was clicked, or the update prompt didn't appear, navigate to *C:\Program Files (x86)\SCIREQ\Utilities\* and launch *InstrumentUpdater*. Whether navigation is automated or not, *Instrument Updater* is used in the same manner to update the Instrument (Figure 2-18).



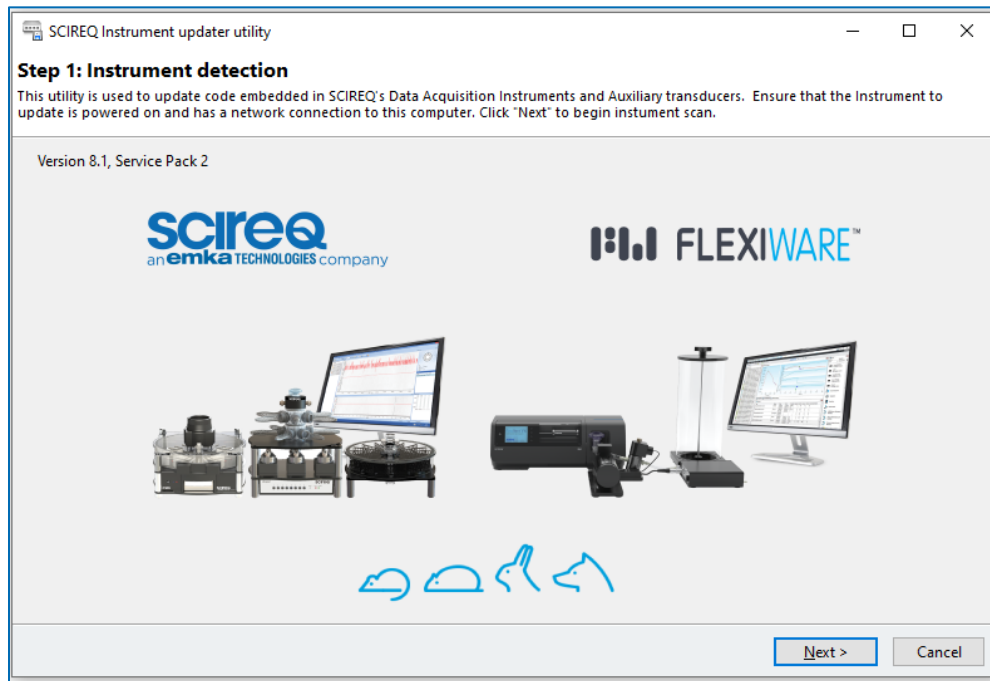


Figure 2-18: Step 1 of the Instrument update process

Once on Step 1 of the Instrument updater, make sure the equipment to be updated is powered on (flexiVent or inExpose and/or CSR/CSRi). Wait a few seconds until the Idle screen has been reached (flexiVent) or the LED flashes green slowly (inExpose) before clicking *Next*.

Select the instrument out the list of available units to upgrade following the instrument Scan (Figure 2-19).

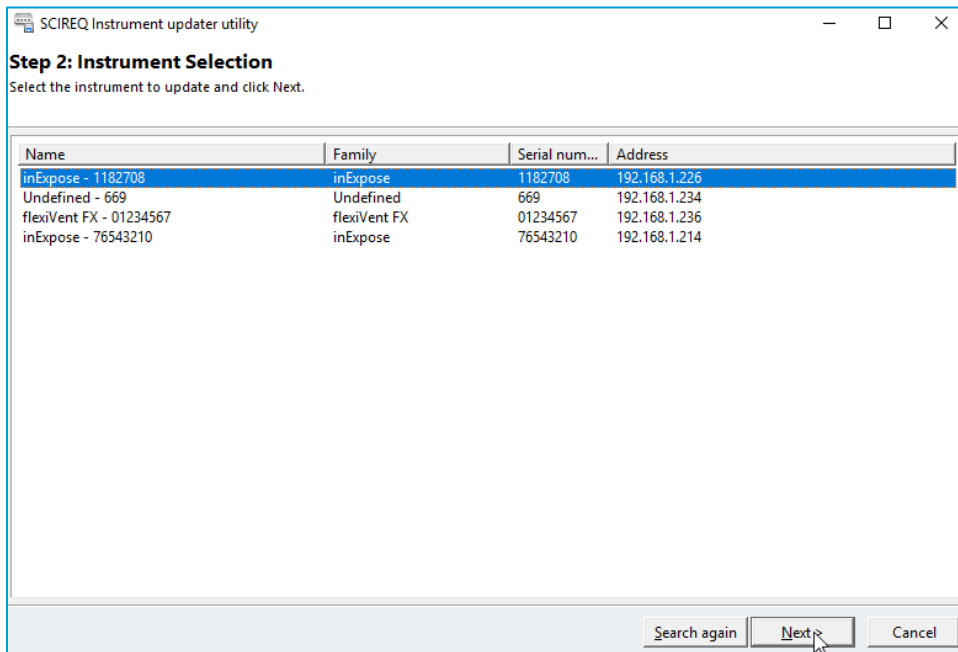


Figure 2-19: Step 2 of the instrument update process

Select *Upgrade to Current* to upgrade the Instrument's firmware to the most recent addition available on the computer (Figure 2-20).

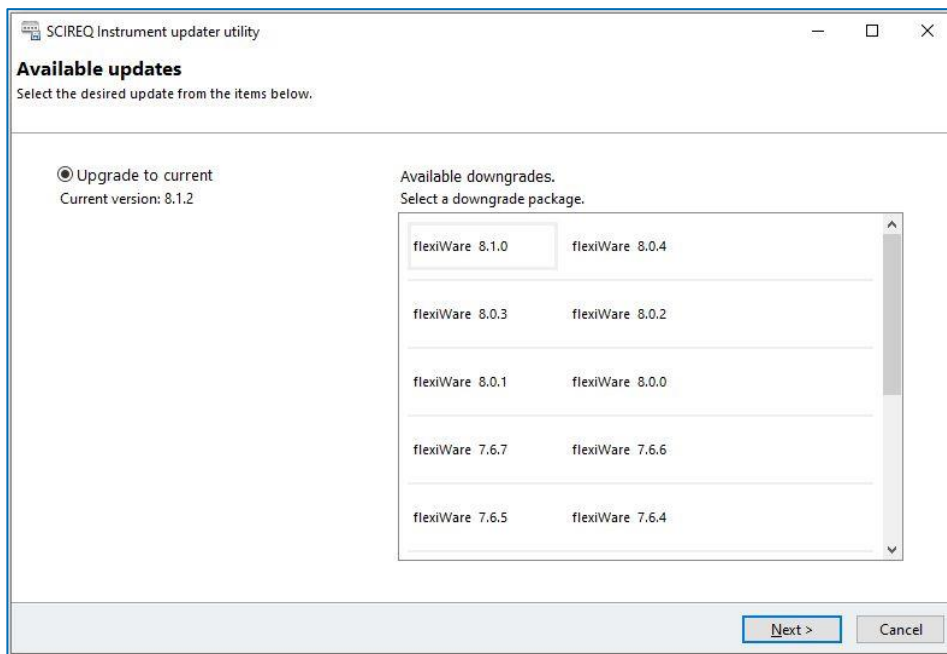


Figure 2-20: Step 3 of the firmware update process: Available updates

The Instrument will begin the upgrade process (Figure 2-21). Upon completion, InstrumentUpdater will confirm that the instrument is up to date and the user can select *Finish/Close*.

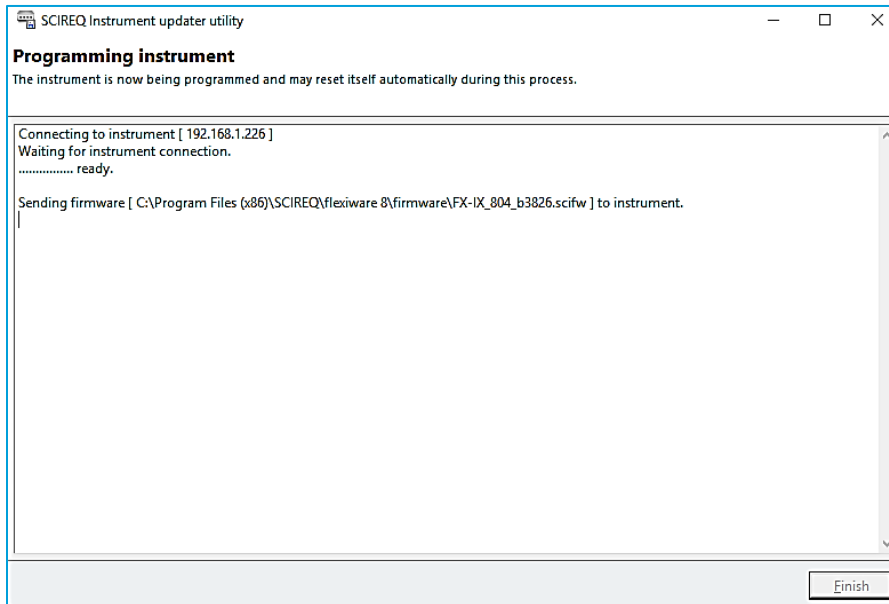


Figure 2-21: Active Updating window

## 2.7 UNABLE TO SELECT START A NEW EXPERIMENT

Only the Study Definition & Planning and Review & Reporting options are enabled on the Welcome Dialogue. The Experimental session is not available and produces a white circle (Figure 2-22).



Figure 2-22: Cannot enter Experimentation Session

### 2.7.1 POSSIBLE CAUSES AND SOLUTIONS

#### 1.1.1.1 LICENCE TYPE

Make sure the Data Acquisition license was used to register the software to the computer being used to collect data. To verify the registration code used with the software, click on the stylized FW in the lower left corner of the welcome screen (Figure 2-23).



Figure 2-23: Accessing the Registration Information of flexiWare

If accidental registration of the software using a Data Review licence has occurred, please contact Technical Support to free the Data Review licence with a new computer and to proceed with registering the software on the computer using the Data Acquisition licence instead.

#### 1.1.1.2 ADDING SYSTEM AND INSTRUMENT PROPERLY

If the inExpose and CSR/CSRi, have not been added under BOTH Instrument and Systems, the Experimentation Session will remain unavailable until it has been added successfully. In addition, it is highly recommended that following a firmware update the Instrument is removed from both settings and re-added to avoid possible connection problems. Please refer to [Section 2.21](#) for details on setting up the System and Instrument settings.

## 3. NETWORK CARD & IP ADDRESS SETTINGS

### 3.1 CHANGING THE IP ADDRESS OF THE NETWORK CARD

It is possible to change the IP address of a network card as follows:

- » Open the Control Panel (Start -> Control Panel) of the host computer  
Open the Network connections of the host computer (Figure 3-1). This is located under START->Control Panel -> Network and Sharing Center-> Change adapter settings. Depending on the number of Ethernet cards available in the computer, more than one network connection may be displayed

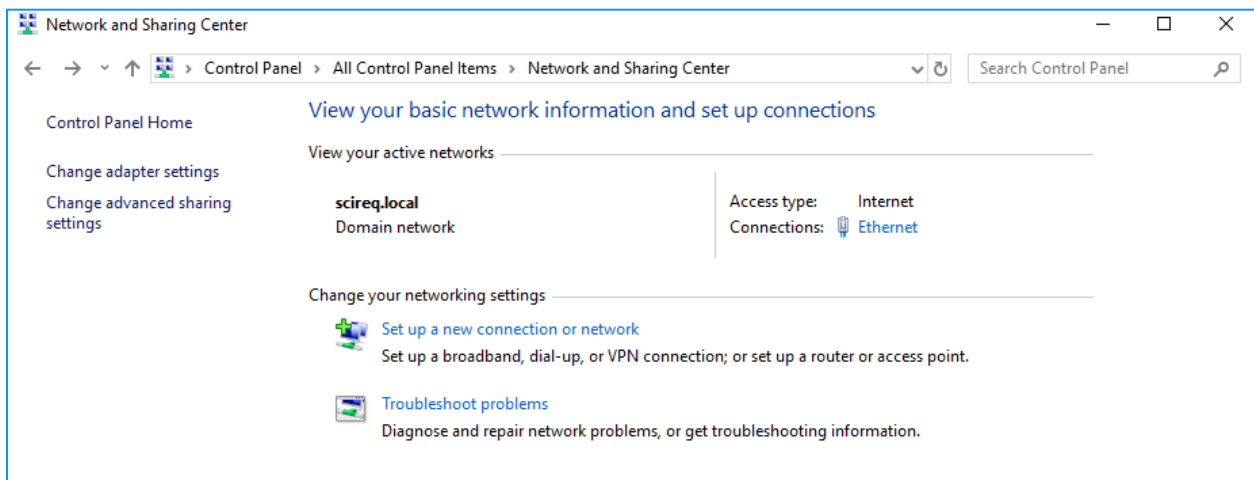


Figure 3-1: Network and Sharing Centre page of the Control Panel

- » Select the icon corresponding to the card used to connect to the inExpose system, right click and select *Properties* (Figure 3-2)

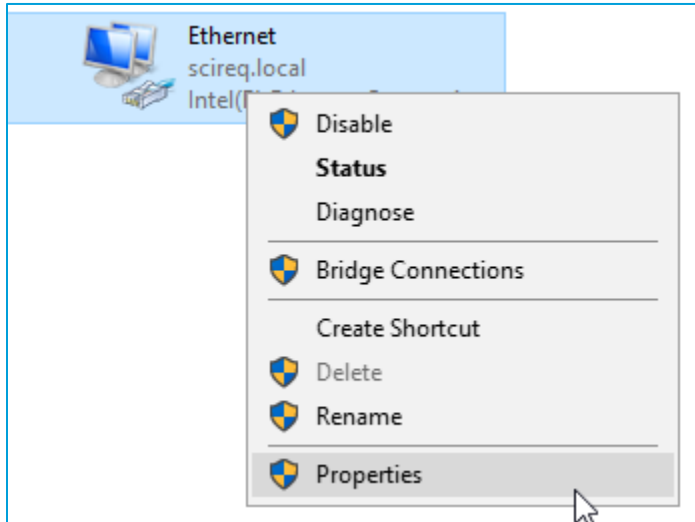


Figure 3-2: Network and sharing connection page of the Control Panel

- » In the Local Area Connection Properties dialogue box, scroll to the item labeled Internet Protocol Version 4 (TCP/IPv4) in the list of items used by the connection, and click on Properties. Set the IP and subnet mask as needed (Figure 3-3)

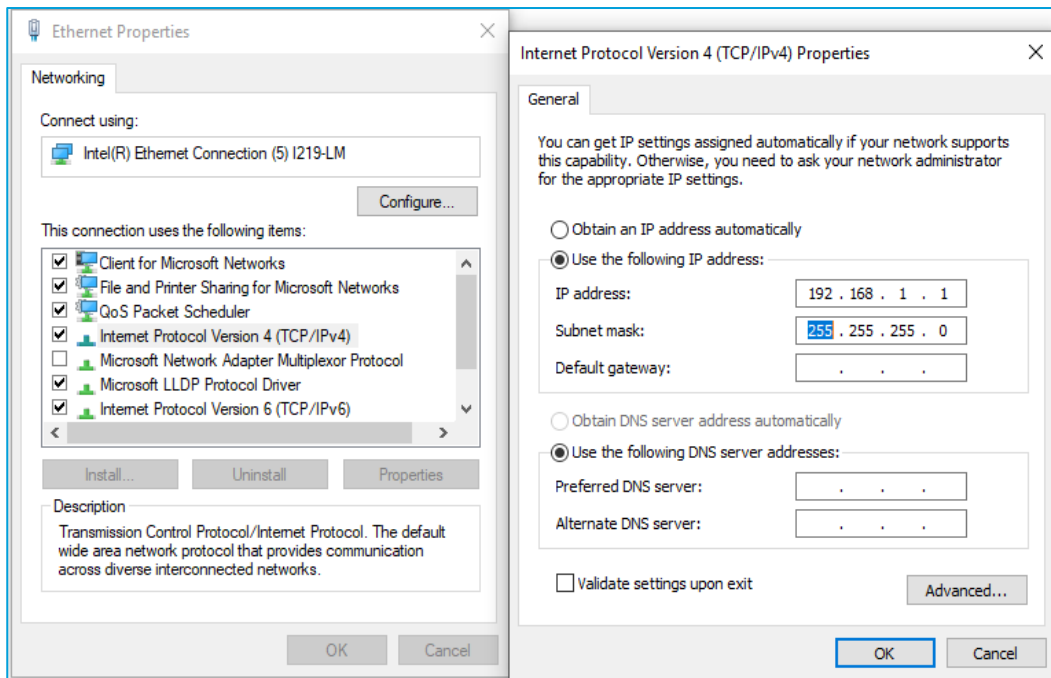


Figure 3-3: Ethernet Properties Internet Protocol Version 4 Properties

### 3.2 MAKING THE NETWORK CARD DEFAULT

To ensure communication between the host computer and instrument, the network card used must be the **default** network card. This can be set via the *Advanced Settings* page of the *Network Connections* Section of the Control Panel:

- » Open the Control Panel Network: Start -> Control Panel->Network and Sharing Center (Figure 3-1)
- » Click Alt to display the “file Menu”
- » Click Advanced->Advanced Settings (Figure 3-4)

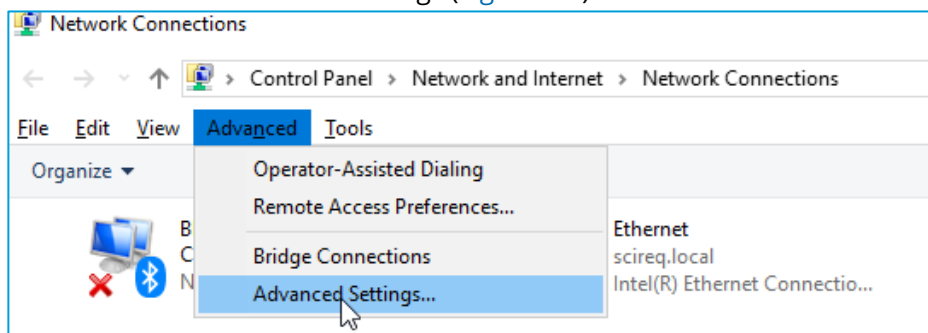


Figure 3-4: Advanced Settings menu item

- » Verify that the card used to connect to the unit is at the top of the connection list (Figure 3-5). If this is not the case, select the Network that it is attached to and use the arrows to the right of the list to move the card to the top. Press *OK*

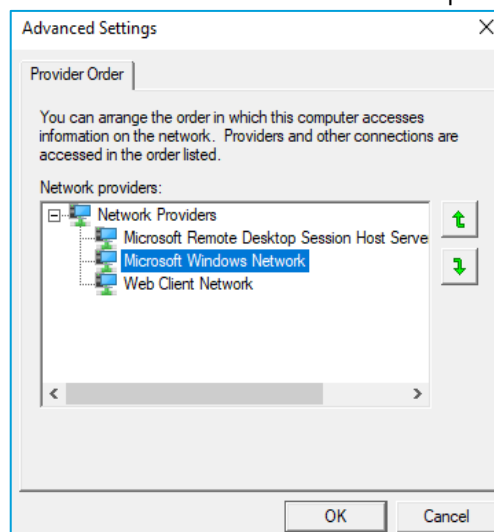


Figure 3-5: Organising Networks



### 3.3 CHANGING THE IP ADDRESS OF THE INSTRUMENT

Please take the following steps to change the IP of the instrument:

- » Navigate to *C:\Program Files (x86)\SCIREQ\Utilities* and select the *IPSetup.exe*. This will result in the screen seen in [Figure 3-6](#).
- » Select the instrument to program from the *Select a Unit* list. If the desired unit is not in the list, verify that it is connected to a power source and turned on. As well, ensure that it is connected to the network or computer with an appropriate Ethernet cable. Click the *Search Again* button once the instrument has been powered up
- » **WARNING:** If more than one instrument is present, ensure that the correct unit is selected before proceeding. Failure to do so will cause the incorrect unit to be programmed.
- » Change the number in the IP field to the desired IP, and set appropriate values for the other fields:
  - For stand-alone systems, the IP should be 192.168.1.xxx, where xxx is any number from 2 to 254; the Network Mask should be 255.255.255.0; the Gateway should be 192.168.1.1; the DNS should be 0.0.0.0; and, the Baud rate should be 115200

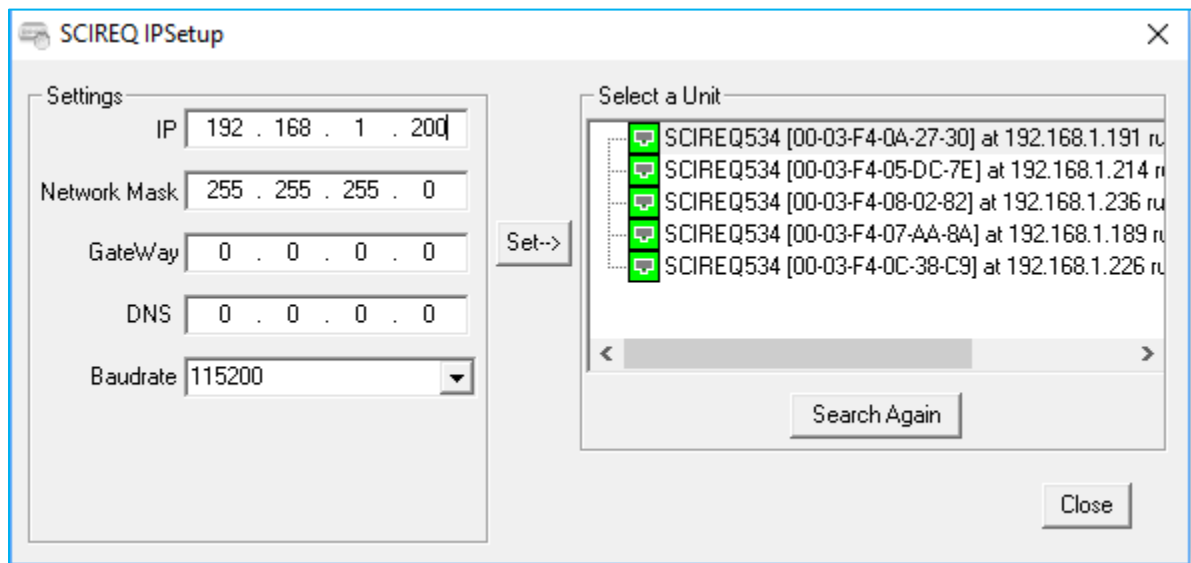


Figure 3-6: SCIREQ IPSetup dialogue box

- » **WARNING:** For systems connecting to an existing network, it is recommended that these settings be changed with the help of the institution’s IT department technicians.
- » Once a new set of values has been entered, click the *Set* button to transmit the new values to the selected unit
- » Click the *Close* button to finish