

# **Squirrel Data Logger**

Configuring the 20xx Wired and Wireless  
Ethernet Device

*Getting Started*

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# 1. Overview

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This document describes the process for configuring the 20xx range of loggers inbuilt Ethernet adaptor.

## Prerequisites

Before proceeding with the installation you will require all of the following:

- A 20xx logger with inbuilt Ethernet, externally powered
- A networked PC that is able to access the network on which you intend to connect the 20xx logger
- An Ethernet connection on the network you wish the SQ20xx logger to reside.
- Before proceeding you must speak to your network administrator to get the following information regarding the network you will be connecting the SQ20xx logger to:
  - The network gateway
  - The network subnet mask
  - An available IP address.
    - This should ideally be a static IP address.
    - If a static address cannot be found then the next best would be an assigned address.
    - The worst case would be a leased address with a significant timeout.

**NOTE:** One of the above must be found. Failure to do so could result in problems communicating with the logger in the event of a reset caused by a power failure.

- When you have the details from your network administrator as detailed above note them down here as they will be required when setting up communications from within SquirrelView and the logger.

- IP address.                    \_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_
- Subnet mask                \_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_
- Network gateway           \_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_

## 2. Setting up the 20xx IP Address

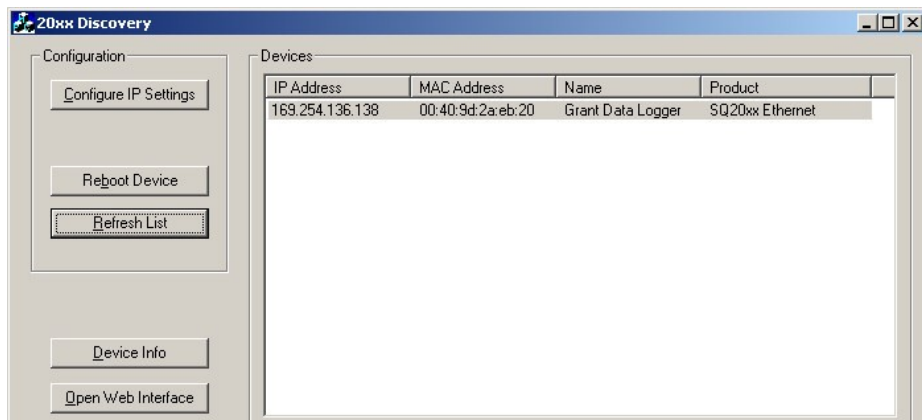
### 2.1 SQ20xx Discovery

The 20xx Discovery program will allow you to find and select the 20xx logger(s) to be setup.

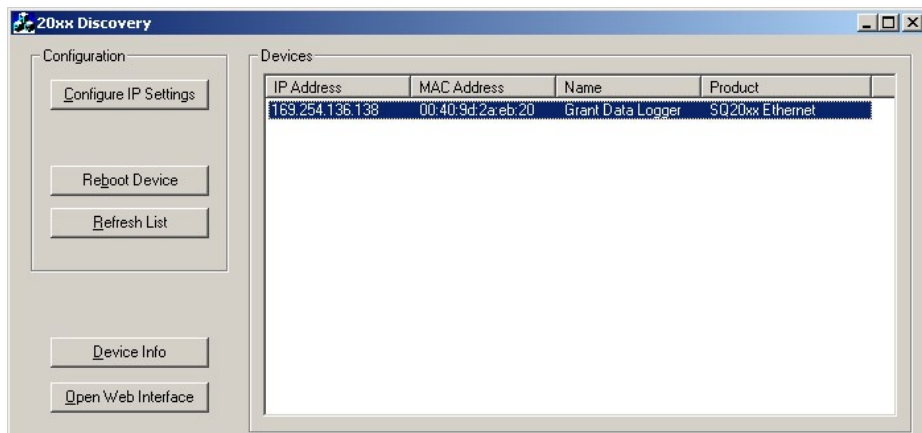
To run:

1. Use the Find Device button within the Communication wizard of the Squirrelview software or go to the following directory:
  - a. \Program Files\SquirrelView\Tools\SQ20xx\_Ethernet

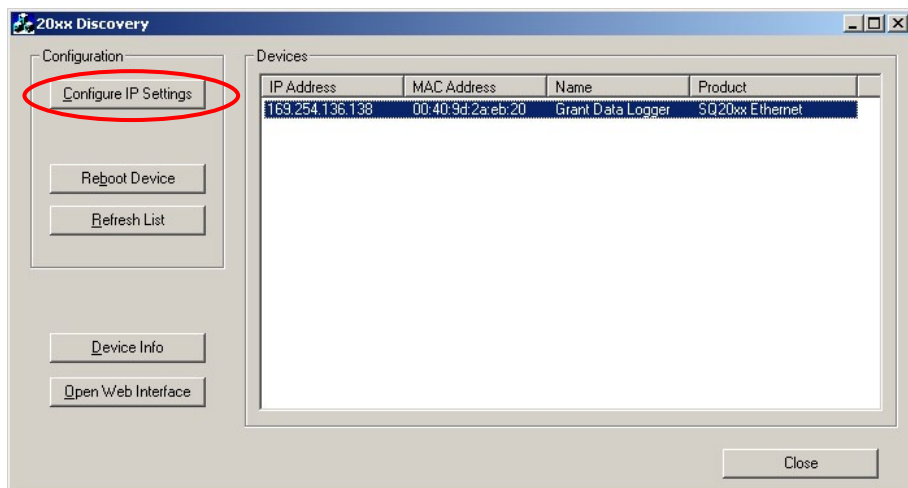
And double click on the file Finder.exe. The 20xx Discovery program should appear as below after completing a search for connected 20xx loggers.



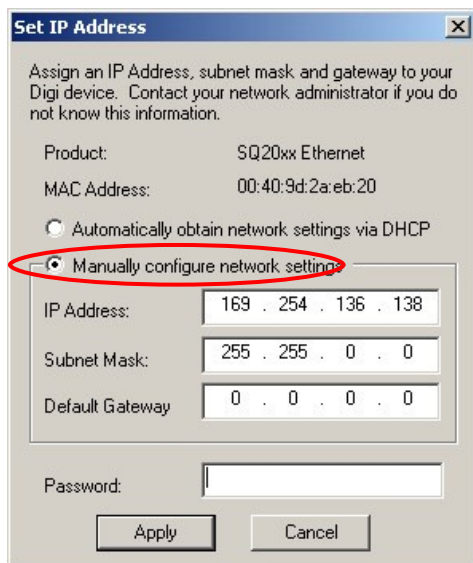
Next click on the logger you wish to configure in the list of devices:



Then click on the 'Configure IP Settings' button to display the configuration dialog



From this dialog you can type in the settings provided by your network administrator by selecting the 'Manually configure network settings' radio button.



After filling in the three fields type **dbps** into the password field.

Finally click 'Apply' to send your settings to the logger.

Configuration of the IP settings is now complete

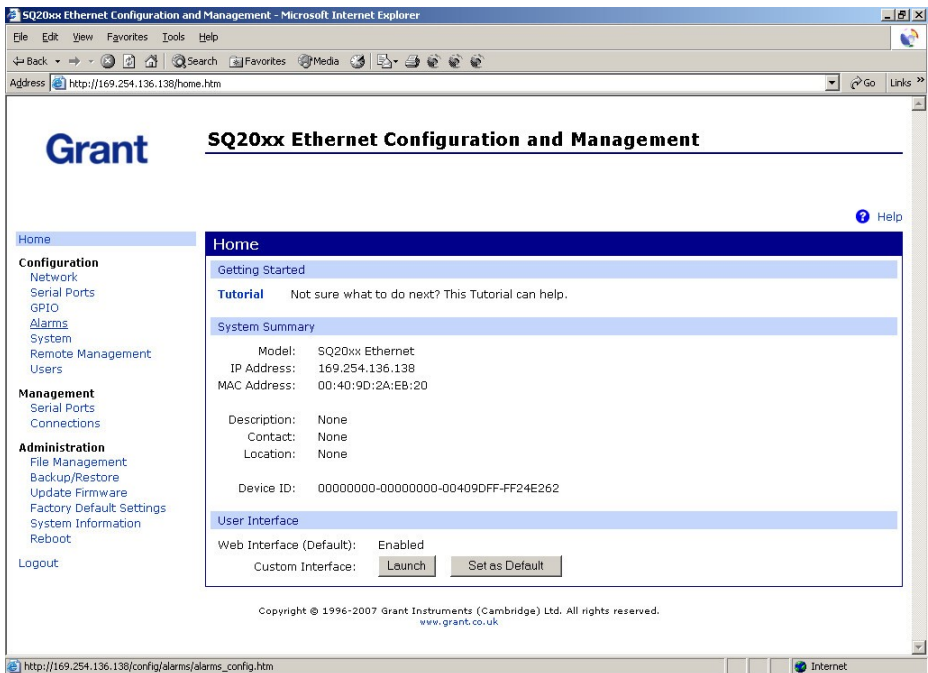
# 3.Email Notification Setup

The logger may be setup to send an email when a new alarm is raised. Before starting to setup the alarm notification you need to ensure you have the following:

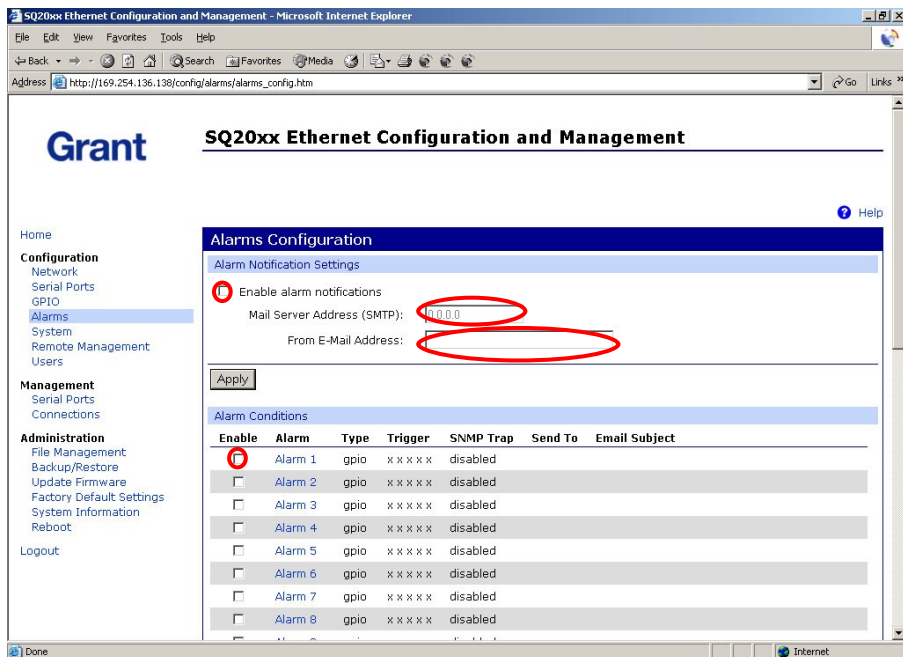
- Access to a web browser which can be connected to the 20xx device
- Mail Server Address
- Logger IP address
- Email Address for recipient

To setup email notification perform the following steps:

- Open web browser
- Type in the address of the 20xx logger followed by /home.htm
  - o e.g. <http://192.168.1.237/home.htm>
- Enter username and password
  - o Username – 'root' (default)
  - o Password – 'dbps' (default)
- Select alarms



- Tick the 'Enable alarm notifications' tick box
- Type in the IP address of your companies mail server
- Type in the email address of the logger
- Tick 'Enable' tick box of the Alarm 1
- Click on the 'Apply Button' at the bottom of the window



- Click on the Alarm 1 to configure.

**Grant** **SQ20xx Ethernet Configuration and Management**

Home

**Configuration**

- Network
- Serial Ports
- GPIO
- Alarms**
- System
- Remote Management
- Users

**Management**

- Serial Ports
- Connections

**Administration**

- File Management
- Backup/Restore
- Update Firmware
- Factory Default Settings
- System Information
- Reboot
- Logout

**Alarms Configuration**

**Alarm Notification Settings**

☐ Enable alarm notifications

Mail Server Address (SMTP):

From E-Mail Address:

**Alarm Conditions**

Enable	Alarm	Type	Trigger	SNMP Trap	Send To	Email Subject
<input type="checkbox"/>	Alarm 1	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 2	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 3	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 4	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 5	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 6	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 7	gpio	x x x x x	disabled		
<input type="checkbox"/>	Alarm 8	gpio	x x x x x	disabled		



- In the 'Pin 2' pull down box select the 'Low' option
  - Ensure that all other pins are set to 'Ignore'
- Tick the 'Send E-mail to the following recipients when the alarm occurs' tick box
- Type in the email address you wish the notification to be sent to
- Type in the text you wish to appear in the subject field of the email.
- Finally click on the 'Apply Button' then logout of the 20xx device setup page.

**Grant** **SQ20xx Ethernet Configuration and Management**

Home Help

**Configuration**

- Network
- Serial Ports
- GPIO
- Alarms**
- System
- Remote Management
- Users

**Management**

- Serial Ports
- Connections

**Administration**

- File Management
- Backup/Restore
- Update Firmware
- Factory Default Settings
- System Information
- Reboot

Logout

---

**Alarm 1 Configuration**

**Alarm Conditions**

☒ Send alarms based on GPIO pin states

Pin 1:  Pin 2:  Pin 3:

Pin 4:  Pin 5:

Alarm recurrence time:  secs

☐ Send reminders while GPIO pins remain in this state

Every:  secs

☐ Send alarms based on serial data pattern matching

Pattern:

**Alarm Destinations**

☒ Send E-mail to the following recipients when alarm occurs

To:

CC:

Priority:

**NOTE:** It is important to follow the instructions above as written as other configuration options are not supported.

Once configured as described, an email will be sent upon *any* Squirrel alarm becoming active.

# 4. The SQ20xx Applet

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## 4.1 Prerequisites

Before proceeding with the installation you will require all of the following:

- You must complete the previous section(s) in this document i.e. the device must be configured and communicating with SquirrelView.
- The users browser must have the latest Java Virtual Machine from Sun Microsystems installed. (See following section)

## 4.2 Checking the browser JVM Version

Before running the SQ20xx Applet the Java Virtual Machine (JVM) of the browser should be upgraded to the latest version from Sun Microsystems. To check the JVM on a machine running Microsoft Internet Explorer perform the following steps:

1. Start Microsoft Internet Explorer browser.
2. Select the 'Tools' menus and then the 'Internet Options..' menu item.
3. In the next dialog click on the 'Advanced' tab.
4. Scroll through the list of items and check for an entry with the title 'Java (Sun)'. If this does not exist or the version number is less than 'Java 2 v1.4.2\_04' then you should carry out the steps in the 'Updating the Java JVM' section.

## 4.3 Updating the Java JVM

The latest JVM can be downloaded from the web site [www.java.com](http://www.java.com). From this site select the 'Manual Download' link and then download the appropriate file for your operating system. If you are using Microsoft Windows use the 'Windows (Offline Installation)' link and double click on the downloaded file to install the JVM.

## 4.4 Execution Over an Intranet

You may now run the SQ20xx applet by entering the IP address of the SQ20xx device in a browser.

This will bring up the SQ20xx Ethernet Configuration and Management window.

- Enter username and password
  - o Username – 'root' (default)
  - o Password – 'dbps' (default)

Click on the 'Set as Default'

This will enable a connection straight to the SQ20xx applet in future when the IP address is entered into the browser. The Username and Password will need to be enter each time.

To enter the SQ20xx Ethernet Configuration and Management window after this you will need to type in the IP address of the 20xx logger followed by /home.htm to the browser.

- o e.g. <http://192.168.1.237/home.htm>

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#### **4.5 Execution Over the Web**

Once the SQ20xx Applet is working over the intranet the user must get access to this from the internet to view the applet from the web. To do this the users I.T. department should allow access to the devices IP address from an IP address or URL external to the companies.

## 5. Setting Up a Wireless Ethernet Logger

### Prerequisites

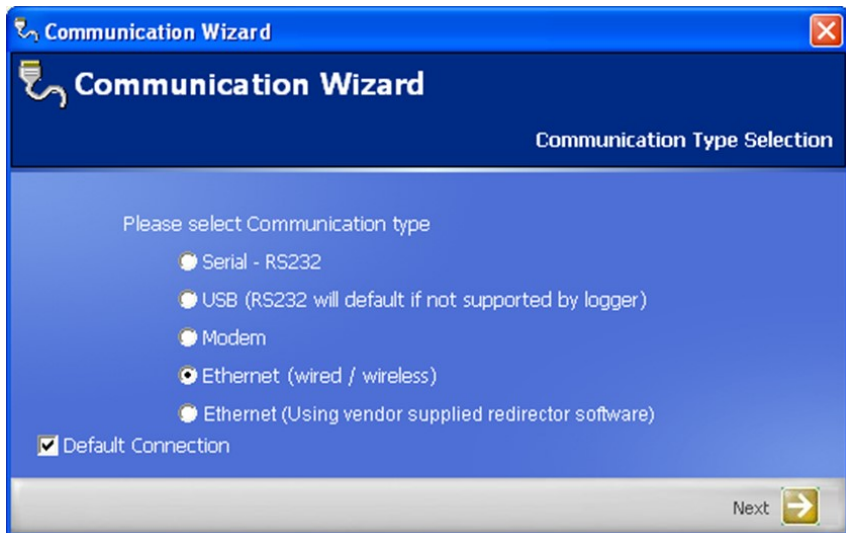
Before proceeding with the installation you will require the following.

- A 20xx Data Logger with wireless Ethernet and external Power Supply
- A wireless router that is either connected to a Network or direct to the PC
- Before proceeding you must speak to your network administrator to get the following information regarding the network you will be connecting the SQ20xx logger to
  - Network SSID Name
  - Network Channel Number
  - Network Encryption Key

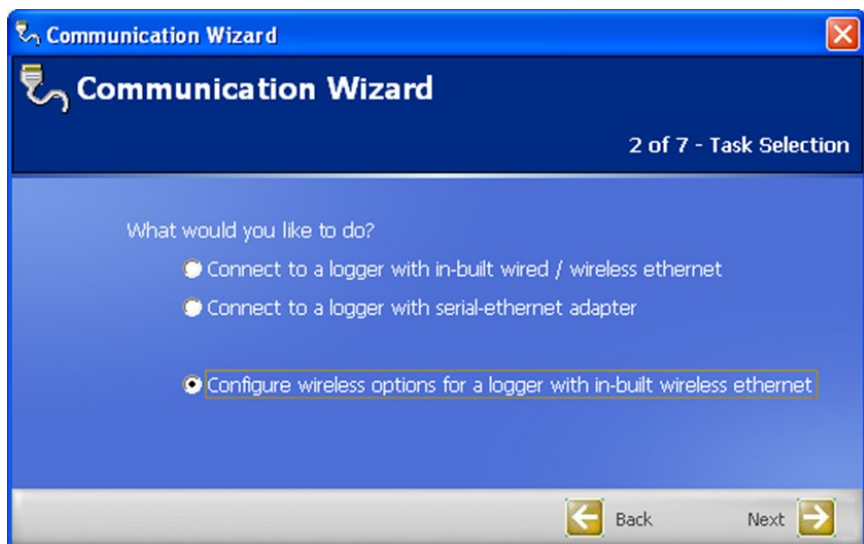
### 5.1 Configuring the Wi-Fi connection

Attach the logger to the PC via USB and click on the **Communication Wizard** button in the SquirrelView software.

Choose the **Ethernet (wired / wireless)** option and click **Next**.



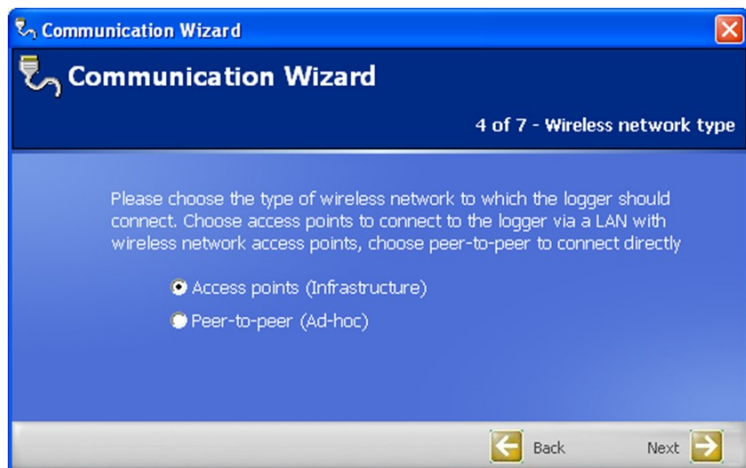
Then choose **Configure wireless options for a logger with in-built wireless Ethernet**  
And click on **Next**



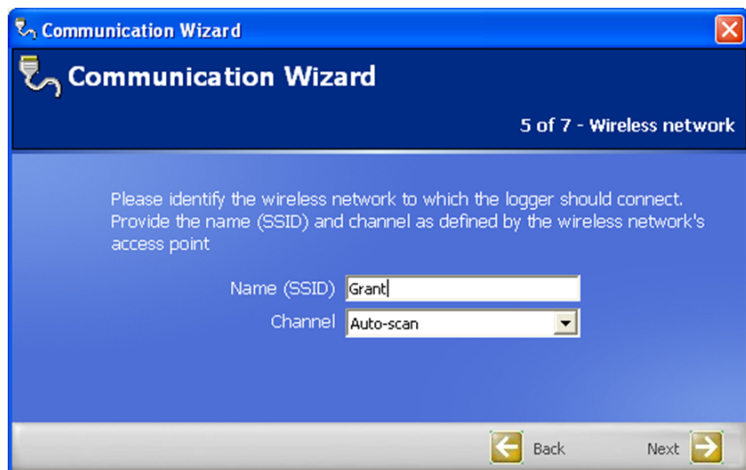
With the logger connected via USB the logger should be displayed as below. Click on **Next**



For setting up a connection with a wireless router on a network select the Access points (Infrastructure) option.



The SSID name of the wireless access network point is now entered. For a WPA connection you will require the network name assigned by your IT department or network administrators. For a WEP connection the SSID may be left blank and any available network will be found. The Channel number can be left as Auto-scan or entered if it is known.

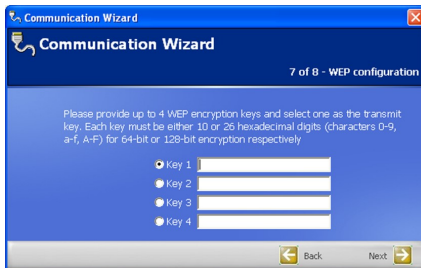


Choose the type of security your wireless network is using, if not known it should be supplied by your IT department or network administrators. Click on **Next**

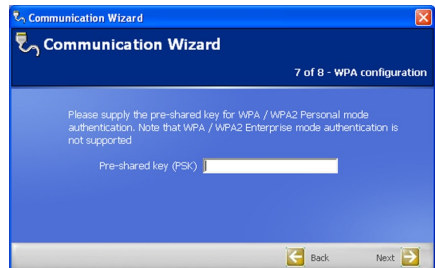


On the next screen fill in the encryption key as supplied by your IT department and click on **Next**.

Window for WEP 64 and 128 encryption  
Key

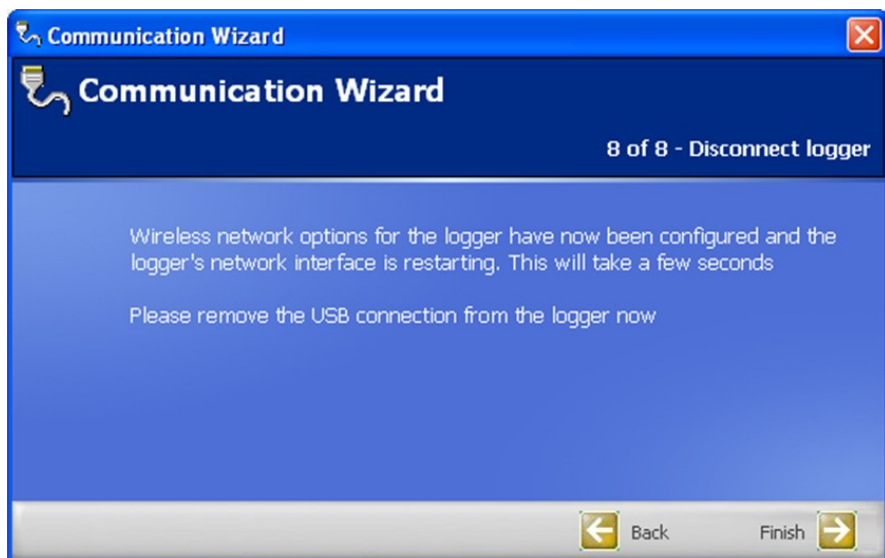


Window for WPA and WPA2 encryption  
key



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On the next screen click on **Finish**





## 6. Setting Up a Direct Connection to PC

### Prerequisites

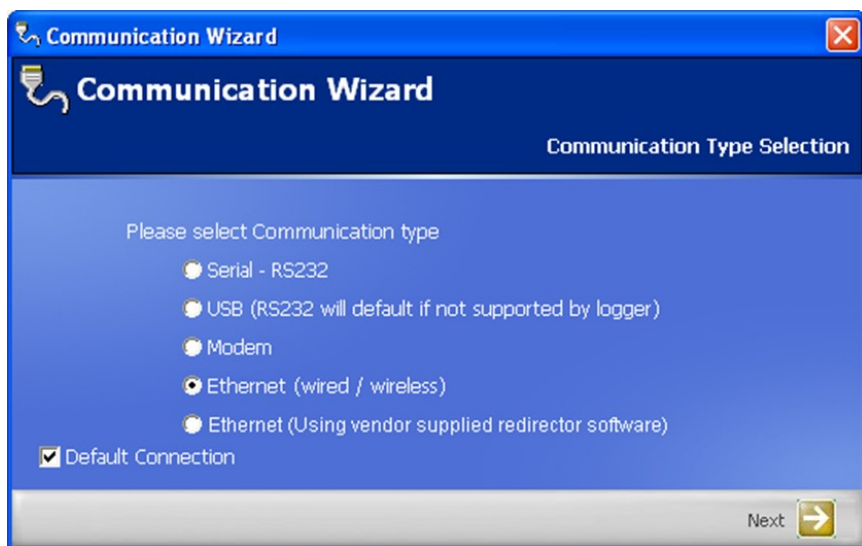
Before proceeding with the installation you will require the following.

- A 20xx Data Logger with wireless Ethernet and external Power Supply
- A wireless connection on a laptop or PC

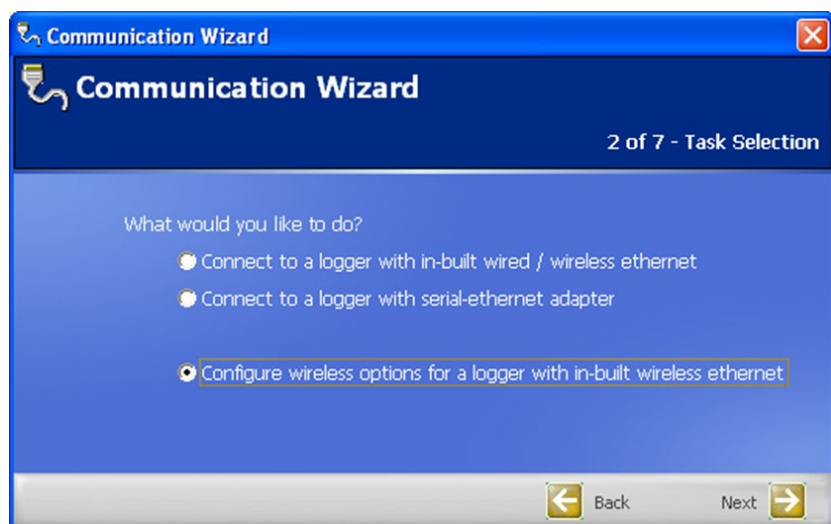
### 6.1 Configuring the Wi-Fi connection

Attach the logger to the PC via USB and click on the **Communication Wizard** button in the SquirrelView software..

Choose the **Ethernet (wired / wireless)** option and click **Next**.



Then choose **Configure wireless options for a logger with in-built wireless Ethernet**  
And click on **Next**



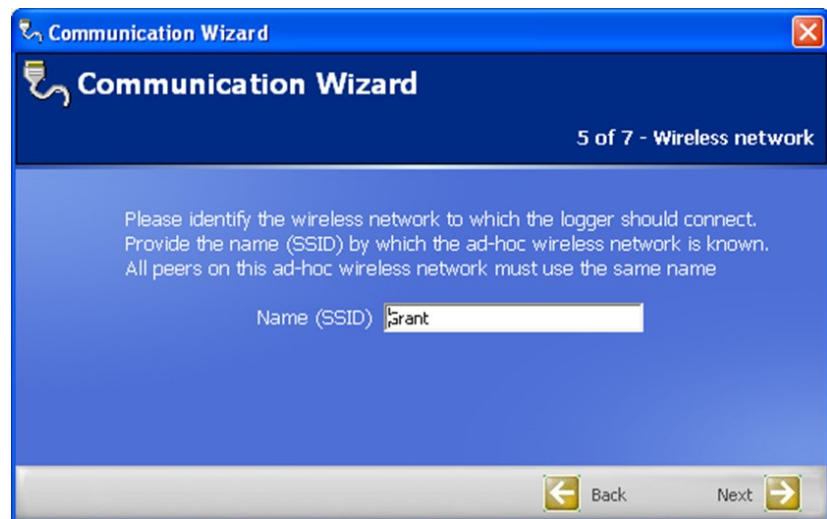
With the logger connected via USB the logger should be displayed as below. Click on **Next**



For setting up a direct connection to a laptop or PC select the Peer-to-peer (Ad-hoc) option.



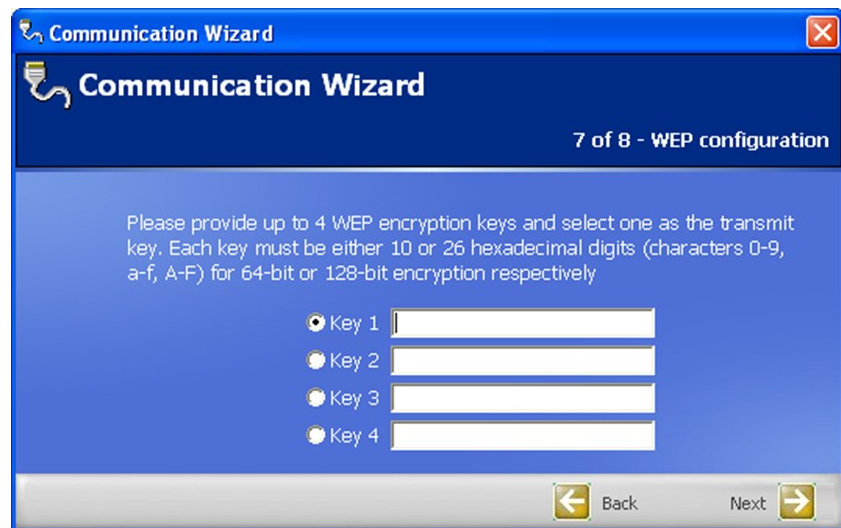
The SSID name of the wireless access network point is now entered.



Choose the type of security your wireless network is using, if not known it should be supplied by your IT department or network administrators. Click on **Next**

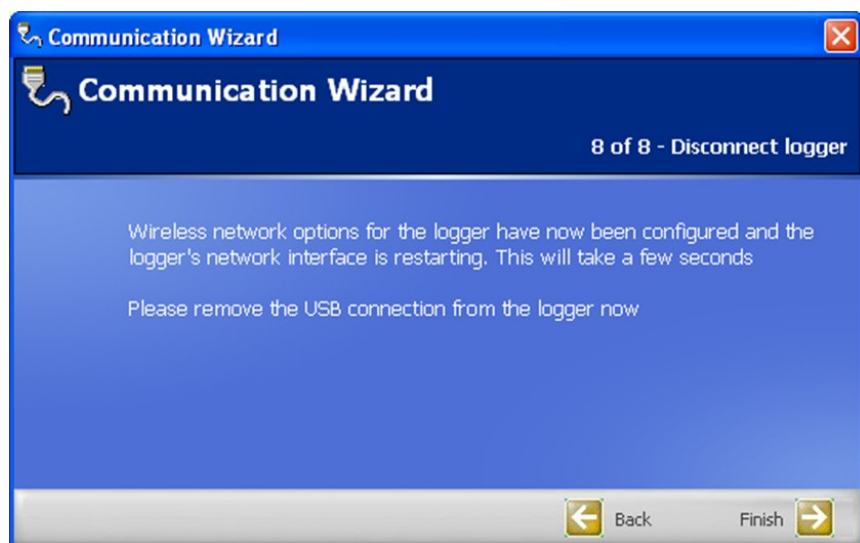


On the next screen fill in the encryption key as supplied by your IT department and click on **Next**.



---

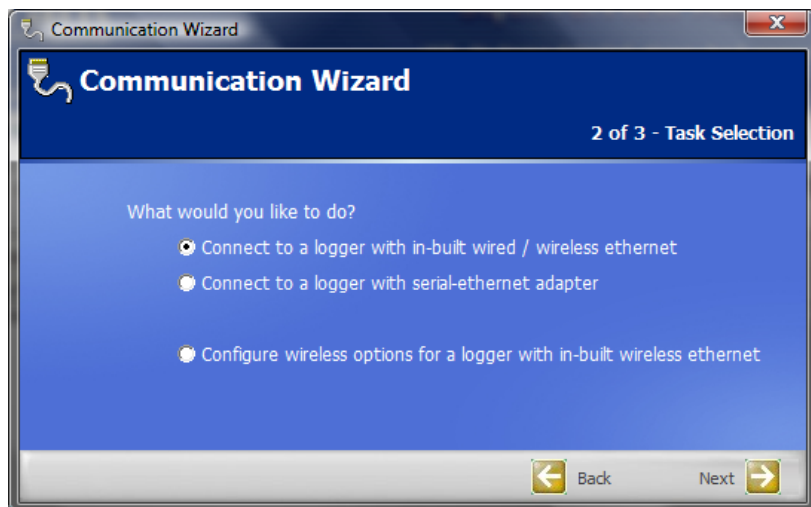
On the next screen click on **Finish**



## 7. Configuring the Data logger Wi-Fi

In SquirrelView Assistant click on the **Communication Wizard** button

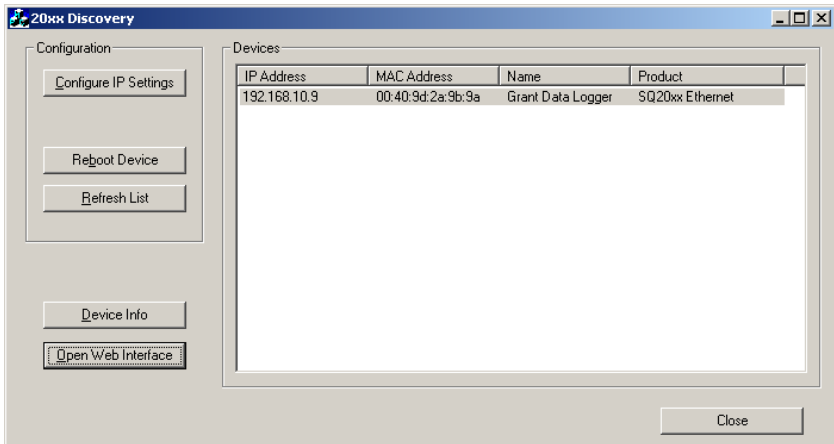
Choose **Connect to a Logger with in-built wired / wireless Ethernet** and click **Next**



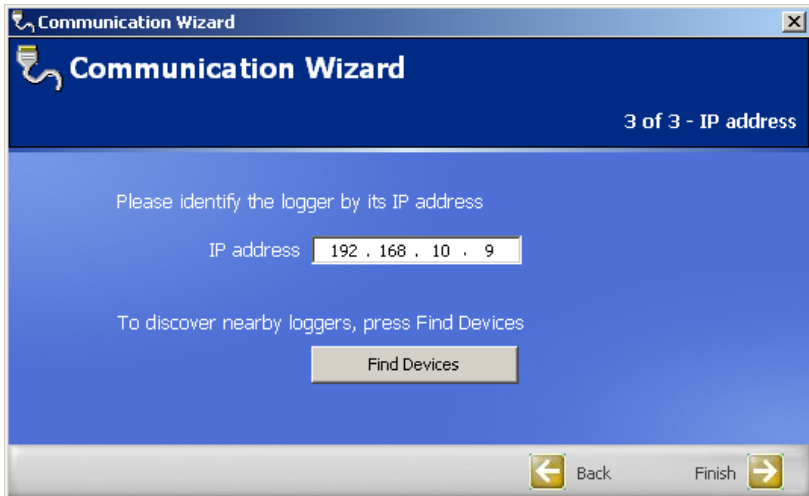
Click on **Find Devices**, or use the logger buttons to find the IP address, under Tools and IP Address.



The 20xx Discovery window will open and locate the IP address(s) for the connected SQ20xx logger(s) to the wireless network. Make a note of the IP address.



Enter the IP address in the box provided and click **Finish**



Direct communication with the Squirrel Data Logger via the SquirrelView software will now be made via a wireless Ethernet connection.

## 8. Connecting Directly using Windows 10

Normally a Wi-Fi logger would be connected to the computer via a network as described in section 5. **Setting Up a Wireless Ethernet Logger**. However, it is sometimes necessary to make a direct connection between the computer as described in section 6. **Setting Up a Direct Connection**.

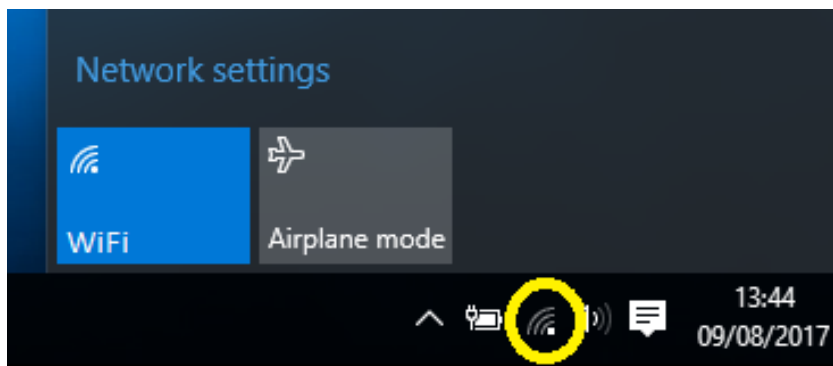
With the introduction of Windows 10 the method shown in section 6 no longer works so this document details an alternative using a hosted network. This method can also be used for Windows 7 and later versions.

The method described assumes that the Wi-Fi adaptor fitted to the computer has already been proven to work by previously connecting to another network. It is also necessary to have Administrator rights over the computer to make these changes. It may be necessary to contact your IT Department if this is not the case.

Note that the screen-shots shown throughout this document may be slightly different to what is seen on your computer but the general sequence will be correct.

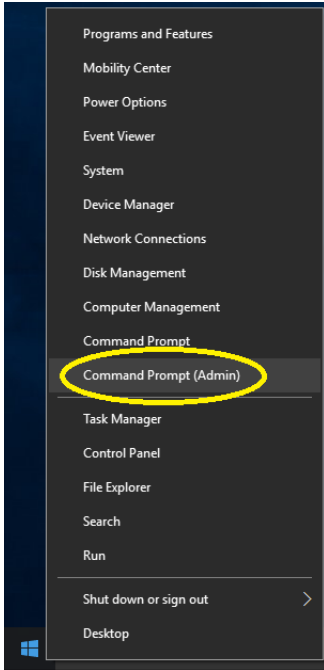
**Note that Grant recommends connecting the Wi-Fi logger through your normal network where possible to ensure that security levels are maintained, if a connection is made as described then other computer settings not shown may also need to be changed to secure the hosted network connection based on your environment and needs.** Contact your IT Department or use your favourite search engine to find out more information.

### 1. Initial Checks



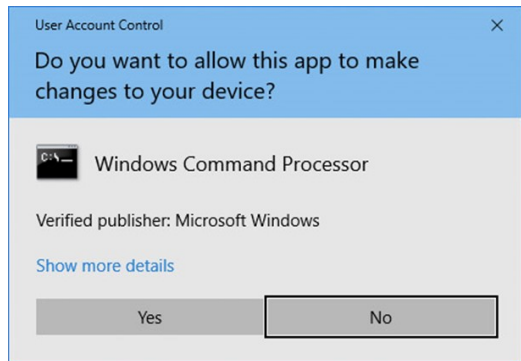
Check the computer is not in Airplane or Flight mode by clicking on the Wi-Fi icon (shown circled) and then checking that the Airplane mode or Flight mode icon is not highlighted, i.e it is coloured grey.





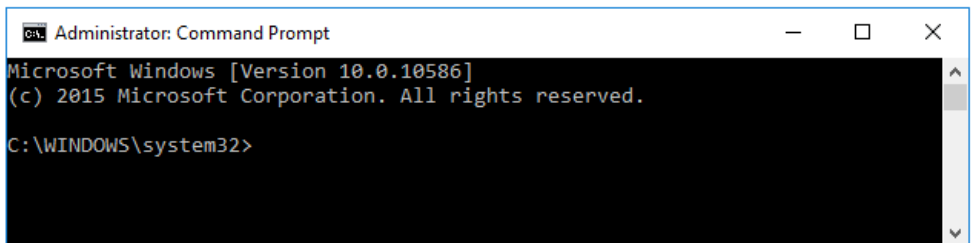
## 2. Setting up the Hosted Network

Open the Quick Links menu by pointing to the Windows start logo and clicking on the right mouse button (or press and hold the Windows key on the keyboard and then press the X key at the same time). Click on the Command Prompt (Admin) link shown circled on the picture.



Click on the Yes button in the User Account Control question window that will appear similar to that shown below. Note that you must have Administrator rights over the computer to proceed.

The command prompt window will appear.

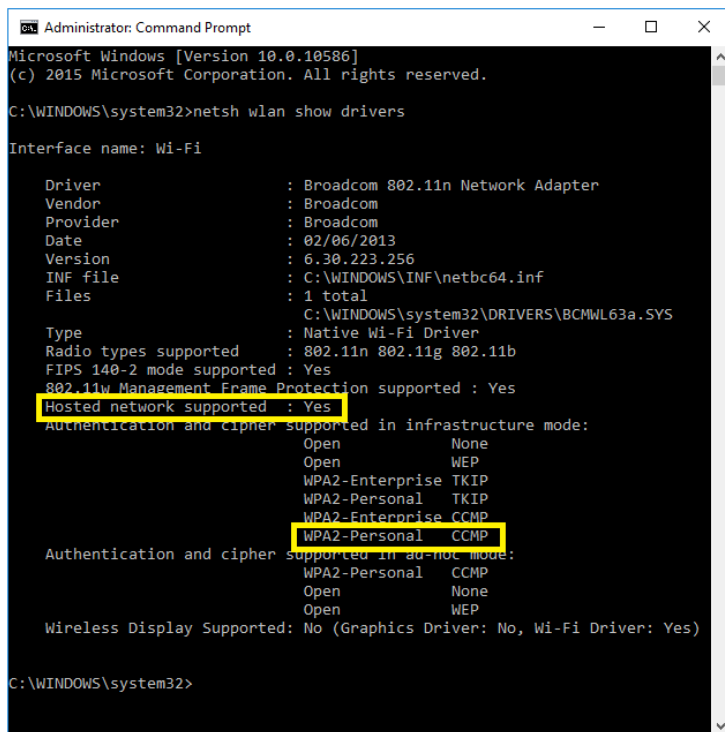


Type

### Netsh wlan show drivers

into the command prompt window as shown below and some information will appear. If the printout includes Hosted Network supported: Yes and the list under Authentication and cipher supported in infrastructure mode includes

WPA2-Personal CCMP (both highlighted below) then it should be possible to follow the rest of the instructions to set this computer up to connect directly to an SQ2020/2040 WiFi logger.



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10586]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>netsh wlan show drivers

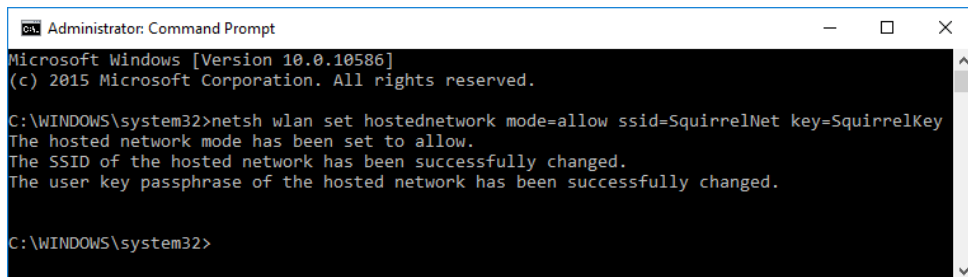
Interface name: Wi-Fi

Driver               : Broadcom 802.11n Network Adapter
Vendor               : Broadcom
Provider             : Broadcom
Date                 : 02/06/2013
Version              : 6.30.223.256
INF file             : C:\WINDOWS\INF\netbc64.inf
Files                : 1 total
                     : C:\WINDOWS\system32\DRIVERS\BCMML63a.SYS
Type                 : Native Wi-Fi Driver
Radio types supported : 802.11n 802.11g 802.11b
FIPS 140-2 mode supported : Yes
802.11w Management Frame Protection supported : Yes
Hosted network supported : Yes
Authentication and cipher supported in infrastructure mode:
    Open                None
    Open                WEP
    WPA2-Enterprise     TKIP
    WPA2-Personal       TKIP
    WPA2-Enterprise     CCMP
    WPA2-Personal       CCMP
Authentication and cipher supported in ad-hoc mode:
    WPA2-Personal       CCMP
    Open                None
    Open                WEP
Wireless Display Supported: No (Graphics Driver: No, Wi-Fi Driver: Yes)

C:\WINDOWS\system32>
```

If Hosted network supported says No then it may still be possible to use the computer after updating the WiFi module's drivers to the latest version, contact your IT Department or use your favourite search engine to find out how to do this.

If Hosted network supported says Yes then type  
**netsh wlan set hostednetwork mode=allow ssid=SquirrelNet key=SquirrelKey**  
into the Command Prompt window as shown below and the system must respond with the  
success messages shown below.  
SquirrelNet should be replaced with what you want to call your network and SquirrelKey  
should be replaced with what you want to use as a security password.

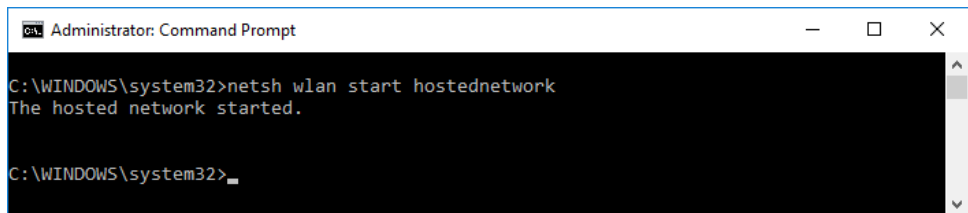


```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10586]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>netsh wlan set hostednetwork mode=allow ssid=SquirrelNet key=SquirrelKey
The hosted network mode has been set to allow.
The SSID of the hosted network has been successfully changed.
The user key passphrase of the hosted network has been successfully changed.

C:\WINDOWS\system32>
```

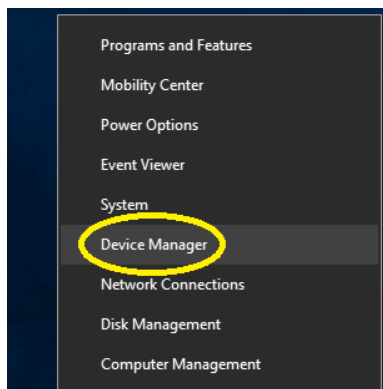
Type  
**netsh wlan start hostednetwork**  
into the Command Prompt window as shown below and the system must respond with the  
message that the hosted network started as below.



```
Administrator: Command Prompt

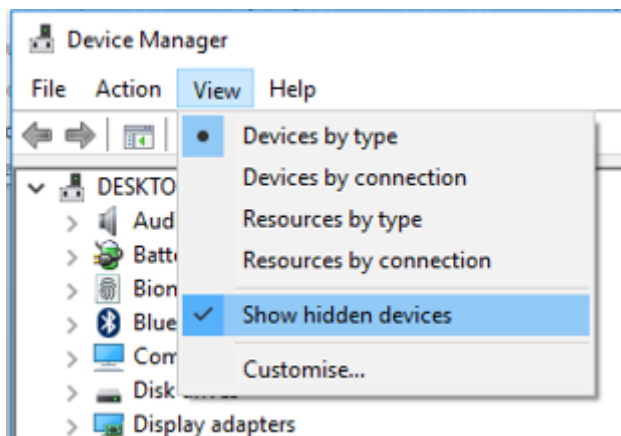
C:\WINDOWS\system32>netsh wlan start hostednetwork
The hosted network started.

C:\WINDOWS\system32>
```



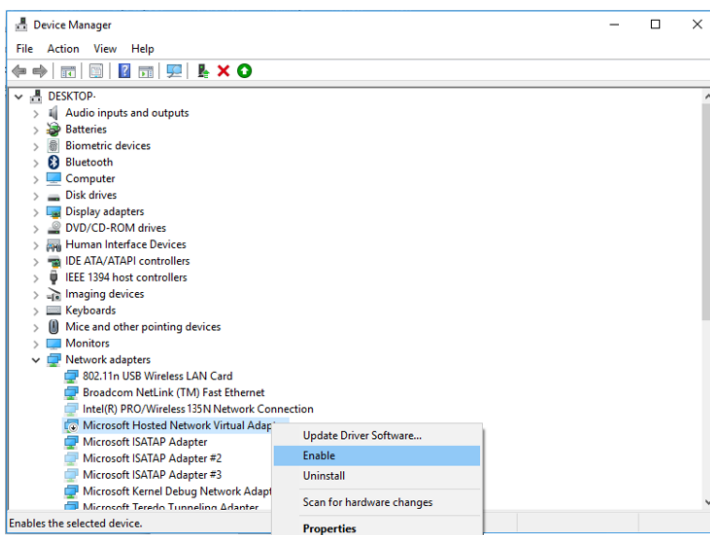
Open the Quick Links menu again but this time click on  
the Device Manager link shown  
circled in the picture.

In Device Manager, click on View and then tick Show Hidden Devices.



Click on the arrow next to Network Adaptors to open the tree. If Microsoft Hosted Network Virtual Adaptor appears in the list then right-click on it and a pop-up menu will appear similar to that shown above. If the menu shows Enable then click on that to enable it, if it shows Disable then it is already enabled and no action is required.

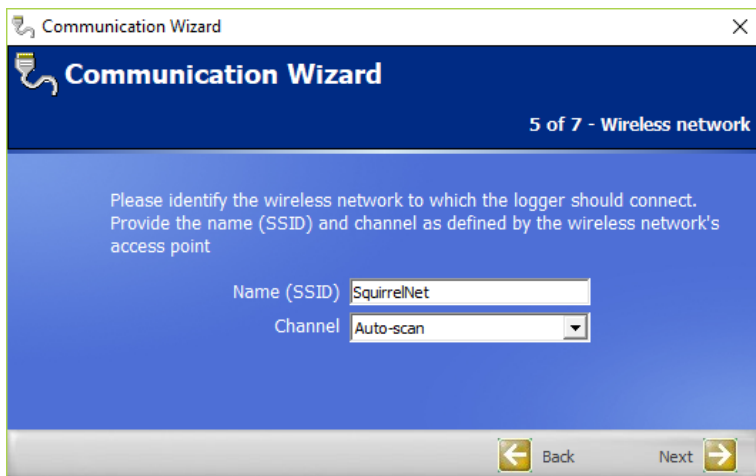
Close the Device Manager window.



### 3. Connecting to the Logger

Start up SquirrelView and follow the instructions in section **5. Setting Up a Wireless Ethernet Logger**.

At the SSID entry page replace SquirrelNet shown below with the name of the network that you created.



Communication Wizard

**Communication Wizard**

5 of 7 - Wireless network

Please identify the wireless network to which the logger should connect.  
Provide the name (SSID) and channel as defined by the wireless network's access point

Name (SSID)

Channel

Back Next

At the security page select WPA2 as shown below.



Communication Wizard

**Communication Wizard**

6 of 8 - Wireless security

Please identify the type of wireless security in use by the wireless network

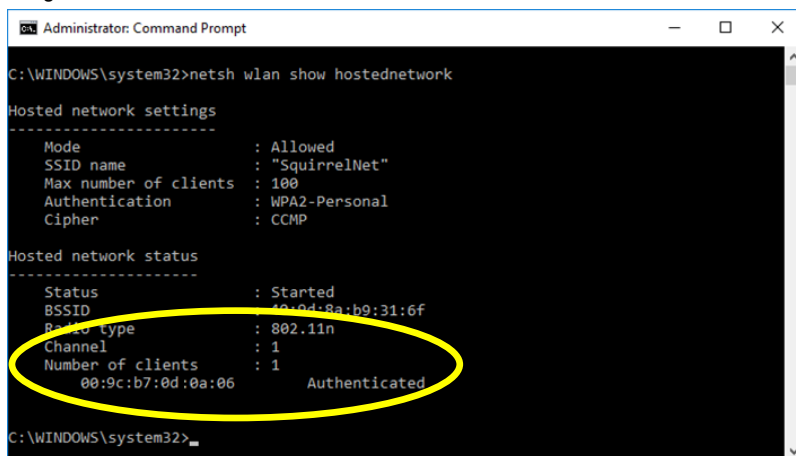
- ☐ None (Open)
- ☐ Wired Equivalent Privacy with 64-bit encryption (WEP)
- ☐ Wired Equivalent Privacy with 128-bit encryption (WEP)
- ☐ Wi-Fi Protected Access (WPA)
- ☒ Wi-Fi Protected Access 2 (WPA2)

Back Next

At the Pre-shared key entry page replace SquirrelKey shown below with the password that you created.



Click on Next in the screen shown above and then click on Finish in the final screen that appears. Wait a couple of minutes for the connection to establish or watch the lights on the Ethernet module on the logger, the yellow light will be on and the green light will be flashing when the connection is made. If the logger is not visible then type **netsh wlan show hostednetwork** into the Command Prompt window and the system will respond with something similar to that shown below, the connection is made when Number of clients is no longer 0.



---

Connect SquirrelView to the logger by following the instructions in section 7. **Configuring the Data Logger WiFi** in the document entitled **29486 Configuring the 20xx Wired and Wireless Ethernet Device**.

#### 4. Stopping and Stating the Connection

To stop the connection type

**netsh wlan stop hostednetwork**

and then type

**netsh wlan set hostednetwork mode=disallow**

into the Command Prompt window.

To restart the connection, which may be necessary if the computer has shut down or gone to sleep type

**netsh wlan set hostednetwork mode=allow**

and then type

**netsh wlan start hostednetwork**

into the Command Prompt window, if required type

**netsh wlan show hostednetwork**

to check that the connection has been re-established. Note that the IP address may have changed and so it may then be necessary to re-connect SquirrelView to the logger by following the instructions in section 7. **Configuring the Data Logger WiFi**.

The above has been tested and found to work on desktop and laptop computers running Windows 10 at Grant Instruments.



# Grant

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