Universal Serial Bus

Application Note

Rev 1.0

SIERRA WIRELESS
HEART OF THE WIRELESS MACHINE®

Universal Serial Bus (USB)

- Changing the USB port communication
- Installing the USB driver
- Using the Virtual Ethernet Port
- Using the Virtual Serial Port

The modem is equipped with a USB port which increases the methods by which you can send and receive data. The USB port can be set to work as either an Ethernet port or a virtual serial port. A driver installation is required to use the USB port in either mode.

Note: It is recommended that you use a USB 2.0 cable with your modem and connect directly to your computer for best throughput.

Changing the USB port communication

The command to change the port configuration is *USBDEVICE and it is in the USB group of AceManager.

Figure 0-1: AceManager : USB

By default, the port is set to work as a virtual Ethernet port (*USBDEVICE=1).

To change the USB port to allow virtual serial port communication, disable the Ethernet port emulation, set *USBDEVICE to 0.

*Note: If you use a terminal connection with the USB port to change *USBDEVICE, the change is immediate. Your connection will be terminated after inputting the command.*

Installing the USB driver

1. Set the Port Type

Virtual Ethernet port is the default setting for the USB port. If you want to install the virtual serial port, change the USB port configuration using the directions above.

2. Connect the modem to your computer's USB port

When you connect the modem for the first time to a USB port on your computer, Windows should detect a new device and prompt you to install the driver.

Note: Windows will see each port type as a different USB device and will see every port on your computer separately. If you change the port type on the modem or connect to a different USB port on your computer or hub, Windows will see it as a new device.

Figure 0-2: Found New Hardware Wizard

    a.   To start the install of the USB virtual Ethernet driver, select No, not this time and click Next.

    b.   Select Install from a list of specific location and click Next.

Figure 0-3: Hardware Wizard : Location options

3. Install the driver from a specific location

   a. Select and/or enter the location of the driver.

- If the driver is on the CD and the CD is in your drive, you can just select Search removable media.
- If you have installed AceManager or the Setup Wizard, the drivers have been conveniently copied to your hard drive. Enter C:\Program Files\Common Files\AirLink as the location to search.
- If you will be installing the driver from a file downloaded from the Sierra Wireless website, select Include this location in the search and type in the location where you downloaded the file.
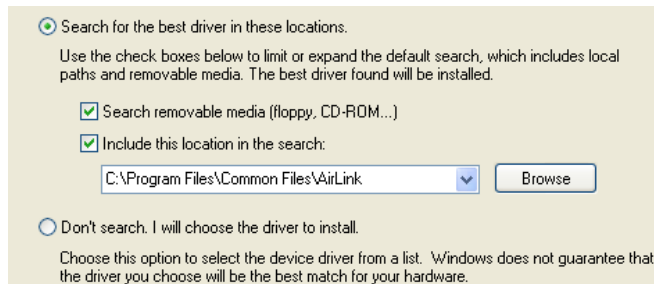
   b. Click Next.

Figure 0-4: Hardware Wizard : Install location

After you select the location, the installation should begin. If you get a message asking if you want to continue the installation, click Continue Anyway.
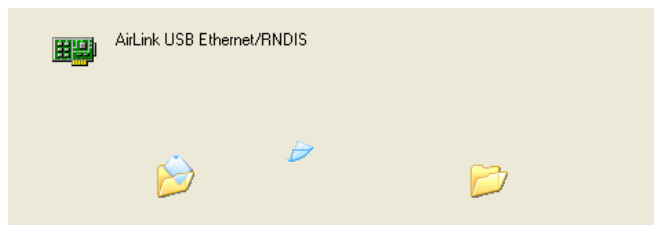

Figure 0-5: Hardware Wizard : Installing

c. Click Finish to complete the installation. The driver should be enabled without any need to reboot your computer.

Figure 0-6: Hardware Wizard : Finish

4. Optional: Verify and Configure the Virtual Port Settings

Virtual Ethernet

The USB Ethernet connection will show up in your Network Connections as a Local Area Connection.

Tip: *If you also have an Ethernet card on the computer or have installed the USB Ethernet to more than one USB port on your computer, the USB Ethernet may show up with a number.*
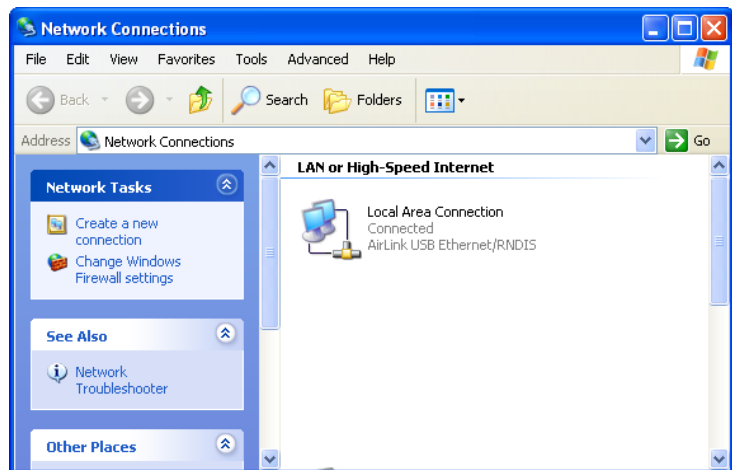

Figure 0-7: Network Connections

You can also verify the installation by looking in the Device Manager.

a. Click on Start > Control Panel.

b. Double-click on the System icon.

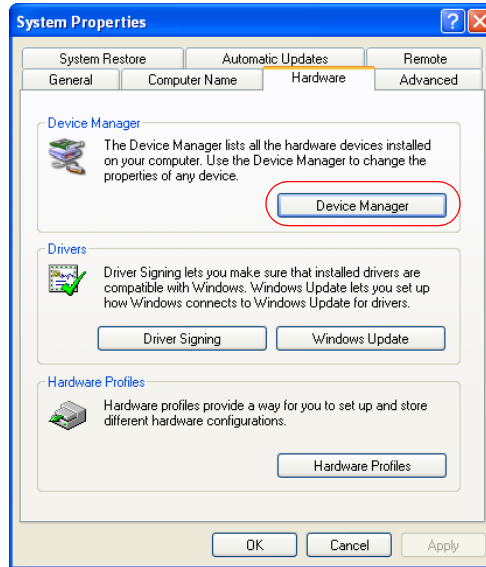**c.** Select the Hardware tab and click the Device Manager button.

Figure 0-8: System Properties

d. Click on the + in front of *Network Adapters*.

The newly installed driver, AirLink USB Ethernet/RNDIS, should be displayed. If the driver is displayed with a # and number behind the driver name (such as, AirLink USB Ethernet/RNDIS #2), it means more than one is installed on your computer, most likely for different USB port. More than one copy of the driver should not cause any problems since only the connected port and its driver would be active.
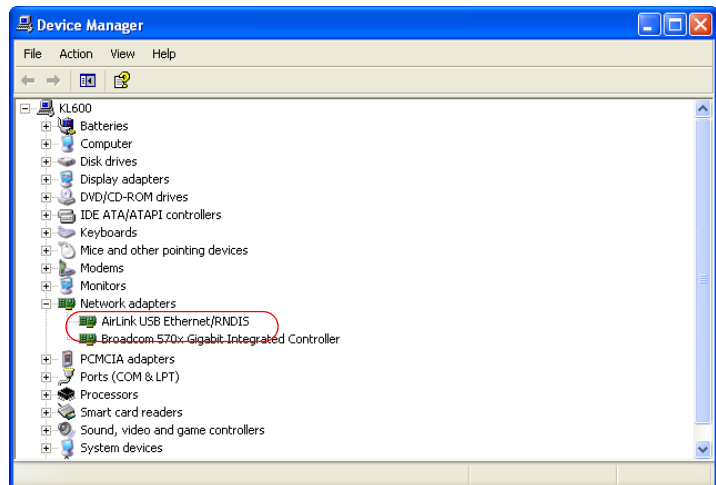

Figure 0-9: Device Manager - Ethernet

Virtual Serial

You can verify the installation by looking in the Device Manager.

    a. Click on Start > Control Panel.

    b. Double-click on the System icon.

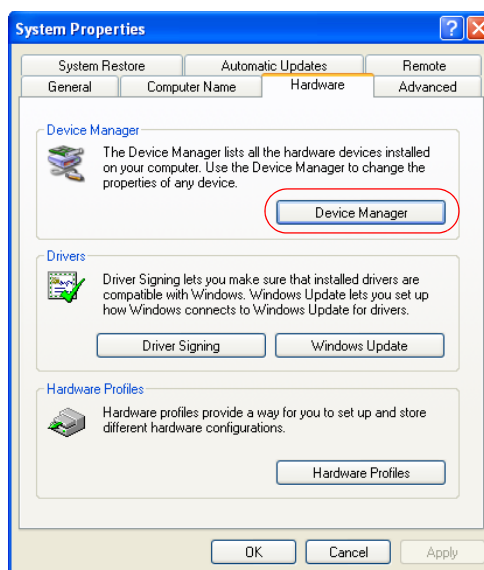   **c.** Select the Hardware tab and click the Device Manager button.

Figure 0-10: System Properties

    d. Click on the + in front of *Modems*.

The newly installed driver, AirLink USB Serial Port, should be displayed.

Tip: *If the driver is displayed with a # and number behind the driver name (such as, AirLink USB Serial Port #2), it means more than one is installed on your computer, most likely for different USB port. More than one copy of the driver should not cause any problems since only the connected port and its driver would be active.*
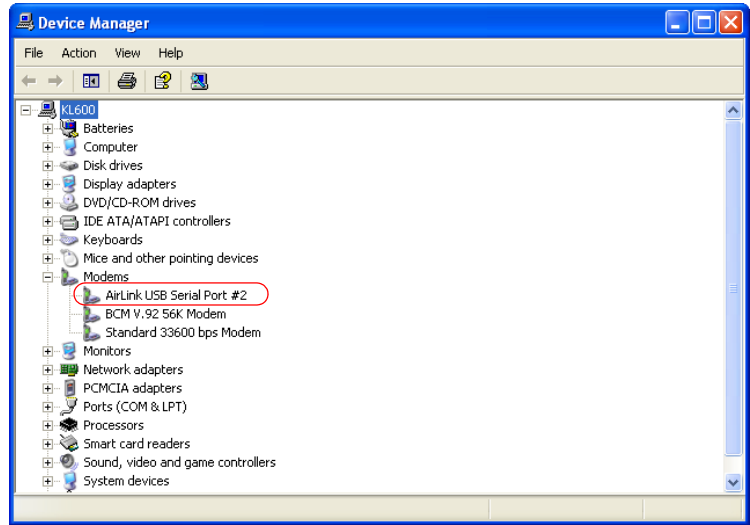
Figure 0-11: Device Manager - Serial

To connect to the modem using the USB virtual serial, most applications or utilities will require you to select or enter the serial (COM) port number. The USB connection will appear as a standard serial port, so you will need to determine its number to connect to it. The driver installation will automatically assign a port or you can change it if you wish to another unused port.

a. From the Device Manager, right click on the driver name and select Properties.
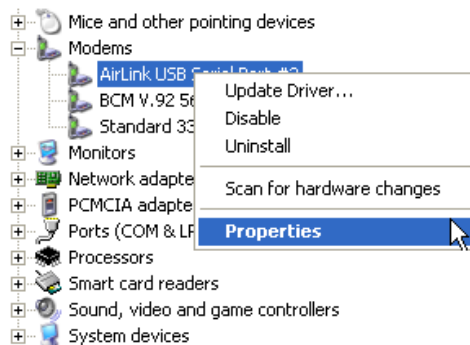

Figure 0-12: Device Manager : Driver menu

b. Select the Advanced tab and click the Advanced Port Settings button.
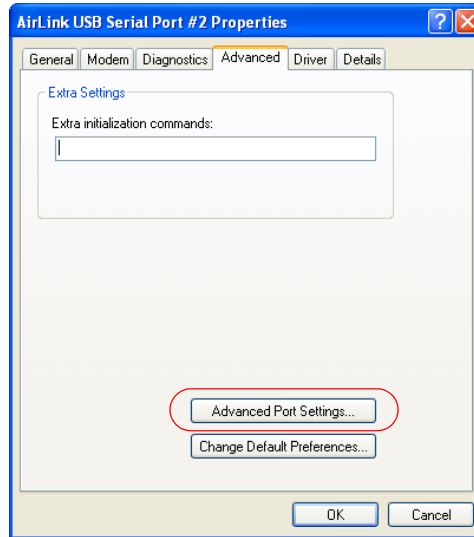
Figure 0-13: Driver Properties

c. At the bottom of the screen, the current port used will be listed. Use the drop down menu to select an available COM port number if you need to change it.
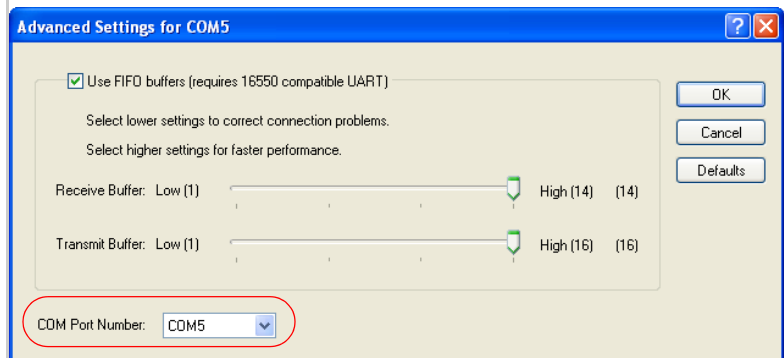

Figure 0-14: Advanced Settings

Using the Virtual Ethernet Port

Once the driver is installed, you can use the USB port just like a standard Ethernet port.

Using USB Ethernet with AceManager

In AceManager, use the UDP or TCP connection and enter the IP address of the modem (*192.168.13.31* by default) and the password (*12345* by default).
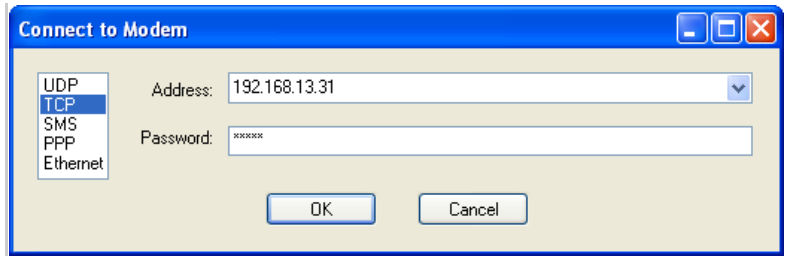
Figure 0-15: AceManager : TCP

Using USB Ethernet with a Terminal Emulation Utility

Configure your terminal application for telnet communication.

a. In HyperTerminal, select TCP/IP (Winsock)

b. Use the IP address of the modem (*192.168.13.31* by default) as the destination and use the telnet port of the modem (*2332* by default).
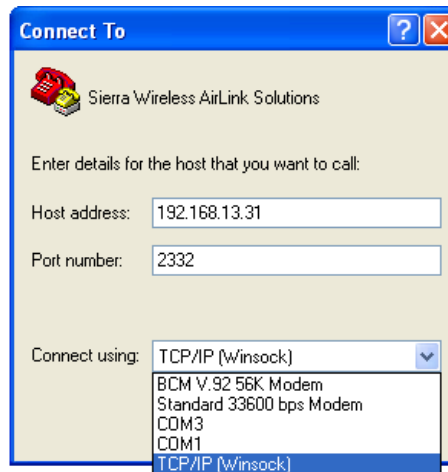
Figure 0-16: HyperTerminal : TCP

c. Enter the modem password (*12345* by default) when requested.

Using the Virtual Serial Port

Once the driver is installed, you can use the USB port just like a standard serial port.

Using the USB virtual serial port with AceManager

In AceManager, the USB virtual serial port connection will appear as a standard serial port. Use the PPP connection and select the COM#serial port of the USB connection.
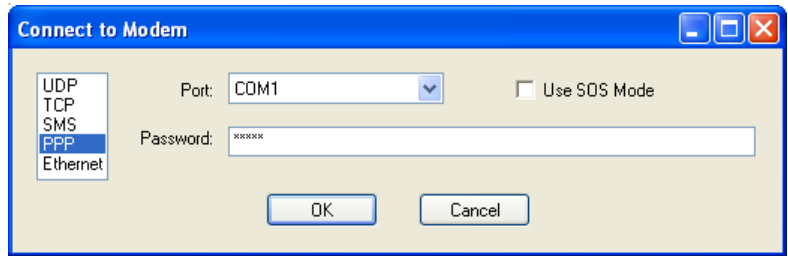
Figure 0-17: AceManager : PPP

Tip: *You will need to open AceManager after you connect the USB cable to your computer for AceManager to have access to the USB Serial PORT.*

Using the USB virtual serial port with a Terminal Emulation Utility

a. Select the serial port of the USB connection when prompted for a COM port.

b. Change the Bits per Second to 115200 (default), Data Bits to 8, Parity to None, Stop Bits to 1, and Flow Control to Hardware.

c. You should also need to make sure your connection uses Auto Detect for the terminal emulation.

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless AirLink modem are used in a normal manner with a well-constructed network, the Sierra Wireless AirLink modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless AirLink modem, or for failure of the Sierra Wireless AirLink modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless AirLink modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the Sierra Wireless AirLink modem **MUST BE POWERED OFF**. The Sierra Wireless AirLink modem can transmit signals that could interfere with this equipment.

Do not operate the Sierra Wireless AirLink modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless AirLink modem **MUST BE POWERED OFF**. When operating, the Sierra Wireless AirLink modem can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless AirLink modem may be used at this time.

The driver or operator of any vehicle should not operate the Sierra Wireless AirLink modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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