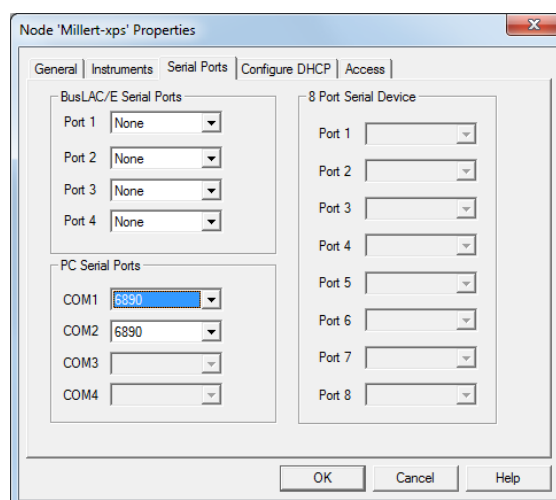


Serial Communications Support Using the Edgeport® USB-to-Serial Converter Cable

Introduction

Support for serial (RS-232) communications to chromatographic instruments in Empower Software has been implemented using the busLAC/E board serial ports, the Equinox 8-port serial card, the Avocent 8-port serial hub, and PC Serial Ports. Some instruments are not supported on some interfaces. Because no new serial instruments are being supported on the busLAC/E board and the Equinox card and Avocent hub are no longer available from the manufacturer, support for serial communications is now focused on the PC Serial Ports. In order to expand the choices available, support for some instruments has been added to the PC Serial Ports and additional PC Serial Ports have been activated. Beginning with Empower 3 Feature Release 2 (FR2), the Agilent 6890 GC can be supported using the COM port of a PC or LAC/E³² module:

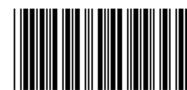


Empower 3 FR2 can support up to two serial instruments per PC or LAC/E³² module. Beginning with Empower 3 Service Release 2 (SR2), PC Serial Ports COM3 and COM4 have been enabled in Empower and up to four serial instruments can be supported using PC Serial Ports COM1 through COM4.

For computers or LAC/E³² modules that need additional serial ports, the Edgeport USB-to-serial converter cable, Waters part number 668000407, is available. The Edgeport USB-to-serial converter cable will provide a standard PC COM port to connect with the serial instrument—usually by connecting a second cable with wiring that is specific to the instrument. For example, an Agilent 6890 GC can be connected to the USB-to-serial converter using a 9-pin, female-to-female null-modem RS-232 cable such as Waters part number 441001561.



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This document will explain how to install the USB-to-serial converter cable and its Windows device driver. Connections to an Agilent 6890 GC are used for illustration.

Procedure

Obtain the Windows driver

Please refer to the insert in the Edgeport cable package or use the following link to obtain the appropriate Windows driver for the USB-to-serial converter cable:

<http://www.digi.com/support/productdetail?pid=2628&osvid=57&type=drivers>

(or go to: <http://www.digi.com/support> to search for “Edgeport” and select “Drivers”.)

Download the appropriate driver, 40002537_J.exe, for example, and copy it to the PC that will be controlling the serial instrument.

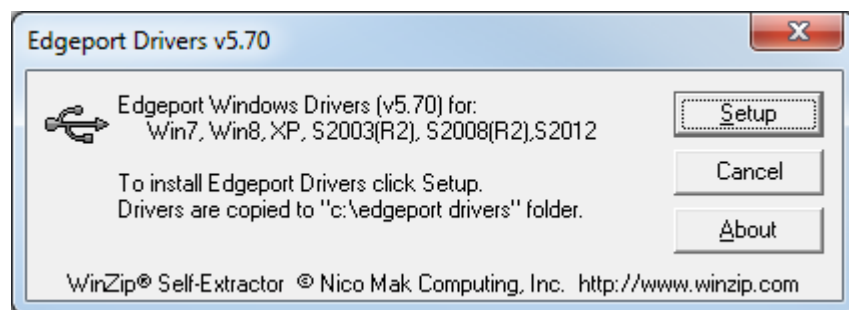
Connect the USB-to-serial cable to the PC and Install the Windows driver

Note: You must be logged into an account with administrator privileges before proceeding

1. Connect the USB cable to the PC.

If the computer is connected to the internet, the latest Microsoft certified drivers will be automatically downloaded from the Microsoft driver update server and installed; go to step 4. If not, continue with step 2.

2. Double-click on the .exe file, 40002537_J.exe, for example, to start the installation:



3. Click on **Setup** to extract and install the driver files; be patient, this process may take a few minutes.

Note the location of the driver files, **c:\edgeport drivers**

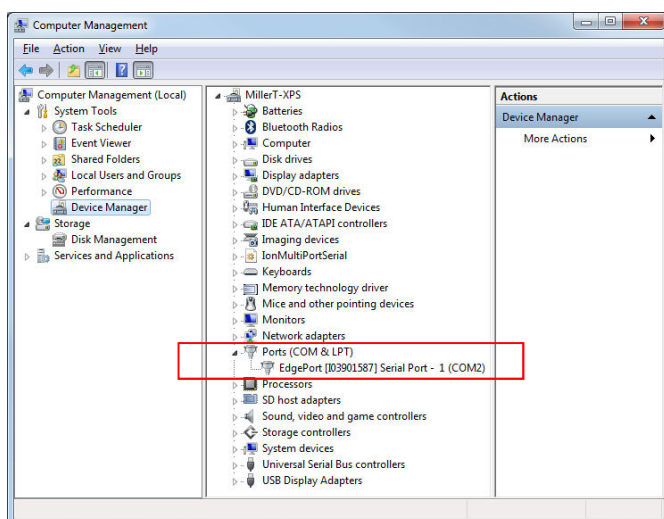
4. Wait while Windows finishes installing the driver files; the installation may take a few minutes.

Your new COM port(s), numbered sequentially following the existing ports in your system, is/are ready.

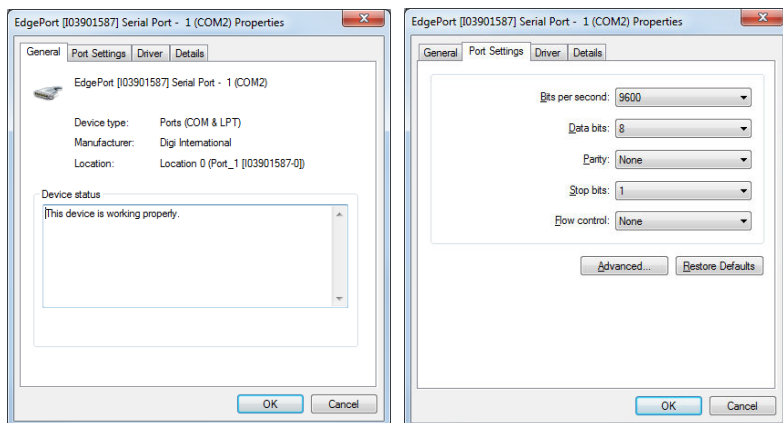
5. Click **Close** after the installation is complete.

Check and set the COM port number if necessary

In order to work with Empower Software, the PC COM port must be COM1, COM2, COM3, or COM4. PC COM3 and COM4 are only available with Empower 3 Service Release 2 and higher. You can check the COM port number using Windows Device Manager (Windows 7 shown) and change it if needed. When you open the Ports (COM & LPT) item in Device Manager, you will see the Edgeport device, its serial number (I03901587 in this example), and its COM port assignment (COM2 in this example).

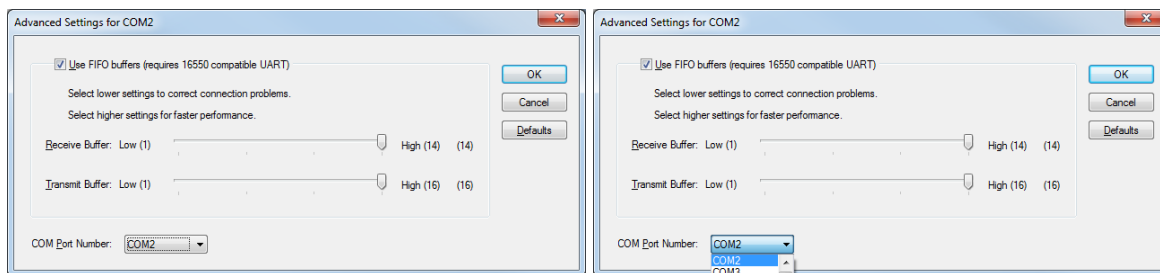


If you need to designate another COM port number, double-click on the Edgeport device in order to open its Properties window and click on the Port Settings tab:

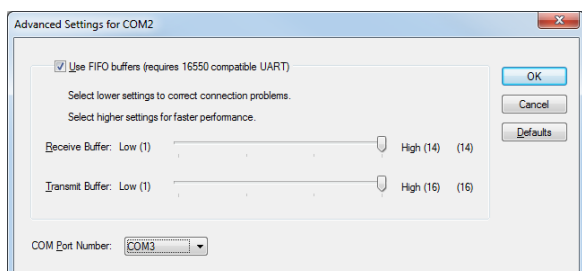


There is no need to adjust the Port Settings on this tab. These settings will be configured automatically by Empower Software during the "Configure Empower" step below.

Click on the Advanced... button and select the COM Port Number drop down:



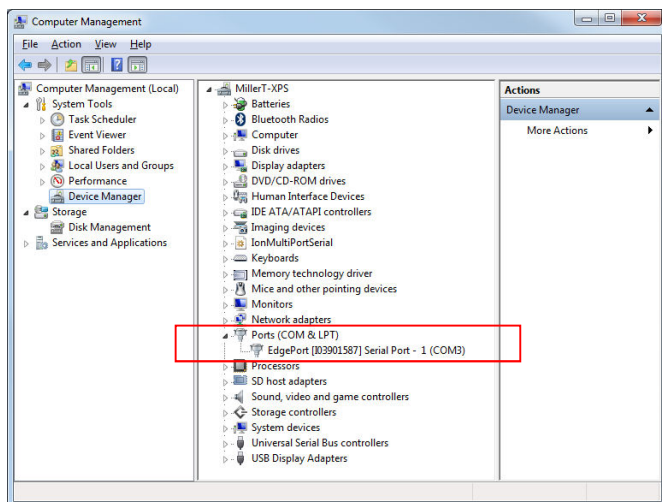
From the COM Port Number drop-down menu, select the COM port number that you would like to assign to the Edgeport device (COM3 in this example):



Click OK to close the Advanced Settings window.

Click OK to close the Properties window for the Edgeport device.

From Windows Device Manager, you will observe that the Edgeport device is now set to the new COM port number (COM3 in this example).



You must now reboot the PC in order for the new COM port to be recognized in Empower Software.

Install the stand-off nuts (optional)



Attach the instrument-specific cable to the PC COM port



OR



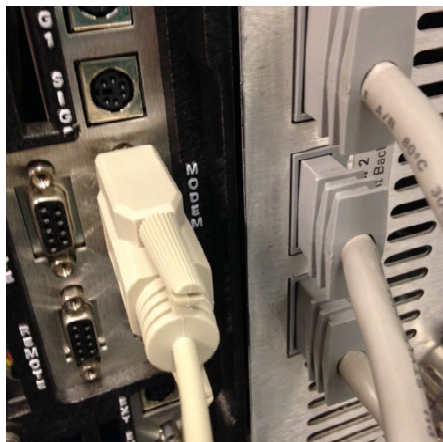
Note: connection to the null-modem cable, Waters part number 441001561, is shown.

Attach the instrument-specific cable to the instrument

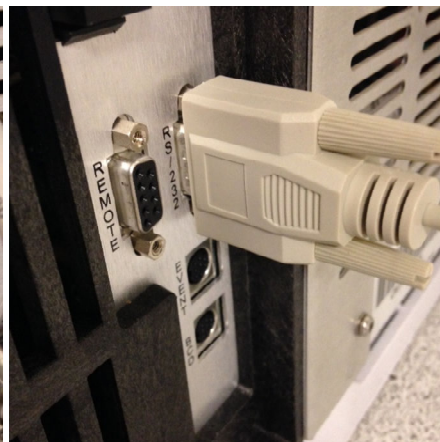
Note: the null-modem cable, Waters part number 441001561, and Agilent 6890 GCs are shown.



6890A



6890 Plus



6890N

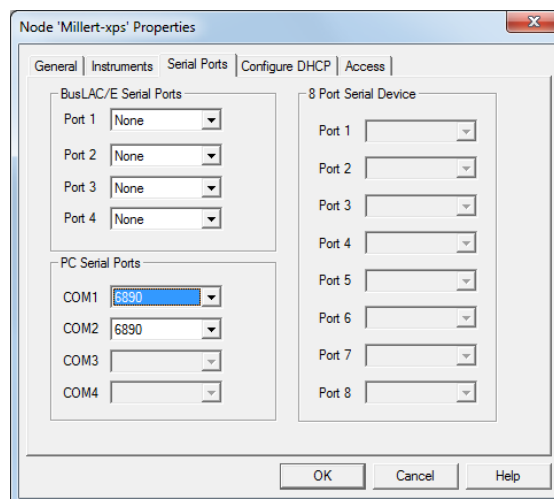
Configure the instrument-specific communication settings

Ensure the serial communications parameters for the instrument are set for the instrument. For the Agilent 6890 GC, use the Communications menu from the front panel to set the following:

Parameter	Setting
HPIB	0
Baud Rate	19200
Parity	None
Handshake	None
Data Bits	8
Stop Bits	1
End of Command	Carriage return (Enter)

Configure Empower

On the Serial Ports tab of the Empower Node Properties page, when a PC Serial Port is set to as instrument such as “6890,” Empower will configure the communication parameters of the PC Serial Port to match the requirements of the selected instrument.



Within Empower Software, PC Serial Ports COM1 and COM2 are always illuminated regardless of the configuration of the PC hardware. PC Serial Ports COM3 and COM4 will not illuminate until the hardware needed to support COM3 or COM4 is installed and configured.

Support for other instruments

- All Agilent 6890 GC instruments—the 6890A, 6890 Plus, and 6890N—controlled by Empower software are connected using serial communications as shown above.
- The Agilent 6850 GC (serial number less than 00003200) uses RS-232 cable 441001651 to connect to the PC Serial Port provided by the USB-to-Serial converter cable.
- The Agilent 7694 headspace sampler uses RS-232 cable 441001651 to connect to the PC Serial Port provided by the USB-to-Serial converter cable.
- When using the legacy ICS instrument driver for A1100 control, Agilent A1100 LC modules use RS-232 cable 441001651 to connect to the PC Serial Port provided by the USB-to-Serial converter cable. Operation of 3D detectors (DAD and FLD) is not supported when using PC Serial Port communications.
- The Waters busSAT/IN module uses RS-232 cable 441000294 included in the busSAT/IN Startup Kit to connect to the PC Serial Port provided by the USB-to-Serial converter cable. Operation of the busSAT/IN module using “split” channels is not possible when using PC Serial Port communications.
- The Waters 2465 Electrochemical detector uses RS-232 cable part number 700001942 to connect to the PC Serial Port provided by the USB-to-Serial converter cable.
- The Waters Fraction Collector III (WFC III) uses RS-232 cable part number 441000308 to connect to the PC Serial Port provided by the USB-to-Serial converter cable.
- For other instruments using serial communication, please refer to the instrument manual for cable and connection requirements.