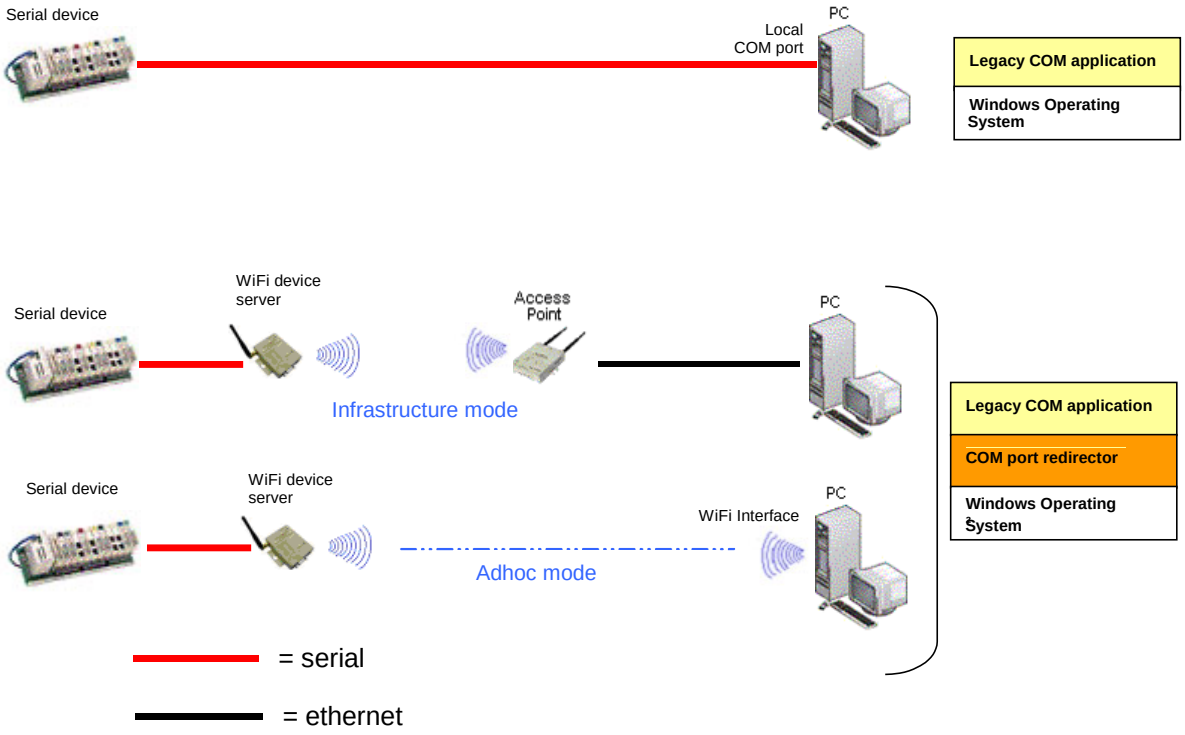
APPLICATION NOTE
Ref APNUS002 rev. A-0,
July 31, 2007

Virtual COM port with a wireless device server



Virtual COM port allows using a legacy Windows COM port application (designed for a local P.C. COM port), with a serial port located behind a Wi-Fi TCP/IP device server. To do that, a piece of software, called COM port redirector, is necessary.

A COM port redirector is a network-enabling software utility for legacy serial COM port software applications that do not have network support. **VIP** is the COM port redirector written by ACKSYS.

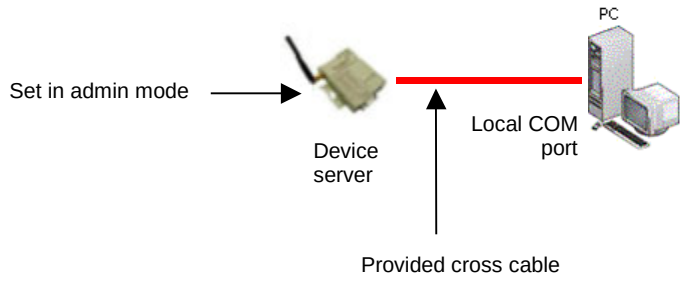
This application note will focus on the Wi-Fi device server setup and on the installation of the redirector software. It describes neither the setup of the access point, nor the PC Wi-Fi interface, nor the rules to select the IP address used for the Wi-Fi device server.

List of ACKSYS WiFi device servers supported:

WL COMETH
WL DONGLE
WL ABOARD/S
WL IDA/S

ACKSYS COMMUNICATIONS & SYSTEMS

STEP 1: WI-FI DEVICE SERVER CONFIGURATION



Enter admin mode

Set the **Wi-Fi device server** to admin mode (using the dedicated switch)

Connect the **Wi-Fi device server** to a PC local COM port with the provided cross cable

Connect the **Wi-Fi device server** power supply

Run a terminal emulator (e.g. HyperTerminal) :

Configure the COM port according to the following parameters:

- Baud: 2400
- Parity: None
- Data Bits: 8
- Stop Bits: 1
- No flow control (XON/XOFF, RTS/CTS...)

In the terminal emulator window, hit the “enter” key to display the device admin prompt **root>**
Now, the **Wi-Fi device server** is ready to execute configuration commands.

Execute configuration commands

Check the firmware running into the **Wi-Fi device server**.

root > show version

SERVERCOM is the right firmware. If not, you have to download SERVERCOM into device’s FLASH memory.

Restore all factory settings

root > set default

Configure TCP/IP parameters

root > set net ip <your ip address>
root > set net mask <your subnet mask>
root> set serial port 2300
root> set serial mode rfc2217

Configure Wi-Fi parameters

root > set net mode ad-hoc
or
root> set net mode infra
root > set net channel <your channel value from 1 to 13>
root > set net ssid <your ssid>

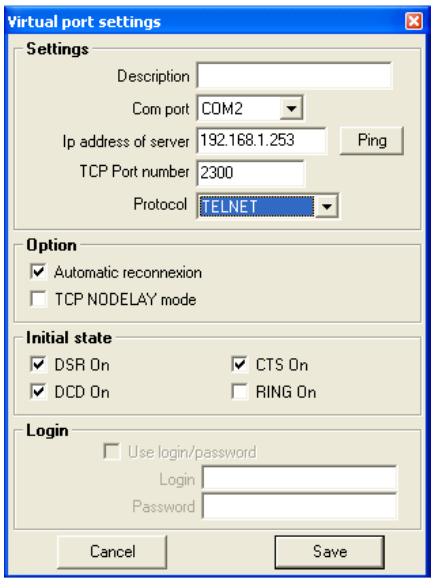
Save configuration

root> save
root> reset

Disconnect the COM port in the terminal emulator. Unplug the serial cable and set the device server back to normal mode (switch position opposite to admin mode).

STEP 2: INSTALL VIRTUAL COM PORT

VIP installation



To install the VIP COM port redirector software, run VipSetup.exe, supplied on the CD ROM shipped with the product.

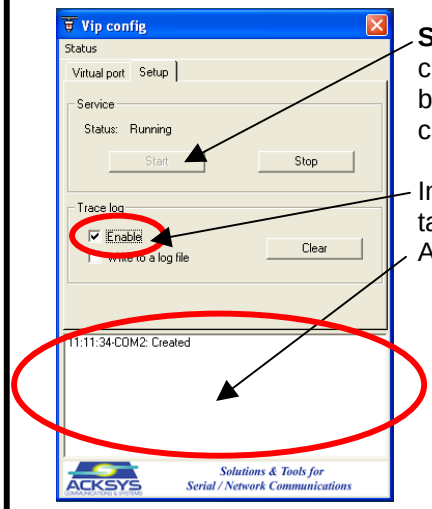
Run Vip config (from the previously installed VIP folder).

Click the “New” button on the “Virtual Port” tab.

Choose COM port, IP address & TCP port of the device server (the default TELNET protocol enables remote com port option support, also called TELNET RFC2217, against RAW protocol).

Click the “Ping” button to verify the network connectivity with the device server.

Save the virtual COM port.



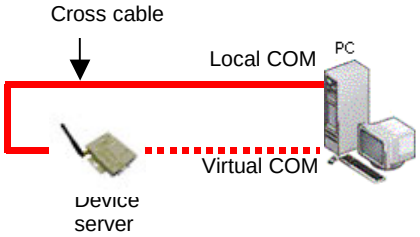
Start the service with the “Start” button in “Setup” tab. This command will create COM port. Caution, “create” does not mean “open”. The port will be really opened by the Windows application (by a CreateFile system call). If successful, the service status becomes “Running”.

In case of problems, activate the trace log Enable check box in the setup tab and read messages.
All VIP status/Error messages are written in this area.

Recommended checking

Connect a RS232 cross cable between the local COM port and the serial port of the device server

Run a terminal emulator on local COM port and VIP/virtual COM and configure according to the default values of the device server serial port: 9600 bauds, no parity, 8 data bits, 1 stop Bit, no flow control (XON/XOFF, RTS/CTS...)



Test TX/RX exchanges in both ways, from local COM to virtual COM and virtual COM to local COM

Data can now be transferred between the local and virtual COM ports.

STEP 3 : FINAL CONFIGURATION OF THE DEVICE SERVER

You are now ready to configure the serial interface of the ACKSYS device server.

Connect a RS232 cross cable between the local COM port and the serial port of the device server.

Run the terminal emulator and configure to 2400 baud, 8 data bits, 1 stop bit, no parity, flow control disabled (hardware as well as software).

Set up the device server to admin mode and reboot it.

Setting the electrical interface of ACKSYS device: RS232 or RS422 or RS485

RS232

root> set serial interface rs232

RS 422 (two RS422 serial interfaces can be selected: RS422 master or RS422 slave)

root> set serial interface rs422 master

or

root> set serial interface rs422 slave

RS422 master is used in point to point RS422 link or in multipoint RS422 link for the master only.

RS422 slave is used in multipoint RS422 link for the slaves only.

RS485 (RS485 can be selected with or without echo)

root> set serial interface rs485 noecho (most common variant)

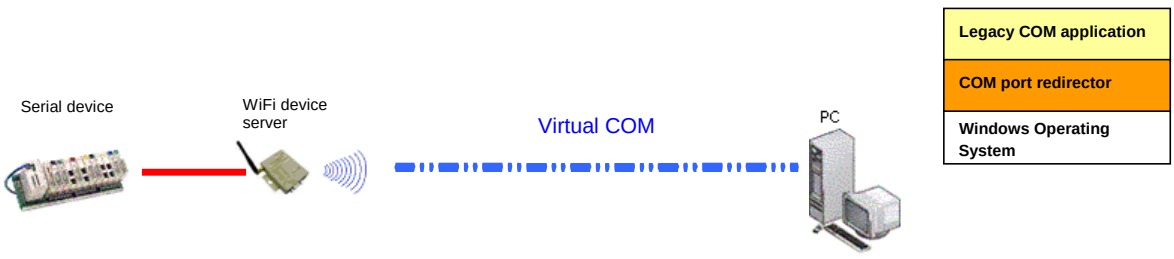
or

root> set serial interface rs485 echo (seldom used variant)

Installing the serial device with the relevant cable

Cabling:
If RS232 is selected, a cross cable is necessary if your serial device is DTE and a straight cable if your device is DCE.
If RS422 or RS485 is selected, be careful about the +/- meaning. Use of A/B is preferred.
There is no risk to destroy devices by inverting signals.

Set up ACKSYS Wi-Fi device server to normal mode (opposite to admin mode).
Connectivity is now ready between serial device and the virtual COM port.



The serial device can now be handled by the legacy windows application through the wireless network

TROUBLESHOOTING

In most cases, a legacy Windows application that uses redirector software encounters no problems. But some applications are not well suited for use with a redirector.

Some applications have timing constraints, by example for data transmitted and received on COM ports or can work only if they have direct access to the serial device being managed.

With a redirector, because of the TCP/IP connection time, network load…, latency can occur.
As a result, this kind of applications may time out, erroneously detect errors or believe that the serial device is not responding.

The only issue in this case is to modify the application source code.