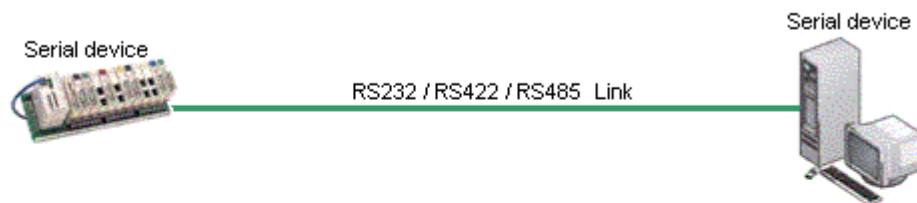


APPLICATION NOTE

Ref APNUS001 rev. A-0,
January 2, 2005

Wireless serial cable using WiFi devices servers

BEFORE :



AFTER :



This application note describes how to replace a RS232/422/485 cable between 2 serial devices by using WiFi wireless link.

Two ACKSYS WiFi serial devices servers are required; one device should be set in TCP client mode, the other one in TCP server mode.

List of ACKSYS WiFi device servers supported:

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

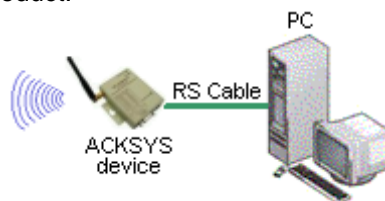


STEP 1 : BASIC CONFIGURATION OF ACKSYS DEVICES

All instructions must be executed on each ACKSYS device, unless otherwise noted.

Configure to admin mode

1. **Connect** power supply to device
2. **Set up** device to admin mode (thanks to a dedicated switch)
3. **Connect** ACKSYS device to the RS232 serial port of the PC (e.g. COM1) with the cross cable shipped with the product:



4. **Run** a terminal emulator (e.g. HyperTerminal ...):
Configure the PC COM port according to the following parameters:
 - Baud rate: 2400
 - Parity: None
 - Data Bits: 8
 - Stop Bits: 1
 - No handshake (XON/XOFF, RTS/CTS)

In the terminal emulator window, hit the "enter" key to display the device admin prompt **root>**
Now, ACKSYS device is ready to execute configuration commands.

Configure parameters

1. Restore default parameters
root> set default
root> save
2. Set to AD-HOC mode
root> set net mode ad-hoc
3. Choose the WIFI radio Channel (6 for example but any other channel can be selected)
root> set net channel 6
4. Configure the SSID (acksys for example, any other name can be chosen)
root> set net ssid acksys
5. Configure IP address (**x = 1 for device #1, x = 2 for device #2**)
root > set net ip 192.168.0.x
root > set net mask 255.255.255.0

Install relevant firmware to each device

Device #1 is arbitrary chosen as the TCP SERVER and relies on the TCP server mode. TCP server mode belongs to the SERVERCOM firmware. This is the default firmware installed upon delivery. So the only command to execute is:

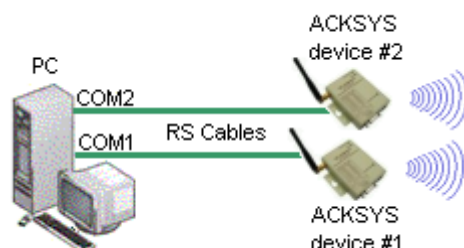
1. set TCP/IP raw mode
root> set serial mode raw
2. Save configuration
root> save
root> reset
3. **Disconnect** COM port in the terminal emulator, **Unplug** the RS cable and **Set up** ACKSYS device to normal mode (opposite to admin mode)

Device #2 consequently chosen as the TCP CLIENT relies on the TCP client mode. This mode belongs to the TCP/CLIENT firmware. Prior to use this firmware, it must be copied to the device's FLASH memory (caution, this operation will erase the SERVERCOM firmware or any other firmware previously written).

1. Allow upgrade
root> set upgradeperm allow
2. Save configuration
root> save
root> reset
3. After reset, the administration mode does not work anymore. This is normal. **Configure** terminal to 115200 bauds, and type "C" (in upper case). "CLIENTSERVER" must appear in the terminal window. If you can see this text, close the terminal window. The ACKSYS device is now in SLIP mode.
4. **Make** on your P.C a new network connection, SLIP type, with IP address **192.168.2.1**. It is a network connection with a serial port instead of a 10/100/1000 network controller. For further informations about SLIP, see the <WL-ComethUserGuide (DTUS044).pdf> documentation paragraph VIII.8.3.
Warning, before installing a SLIP interface, disconnect all the others network connection. Disconnect the PC COM port in the HyperTerminal Window.
5. **Download** TCP client firmware into device's FLASH memory
Run a dos prompt and type : "**tftp -i 192.168.2.254 put wIB_1v_tcpclient_vx.x.x.x.ftp /**"
ftp file is supplied with ACKSYS CD or can be downloaded from ACKSYS web site.
Don't forget the « / » character at the end of the command line.
After downloading, ACKSYS device returns automatically to admin mode.
6. From your P.C, **disconnect** the SLIP interface and reconnect all your previously disconnected network connections
7. **Run** the terminal emulator and configure to 2400 baud, 8 data bits, 1 stop bits, no parity, flow control disable.(hardware and software)
In the terminal emulator Window, hit enter key to display the device admin prompt **root>**
8. **Choose** the server's IP address & TCP port. The client device will automatically connect to this server during power on.
root> set net server 0 192.168.0.1 2300
9. **Save** configuration
root> save
root> reset
10. **Disconnect** COM port in the terminal emulator, **Unplug** the RS cable and **Set up** ACKSYS device to normal mode (opposite to admin mode)

STEP 2 : RECOMMENDED CHECKING

1. **Verify** that the SLIP interface is disconnected
2. **Verify** that ACKSYS devices are set to normal mode (opposite to admin mode)
3. **Connect** each ACKSYS device on a PC port COM with the provided cable. Two PCs are necessary if only one COM port is available in your PC.



4. **Run** a terminal emulator on each COM port and configure to 9600 baud, 8 data bits, 1 stop bits, no parity, flow control disable.(hardware and software)
5. **Test** TX/RX exchanges in both ways, from COM1 to COM2 and from COM2 to COM1

If unsuccessful,

- check RS cables
- check if COM port settings are matching ACKSYS device settings and PC COM port settings.
- Check the “diag” led on the client device. If the Diag led blinks five times per second, it indicates that connection is not established with the TCP server. In this case check network configuration of the two ACKSYS devices.

6. **Unplug** RS cables.

STEP 3 : FINAL CONFIGURATION OF ACKSYS DEVICES

Now, you're ready to configure the serial interface of ACKSYS device according to the settings of the serial device.

1. **Run** the terminal emulator and configure to 2400 baud, 8 data bits, 1 stop bits, no parity, flow control disable.(hardware and software)
2. **Set up** device to admin mode and reboot it

Setting the electrical interface : 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
```

or

```
root> set serial interface rs485 echo
```

Setting the baudrate

```
root> set serial baudrate value (by ex: set serial baudrate 9600)
```

Setting the serial format

```
root> set serial format bytesize parity stops (by ex: set serial format 8 n 1)
```

Installing the serial devices

Set up ACKSYS device to normal mode (opposite to admin mode)



Cabling :

If RS232 is selected, a cross cable is necessary if your 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.

If installation is correct, data can be transferred between the two serials devices through the wireless network.