

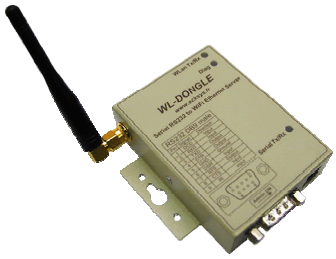


Wi-Fi PORT SERVERS
USER'S GUIDE

TABLE OF CONTENTS

Wi-Fi PORT SERVERS USER GUIDE

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I PRODUCT LINE SPECIFICATIONS

I.1 WL-COMETH Product specifications

I.1.1 Characteristics

Wi-Fi 802.11b port server with one serial port
Metal housing
RS232, RS422A/RS485 serial interface
External DC power supply for WL-COMETH-DC
Integrated AC power supply for WL-COMETH
Also available in weather proof version (IP65) (with plastic housing)

I.1.2 Power supply

WL-COMETH-DC : screw terminal connector (3 pins)
External power 9 to 36 Vdc
Power consumption : 3W max (300 mA at 9 Vdc)

PIN	Signal name	Description
1	GND	Protective ground
2	+VDC	Positive power supply
3	EARTH	Ground power supply

WL-COMETH : Integrated universal 85-264 Vac
Main power 85 to 264 Vac, 47-440 Hz, 3W max
Power supply protection by current limitation

I.1.3 WLAN interface

WIFI 802.11b interface, speed 1,2,5.5,11 Mbps
300 m (984 ft) nominal range (open space) from access point, 60 m (200 ft) in other cases.

I.1.4 Mechanical characteristics

Metal version
Metal housing
Size: 10×17×4 cm (4×6.7×1.6 in) (antenna plugs not included, fastening included)
Weigth : 0.450 Kg (0.99 lbs)

Weatherproof version
Plastic housing
Size: 11,6×16,4×36 (4.6×6×13 in) (antenna plugs not included, fastening included)
Weigth : 0.350 Kg (0.77 lbs)

I.1.5 Serial interface

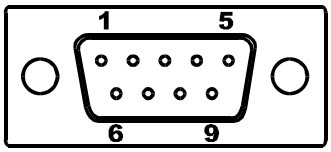
The type of serial interface is selectable through the administration system. You can use RS232 or RS422A/RS485 but not both simultaneously.

The serial interface benefits a 15 kV ESD protection.

I.1.5.1 RS232

Full RS232 EIA/TIA 574 Serial interface

male DB9 with DTE cabling

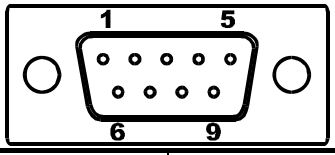


PIN	Signal name	Direction
1	DCD	Input
2	RxD	Input
3	TxD	Output
4	DTR	Output
5	GND	Digital ground
6	DSR	Input
7	RTS	Output
8	CTS	Input
9	RI	Input

I.1.5.2 RS422A/RS485

EIA RS422A/RS485 – CCITTV11 serial interface
Master or Slave selection by software
Built-in automatic turn-around
Line polarization and terminating resistor selection by switch
RS422A/RS485 protection against temporary line voltage surges by peaks, breakdown voltage +/-6.5V in common and differential mode, capacitance 0.3 kW over 8/20 µs

	male DB9	
Pin	RS422A	RS485
1	Reserved	Reserved
2	Reserved	Reserved
3	TxB	Reserved
4	RxB	TRxB
5	Digital ground	
6	Reserved	Reserved
7	Reserved	Reserved
8	TxA	Reserved
9	RxA	TRxA



Terminating resistor enable push switch in on position
Terminating resistor disable push switch in off position
Polarisation resistor enable push both switches in on position
Polarisation resistor disable push both switches in off position

I.1.6 Led indicators

- Power
- Diagnostic / general-purpose mode / error detection / reboot indicator
- Asynchronous interface Rx/Tx activity
- WLAN interface Rx/Tx activity
- RF signal quality on WLAN interface (6 LEDs)
- Enabled serial interface (RS232 / RS4xx)

I.1.7 Switches

- One switch allows selection between the two operating modes (Administration / Exploitation).
- Two switches for polarization resistor.
- One switch for terminating resistor.

I.1.8 Antennas

Two omni-directional antennas, 2dBi. You can replace them by an antenna with more gain, through the external antenna (RSMA) connector.

I.1.9 Environmental limitations

Operating temperature: 0°C to 65°C (32 to 149 °F).
Storage temperature: -40°C to +85°C (-40 to +185 °F).
Humidity: 0-95% RH (without condensation)

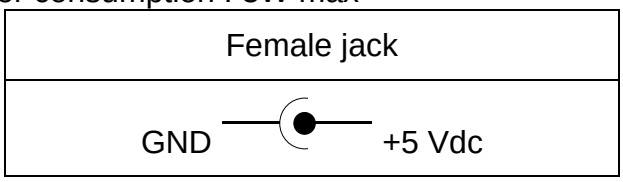
I.2 WL-DONGLE product specifications

I.2.1 Characteristics

Wifi 802.11b port server with one serial port
Metal housing
WIFI interface (802.11b) at 11 Mbit/s
RS232 15 kV ESD protection
External power supply 5 VDC with jack connector

I.2.2 Power supply

External power supply 5 VDC
Power consumption : 3W max



I.2.3 WLAN interface

WIFI 802.11b interface, speed 1, 2, 5.5, 11 Mbps
300 m (984 ft) nominal range (open space) from access point, 60 m (200 ft) in other cases.

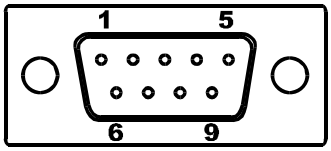
I.2.4 Mechanical characteristics

Metal housing
Size: 7.9×5.8×2.3 cm (3×2.2×0.8 in) (antenna plugs not included)
Weight : 0.110 Kg (0.24 lbs)

I.2.5 Serial interface

Full RS232 EIA/TIA 574 Serial interface

male DB9 with DTE cabling



PIN	Signal name	Direction
1	DCD	Input
2	RxD	Input
3	TxD	Output
4	DTR	Output
5	GND	Digital ground
6	DSR	Input
7	RTS	Output
8	CTS	Input
9	RI	Input

I.2.6 Led indicators

- Diagnostic / general-purpose mode / error detection / reboot indicator
- Asynchronous interface Rx/Tx activity
- WLAN interface Rx/Tx activity

I.2.7 Switches

One switch allows selection between the two operating modes (Administration / Exploitation).

I.2.8 Antennas

One omni-directional antenna. You can replace it by an antenna with more gain, through the external antenna (RSMA) connector.

I.2.9 Environmental limitations

Operating temperature: -10°C to 60°C (14 to 140 °F).
Storage temperature: -40°C to +85°C (-40 to +185 °F).
Humidity: 0-95% RH (without condensation)

I.3 WL-DONGLE-OEM product specifications

I.3.1 Characteristics

Wifi 802.11b port server with one serial port
WIFI interface (802.11b) at 11 Mbit/s
RS232 (DB9 connector) or TTL (HE10 connector) interface
External power supply 3.3/5 VDC

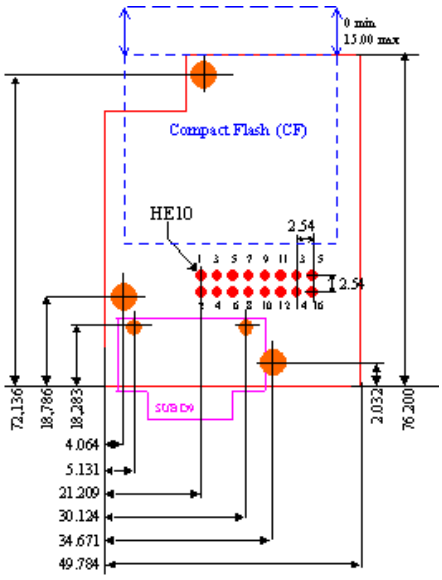
I.3.2 Power supply

External power supply 3.3 Vdc or 5 Vdc on the HE10 connector

I.3.3 WLAN interface

WIFI 802.11b interface, speed 1, 2, 5.5, 11 Mbps
300 m (984 ft) nominal range (open space) from access point, 60 m (200 ft) in other cases.

I.3.4 Mechanical characteristics



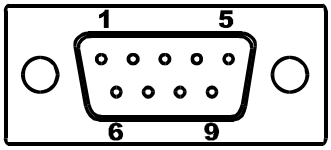
(All sizes in millimeters)

I.3.5 Serial interface

Full RS232 EIA/TIA 574 Serial interface

I.3.5.1 WL-DONGLE-OEM-232 version

male DB9 with DTE cabling



PIN	Signal name	Direction
1	DCD	Input
2	RxD	Input
3	TxD	Output
4	DTR	Output
5	GND	Digital ground
6	DSR	Input
7	RTS	Output
8	CTS	Input
9	RI	Input

I.3.5.2 WL-DONGLE-OEM-TTL version

HE10		
Pin	Characteristics	Signal
2	3.3V (3Wmax)	Power supply if 5V is not used
15	5V (3Wmax)	Power supply if 3.3V is not used
16		GND
3	Inputs (3.3V) Vih =1.8Vmin Vil =1.0Vmax	RI (active low)
7		RX (active low)
8		DCD (active low)
9		DSR (active low)
13		CTS (active low)
14		Enable the administration mode through the serial port (active low)
6	Output (3.3V) Voh =2.4Vmin Vol =0.4Vmax 24mA	TX (active low)
5	Outputs (2.5V) Voh =1.8Vmin Vol =0.4Vmax 4mA	RTS (active low)
12		DTR (active low)
1	Outputs (3.3V) Voh =3.1Vmin Vol =0.2Vmax 32mA	Turn-around for RS485 (active high)
4		Driver for WLAN activity LED (active low)
10		Driver for SERIAL activity LED (active high)
11		Driver for DIAG activity LED (active high)

I.3.6 Led and status indicators

4 TTL status outputs on the HE10 connector:

- Diagnostic / general-purpose mode / error detection / reboot indicator
- Asynchronous interface Rx/Tx activity
- WLAN interface Rx/Tx activity
- RS485 turn-around indicator

The first three status outputs are also displayed on LEDs.

I.3.7 Switches

1 TTL control intputs on the HE10 connector:
Operating mode (Administration / Exploitation).

I.3.8 Antennas

Micro-FLH connector. One omni-directional antenna is provided with the –EVAL versions only. Antennas can be ordered separately.

I.3.9 Environmental limitations

N/A.

I.4 WL-IDA/S product specifications

I.4.1 Characteristics

Wi-Fi 802.11b port server with one serial port
Metal case, DIN RAIL assembly
RS232, RS422A/RS485 serial interface
External DC power supply

I.4.2 Power supply

WL-IDA/S : screw terminal connector (3 pins) External power 7 to 60 Vdc Power consumption : 3W max		
PIN	Signal name	Description
1	EARTH	Protective ground
2	+VDC	Positive power supply
3	GND	Ground power supply

I.4.3 WLAN interface

WIFI 802.11b interface, speed 1,2,5.5,11 Mbps
300 m (984 ft) nominal range (open space) from access point, 60 m (200 ft) in other cases.

I.4.4 Mechanical characteristics

Metal housing
Size: 110 × 72.50 × 32 mm (L × W × H) (antenna plugs not included, fastening included)
Weigth : 271.3 g (0.6 lbs)

I.4.5 Serial interface

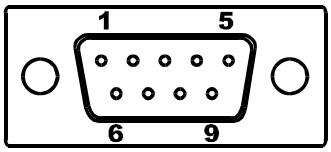
The type of serial interface is selectable through the administration system. You can use RS232 or RS422A/RS485 but not both simultaneously.

The serial interface benefits a 15 kV ESD protection.

I.4.5.1 RS232

Full RS232 EIA/TIA 574 Serial interface

male DB9 with DTE cabling



PIN	Signal name	Direction
1	DCD	Input
2	RxD	Input
3	TxD	Output
4	DTR	Output
5	GND	Digital ground
6	DSR	Input
7	RTS	Output
8	CTS	Input
9	RI	Input

I.4.5.2 RS422A/RS485

EIA RS422A/RS485 – CCITTV11 serial interface
Master or Slave selection by software
Built-in automatic turn-around
Line polarization and terminating resistor selection by switch
RS422A/RS485 protection against temporary line voltage surges by peaks, breakdown voltage +/-6.5V in common and differential mode, capacitance 0.3 kW over 8/20 µs

5 pins connector

Pin / Mode	**1**	**2**	**3**	**4**	**5**
RS422 (4 pins)	TxA Output	TxB Output	RxA Input	RxB Input	GND
RS485 (2 pins)			TxRxA In/Out	TxRxB In/Out	GND

Terminating resistor enable push switch in on position
Terminating resistor disable push switch in off position
Polarisation resistor enable push both switches in on position
Polarisation resistor disable push both switches in off position

I.4.6 Led indicators

- Power
- Diagnostic / general-purpose mode / error detection / reboot indicator
- Asynchronous interface Rx/Tx activity
- WLAN interface Rx/Tx activity
- RF signal quality on WLAN interface (4 LEDs)

I.4.7 Switches

- One switch allows selection between the two operating modes (Administration / Exploitation).
- Two switches for polarization resistor.
- One switch for terminating resistor.

I.4.8 Antennas

One omni-directional antenna, 2dBi. You can replace it by an antenna with more gain, through the external antenna (RSMA) connector.

I.4.9 Environmental limitations

Operating temperature: -10°C to 60°C (14 to 140 °F).
Storage temperature: -40°C to +80°C (-40 to +176 °F).
Humidity: 0-99% RH (without condensation)

I.5 WL-ABOARD/S product specifications

I.5.1 Characteristics

Wi-Fi 802.11b port server with one serial port
Cast aluminum housing tailored for all on-road requirements (sealed to IP66, AUTOMOTIVE E2, shock & vibration proof MIL-STD-810F)
RS232, RS422A/RS485 serial interface
External DC power supply (not supplied)

I.5.2 Power supply

WL-ABOARD/S : screw terminal connector (3 pins) External power supply 7 to 60 Vdc (3 W max.)		
Internal (J1) connector pin	Signal name	External cable color
1	GND	black
2	+VDC	red

I.5.3 WLAN interface

WIFI 802.11b interface, speed 1,2,5.5,11 Mbps
300 m (984 ft) nominal range (open space) from access point, 60 m (200 ft) in other cases.

I.5.4 Mechanical characteristics

Wall mounting
Cast aluminum housing (sealed to IP66, AUTOMOTIVE E2, shock & vibration proof MIL-STD-810F)
Size: 115 x 64 x 35 mm (L x W x H) (antenna plugs not included)
Weigth : 0.375 kg (0.83 lbs)

I.5.5 Serial interface

The type of serial interface is selectable through the administration system. You can use RS232 or RS422A/RS485 but not both simultaneously.

The serial interface benefits a 15 kV ESD protection.

The internal J2 connector is prolonged outside the box with a cable holding a DB9 connector.

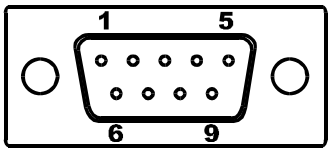
I.5.5.1 Internal connector (J2)

Pin / Mode	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
RS232	RI in	DCD in	RX in	TX out	RTS out	CTS in	DTR out	DSR in	GND data
RS422 (4 wires)	RxA in			TxB out		TxA out	RxB In		
RS485 (2 wires)	TxRxA In / out						TxRxB In / out		
Color	Grey	Black	Brown	Red	Blue	Purple	Orange	Green	Yellow

I.5.5.2 RS232

Full RS232 EIA/TIA 574 Serial interface

male DB9 with DTE cabling

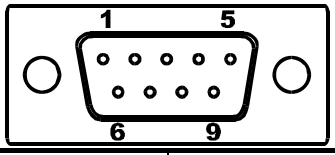


PIN	Signal name	Direction
1	DCD	Input
2	RxD	Input
3	TxD	Output
4	DTR	Output
5	GND	Digital ground
6	DSR	Input
7	RTS	Output
8	CTS	Input
9	RI	Input

I.5.5.3 RS422A/RS485

EIA RS422A/RS485 – CCITTV11 serial interface
Master or Slave selection by software
Built-in automatic turn-around
Line polarization and terminating resistor selection by switch
RS422A/RS485 protection against temporary line voltage surges by peaks, breakdown voltage +/-6.5V in common and differential mode, capacitance 0.3 kW over 8/20 µs

	male DB9	
Pin	RS422A	RS485
1	Reserved	Reserved
2	Reserved	Reserved
3	TxB	Reserved
4	RxB	TRxB
5	Digital ground	
6	Reserved	Reserved
7	Reserved	Reserved
8	TxA	Reserved
9	RxA	TRxA



Terminating resistor enable push switch 4 in on position
Terminating resistor disable push switch 4 in off position
Polarisation resistor enable push switches 2-3 in on position
Polarisation resistor disable push switches 2-3 in off position

I.5.6 Led indicators

- Power
- Diagnostic / general-purpose mode / error detection / reboot indicator
- Asynchronous interface Rx/Tx activity
- WLAN interface Rx/Tx activity
- “RS422/RS485 activated” indicator

I.5.7 Switches

- One switch allows selection between the two operating modes (Administration / Exploitation).
- Two switches for polarization resistor.
- One switch for terminating resistor.

I.5.8 Antennas

One omni-directional antenna, 2dBi. You can replace it by an antenna with more gain, through the external antenna (RSMA) connector.

I.5.9 Environmental limitations

Operating temperature: -25°C to 80°C (-13 to 176 °F).
Storage temperature: -40°C to +80°C (-40 to +176 °F).
Humidity: 0-99% RH (without condensation)

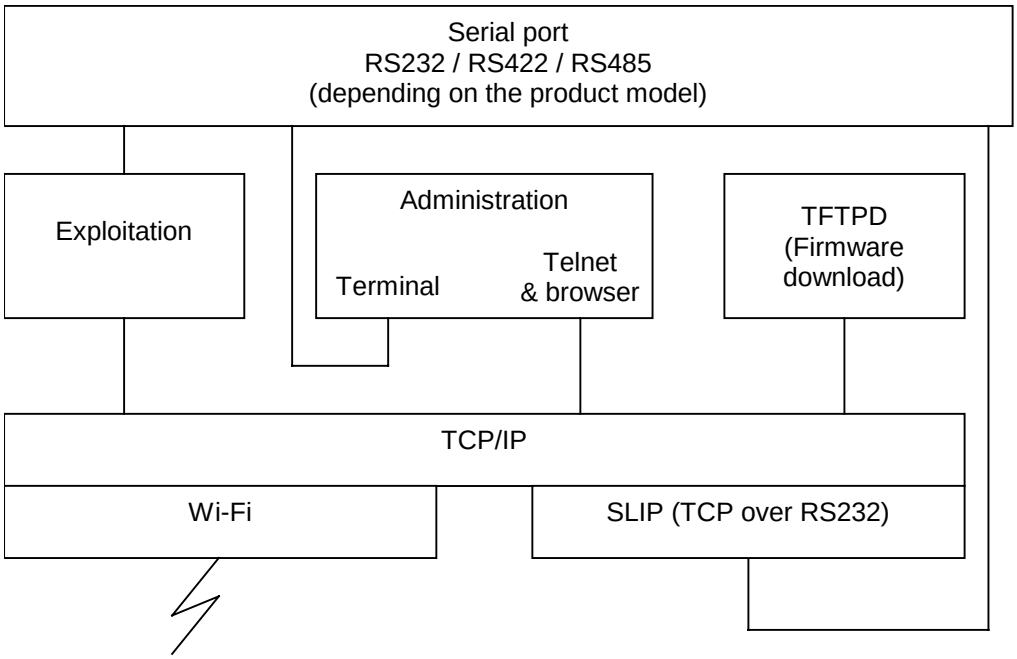
II ARCHITECTURE OVERVIEW

This line of products is equipped with a replaceable embedded firmware. The firmware comes in several flavors to suit different application needs (COM port redirection, MODBUS, multidrop connections, etc.)

The factory preinstalled firmware is called SERVERCOM and is mainly used for virtual COM port redirection. Alternative firmwares are provided on the distribution media and on our web site, to enable yet enlarged functionality.

All firmwares share a common architecture:

- An exploitation module does the work, converting serial data from and to network frames.
- An administration module with CLI and browser interface allows parameters setup,
- A TFTPD module allows firmware changes and upgrades,



Based on this architecture, three operating modes are available:

- Exploitation mode (Admin switch OFF): Exploitation and Administration modules are available, TFTPD is available depending on the “upgradeperm” administration command. The serial interface handles the exploitation module only. Other modules are accessible through the WiFi interface only.

  In this mode, you can use TELNET or Internet Explorer 6 (but not both at the same time) to administrate the product.

- Terminal administration mode (Admin switch ON, upgradeperm command OFF): Only the administration module is available, and only through the serial interface (at 2400 bauds).

- SLIP administration mode (Admin switch ON, upgradeperm command ON): Administration and TFTPD modules are available, but only through the serial interface (at 115200 bauds) using the TCP/IP/SLIP stack of protocols.

III ADMINISTRATION

You can access the administration mode by four means :

1. Serial terminal through the RS232 serial port,
2. Browser administration tool through network (WLAN or SLIP),
3. TELNET through network (WLAN or SLIP).

The RS232 administration is activated by pushing the « ADMIN » switch to the ON position. This forbids parallel use of the port server for data transfer. Use this means to set up basic network connectivity (SSID, IP address or SLIP mode).

The browser administration tool can be used once network connectivity is achieved. You must first install it on a computer supporting at least internet explorer 6.0.

You run the browser administration tool by clicking on the desktop icon which was added during the installation.

You can then use simple browser menus. The browser converts transparently your configuration changes to TELNET administration commands understandable by the port server.

The TELNET administration can be used once network connectivity is achieved. It is activated by TELNETing to the IP address of the port server. In this way data transfer can proceed in parallel. This is useful for probing the configuration without changing it.

When TELNETing to one out of many port server, you can wonder which device you are accessing. In the port server there is a field called « location » that you can set up and display, to reflect the physical location of the device.

The SLIP administration mode should be used in only one case: when you want to upgrade your port server firmware and you have neither an access point nor a WiFi card to connect to.

SLIP mode is activated by pushing the admin switch to on position when the “upgradeperm” is set to “allow”. You can then use the SLIP interface as a network interface (with TFTP, TELNET, or browser administration).

The SLIP administration is automatically reset to RS232 administration after a successful upgrade or by setting “*upgradeperm*” to “*deny*”.

If you want to manually return in RS232 administration mode, make a TELNET on the SLIP IP address of port server and reset upgradeperm (command “set upgradeperm deny”). Save your configuration and reset the port server. After reset your port server is in RS232 administration mode, but upgrade is not available anymore.

See section Use the SLIP connection for more detail on SLIP connection, and see section Configure a SLIP connection to make a configuration.

III.1 Administration through RS232 serial port

III.1.1 Enter administration mode

Push the switch towards the « Admin » position. The DIAG light should blink twice per second. If it is not the case, try pushing the switch in the opposite direction.

III.1.2 Connect to a serial port

This step is required to change the default port server IP address. Below we describe how to do this with a PC with Windows. Other devices (ANSI console...) or operating systems (Linux with “minicom” or “cu”...) can be used, but this is beyond the scope of this manual.

III.1.3 Run Hyperterminal

When asked to choose a modem or port, select a direct connection to COMx (COMx being the COM port on which you plugged the port server).

Select the following port parameters : 2400 bauds (bits/second), 8 bits, parity none, 1 stop bit, no flow control.

Hyperterminal now displays a blank window. Hit the « ENTER » key to display the admin prompt

III.2 Administration through WLAN

The default IP address of the port server is 192.168.1.253. You can install the port server for the first time by WLAN only if your network can match this requirement and the SSID of the AP is “acksys”. Only one new port server can be turned on in the WLAN at a given time, until you have assigned a different IP address on each port server. Otherwise conflicts will result.

III.2.1 Port server configuration

The « Admin » switch must be off. In this case the DIAG LED must not blink twice per second.

III.2.2 P.C configuration

Configure a P.C with an IP address 192.168.1.x where x ≠ 253 and x ≠ 255 and x ≠ 0 and x ≠ any address already assigned on the LAN and WLAN.
Check that the P.C and the port server are connected to the same WLAN.

III.2.3 Access Point configuration

Configure your AP with default port server SSID “acksys”. Please refer to your AP documentation.
Check the link between the port server and AP, with the RF signal quality LEDs and the PING command.

III.2.4 Run Telnet

C:\> **telnet 192.168.1.253**
Telnet displays a banner and a prompt from the port server
Type : **login root**
Password : **root**

III.3 TCP/IP configuration

The IP address of the port server must be unique on the network. You can statically specify the address you want by means of the administration commands, or you can use an existing DHCP server on the network to give you an available address. If you define both DHCP and static IP address, the DHCP configuration will override the static IP.

III.3.1 Static IP address configuration

In the following lines, replace XXX.YYY.ZZZ.TTT by the IP address and netmask you chose for the port server:

```
root> set net ip XXX.YYY.ZZZ.TTT
root> set net mask XXX.YYY.ZZZ.TTT
```

Now you should save the configuration changes :

```
root> save
root> reset
```

Example: this sample session will reinstall factory values:

```
root> set net dhcp off
OK
root> set net ip 192.168.1.253
OK
root> set net mask 255.255.255.0
OK
root> save
OK
root> reset
WL-COMETH SERVERCOM version 3.4.2.0, Administration mode ready
```

III.3.2 Static router / gateway configuration

If the port server and the network application using it, are not on the same Ethernet LAN (i.e., if they are separated by one or more gateways (also caller routers), you must set the nearest gateway address into the port server, and you must set the maximum number of gateways to cross (if the factory default of 10 is not enough).

The following line is required only if you will cross more than ten gateways:

```
root> set net metric n
```

"n" is the number of gateways to cross . If you use a DHCP server that provides gateway information to the port server, you won't need the following command. Otherwise, the following command is required if you need to cross one or more gateways :

```
root> set net gateway XXX.YYY.ZZZ.TTT
```

"XXX.YYY.ZZZ.TTT" is the address of the gateway closest to the port server (here, 'closest' means that it is on the same Ethernet LAN).

Do not forget to save the configuration changes :

```
root> save
root> reset
```

III.3.3 Dynamic IP address and gateway configuration with DHCP

Diag LED blink in DHCP mode: When the diagnostic LED (red LED) is blinking once per second, the port server is requesting a network configuration to DHCP server.

Functionality of the DHCP client:

- supports all kinds of IP configuration (Manual, Automatic, Dynamic) (see RFC 1541).
- supports option 12 of RFC 2132 (Host name).
- supports option 61 of RFC 2132 (client ID). The default client ID used is the MAC address of the port server, or a ClientID configured by the “set net dhcp clientid” command. The MAC address is used if ClientID is empty.
- supports DHCP agent or BOOTP agent specified in RFC 2134.
- supports the infinite lease.

Limitation of DHCP client in the port server

- the lease of DHCP server must be less than 24,9 days.
- RFC 2136 (DNS update with DHCP information) is not supported on the port server side. So, you need a DHCP server which supports RFC 2136. (for example, the Windows 2000 DHCP server).
- the port server has no IP address as long as the diag LED blinks.
- only the IP address, subnet mask, gateway address and lease time are used in the configuration information returned by the DHCP server.

In order to give an IP address to the port server, the DHCP server must be able to uniquely identify the requesting device (i.e. the port server). Hence the port server must provide a unique identification to the DHCP server.

Usually the MAC address is used for this purpose. Some administrators or DHCP servers require other kinds of identification. Hence you can either set up manually the “Client ID” (DHCP option 61), else the MAC address will be used as a string identifier. If you need, you can also set up a “Host Name” (DHCP option 12). The “Client ID” is always sent to the server. The “Host Name” is sent only if set manually.

Example 1: this sample session will use only the MAC address :

```
root> set net dhcp on
OK
root> show net dhcp clientid
undefined client id
root> show net dhcp hname
undefined host name
```

Now you should save the configuration changes :

```
root> save
root> reset
```

Example 2: use a network administrator-provided name 'cometh-b12a27' for the port server:

```
root> set net dhcp on
OK
root> set net dhcp clientid cometh-b12a27
OK
root> show net dhcp
DHCP on
root> show net dhcp clientid
cometh-b12a27
root> show net dhcp hname
undefined host name
```

Now you should save the configuration changes :

```
root> save
root> reset
```

Example 3: use the MAC address for client id, and also a network administrator-provided host name "cometh12.mydomain.com":

```
root> set net dhcp on
OK
root> set net dhcp clientid
OK
root> set net dhcp hname cometh12.mydomain.com
OK
root> show net dhcp
DHCP on
root> show net dhcp clientid
undefined client id
root> show net dhcp hname
cometh12.mydomain.com
```

Now you should save the configuration changes :

```
root> save
root> reset
```

III.4 administration commands

All administration commands are fully documented in the relevant firmware documentation.

If SERVERCOM firmware is running; the documentation is
SERVERCOM UserGuide (DTUS043).pdf

If MODBUS-TCP firmware is running; the documentation is
MODBUS-TCP UserGuide (DTUS041).pdf

If TCPCLIENT firmware is running; the documentation is
TCPCLIENT UserGuide (DTUS045).pdf

If MULTIPOINT firmware is running; the documentation is
MULTIPOINT UserGuide (DTUS056).pdf

IV DOWNLOADING THE FIRMWARE

IV.1 Activate the relevant firmware

In the first installation step you chose the port server firmware that most suits your needs. Now it is time to activate this firmware and set its own parameters.

Say that you determined that you need to activate the TCP-CLIENT firmware. You must download TCP-CLIENT firmware in port server.

You can download firmware through WLAN, or serial interface.

IV.1.1 Download firmware through WLAN interface

In command example 192.168.1.253 is the IP address of the port server. If your port server doesn't have this ip address, change this by the correct IP address.

- Download the latest version of the firmware on acksys web site (www.acksys.fr), or get the firmware in the CD.
- In the windows "start" menu, select execute, type "**cmd"** and click on OK button (you must see a DOS window).
- Check your network topology (see troubleshouting section)
- Make a telnet to your port server with telnet command
  C:**telnet 192.168.1.253**
- In the telnet window, type this command
  > **login root**
  password : **root**
  root>**set upgradeperm allow**
  root>**save**
  root>**reset**
- Download firmware with the tftp command :
  C:**tftp –i 192.168.1.253 put tcpclient.ftp /**
- If the download is correct the port server reboots.
- After upgrade, the network configuration of port server is not changed.

IV.1.2 Download firmware through serial interface

This involves setting up a SLIP connection between your computer and the port server. It is mandatory only if you have neither an Access Point at hand nor a WiFi card interface in your computer. Since the configuration is not easy, you should use WLAN download whenever possible.

- Put the port server in administration mode with a terminal emulator connected to the serial port
- On the terminal, type these commands :
  root>**set upgradeperm allow**
  root>**save**
  root>**reset**
- 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 and make a SLIP connection. To configure a SLIP connection please refer to the section "Configure a SLIP connection".
- When the SLIP connection is established, download the firmware with the tftp command :

  C:**tftp –i 192.168.2.253 put tcpclient.ftp /**
- If the download is correct the port server reboots.

  After upgrade, the network configuration of port server is not changed and the SLIP connection is disabled.

IV.2 Configure a SLIP connection

Warning, Windows 9x and Windows Me do not handle SLIP connections.

For other operating systems (Windows 2000, XP, Linux…) you must set up your SLIP connection with these parameters :

115200 bauds, 1 stop bit, 8 data bits, no parity, no flow control (neither hardware nor software), and no authentification.

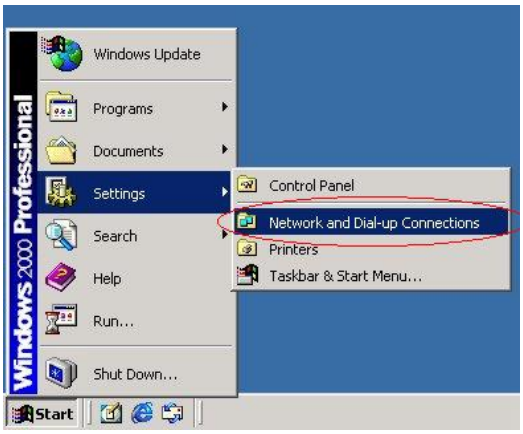
We explain below the SLIP configuration for Windows 2000/XP/NT 4. Screenshots are dependant of the Windows version and service pack.

IV.2.1 Windows 2000/XP

1. ***start* | *settings* | *Network and Dial-up Connections***

WINDOWS XP

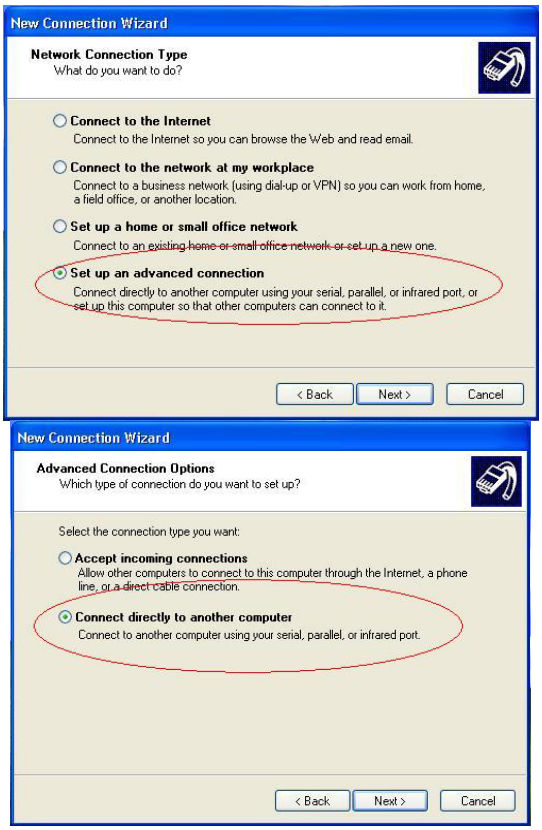
WINDOWS 2000



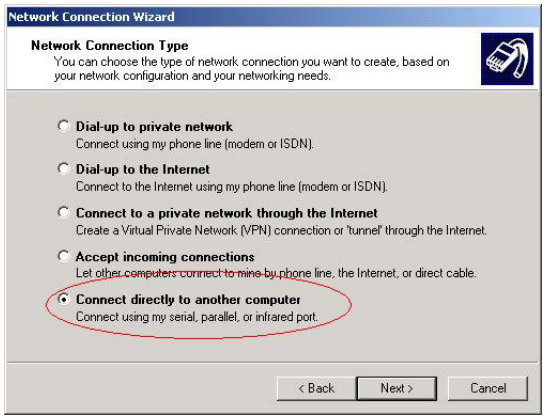
2. Open ***Network and Dial-up Connections***
3. Double click the icon ***Make New Connection***.
4. This will open a ***Network Connection Wizard***, and click ***Next.***

5. Check ***connect directly to another computer*** and click ***Next.***

WINDOWS XP

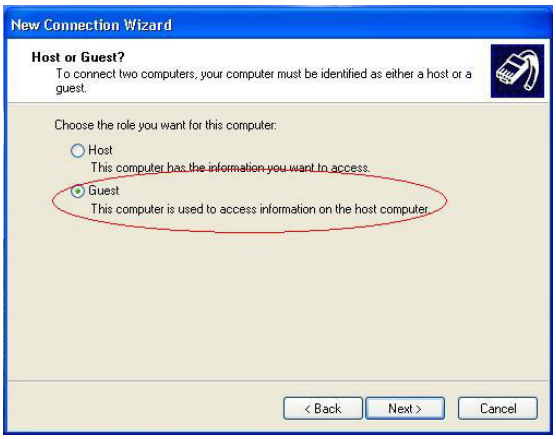


WINDOWS 2000



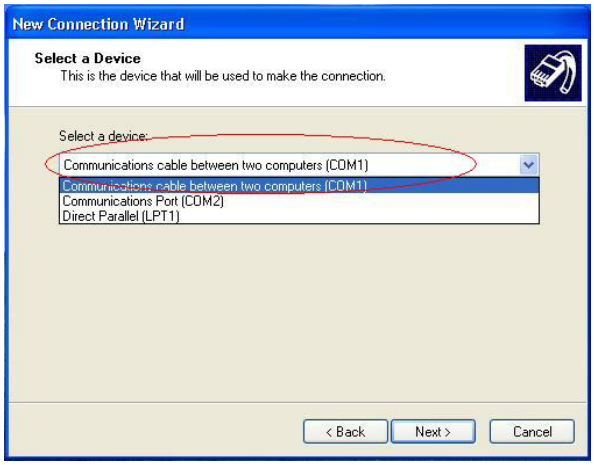
6. Check ***Guest*** and click ***next***

WINDOWS XP / WINDOWS 2000



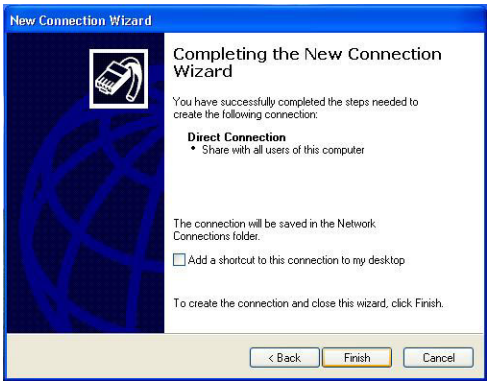
7. Select ***Communication cable between two computers (COM1)***, and click ***Next***.

WINDOWS XP / WINDOWS 2000



8. Select if you want share this connection with all user, and click ***Next.***
9. click on buton ***finish.***

WINDOWS XP / WINDOWS 2000

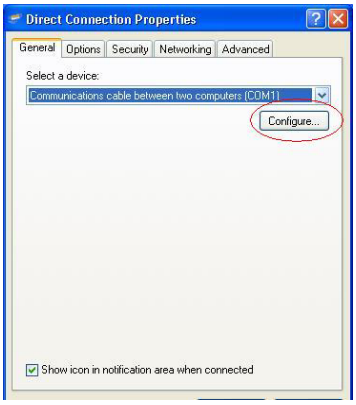


10. At this time you must have a connection dial-up window.

WINDOWS XP / WINDOWS 2000

11. Click on the ***Properties*** button.
12. In the ***general*** tab, click on the ***configure*** button

WINDOWS XP / WINDOWS 2000



a. Select 115200 for the mawimum speed of the connection.
b. Uncheck ***Enable hardware flow control***.

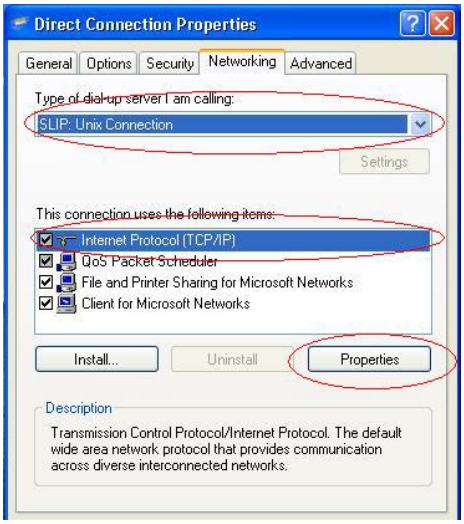
WINDOWS XP / WINDOWS 2000

13. In the ***options*** tab, uncheck ***Prompt for name and password, certificate, etc.***

WINDOWS XP / WINDOWS 2000

14. in the ***Networking*** tab
    a. Select in server type ***SLIP : unix connection.***
    b. Select ***Internet protocol (TCP/IP)*** and click on ***Properties*** button.

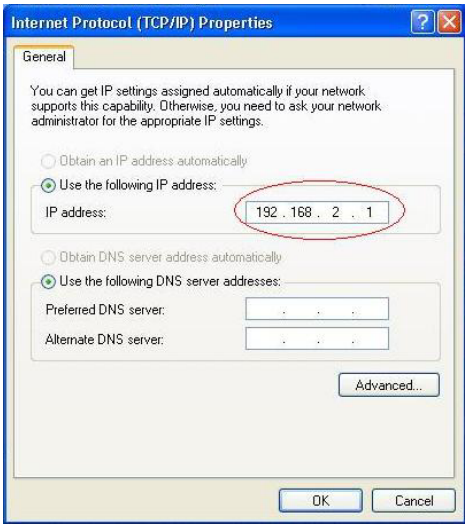
WINDOWS XP / WINDOWS 2000



i. Enter Ip address. For example enter 192.168.2.1
   Note : The network part of the chosen IP address must not be already used by another network connection (such as a LAN card).

ii. Click on the ***Ok*** button.

WINDOWS XP / WINDOWS 2000

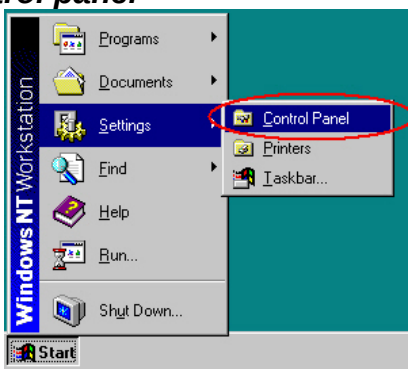


    c. Click on ***Ok*** button

15. connect to port server with the ***connect*** button.

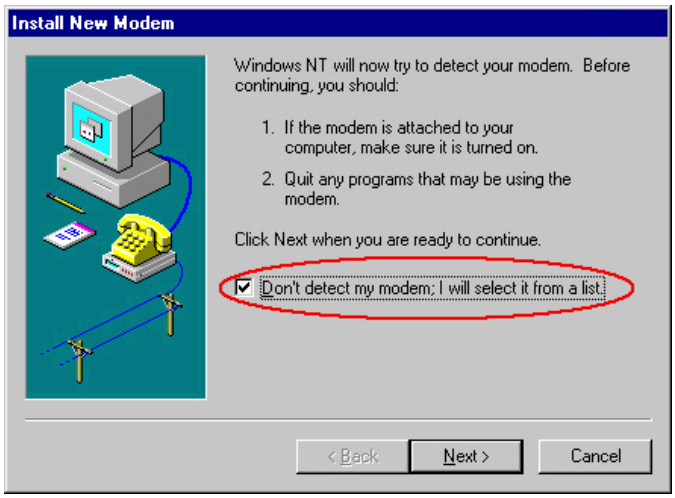
IV.2.2 Windows NT

1. ***Start | Settings -| control panel***

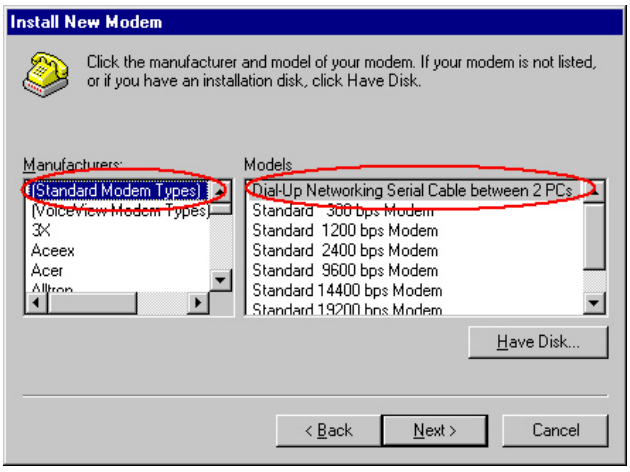


2. click on the ***modem*** icon

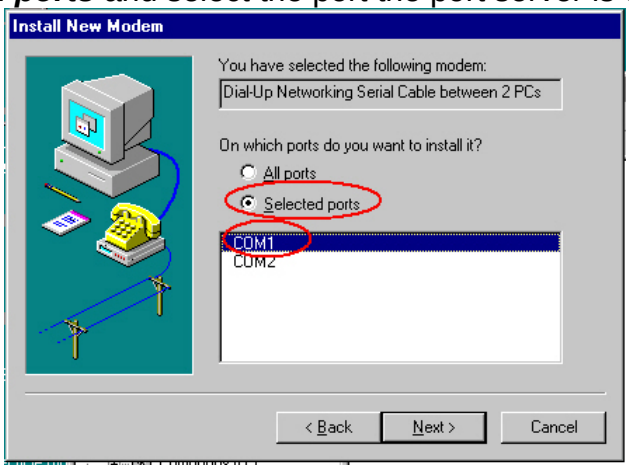
3. check ***don't detect my modem; I will select it form a list*** and click ***next*** button



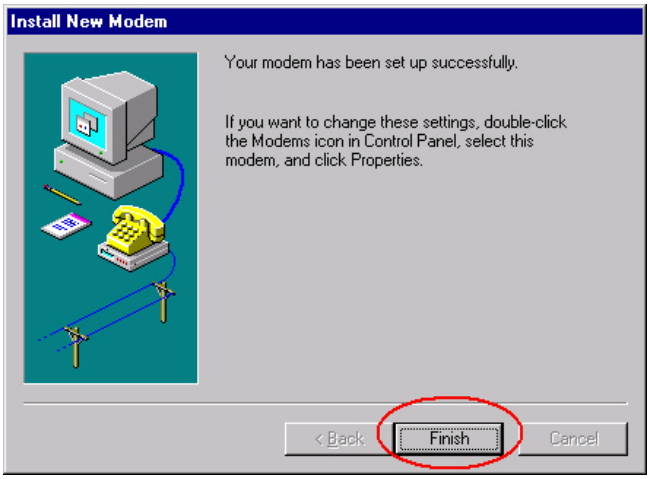
4. Select ***Standard Modem types***, ***Dial-Up Networking cable between 2 PCs*** and click ***next***



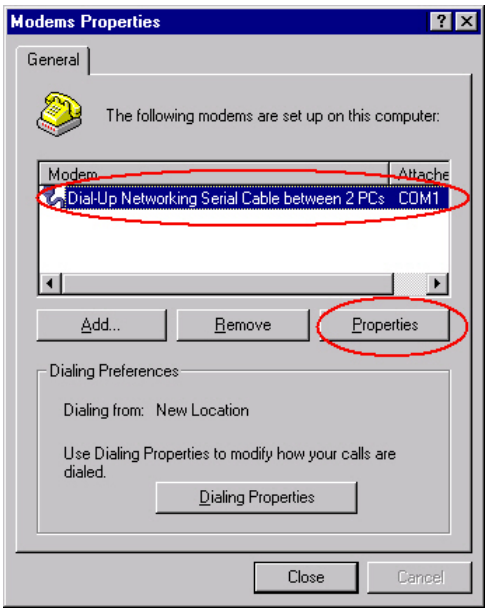
5. check ***Selected ports*** and select the port the port server is connected to



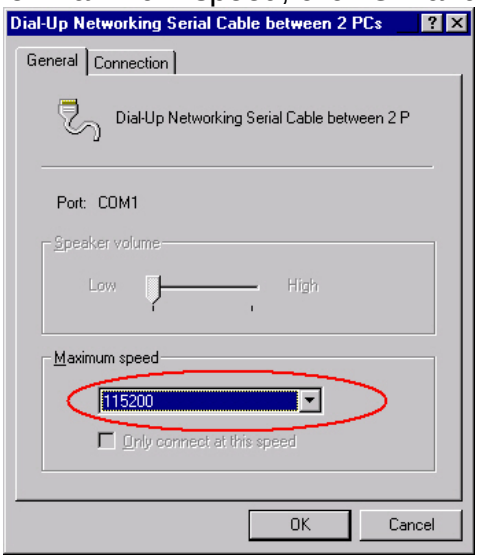
6. click on the ***Finish*** button



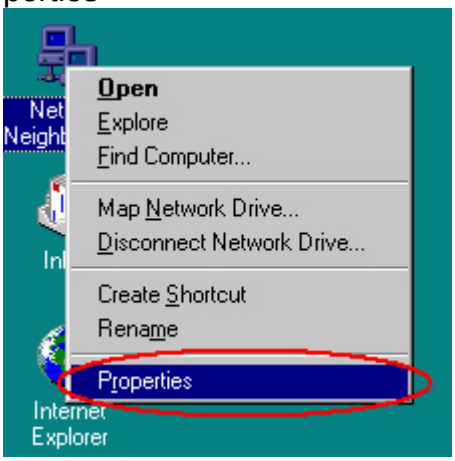
7. Select your new modem, and click the ***Properties*** button



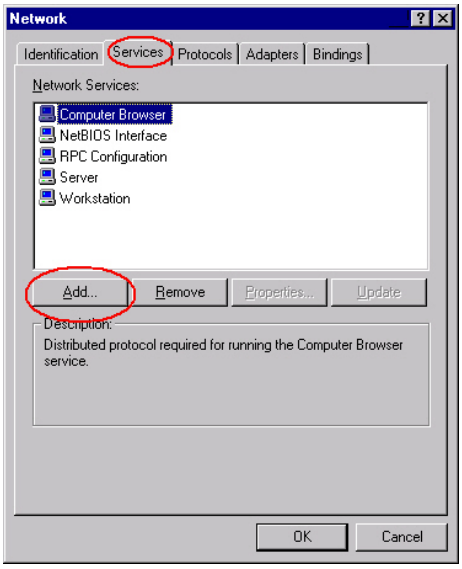
8. Select ***115200*** baud for maximum speed, click ***OK*** and the ***Close*** button .



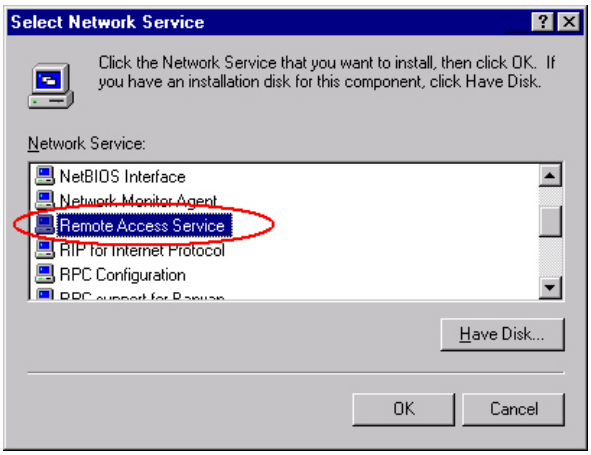
9. Open the network properties



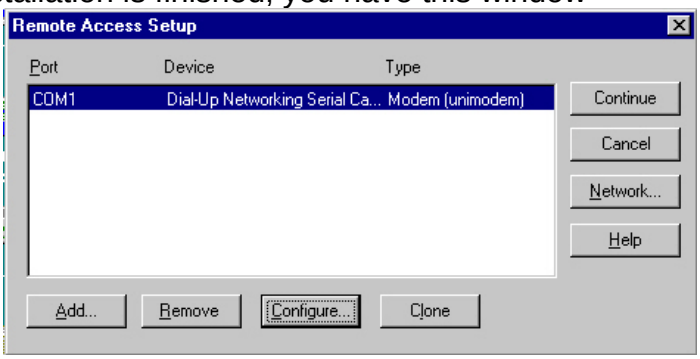
10. Select the ***Services*** tab and click the ***Add*** button



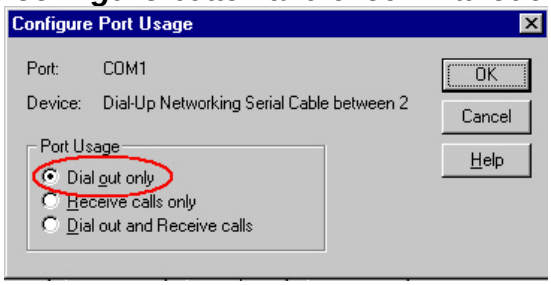
11. Select ***Remote Access Service*** and click ***OK***



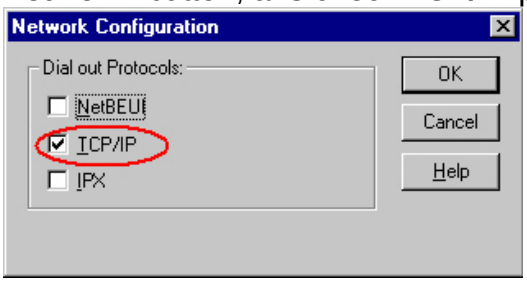
12. When the installation is finished, you have this window



a. Click on the ***configure*** button and check ***Dial out only***

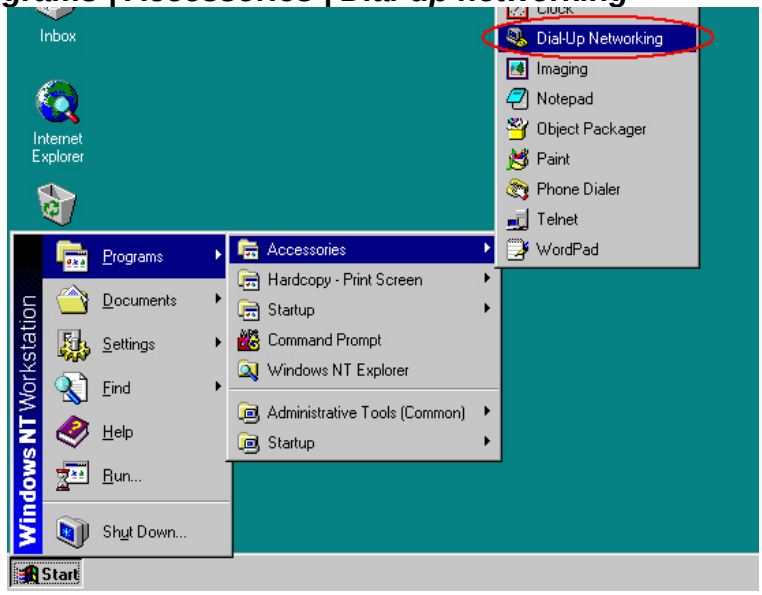


b. Click on the ***Network*** button, ans check ***TCP/IP*** protocol then ***OK***

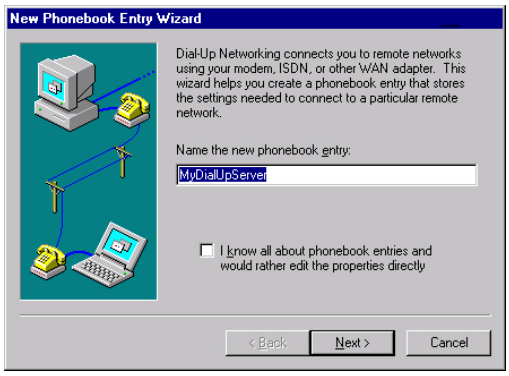


c. Click on the ***Continue*** button, and restart computer.

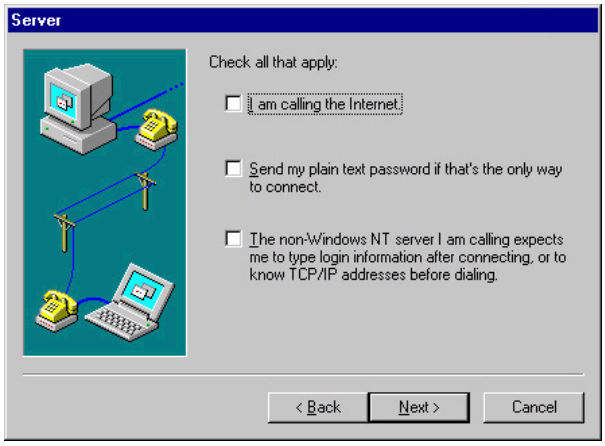
13. Start | Programs | Accessories | Dial-up networking



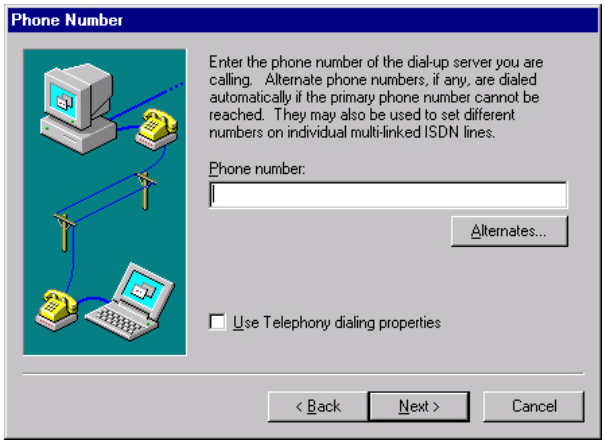
14. Click on the ***Next*** button



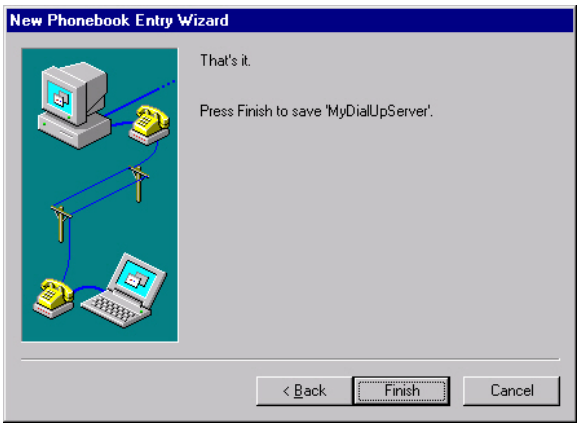
15. Click on the ***Next*** button



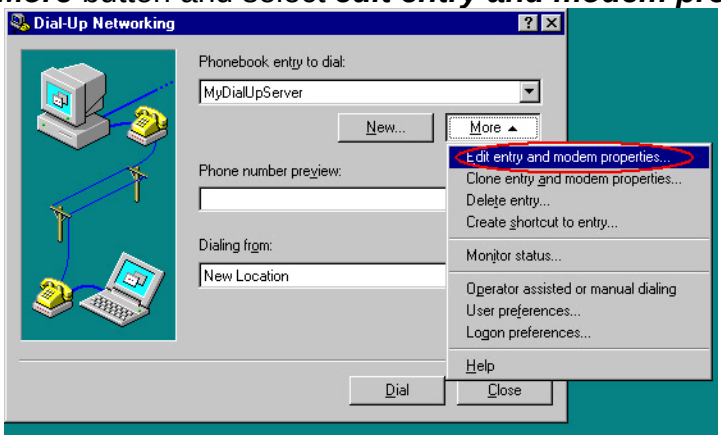
16. Click on the ***Next*** button



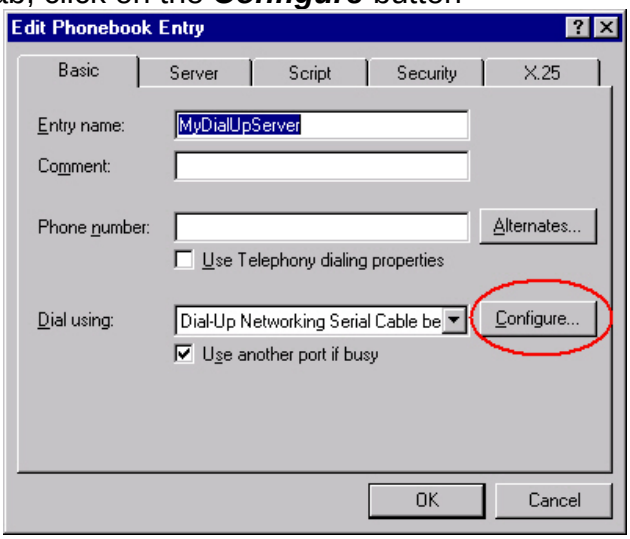
17. click on the ***Finish*** button



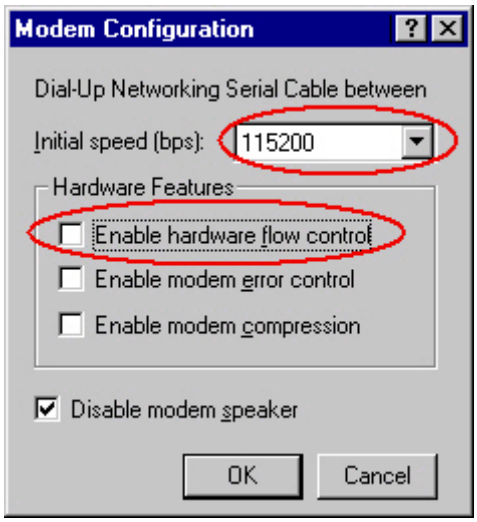
18. click on the ***More*** button and select ***edit entry and modem properties***



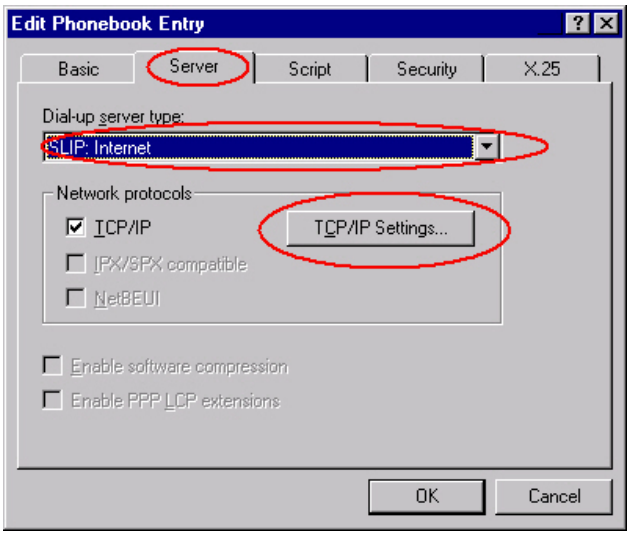
19. On the ***Basic*** tab, click on the ***Configure*** button



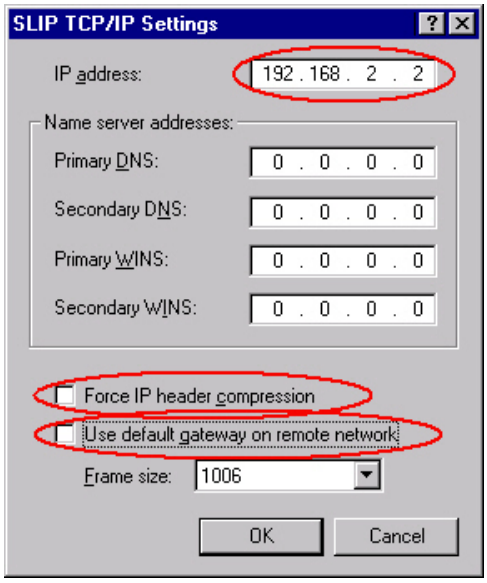
a. Select ***115200*** for initial speed, and uncheck ***Enable hardware flow control***



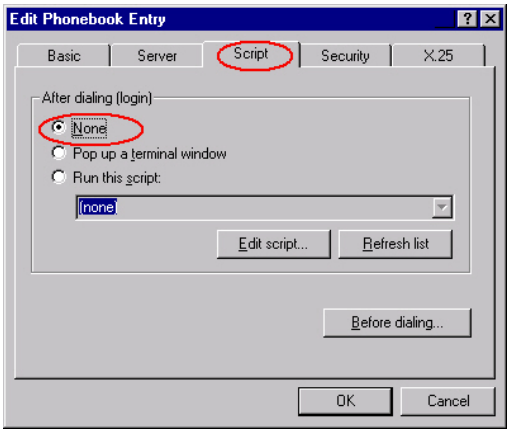
20. On the ***Server*** tab, select ***SLIP : Internet***, and click on the ***TCP/IP Setting*** button



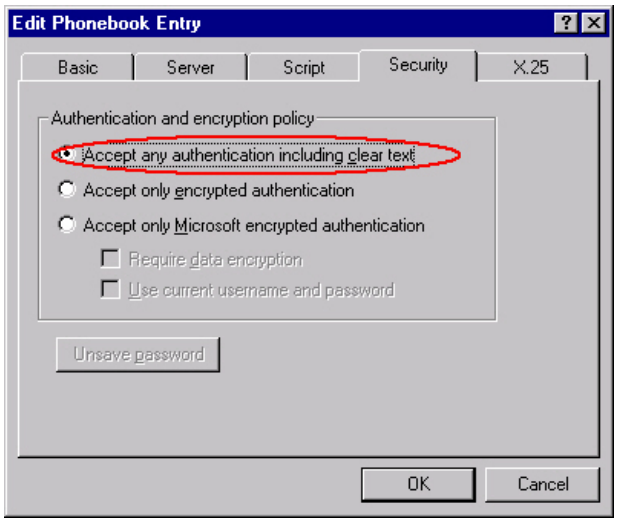
a. Enter the ip address of the computer (for exemple ***192.168.2.2***), and uncheck ***Force Ip header compression,*** and ***Use default gateway on remote network***



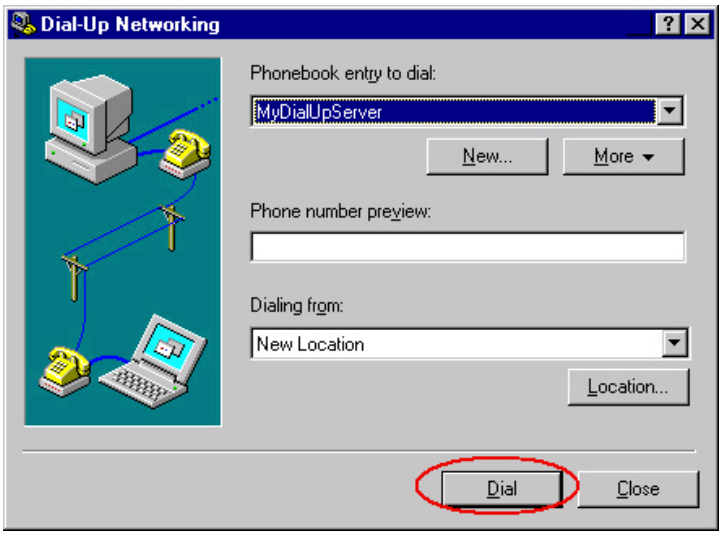
21. On the ***script*** tab, check ***None***.



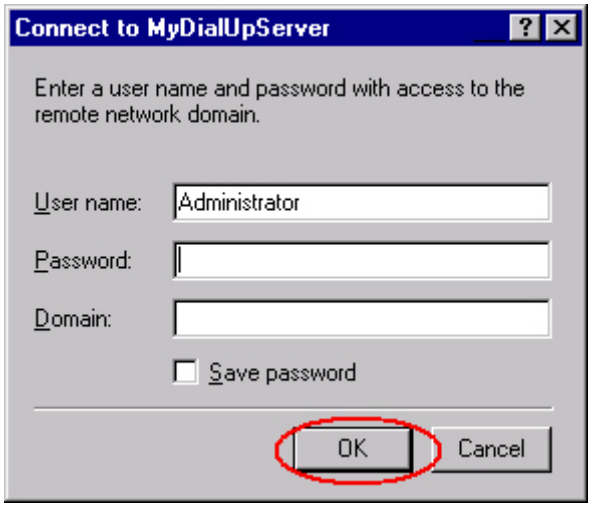
22. On the ***Security*** tab check ***Accept any authentication including clear text*** and click ***OK***



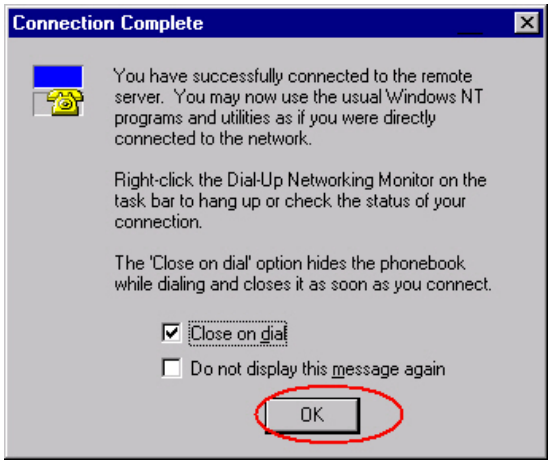
23. Click on the ***Dial*** button



24. click on the ***OK*** button



25. Click on the ***OK*** button



26. If the connection is ready, you can see an icon in system tray.

IV.2.3 Use the SLIP connection

Run the SLIP connection on your computer (for SLIP configuration see section " SLIP Configuration on Windows 2000/XP " or " SLIP Configuration on Windows NT ")

When the SLIP connection is ready you can check it with the PING command. For instance, if the SLIP IP address on the PC side is 192.168.2.1, port server will respond to any IP address in the range 192168.2.2 to 192.168.2.254.

Example:

C:\>**arp –d 192.168.2.3**
C:\>**ping 192.168.2.3**
Pinging 192.168.2.3 with 32 bytes of data :
Answer from 192.168.2.3 : bytes=32 time<10ms TTL=64
Answer from 192.168.2.3 : bytes=32 time<10ms TTL=64

Your port server is ready for SLIP upgrade. You can use the TFTP command to upgrade the port server firmwares.

If the PING command results in an error, check the SLIP link configuration. Also make sure that your port server is not a WL-COMETH version I.

NOTE : Ping syntax and result depends on the operating system type and version.

V TROUBLESHOOTING

Please check the following thoroughly before calling for support. If you must call, we will need complete information about your network topology, IP addresses of intervening devices, description of your device's serial connector, model of the computer and operating system, access point parameters.

The checks should be done in the order given below.

V.1 Checking the hardware

A group of LEDs allow hardware diagnostic. The available LEDs depend on the product model; see the relevant product specifications in chapter "Product line specifications".

Power *(available on some models)***:**

- This led lights up when the port server is correctly powered.

If the "Power" LED stays off, it means that your power supply is bad, or incorrectly connected.

Diag *(available on all models)***:**

- In Administration mode, this LED flashes twice per second, unevenly (bip bip... bip bip...)
- In Exploitation mode, this LED flashes when an error is detected in characters received on the asynchronous interface
- When resetting, this LED stays lighten until the port server is ready to use (usually in less than one second, or in about 10 seconds if you issued a "set prog enable" command before)
- Shortly after reset, if DHCP is enabled, the LED flashes once per second until network parameters are acquired
- The TCPCLIENT firmware flashes this LED five times per second whenever it is not connected to a server.
- When the port server cannot link to an Access point, this LED blinks alternately with the "Wlan Tx/Rx" LED.

If the "Diag" LED stays lighten at power up, the port server is out of order. Try to power it down, and then up again after a few seconds.

If the "Diag"LED flashes to indicate Administration mode, push firmly the « Admin » switch in the opposite position (OFF).

Serial Tx/Rx *(available on all models)***:**

- This LED flashes when sending or receiving data on the asynchronous serial interface.

If the Serial Tx/Rx LED stays off while your device is sending data, it means that the RS cable is bad, improperly connected, or some kind of flow control forbids transmission.

If the Serial Tx/Rx LED stays off while you are sending data to your device, it means that some kind of flow control forbids transmission, or the port server does not receive network data frames.

If the serial Tx/Rx LED stay on while you are not sending data to your device and your device is not sending data, it means that the RS cable is bad or improperly connected. On RS422/485 interfaces, A & B or A' & B' may be inverted, line polarization may be required in RS422A multidrop and RS485 mode.

RS232 activated *(available on some models)***:**

This LED lights up when the RS232 electrical interface is selected.

RS422/485 activated *(available on some models)***:**

This LED lights up when the RS422/485 electrical interface is selected.

RF signal quality *(available on some models)***:**

- You can use these 6 LED to check the RF signal quality.
- When the port server cannot link to an Access Point, this LED blinks alternatively with the "Diag" LED.

If only the red LED is on, you can have communication problems with access point (AP). Change antennas orientation, or move the port server.

If all LEDs are flashing, the port server is out of range of AP, or it does not find an AP with the same SSID as itself.

WLan Tx/Rx *(available on all models)***:**

- This LED flashes when sending or receiving data on the WLAN.

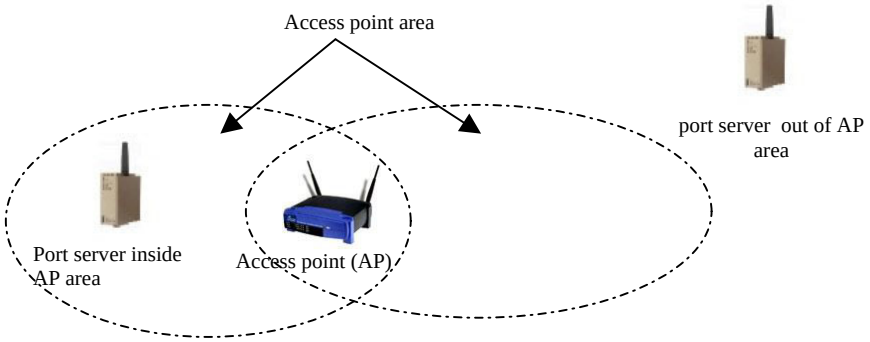
If the WLAN Tx/Rx LED stays off while your device is sending data, it means that your SSID is bad, the port server IP address is not correct, Serial IP is not properly installed or the port server is not connected to the same SSID than your device.

If the WLAN Tx/Rx LED stays off while you are sending data to your device, it means that your cable is bad, the port server IP address is not correct, the COM port redirector (if any) is not properly installed or the port server does not receive data on the asynchronous serial interface.

V.2 Checking WLAN topology

V.2.1 Infrastructure mode

You must have an access point to use the port server.



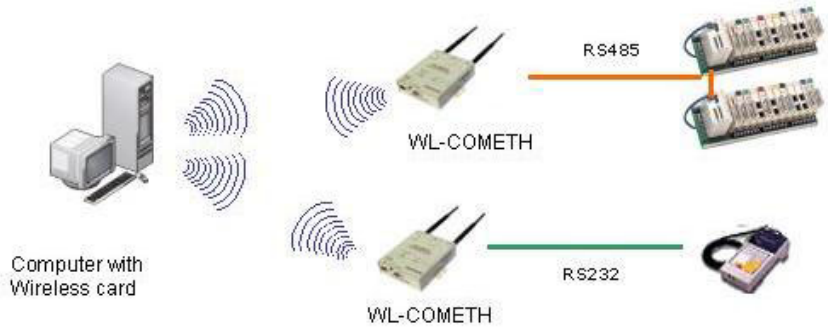
If the port server is out of the AP area, the WLAN Tx/Rx LED and the Diag LED blink.
On models equipped with the RF signal quality LEDs, they will also blink in this case. If the port server is in the AP area, RF Signal quality LEDs will display the reception quality level.

If you use several AP, make sure that all AP are in the same network.

If the port server is in the AP area, but you can't access to the port server, check the SSID on both the AP and the port server. The SSID is the **case sensitive** network identifier. If the port server and AP do not have the same SSID, the port server cannot connect to the AP. In this case the RF signal quality LEDs, WLAN Tx/Rx LED, Diag LED blink.

Also check that all devices use the same WEP key or don't use any WEP key. We strongly suggest to make the first installation checks with WEP key **disabled**.

V.2.2 AD-HOC mode



In AD-HOC mode, all the devices involved must use the same SSID and radio channel. Else they cannot communicate together.

In this mode the quality LEDs indications are **meaningless**.

VI OTHER DOCUMENTATION

ACKSYS documentations

For the latest versions please check the download section of
http://www.acksys.fr
CD-ROM documentations:
SERVERCOM UserGuide (DTUS043).pdf
MODBUS-TCP UserGuide (DTUS041).pdf
MULTIPOINT UserGuide (DTUS056).pdf
TCPCLIENT UserGuide (DTUS045).pdf

COM port redirection

http://www.ietf.org/rfc/rfc2217.txt

DHCP

http://www.ietf.org/rfc/rfc1541.txt
http://www.ietf.org/rfc/rfc2132.txt
http://www.ietf.org/rfc/rfc2134.txt
http://www.ietf.org/rfc/rfc2136.txt

Keep-Alives

http://www.ietf.org/rfc/rfc1122.txt