

DOWNLOAD FIRMWARE USER GUIDE

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I. INTRODUCTION

I.1 Goal

The goal of this documentation is to explain how to

- upgrade an existing firmware¹
 - add a new firmware
- into your COMETH device.

For this operation, a telnet client and a tftp client (see in CD for tftp client for Windows) are necessary.

I.2 Conventions used

We will assume that the COMETH parameters are the factory defaults:

- Default IP Address 192.168.1.253 is affected to a COMETH. If your COMETH IP address is different, replace it by your IP address.
- Default administrator login name is “root”. If you changed the administrator login name, change the commands appropriately.

The prompts displayed by the COMETH are represented by normal `fixed-size characters`.

The commands that you should enter are represented by **bold fixed-size characters**. After entering a command you must press the “enter” key.

In the commands, some parameters may vary: they are represented by *italic characters*. You must replace these parameters with the actual value you wish to give them.

¹ A firmware is an application embedded into the COMETH FLASH EEPROM

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II. SOFTWARE ARCHITECTURE

A special firmware called “Download firmware” and provided by ACKSYS allows to download a new firmware or to update an existing one thanks to tftp application.

Segments

The COMETH EEPROM flash is divided in 6 segments :

- 2 are reserved by ACKSYS and contain the download firmware and a backup copy (segments 0 and 1). It is more advisable to not use the backup copy. The backup copy is useful if COMETH detects itself bad data or a checksum error in segment 0. In this case, it automatically loads the DOWNLOAD firmware from segment 1 instead of segment 0.
- 4 are available for a functional firmware (Segments 2 to 5).

Each segment is identified by :

- a location name (/0 to /5) (indicates the memory segment).
- a product name (SERVERCOM, TUNNEL, MODBUS...).
- a release number.
- a status (Status “not valid” indicates a free segment).

Firmwares

Acksys provide four firmwares at the time of writing :

- SERVERCOM : To use cometh in TCP raw server mode, telnet RFC2217 or telnet server mode.
- TUNNEL : To do point-to-point connection between two COMETH devices in UDP mode.
- MODBUS : MODBUS TCP/Serial gateway. (A license is necessary to download this firmware).
- TCP CLIENT : To use cometh in TCP raw client mode.

New firmwares or upgrades are available on Acksys web site (www.acksys.fr).

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III. RUNNING THE SERIAL PORT ADMINISTRATION

There are three ways of accessing the administration system, depending on the product you are using.

On all kinds of COMETH and WL-COMETH, you can activate the administration system through the LAN or WLAN interface, provided that you know the IP address of the device. This is described in the relevant hardware documentation and is not described further here.

On the COMETH range (Ethernet to serial products), and on the WL-COMETH built before march 2004, you can activate the administration system by attaching a terminal to the RS232 serial port as described in the following section : « Administration by a RS232 terminal (COMETH & early WL-COMETH) »

On the WL-COMETH (Wifi to serial product) built after march 2004, you can activate the administration system by attaching a SLIP link to the RS232 serial port as described in the following section : « Administration by a RS232 SLIP link (recent WL-COMETH only) ». This method enables you to download firmware upgrades through the RS232 port.

To help you identify the kind of serial administration you must use, please refer to the next section : « Distinguishing terminal-enabled from SLIP-enabled administration ».

III.1 Distinguishing terminal-enabled from SLIP-enabled administration

This procedure only applies to the WL-COMETH, since other COMETH models can only use terminal-enabled administration when administering from the RS232 port.

Also, the SLIP administration is provided only in the DOWNLOAD firmware.

III.1.1 Select Administrator mode

Push the switch towards the « Admin » position. In less than 10 seconds the orange (DIAG) light begins to blink twice per second.

III.1.2 Connect a terminal to the RS232 port

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.

The WL-COMETH has one male DB9 RS232 connector with DTE cabling. You can use the provided null modem cable and plug it directly, into a standard DB9 male connector (PC COM port for example)

III.1.3 Run Hyperterminal at 115200 bauds

When Hyperterminal asks to choose a modem or port, select a direct connection to COMx (COMx being the COM port on which you plugged the WL-COMETH).

Select the following port parameters : 115200 bauds (bits/second), 8 bits, parity none, 1 stop bit, no flow control.

Hyperterminal now displays a blank window. Hit the «C» key (UPPERCASE “C”). If the WL-COMETH answers “CLIENTSERVER”, the WL-COMETH is in SLIP administration mode.

III.2 Administration by a RS232 terminal (COMETH & early WL-COMETH)

III.2.1 Select Administrator mode

Push the switch towards the « Admin » position. In less than 10 seconds the orange (DIAG) light begins to blink twice per second.

III.2.2 Connect to a serial port

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.

The WL-COMETH FIELD has one male DB9 RS232 connector with DTE cabling. You can use the provided null modem cable and plug it directly, into a standard DB9 male connector (PC COM port for example)

III.2.3 Run Hyperterminal at 2400 bauds

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

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.3 Administration by a RS232 SLIP link (recent WL-COMETH only)

Administration by SLIP is supported by the DOWNLOAD firmware starting from [version 3.4.2.4](#) on the WL-COMETH. If you have an older version, you can download the latest one on the [Aksys website](#).

III.3.1 Select Administrator mode

Push the switch towards the « Admin » position. In less than 10 seconds the orange (DIAG) light begins to blink twice per second.

III.3.2 Connect to a serial port

Below we describe how to do this with a PC with Windows. Other operating systems (Linux...) can be used, but this is beyond the scope of this manual.

The WL-COMETH has one male DB9 RS232 connector with DTE cabling. You can use the provided null modem cable and plug it directly, into a standard DB9 male connector (PC COM port for example)

III.3.3 Configure a SLIP connection

Windows 9x and Windows Me do not handle SLIP connections, you cannot use them to configure these recent WL-COMETH DOWNLOAD firmwares.

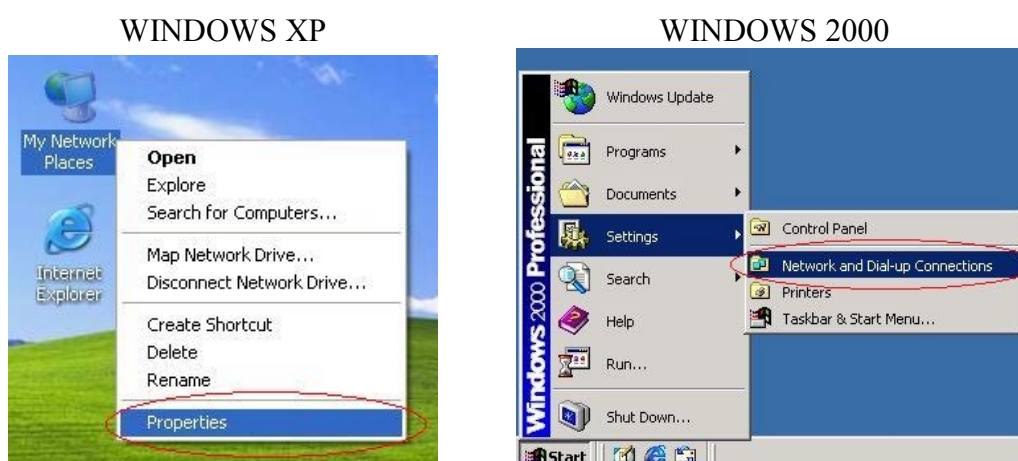
For other operating systems (Windows 2000, XP, Linux...) you must set up your SLIP connection with these parameters :

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

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

SLIP Configuration on Windows 2000/XP

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

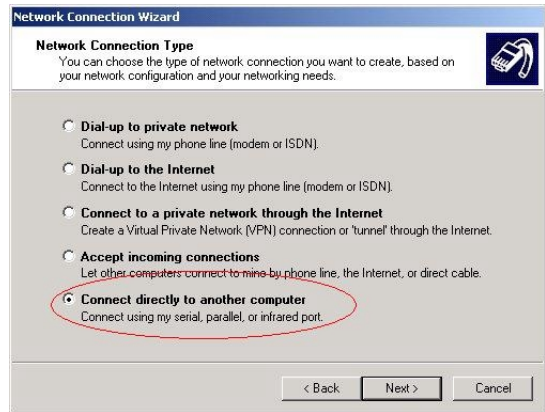
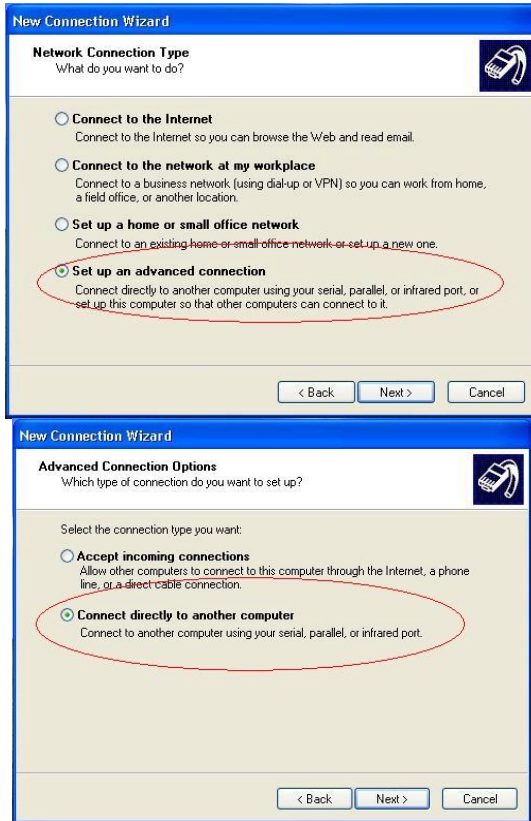


2. Open *Network and Dial-up Connections*
3. Double click the icon *Make New Connection*.
4. This will open a *Network Connection Wizard*, and click *Next*.

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

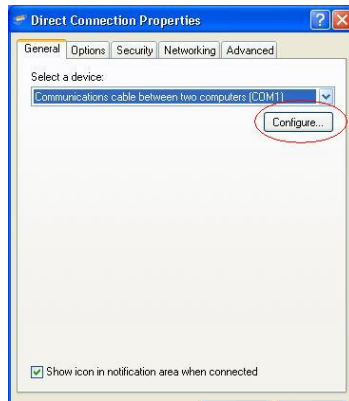


10. At this time you must have a connection dial-up window.

WINDOWS XP / WINDOWS 2000

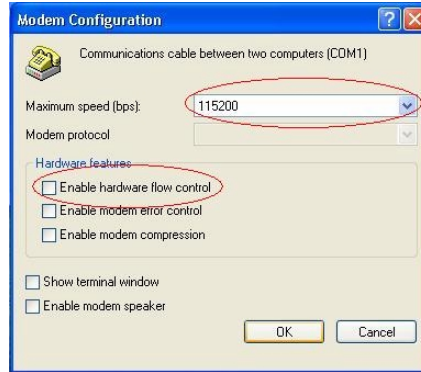


11. Click on the **Properties** button.
 12. In the **general** tab, click on the **configure** button
- WINDOWS XP / WINDOWS 2000

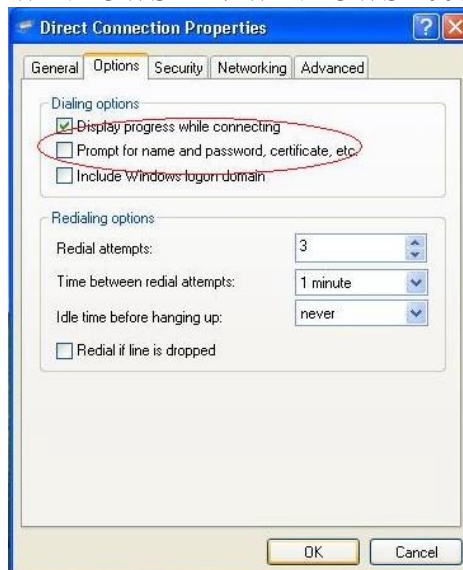


- a. Select 115200 for the maximum speed of the connection.
- b. Uncheck **Enable hardware flow control**.

WINDOWS XP / WINDOWS 2000

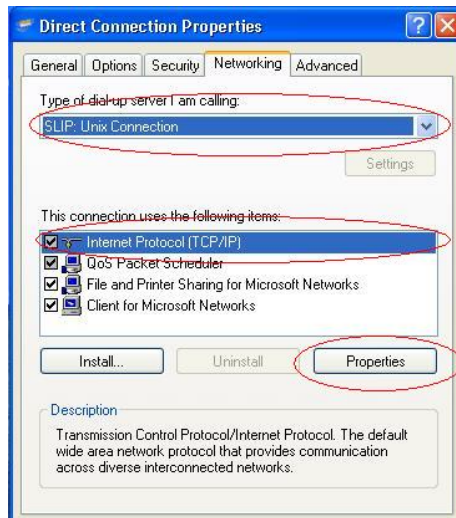


13. In the **options** tab, uncheck **Prompt for name and password, certificate, etc.**
- WINDOWS XP / WINDOWS 2000



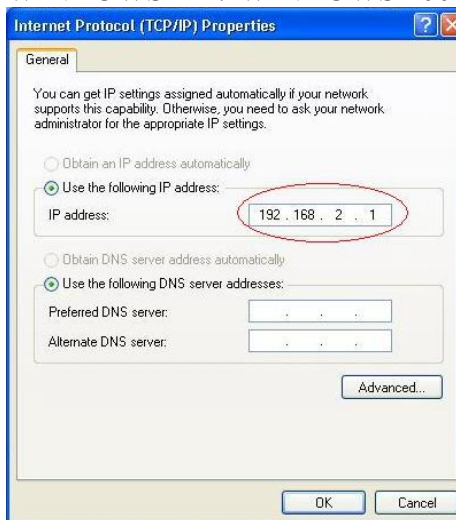
- 14. in the *Networking* tab
 - a. Select in server type **SLIP : unix connection**.
 - b. Select **Internet protocol (TCP/IP)** and click on **Properties** button.

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.

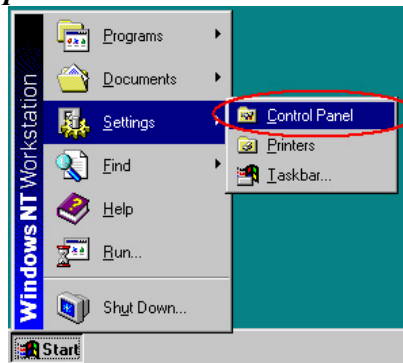
WINDOWS XP / WINDOWS 2000



- c. Click on **Ok** button
15. connect to WL-COMETH with the **connect** button.

SLIP Configuration on Windows NT

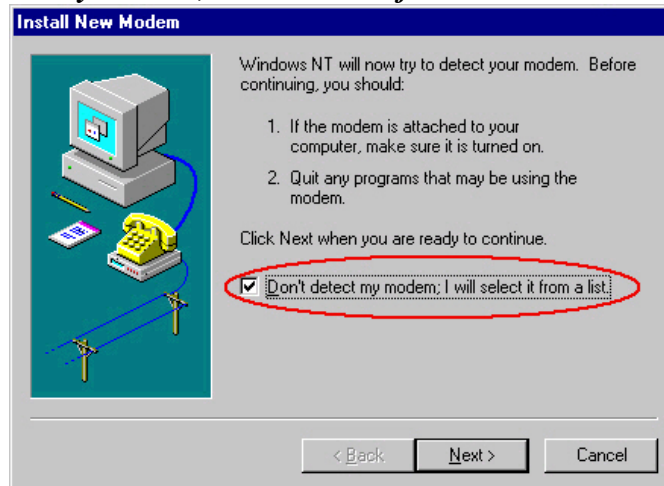
1. *Start | Settings -| control panel*



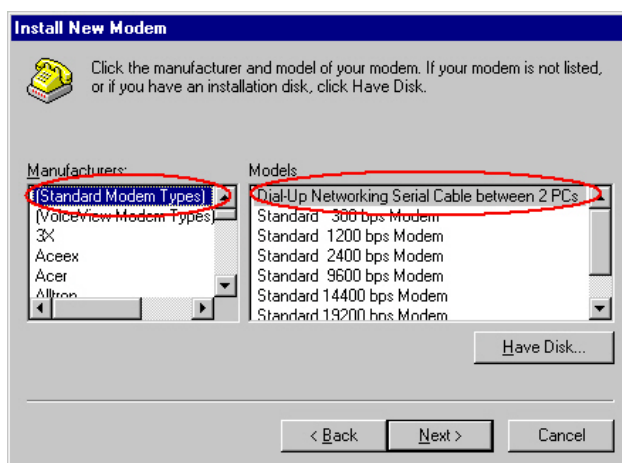
2. click on the *modem* icon



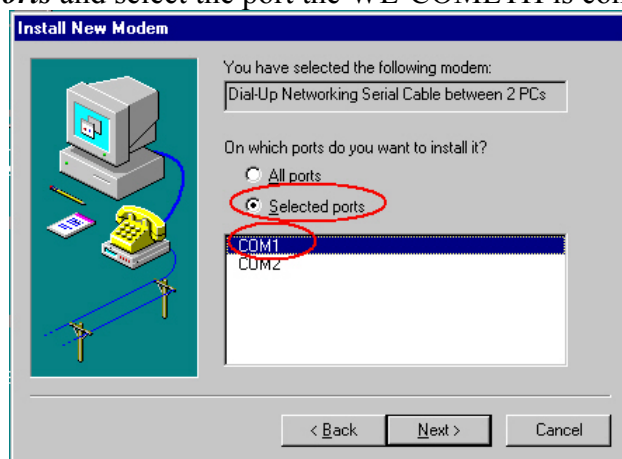
3. check *don't detect my modem; I will select it form a list* and click *next* button



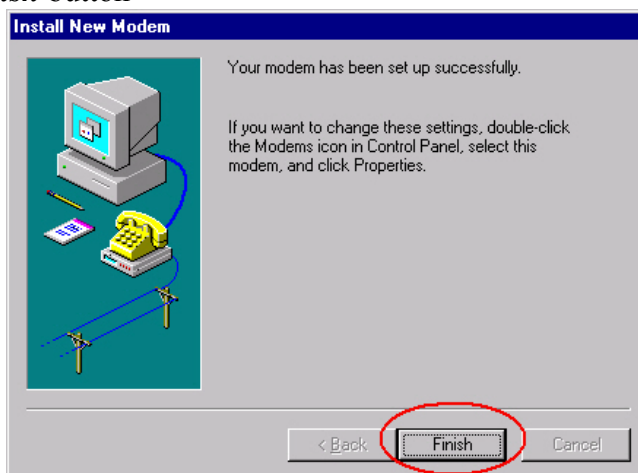
4. Select **Standard Modem types**, **Dial-Up Networking cable between 2 PCs** and click **next**



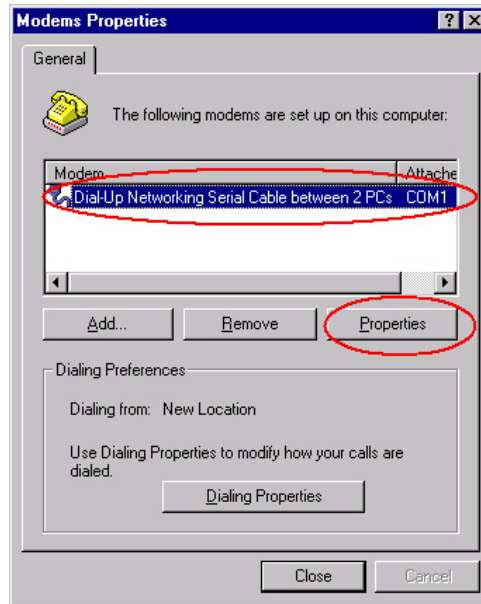
5. check **Selected ports** and select the port the WL-COMETH is connected to



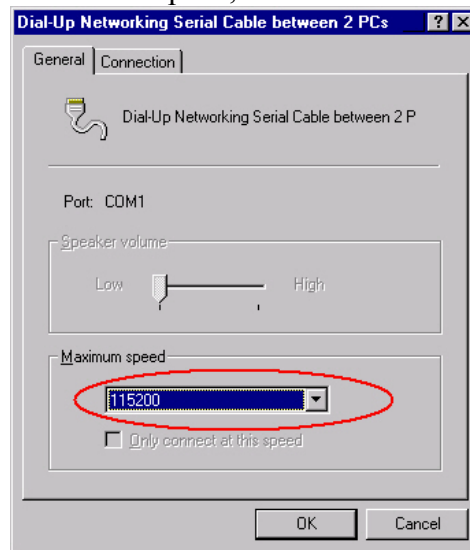
6. click on the **Finish** button



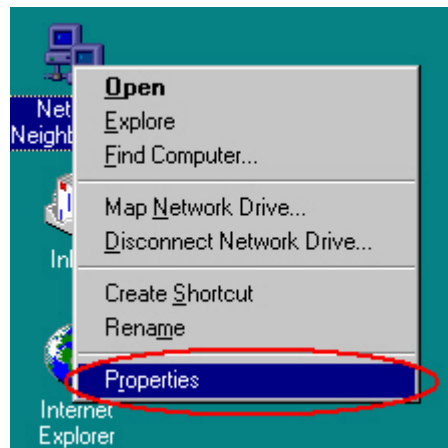
7. Select your new modem, and click the *Properties* button



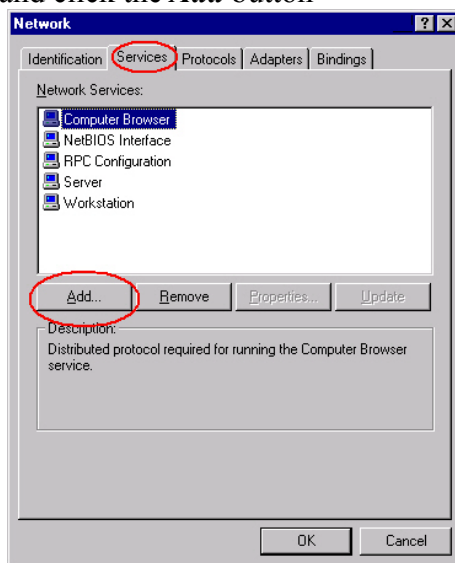
8. Select *115200* baud for maximum speed, click *OK* and the *Close* button .



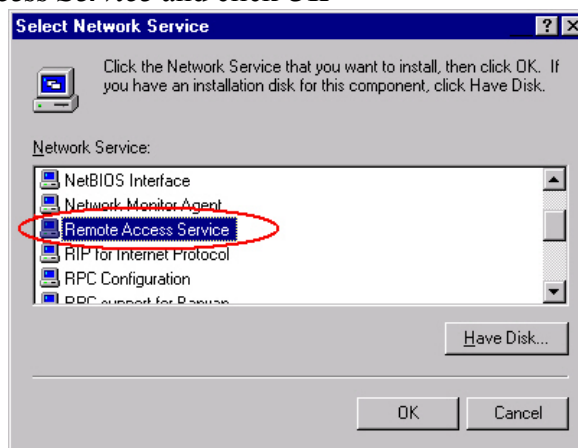
9. Open the network properties



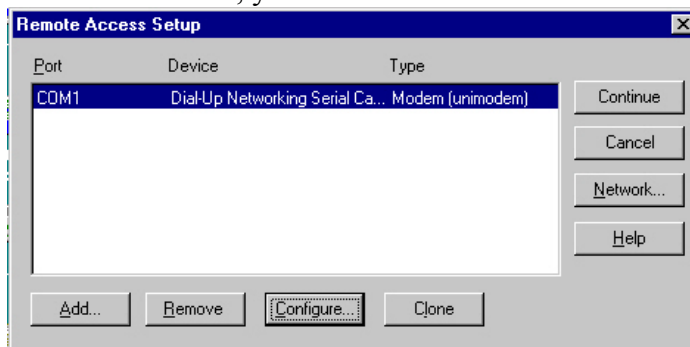
10. Select the **Services** tab and click the **Add** button



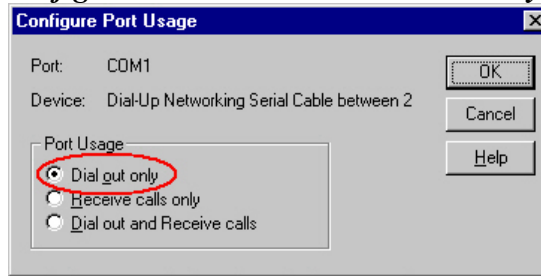
11. Select **Remote Access Service** and click **OK**



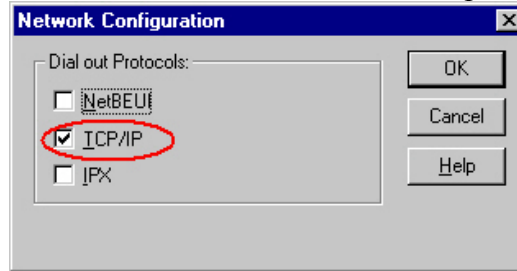
12. When the installation is finished, you have this window



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

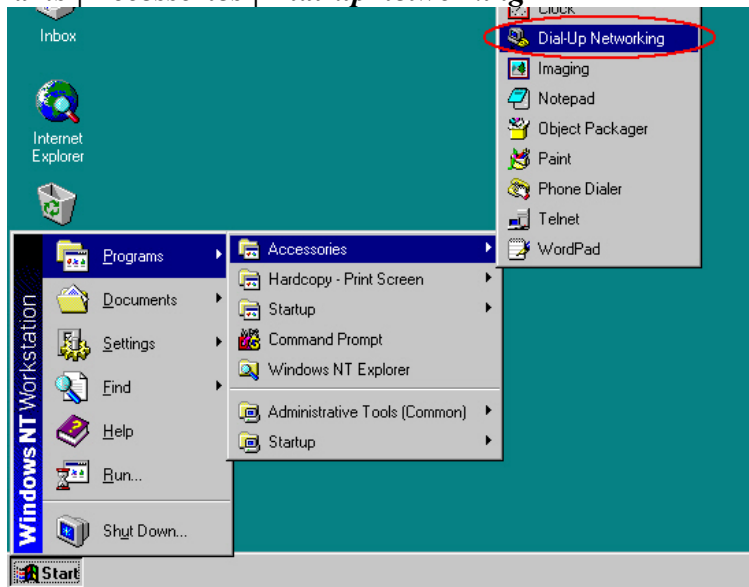


- b. Click on the *Network* button, and check *TCP/IP* protocol then *OK*

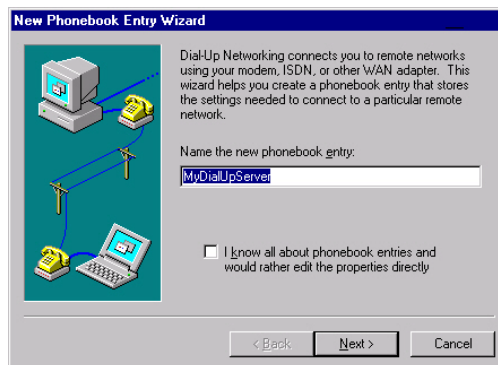


- c. Click on the *Continue* button, and restart computer.

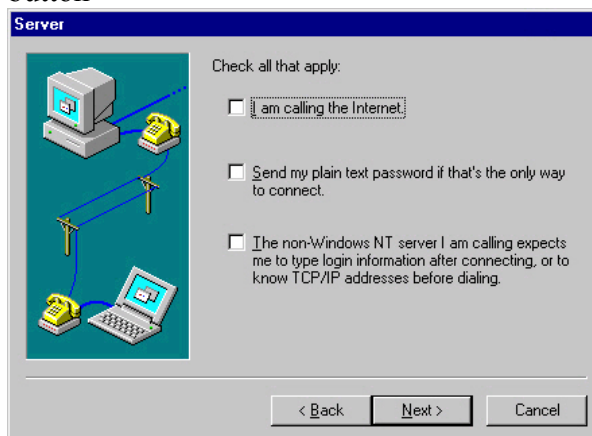
13. Start | Programs | Accessories | Dial-up networking



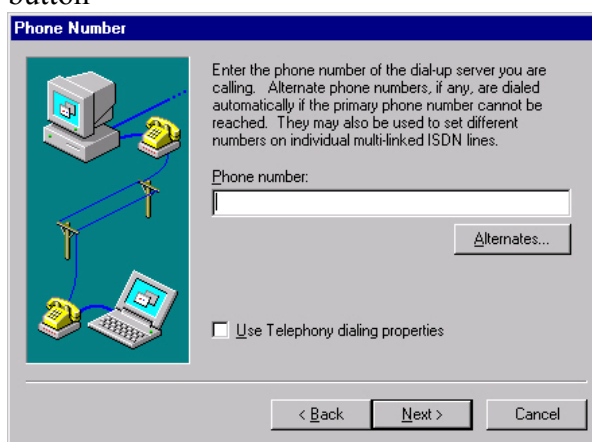
14. Click on the *Next* button



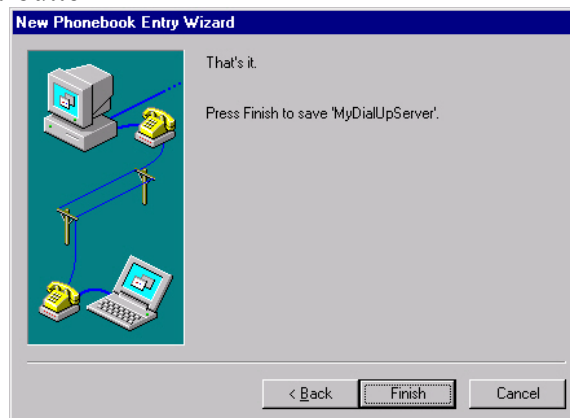
15. Click on the *Next* button



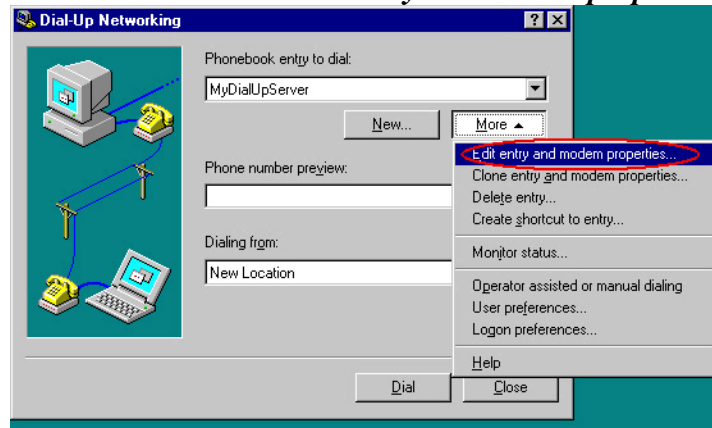
16. Click on the *Next* button



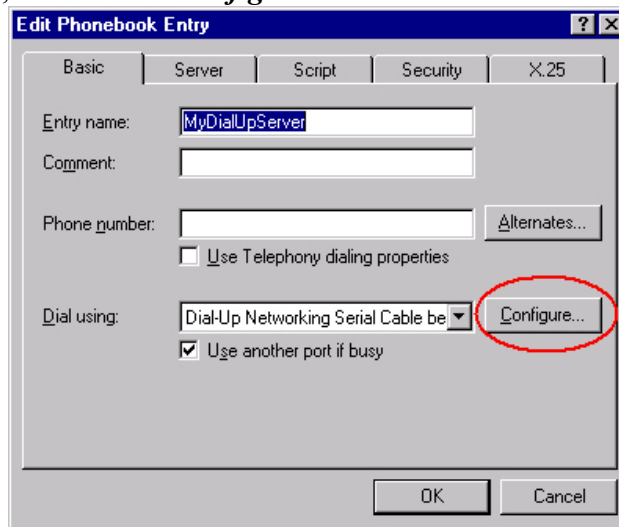
17. click on the *Finish* button



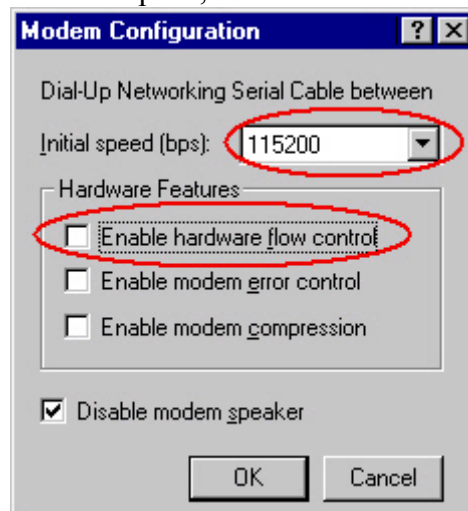
18. click on the *More* button and select *edit entry and modem properties*



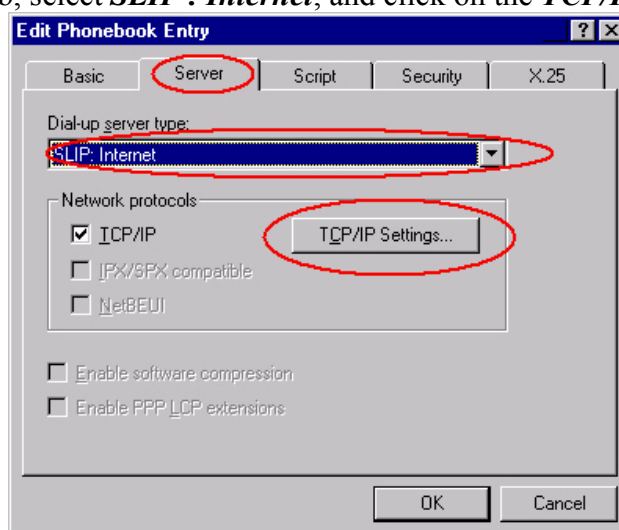
19. On the *Basic* tab, click on the *Configure* button



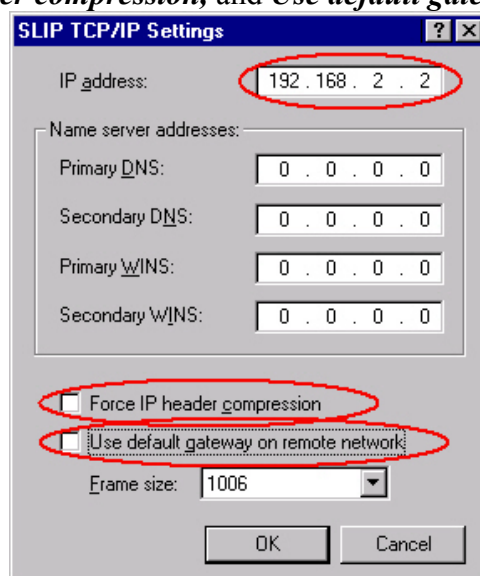
a. Select *115200* for initial speed, and uncheck *Enable hardware flow control*



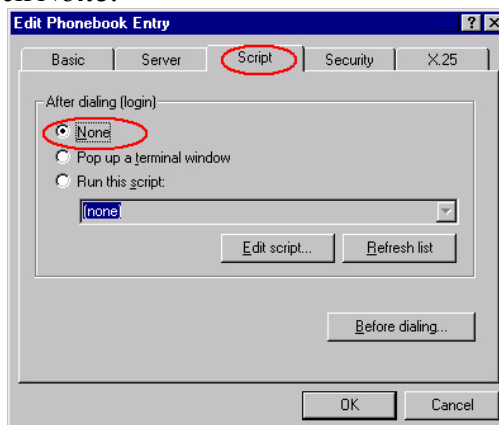
20. On the *Server* tab, select *SLIP : Internet*, and click on the *TCP/IP Setting* button



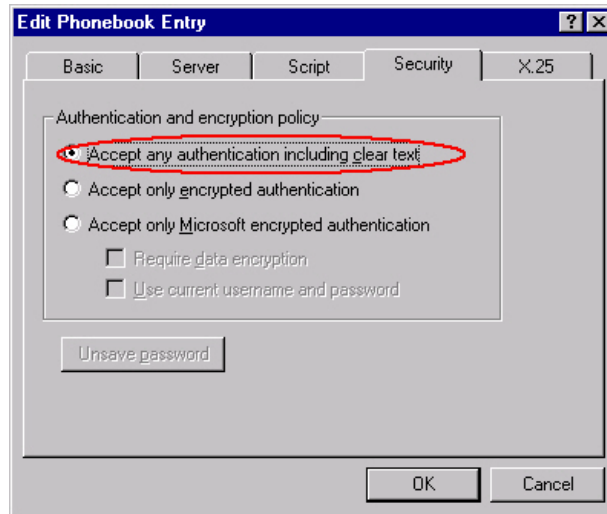
a. Enter the ip address of the computer (for exemple *192.168.2.2*), and uncheck *Force Ip header compression*, and *Use default gateway on remote network*



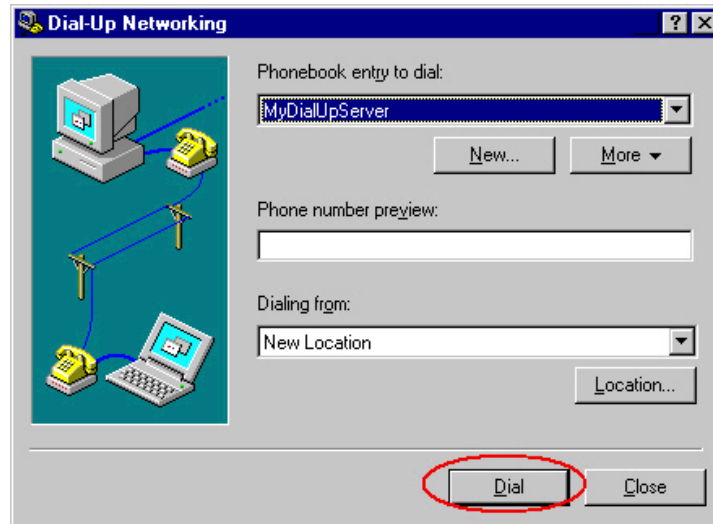
21. On the *script* tab, check *None*.



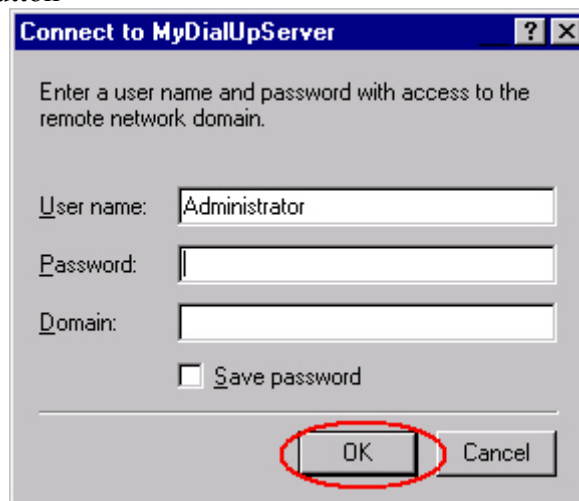
22. On the **Security** tab check **Accept any authentication including clear text** and click **OK**



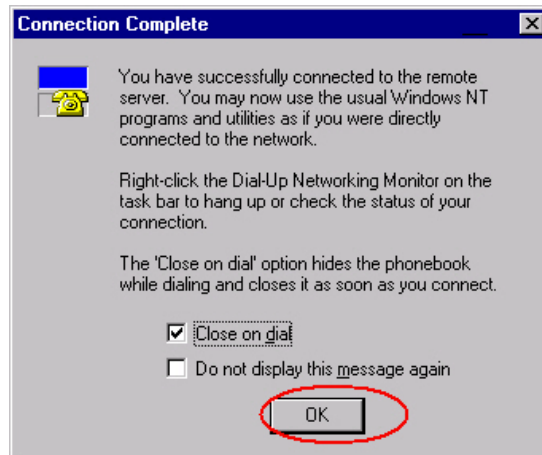
23. Click on the **Dial** button



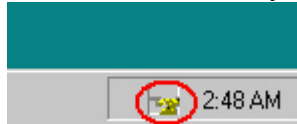
24. click on the **OK** button



25. Click on the **OK** button



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



III.3.4 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, WL-COMETH will respond to any IP address in the range 192.168.2.2 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 WL-COMETH is ready for SLIP administration. To obtain the administration command prompt, type the command “*telnet 192.168.2.3*” from the command prompt. You can also use the TFTP command to upgrade the WL-COMETH firmwares.

If the PING command results in an error, check the SLIP link configuration. Also make sure that your WL-COMETH [supports SLIP administration](#).

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

IV. ADMINISTRATION COMMANDS

To download a firmware into the COMETH, use the following administration commands.

IV.1 Log in

All the « set... » commands require the administrator to be identified beforehand.

```
Type :
> login root
password: root      (the password displays as “****”)
root>
```

IV.2 Display information about a firmware

To display information about the firmware located in segment *Seg* (*Seg* is a segment number ranging from 0 to 5)

Type : **show prog info** *Seg*

The following informations are displayed :

```
file :      (understand segment) any value from /0 to /5
status :    valid or not valid (status “not valid” indicates a free segment or a bad
            firmware.
name :      ASCII name of the firmware
version :   Release of the firmware
update software minimum version : Minimum necessary release of the
            download software to enable this firmware update
```

IV.3 Display information about all firmwares

To display the information about all 6 segments

Type : **show prog list**

This command is equivalent to 6 consecutive « show prog info *Seg* » commands, with *Seg* ranging from 0 to 5.

IV.4 Enable firmware

To activate/enable the firmware located in segment *Seg* (*Seg* is a segment number ranging from 0 to 5)

Type : root> **set prog enable** *Seg*

The firmware will be activated after saving the configuration and a COMETH restart.

IV.5 Delete firmware

To delete firmware located in segment *Seg* (*Seg* is a segment number ranging from 2 to 5).

Type : **set prog clear** *Seg*

This command returns an error if *Seg* equals 0 or 1, since download firmware cannot be deleted.

WARNING, the firmware is deleted immediately, without further notice.

IV.6 Show enable firmware

To see the current activated firmware.

Type : **show prog enable**

You can see :

```
enable software : S1 (S1 is the segment)
loading software : S2 (S2 is the segment)
OK
>
```

Notes :

- Enable software is the current activated software
- Loading software is the firmware which will be activated after next cometh reboot.

IV.7 Reserved commands

The following two commands are not available for general use. They are reserved for factory testing. They are documented here only for completeness.

To allow loading internal memory from preselected firmware

Type : **set start**

This resets the flag that inhibits the replacement of DOWNLOAD-PROD.

To display the information about all 6 segments

Type : **show prog data Seg**

This command is equivalent « show prog info Seg », but its output is in a format easily parsable by a computer program.

V. DOWNLOADING IN 3 STEPS...

Dealing with firmware parameters: when you download a firmware, parameters common to all firmwares will be retained, while the parameters specific to the firmware will be kept if the firmware is an upgrade of an existing firmware; else and they will be reset to factory defaults.

V.1 Step 1 : enable download firmware

Before downloading a new firmware, you must enable the DOWNLOAD firmware.

- On your computer, run a telnet client.
C:\> **telnet 192.168.1.253**
Telnet displays a banner and a prompt from the COMETH
- You must log in. (login factory setting is “root”)
> **login root**
- You must enter a password for root user, password factory setting is “root”
- Locate the segment *Seg* where to download the firmware
root> **show prog list** (see IV.3)
- Enable the DOWNLOAD firmware
root> **set prog enable 0**
- Save the configuration change and reset to load the DOWNLOAD firmware
root> **save**
root> **reset**

Your cometh restarts. Please wait for the red led to turn off. Note that the telnet client is now unusable until the COMETH has restarted and TELNET is reconnected.

V.2 step 2 : download firmware into cometh

- To download the new firmware “*filename.ftp*” in segment number *Seg* into the COMETH at IP address *xxx.yyy.zzz.kkk*, the command syntax for MS Windows TFTP is :

```
C:\> tftp -i xxx.yyy.zzz.kkk put filename.ftp /Seg
```

For example:

```
C:\> tftp -i 192.168.1.253 put modbus.ftp /4
```

Seg is the segment which you identified in step 1. Notice the “/” before the number.

V.3 step 3 : enable the new firmware

- On your computer, run a telnet client, or reconnect the previous one.
C:\> **telnet 192.168.1.253**
Telnet displays a banner and a prompt from the COMETH
- You must log in. (login factory setting is “root”)
> **login root**
- You must enter a password for root user, password factory setting is “root”
- Enable the new downloaded firmware
root> **set prog enable Seg**
- Save the configuration and restart the COMETH to load the new firmware
root> **save**
root> **reset**

The Cometh restarts. Wait until the DIAG led turns off (less than 15 seconds). The new firmware is now running.

VI. DEFECT REPORT FORM

Name	
Company	
Telephone	
Fax	
E-mail	
COMETH	
Operating system	
driver version	
Type of computer	

Description of the problem

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