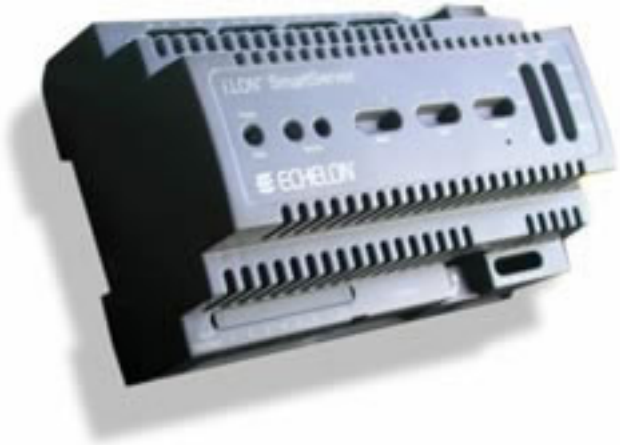
Technical Application Notes

Maestro Heritage

and

Echelon i.LON™100 Internet Server



REV.00 08/07/09

Application note: How to use the Maestro Heritage with a Echelon i.LON™100 Internet Server

Abstract

This application note describes two ways to use the Maestro Heritage modem to add wireless GPRS connectivity to an Echelon i.LON™100 Internet Server.

First way uses the Maestro Heritage Main Unit as a standard GPRS modem (HER010).

While second way relies on the Maestro Heritage main Unit (HER010) + Ethernet add-on board (HER040) to expand LAN interface of the Echelon i.LON™100 Internet Server over a GPRS link.

Section 1 - INTRODUCTION

The Maestro Heritage is a powerful GSM/GPRS/Edge/3G modem that can be used to extend local serial or Ethernet interfaces of the Echelon i.LON™100 Internet Server over Internet, through wireless link. This can be done straightforward using this document as a reference.

Maestro Heritage modem provide a highly reliable connection which can save costly try to the site or provide a communication link to a dangerous, or hazardous area.

The equipment and versions required are as follows:

o 1x Laptop or Desktop PC and the following software pre-loaded

- Windows HyperTerminal or similar Terminal software
- Maestro Heritage Ethernet (HER040) configuration software

o 1x Maestro Heritage main Unit (HER010) Modem with firmware version gcc_HERITAGE_092a_OAT425_2687_256KB.wpb.dwl or above with the following user manual:

- Maestro Heritage User Manual Rev.03 or above

o 1x Maestro Heritage Ethernet Add-On Board (HER040)

- Maestro Heritage Ethernet (HER040) user manual rev.04 or above
- Ethernet Board port forwarding manual: "how to do port forwarding with HER040.pdf"*

*Optional, only if you want to use the Port Forwarding feature

- 1x Echelon i.LON™100 Internet Server

- 1x GPRS Sim Card
  - An access Point Name (refer later as APN)

- 1x Antenna (e.g. ACC-A01/ACC-A02/ACC-A04/ACC-A05)

- 1x Power Supply (e.g. ACC-PS01/ACC-PS02/ACC-PS03/ACC-PS09)

- 1x Serial cable (ACC-CA07)

- 1x Configuration cable for HER040 Add-on board (ACC-CA13)

Section 2 – SERIAL CONNECTION

2.a Maestro Heritage Configuration

First step is to configure the Maestro Heritage top operate with the Echelon i.LON™100 Internet Server.

Insert a GPRS enabled SIM card into the Maestro Heritage, connect the antenna, the power supply and use a serial cable to connect the modem to a computer (for help please refer to “Maestro Heritage User Manual Rev.03” or above).

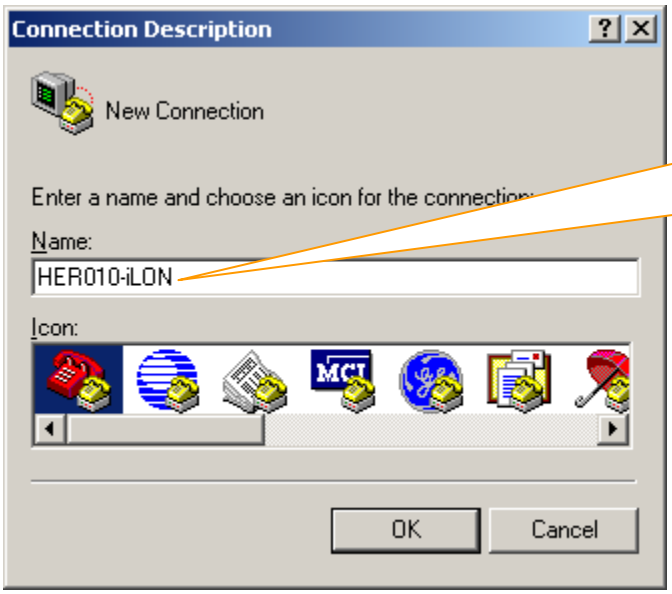
The Heritage should look like this:

2.b Maestro Heritage Configuration with HyperTerminal

To ensure reliable and efficient communications you must use the default settings which are as follows:

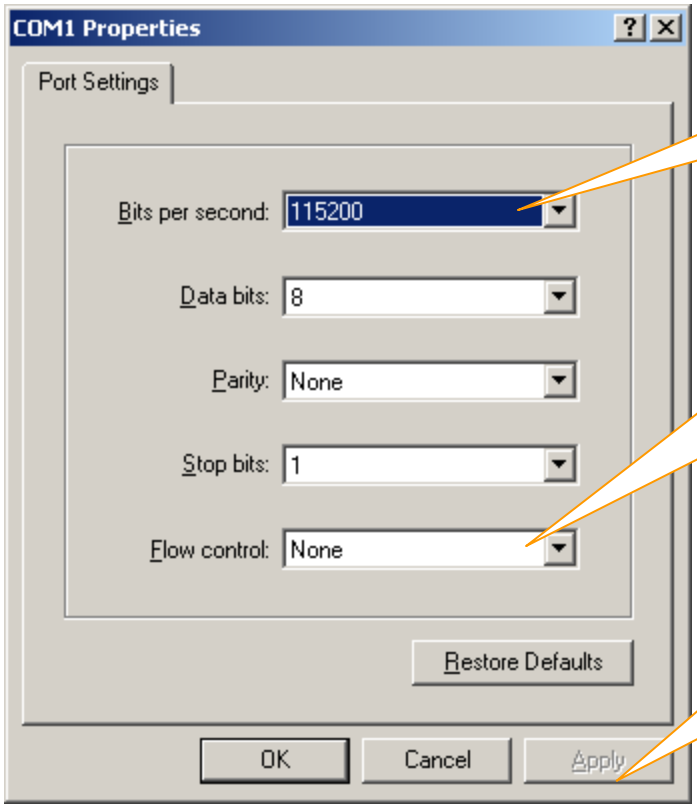
115200; 8 data bits; 1 stop bits with no parity and no flow control

Open HyperTerminal (Menu Start > All Programs > Accessories > Communications > HyperTerminal)



Choose a name for your connection.
Here I choose HER010-iLON.
Click OK

Setup the country and the area and choose “Connect using: COM1”.
Click OK



Change “Bits per Second” to 115200

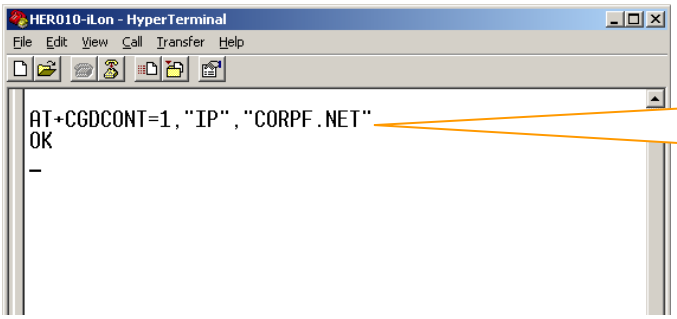
Change “Flow control” to None

Click “Apply” and then “OK”

You may now have to setup the APN parameters given by your Internet Service Provider.

Type the following AT Command in HyperTerminal:

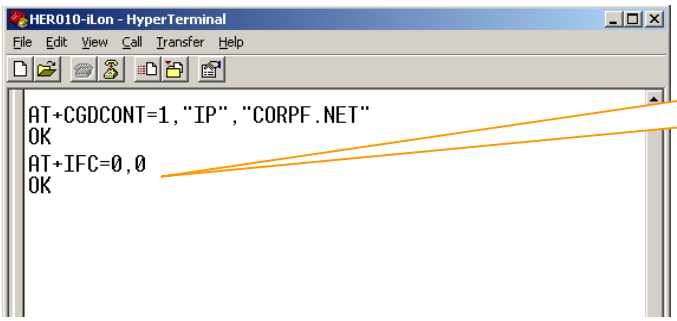
AT+CGDCONT=1, “IP”, “your_APN”



The APN is here “CORPF.NET”
Hit “Enter” the modem will answer “OK”

Setup the modem to use three wires communication by typing:

AT+IFC=0,0

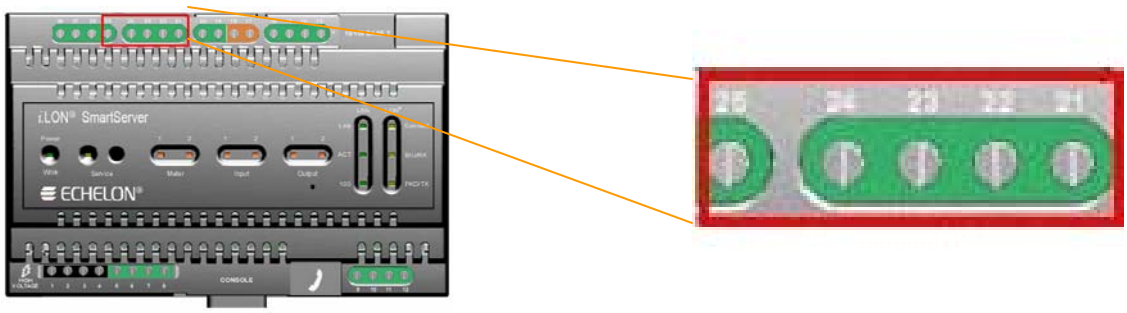


Hit “Enter” the modem will answer “OK”

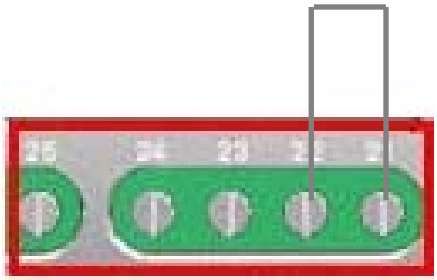
2.c Maestro Heritage connection to the Echelon i.LON™100 Internet Server

The following table lists the enclosure markings for the RS-232 and RS-485 port screw terminals and the SmartServer and their connection types.

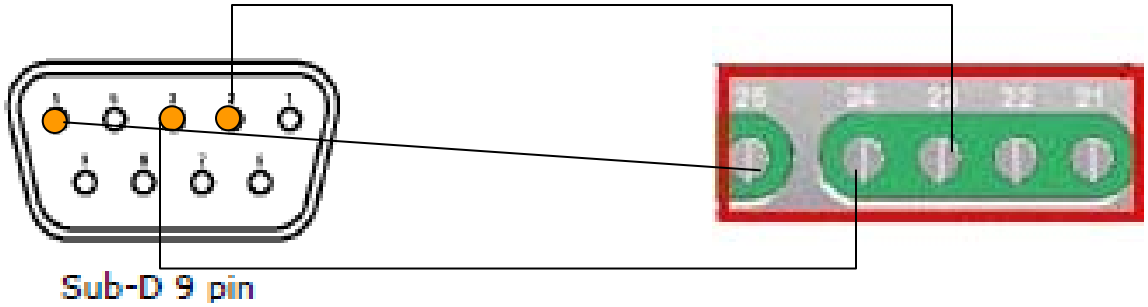
Screw Terminal	Enclosure Marking	EIA-232 Connection
21	RTS	RS-232 RTS
22	CTS	RS-232 CTS
23	RXD	RS-232 Receive
24	TXD	RS-232 Transmit
25	GND	RS-232 Ground



On the Echelon i.LON™100 Internet Server, use a wire to short the signals RTS (21) and CTS (22) of the RS232 interface.



Then connect pins 2 (RXD), 3 (TXD) and 5 (GND) of the Maestro Heritage serial port respectively to the pin 23 (RXD), 24 (TXD) and 25 (GND) of the Echelon i.LON™100 Internet Server.

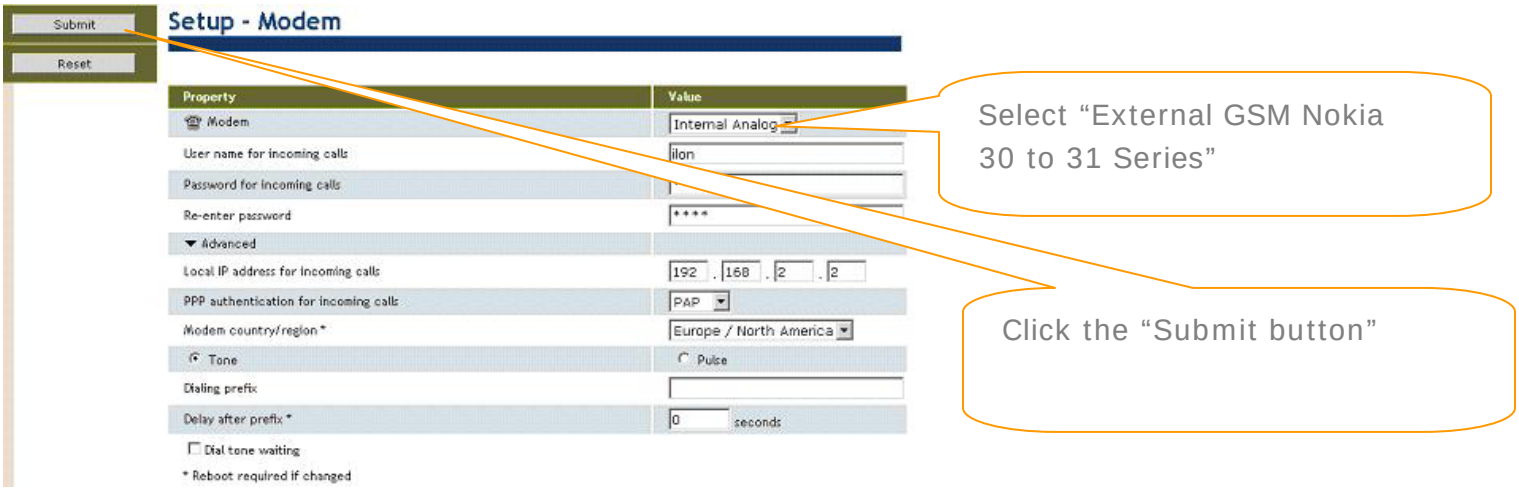


Connect all antennas, power supplies and various cables as requested by your setup, then use the Web Interface of the Echelon i.LON™100 Internet Server to configure it. (refer to document: i.LON 100 e3 User's *Guide* from Echelon Corporation available at *www.echelon.com*)

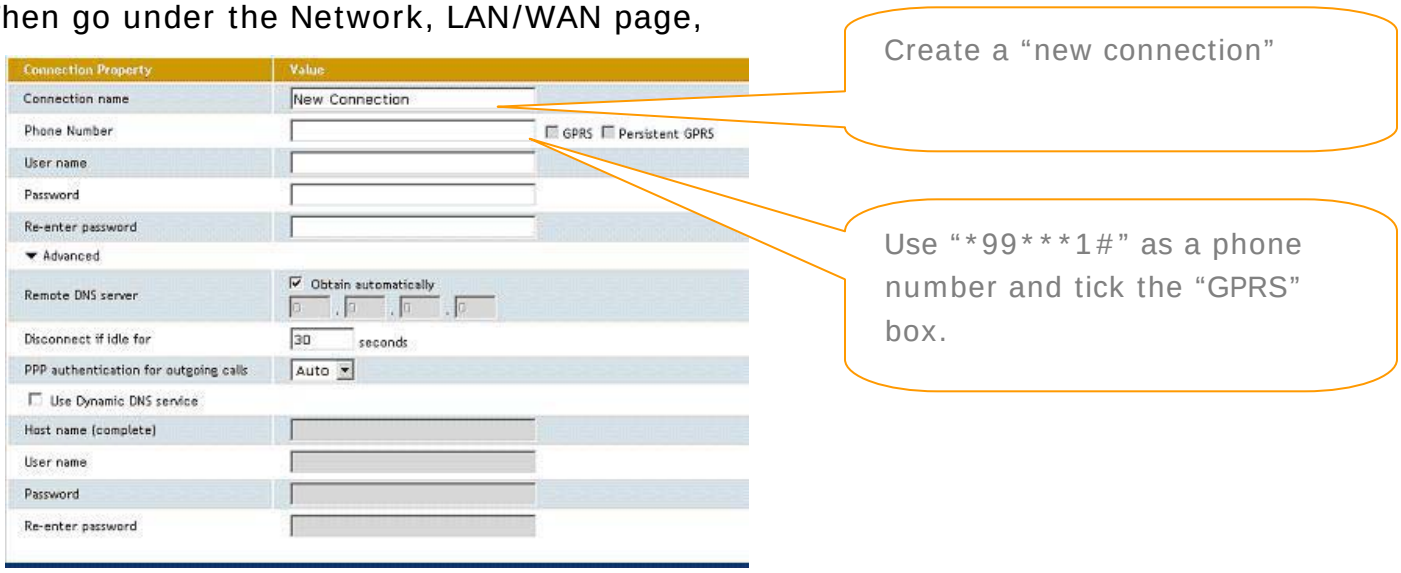
2.d Echelon i.LON™100 Internet Server configuration

The Echelon i.LON™100 Internet Server configuration page can then be accessed from Internet at http://xxx.xxx.xxx.xxx:8000, where xxx.xxx.xxx.xxx is the IP address of your SIM card. If your SIM card does not have a fixed IP, you can use the DynDNS service supported by the Echelon i.LON™100 Internet Server. (see *i.LON 100 e3 User's Guide*)

On the modem setup page of the Echelon i.LON™100 Internet Server. select the modem "External GSM Nokia 30 to 31 Series" .



Then go under the Network, LAN/WAN page,



You can then configure any SMTP or any other kind of server, the configuration step is done.

Section 3 – ETHERNET CONNECTION

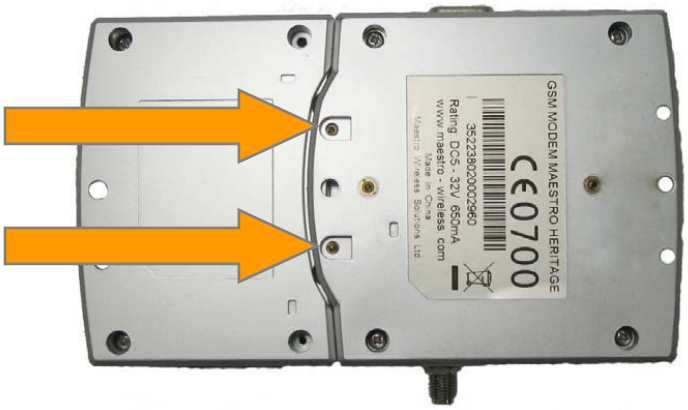
Note: in this section, we assume that there are only two devices in the setup: the Maestro Heritage and the Echelon i.LON™100 Internet Server. More complex setups can be easily derived from this note.

3.a Maestro Heritage Configuration

First step is to setup the Maestro Heritage modem. Connect the HER010 and HER040 units together.

Align the connector end of HER040 and slide it into the mounting slot. The ribs on the connector end guide the sliding action. Push until the connector goes all the way in. The action is normally very smooth.

Use the 2 screws sized M2x6 and 2 spring washers, supplied together with HER040, to secure the two units in position.



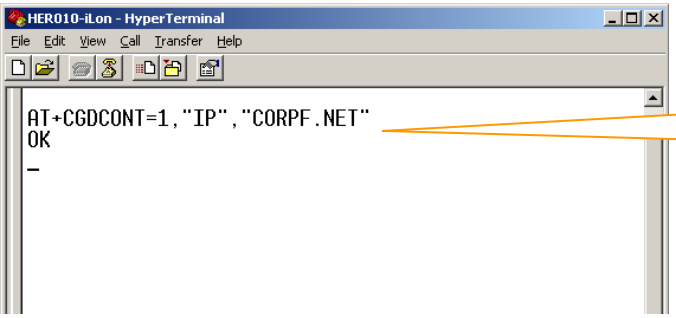
Insert SIM card, connect antenna and power supply as described in the Maestro Heritage user guide.

Then, set up the Maestro Heritage main Unit (HER010), connect the HER010 to a computer and open HyperTerminal as described in section 2a and 2b.

3.b Maestro Heritage Configuration with HyperTerminal

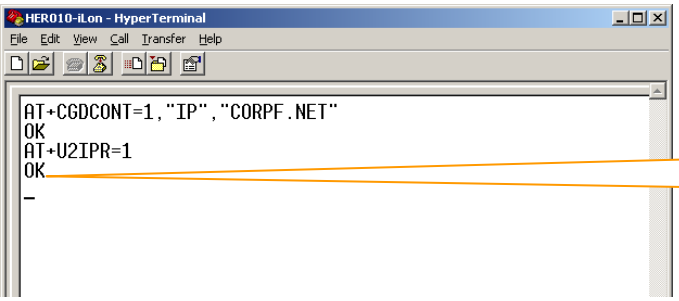
Once in HyperTerminal, type the following commands to enter Ethernet setup mode:

AT+CGDCONT=1, “IP”, “your_APN”



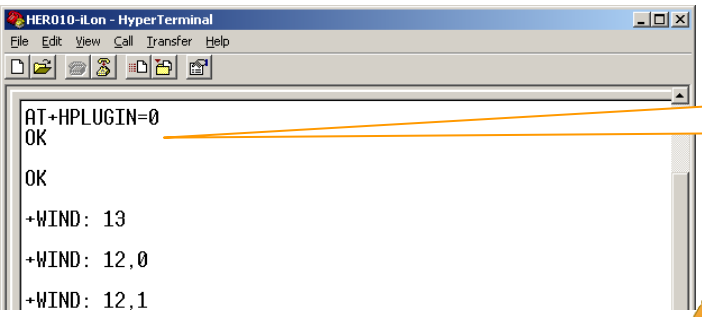
Hit “Enter” the modem will answer “OK”

AT+U2IPR=1



Hit “Enter” the modem will answer “OK”

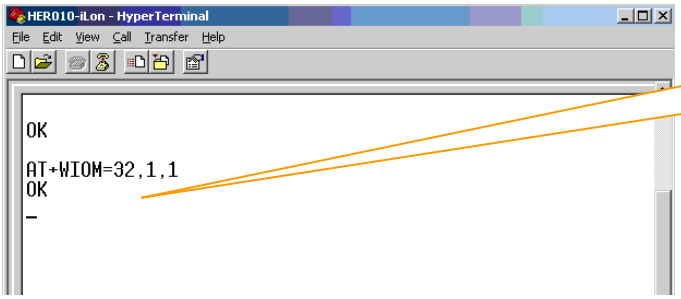
AT+HPLUGIN=0



Hit “Enter” the modem will answer “OK”

In some occasion the modem will continue working in background (+WIND), this is normal and will not affect the Heritage setup.

AT+WIOM=32,1,1

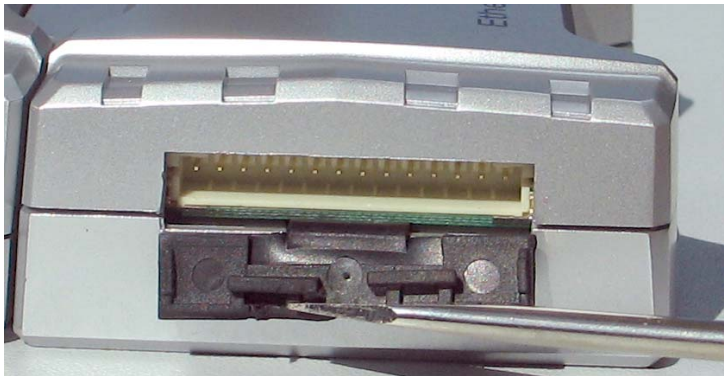


Hit “Enter” the modem will answer “OK”

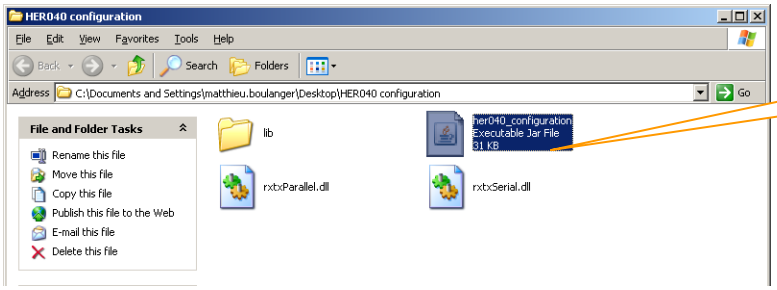
The Heritage Main Unit configuration is now finish, exit HyperTerminal and unplug the serial cable from the computer.

3.c Maestro Heritage Ethernet configuration with “Maestro Heritage Ethernet (HER040) configuration software”

Plug the Heritage Configuration cable (ACC-CA13) to the Maestro Heritage Ethernet Add-on boards, and then to the serial port of your computer.

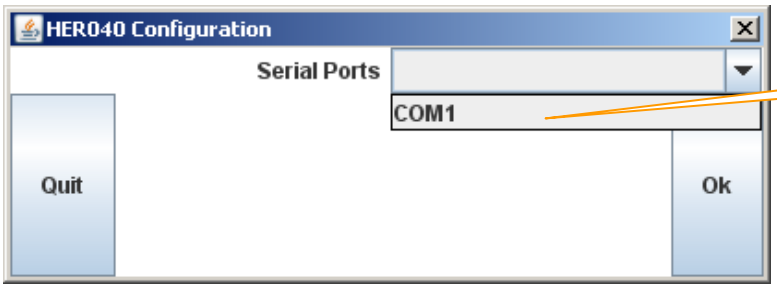


Launch the configuration software by clicking on the HER040_Configuration Executable Jar Files



Launch the Heritage Ethernet software

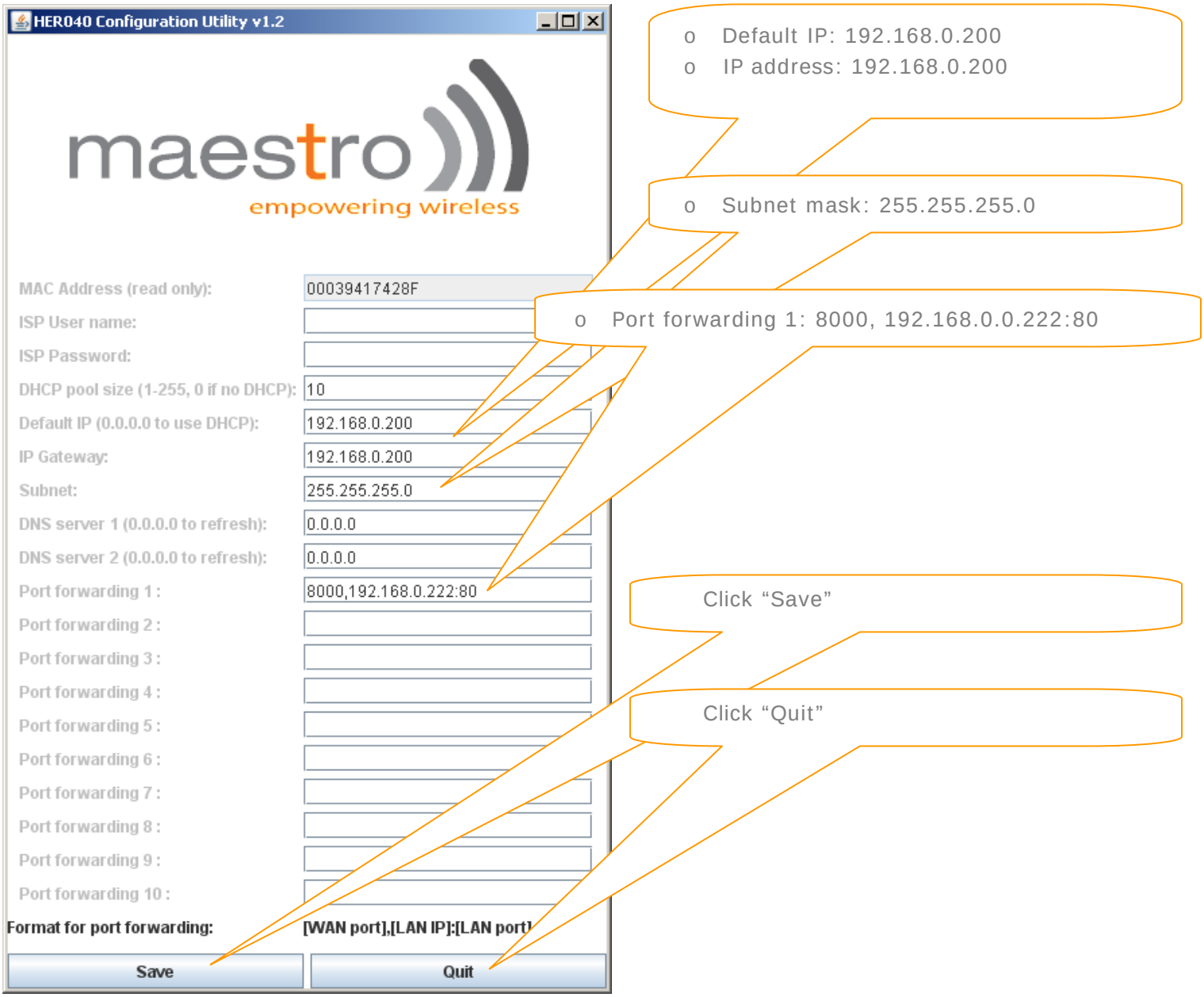
A window will pop-up



Select “COM1” and click “Ok”

Use the following parameters

- Default IP: 192.168.0.200
- IP address: 192.168.0.200
- Subnet mask: 255.255.255.0
- Port forwarding 1: 8000,192.168.0.222:80
- DNS servers as provided by your telecom operator (or 0.0.0.0 for automatic detection)

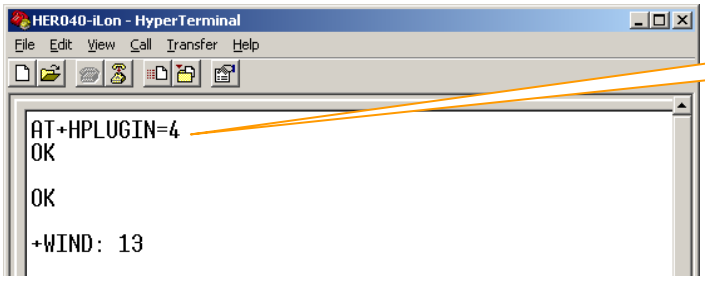


Once you are done, close the “Maestro Heritage Ethernet (HER040) configuration software” and disconnect the serial cable from your computer

In order to re-activate the HER040, you need to reconnect the Heritage Main Unit (HER010) to the computer, reconnect the Heritage Main Unit (HER010) serial cable to your computer and launch HyperTerminal as decribed in section 2a and 2b

Send the following command: AT+HPLUGIN=4

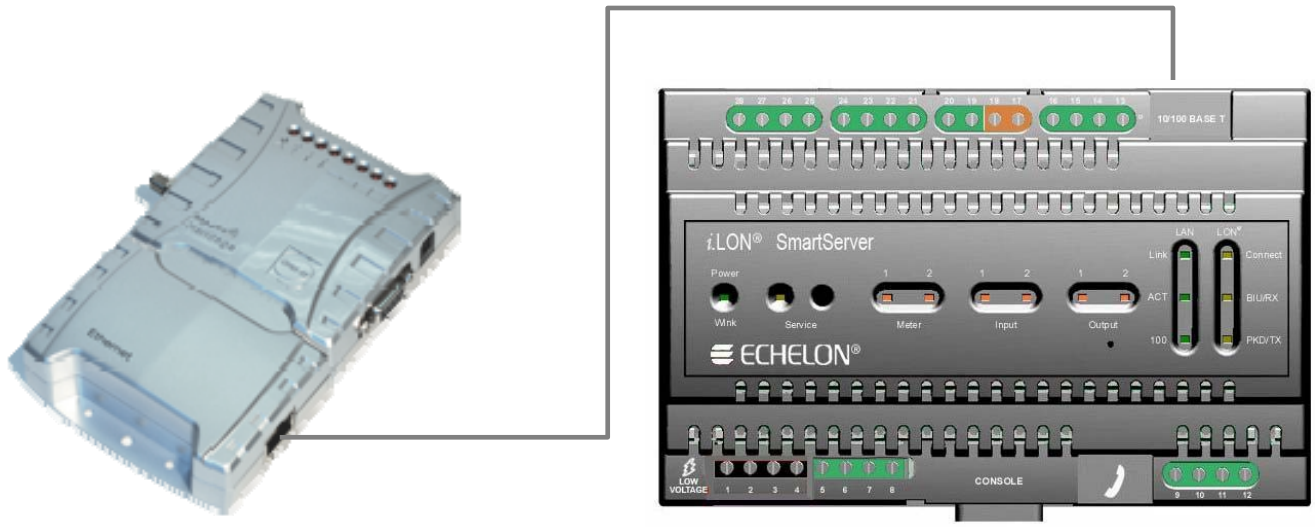
AT+HPLUGIN=4



Hit enter, the modem will answer “OK”

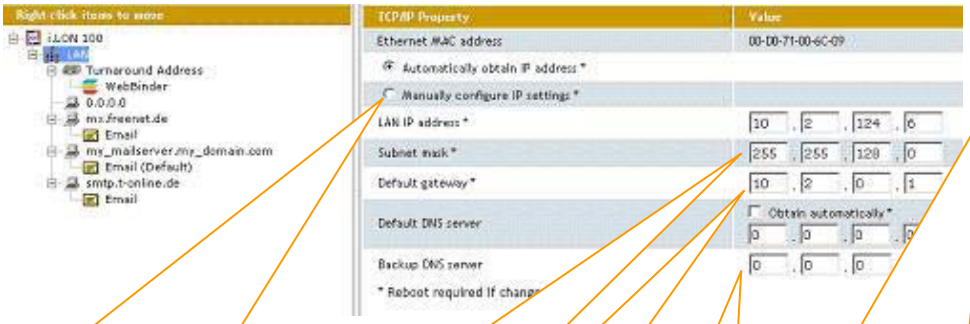
3.d Maestro Heritage Ethernet connection to the Echelon i.LON™100 Internet Server and configuration

Use a standard Ethernet crossed cable to connect the Maestro Heritage to the Echelon i.LON™100 Internet Server LAN port.



Simply setup the LAN parameters of the Echelon i.LON™100 Internet Server configurations as follows:

- Manually configure IP settings
- LAN IP address: 192.168.0.222
- Subnet mask: 255.255.255.0
- Default gateway: 192.168.0.200
- DNS servers as provided by your phone operator



Manually configure the IP setting

Set Lan IP Adress to "192.168.0.222"

Set subnet mask to "255.255.255.0

Set default gateway to " 192.168.0.200"

Set DNS Server as provided by your Telco

References

1. Cecile Lin and K.K. Chan, *Maestro Heritage user manual*, rev. 03 Maestro Wireless Solutions.
2. Wallace Lee, *Maestro Heritage Software Tools*, rev. 1.2 Maestro Wireless Solutions.
3. Frank Tang and Pierre-Emmanuel Surga, *HER040 user manual*, rev. 4 Maestro Wireless Solutions.
4. *i.LON 100 e3 User's Guide* Echelon Corporation.

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