

Application Note

Virtual COM over a GPRS connection

Applies to M1000 Pro

Document Name: **Application Note**
Version: **01.00**
Date: **2011-09-26**
Status: **Confidential**
DocID: **RT_M1000_AN005_v01.00**

Robustel

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Revision History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Release Date	Firmware Version	Details
2011-9-26	01.00	First Release

Requests for corrections or amendments to this application note are welcome and should be addressed to: support@robustel.com

Requests for new application notes can be sent to the same address.

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Chapter 1. Introduction

1.1 Overview

Many of today's key business applications were written to talk to serial devices that are directly connected to servers. To better serve their customers, businesses have found it necessary to locate serial devices in places that are not always close to servers or PCs.

Virtual COM (COM port redirector) software leverages the now-ubiquitous TCP/IP network infrastructure, especially over the cellular networks, to provide a virtual connection to serial devices. The software is installed directly on the server and allows applications to talk to devices across a GPRS network as though the devices were directly attached to the server. In actuality, the devices are connected to a M1000 Pro somewhere on the network.

1.2 Objective

Virtual COM software allows companies to easily network-enable serial devices without spending valuable time and money to re-write existing application programs.

In this application note, we will introduce how to enable remote control M1000 Pro's serial port over a GPRS connection just as control a local serial port on the server.

1.3 Parts Used

Hardware requirement:

- Robustel GoRugged M1000 Pro serial to GPRS gateway
- SIM card to insert in M1000 Pro. Again the GPRS option should be enabled for the SIM card
- DB9 Female to DB9 Male cable
- PC

Software requirement:

- Eterlogic VIRTUAL SERIAL PORTS EMULATOR, user can download at follow link:
<http://www.eterlogic.com/Products.VSPE.html>
- You can download other virtual COM software at
<http://www.hhdsoftware.com/free-virtual-serial-ports>
http://www.hw-group.com/products/hw_vsp/index_en.html

System requirement:

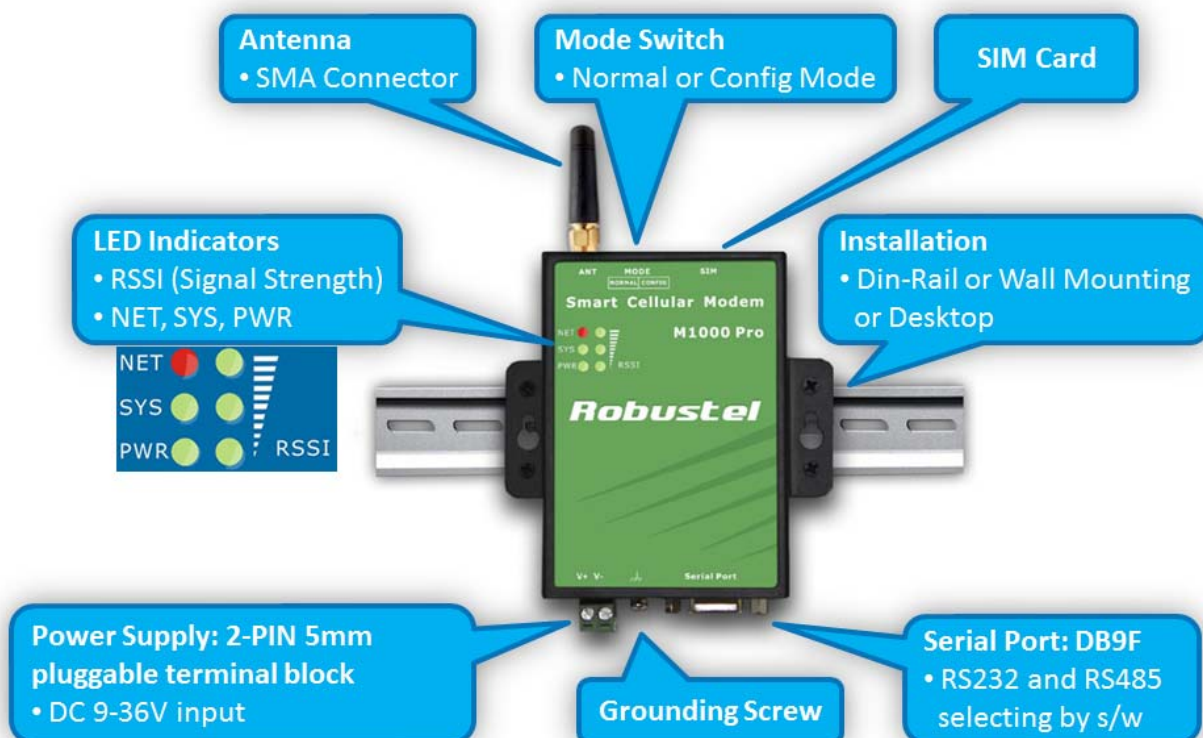
Windows 7 (32/64), Windows Vista (32/64), Windows 2008 (32/64), Windows 2003 (32/64), Windows 2000, Windows XP (32/64)

1.4 Application Diagram



1. PC installed virtual COM software works as TCP server with fixed public IP or dynamic IP with domain name;
2. M1000 Pro works as TCP client with any IP;
3. M1000 Pro works under wakeup by SMS/Caller ID modes, after wakeup auto connect to the TCP server, and disconnect when reach maximum idle time (no data flow).

1.5 Benefits

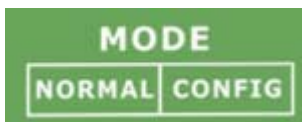


- Configuration mode and Normal mode selecting by switch
- Configurable by Robustel ModemConfigurator Pro GUI
- Auto GPRS connection (no AT commands required) and watchdog for reliable communications
- Transparent TCP client, TCP server and UDP socket connections
- Support Virtual COM by installation 3rd party software
- Various dial-up policies
- Always online: auto GPRS connection while it powered on, auto redial while the line dropped
- Wakeup by serial data/SMS/Caller ID/Preset Time
- Auto GPRS connect/reconnect, Keep Alive command to maintain socket connection
- Auto SMS of IP for dynamic IP SIM card
- Packetization methods: packet length / time interval / special end characters
- Auto reboot at preset time of a day/Caller ID/SMS
- Firmware upgrade via serial interface

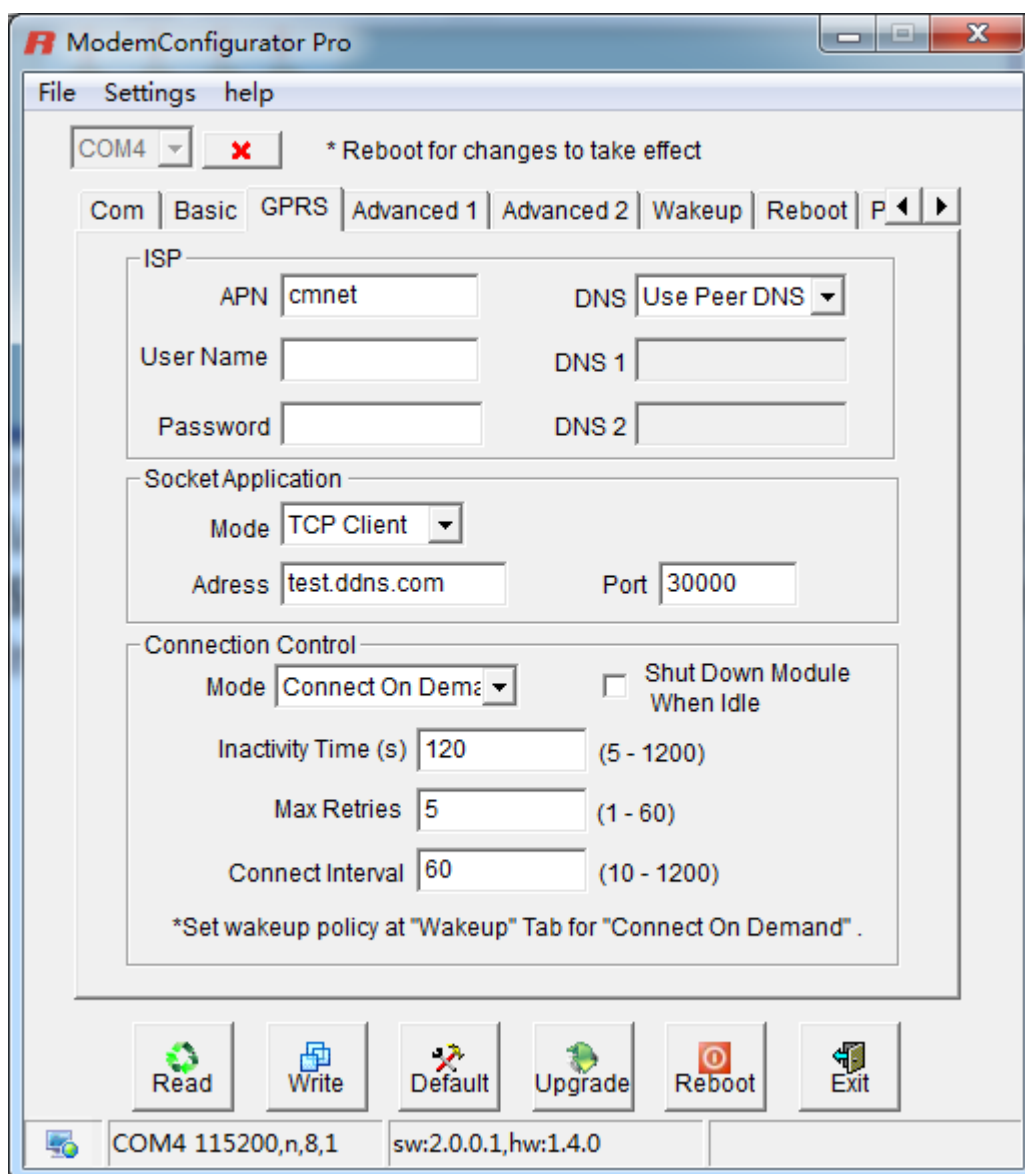
Chapter 2. Configuration

2.1 Configuring the M1000 Pro Modem

1. Switch the M1000 Pro modem to **Config Mode**, and then connect M1000 Pro to the PC's serial port;



2. Run *ModemConfigurator Pro* and go to GPRS tab, configure the correct ISP information, Socket Application and Connection Control, *Write* to save.



3. Switch the M1000 modem to **Normal Mode**.

Note: Factory setting of the modem COM port is: **115200-8-N-1**.

2.2 Installing the Eterlogic VIRTUAL SERIAL PORTS EMULATOR

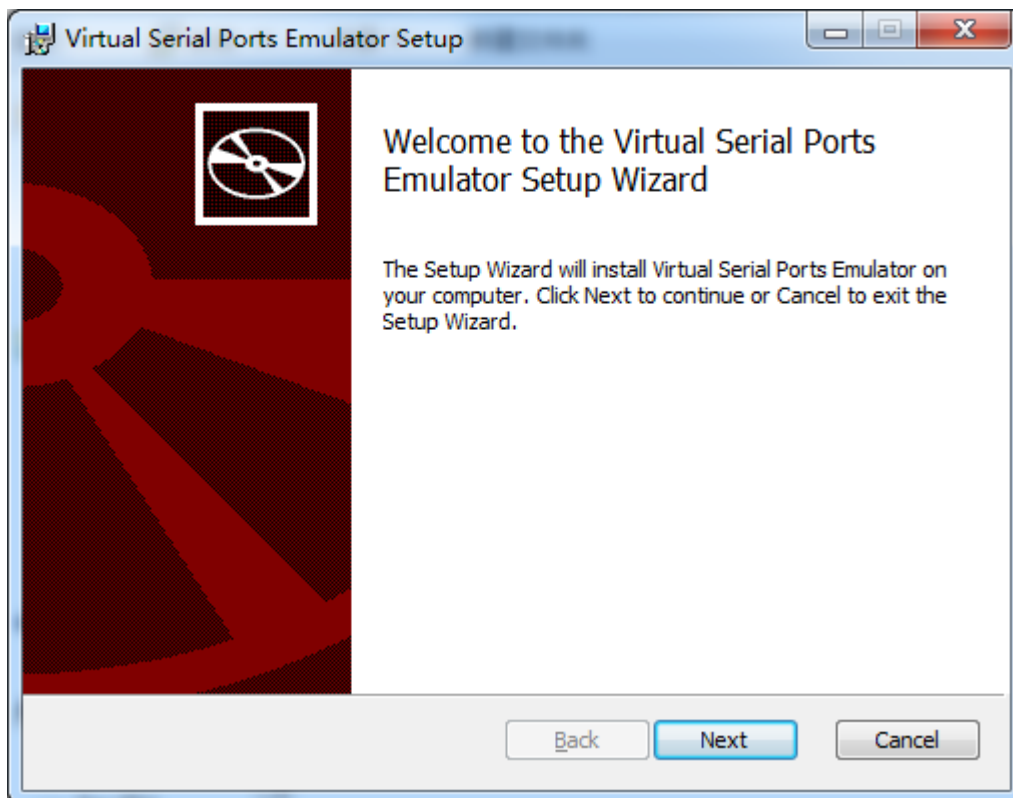
User can download the software at <http://www.eterlogic.com/Products.VSPE.html>

Please follow the following steps to install Eterlogic VIRTUAL SERIAL PORTS EMULATOR:

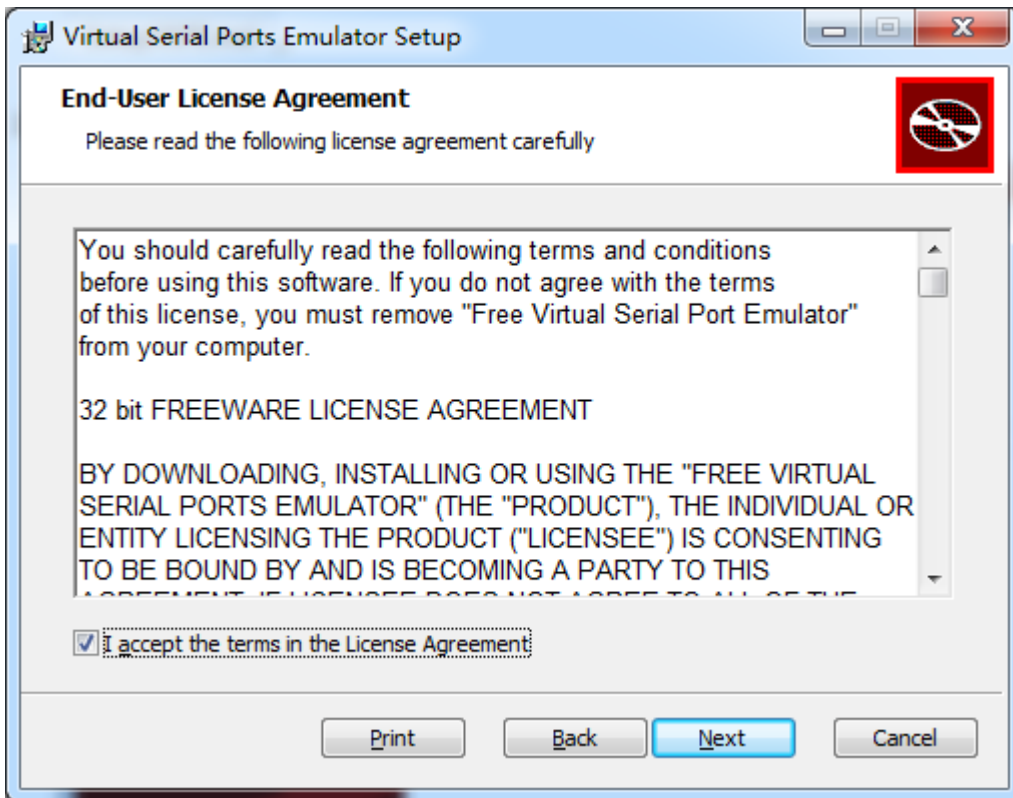
1. Run the install file by double clicking the file;



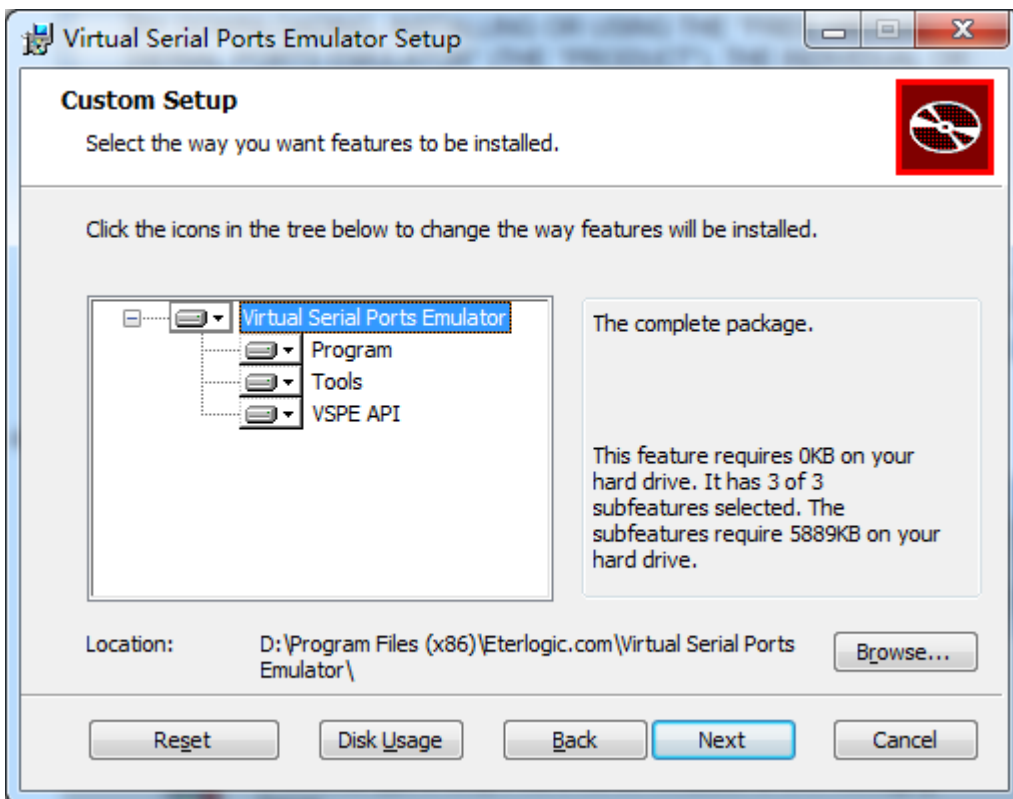
2. Click *Next*;



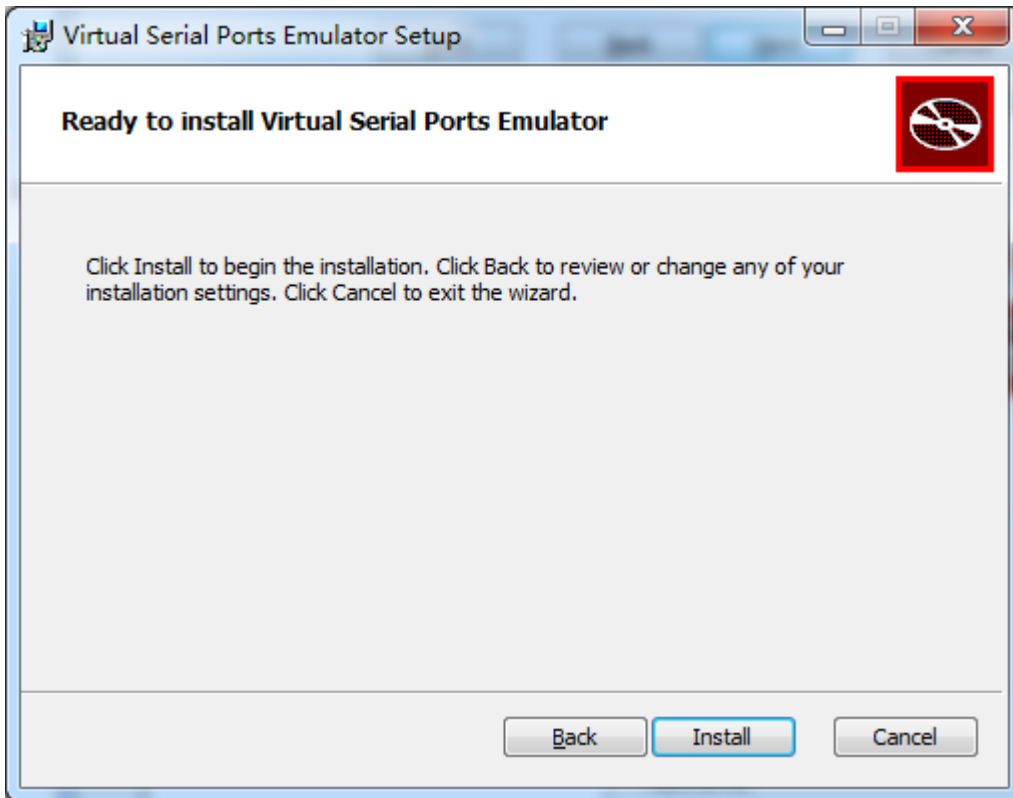
3. Select *I accept the terms in the license agreement* and click *Next*;



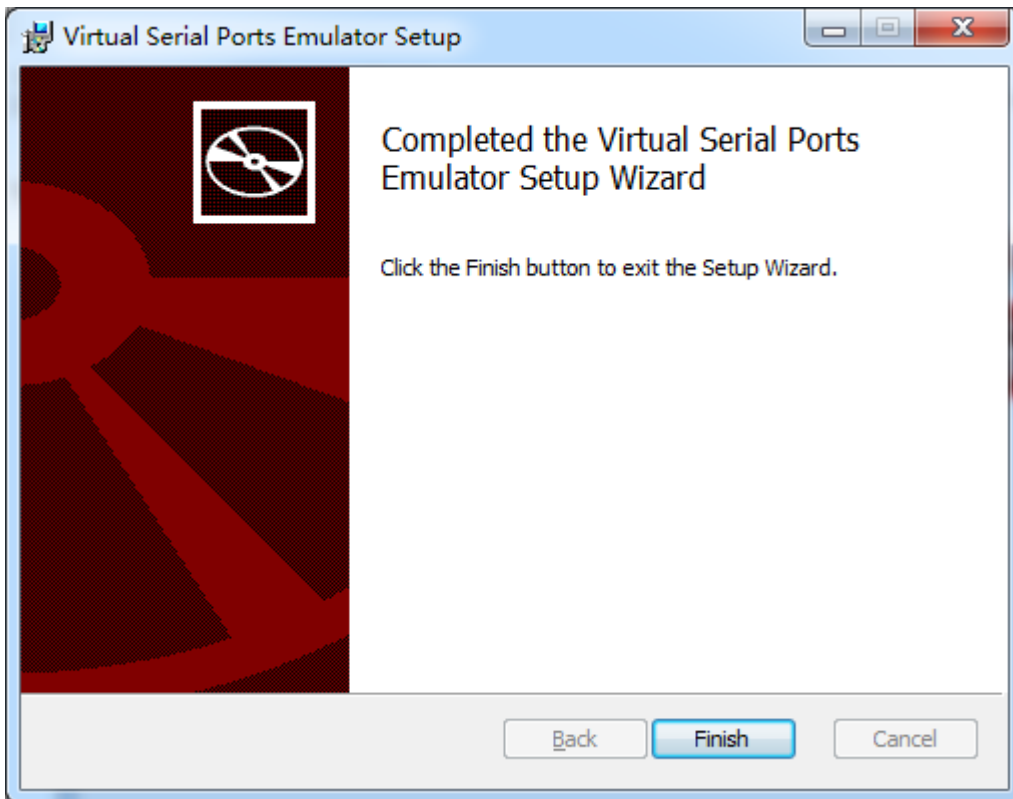
4. Select install *location* and click *Next*;



5. Click *Install*;

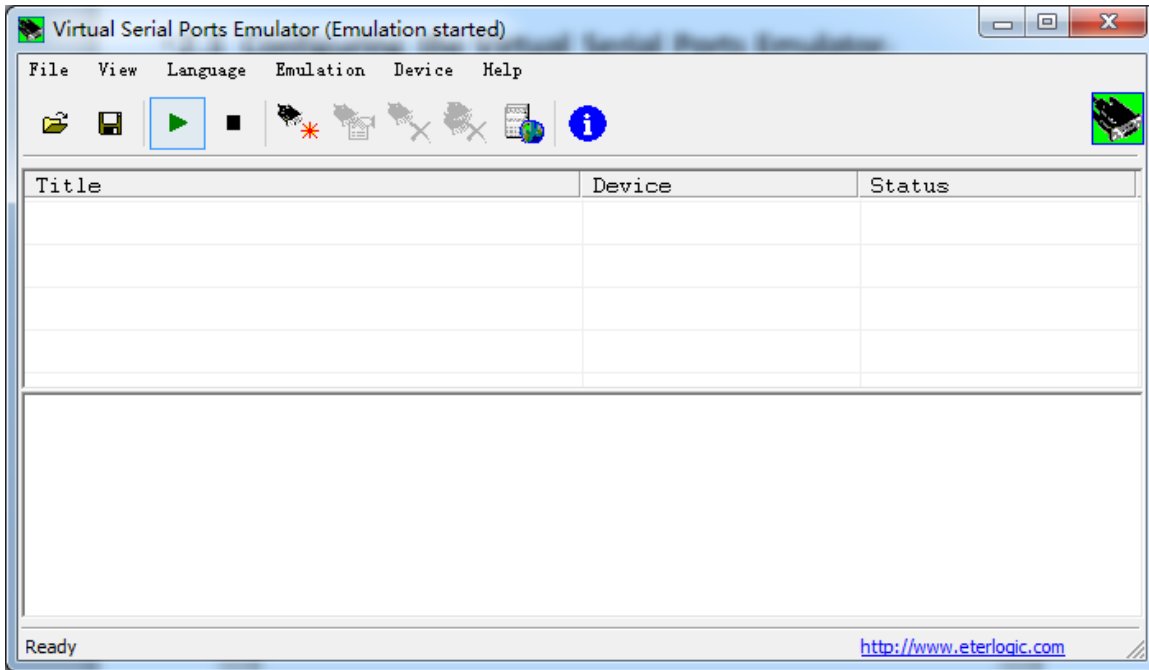


6. Finish installation and launch the software.



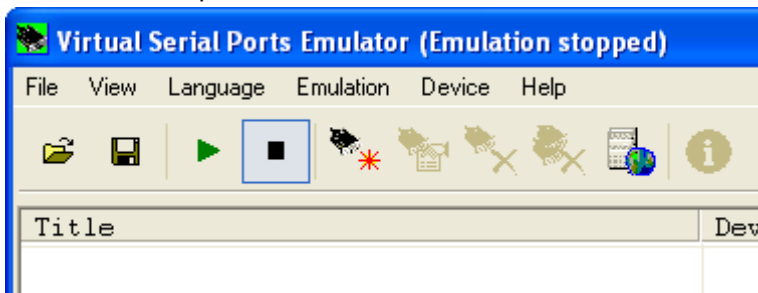
2.3 Configuring the Virtual Serial Ports Emulator

1. Click to run the software;

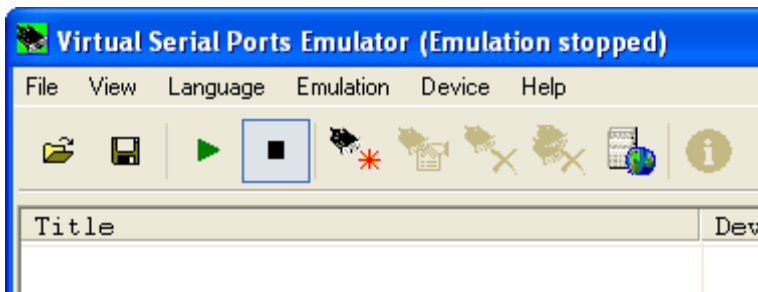


2. Creating a virtual COM port;

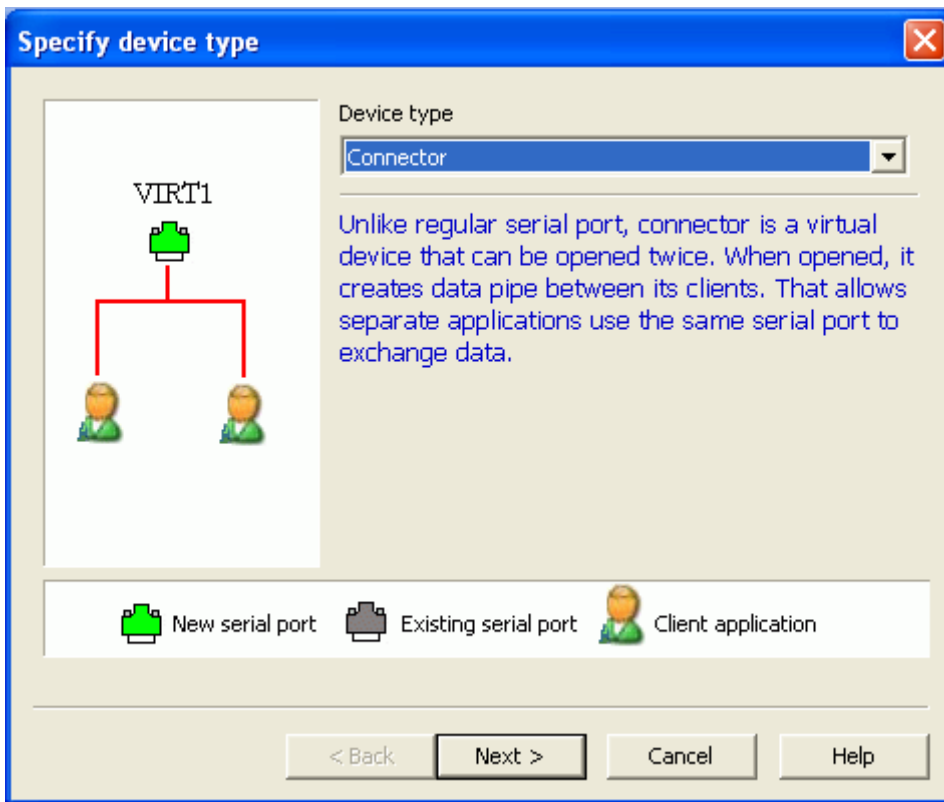
- Click on the "stop emulation" button.



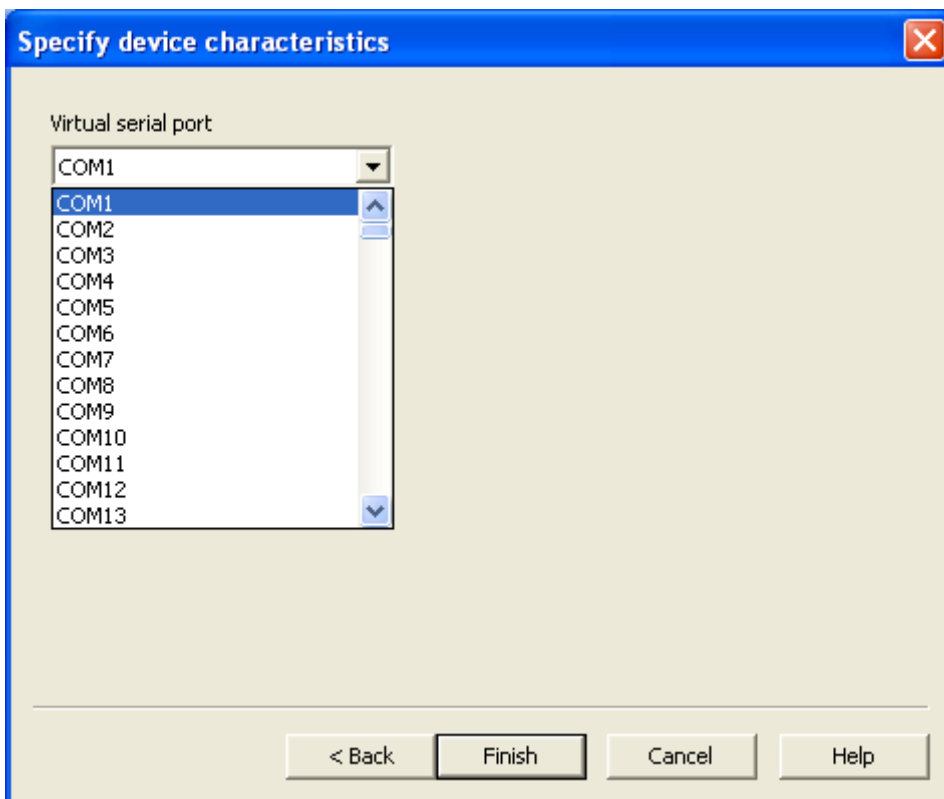
- Click on the "Create new device" button.



- In the new window that will open, choose the "connector" option and click "next".

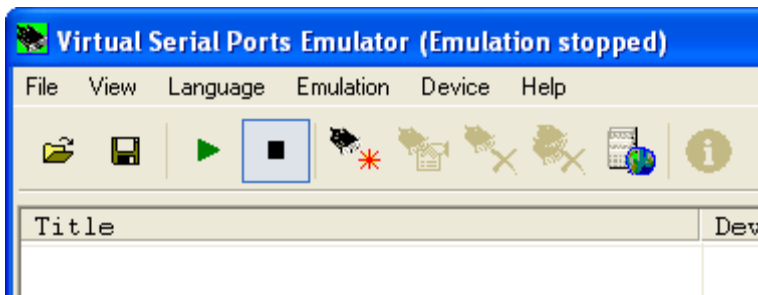


- Pick any port of your choice and click the "finish" button. Make sure that the COM you have selected is not in use.

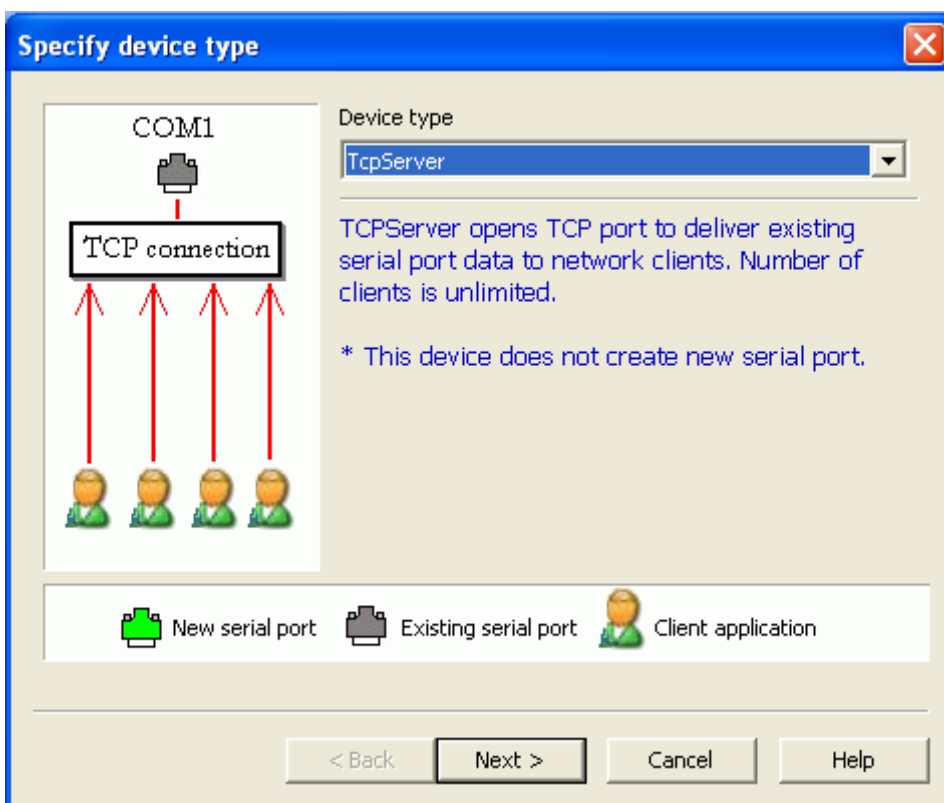


- For this example we will create COM4 as a virtual COM port.

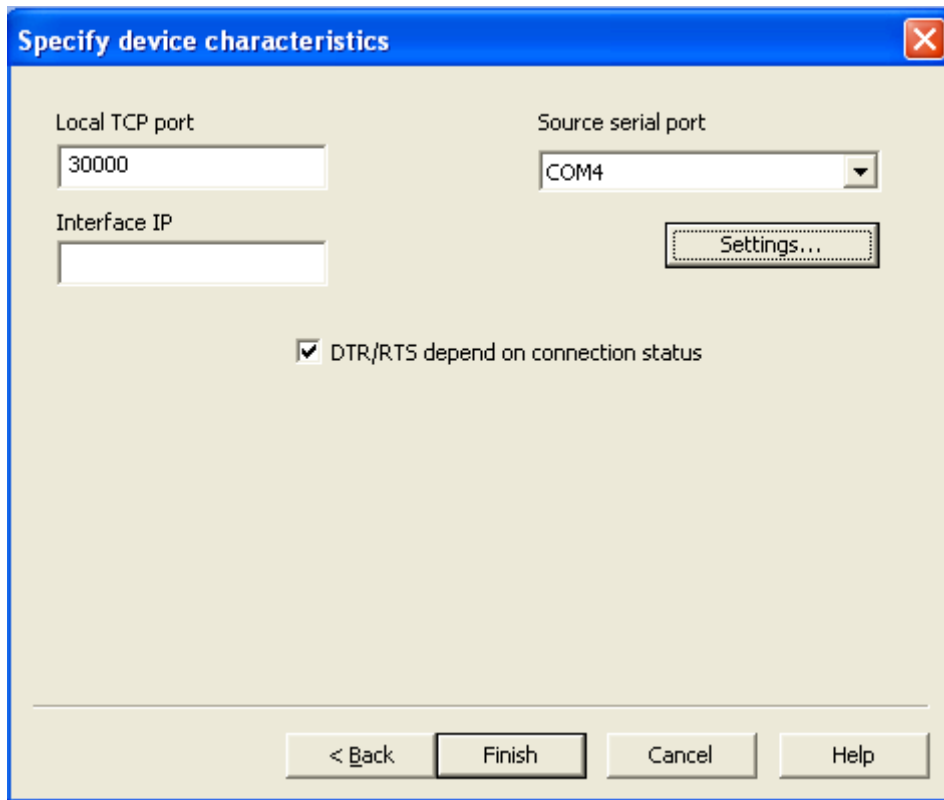
- 3. Creating a TCP server;
Now we will create a second connection device.
- Click on the "Create new device" button.



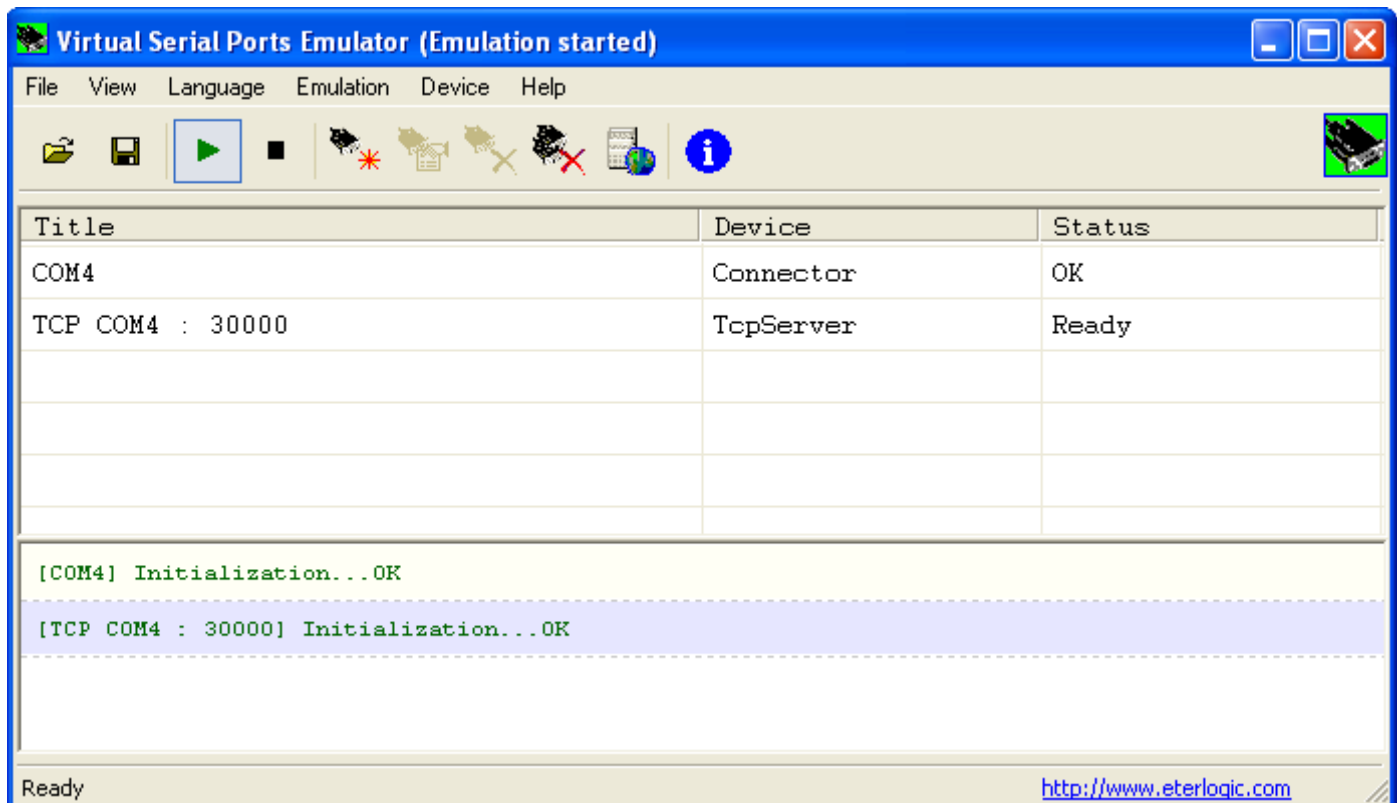
- Choose a "TCP Server" and click the "next" button.



- In the "local TCP port" text box, enter a TCP port number.
Make sure that the port number will be exact as configured in the **M1000 Pro->GPRS->Port**.
In this example the TCP port will be 30000.
- In the "source serial port" list, choose the virtual port you have configured earlier this stage (COM4) and click the "finish" button.



- The final step is to click on the "Start emulation" button.



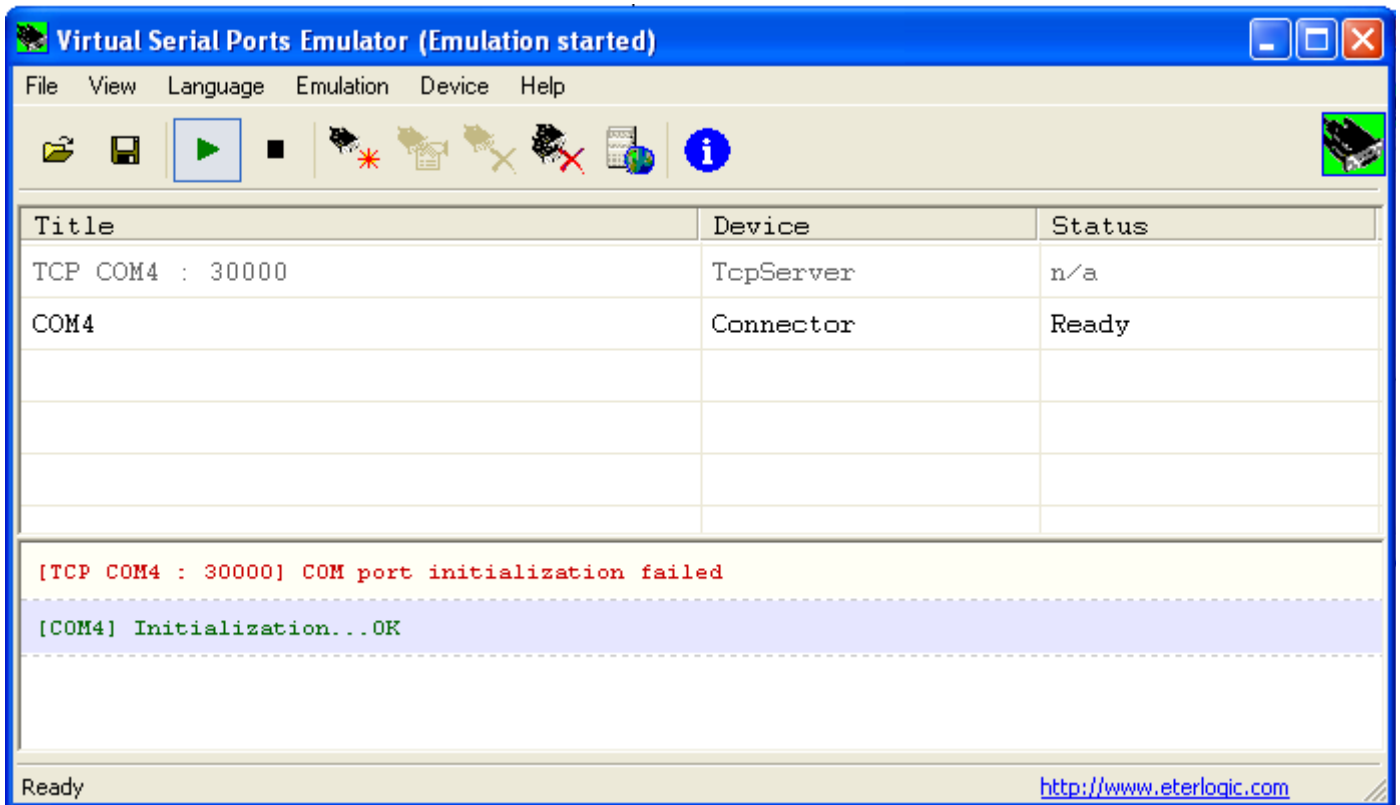
- If everything was configured correctly, you should see a notification message of "initialization . . . OK" next to each port that was created. As seen above in the yellow frame.

4. The Importance of Configuration Order.

The order of creating the COM port devices is very important!

In the example above, the TCP port will transfer the received GPRS data to a virtual COM port. But if no such COM port was created earlier, a problem will occur.

In the window below, we can see an example of bad configuration order.



The first device port configuration is a TCP port that is connected to a virtual COM port number 4.

The second device port configuration is a serial COM port number 4.

After clicking the "start emulation" button, the messages in the red frame above will appear.

The message of "initialization failed" mentioning that no such connection can be created.

5. Now the software is installed and configured successfully on the server and allows applications to talk to devices across a GPRS network as though the devices were directly attached to the server.