

Virtual Serial Port using Charon I Development Kit

This example application demonstrates how simple it is to create new Serial Com ports over an Ethernet network using the Charon I module and how to use this Com Port to communicate with any serial devices connected to the Charon I.

The Charon Development Kit is supplied with the Ethernet to RS232 firmware. The Virtual Serial Port terminal is a free download.

The first thing to do is to make sure the Charon is set up correctly. To do this, the onboard jumpers should be set up as follows:

PSEN jumper – Not equipped
LED ENABLE jumper – Equipped (off to reduce power consumption).
SETUP (T0) – Equipped
INT0 - unnecessary

Now run a Com port emulation terminal (Tera Term is included with the Charon I development kit or you can run a Hyper Terminal).

You can set up a HyperTerminal as follows (for Windows):

Press: Start > Run...

Type 'HYPERTRM' in the Run window.

Type in a name for the New Connection e.g. HYPER1

In the Connect to window, pull down the Connect using list and select the COM port you are using e.g. the COM port the Charon is connected to. In this example we are using COM1. Select OK.

In the COM1 Properties Window, we shall now set up the port settings as follows:

Baud – 9600
Data Bits – 8
Parity – None
Stop Bits – 1
Flow Control – None

Select OK and you now have a direct link to the Serial COM port 1.

Connect the Serial cable to the Charon development kit at one end and the COM port 1 at the other.

Power up the board and press RESET. The Charon will send its set up data to COM1 and this is in turn displayed on the newly created HYPER1 terminal.

You can now alter the Charon's Set up details to match your network settings (IP, MASK and GW at least). If you need to change the settings, follow the Charon Starting guide to do so.

In general, the IP address should be the same except for the last node, which should be different to indicate which part of the local network is being communicated with. The MASK and GW should be the same.

For this application we have used a second network card on our PC and are using the default Charon properties for the card. It is exactly the same principle though as having the Charon elsewhere on your network.

When the Charon is set up to the correct settings, remove the set up jumper and press reset on the board.

You can now close HYPER1.

We can now set about creating a Virtual Serial Port!

Download and install the HW Virtual Serial Port (HW VSP).

We can now remove the serial cable from the Charon and replace it with a cable connected to the RS232 Serial device, as all communication between the Charon and your PC will now be undertaken via the Ethernet cable, which should now be connected to the Charon module.

Open the HW VSP and select the Settings tab.

Check NVT enable
Check NVT Filter
Check NVT Port Set up
Check Keep Connection

Now select the UDP tab.

Press 'Search Modules'

The connected Charon Module will have a unique MAC address. If you only have one Charon on the network then this will be the only MAC address present in the **Modules MAC List**. If you have more than one Charon module, there will be a number of MAC addresses in this list.

Select the MAC address of the module you are going to be communicating with. The modules IP address, MASK and GW will be displayed. This should match the details you entered in the Charon set up earlier. If not, go back at check the set up files on the Charon using HYPER1 (or other) as before.

Press use this IP (if correct).

Select the Virtual SP tab.

You will notice the Charon's IP selected in the UDP tab is present in the Virtual SP tab.

Select a Port from the Port name list. It needs to be separate from any ports already present on your PC. In this example we used COM10.

Press Create COM.

The LAN status should now say **connected** and within the dialogue box should be '**Found original HW, run in full mode**'. If you have not received these two indicators, go back and double check the IP address, MASK and GW are correct on both the Charon and your Network set up.

We now have a Virtual Serial Port on COM10 ready to communicate via Ethernet connection over the network.

We can now start communication with any serial devices connected to the Charon! We are going to do this using a Hyper Terminal as before, terminals could also be set up using Tera Term, VB, Java etc.

HW VSP must stay running at all times you want to communicate over the new serial port.

Press: Start > Run...

Type 'HYPERTRM' in the Run window.

Type in a name for the New Connection e.g. HYPER10

In the Connect to window, pull down the Connect using list. You will notice this time that COM10 is now present in the list. Select COM10.

In the COM10 Properties Window, we shall now set up the port settings as follows (this should match with the serial device you have connected to the Charon):

Baud – 9600
Data Bits – 8
Parity – None
Stop Bits – 1
Flow Control – None

Select OK and you now have a direct link to the Serial COM port 10, which is over the network to the Charon module.

Virtual Serial Port and Charon allow for a wide range of applications to be constructed very simply and extremely effectively.

These are just a few ideas:

Connect microcontrollers in order to control sensors and communicate data serially to a master PC!

Connect bar code scanners to several Charon modules on a Network and compute all the data back at the master PC!

Send serial data to LCD screens on the network. You could change the information in vending machines or receive sales data from the machines without leaving the office!