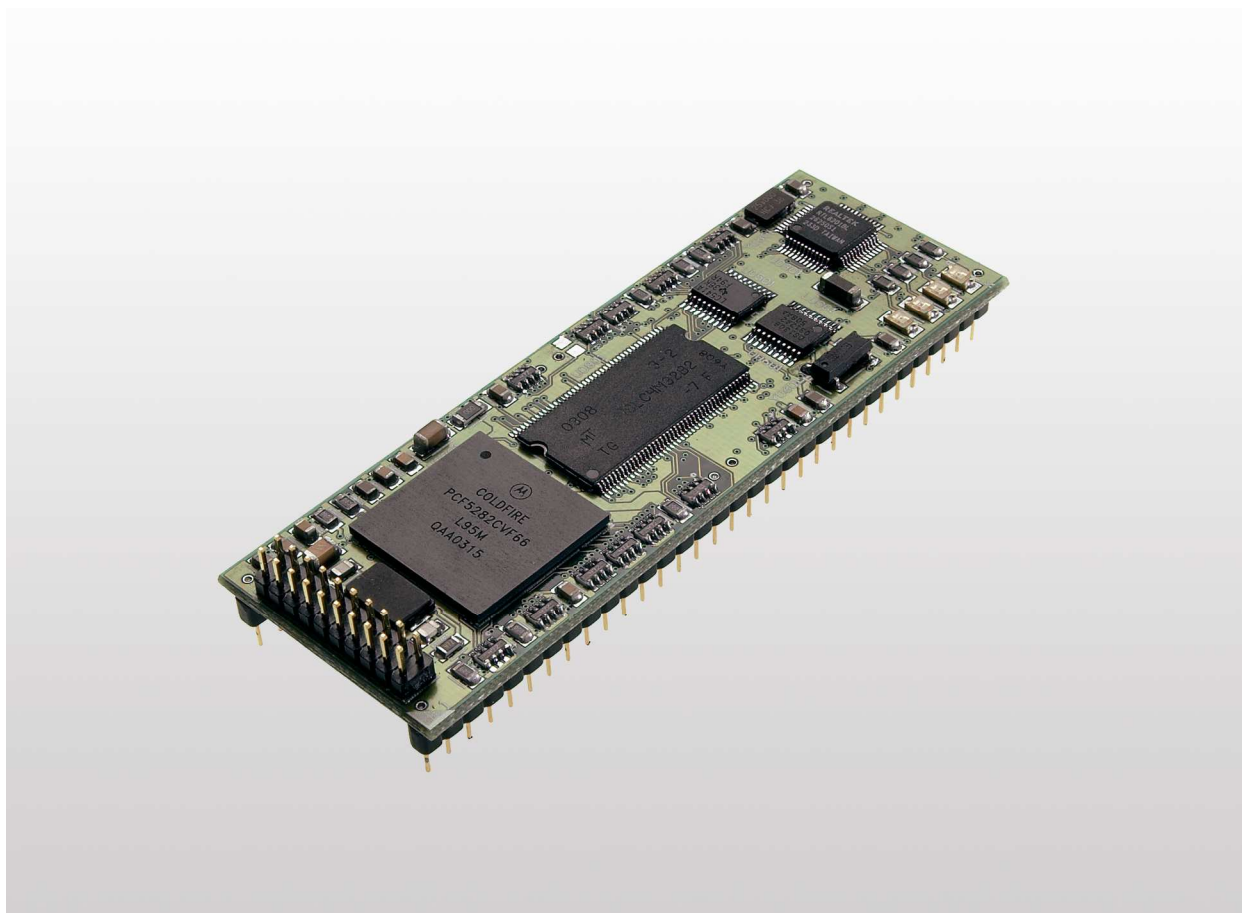


DIL/NetPC DNP/5280 ***Board Revision 1.0***

Installing a PPP Connection User Manual



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1 INTRODUCTION

This document describes how to install a PPP (point-to-point) connection for the DNP/5280 on a Windows-PC. For further information about the individual components of this product you may follow the links from our website at <http://www.dilnetpc.com>.

Our website contains a lot of technical information, which will be updated in regular periods.

1.1 Hardware Requirements

The following hardware is needed to install a PPP connection on the DNP/5280:

- One PC with Windows XP and two unused COM ports
- One Evaluation Board (e.g. EVA6) with mounted DNP/5280 and two COM ports
- One plug-in power supply (5 VDC)
- One Ethernet cross-over cable
- Two null modem cables

1.2 Software Requirements

- **dnp5280-ppp-winxp.tar.gz** (Starter Kit CD directory CD:\uClinux\ppp)
- **Tftpd32** (download from <http://tftpd32.jounin.net>)

Tftpd32 is a small TFTP server and client software. It is needed to transfer the dnp5280-ppp-winxp.tar.gz to the DNP/5280. Tftpd32 works without installation, just run the tftpd32.exe. Tftpd32 is freeware.

2 PREPARATIONS

2.1 Serial Links between Evaluation Board and PC

Setup the serial links between the Evaluation Board and your PC. Use the null modem cables for these connections.

The first serial link is for communication between the DNP/5280 and your PC via HyperTerminal. Connect one end of **null modem cable #1** with the **COM1** port of your PC. Connect the other end with the **COM1** port of the Evaluation Board.

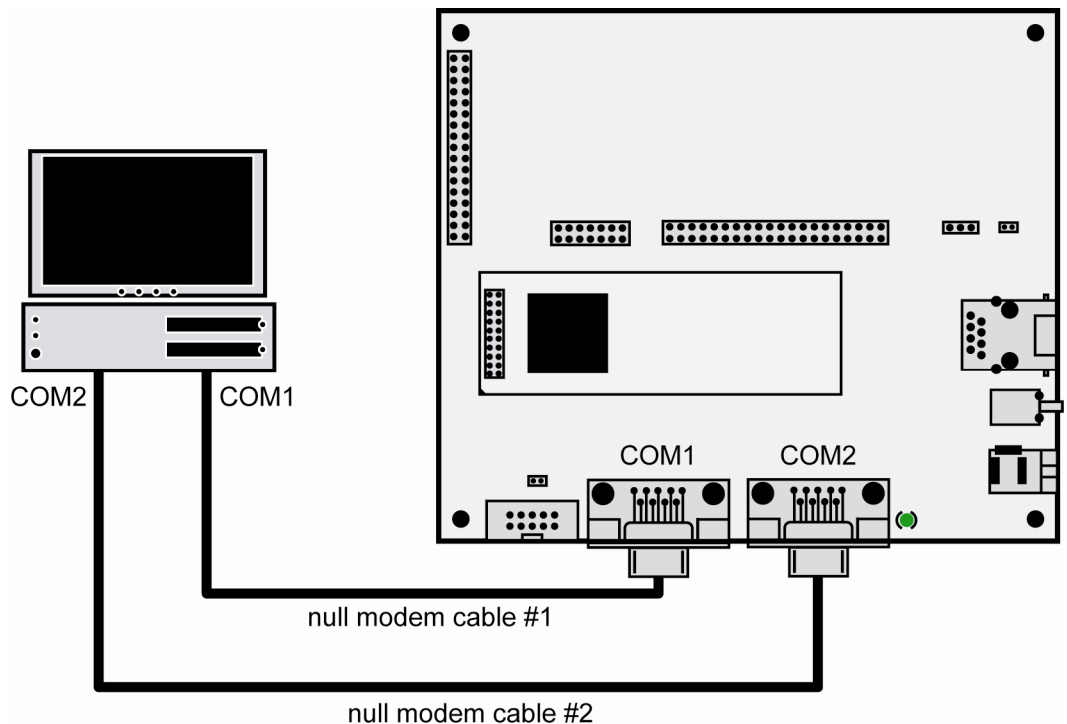


Figure 1: Serial links between Evaluation Board and PC

The second serial link creates the PPP connection between the DNP/5280 and your PC. Connect one end of **null modem cable #2** with the **COM2** port of your PC. Connect the other end with the **COM2** port of the Evaluation Board.

Please make sure that the PC COM ports support 115.200 bps and are unused.

2.2 Ethernet Link between Evaluation Board and PC

Setup the Ethernet link between the Evaluation Board and your PC. Use an Ethernet cross-over cable for this connection.

The Ethernet link is for the file transfer between the DNP/5280 and your PC via TFTP. Connect one end of the Ethernet cross-over cable with the LAN interface of your PC and the other end with the LAN interface of the Evaluation Board.

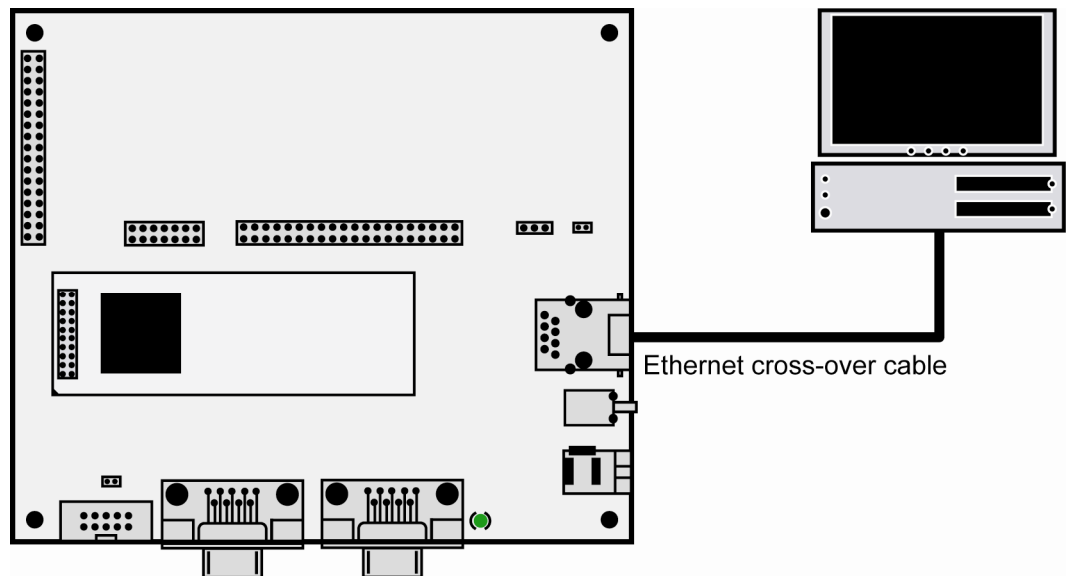


Figure 2: Ethernet link between Evaluation Board and PC

2.3 Configuring Ethernet Link

The IP address of the DNP/5280 is ex factory set to **192.168.0.126**. To enable file transfer between the DNP/5280 and the PC via TFTP, please change the IP address of the PC.

Open the **Control Panel** and select **Network Connections**. Right click on the LAN connection and click on **Properties**.

Open the tab **General** and select **Internet Protocol (TCP/IP)** from the list and click on **Properties**.

In the following dialog select **Use the following IP address** and enter **192.168.0.125** as IP address and **255.255.255.0** as subnet mask. Click on **OK** to close the dialog. Click again on **OK** to finish the configuration.

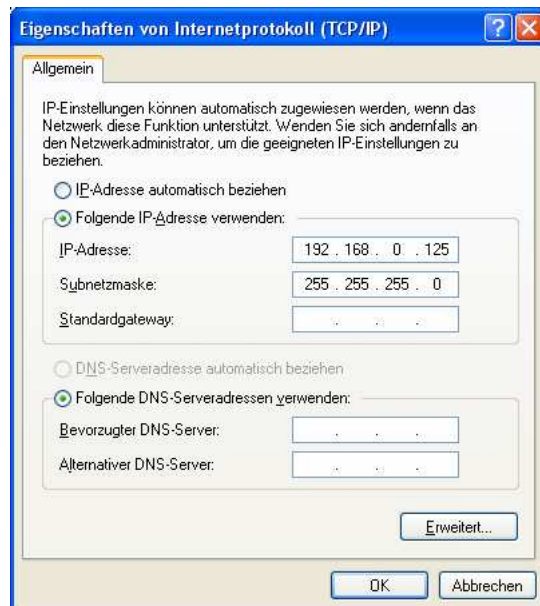


Figure 3: Changing the IP address of the LAN connection on the Windows PC

2.4 Connecting Power Supply

Connect a 5 VDC power supply with a 5.5 mm x 2.5 mm jack plug with the Evaluation Board.

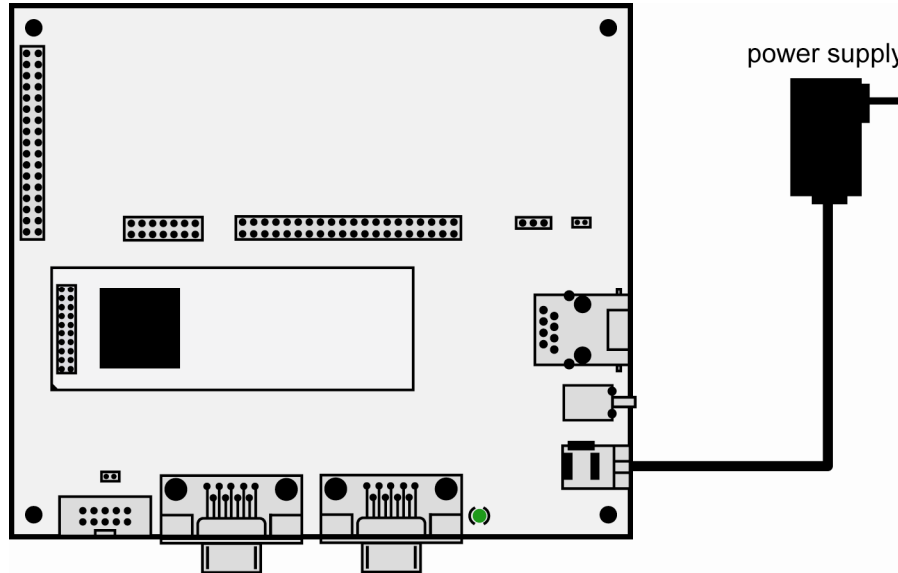


Figure 4: Power supply for the Evaluation Board

Please pay attention to the polarity of the power connector: **the + pole is in the center!**

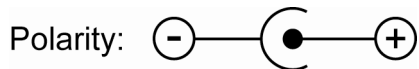


Figure 5: Polarity of the power connector

2.5 Configuring HyperTerminal

Run HyperTerminal on your PC. Enter a name for the new connection. In the next dialog select **COM1** for the connection.



Figure 6: Direct connection setup with HyperTerminal

Now change the connection parameters to the values of table 1. Make sure, that you use the **COM1** port of your PC and that it supports 115.200 bps.



Figure 7: Parameter setup with HyperTerminal

Parameter	Value
Speed	115.200 bps
Data Bits	8
Parity	None
Stop Bits	1
Protocol	No (Xon/Xoff, RTS/CTS or similar)

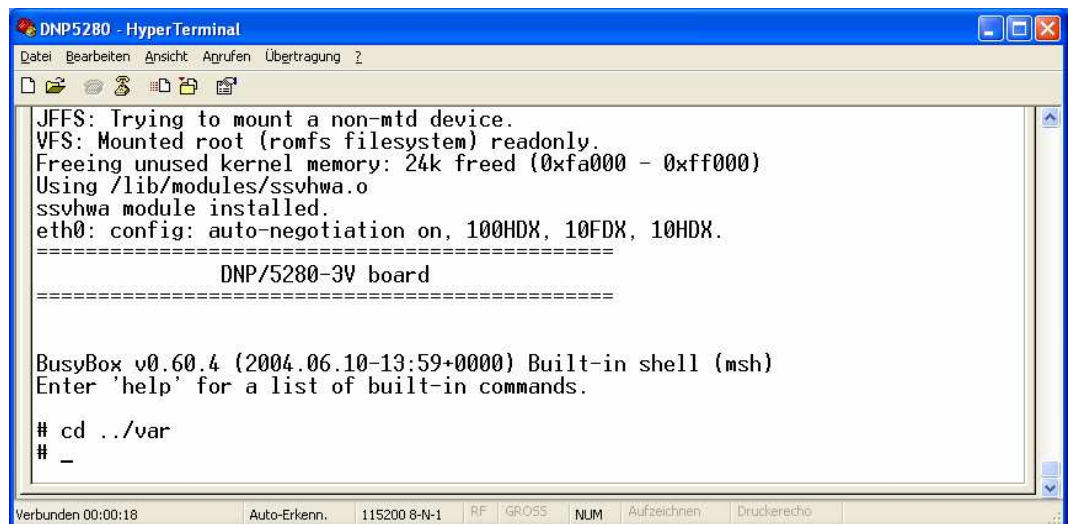
Table 1: Setup parameters for HyperTerminal

3 INSTALLING THE PPP CONNECTION

3.1 Uploading the PPP Files on the DNP/5280

Start the HyperTerminal connection you created in chapter 2.5. If you have not powered up the Evaluation Board so far, please do it now. **Note:** Start the DNP/5280 without the RCM jumper! Wait until the Linux boot process finishes (this may take a few seconds).

Change to the directory `var` with the command `cd ../var`.



```
DNP5280 - HyperTerminal
Datei Bearbeiten Ansicht Ausrufen Übertragung ?
JFFS: Trying to mount a non-mtd device.
VFS: Mounted root (romfs filesystem) readonly.
Freeing unused kernel memory: 24k freed (0xfa000 - 0xff000)
Using /lib/modules/ssvhwa.o
ssvhwa module installed.
eth0: config: auto-negotiation on, 100HDX, 10FDX, 10HDX.
=====
DNP/5280-3V board
=====
BusyBox v0.60.4 (2004.06.10-13:59+0000) Built-in shell (msh)
Enter 'help' for a list of built-in commands.

# cd ../var
# _
Verbunden 00:00:18 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho
```

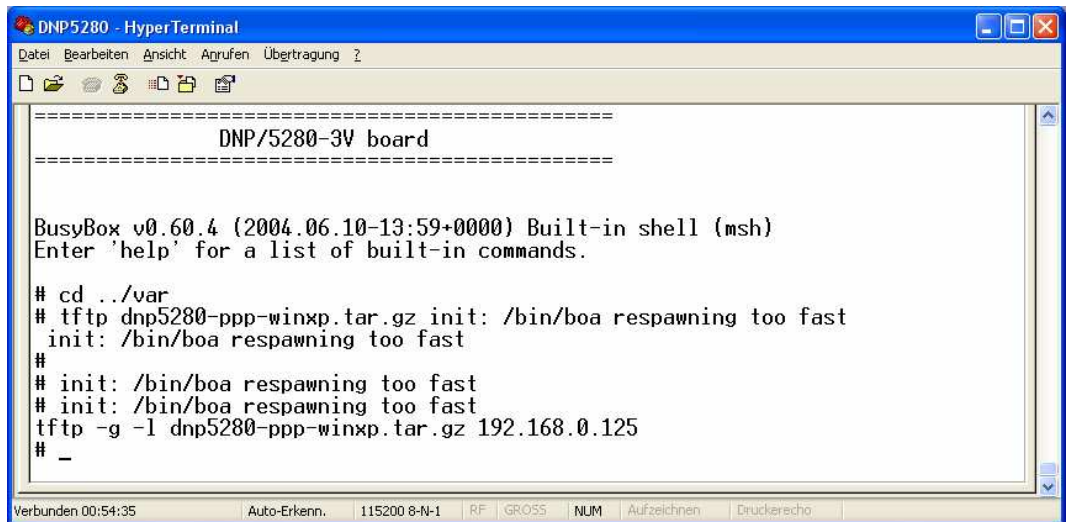
Figure 8: DNP/5280 boot messages

Run Tftpd32 and browse to the directory where the file `dnp5280-ppp-winxp.tar.gz` is stored.



Figure 9: Preparing file transfer with Tftpd32

Enter the following command in HyperTerminal to start the file transfer:
`tftp -g -l dnp5280-ppp-winxp.tar.gz 192.168.0.125.`



```

DNP/5280 - HyperTerminal
-----
DNP/5280-3V board
-----
BusyBox v0.60.4 (2004.06.10-13:59+0000) Built-in shell (msh)
Enter 'help' for a list of built-in commands.

# cd ../var
# tftp dnp5280-ppp-winxp.tar.gz init: /bin/boa respawning too fast
  init: /bin/boa respawning too fast
#
# init: /bin/boa respawning too fast
# init: /bin/boa respawning too fast
tftp -g -l dnp5280-ppp-winxp.tar.gz 192.168.0.125
# _

```

Figure 10: Starting file transfer via TFTP

Tftpd32 shows some information about the file transfer.



Figure 11: Successful file transfer with Tftpd32

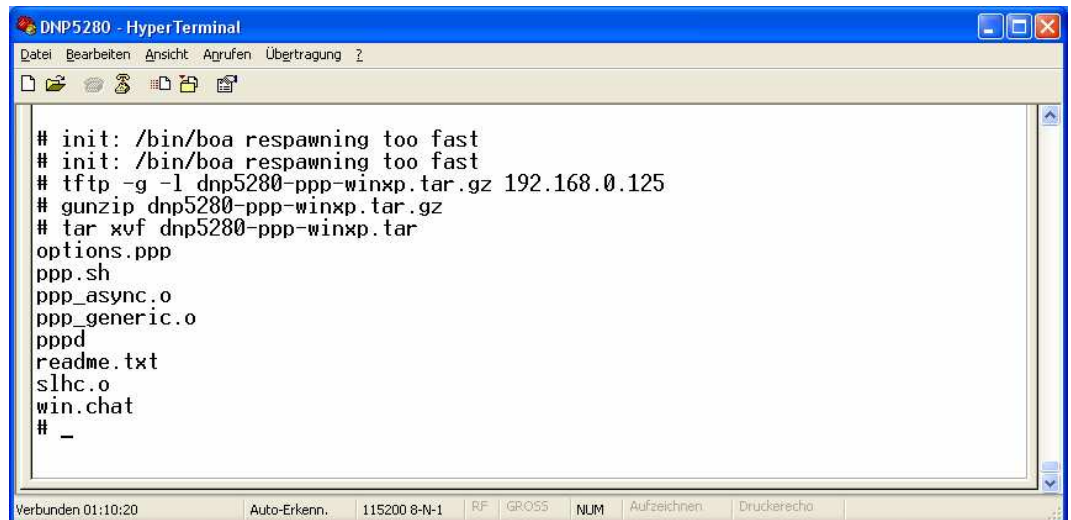
After uploading the file you can close Tftpd32 and remove the Ethernet link between the Evaluation Board and the PC.

3.2 Installing the PPP Files on the DNP/5280

Unzip the file `dnp5280-ppp-winxp.tar.gz` into the directory `var`.

To unzip the file, enter the following commands:

1. `gunzip dnp5280-ppp-winxp.tar.gz`
2. `tar xvf dnp5280-ppp-winxp.tar`

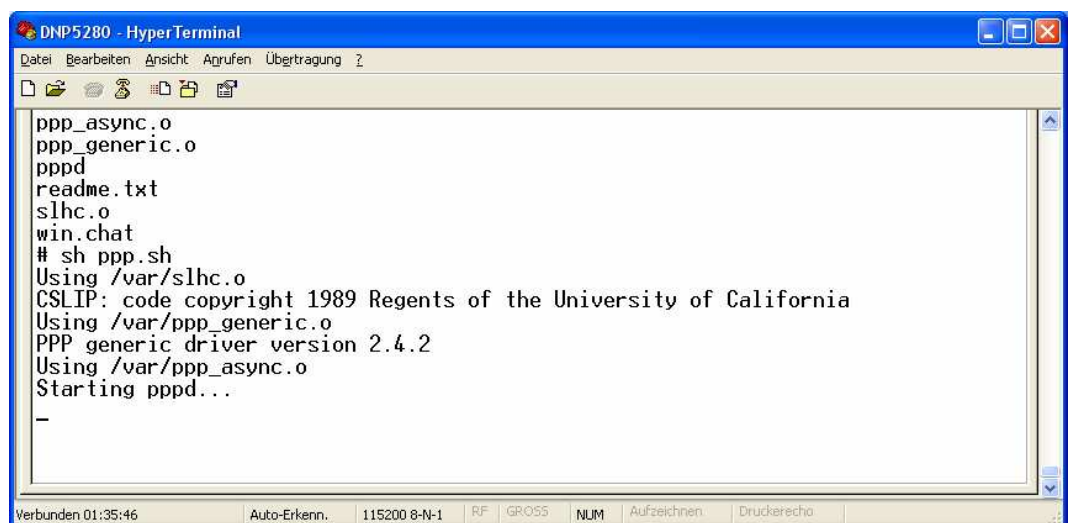


```
DNP5280 - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
# init: /bin/boa respawning too fast
# init: /bin/boa respawning too fast
# tftp -g -l dnp5280-ppp-winxp.tar.gz 192.168.0.125
# gunzip dnp5280-ppp-winxp.tar.gz
# tar xvf dnp5280-ppp-winxp.tar
options.ppp
ppp.sh
ppp_async.o
ppp_generic.o
pppd
readme.txt
slhc.o
win.chat
# _
Verbunden 01:10:20 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho
```

Figure 12: Unzipping the file `dnp5280-ppp-winxp.tar.gz`

3.3 Starting the PPP Connection on the DNP/5280

Open the directory `var` and enter the command `sh ppp.sh` to start the PPP connection.



```
DNP5280 - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
ppp_async.o
ppp_generic.o
pppd
readme.txt
slhc.o
win.chat
# sh ppp.sh
Using /var/slhc.o
CSLIP: code copyright 1989 Regents of the University of California
Using /var/ppp_generic.o
PPP generic driver version 2.4.2
Using /var/ppp_async.o
Starting pppd...
_
Verbunden 01:35:46 Auto-Erkenn. 115200 8-N-1 RF GROSS NUM Aufzeichnen Druckerecho
```

Figure 13: Starting the PPP connection on the DNP/5280

3.4 Creating the PPP Connection on the Windows PC

Open the **Control Panel** and select **Network Connections**. Click on **Create a new connection**. The **New Connection Wizard** opens. Click on **Next**.



Figure 14: New Connection Wizard

In the following dialog select **Set up an advanced connection** and click on **Next**.

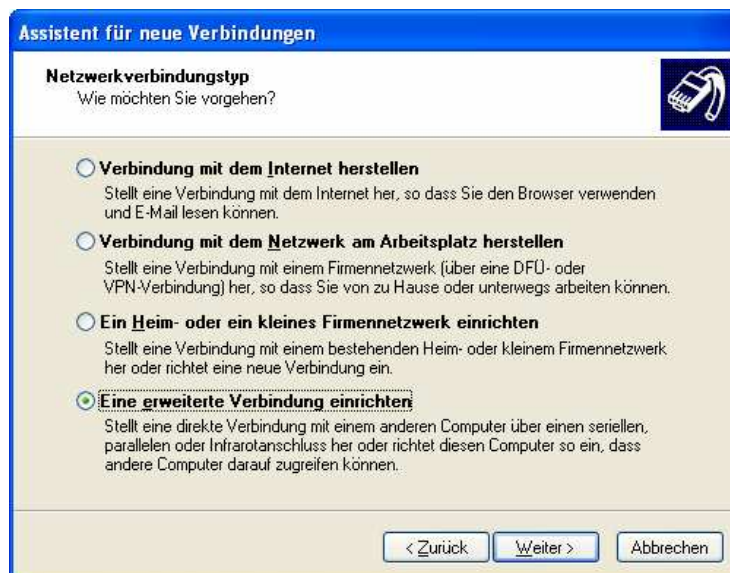


Figure 15: Selecting a network connection type

Select **Connect directly to another computer** and click on **Next**.

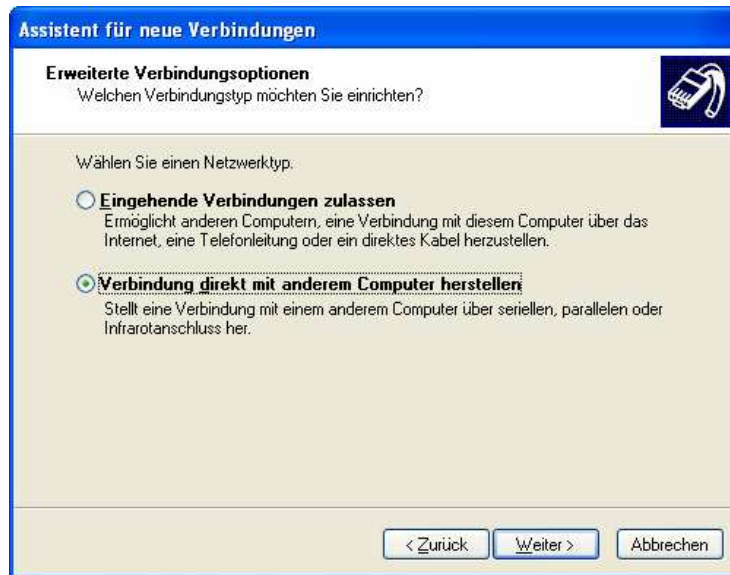


Figure 16: Selecting the advanced connection options

In the next dialog select **Guest** and click on **Next**.



Figure 17: Selecting guest

Enter a name for the new connection, e.g. “DNP5280” and click on **Next**.

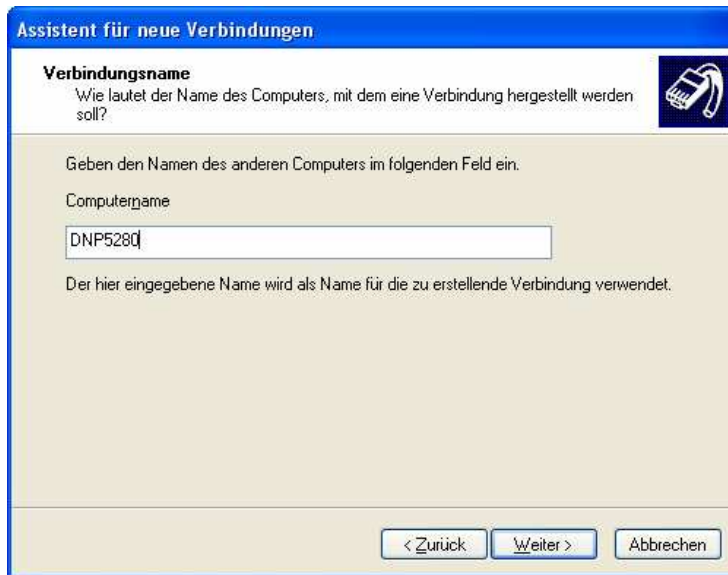


Figure 18: Entering a connection name

Select **COM2** as device to make the connection and click on **Next**.

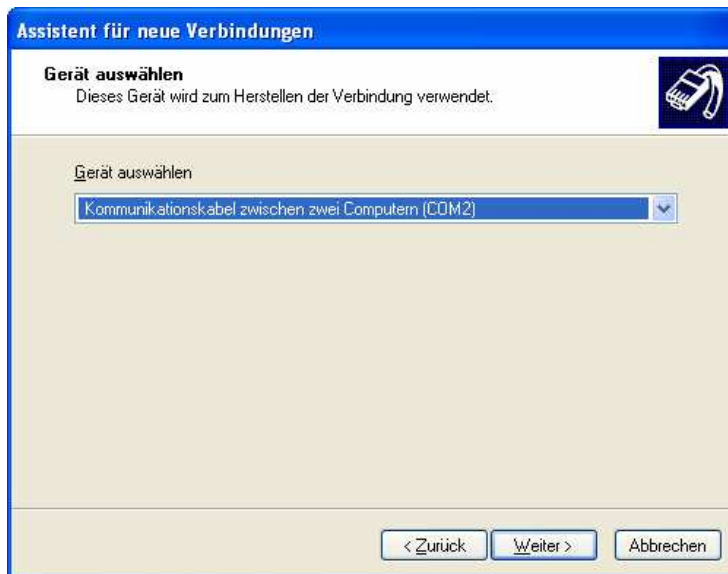


Figure 19: Selecting COM2 to make the connection

Click on **Finish** to complete the New Connection Wizard.



Figure 20: Completing the New Connection Wizard

3.5 Configuring the PPP Connection on the Windows PC

Open the **Control Panel** and select **Network Connections**. Double click on the new created connection, e.g. “DNP5280” and click on **Properties**.



Figure 21: Connection dialog

In the following dialog select the tab **General** and click on **Configure...** . Select **115.200 bps** as maximum speed and click on **OK**.

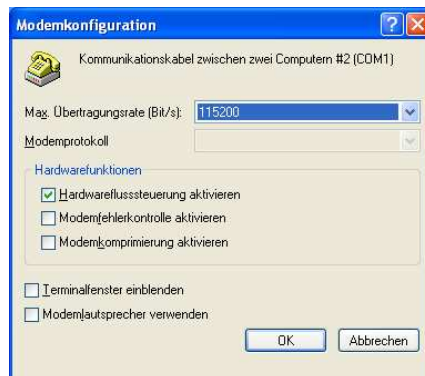


Figure 22: Modem configuration

Open the tab **Networking**, select **Internet Protocol (TCP/IP)** from the list and click on **Properties**.

In the following dialog select **Use the following IP address** and enter **192.168.11.1**. Click on **OK** to close the dialog. Click again on **OK** to finish the configuration.

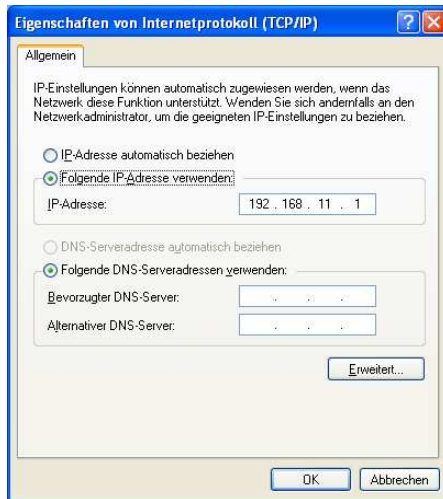


Figure 23: Changing the IP address for the PPP connection on the Windows PC

3.6 Testing the PPP Connection

Start the PPP connection on the DNP/5280 like shown in chapter 3.3.

Open the new created PPP connection on the PC and click on **Connect**. You do not have to enter a user name or password.



Figure 24: Starting the PPP connection on the Windows PC

To test the connection open **Telnet** and establish with the following command a connection to the DNP/5280: `open 192.168.10.1`.

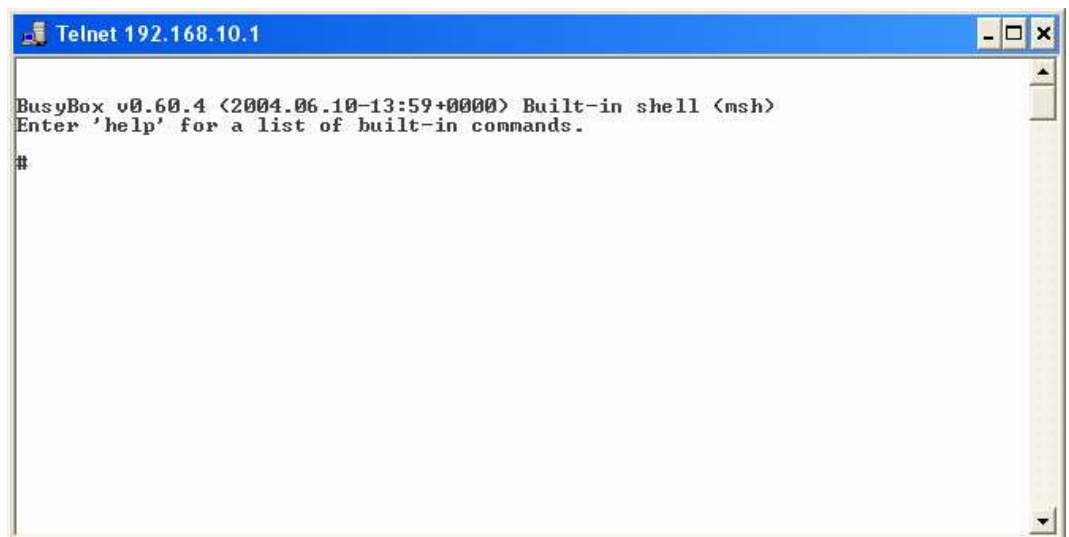


Figure 25: PPP connection between Telnet and DNP/5280

That's all.

Please note: The PPP files are not stored permanently on the DNP/5280. After a reset you have to upload and install the PPP files again on the DNP/5280.

CONTACT

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1.0	2006-04-03	first version	WBU

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