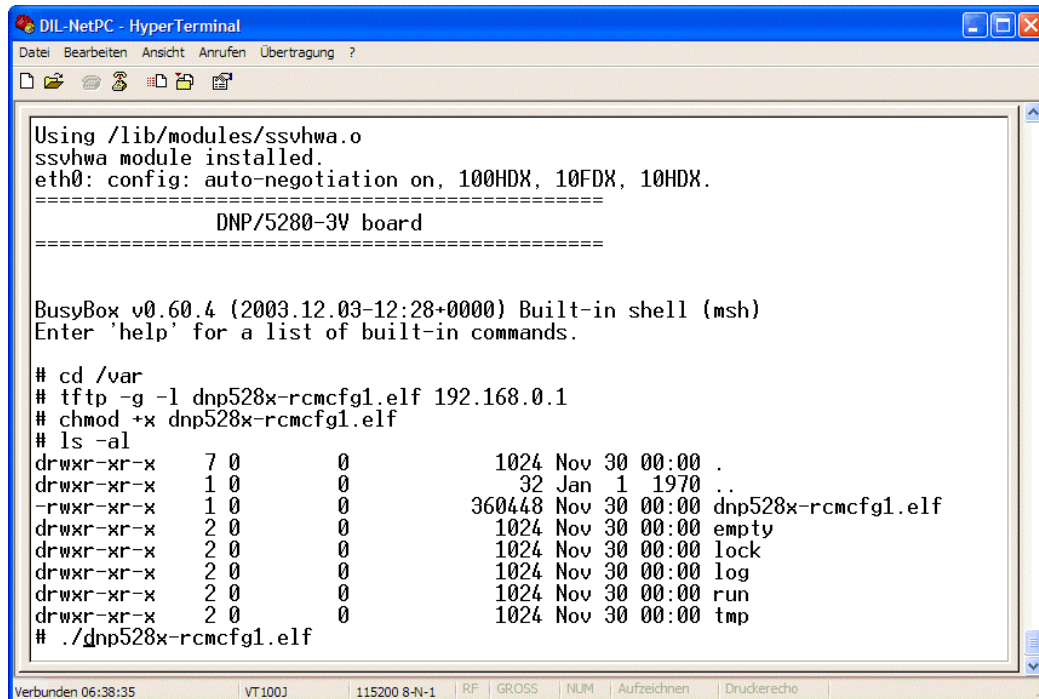


How to exchange the dBUG ROM Monitor Program

The DIL/NetPC DNP/5280 on-board flash memory offers the *Motorola dBUG ROM Monitor* program. There are two ways to exchange the Motorola dBUG ROM Monitor program in the DIL/NetPC DNP/5280 on-board flash memory: 1. With the help of a BDM hardware interface. 2. With in-application programming directly from the Linux user space. This document describes the in-application programming exchange of the dBUG ROM Monitor.

- **1. Step:** Setup a serial link (**RS232 Serial Link**) between the DIL/NetPC DNP/5280 COM1 serial port and a serial port of your PC system. Use a null-modem cable for the physical connection between the COM1 port of the DIL/NetPC DNP/5280 and the PC COM port. For more details about this connection please use the DIL/NetPC DNP/5280 Starter Kit documentation.
- **2. Step:** Run your terminal emulation program. Microsoft Windows-based PC systems offers *HyperTerminal* for this task. Linux-based systems come with *Minicom*.
- **3. Step:** Setup a Ethernet link between the DIL/NetPC DNP/5280 and your PC. Run a TFTP server program on your PC. Make sure, that the new dBUG ROM Monitor Binary Image File is available at the TFTP server default directory.
- **4. Step:** Power-up the DIL/NetPC DNP/5280. Direct after the Linux boot process, please execute the following Linux commands:

```
cd /var
tftp -g -l dnp528x-rcmcfg1.elf 192.168.0.1
chmod +x dnp528x-rcmcfg1.elf
```



```
DIL-NetPC - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
Using /lib/modules/ssvhw.o
ssvhw module installed.
eth0: config: auto-negotiation on, 100HDX, 10FDX, 10HDX.
=====
DNP/5280-3V board
=====
BusyBox v0.60.4 (2003.12.03-12:28+0000) Built-in shell (msh)
Enter 'help' for a list of built-in commands.
# cd /var
# tftp -g -l dnp528x-rcmcfg1.elf 192.168.0.1
# chmod +x dnp528x-rcmcfg1.elf
# ls -al
drwxr-xr-x  7 0      0          1024 Nov 30 00:00 .
drwxr-xr-x  1 0      0           32 Jan  1 1970 ..
-rwxr-xr-x  1 0      0      360448 Nov 30 00:00 dnp528x-rcmcfg1.elf
drwxr-xr-x  2 0      0          1024 Nov 30 00:00 empty
drwxr-xr-x  2 0      0          1024 Nov 30 00:00 lock
drwxr-xr-x  2 0      0          1024 Nov 30 00:00 log
drwxr-xr-x  2 0      0          1024 Nov 30 00:00 run
drwxr-xr-x  2 0      0          1024 Nov 30 00:00 tmp
# ./dnp528x-rcmcfg1.elf
Verbunden 06:38:35      VT1003      115200 8-N-1      RF      GROSS      NUM      Aufzeichnen      Druckerecho
```

With the first command line, we change the current working directory to */var* into the DIL/NetPC DNP/5280 RAM disk.

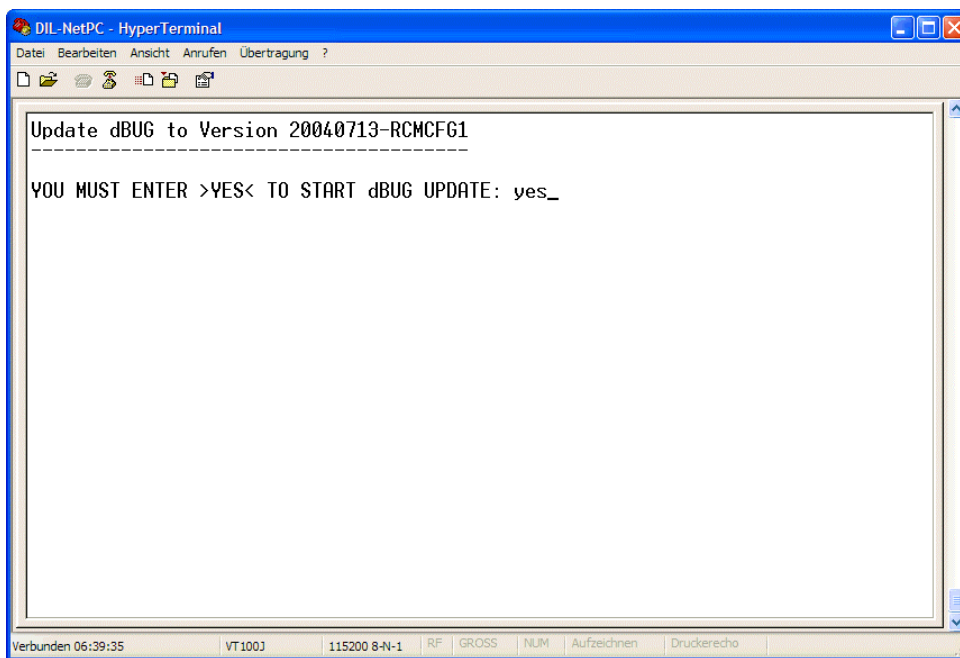
The second command line describes the TFTP file transfer of the dBUG ROM Monitor Binary Image File *dnp528x-rcmcfgl.elf* from the PC to the DIL/NetPC DNP/5280 RAM disk directory */var*. “192.168.0.1” is the IP address of the PC with the TFTP server. Please change this address if necessary.

The third command line give executable rights to the file *dnp528x-rcmcfgl.elf*. This rights are necessary for running *dnp528x-rcmcfgl.elf*.

- **5. Step:** For in-application programming of the new dBUG ROM Monitor please run the file *dnp528x-rcmcfgl.elf*:

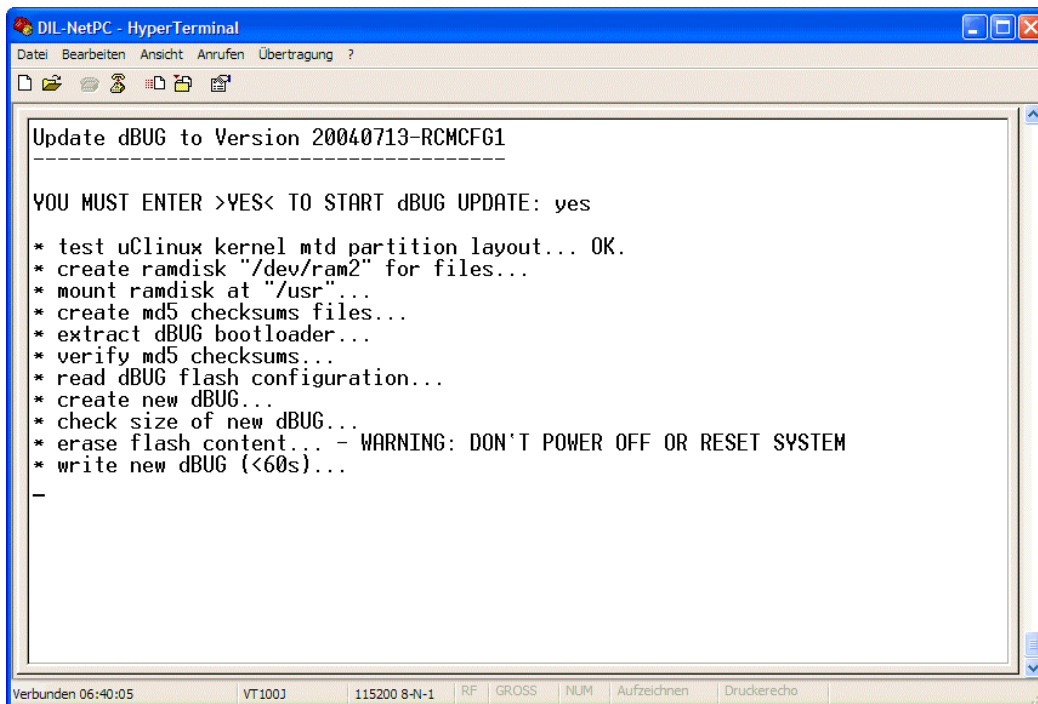
```
./dnp528x-rcmcfgl.elf
```

- **6. Step:** Follow the on-screen message of *dnp528x-rcmcfgl.elf* . Type *yes* and hit the Return key. This input starts the in-application process.



- **7. Step:** Please wait until the dBUG ROM Monitor in-application programming process finish's without errors.

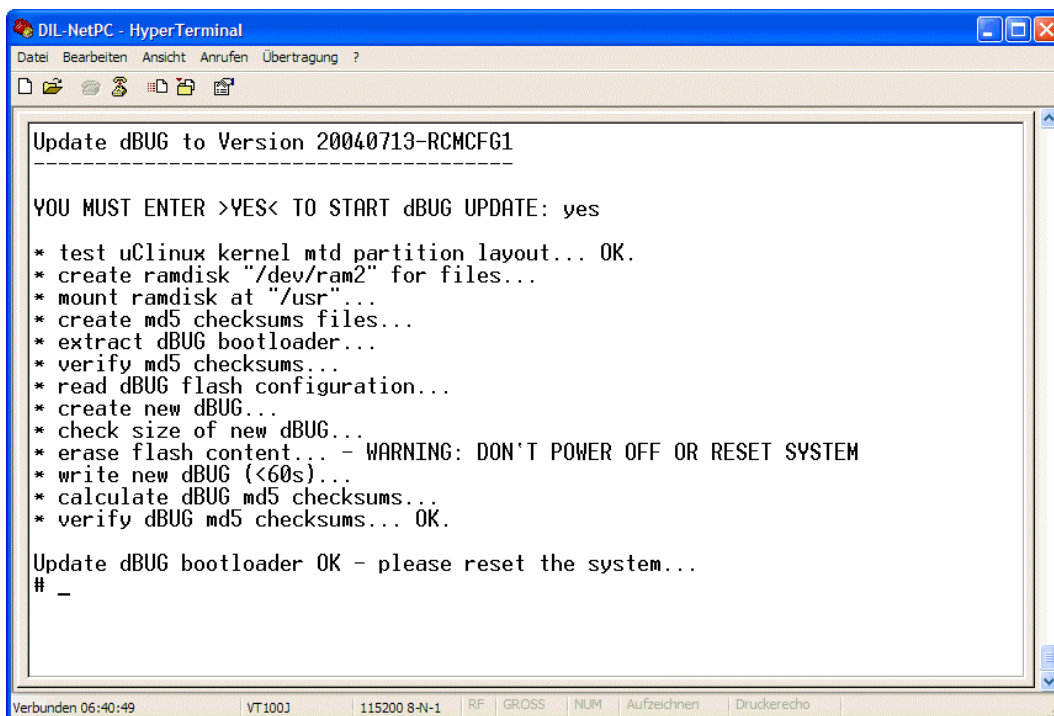
The in-application programming process needs some time. **Please make sure, that no power interruption or hardware reset occurs during the in-application programming process.** In case of a power interruption or hardware reset the DIL/NetPC DNP/5280 on-board flash memory content can be damaged. It is possible to renew the flash content with help of a BDM hardware interface.



```
DIL-NetPC - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
Update dBUG to Version 20040713-RCMCFG1
-----
YOU MUST ENTER >YES< TO START dBUG UPDATE: yes

* test uClinux kernel mtd partition layout... OK.
* create ramdisk "/dev/ram2" for files...
* mount ramdisk at "/usr"...
* create md5 checksums files...
* extract dBUG bootloader...
* verify md5 checksums...
* read dBUG flash configuration...
* create new dBUG...
* check size of new dBUG...
* erase flash content... - WARNING: DON'T POWER OFF OR RESET SYSTEM
* write new dBUG (<60s)...
-
```

- **8. Step:** After the dBUG ROM Monitor in-application programming process has finished, it is necessary to reset your DIL/NetPC DNP/5280 to run the new flash software.



```
DIL-NetPC - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
Update dBUG to Version 20040713-RCMCFG1
-----
YOU MUST ENTER >YES< TO START dBUG UPDATE: yes

* test uClinux kernel mtd partition layout... OK.
* create ramdisk "/dev/ram2" for files...
* mount ramdisk at "/usr"...
* create md5 checksums files...
* extract dBUG bootloader...
* verify md5 checksums...
* read dBUG flash configuration...
* create new dBUG...
* check size of new dBUG...
* erase flash content... - WARNING: DON'T POWER OFF OR RESET SYSTEM
* write new dBUG (<60s)...
* calculate dBUG md5 checksums...
* verify dBUG md5 checksums... OK.

Update dBUG bootloader OK - please reset the system...
# -
```

That is all.