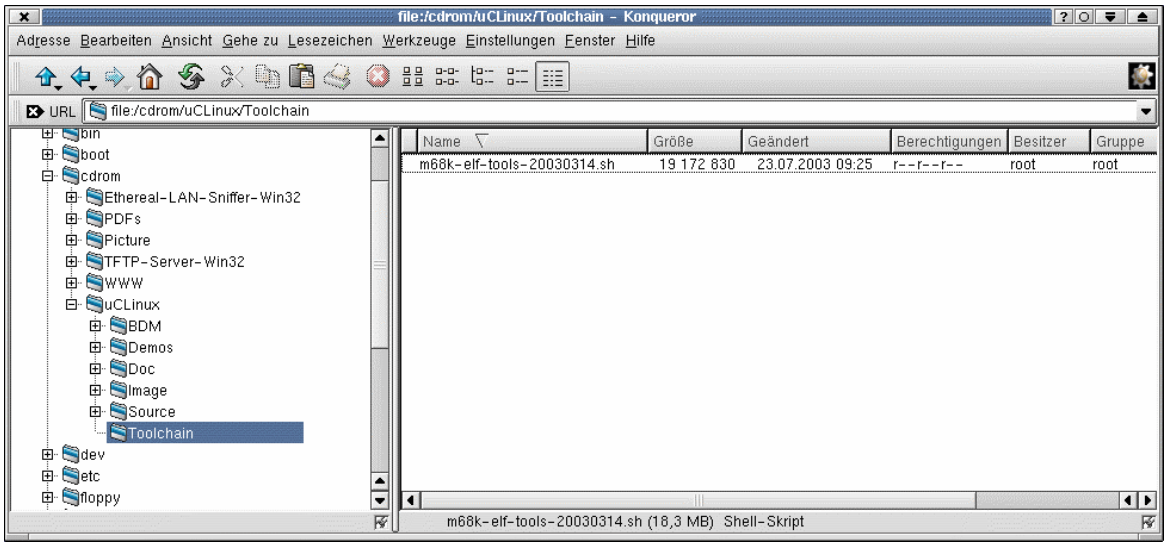
How to install and use the GNU Cross Tool Chain for the DNP/5280 Linux

The following steps describes how to install and use the Linux GNU cross tool chain for DNP/5280 Linux C programming. You need administrator rights on your Linux PC for following these steps.

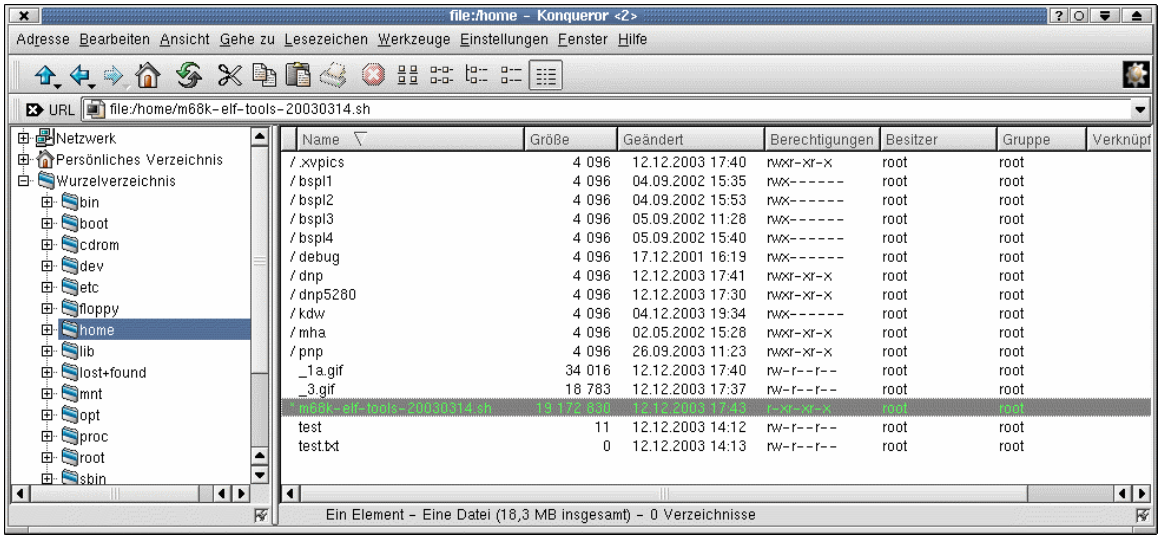
- **1. Step**: The GNU cross tool chain for DNP/5280 Linux C programming comes within a Linux shell script file with the name `m68k-elf-tool-20030314.sh`. You find this file at the DIL/NetPC DNP/5280 Starter Kit CD-ROM. The location of this 18 Mbytes shell script file is `\uClinux\Toolchain`. Point your file manager to `m68k-elf-tool-20030314.sh`.



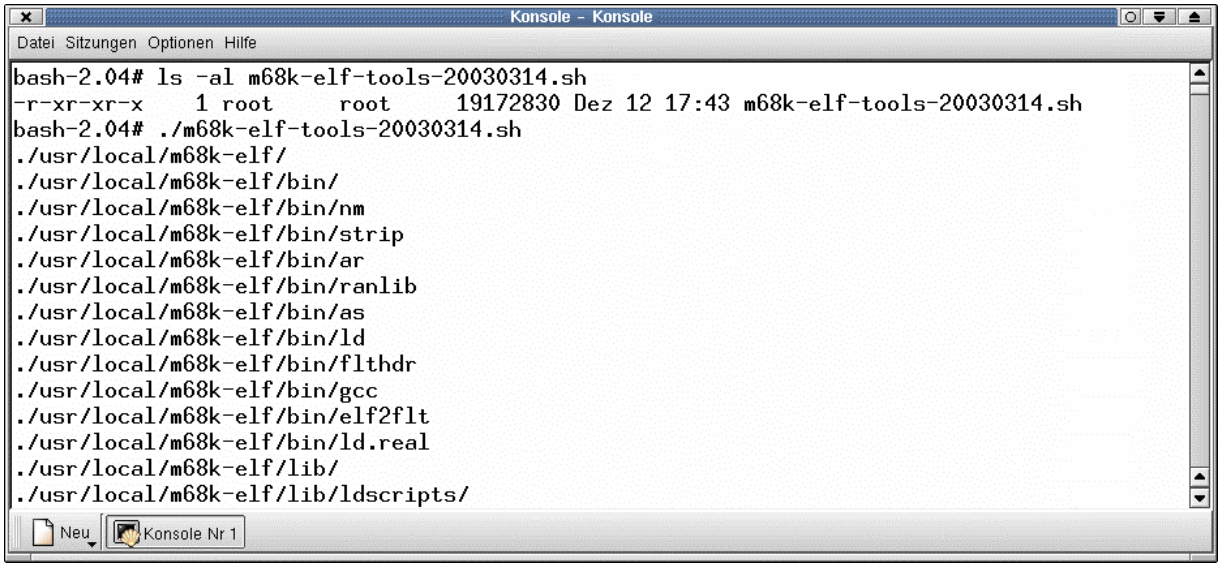
- **2. Step**: Copy `m68k-elf-tool-20030314.sh` to your local hard disk drive. Change the file attributes to **executable**. You can use the Linux command line:

  `chmod +x m68k-elf-tool-20030314.sh`

  for this task. Some file managers offers simpler ways for attribute changing.



- **3**. **Step:** Run the shell script file `m68k-elf-tool-20030314.sh` from a console window at your Linux-based PC. The shell script creates new directories at `/usr/local` and copy's many files to the new directory of your PC hard disk drive.



- **4**. **Step:** Now it's time for a test drive with the new GNU cross tool chain. Open up a console window and create a new directory `/home/dnp5280` for DNP/5280 Linux C programming. Then change to this directory and enter the following command lines:

```
cat > hello.c
#include <stdio.h>
#include <stdlib.h>

void main (void)
{
   printf ("Hello from DNP/5280!");
}
```

CTRL-D (stops the cat command and saves the input to the file hello.c)

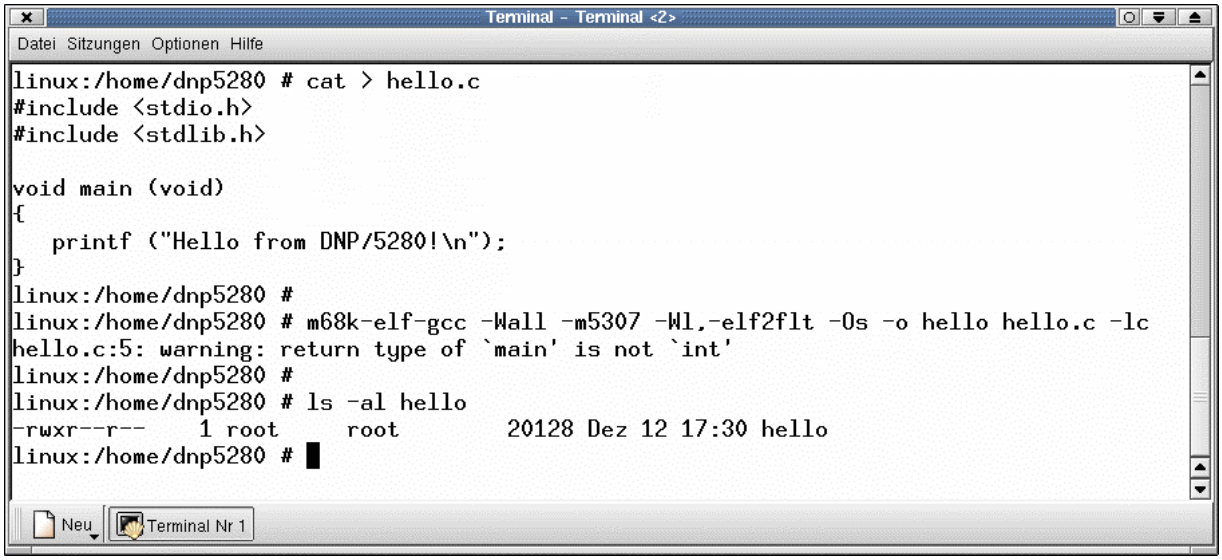
These command lines creates a new file with name `hello.c` and put some C source code lines to this new file. The command line:

```
cat hello.c
```

displays the current content of `hello.c`. For building a executable from `hello.c` please enter the following command line:

```
m68k-elf-gcc -Wall -m5307 -Wl,-elf2flt -Os -o hello hello.c -lc
```

This command lines runs the GNU C cross compiler and linker. After a successful run you find a executable for the DNP/5280 within the same directory.



- **5**. **Step:** Transfer the executable from your PC hard disk drive to the DNP/5280 RAM disk or JFFS-based flash disk drive and run the executable on your DNP/5280. Use a TFTP session and a Telnet session for this task. Please enter the following commands within the DNP/5280 Telnet session window:

  ```
  tftp -g -l hello 192.168.0.1
  chmod +x hello
  ./hello
  ```

  The first command line transfers the executable **`hello`** from the PC to the DIL/NetPC DNP/5280. This line assumes that the your PC is using the IP address 192.168.0.1. The second line makes sure that the executable attribute is set for **`hello`**. The next command line runs **`hello`**.

  That is all.