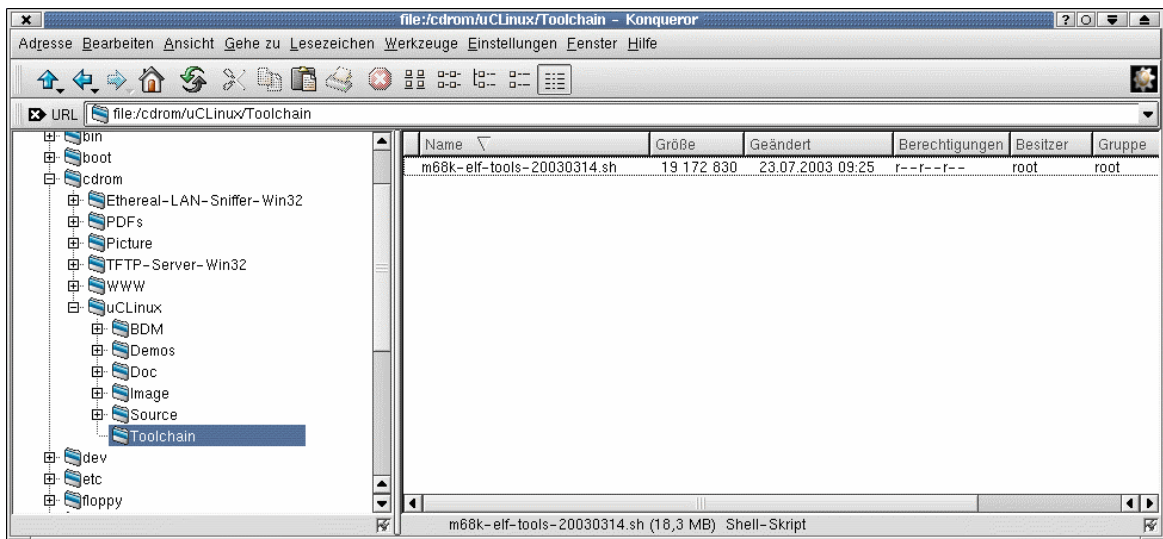


How to install and use the GNU Cross Tool Chain for the DNP/5280 Linux

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.

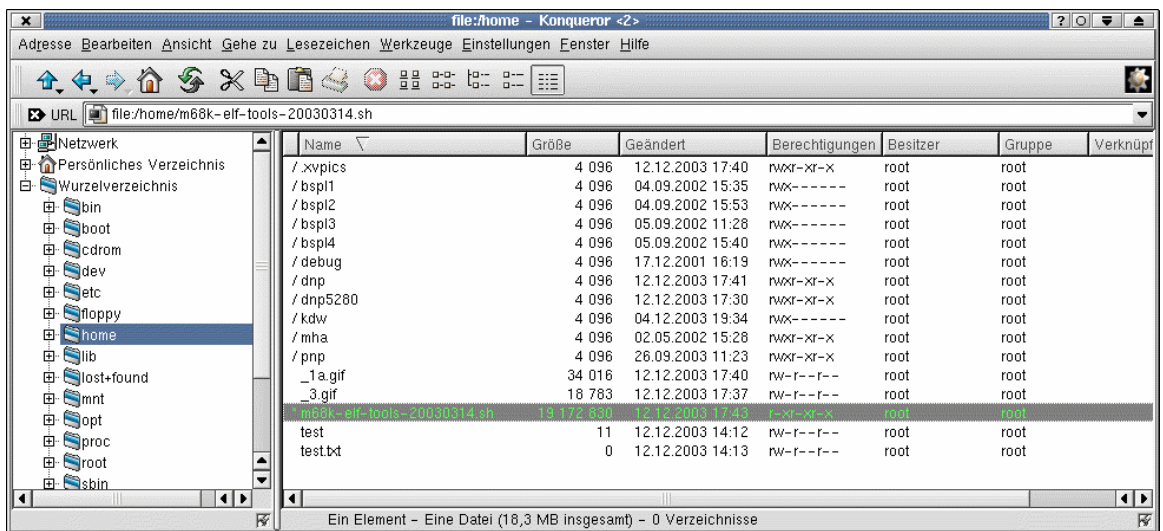
- **1. Step:** The GNU cross tool chain for DNP/5280 Linux C programming comes within a Linux shell script file with the name `m68k-elf-tool-20030314.sh`. You find this file at the DIL/NetPC DNP/5280 Starter Kit CD-ROM. The location of this 18 Mbytes shell script file is `\uCLinux\Toolchain`. Point your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



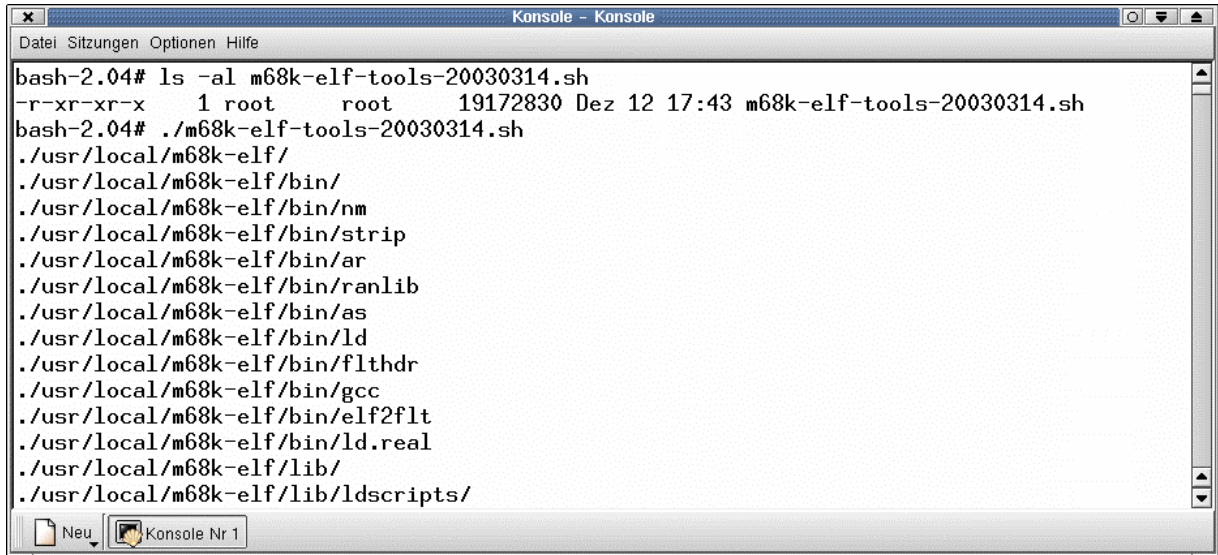
- **2. Step:** Copy `m68k-elf-tool-20030314.sh` to your local hard disk drive. Change the file attributes to **executable**. You can use the Linux command line:

```
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.



```

Konsole - Konsole
Datei Sitzungen Optionen Hilfe
bash-2.04# ls -al m68k-elf-tools-20030314.sh
-r-xr-xr-x  1 root  root   19172830 Dez 12 17:43 m68k-elf-tools-20030314.sh
bash-2.04# ./m68k-elf-tools-20030314.sh
./usr/local/m68k-elf/
./usr/local/m68k-elf/bin/
./usr/local/m68k-elf/bin/nm
./usr/local/m68k-elf/bin/strip
./usr/local/m68k-elf/bin/ar
./usr/local/m68k-elf/bin/ranlib
./usr/local/m68k-elf/bin/as
./usr/local/m68k-elf/bin/ld
./usr/local/m68k-elf/bin/flthdr
./usr/local/m68k-elf/bin/gcc
./usr/local/m68k-elf/bin/elf2flt
./usr/local/m68k-elf/bin/ld.real
./usr/local/m68k-elf/lib/
./usr/local/m68k-elf/lib/ldscripts/

```

- **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)

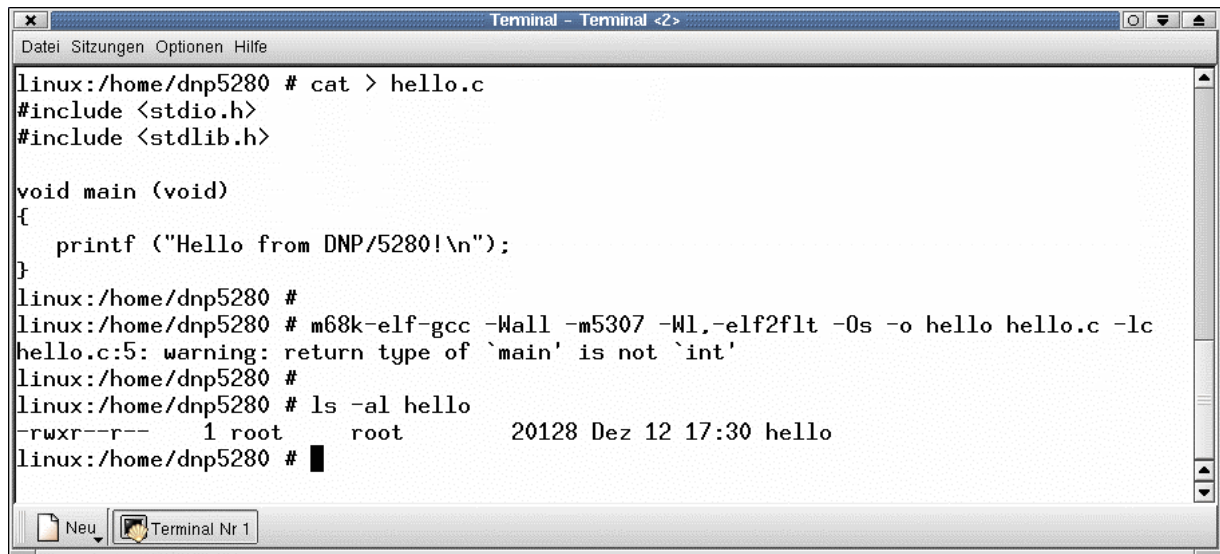
These command lines creates a new file with name `hello.c` and put some C source code lines to this new file. The command line:

```
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.



```
Terminal - Terminal <2>
Datei Sitzungen Optionen Hilfe
linux:/home/dnp5280 # cat > hello.c
#include <stdio.h>
#include <stdlib.h>

void main (void)
{
    printf ("Hello from DNP/5280!\n");
}
linux:/home/dnp5280 #
linux:/home/dnp5280 # m68k-elf-gcc -Wall -m5307 -Wl,-elf2flt -Os -o hello hello.c -lc
hello.c:5: warning: return type of `main' is not `int'
linux:/home/dnp5280 #
linux:/home/dnp5280 # ls -al hello
-rwxr--r--  1 root  root    20128 Dez 12 17:30 hello
linux:/home/dnp5280 #
```

- **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.