

How to use the pre-build ARM GNU tool chain for DNP/9200 C Programming

The pre-build SSV ARM Linux tool chain allows you to write C/C++ programs for the DIL/NetPC DNP/9200 within your Linux PC environment. It is only necessary to install these GNU tools from the DNP/9200 starter kit CD-ROM.

- 1. Step: Copy the archive file *arm-toolchain-SSV20020812.tgz* from the DNP/9200 starter kit CD-ROM directory */linux/toolchain* into the Linux PC directory */usr/local*.
- 2. Step: Run the Linux tar utility command on your PC and unpack the archive file *arm-toolchain-SSV20020812.tgz* within the Linux PC directory /usr/local. Just enter

```
tar -xzf arm-toolchain-SSV20020812.tgz
```

The activity needs some time. So please wait until the Linux tar command execution ends.

```
Befehlsfenster - Konsole
linux:/usr/local # ls -al
total 43940
drwxr-xr-x
                                            376 Apr 10 14:24
                                            344 Nov 21
drwxr-xr-x
              12 root
                            root
                                                        2003
                                            144 Mar 14
drwxrwxrwx
                                                         2003 arm-elf
               6 root
                            users
                            root
                                      44947201 Apr 4 10:55 arm-toolchain-SSV20020812.tgz
1696 Jan 7 2005 bin
-r-xr-xr-x
drwxr-xr-x
                1 root
                2 root
                            root
                                                        2003 game
drwxr-xr-x
                                            48 Mar 18
               2 root
                            root
                                            136 Dec
                                                     1 15:04 include
drwxr-xr-x
                2 root
                            root
                                            104 Dec
                                                        15:04 lib
drwxr-xr-x
                 root
                                            144 Mar 13
                                                        2003 m68k-e1f
drwxrwxrwx
               6 root
                            users
drwxr-xr-x
                                            152 Jan 10
                                                        2005 m68k-uclinux-tools
                6 root
                            root
drwxr-xr-x
              12 root
                            root
                                            288 Nov 21
                                                         2003 man
               2 root
                                            48 Mar 18
                                                        2003 sbin
drwxr-xr-x
                            root
                                                        2003 share
drwxr-xr-x
               2 root
                            root
                                             48 Mar 18
               2 root
                                             48 Mar 18
                                                         2003 src
drwxr-xr-x
                            root
linux:/usr/local # tar -x:
linux:/usr/local # ls -al
                            kzf arm-toolchain-SSV20020812.tgz
total 44477
drwxr-xr-x
              15 root
                            root
                                           464 Apr 10 14:27
344 Nov 21 2003
drwxr-xr-x
              12 root
                            root
                                            96 Aug 12
144 Mar 14
drwxr-xr-x
               2 root
                            root
                                                        2002 arm
                                                        2003 arm-elf
drwxrwxrwx
                6 root
                            users
drwxr-xr-x
               8 root
                            root
                                            200 Aug 12
                                                        2002 arm-linux
                                      44947201 Apr
                                                        10:55 arm-toolchain-SSV20020812.tgz
 -r-xr-xr-x
                1 root
                            root
                                                         2005 bin
drwxr-xr-x
                                        1696 Jan 7
548019 Aug 12
                            root
-rw-r--r-
                 root
                            root
                                                        2002 checksum.md5
                                            48 Mar 18
                                                        2003
                 root
                            root
                                                               gam
                                                    1 15:04
1 15:04
drwxr-xr-x
                2 root
                            root.
                                            136 Dec
                                                               include
                                            104 Dec
                                                        15:04 lib
drwxr-xr-x
                 root
                            root
                            users
drwxrwxrwx
               6 root
                                            144 Mar 13
                                                        2003 m68k-elf
                                            152 Jan 10
                                                        2005
                                                               m68k-uclinux-tools
drwxr-xr-x
               6 root
                            root
druxr-xr-x
              12 root
                                            288 Nov 21
                                                        2003 man
                            root
                                            48 Mar 18
               2 root
                                                        2003 sbin
drwxr-xr-x
                            root
                                             48 Mar 18
                                                         2003 share
drwxr-xr-x
                2 root
                            root.
                                            48 Mar 18
                                                        2003 src
linux:/usr/local #
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```

• 3. Step: After the tar utility was successfully executed, it should be possible to run the GNU cross compiler for the DNP/9200 from each Linux PC directory. Create a simple C source code file. Then compile this file and build an executable for the DIL/NetPC DNP/9200. Just enter

```
/usr/local/arm/2.95.2/bin/arm-linux-gcc -o name name.c
```

Within this sample command line *name* is the file name of the executable for the DNP/9200 and *name.c* the C source code file name.



```
Befehlsfenster - Konsole
linux:/usr/local # /usr/local/arm/2.95.2/bin/arm
Reading specs from /usr/local/arm-linux/lib/gcc-lib/arm-linux/2.95.2/specs
gcc version 2.95.2 19991024 (release)
linux:/usr/local # cat > hello.c
 include <stdio.h>
void main (void)
   printf ("Hello DNP/9200 User...\n");
linux:/usr/local # /usr/local/arm/2.95.2/bin/arm-linux-gcc -o hello hello.c
hello.c: In function `main':
hello.c:4: warning: return type of `main' is not `int'
linux:/usr/local # <mark>ls -al</mark>
total 44493
                                                   512 Apr 10 14:37
344 Nov 21 2003
drwxr-xr-x
                 15 root
                                 root.
drwxr-xr-x
                 12 root
                                 root
drwxr-xr-x
                  2 root
                                 root
                                                    96 Aug 12
                                                                  2002 arm
                                                   144 Mar 14
                                                                   2003 arm-elf
drwxrwxrwx
                  6 root
                                 users
drwxr-xr-x
                  8 root
                                                   200 Aug 12
                                                                  2002 arm-linux
                                            44947201 Apr
1696 Jan
                                               200 Hug 12 2002 drm-11Hux
4947201 Apr 4 10:55 arm-toolchain-SSV20020812.tgz
1696 Jan 7 2005 bin
548019 Aug 12 2002 checksum.md5
48 Mar 18 2003 games
 -r-xr-xr-x
                  1 root
                                 root
drwxr-xr-x
                  2 root
                                 root
 -rw-r--r-
                  1 root
                                 root
drwxr-xr-x
                  2 root
                                 root
                                                11052 Apr 10 14:37 hello
81 Apr 10 14:36 hello.c
136 Dec 1 15:04 include
104 Dec 1 15:04 lib
144 Mar 13 2003 m68k-elf
                                 root
                  1 root
 -rw-r--r-
                  1 root
                                 root
                  2 root
                                 root
drwxr-xr-x
                  3 root
                                 root
drwxrwxrwx
                  6 root
                                 users
drwxr-xr-x
                  6 root
                                 root
                                                   152 Jan 10 2005 m68k-uclinux-tools
288 Nov 21 2003 man
                 12 root
drwxr-xr-x
                                 root
                                                    48 Mar 18
48 Mar 18
                  2 root
                                                                   2003 sbin
drwxr-xr-x
                  2 root
                                 root
                                                                   2003 share
                  2 root
                                                    48 Mar 18
 drwxr-xr-x
                                 root
linux:/usr/local #
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```

• **4. Step**: Transfer the executable with the help of FTP or TFTP to the DIL/NetPC DNP/9200 and run the demo application on your target.

```
Befehlsfenster - Konsole
                                                                                                                                                                      \square \times
 Sitzung Bearbeiten Ansicht Lesezeichen Einstellungen Hilfe
                  15 root
drwxr-xr-x
                                                        512 Apr 10 14:37
drwxr-xr-x
                  12 root
                                    root.
                                                        344 Nov 21
                                                                         2003
                                                          96 Aug 12
                                                                          2002 arm
drwxr-xr-x
                    2 root
                                    root
drwxrwxrwx
                    6 root
                                    users
                                                        144 Mar 14
200 Aug 12
                                                                         2003 arm-elf
2002 arm-linux
                    8 root
drwxr-xr-x
                                    root
                                                                     4 10:55 arm-toolchain-SSV20020812.tgz
7 2005 bin
                                                 44947201 Apr
                                    root
drwxr-xr-x
                                                       1696 Jan
                    2 root
                                    root
                                                     548019 Aug 12 2002 checksum.md5
48 Mar 18 2003 games
11052 Apr 10 14:37 hello
                                                    548019 Aug 12
                    1 root
                                    root
drwxr-xr-x
                    2 root
                                    root
 -rwxr-xr-x
                    1 root
                                    root
                                                        81 Apr 10 14:36 hello.c

136 Dec 1 15:04 include

104 Dec 1 15:04 lib

144 Mar 13 2003 m68k-elf

152 Jan 10 2005 m68k-uclinux-tools
 -rw-r--r--
                    1 root
2 root
                                    root
drwxr-xr-x
                                    root
drwxr-xr-x
                                    root
druxruxrux
                    6 root
                                    users
drwxr-xr-x
                    6 root
                                    root
drwxr-xr-x
                  12 root
                                    root
                                                        288 Nov 21
48 Mar 18
                                                                         2003 man
                                                                         2003 sbin
                    2 root
drwxr-xr-x
                                    root
                                                                         2003 share
drwxr-xr-x
                    2 root
                                    root
                                                          48 Mar 18
drwxr-xr-x
                    2 root
                                    root
                                                          48 Mar 18
                                                                         2003 src
linux:/usr/local # telnet 192.168.0.126
Trying 192.168.0.126...
Connected to 192.168.0.126.
Escape character is '^l'.
- SSV Embedded Linux - Version 0.62
emblinux login: root
Password:
[root@emblinux /root]$cd /home/gast
[root@emblinux gast]$<mark>ls -al</mark>
                   2 gast
4 root
drwxr-xr-x
                                    users
                                                        128 Jan 1 12:23
                                                     128 Aug 6 2002 ...
11052 Jan 1 12:23 hello
drwxr-xr-x
                                    root
drwxr-xr-x 1 gast user

-rwxr-xr-x 1 gast user

[root@emblinux gast1$∴/hello

Hello DNP/9200 User...

[root@emblinux gast1$¶
 Neu Befehlsfenster
```

That is all.