

# BEEP programming guide

## 1. Introduction:

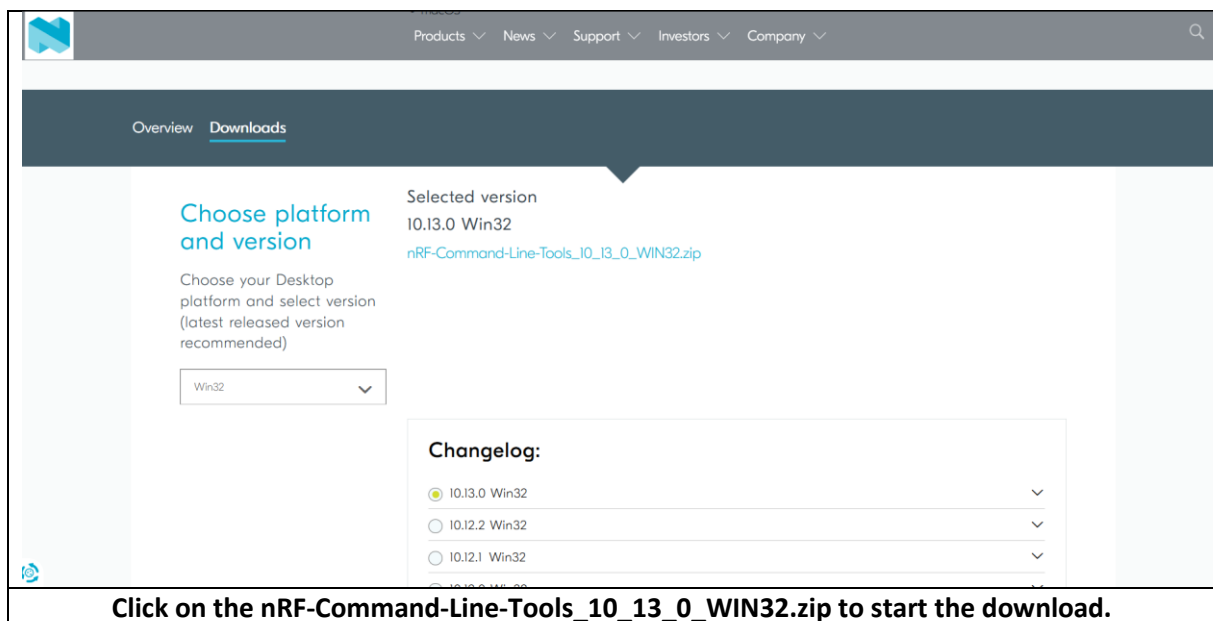
This guide will explain how the BEEP base platform hardware is programmed with the given hex file and batch script. In order to do this the following is required:

- Windows 10
- The nrfjprog drivers for programming
- Programming tools. Since a previous batch was successfully programmed, I assume the electrical connections and power supply are working correctly.

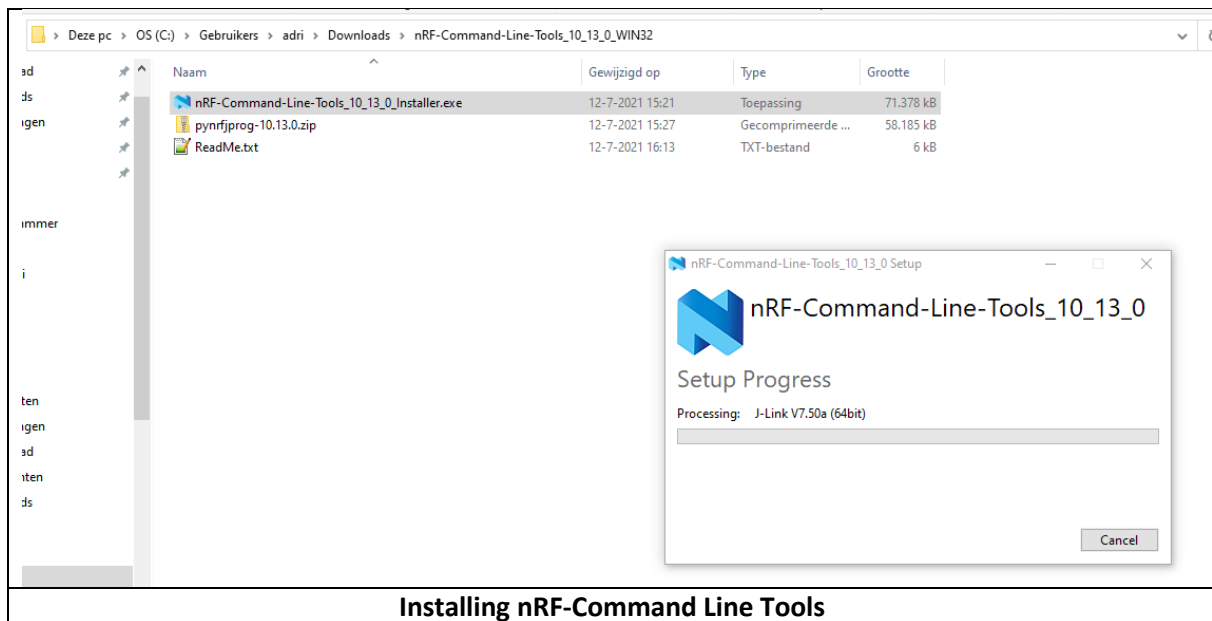
## 2. Installing nrfjprog

Download the nRF-Command Line Tools from Nordic Semiconductor website:

<https://www.nordicsemi.com/Products/Development-tools/nrf-command-line-tools/download#infotabs> by clicking on the nRF-Command-Line-Tools\_10\_13\_0\_WIN32.zip.

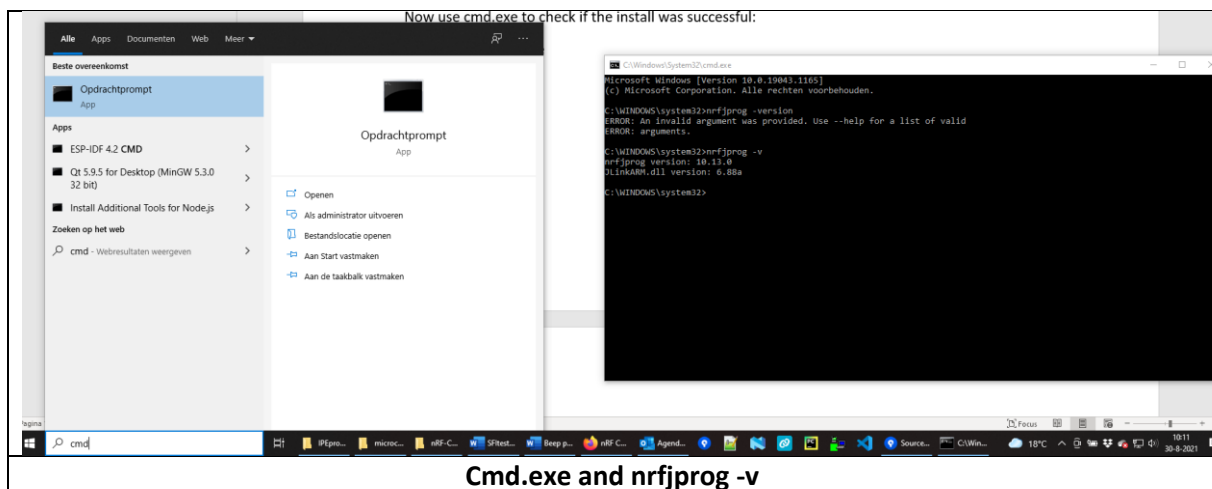


Once downloaded, unzip the application. Start the nRF-Command-Line-Tools\_10\_13\_0\_Installer.exe to install it. There will be pop-ups from the various components asking to install, just accept and install them as they will update and install the drivers and required components.




Now use cmd.exe to check if the install was successful:

- Start cmd.exe, you can find it by typing exe.cmd in the windows search bar.
- Type the command `nrfjprog -v` and press enter
- The version of the `nrfjprog` will be printed. If an error is returned that `nrfjprog` is unknown, it's either not installed properly or the path is not set. The version does not really matter, we're just checking whether the installation was successful.



### 3. Programming

If the `nrfjprog` is installed, go to the folder containing the provided hex file and batch script. The “`program_BeepFirmware.bat`” file can be used to test if everything works. This script will program the hardware ID `0x112233445566778899`. The script is started by clicking on the bat file like its an program. The output will look like this:



```
C:\WINDOWS\system32\cmd.exe
Start programming HW 1.0; reg:65536
Erasing user available code and UICR flash areas.
Applying system reset.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing image file.
Applying system reset.
Verified OK.
Applying system reset.
Run.
Programming Done
Press any key to continue . . . _
```

**program\_BeepFirmware.bat batch output**

The script “program\_BeepFirmwareCliArgs.bat” allows the ID to be specified from the command line in three separate uint32\_t numbers. Note that the hardware id must use a hexadecimal format with a leading “0x” and contain 8 characters each. Otherwise nrfjprog might not properly use the given value. An input of 0x1, 0x01 or 1 is not allowed, the input must be 0x00000001.

The batch file is in the folder

“D:\localrep\Beep\BeeMonitor\Releases\2021\_08\_10\_BeepBase\_V1.5.11\Firmware” on my PC, the absolute path doesn’t matter for anyone following this guide. No need to implement the file structure as is shown in the examples. Now start cmd.exe and go to the folder with the following command:

```
Cd /d D:\localrep\Beep\BeeMonitor\Releases\2021_08_10_BeepBase_V1.5.11\Firmware
```

Followers of this guide need to replace the path above with their own folder path. Use quotes (”) for parts that contain a whitespace. For example if the part of the path above was as following: \2021 08 10 BeepBase V1.5.11\ it would require the following modification: “\2021 08 10 BeepBase V1.5.11\” or quotes around the whole path.

Now that the cmd.exe is in the folder, use the following command to program the id from the command line.

```
start /B program_BeepFirmwareCliArgs.bat 0x01234567 0x89ABCDEF 0x12000000
```

This will program the hardware id ID 0x0123456789ABCDEF12.

The complete output looks like this:

```
Opdrachtprompt - program_BeepFirmwareCliArgs.bat 0x01234567 0x89ABCDEF 0x12000000
Microsoft Windows [Version 10.0.19043.1165]
(c) Microsoft Corporation. Alle rechten voorbehouden.

C:\Users\adri>cd /d D:\localrep\Beep\BeeMonitor\Releases\2021_08_10_BeepBase_V1.5.11\Firmware
D:\localrep\Beep\BeeMonitor\Releases\2021_08_10_BeepBase_V1.5.11\Firmware>start /B program_BeepFirmwareCliArgs.bat 0x01234567 0x89ABCDEF 0x12000000
D:\localrep\Beep\BeeMonitor\Releases\2021_08_10_BeepBase_V1.5.11\Firmware>Start programming HW 1.0; reg:65536
Erasing user available code and UICR flash areas.
Applying system reset.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing parameters.
Writing.
Parsing image file.
Applying system reset.
Verified OK.
Applying system reset.
Run.
Programming Done
Press any key to continue . . .
D:\localrep\Beep\BeeMonitor\Releases\2021_08_10_BeepBase_V1.5.11\Firmware>
```

start /B program\_BeepFirmwareCliArgs.bat 0x01234567 0x89ABCDEF 0x12000000 output

If the outputs are not equal or errors occur, please provide a screenshot and a description of the steps you've done for feedback.