

**NAME**

dfu-util – Device firmware update (DFU) USB programmer

**SYNOPSIS**

**dfu-util** **-l** [**-v**] [**-d** *vid:pid* [, *vid:pid*]] [**-p** *path*] [**-c** *configuration*] [**-i** *interface*] [**-a** *alt-intf*] [**-S** *serial* [, *serial*]]

**dfu-util** [**-v**] [**-d** *vid:pid* [, *vid:pid*]] [**-p** *path*] [**-c** *configuration*] [**-i** *interface*] [**-a** *alt-intf*] [**-S** *serial* [, *serial*]] [**-t** *size*] [**-Z** *size*] [**-w**] [**-s** *address*] [**-R**] [**-D**] [**-U** *file*]

**dfu-util** [**-hV**]

**DESCRIPTION**

**dfu-util** is a program that implements the host (computer) side of the USB DFU (Universal Serial Bus Device Firmware Upgrade) protocol.

dfu-util communicates with devices that implement the device side of the USB DFU protocol, and is often used to upgrade the firmware of such devices.

**OPTIONS**

**-l, --list**

List the currently attached DFU capable USB devices.

**-d, --device** [*Run-Time VENDOR*]:[*Run-Time PRODUCT*][, [*DFU Mode VENDOR*]:[*DFU Mode PRODUCT*]]

Specify run-time and/or DFU mode vendor and/or product IDs of the DFU device to work with. **VENDOR** and **PRODUCT** are hexadecimal numbers (no prefix needed), "\*" (match any), or "-" (match nothing). By default, any DFU capable device in either run-time or DFU mode will be considered.

If you only have one standards-compliant DFU device attached to your computer, this parameter is optional. However, as soon as you have multiple DFU devices connected, dfu-util will detect this and abort, asking you to specify which device to use.

If only run-time IDs are specified (e.g. "**--device 1457:51ab**"), then in addition to the specified run-time IDs, any DFU mode devices will also be considered. This is beneficial to allow a DFU capable device to be found again after a switch to DFU mode, since the vendor and/or product ID of a device usually changes in DFU mode.

If only DFU mode IDs are specified (e.g. "**--device ,951:26**"), then all run-time devices will be ignored, making it easy to target a specific device in DFU mode.

If both run-time and DFU mode IDs are specified (e.g. "**--device 1457:51ab,:2bc**"), then unspecified DFU mode components will use the run-time value specified.

Examples:

**--device 1457:51ab,951:26**

Work with a device in run-time mode with vendor ID 0x1457 and product ID 0x51ab, or in DFU mode with vendor ID 0x0951 and product ID 0x0026

**--device 1457:51ab,:2bc**

Work with a device in run-time mode with vendor ID 0x1457 and product ID 0x51ab, or in DFU mode with vendor ID 0x1457 and product ID 0x02bc

**--device 1457:51ab**

Work with a device in run-time mode with vendor ID 0x1457 and product ID 0x51ab, or in DFU mode with any vendor and product ID

- device ,951:26**  
Work with a device in DFU mode with vendor ID 0x0951 and product ID 0x0026
- device \*,-**  
Work with any device in run-time mode, and ignore any device in DFU mode
- device ,**  
Ignore any device in run-time mode, and Work with any device in DFU mode
- p, --path BUS-PORT. ... .PORT**  
Specify the path to the DFU device.
- c, --cfg CONFIG-NR**  
Specify the configuration of the DFU device. Note that this is only used for matching, the configuration is not set by dfu-util.
- i, --intf INTF-NR**  
Specify the DFU interface number.
- a, --alt ALT**  
Specify the altsetting of the DFU interface by name or by number.
- S, --serial [Run-Time SERIAL][, [DFU Mode SERIAL]]**  
Specify the run-time and DFU mode serial numbers used to further restrict device matches. If multiple, identical DFU devices are simultaneously connected to a system then vendor and product ID will be insufficient for targeting a single device. In this situation, it may be possible to use this parameter to specify a serial number which also must match.
- If only a single serial number is specified, then the same serial number is used in both run-time and DFU mode. An empty serial number will match any serial number in the corresponding mode.
- t, --transfer-size SIZE**  
Specify the number of bytes per USB transfer. The optimal value is usually determined automatically so this option is rarely useful. If you need to use this option for a device, please report it as a bug.
- Z, --upload-size SIZE**  
Specify the expected upload size, in bytes. Note that the value is only used for scaling the progress bar, the actual upload size is determined by the device.
- U, --upload FILE**  
Read firmware from device into **FILE**.
- D, --download FILE**  
Write firmware from **FILE** into device. When **FILE** is -, the firmware is read from stdin.
- R, --reset**  
Issue USB reset signalling after upload or download has finished.
- e, --detach**  
Request that the device re-enumerate out of run-time mode and into DFU mode as when uploading or downloading, but exit immediately after sending the request.
- E, --detach-delay SECONDS**  
When uploading or downloading, wait **SECONDS** seconds for the device to re-enumerate after sending the detach request before giving up. Defaults to 5 seconds. This option has no effect with **-e**, since that causes dfu-util to immediately exit after sending the detach request.
- w, --wait**  
Wait until matching device appears on the USB bus.

- s, --dfuse-address** [ADDRESS][:LENGTH][:MODIFIERS]  
Specify target address for raw binary download/upload on DfuSe devices. Do **not** use this option for downloading DfuSe (.dfu) files. A length can be specified for uploads. Modifiers can be added after the address, separated by a colon, to perform special DfuSE commands such as "leave" DFU mode, "unprotect" and "mass-erase" flash memory. If the device can be expected to reset itself after the operation, "will-reset" should be added. The "force" modifier will override some sanity checks, and is also needed for the "unprotect" and "mass-erase" operations.
- v, --verbose**  
Print more information about dfu-util's operation. A second **-v** adds more details. A third **-v** activates verbose logging of USB requests (libusb debug output).
- h, --help**  
Show a help text and exit.
- V, --version**  
Show version information and exit.

## EXAMPLES

### Using dfu-util in the OpenMoko project (with the Neo1973 hardware)

Flashing the rootfs:

```
$ dfu-util -a rootfs -R -D /path/to/openmoko-devel-image.jffs2
```

Flashing the kernel:

```
$ dfu-util -a kernel -R -D /path/to/uImage
```

Flashing the bootloader:

```
$ dfu-util -a u-boot -R -D /path/to/u-boot.bin
```

Copying a kernel into RAM:

```
$ dfu-util -a 0 -R -D /path/to/uImage
```

Once this has finished, the kernel will be available at the default load address of 0x32000000 in Neo1973 RAM. **Note:** You cannot transfer more than 2MB of data into RAM using this method.

### Using dfu-util with a DfuSe device

Flashing a .dfu (special DfuSe format) file to the device:

```
$ dfu-util -D /path/to/dfuse-image.dfu
```

Reading out 1 KB of flash starting at address 0x8000000:

```
$ dfu-util -a 0 -s 0x08000000:1024 -U newfile.bin
```

Flashing a binary file to address 0x8004000 of device memory and ask the device to leave DFU mode:

```
$ dfu-util -a 0 -s 0x08004000:leave -D /path/to/image.bin
```

## BUGS

Please report any bugs to the dfu-util bug tracker at <http://sourceforge.net/p/dfu-util/tickets/>. Please use the *--verbose* option (repeated as necessary) to provide more information in your bug report.

## SEE ALSO

The dfu-util home page is <http://dfu-util.sourceforge.net/>

## HISTORY

dfu-util was originally written for the OpenMoko project by Weston Schmidt <weston\_schmidt@yahoo.com> and Harald Welte <hwelte@hmw-consulting.de>. Over time, nearly complete support of DFU 1.0, DFU 1.1 and DfuSe ("1.1a") has been added.

## LICENCE

**dfu-util** is covered by the GNU General Public License (GPL), version 2 or later.

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This manual page was originally written by Uwe Hermann <uwe@hermann-uwe.de>, and is now part of the dfu-util project.