mlxup - Mellanox Firmware Utility

User Guide

Rev 1.2

www.mellanox.com

Mellanox Technologies
350 Oakmead Parkway Suite 100
Sunnyvale, CA 94085
U.S.A.
www.mellanox.com
Tel: (408) 970-3400
Fax: (408) 970-3403

Table of Contents

List of Figures

Document Revision History

Table 1: Document Revision History

Revision	Date	Description
1.2	March 2016	No changes were made to this version.
1.1	October 2015	Updated the following sections: • 1.1 • 1.3.2
1.0	August 2015	First release

1 Overview

mlxup is a Mellanox firmware update and query utility used to update the firmware on each relevant adapter.

mlxup can use a firmware binary image placed at one of the following locations:

1. Embedded in the mlxup utility (default)
2. At an exact user-specified path to the image file (--image-file flag)
3. In a user-specified directory which may contain more than a single binary (--image-dir flag)
4. On www.mellanox.com that the utility accesses online

1.1 Downloading mlxup

Download the utility from the mlxup Download Center available at www.mellanox.com > Products > Software > Firmware Utilities.

The utility is a binary executable that does not require installation.

NOTE: In Linux and FreeBSD: Downloading mlxup using the wget application removes file attributes, therefore, there is a need to add execute permission by running:

```
chmod +x mlxup
```

1.2 mlxup Synopsis

```
mlxup [options]
```

mlxup Usage Options:

-d|--dev <DeviceName>	Perform operation for specified PCI (using the format <Bus>:<Device>.<Function>) or IB device(s). Multiple devices can be specified delimited by semicolons. A device list containing semicolons must be quoted.
-h|--help	Show this message and exit
-v|--version	Show the executable version and exit
--query	Query device(s) info
--query-format Format	Query | Online query) output format, XML | Text - default Text
-u|--update	Update firmware image(s) on the device(s)
-i|--image-file FileName	Specified image file to use
-D|--image-dir DirectoryName	Specified directory instead of default to locate image files
-f|--force	Force image update
-y|--yes	Answer is yes in prompts
--no	Answer is no in prompts

--clear-semaphore	Force clear the flash semaphore on the device, No command is allowed when this flag is used. **NOTE:** May result in system instability or flash corruption if the device or another application is currently using the flash. Exercise caution.
--exe-rel-path	Use paths relative to the location of the executable
--log	Create log file
-L|--log-file LogFileName	Use specified log file
--no-progress	Do not show progress
-o|--outfile OutputFileName	Write to specified output file
--online	Fetch required FW images online from Mellanox server
--online-query-psid PSIDs	Query FW info, PSID(s) are comma separated
--key key	Key for custom download/update
--download DirectoryName	Download files from server to a specified directory
--download-default	Use Default values for download
--download-device Device	Options are: ConnectX, Connect-IB, ConnectX-4 - default All
--download-os OS	FBSD10_1_64, FBSD11_64 - default All
--download-type Type	MFA | self_extractor - default All
--ssl-certificate Certificate	SSL certificate For secure connection
--sfx-extract-dir <dir>	Use <dir> for temporary files during execution

1.3 Updating Firmware

1.3.1 Querying for Adapters

In order to query for all installed Mellanox adapters, run the following command:

```
# mlxup --query
```

The above command provides query results about each found adapter device in text and XML format.

NOTE: By default, running the firmware update command using mlxup will update firmware for all Mellanox adpaters on the machine.
However, you can use the '-d <PCI Device Name>' option to specify a single adapter for update (see figure Figure 1 below).

Figure 1: Single Adapter Update Specification

```
# ./mlxup      -d 0000:0b:00.0
Querying Mellanox devices firmware ...

Device #1:
----------

  Device Type:      ConnectX3
  Part Number:      MCX354A-FCB_A2-A5
  Description:      ConnectX-3 VPI adapter card; dual-port QSFP; FDR IB (56Gb/s) and 40GigE; PCIe3.0 x8 8GT/s; RoHS R6
  PSID:             MT_1090120019
  PCI Device Name:  0000:0b:00.0
  Port1 GUID:       f45214030001b8a1
  Port2 GUID:       f45214030001b8a2
  Versions:         Current        Available
     FW             2.32.5506      2.34.5000
     PXE            3.4.0460       3.4.0521

  Status:           Update required

---------
Found 1 device(s) requiring firmware update...

Perform FW update? [y/N]: y
Device #1: Updating FW ... Done

Restart needed for updates to take effect.
Log File: /var/log/mlxup/mlxup -20150810_151330_852.log
```

1.3.2 Updating Firmware Using an Embedded Image

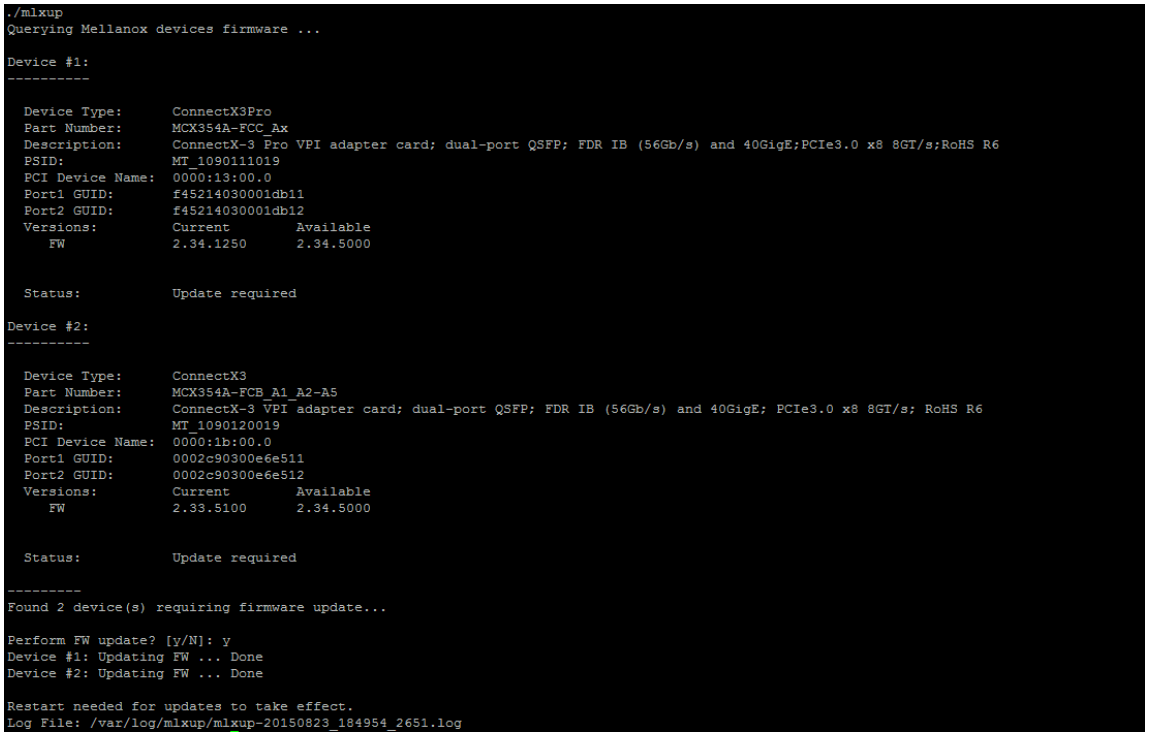
By default, mlxup updates the firmware of all Mellanox adapter cards installed on your machine. The utility first queries for available devices and indicates whether an update is required. Then it prompts the user to confirm or reject the firmware update. Figure 2 and Figure 3 below illustrate the performed steps.

NOTE: In order to load FW on ConnectX-4, ConnectX-4 Lx and Connect-IB, a reboot must be performed after upgrading FW.

Figure 2: Embedded Firmware Image - Single Adapter

```
# ./mlxup
Querying Mellanox devices firmware ...

Device #1:
----------

  Device Type:      ConnectX3
  Part Number:      MCX354A-FCB_A2-A5
  Description:      ConnectX-3 VPI adapter card; dual-port QSFP; FDR IB (56Gb/s) and 40GigE; PCIe3.0 x8 8GT/s; RoHS R6
  PSID:             MT_1090120019
  PCI Device Name:  0000:0b:00.0
  Port1 GUID:       f45214030001b8a1
  Port2 GUID:       f45214030001b8a2
  Versions:         Current        Available
     FW             2.32.5506      2.34.5000


  Status:           Update required

---------
Found 1 device(s) requiring firmware update...

Perform FW update? [y/N]: y
Device #1: Updating FW ... Done

Restart needed for updates to take effect.
Log File: /var/log/mlxup/mlxup -20150810_133418_29347.log
```

Figure 3: Embedded Firmware Image - Multiple Adapters

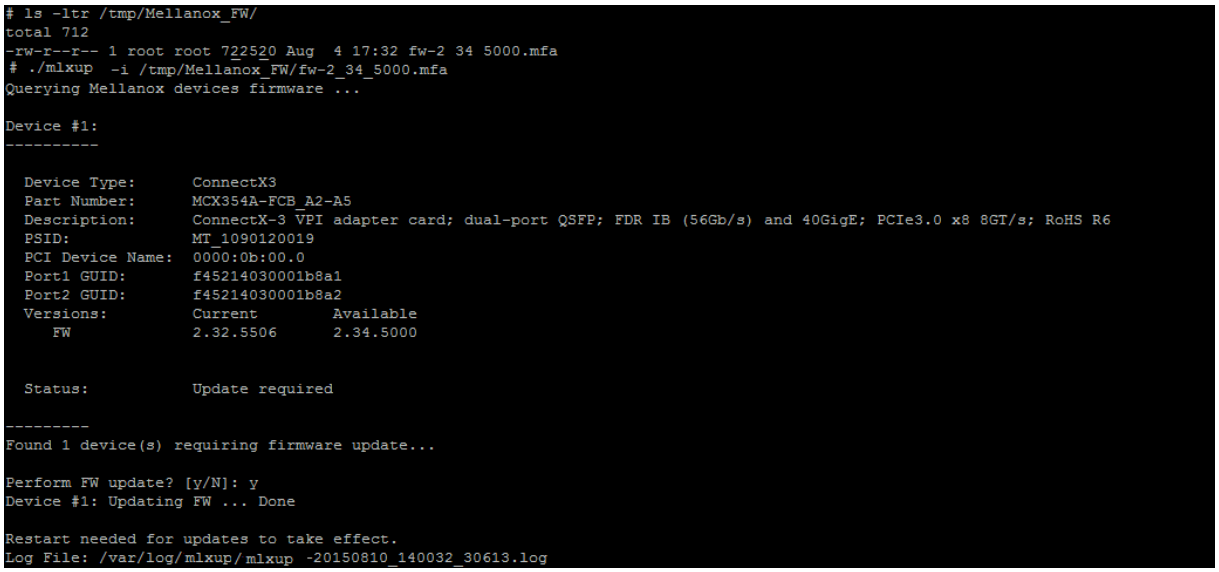


1.3.3 Updating Firmware Using a Specific Image

In order to update the firmware of all Mellanox adapter cards using a specific firmware image, run the following command:

```
# mlxup -i <file path>
```

Figure 4: Updating Firmware Using a Specific Image



1.3.4 Updating Firmware from a Directory

In order to update the firmware of all Mellanox adapter cards using firmware images located under a specific directory, run the following command:

```
# mlxup -D <directory path>
```

Figure 5: Updating from a Directory

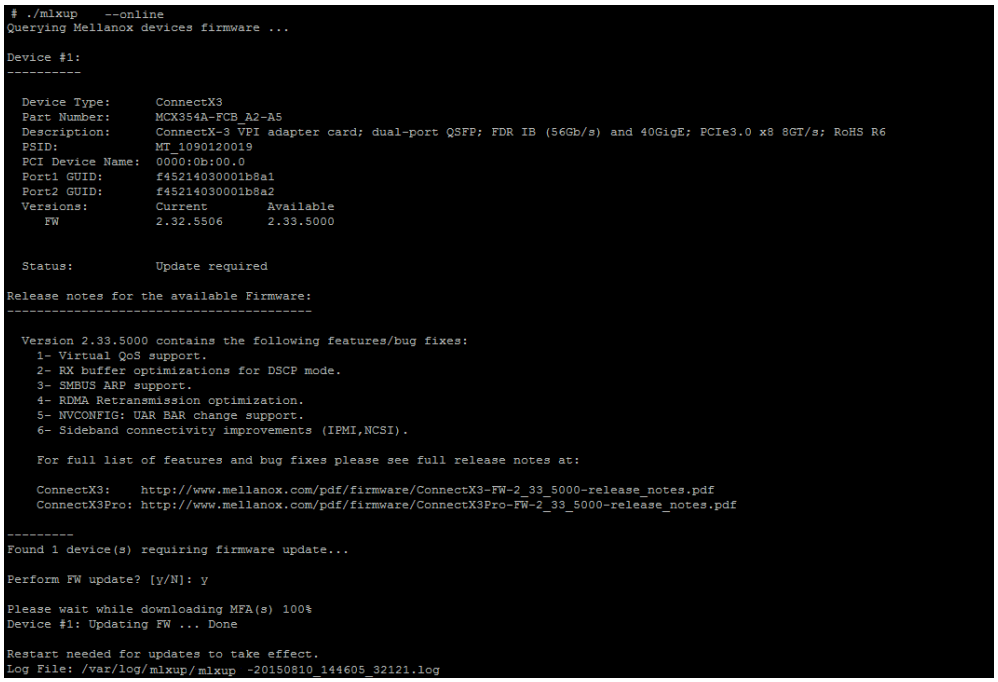
```
# ls -ltr /tmp/Mellanox_FWs/
total 4840
-rw-r--r-- 1 root root 722520 Aug  4 17:32 fw-ConnectX3-rel-2_34_5000.bin
-rw-r--r-- 1 root root 729440 Aug 10 14:26 fw-ConnectX3Pro-rel-2_34_5000-MCX366A-BCC_Ax.bin
-rw-r--r-- 1 root root 830868 Aug 10 14:26 fw-ConnectX3-rel-2_34_5000-MCX354A-FCC_Ax.bin
-rw-r--r-- 1 root root 975408 Aug 10 14:26 fw-ConnectX3-rel-2_34_5000-MCX342A-XCQ_Ax.bin
-rw-r--r-- 1 root root 830876 Aug 10 14:27 fw-ConnectX3-rel-2_34_5000-MCX314A-BCC_Ax.bin
-rw-r--r-- 1 root root 830092 Aug 10 14:27 fw-ConnectX3-rel-2_34_5000-MCX311A-XCC_Ax.bin
# ./mlxup  -D /tmp/Mellanox_FWs/
Querying Mellanox devices firmware ...

Device #1:
----------

  Device Type:      ConnectX3
  Part Number:      MCX354A-FCB_A2-A5
  Description:      ConnectX-3 VPI adapter card; dual-port QSFP; FDR IB (56Gb/s) and 40GigE; PCIe3.0 x8 8GT/s; RoHS R6
  PSID:             MT_1090120019
  PCI Device Name:  0000:0b:00.0
  Port1 GUID:       f45214030001b8a1
  Port2 GUID:       f45214030001b8a2
  Versions:         Current        Available
     FW             2.32.5506      2.34.5000


  Status:           Update required

---------
Found 1 device(s) requiring firmware update...

Perform FW update? [y/N]: y
Device #1: Updating FW ... Done

Restart needed for updates to take effect.
Log File: /var/log/mlxup/mlxup -20150810 143222 31951.log
```

1.3.5 Online Firmware Update

mlxup can also update the device using the latest firmware published on www.mellanox.com. In order to complete the update online, run the following command:

```
# mlxup -online
```

Figure 6: Online Firmware Update



2 Frequently Asked Questions (FAQ)

- ***What is the connection between MFT tools and mlxup?***

  mlxup is a self-extracting executable that contains a set of Mellanox firmware binary images and the mlxfwmanager tool with limited features. mlxfwmanager is part of the MFT package.
  For further information on how to generate mlxup, please refer to the "Update Package for Mellanox Firmware" section in MFT User Manual.

- ***Why can't mlxup recognize my card?***

  This may occur for two reasons:

  - The mlxup version might not be the latest and therefore does not support this specific card type. In this case, an mlxup update is required.
  - The device might not be working properly, therefore it might not be listed in the PCI devices list. In this case, device functionality needs to be verified.

- ***Why does the available firmware version on my server appear as "N/A"?***

  mlxup might not contain a firmware suitable for the card you are attempting to update. In this case, you may get the latest mlxup version by running `mlxup -online` or using any of the methods explained above.

- ***Is it possible to use mlx and ini files?***

  No. mlxup works with firmware binaries only. If you wish to burn a customized firmware, please use mlxburn. For further details, please refer to MFT User Manual at www.mellanox.com.

- ***"Device FW is up to date" message popped up while I was trying to burn the device. What does it mean?***

  This means that the firmware version in the mlxup package is older or identical to the current firmware version on the device. In this case, you can force the burning by using the "--force" flag.

- ***"Failed to open device" message popped up while I was trying to query/burn the device. What does it mean?***

  This means that there was a failure in the -read from the PCI device. To resolve the issue, try to reboot the system.