



Mellanox Firmware Tools (MFT) Release Notes for Windows

Rev 2.7.2

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1 Overview

These are the release notes for Rev 2.7.2 of the **Mellanox Firmware Tools (MFT)** package for Windows. The release notes include:

- This “Overview” section which includes the subsections:
 - “Package Tools” on page 2.
 - “Software Dependencies” on page 3.
- “Changes and New Features” on page 4.
 - “Deprecated Features” on page 6.
- “Known Issues” on page 8.
- “Bug Fixes” on page 7.

1.1 Package Tools

The following is a list of the available tools in the package, together with a brief description of what each tool performs. The tools apply to single Switch Systems or adapter cards, but not to clusters.

Table 1 - Mellanox Firmware Tools (MFT) Available Tools

mlxburn	This tool provides the following functions: <ul style="list-style-type: none"> • Generation of a standard or customized Mellanox firmware image for burning in .bin (binary) or .img format • Burning an image to the Flash/EEPROM attached to a Mellanox HCA or switch device • Querying the firmware version loaded on a Mellanox network adapter • Displaying the VPD (Vital Product Data) of a Mellanox network adapter
flint	This tool burns a firmware binary image or an expansion ROM image to the Flash device of a Mellanox network adapter/bridge/switch device. It includes query functions to the burnt firmware image and to the binary image file.
spark	This tool burns a firmware <i>binary</i> image to the EEPROM(s) attached to an InfiniScaleIII® switch device. It includes query functions to the burnt firmware image and to the binary image file. The tool accesses the EEPROM and/or switch device via an I2C-compatible interface or via vendor-specific MADs over the InfiniBand fabric (In-Band tool).
Debug utilities	A set of debug utilities (e.g., itrace, mstdump, mlx2c, and i2c).

Detailed installation instructions along with complete descriptions of the various tools in the package can be found in the *Mellanox Firmware Tools User's Manual, Document no. 2329, Rev 1.40* or later.

Additional MST tools are available via the MFT Windows installation. These are:

Table 2 - Additional Mellanox Firmware Tools (MFT) Available Tools

mst	Starts or stops the mst service (which provides access to device configuration space), and lists available mst device names (used by the tools).
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Table 2 - Additional Mellanox Firmware Tools (MFT) Available Tools

i2c	Provides I2C-compatible bus access via the mst devices.
mstdump	For Debug Only. This application dumps adapter internal configuration registers to the screen. Run “mstdump” to get detailed help.

1.2 Software Dependencies

Table 3 - MFT Software Dependencies on Windows

Software Package	Required Version
WinOF ^a (optional)	3.0.0 ^b or later

- a. WinOF is required only for In-Band access. The package can be downloaded from www.mellanox.com > Products > InfiniBand SW/Drivers.
- b. Mellanox WinOF VPI v3.0.0 is not released yet. Its release is expected in Q1 2012.

1.3 Supported Operating Systems and Platforms

- Supported Operating Systems and Service Packs:
 - Windows 7 (x86, x64)
 - Windows Server 2008 (x86, x64)
 - Windows Server 2008 R2 (x64)
 - Windows PE 3.0 (x86, x64)

2 Changes and New Features

2.1 Changes in Version 2.7.2

Table 4 - Changes and New Features

Component / Tool	Description
General	It is no longer required to run mst start/stop when using WinMFT tools. The service is automatically loaded/unloaded when an MFT tool is running. The mst service installation was removed from the setup.
	Added support for SwitchX [®] silicon devices.
flint	Added support for Atmel AT25DFxx flash family.
	Added support for burning firmware via Command Line Interface (CLI) on SwitchX [®] devices.
mget_temp	mget_temp displays a more accurate temperature reading for ConnectX [®] -2 and ConnectX [®] -3 devices by using the adapter's specific thermal calibration data.

2.2 Changes in Version 2.7.1

Table 5 - Changes and New Features

Component / Tool	Description
General	Added support for Mellanox ConnectX [®] -3 silicon device.
	Added the I2CBridge (Dimax's Driver for USB to I2C Adapter) as part of the WinMFT installation package. However, the I2CBridge is not installed by default.
MFT installation change	Removed the isw tool. The isw tool functionality was replaced by the "mlx2c" tool. For example, to scan the devices on the i2c bus, run: <pre>> mlx2c -d <dev> scan</pre> instead of <pre>> isw -d <dev></pre>

Table 5 - Changes and New Features

Component / Tool	Description
flint	Added support for flash type SST25VF016B
	Added support for flash type M25PX16
	<ul style="list-style-type: none"> • The ROM section in the image now contains multiple boot images. Therefore flint was modified to display information for all of the images in the ROM section. • Added support to display/burn UEFI ROM/
	Added an option to set the VSD and GUIDs in a binary image file. This is useful for production to prepare images for pre-assembly flash burning. These new commands are supported by Mellanox 4th generation devices.
	Added an option to set the VSD and GUIDs on an already burnt device. These commands (“sg” and “sv”) re-burn the existing image with the given GUIDs or VSD. When the 'sg' command is applied on a device with blank (0xff) GUIDs, it updates the GUIDs without re-burning the image.
mst	Added support for using ibnetdiscover in the 'mst ib add' command
mlxburn	Added support for VPD read/write

2.3 Changes in Version 2.6.0

Table 6 - Changes and New Features

Component / Tool	Description
All	Added Mellanox ConnectX-2 and BridgeX support.
flint	Added a CRC check for the full image
	Support for query/burn of clp-gpxe ROM
	Prevents burning a ConnectX-2 image onto a ConnectX device and vice versa
	Added a logging option to flint
	For the ConnectX device family only: Added commands for an independent burn/read/remove of an Expansion ROM image. <i>For firmware versions earlier than 2.7.000:</i> It is possible to read the ROM image, or to replace an already existing ROM image (by the burn command). However, burning a new ROM image in case a previous image did not exist is not possible, nor is it possible to remove an existing ROM image.
mlxburn	Added the -fw_dir option which looks for a suitable FW file in the given directory
	Support for generating a non-failsafe image for ConnectX [®] /ConnectX-2, InfiniScale [®] IV, and BridgeX [®] devices
mst	Added the command “mst remote add <server>” which provides access to devices on a remote server. To use this feature and be able to access the remote server, the server TCP port must be enabled (i.e., not blocked by the firewall). The default server TCP port is 23108
Debug tools	Updated the mlx2c utility

2.4 Deprecated Features

N/A

3 Bug Fixes

The current release has no bugs fixed.

4 Known Issues

Table 7 provides a list of known bugs and limitations in regards to this release of the Mellanox Firmware Tools.

Table 7 - Known Bugs and Limitations

	Tool	Issue	Description	Workaround	To be Fixed on
1.	All	On Windows Server 2008 ONLY: Installing and running MFT tools requires elevated administrator privileges when User Account Control (UAC) is active	On Windows Server 2008, you need to install the MFT MSI with elevated administrator privileges if UAC is activated. To install with elevated administrator privileges, right click over the MSI and select "Run as administrator"		N/A
			On Windows Server 2008, you need to run with elevated administrator privileges if UAC is activated. To open a command shell with elevated administrator privileges: Click start > Programs > Accessories, then right-click over "Command Prompt" and select "Run as administrator".		
2.		Support for multiple MTUSB-1 devices	MFT supports only one connected MTUSB-1 device at a time		
3.		Killing an WinMFT process may interrupt subsequent runs of WinMFT tools	Performing a forced close on a tool while it is in the middle of the cleanup process may cause failure of other tools due to leftovers from the interrupted run. Subsequently, the following error is displayed: -E- Failed to open <device>: No such file or directory	Run 'mst stop force' to clean your system from any leftovers from the interrupted run.	Future release

Table 7 - Known Bugs and Limitations

	Tool	Issue	Description	Workaround	To be Fixed on
4.	flint / mlx-burn	Burning / querying via an MTUSB-1 devices may take up to 35 minutes	When running mlxburn/flint via an MTUSB-1 device, a burn/query command may take up to 12 minutes to complete without any messages displayed. This is mainly due to an extensive firmware image query that runs by default.	Use <code>-qq</code> flag to perform a quick query and <code>-no_flash_verify</code> to perform a quick burn. Please note, <code>-no_flash_verify</code> does not verify if the image is burnt.	N/A
5.		Burning an image to a ConnectX or ConnectX-3 adapter in Flash recovery mode may fail	On some host machines (that use PCIe spread spectrum), the tool may not be able to recognize the ConnectX device's PCI CONF0 or the image burn may not complete successfully.	Use the MTUSB-1 connection to burn the image	N/A
6.	mlxburn	Slow VPD access for ConnectX-3	Reading the VPD using the <code>"-vpd_rw"</code> flag or programing the VPD may take up to 5 mins.	N/A	Future release
		Running multiple VPD access commands in parallel	Running multiple VPD access commands in parallel on the same device may cause the commands to fail. VPD access commands should be run one at a time.	N/A	Future release
7.		VPD access is supported only via pci-confX devices	VPD access is supported only via pciconfX devices. The VPD cannot be accessed via remote or in-band devices.	N/A	N/A
8.		<code>"-fw_dir"</code> flag issues when burning ConnectX-3 A1 adapter card	The flag <code>"-fw_dir"</code> is not supported when burning ConnectX-3 A1 adapter card.	Specify the firmware file by using the flag <code>"-fw"</code> instead of <code>"-fw_dir"</code>	Future release
9.		<code>vpd_set_keyword</code> : Setting a keyword value that is either empty or longer than 255 characters	Setting an empty keyword is not reported as an error, but will prevent further using of the <code>vpd_set_keyword</code> flag Setting a keyword value longer than 255 characters is not reported as an error, but may corrupted the vpd	Do not set an empty keyword. If you already set an empty keyword, you can set the empty keyword again to a legal value using the <code>vpd_set_keyword</code>	Future release
10.		<code>-img_dir/</code> <code>-exp_rom_dir</code> arguments do not accept absolute paths	mlxburn fails to find the INI/BIN in a full path such as: <code>C:\tmp</code> due to a bug in parsing Windows paths format.	Set a relative path in C. Run the tool in C and set the path without C: (e.g., <code>/tmp</code>)	Future release

Table 7 - Known Bugs and Limitations

	Tool	Issue	Description	Workaround	To be Fixed on
11.	mst	MFT uninstall may not remove all remote devices	mst remote devices added by the 'mst remote add' command may still be present after uninstalling MFT	If you still see old remote devices after installing a new WinMFT, you can either run 'mst restart' or remove the devs directory manually (resides under the WinMFT install directory)	Future release
12.		"mst ib add" command may add inaccessible in-band devices	When an IB subnet manager is not running in the fabric, some of the ports may be in INIT state. Devices that are accessed via these ports are added to the in-band device list even though they are inaccessible to in-band traffic.	Verify a subnet manager is running and that all the ports are in ACTIVE state	Future release
13.		"mst ib add" uses only ibnetdiscover to discover the cluster	"--discover-tool" option is not used to choose the intended tool. The discover tool argument is intended only for parsing purpose, thus the topology file must be specified when using the "--discover-tool".	N/A	Future release
14.		In-Band access not supported on WinOF v2.1.3 or lower	In-Band access is not supported in the current release of WinMFT due to an issue in WinOF v2.1.3.	N/A	WinOF v3.0.0
15.		InfiniHost III Lx card does not appear on the PCI when its firmware is corrupted.	InfiniHost III Lx card does not appear on the PCI when its firmware is corrupted or the flash is blank.	N/A	N/A

Table 7 - Known Bugs and Limitations

	Tool	Issue	Description	Workaround	To be Fixed on
16.	flint	Running the “sg” (set guides) command on a striped image file containing a large expansion rom image may fail	Setting the GUIDs on an image file which was generated using the “-exp_rom” and “-striped_image” flags will fail when the expansion rom size is larger than 400KB. Current rom sizes are much smaller, thus it is not expected to cause an actual issue.	N/A	Future release
17.		Unexpected behavior when running swreset on flint	Occasionally, running flint “swreset” on an in-band device may cause it to crash.	N/A	Future release
18.		CTRL+C does not clear semaphores	When using flint via conf, in-band, mtusb or remote device in Win7 x64/32 or Win2008 x64/32, the CTRL+C signal does not clear (release) the semaphore and the process may hang.	Manually clear (release) the semaphore by running “flint -d <dev> -clear_semaphore”	Future release
19.		Simultaneous firmware update or query does not function properly when accessing via conf	When trying to perform two or more firmware updates or queries simultaneously via conf, both actions may fail.	N/A	Future release
20.		The “clear_semaphore” command may crash when run in parallel	When running the “-clear_semaphore” command with the “burn” command in parallel, the command crashes.	N/A	Future release
21.	wqdump	Flag ‘-dump ICM’ may produce a large file	Running wqdump with ‘-dump ICM’ option may produce a large file	N/A	Future release
22.		CTRL+C does not clear semaphores	CTRL+C stops wqdump but does not clear (release) semaphores	If you pressed CTRL-C, restart the driver to clear the semaphores	Future release
23.		Support for ‘-ignore’ is not complete	Running wqdump with ‘-ignore’ ignores the QPC gateway lock only and does not ignore the OB gateway	N/A	Future release
24.	mft_cleanup	mft_cleanup script fails to run in Windows 8 machine	Failed to run the mft_cleanup script during Windows 8 startup	Remove the script from Windows startup list. If needed, run it manually.	Future release
25.	spark	InfiniScale III firmware update using in-band access fails.	Running spark via in-band access is currently not functional.	Use mtusb or WinMFT v2.6.0 to update the firmware.	Future release

5 History of Bug Fixes

5.1 Fixed Bugs in version 2.7.1

Table 7 lists the bugs fixed in this release.

Table 8 - Fixed Bugs List

	Component / Tool	Issue	Description
1.	mst	In-band access is not supported in the current release	Fixed
2.	All	No MTUSB-1 support for 64-bit architecture	Fixed by the MTUSB-1 provider

5.2 Fixed Bugs in version 2.6.0

Table 9 lists the bugs fixed in this release.

Table 9 - Fixed Bugs List

	Component / Tool	Issue	Description
1.	mlxburn	-nofs_img flag does not take effect for ConnectX image generation	Fixed
2.	flint	Image with blank GUIDs is treated as a valid image by the flint -v run (verify)	Mellanox devices cannot boot from an image including blank GUIDs. In this new release, flint -v will indicate an error.
3.	flint/mlxburn	An active flint operation does not respond to user interrupts (CTRL-C)	Fixed
4.	mst	WinMFT Cleanup script that runs upon computer start-up may hang on Windows 200	Fixed