

Matrox DSX SDK

Release Notes (Windows)

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Matrox Graphics Inc.

1055 St. Regis Blvd., Dorval, Quebec, Canada H9P 2T4

Tel: (514) 685-2630 Fax: (514) 685-2853 World Wide Web: www.matrox.com

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Your notes

About these release notes

This document lists new features, known issues, and other important information applicable to the Matrox DSX SDK version 10.2.020.25336.

IMPORTANT - Before you upgrade

Before updating to this release, please make sure that you uninstall any previous Matrox software present on your computer. For more information, see “Uninstalling the Matrox software” in the installation manual of your Matrox DSX product.

Supported operating systems

This release supports the following operating systems:

- Windows 10 64-bit
- Windows Server 2019
- Windows Server 2016

Remarks

- For Windows 10, Windows Server 2019, and Windows Server 2016 in which the Secure Boot functionality is enabled, run *DSX-TopologyUtils_EV.exe*. This installs the proper drivers that are signed with an extended validation certificate required for these operating systems.

Development platform

This release supports the following development platforms:

- Microsoft Visual Studio 2017
- Microsoft Visual Studio 2015 Update 3
- Microsoft Visual Studio 2013 Update 3

Remarks

- The Matrox DSX SDK is compiled with Microsoft Visual Studio 2017.
- In certain versions of Microsoft Visual Studio, the help viewer is not installed by default. If you would like to install the Matrox DSX online Help that is integrated with the Microsoft Visual Studio help, you must install the Microsoft Visual Studio help viewer before installing the Matrox SDK.

Discontinued support

As of this release, the Matrox DSX no longer supports the following products:

- Matrox X.mio2 (including Matrox X.RIO).
- Matrox DSX LE3.
- Matrox DSX.sd.
- Matrox X.open2.
- Installing the Matrox software using *DSX.utils.exe*.
- Installing the Matrox SDK using *DSX.sdk.exe*.

As of this release, the Matrox DSX no longer supports the following operating systems:

- Windows 8.1 64-bit
- Windows 7 64-bit.
- Windows Server 2012 R2
- Windows Server 2008 R2 64-bit.

What's new in this release

This section lists important changes, new features, and new sample applications for this release.

IMPORTANT - Changes

The Matrox M264 hardware encoder is now thread safe, which means that the completion callback notification can no longer be unregistered from within the notify function. That is, it can no longer be unregistered in ***IMvVideoEncoderOperationCompletionCallback::Notify()***. The unregister must be done after receiving the close notification from ***IMvEncoderVideo::Close()*** and outside the notify function. To demonstrate how to do this, the sample applications *mvsVideoEncoderTester* and *mvsCompressedWriterSampleApp* have been modified. (VPG-33058)

New hardware features

This section lists the new hardware features for this release.

Matrox X.mio5 12G and DSX LE5 12G

- Up to 12 completely reconfigurable connectors with up to four 12G inputs and four 12G outputs. For more information, see “[Configuring the X.mio5 12G or DSX LE5 12G inputs and outputs](#)” on page 10.
- Up to 16 channels of embedded audio per SDI video stream for inputs and outputs.
- Matrox ancillary data format for inputs and outputs.
- Scaling, compositing, and deinterlacing (X.mio5 12G only).
- Alpha channel inputs and outputs.
- Auto-detection of input video standards.
- Auto-detection of genlock standard.
- Time base correction for synchronous or asynchronous input sources (by setting *SMvInputStreamSettings::eInputStreamMode* to *keMvInputStreamModeAudioVideoTBC*).

Remarks

- The Matrox DSX supports the Matrox X.mio5 12G and the Matrox DSX LE5 12G cards as of this beta release. You should not revert to an earlier release of the Matrox DSX (this includes official, beta, development, and service pack releases) with these cards.
- For more information, see the [X.mio5 12G](#) and [DSX LE5 12G](#) data sheets.

Matrox X.mio5 (12G and ST 2110) and DSX LE5 (12G and ST 2110)

- Decimation scaler for proxy generation of any I/O buffer, which provides 1/2, 1/4, or 1/8 decimation.

Note For more information, see the [X.mio5 12G](#), [DSX LE5 12G](#), [X.mio5 ST 2110](#), and [DSX LE5 ST 2110](#) data sheets.

Matrox X.mio3 FH/X2 and DSX LE4 FH/X2

- Can be configured to take advantage of hardware bypass when the card is configured according to SMPTE ST 425-5 using the 2-sample interleave (2SI) division method. For more information, see “[Configuring the X.mio3 FH/X2 or DSX LE4 FH/X2 to take advantage of hardware bypass when using the 2SI division method](#)” on page 11.

Note Currently only supported on X.mio3 FH/X2 and DSX LE4 FH/X2 when using the 2SI division method with a 48 (four inputs and eight outputs) I/O configuration.

New software features

This section lists the new software features for this release.

AMWA NMOS support

- The Matrox DSX.sdk supports modifying and querying the parameters of the NMOS Nodes, Devices, Senders, and Receivers using the **IMvNmosController** interface. To demonstrate how to do this, the *mvsNmosConnectionApi* sample application has been modified.

Note Currently the modifications are not saved to the Matrox NMOS configuration file that is associated to your Matrox card. This means that when your system is restarted, the modifications are not applied.

- Support for AMWA NMOS BCP-003-01 Securing Communication in NMOS Systems including:
 - TLS 1.3 Cipher Suites (RFC 8446) and TLS 1.2 Cipher Suites (RFC 5246) with support for using multiple certificates.

Note Client side verification must be configured through the OS.

- Support for JT-NM TR-1001-1:2018 as per JT-NM Tested March 2020 for system environment and device behaviors for SMPTE ST 2110 media nodes including:
 - DHCP (Dynamic Host Configuration Protocol), PTP (Precision Time Protocol), LLDP (Link-Layer Discovery Protocol), DNS-SD (Domain Name Service-Service Discovery).
 - System resource as per Annex A System Resource Specification in JT-NM TR-1001-1:2018.

Matrox DSX.sdk

- The Flex Live Window Display module supports displaying video buffers using Direct2D.

Matrox M264

- The Matrox M264 hardware encoder supports:
 - Dynamic GOP size changes by ending a GOP on any frame, which forces the next frame to be an IDR frame.
 - Capturing buffers in I420 (8-bit) and I422 (10-bit) formats.

Note Scaling and deinterlacing is not supported when capturing I420 or I422 buffer formats.

File I/O

- The Flex Compressed Writer supports capturing H.264 video and AAC audio into an MP4 file.
- Support for playback and capture of Avid DNxHR with alpha.

Note In order to support Avid DNxHR with alpha in interlaced, Avid DNxHD SDK version 2.6.0.10 is required.

Improvements

This release includes the following improvements:

Matrox DSX.sdk

- The Matrox installation program can be installed in silent mode without automatically restarting your system. For more information, see [“Silent mode installation without automatic restart”](#) on page 9. (VPG-32670)

Matrox X.mio5 ST 2110 and DSX LE5 ST 2110

- Improved input stability. (VPG-32280, VPG-32147, VPG-32059, VPG-32326, and VPG-32700)
- Diagnostic information (such as SFP temperature, power, and current) is now reported for long range (LR) SFP transceivers using the *IMvSfpIp::GetTelemetry()* method. (VPG-33257)

File I/O

- The Flex File Reader supports a new reader option and Flex File Writer supports a new writer option with *GUID_MvFlexReaderWriterLimitMemoryUsageOption*, which avoids high memory usage which can occur when transcoding or in other non real time workflows.
- The Flex File Writer implements a new clip option (*GUID_MvWriterClipOptionMxfClosePartitionPack*) to allow MXF files to be captured with close partition. (VPG-32455)
- Improved shuttling performance for AVC Intra files. (VPG-33173)

Sample applications

This release introduces the following new sample application:

- *mvsTopologyInputToFlexWriter* Demonstrates how to capture from Matrox topology-based hardware to a file using the Flex File Writer.

Remarks

- This sample application is in development to replace the *FlexChannelTester* capture session previously available for legacy Matrox buffer-based hardware (such as X.mio2).
- For supported file types and options, see the README located at *C:\Program Files\Matrox DSX-TopologySdk\SampleApps\Sources\mvsTopologyInputToFlexWriter*

Note For information on changes to an existing sample application, see the README of the sample application in question in *C:\Program Files\Matrox DSX-TopologySdk\SampleApps\Sources*.

Resolved issues

This release includes the following resolved issues.

Matrox X.mio5 ST 2110 and DSX LE5 ST 2110

- Correct MAC (Media Access Control) address is now used on SFP B for the PTP (Precision Time Protocol) signal conforming to SMPTE ST 2059-2. (VPG-32687)
- When the packet interval is 1 ms, fixed RTP (Real-time Transport Protocol) time stamp mismatch messages (*kMvkStat usI pI nput AndSystemRtpTi mest ampMi smat ch*) on audio capture. (VPG-33026)
- Capture of audio streams in overnight tests no longer fail. (VPG-32578)
- Fixed an issue where PTP sync rates of 64 or higher could temporarily unlock the genlock. (VPG-31715)
- Fixed an issue which caused the card to hang when receiving certain ancillary data streams. (VPG-33016)

Matrox M264

- The H.264 levels were adjusted from 4.0 to 4.1 according to the Sony specifications when using the Matrox M264 hardware encoder to capture the following Sony XAVC Long GOP formats. (VPG-33412)

Sony XAVC format	Resolution	Frame rate (fps)
Long GOP 25 (4:2:2, 10-bit)	1080i	25 and 29.97
	1080p	23.98, 25, and 29.97
Long GOP 50 (4:2:2, 10-bit)	720p	50 and 59.94

File I/O

- Fixed an issue where the Flex File Reader would timeout when there were two consecutive **Play()** calls with customer AVC files. (VPG-32919)
- Calling **IMvFlexReader::GetBuffer()** after **IMvFlexReader::Shuttle()** no longer takes time when *in_block* is set to **false**. (VPG-32550)
- The Flex File Reader no longer crashes with customer specific RLE and MOV files in TDIR mode. (VPG-33268)
- When reading customer specific XDCAM HD MXF files after calling **IMvFlexReader::Seek()** on the same position multiple times, **IMvFlexReader::GetBuffer()** no longer returns **NULL** for the second field audio. (VPG-33304)
- Fixed memory leaks in the Flex File Writer and Flex File Reader. (VPG-32491 and VPG-32758)
- When reusing the Flex File Writer, the second call to **IMvFlexWriter::SetCodecOption()** no longer fails. (VPG-32423)
- When transcoding to Sony XDCAM HD422 MOV with 2 audio channels, calling **IMvFlexWriter::GetBuffer()** no longer freezes. (VPG-33085)
- When multiple Flex File Writers are capturing multiple video only and audio only simultaneously, the internally scheduled operations of the Flex File Writer to accumulate the audio chunk for WAV or W64 files are now followed in the proper order. (VPG-33284)
- Customer specific Sony XDCAM HD422 file with corruption no longer causes a crash. (VPG-33259)
- Fixed heap corruption when calling **IMvFlexFileInformation::GetFileInformation()**. (VPG-32655)
- Can now play customer MP4 files with 6 audio channels. (VPG-33018)
- Customer specific GXF files with multiple video tracks now play the audio correctly. (VPG-31701)

Other resolved issues

- Shaped ARGB graphic (8-bit) to shaped YUAYVA 4:2:2:4 (8- and 10-bit) conversion pedestal is now applied correctly. (VPG-32761)
- Calling *IMvFlexEngine::CopySurfaceToNewResolution()* no longer crashes when a *NULL* pointer is passed to the method. Instead it will default to black. (VPG-33499)
- Fixed issue which occasionally distorted audio received from Flex A/V Synchronization module. (VPG-33211)
- For RTMP streaming:
 - Fixed corrupted audio sample buffer due to bad time stamp. (VPG-31585)
 - Binding to a selected NIC card is now possible. (VPG-31808)
- Downstream compose on software compositor:
 - No longer inverts fields in specific situations. (VPG-33186)
 - With shaped input and odd numbered horizontal positioning no longer has visual artifacts on output. (VPG-33351)

Limitations

This release has the following hardware limitations:

- When you use the same multicast address data flow for multiple inputs on the same SFP connector, you must enable the data flow for ancillary data first, then for audio, and last for video. If you need to disable the data flow, you must disable it in the reverse order. That is, you must disable the data flow for video first, then for audio, and last for ancillary data. (VPG-32343)
- When capturing on X.mio5 ST 2110 or DSX LE5 ST 2110, the card must be genlocked to an IP source conforming to SMPTE ST 2059-2 and the IP stream must conform to SMPTE ST 2059-2. (VPG-32050)
- On X.mio5 ST 2110, DSX LE5 ST 2110, X.mio3 IP, and DSX LE4 IP, the genlock source must be set before a topology is created. (VPG-29004)
- Processing between buffers created with different Flex Engines is only supported if these buffers were created with Flex Engines of I/O cards. (VPG-28317)
- On the Matrox M264 hardware decoder, when the YUV 4:2:2 10-bit format (*keMvSurfaceFormatYUYV422*) is used to decompress generic H.264 compressed data, the codec will return *MV_E_INVALID_PITCH* for certain resolutions (such as 720p, 4096x2160, or some proxy resolutions). If this occurs, the user application should use the V210 format (*keMvSurfaceFormatV210*). (VPG-20525)

Known issues

This release includes the following known issue:

- On X.mio5 12G, DSX LE5 12G, X.mio5 ST 2110, and DSX LE5 ST 2110, NTSC and PAL are currently not supported.

Downloading this release

You can download this release here:

ftp://video.matrox.com/DSX/10202025336_DSX.sdk_10.2_beta_1

There are several executables that you can install depending on which DSX product you have. Open the *README.txt* file included with the executables for more detail.

Where to find more information

For more information on how to install and use our hardware and software, refer to the documentation available on our ftp site when you download this release or the documentation included with the Matrox SDK. For additional information, such as application notes, refer to the Knowledge Base available on our website:

<http://www.matrox.com/video/en/support/developer/private/tools/>



Important The documentation installed with the Matrox SDK contains the most up-to-date information available at the time the installation program was compiled. It may not necessarily contain the latest information about our products. We recommend checking our website and forum for the latest information and any documentation updates.

Documentation updates

This section provides documentation that will be available with the Matrox SDK for the 10.2.100 official release.

Silent mode installation without automatic restart

To run the installation program in silent mode without automatically restarting your system, use the following command-line switch:

/silenthnoreboot

The only thing displayed to the user during the installation is the progress bar. All prompts and messages are bypassed. As well, your system will not automatically restart when the software installation is complete. Instead, a status file (*UpdaterStatus.txt*) will be generated when the Matrox software is installed and the Matrox firmware is updated (if required). For more information on updating the Matrox firmware, see the installation manual for your card.

Unless you changed the install path, the *UpdaterStatus.txt* file will be copied to *C:\Program Files\Matrox DSX-TopologyUtils* and contains one of the following three strings, which can be used by an installation script.

String	What does it mean?
Done	The Matrox software is installed and the Matrox firmware is up to date.
Reboot required	The Matrox software is installed and the Matrox firmware is updated. A restart is required.
Shutdown required	The Matrox software is installed and the Matrox firmware is updated. A full system shutdown is required before your system can be restarted.

Note Although the Matrox DSX License Agreement is only displayed during a standard installation, acceptance of the agreement is implied when using this command-line switch.

Configuring the X.mio5 12G or DSX LE5 12G inputs and outputs

The X.mio5 12G or DSX LE5 12G card can be reconfigured to different I/O configurations using a read-only I/O configuration file (such as, *xmio5_x2_00i12o.pin*). For example, an X.mio5 12G/X2 or a DSX LE5 12G/X2 card can be configured as 12i00o (twelve inputs and no outputs), 11i01o, 10i02o, 09i03o, 08i04o, 07i05o, 06i06o, 05i07o, 04i08o, 03i09o, 02i10o, 01i11o, or 00i12o. In Windows, you use a CMD shell to change the I/O configuration of the card.

Remarks

- Refer to the tables in the connector mapping reference document for your card for the relationship between the physical input and/or output connectors and their corresponding video channels.
- If you change the I/O configuration, the new configuration will be retained until the next time it is changed.
- You must have Windows administrator privileges to run the *mvConnectorConfig.exe* application.

To configure the X.mio5 12G or DSX LE5 12G card, follow the steps below:

- 1 From the folder that contains the *mvConnectorConfig.exe*, open the Command Prompt. The default installation folder is
C:\Program Files\Matrox DSX-TopologyUtils\Drivers.
- 2 Configure the inputs and outputs as follows:
mvConnectorConfig.exe load -f=Xmio5Le5ConnectorMapping\subfolder \Pinout_XiYo.pin -sn=XXXXXXX

Where:

subfolder Subfolder for X.mio5 12G (Xmio5) or DSX LE5 12G (Dsxle5).

Pinout_XiYo.pin I/O configuration file containing the I/O mapping that you would like to apply (for example, *xmio5_x2_00i12o.pin*).

Xi Number of inputs.

Yo Number of outputs.

XXXXXXX Serial number of the card you want to configure. If you do not specify the serial number, no cards in your system will be configured.

Note The serial number is case sensitive and can be obtained from *X.info* (for more information on *X.info*, see the installation manual for your card).

- 3 Press **ENTER**.

If the new I/O configuration requires an FPGA update, you will need to reboot your system.

- 4 If you need to reboot your system, follow the onscreen instructions.

The new configuration will be applied to your card.

Configuring the X.mio3 FH/X2 or DSX LE4 FH/X2 to take advantage of hardware bypass when using the 2SI division method

When the X.mio3 FH/X2 or DSX LE4 FH/X2 card is configured according to SMPTE ST 425-5 using the 2-sample interleave (2SI) division method, it can be configured to take advantage of hardware bypass by pairing the 2SI quadrants inputs and outputs appropriately. For information on the connectors that can be used when the X.mio3 FH/X2 or DSX LE4 FH/X2 card is configured to support hardware bypass, see the connector mapping reference document for your card.

Note If the card is moved to a different system, you must configure it again to take advantage of hardware bypass.

- 1 From the folder that contains the *mvConnectorConfig.exe*, open the Command Prompt. The default installation folder is
C:\Program Files\Matrox DSX-TopologyUtils\Drivers.

- 2 Configure the card to support hardware bypass as follows:

```
mvConnectorConfig.exe -2SI={on|off} -KeyMapping={def|alt} -XinYout  
-sn=XXXXXXX
```

Where:

-2SI=on Indicates that the original UHD image is to be divided into four sub-images using the 2SI division method (as per SMPTE ST 425-5).

-2SI=off Indicates that the 2SI division method is not applied. Instead, the UHD image is captured or played back in quadrant mode.

-KeyMapping=def Indicates that the default key mapping will be used. To apply the default key mapping, set **-2SI** to **on**.

-KeyMapping=alt Indicates that the alternate key mapping will be used to support hardware bypass. To apply the alternate key mapping, set **-2SI** to **on**.

X number of inputs.

Y number of outputs.

XXXXXXX Serial number of the card you want to configure. If you do not specify the serial number, all the cards in your system will be configured.

The serial number is case sensitive and can be obtained from X.info (for more information, see the installation manual for your card).

For example, to configure your X.mio3 FH/X2 or DSX LE4 FH/X2 card to support hardware bypass, use the following command:

```
mvConnectorConfig.exe -2SI=on -KeyMapping=alt -4in8out
```

- 3 Press **ENTER**.

If the new configuration requires an FPGA update, you will need to reboot your system.

- 4 If you need to reboot your system, follow the onscreen instructions.

The new configuration will be applied to your card.

Matrox DSX online Help installation option

To run the installation program without installing the Matrox DSX online Help that is integrated with the Microsoft Visual Studio help, run the installation program with */No_IDE_help*. That is, *DSX-TopologySdk.exe /No_IDE_help*. (VPG-24635)

The Matrox DSX online Help (in *chm* and *pdf* format) is still copied to your computer at *C:\Program Files\Matrox DSX-TopologySdk\Documentation*.



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