



# Viz Engine Release Notes

Version 4.3





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# 1 Viz Engine 4.3.1

**Release Date:** 2021-10-28

These are the release notes for Viz Engine version 4.3.1. This document describes the user-visible changes that have been made to the software since release 4.2.1.

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## 1.1 New Features

### 1.1.1 New Features: Renderer

Summary	Key
Fusion Renderer DOF effect: calculate focal length based on FOV	VIZENG-26054
Fusion Renderer: Talent Reflection to support additional Key signal for 3rd party Engine integrations	VIZENG-24239
GFX texture channels with higher resolution than output	VIZENG-25804
PBR Material not transparent when using media assets with alpha	VIZENG-24278
Support RTX A4000	VIZENG-25867

5 issues

### 1.1.2 New Features: Video IO

Summary	Key
Optimize the Clip Watch Folder thread	VIZENG-25033

1 issue

## 1.2 Bugfixes

### 1.2.1 Bugfixes: Renderer

Summary	Key
TDR error after upgrade from 4.2 to 4.3	VIZENG-26198
Fusionkeyer auto adjustment does not work properly if bits_per_channel = 16	VIZENG-26114
Processed holdout matte area is wrong if output resolution != input resolution	VIZENG-26092
Integer division compound assignment (\=) reported as invalid operator in script	VIZENG-26021
Shared Memory Port leaks TCP sockets	VIZENG-26020
Combined images get reloaded in Transition Logic scene	VIZENG-25973
Fusion text doesn't handle windows style line breaks	VIZENG-25938
SDR key output changes when using a scene with lens deformation inside the Front layer	VIZENG-25912
Manual channels in ControlObject cannot be set when using subscene instead of merged geometries	VIZENG-25836
FusionRenderer: VideoAssets are not blended correctly if one of the assets is a fusion keyed texture	VIZENG-25833
Controltext Field Identifier does not accept "_" (underscore) character	VIZENG-25831
Phong Wrap U/V settings not serialized correctly	VIZENG-25830
Nvidia TDR error after Global Illumination bake	VIZENG-25827
OBJ file import is much slower than in 3.x	VIZENG-25786

14 issues

## 1.2.2 Bugfixes: Video IO

Summary	Key
Console floods when using fusion keyer in 16bit classic scenes	VIZENG-26123
Different VML clip player behaviour in AX/NLE use case	VIZENG-25989
Combined images get reloaded in Transition Logic scene	VIZENG-25973
Fusion keyed liveinput flickers from time to time, unkeyed texture pops up	VIZENG-25869
Clip player autorun setting broken	VIZENG-25852
SMPTE 2022-6 does not work in latest 3.x versions	VIZENG-24620

6 issues

## 1.3 Changes

- Reverse Fields option for Clips has been removed.

### 1.3.1 Upcoming Changes

- i** Support for the following boards will be removed in the next version of Viz Engine:
- AJA IO4K
  - AJA Kona 3G




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## 2 Viz Engine 4.3.0

**Release Date:** 2021-07-20

These are the release notes for Viz Engine version 4.3.0. This document describes the user-visible changes that have been made to the software since release 4.2.0.

 **Note:** Viz Artist maintains its release notes in a separate document starting from version 3.12.0.

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### 2.1 Installer Notes

#### 2.1.1 General

The Software ships with a bundle installer containing all necessary components. It is recommended to use the bundle installer when setup needs to be done manually.

- The Setup application (both MSI and Bundle installer) must be run in Administrator mode.
- Visual C++ Redistributable files are no longer part of the *.msi* setup file. These files are now installed with the bundle setup application (VIZENG-13210, VIZENG-12629, VIZENG-12701).
- The new bundle setup application installs or upgrades Viz Artist together with its required Visual C++ Redistributable files (VIZENG-12936, VIZENG-13804).
- All files contained in the bundle setup application can be extracted using the `/dump` commandline option. This creates a sub-folder where the files are extracted (VIZENG-13020).
- Multiple installations of Viz Engine are not supported.
- The installer automatically upgrades (replaces) any existing Viz Artist/Viz Engine 3.x installation. However, downgrading is currently not supported (VIZENG-7098).
- If Adobe After Effects is installed after Viz Engine, then the Viz installer needs to be executed again to install the AE plug-in (VIZENG-7876).
- The user account must have *SeCreateGlobalPrivilege* (SE\_CREATE\_GLOBAL\_NAME) enabled.
- The configuration profiles shipped with Viz Engine guarantee a correct Audio/Video delay to have a proper lip-sync setup or a correct video wall installation. A manual configuration (e.g. number of inputs, clips, etc.) is still necessary after applying these profiles (VIZENG-18861).
- To use Global Illumination in Viz Artist/Viz Engine, at least Direct X version 9 is required. An installer can be found here: <https://www.microsoft.com/en-us/download/details.aspx?id=8109> (VIZENG-19983).
- The Basic, Viz DataPool, Viz PixelFX, Viz Maps, Viz Extension and Viz Socialize plug-ins are released together with Viz Engine starting with version 4.0.0 and are included in the bundle installer. The basic plug-ins are installed by default.

#### 2.1.2 Windows

- This software has been tested to run on Windows 10 (LTSC 1809) and Server 2019.

- Windows transparency effects should be turned off (former known as Aero). In Windows 10 set **Show transparency in Windows** to *Off* in **Settings > Display** and **Transparency effects** to *Off* in **Settings > Personalization > Colors > More options**.
- Power management and hibernation-mode must be turned off under Windows. You can execute `powercfg -h off` to remove *hiberfil.sys* from the hard disk.
- It is recommended to install the latest Windows Security Updates and Patches, except Nvidia updates.
- Installations on Windows 10 are only supported on their respective supported hardware (see [Supported Systems](#)).
- Dot.NET framework 4.5 or higher is required (VIZENG-6036).
- The minimum Windows Installer version is now 5.0.0 (VIZENG-10146).

To run Viz Engine without Administrator privileges you need to grant the following permissions:

- *SeIncreaseBasePriorityPrivilege*
- *SeCreateGlobalPrivilege*
- *SeCreatePagefilePrivilege*
- *SeIncreaseWorkingSetPrivilege*

### 2.1.3 UAC

- Viz Engine 4.x is UAC aware. Configuration-files, profiles, log-files and additional files are stored in `%VIZ_PROGRAMDATA%`, which defaults to `%ProgramData%\Vizrt\VizEngine`. Temporary data is stored in `%VIZ_TEMPDATA%` which defaults to `%TMP%\Vizrt\VizEngine`. The default value can be changed in the command line of `viz.exe`.
- Existing Lens files are copied from `%ProgramFiles%` install folder to the new UAC aware `%ProgramData%` folder during installation (VIZENG-8757).
- Existing Viz configuration files are copied from `%ProgramFiles%` install folder to the new UAC aware `%ProgramData%` folder during installation (VIZENG-7472).

### 2.1.4 Cinema 4D

- Cinema 4D LiveLink Installation: The installer searches the following location first: `%ProgramFiles%\MAXON\CINEMA 4D R16\plugins` (VIZENG-7965).
- Cinema 4D LiveLink package can be installed any time later by using Viz Artist Installer in Repair mode. Its installation folder is not selectable anymore (VIZENG-8996).

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## 2.2 Driver Versions

These are the recommended driver versions for various hardware components:

Vendor	Driver Version
Nvidia Ampere, Turing, Volta, Pascal, Maxwell and Kepler GPUs	462.31 419.17 for older boards
Matrox Topology based boards	10.2.100.26040
Bluefish	<a href="#">5.11.0.45</a>

Vendor	Driver Version
Bluefish Supernova Firmware	145
AJA	14.0.1.40
Codemeter Runtime Kit	7.21a
AV PCL/PCI Plura Timecode Reader	5.34
Sentinel Runtime (legacy)	8.11.42480

## 2.2.1 CodeMeter Drivers

- The Server Search list may be reset when upgrading Codemeter Runtime. Please make sure that the Server Search list is correct after an upgrade.
- Version 7.21a of CodeMeter driver is recommended due to security flaws in recent versions.

## 2.2.2 Nvidia Drivers

**i Information:** Please refer to [https://nvidia.custhelp.com/app/answers/detail/a\\_id/4777/~/nvidia-dch/standard-display-drivers-for-windows-10-faq](https://nvidia.custhelp.com/app/answers/detail/a_id/4777/~/nvidia-dch/standard-display-drivers-for-windows-10-faq) for information about the DCH and Standard driver versions and how to install a missing Nvidia control panel.


Nvidia driver 462.31 is recommended for Quadro GPUs with Ampere, Turing, Volta, Pascal, Kepler or Maxwell Technology cards. Boards that do not support this version of the driver, should use Rev. 419.17.

**i Information:** Some GPUs (like M6000) disable GPUDirect support if the wrong Nvidia driver is used!

Nvidia driver configuration (Manage 3D settings):

Setting	
Vertical sync	Force Off (except Videowall and systems without video hardware)
Unified Back Buffer	Off
Power management mode	Prefer maximum performance
Antialiasing mode	Enhance the application setting
Antialiasing setting	4x (4xMS)
Profile	Workstation App - Dynamic Streaming profile (for systems with video hardware)

Setting	
	3D App - Video Editing (for systems without video hardware)

 **Important:** Viz Engine will not start if an outdated driver is used.

### 2.2.3 Matrox Drivers

- For Matrox video cards, driver version 10.2.100.26040 is required. This version is mandatory. Pre-Release versions are not supported.
- Matrox drivers with *\_EV.exe* extension are suitable for Windows 10/Server 2016 systems with secure boot.
- Uninstall previous versions of Matrox DSXUtils prior to installing this driver.
- Either *DSX-TopologyUtils.exe* or *DSX-TopologyUtils\_EV.exe* must be used.
- Install drivers only from a local drive.
- Reboot between uninstall and install of drivers, and another time after the installation has finished.
- The Vfw codecs are included in this driver, so uninstall previous versions of the Matrox Vfw codecs and do not install any Matrox Vfw codecs over the regular driver installation.

### 2.2.4 Other Drivers

- The latest firmware for Supernova and Supernova S+ is 145.
- The latest firmware for Neutron is BlueFirmwareUpdate\_Neutron\_1i2o\_V027, there is no 1in1out firmware any longer.
- The recommended driver version for Plura AV timecodereader cards is 5.34.

Please refer to the Viz Engine Administrator Guide for which drivers and driver settings to use.

Given that a supported Matrox device is installed, the following codecs are supported for post-rendering with MatroxFileWriter and the ClipOut channels:

- RLE (animation), playback only
- H.264
- Apple ProRes
- HDV
- XDCam
- DVCPro
- DNxHD (4849)
- XAVC (UHD requires M264 board)
- The `clog` command now includes all child processes. Upon abnormal end, all child processes are terminated before a restart is attempted (VIZENG-11361).

## 2.3 Upgrade Notes

- The configuration file for Viz Engine has a new naming scheme starting with version 4.0, and can be found at `%ProgramData%\Vizrt\VizEngine\VizEngine-{instance}.cfg`.
- Existing Viz 3 configuration files, Genlock and IP configuration settings are migrated automatically by Viz Engine.
- Viz Engine version 4.x and later no longer support Viz IO.
- The old Shared Memory output is not supported on the Fusion Pipeline.
- Scenes using the BrowserCEF plug-in automatically migrate to use the new Browser plug-in.
- For scenes utilizing the new Fusion Keyer (Virtual Sets) it is recommended to use the new Video IO mode V4 pipeline. Talent Reflection, Holdout Matte and fusion keyed assets within the scene tree do not work properly when using the `v3_io`.

**Information:** Viz Engine is not forward compatible. Opening scenes created in this version of Viz Engine might drop warnings when opening in previous versions.

### 2.3.1 Licensing Model

- **!** Starting with Viz Engine version 4.0.0 the VALID/Sentinel/Hardlock Dongle is not supported anymore, except for a WIBU license bound to VALID/Sentinel dongle ID.
- The same set of WIBU licenses are available as in Viz Engine 3.10.0 and later. However, since the WIBU license format (data stored in the license) on which Viz Engine version 4.0.0 and later relies on changed, it may require a refresh/reactivation of existing licenses that lack this information. If an error with "This might be caused by an outdated WIBU license." is shown, the WIBU licenses in the container need to be updated/renewed. All licenses issued after the end of March 2019 should contain this data already.
- The Codemeter Runtime (installed with the bundle installer) is required to use the WIBU license system. Details can be found in the manual in the **WIBU-based Licensing System** section of the [Viz Engine Administrator Guide](#). Please refer to the [documentation](#) on how to apply a license container.
- Cloud-based installations require a license server, standalone cloud installations are not supported.
- **!** When licenses are shared between different applications (for example, Viz Engine and Service Host on the same machine) then CodeMeter Runtime 7.10b needs to be used. In CodeMeter 7.20 or higher this does not work anymore and one license will be allocated per application. When only one application is consuming licenses (Viz Engine) on a machine the latest version of the CodeMeter Runtime can be used.

### 2.3.2 Other Upgrade Notes

- X.open dongles are no longer supported as of missing USB driver support for Windows 10.

- Viz Engine is not forward compatible! A scene saved with this version might look different if you open it in a previous version. This affects scenes containing more than four streaming channels.
- Viz Engine does not support half-height rendering anymore.
- Lens distortion uses a slightly different norm since revision 54263. If you need older lens files, please use `use_lens_compatibility_mode = 1` in the config file.
- Viz Artist is now being started by the Viz Engine process and not by command file anymore. If you start `viz.exe` and `VizGui.exe` independently, the **Restart Current** option fails.

A 64-bit version of each codec must be installed to work with Softclip64. Most codecs come with an installation manual on how to correctly install them.

Softclip64 has been tested to work with the following 64-bit codecs:

- HuvYuff Version 2.1.1
- Lagarith Version 1.3.27
- Newtek SpeedHQ

## 2.4 Virtual Environments



The following GPUs are currently supported (Kepler are only supported in Viz Engine Classic Render Pipeline):










The listed driver version is the one the system has been tested with

The following GPUs are supported in virtualized environments:

GPU					
A40 (462.31) <sup>(2)</sup>	NVidia RTX6000 (462.31)	Nvidia Tesla V100 (425.31)	NVidia T4 Tensor Core (462.31)	NVidia M40 (377.35 only)	NVidia K2 (370.28 only) VDGA <sup>(1)</sup>
				NVidia M60 (462.31)	NVidia K2 (370.28 only) VGPU (K280Q, K260Q) <sup>(1)</sup>
					NVidia K520 (370.35 only) <sup>(1)</sup>
(1) Classic Render Pipeline only. (2) Tested on A40-8Q.					

Viz Engine has been tested to run in the following virtual environments:

	Viz Fusion Render Pipeline	Viz Classic Render Pipeline
Amazon Cloud (AWS) <ul style="list-style-type: none"> <li>· <a href="#">Amazon EC2 G4 Instances</a></li> </ul>	 <sup>(1)</sup>	 <sup>(1)</sup>

	Viz Fusion Render Pipeline	Viz Classic Render Pipeline
<ul style="list-style-type: none"> <li>Amazon EC2 G3 Instances</li> <li>Amazon EC2 P3 Instances</li> </ul>	 	
Microsoft Azure <ul style="list-style-type: none"> <li>Standard_NCv3 Series</li> <li>Standard NV Series</li> </ul>	 	
fra.me/nutanix	not tested	
VMWare ESXi (6.0, 6.50, 7.02)		
Alibaba Cloud	not tested	
(1) As of a missing extension (WGL_NV_render_depth_texture) on T4 GPUs, viz sports products are not supported.		

 **Note:** Backup and Restore on Azure systems are currently not supported.

## 2.5 New Features

### 2.5.1 Key Features

Summary	Key
SuperChannels in Fusion Renderer	VIZENG-24992
Extension Plugins	VIZENG-24975
Basic Material for Fusion Renderer	VIZENG-24822
Unreal Engine 4.26 Support	VIZENG-24775
Extended Render Sequence support for Fusion Renderer	VIZENG-24763
GFX Channels in Fusion Renderer	VIZENG-24572
Improved Classic Renderer Performance	VIZENG-24562
Video I/O Enhancements & Fixes	VIZENG-24034
Fusion Renderer Text compatibility Stage 3	VIZENG-23746
Engine 4.3.0 Fusion Renderer Improvements	VIZENG-23745
Engine in a switcher less control room - Stage 3	VIZENG-23559

Prepare support of new DNxHR capabilities in Matrox Clip Library	VIZENG-23468
Fusion Keyer Improvements	VIZENG-23260
New Font Handling System and Text Rendering Features	VIZENG-23258
Enhance NDI usability	VIZENG-23251
Further enhance IP production capabilities	VIZENG-23181
Scene-in-Scene embedding	VIZENG-21779
Create a VML based clip player	VIZENG-20651
18 issues	

## 2.5.2 New Features: Renderer

Summary	Key
Add FindContainers() and FindSubContainers() script methods which return an array	VIZENG-24925
Add SVG image import	VIZENG-24291
Add blacklist of disallowed commands in config file	VIZENG-25051
Add support for Adobe After Effects 2020 and 2021	VIZENG-24288
Add support for Nvidia RTX A5000	VIZENG-25303
Add support for new notebook GPUs (T1000, RTX3000, RTX5000)	VIZENG-25212
Add variables to vizSend and continue_on_error mode	VIZENG-24422
Addon - Store/access chroma key presets via Shared Memory	VIZENG-24597
Allow shared memory off-air access via command map	VIZENG-25560
Blue Screen Support for Fusion Keyer	VIZENG-24639
Change display scanout intensity in non videowall mode	VIZENG-25302



Change logic of engine undo/redo in scene editor	VIZENG-2555 9
Character color in FusionText	VIZENG-2507 4
Clamp value of Chromatic Aberration	VIZENG-2305 7
Classic Pipeline: remove glbinding	VIZENG-2450 1
Cleanup: Remove deprecated Multiview feature	VIZENG-2458 8
Database search and directory listing via engine console	VIZENG-2491 4
Define the priority of subchannels of a superchannel	VIZENG-2459 8
Device Plugin interface / GPIO states within SHM	VIZENG-2292 7
Enable feedback channel for EVENT_POOL	VIZENG-2496 6
Extension plugin to interpret websocket messages as commands	VIZENG-2393 6
Extensions plugins for VizEngine	VIZENG-2396 9
Fusion Pipeline: GFX Channel editable via Sceneditor	VIZENG-2494 7
Fusion Pipeline: PCF shadows use predefined kernel size	VIZENG-2485 9
Fusion Pipeline: Phong Material	VIZENG-2487 1
Fusion Pipeline: SSR key intensity default	VIZENG-2526 3
Fusion Pipeline: Visualization of SuperChannels in SceneEditor	VIZENG-2513 2
Fusion Pipeline: add support for V4 scenes in RENDER_TEXTURE	VIZENG-2467 6
Fusion Pipeline: increase number of supported bones for skinned rendering	VIZENG-2467 3
Fusion Pipeline: masking / transparent texture support for shadows	VIZENG-2476 6

Fusion Pipeline: support AutoKey sequence	VIZENG-25155
Fusion Renderer: Plugin and supported render engine version information	VIZENG-21733
Fusion Text - Text Extrusion	VIZENG-24183
HDR Color LUT support per layer	VIZENG-25458
Icons for Scene and Container Scripts	VIZENG-24120
Implement *SUBSCENE property of a container	VIZENG-24732
Import texture should be active by default for FBX import	VIZENG-25261
Improve debug output of superchannels	VIZENG-24092
Improve default parameters of Fusion Keyer and add automatic adjustments	VIZENG-24878
Improve shadow map PCF	VIZENG-24712
Improved Performance on multiple simple Fusion Text objects	VIZENG-24811
Increase buffer size of Viz Engine Console from 255 characters per line to 1024	VIZENG-24991
Lock the system to a selectable NDI input	VIZENG-22690
Make COMMAND_INFO to filtering output	VIZENG-25208
Make the SHMLib and SMURF logging output available on the Engine console	VIZENG-25558
Misleading error message when starting engine with same instanceid twice but different GPU	VIZENG-25428
NDI source/control plugin	VIZENG-20078
New Font System - Default Font Import Location/Allow arbitrary location	VIZENG-24821
OpenGL context creation on multigpu systems	VIZENG-25183

Option to track DVE (Superchannel) bounding box	VIZENG-23054
Renderer Fusion: Expert plugin without blending override	VIZENG-24262
Sealevel Extension plugin	VIZENG-23988
Shader cache is not being rebuild	VIZENG-24755
Simulate DVE behavior without a board	VIZENG-25477
Superchannels need to compensate activation delay of Matrox assets	VIZENG-24630
TSL Tally handling	VIZENG-22617
Transparent Icon rendering capability and command	VIZENG-24738
Upgrade VizLicenseSDK to 1.7.4 to reduce query time by half	VIZENG-25488
Use plugin dll symbols to determine the supported render pipeline(s)	VIZENG-24541
59 issues	

### 2.5.3 New Features: Video IO

Summary	Key
VML DNxHD License	VIZENG-25527
Support for clips with embedded alpha in VML	VIZENG-25085
Remove SD formats for X.mio5 from outputs and inputs	VIZENG-25070
Remove XAVC only limitation for Replay workflow	VIZENG-25018
Improve runtime input delay changes.	VIZENG-24889
Use v210 support in VML clip player	VIZENG-24849
Change IP output only if values changed	VIZENG-24780
Add configuration flag for variable activation time	VIZENG-24779
Audio delay requirements for Arena	VIZENG-24696

Change sequence for assigning new values to connector settings	VIZENG-24658
Expose Matrox sequence trace points in release builds	VIZENG-24601
Cleanup: Remove deprecated video input ring buffer implementation	VIZENG-24592
Cleanup: Remove deprecated Multiview feature	VIZENG-24588
Improve NDI output performance	VIZENG-24557
Don't accept NMOS requests until initialization is finished	VIZENG-24428
Channel Freeze / Unfreeze	VIZENG-24386
Add probe extension to viz_plugins_extensions	VIZENG-24373
Delay Mechanism Peer-to-Peer is not supported	VIZENG-24220
Change default IP mode for the PTP settings	VIZENG-24219
Implement IO V4 for AJA Cards	VIZENG-24122
Draw black if NDI input is disconnected in IO V4	VIZENG-23626
Increase maximum possible audio tracks to 64	VIZENG-23366
Add 'auto' option for input colorimetry	VIZENG-22966
Separate video, audio and ancillary data	VIZENG-22515
24 issues	

## 2.6 Bugfixes

### 2.6.1 Bugfixes: Renderer

Summary	Key
Viz 4.x crashes while loading scenes that execute malformed commands via plugin API	VIZENG-25745
Potential crash when changing registered SHM listeners from within a triggered OnSHMChanged() callback function	VIZENG-25614
Auto creation of GEOM from TL scenes fails on Control List	VIZENG-25552
4.x Viz communication map doesn't get existing keys after a restart	VIZENG-25535

Scene Editor: Keyboard shortcuts requiring modifiers (Ctrl, Alt, Shift) do not work	VIZENG-25 496
Fusion Pipeline: geometry upload stalls first field	VIZENG-25 491
Chroma keyed NDI Video does not show virtual elements	VIZENG-25 471
Default context created on GPU without monitor attached	VIZENG-25 466
Viz crashes loading an imported FBX scene (VizDBi)	VIZENG-25 433
Fusion Pipeline: Z-Sort off does not work on opaque geometries	VIZENG-25 391
GPU cache needs to respect GPU Instance	VIZENG-25 384
Get director by id from CStage not work in 4x	VIZENG-25 312
All Script keyframes removed from Stage when undoing Director change	VIZENG-25 270
Color LUT conversion removes Main layer scene on the output	VIZENG-25 205
Razor does not work correctly with UV mapping in Phong material	VIZENG-25 197
Activity of Foreground "dummy" DVE in media asset editor is not serialized	VIZENG-25 121
Script based plugins not showing up anymore	VIZENG-24 996
SSR reflection appears too dark and is cut off from another object	VIZENG-24 891
Fusion Pipeline: lights drawn on output when selected in scenetree	VIZENG-24 831
Fusion Pipeline: Increased of drawcalls between 4.1 and 4.2.	VIZENG-24 753
Loop mode is not working as expected when using an assigned clip channel in a superchannel	VIZENG-24 729
MAIN_SCENE*TREE SEARCH ALL name can return wrong result (cache from previous search)	VIZENG-24 691
Background loading (Fusion) may cause race condition and overwrite plugin globals	VIZENG-24 681

Matrox output flickers when changing Fusion scene values in Artist mode	VIZENG-24 671
Font character kerning isn't saved within the font	VIZENG-24 653
Enlighten: Point and Spotlight too bright with realtime GI	VIZENG-24 589
No VGA preview when last visible layer is set to main layer	VIZENG-24 580
Superchannel reacts on events which are sent during loading of scene	VIZENG-24 538
GPU memory usage of engine very high in UHD	VIZENG-24 192
Session handling: Console commands use wrong session, first external command clears RENDERER	VIZENG-24 187
Toggle between LIVE and GFX within Superchannels can lead to black field because Matrox switches on frame-boundary only	VIZENG-24 078
Performance loss on classic scenes in Viz 4.x with shader plugins (RTT, Substance)	VIZENG-23 916
GPI_PIN_COMMAND TEST will not trigger the commands list	VIZENG-23 586
Permanent WIBU License causes Viz Artist issues with VGA Preview and ChromaFX	VIZENG-23 513
Compressed images cannot be loaded with SETBGL command	VIZENG-23 065
Requesting raw zoom/focus values always brings result of Camera1	VIZENG-22 546
Print warning when division by 0 is done in VSL	VIZENG-21 931
Bone&Skin not working properly when used with Substance Shader	VIZENG-21 771
Renderer: 16bit png images as Ambient Occlusion maps can lead to incorrect results	VIZENG-20 886
DATABASE STATUS command is unreliable	VIZENG-20 088
Import Scene into Trio takes longer with formatted text	VIZENG-19 786

41 issues

## 2.6.2 Bugfixes: Video IO

Summary	Key
VideoClipInOut_SystemTopology is unable to increase the process working size	VIZENG-25469
clip_bpcX = 10 issues with clip player in 1080p5994 HLG mode	VIZENG-25431
Changes from NMOS requests are not saved to ipconfig.xml	VIZENG-25280
Multiple Watchdogs are created when VizEngine is shut down properly and started again	VIZENG-25113
TC command not executed in frame accurate triggering with TC 00:00:00:01 .... 00:00:00:16	VIZENG-25006
Viz crash after "All out" from Multiplay	VIZENG-24786
VizrtMedia for Unreal can lead to corrupted surfaces in Unreal Engine.	VIZENG-24662
Scenes without foreground DVE layer don't play audio, when used first after start	VIZENG-24240
No Clip Playback with Alpha in Texture & IoMode =V4	VIZENG-23369
Invert Luminance in key inputs does not work properly	VIZENG-21134
Renderer: No placeholders for live inputs on non-video board machines	VIZENG-20141
11 issues	

## 2.7 Changes

### 2.7.1 Upcoming Changes

- Video IO mode V3 will be removed in the next Viz Engine version.
- Classic Text support in Fusion Renderer will be removed in the next Viz Engine version. Fusion text will fully replace the old text solution.

- The Video Renderer plug-in will be removed in the next Viz Engine version. Use the VFWRenderer post-render plug-in instead.
- Softclip DrawPixels BG will be removed in the next version of Viz Engine.

## 2.7.2 Changes: Renderer

- The default render mode set to Fusion.
- Transition Logic scenes use Scene-in-Scene loading now instead of merged geometries. To switch back to the old merged geometries workflow, set `TransitionLogicUseMergedGeometries = 1`.

## 2.7.3 Changes: VideoIO

- Default IO Mode is now IO4.
- GPUDirect is now enabled by default.
- NDI Output is turned off by default, even if the license is applied. Set `NdiOut1.Enable = 1` in the config file to enable it (NDI with Matrox only).
- Native NDI support on Matrox boards has been removed and replaced with a unique NDI implementation.
- NDI output not available when zero Viz Engine outputs are configured.
- The Chroma Keyer is deprecated and no longer supported. The Fusion Keyer provides an alternative that is superior in any aspect.

## 2.7.4 Changes: Plug-ins

- BrowserCEF plug-in has been updated and renamed to Browser plug-in. Existing Scenes are migrated when saved again.
- Viz Socialize Plug-ins: GroupsReader, MessagesReader, PlaylistReader, SourceEditor, SourcesReader, and WordCloud have been removed since they are not required in the supported Never.no integration.
- Eclipse and Appearance Adjustment plug-ins have been removed from the Viz Engine Bundle Installer.

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## 2.8 Known Issues

### 2.8.1 General

- Intel® Xeon® Processor E5 v3 is known to have a major impact on stability and performance.
- Transition Logic scenes require to have `GeomAutoFree = 1` set in the Viz Config file. With inactive `GeomAutoFree`, system stability is not guaranteed.
- Interactive Applications within a GFX channel only work in DVE mode in Fullscreen or if the GFX channel has an offset in Fullscreen. Scaled GFX channels or plug-ins that rely on screen coordinates (Grafitti) are not supported.



- Bones and Skin live motion data tracking requires Tracking Hub 1.1.2 (released together with Viz Engine 3.11).
- Viz Engine REST interface does not start if a user is Non-Admin (VIZENG-23386).
- On Air output shows wrong field-of-view if AuxRenderer is enabled, PP in scene editor is disabled and Viz Engine is not in On Air mode.
- Viz One Browser clip preview might fail on Viz One Versions  $\geq 7.0$

## 2.8.2 Installation

- Do not use the C4D Version 15R2 patch file(s) unless you are using this version. Otherwise, it prevents Cinema 4D R16 from starting up.
- When uninstalling Viz Engine, the installer might report that links could not be removed. Please check that none of the *desktop.ini* files of Windows have write protection. For example, Skype seems to change the permissions of some *desktop.ini* files with every update.

## 2.8.3 Windows 10

- Sentinel runtime installer causes a blue screen when installed on Windows 10 with the latest Microsoft 2004 upgrade. Sentinel runtime 8.11 is required.
- If the Windows render scaling factor is set to be higher than 100% (for UHD monitor resolutions) it may prevent the render window from showing. Setting the scaling factor back to 100% resolves this issue.
- Right-clicking on the Taskbar icon of Viz Engine starts a new instance. Starting an additional VizGui process is prevented on Windows 10.
- Error message "Windows Media Player Rich Preview Handler has stopped working while opening specific clips with Softclip x64". To fix open **Windows Explorer > Tools > Folder options > View tab**, and deselect *Show preview handlers* in the preview pane.

## 2.8.4 Videowall

- It might happen that Viz Engine is running at half speed on videowall, but goes back to fullspeed if another window comes into focus. If so, start `viz.exe -y -w`, instead of the regular videowall mode `viz.exe -n -w`.
- GFX channels with Alpha  $\neq$  100% decrease render performance. On video wall setup, `gfx_channels_antialiased = 0` should be turned off in the Viz Configuration section **RENDER\_OPTIONS**.
- Using GPU Direct can cause performance impacts. It is recommended to use `use_threaded_IO = 1` on videowall setups, however, some systems like older Supermicro installations require `use_threaded_IO` to be turned off. It is recommended to run some performance tests with this flag turned on or off.
- Windows scaling can lead to unwanted side effects.
- The maximum resolution on videowall setups is limited to 16392px by 16392px.

- Enabling video output for audio setups is not recommended for performance reasons. It is recommended to grab the audio from one of the HDMI/DP outputs of the Nvidia GPU and use an Audio embedder instead.

## 2.8.5 Configuration

- Specifying a path in the configuration file including the # character is not supported. Such paths are cut before the # character.

## 2.8.6 Viz Fusion Render Pipeline

Summary	Key
2SI output with shader does not work for SDR Fusion scenes	VIZENG-25437
Area-/Spot- and Point light do not work on backface of Viz native geometries	VIZENG-22098
Clip in Stage ignores pause	VIZENG-24482
Creating Animation Key without selecting container prints error messages	VIZENG-25600
Execution logic is not applied to a template created from Transition Logic scene	VIZENG-21755
Fusion Material Parameter access via scripting	VIZENG-26028
Fusion Renderer: Talent Reflection to support additional Key signal for 3rd party Engine integrations	VIZENG-24239
ImageEditor to handle 16bit images	VIZENG-25168
Import: Some FBX files have an xyz offset	VIZENG-21285
Improve VizEngine startup time	VIZENG-24017
Optimize resource allocation in clip players	VIZENG-24444
Orientation by character does not work in Fusion	VIZENG-21643
Possible crash when a GEOM with a dynamic scene is applied to a container by object ID	VIZENG-26214

Stage: Startkeyframe gets set wrong when hitting keyframe button	VIZENG-2138 5
Unreal Integration: External AR sequence only composites with post processing	VIZENG-2537 2
Warning regarding incorrect environment maps	VIZENG-2579 3

## 16 issues

- Browser plug-in is not supported on the Viz Fusion Render Pipeline.
- Existing Scenes using Global Illumination might need a precompute again to enable debug views.
- Background loading of external images (filesystem, network locations, etc.) is not supported. Images from Graphic Hub should be used.
- Fonts using GEOM\_TEXT may slightly differ between 4.2.0 and 4.3.0.

## 2.8.7 Viz Classic Render Pipeline

- Scene Transitions within GFX channels or Superchannels are not supported.
- Soft Shadow intensity is currently not working together with Global Illumination.
- We recommend using a warmup scene showing all needed assets once. Under certain circumstances, video and clip surfaces can show up red the first time being used.
- Playing Audio clips on systems with no physical audio hardware available stops the renderer. You need to turn off audio in the configuration file.
- On some systems with hybrid graphics, like laptops, the dynamic swapping must be disabled in the BIOS and the stronger GPU must be assigned as default.
- Stencil-based shadows (Caster/Receiver) do not work on rotated geometry.
- When changing `UrlAuthUnsafe = 1`, Viz One Browser does not work anymore.
- VGA Fullscreen Output is only active if offscreen rendering is turned off. Setting `offscreen=0` in section `RENDER_OPTIONS` enables fullscreen output.
- Blending cubemapped images are not supported.
- Cubemapping with Browser plug-in is not supported.
- Fonts need to be re-imported to use new Pathrendering or Razor fonts technology.
- Masks are not supported on Path rendered Fonts (VIZENG-13737).
- Do not send other commands than `IS_RENDERER_READY` and database connection commands before this command returns 1, otherwise the renderer and video output might not be initialized.
- If you encounter stability issues with an Nvidia driver or issues during driver installation, uninstall the old Nvidia driver completely, delete the folder `C:\Program Files\Nvidia Corporation\Installer2`, install the new driver and select **Custom installation**, then checkmark the perform clean installation option and finish the installation.
- Enabling background loading might decrease the render performance by up to 15 frames per second. This is due to OpenGL requirements.
- M-Zone keyer only works with HD when rendering with full frames.
- Decreased render performance in HD since Viz Engine 3.5.0 when the ringing filter is activated. Before Viz Engine version 3.5.1 there was no ringing filter for HD. Turn off the ringing filter via configuration or scene-setting to get the same performance.

- Sporadic Nvidia driver error The Nvidia OpenGL driver lost connection with the display driver and is unable to continue. which in turn causes Viz Engine to freeze. Make sure that the driver profile **Workstation App > Dynamic Streaming** is selected. Always use the recommended Nvidia driver for your GPU.
- Possible performance problems with scenes imported from Viz Engine 2.x. Check the following settings (applies to old 2.x scenes only):
  - Image Combining should be set to Multi Texturing in the Render options in the configuration (or flag `combine_with_multitex = 1` in the configuration file) to avoid inefficient image combining.
  - Set Key Render Mode to Single Pass in the rendering options in the configuration. The Key Render Mode can also be set on scene level. Available options are:
    - Config (inherit the setting from the configuration).
    - Single Pass (fill and key are rendered in a single pass).
    - Double Pass (fill and key are rendered in separate rendering passes).
 Key rendering results differ between these options for compatibility reasons.
- Use Single Pass scenes imported from Viz Engine 2.x and Double Pass for Viz Engine 3.x scenes.
- The configuration flag `exec_all_animations` in the section `RENDER_OPTIONS` should be set to 0 if it is not necessary to execute hidden animations.
- Turn off the VGA preview in On Air mode to avoid performance drops due to multiple rendering of the scene (applies only to video version of Viz Engine).
- Hide containers that are not required for the current animation.
- Re-import fonts directly with the Viz Engine.
- Grid picking currently only works for Cube and Cylinder geometry.
- The behavior of scripts with cyclic dependencies to other scripts is undefined. Avoid cyclic dependencies.
- Bad performance when using multiple dynamic scenes, even if they are set inactive. To avoid unnecessary updates, change the **Update mode** in **Dynamic Scenes** to *Auto* instead of *Always*.
- CLR LOAD command can crash Viz if not used correctly. Required function signature: `static int pwzMethodName(String pwzArgument)`.
- Alpha setting for DVEs is not correctly supported when a scene is used nested using a GFX channel (VIZENG-10212).
- Glow plug-in drops performance when used on multiple containers and rendered within a GFX channel or viewport tile (VIZENG-11342).
- Scene transitions do not work when dynamic images from different folders are involved. Dynamic images always need to be stored directly in the root folder *dynamic* and references must point there. Dynamic images in a subfolder of the dynamic folder or any other folder are not found.
- Font option "lighted" has no effect on fonts rendered with type "vector" (VIZENG-18941)
- 16-bit PNG images are not rendered properly when imported with compression.

## 2.8.8 Post Renderer

- Cause of performance issues rendering fullscreen sequences in UHD is not supported.
- Ghosting effect in post-rendered interlaced video: Make sure that the Flicker Filter is set to 0 in the post-rendering options of the Video Render plug-in.
- Post-rendering does not work properly if `onair_no_videoout flag = 1` (Videowall mode).

- Post-rendering does not work properly if TriCaster integration is active and output format is set to User Defined or Fullscreen.
- DVCPRO expects 720x480 in NTSC resolution. Please set the correct output width in AVIRenderer.
- The alpha channel cannot be rendered with Intel Indeo 5.10 codec. This codec is not supported.

## 2.8.9 Matrox

- Clips in VideoIO4 and `BitsperComponent = 10`, Clips with Alpha need to have a `ClipIn[n].ContainsAlpha = 1` configured.
- The configuration `ClipIn[n].UseV210` and `ClipIn1.ContainsAlpha` are mutually exclusive and should not be enabled at the same time.
- When using Video IO4, the overall delay is one field higher than IO3. This is caused by the required A/B buffer of IO 4.
- A program output channel needs to be defined. Pure preview or Cleanfeed is not supported.
- HDR output on UHD 2SI requires at least a Quadro P6000 GPU.
- HDR input support is currently for HLG only.
- Only two DVE UHD inputs are supported at 50Hz. For 60M formats, only two texture inputs are supported.
- Animating UHD DVE scaling might result in jittering. You need to increase the `VideoDelayDVE` setting to 2.
- Mixing different frame rates with clips processed by a M.264 board is not supported and causes jittering.
- Upgrading the FPGA can cause a PCI error during the boot process on certain systems. Unattended upgrading of the FPGA is not recommended.
- Watchdog is only supported in 50/60M and 60Hz frequencies.
- When using 3G formats (1080p/UHD) or the Zero-Frame-Delay Mixer, autosensing of the sync signal is not supported due to incompatible H-/V-phases, that are set in the process.
- Instead, either Tri-Level or Blackburst must be used together with correct H-/V-Phase. This might result in a missing key signal (VIZENG-11708).
- For dualchannel systems, please perform the following steps after enabling the watchdog to ensure the correct state is written to the Matrox Board:
  - a. Start Channel 1.
  - b. Wait until channel has started up and topology has been written.
  - c. Start Channel 2.
  - d. Wait until channel has started up and topology has been written.
  - e. Exit channel 2.
  - f. Exit channel 1.
  - g. Start channel 1.
  - h. Wait until channel has started up and topology has been written.
  - i. Start channel 2.
- ClipOut channel does not work when `Matrox0.VideoOut1.FrameBufferDelay` is set to zero (VIZENG-16373).
- UHD Clip Playback with M264 S1/S2/S3 *alone* requires color conversion on the shader level. Use of GPU direct is not recommended (VIZENG-20700).

- Two Sample Interleave (2SI) clips played as DVE not supported.
- Cutting of Audio tracks should not be done at all, as this results in a crackling noise. Always use a crossfade to change audio sources.
- 10-bit texture inputs are only supported in IO mode V4.
- Monitoring live, clip and genlock status via SNMP is not supported. (SNMP got deprecated and is no longer supported by Microsoft)

### 2.8.10 X.mio3 Boards

- If the Viz instance is closed unexpectedly, the X.mio3 topology might get unusable. To reset the topology, enable ResetTopology in the config file, restart Viz, close it and start Viz again.
- X.mio3 IP boards should have an active signal connected to SFP A prior to booting the system.
- Turning on the Cleanfeed Feature increases the delay by one frame.
- It is not recommended to change the framegroup of any input signal while Viz Engine is running.
- Texture delay with PAL/NTSC, GPUDirect and Fast Texture Mode is five instead of four fields. Turn off GPUDirect for four fields delay (VIZENG-16955).
- When using watchdog together with a clean feed, the watchdog triggers on the clean feed connector rather than the program output (VIZENG-16589).

### 2.8.11 X.mio5 Boards

- Standard Definition (PAL and NTSC) resolutions are not supported by X.mio5 boards according to the 2110 standard.
- Streampunk ledger RDS does not list the Matrox X.mio5 nodes. This is due to some old NMOS APIs that are partially deprecated.
- Riedel Explorer fails listing the X.mio5 nodes. Riedel Explorer automatically selects NMOS API Version 1.3 instead of 1.2. It is possible to select the used API version manually if you switch to static mode and/or enable version downgrade in the Riedel Explorer.
- The Matrox based NDI input implementation is not supported on X.mio5. Use the native NDI implementation instead (VIZENG-24454).

The X.mio5 board has been tested to support up to 12 Inputs (1080i 50 and 60M) on a 10GbE network.

### 2.8.12 Other Video Boards

- When Viz Engine is in On Air mode, there might be audio distortions using Bluefish cards (VIZENG-8853).
- Using GPUDirect together with a Bluefish Supernova S+ might freeze the system due to a low-level driver error (VIZENG-16618). Please refer to the Viz Engine Administrator Guide on how to enable GPUDirect for Bluefish boards.

- Bluefish Supernova S+ cards can only be used in a Virtual Set Environment if GPUDirect is disabled and the board is synced to Blackburst/Trilevel.
- GPUDirect is currently not supported in combination with AJA boards (VIZENG-15532).
- Clips played with the DirectShow Clip Player might stutter with AJA boards on Windows 10 systems (VIZENG-10279).
- Video inputs are not supported in IO mode V4 with Bluefish boards.
- Fusion Render Pipeline is not supported with IO mode V3 using AJA boards.
- Softwaremode SHM is only available in io\_mode = V3 only
- VML Player is available on io\_mode = V4 only

### 2.8.13 Nvidia

- When the computer is running out of virtual page size and the user keeps ignoring the low memory warnings in the console, the Nvidia driver may cause Viz Engine to crash.
- The Nvidia driver doesn't recognize other GPUs under certain circumstances in combination with video wall mosaic installations. Remove and reinstall the driver.

### 2.8.14 Graphic Hub


- Communication with the Graphic Hub Server might fail if virtual network adapters are active. Please disable all virtual adapters or increase the timeout.
- If the connection to the namingserver fails, please verify the communication port in the config file (Port 19396).

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## 2.9 Supported Hardware And Software

This software has been tested to run on:

- Windows 10 (LTSC 1809)
- Windows Server 2019, Windows Server 2016

 **Note:** Only English Operating System(s) are supported.

### 2.9.1 Supported Systems

System
Lenovo P620
DELL R3930
DELL Precision R7920
HP Z8

System
HP Z4
HP Z840
HP Z440
HP ZBook 17G6
HPE DL380 Gen9

## 2.9.2 Supported GPUs

Ampere GPUs	Turing GPUs	Volta GPUs	Pascal GPUs	Maxwell GPUs	Kepler GPUs
<b>RTX A6000</b>	<b>RTX 6000</b>	<b>GV100</b>	Nvidia Quadro P6000	Nvidia Quadro M6000	Nvidia Quadro K6000
<b>RTX A5000</b>	<b>RTX 5000</b>		Nvidia Quadro P5200	Nvidia Quadro M4000	Nvidia Quadro K5000
<b>RTX A4000</b>	<b>RTX 4000</b>		Nvidia Quadro P4200	Nvidia Quadro M2000	Nvidia Quadro K5200
	<b>RTX 3000</b>		Nvidia Quadro P4000		Nvidia Quadro K4000
	T 1000		Nvidia Quadro P3200		Nvidia Quadro K4200
			Nvidia Quadro P2200		Nvidia Quadro K2000
			Nvidia Quadro P2000		Nvidia Quadro K2200
			Nvidia Quadro P1000		

**Orange** entries are recommended for rendering photo-realistic graphics on Viz Reality Fusion pipeline.

## 2.9.3 Supported Video Boards

Video Board	Configuration
Matrox X.mio5 IP	Three IP Streams in, three IP Streams out (1080p60M)



Video Board	Configuration
Matrox X.mio3 Full Height	Various input/output configurations from 48 to 84
Matrox X.mio3 IP	Two IP Streams in, two IP Streams out
Matrox X.mio3 12G	Two 12G inputs, two 12G outputs
Matrox M.264 S1/S2/S3/S4	H.264 Encoder/Decoder board
Matrox DSX LE 4 /8	Various input/output configurations from 08 to 80
Matrox DSX LE 4 /4	Various input/output configurations from 04 to 40
Matrox DSX LE 4 IP	Various input/output configurations from 04 to 40
Bluefish Epoch Neutron	Two video inputs, two video outputs (fill & key)
Bluefish Epoch 4K Supernova	Two video inputs, two video outputs (fill & key)
Bluefish Epoch Supernova S+	Two video inputs, two video outputs (fill & key)
AJA IO4K	Two video inputs, two video outputs (fill & key)
AJA IO4K Plus	Two video inputs, two video outputs (fill & key)
AJA Kona IP	One IP Stream in, one IP Stream out
AJA Kona 3G	Two video inputs, two video outputs (fill & key)
AJA Kona 4	Two video inputs, two video outputs (fill & key)

Please refer to the [Viz Engine Administrator Guide](#) for which drivers and driver settings to use.

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## 3 Documentation

Documentation for Viz Engine, Viz Artist and Viz Plugins are available at the Vizrt Documentation Center:

- [Viz Artist User Guide](#)
- [Viz Engine Administrator Guide](#)
- [Viz Plugins User Guide](#)

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## 4 Installation And Support

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### 4.1 Installation

The installation wizard guides you through the installation process. Make sure to close any running Viz application prior to the installation. In order to run Viz Artist or Viz Engine independent of a database server, you need to install the Viz Graphic Hub database software locally.

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### 4.2 Support

Support is available at the [Vizrt Support Portal](#).