



# Viz Engine Release Notes

Version 4.1



Viz Engine



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# 1 Viz Engine 4.1.0

**Release Date:** 2020-04-21

These are the release notes for Viz Engine version 4.1.0. This document describes the user-visible changes that have been done to the software since release 4.0.0.

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

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## 1.1 Installer Notes

### 1.1.1 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 videowall 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 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.
  - Viz World plug-ins are not yet included and need to be installed separately by installing the latest released Viz World Client, Viz World Plug-ins and Viz Weather Plug-ins (if needed).

## 1.1.2 Windows

- This software has been tested to run on Windows 10 and Server 2016 (64-bit only).
- 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 (Z8, Z4, Z840, Z440, Dell 7920, ML360, ML380).
- Dot.NET framework 4.5 or higher is required (VIZENG-6036).
- 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*

## 1.1.3 UAC

- Viz Engine 4.1 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).

## 1.1.4 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).

## 1.2 Driver Versions

These are the recommended driver versions for various hardware components:


Vendor	Driver Version
Nvidia Turing, Volta, Pascal, Maxwell and Kepler GPUs	442.19 419.17 for older boards
Matrox Topology based boards	10.1.100.24871
Bluefish	5.11.0.45
Bluefish Supernova Firmware	145
AJA	14.0.1.40
Codemeter Runtime Kit	6.80
AV PCL/PCI Plura Timecode Reader	5.34

### 1.2.1 Nvidia Drivers

Nvidia driver 442.19 is recommended for Quadro GPUs with Turing, Volta, Pascal, Kepler or Maxwell Technology cards. Boards that do not support this version of the driver, should use Rev. 419.17

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

 **Important:** Viz Engine will not start if an outdated driver is used.

### 1.2.2 Matrox Drivers

- For Matrox video cards, driver version 10.1.100.24874 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 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 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.

### 1.2.3 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)
- The `cllog` command now includes all child processes. Upon abnormal end, all child processes are terminated before a restart is attempted (VIZENG-11361).

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## 1.3 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.

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

### 1.3.1 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." happens 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 section "WIBU-based Licensing System". Please refer to the [documentation](#) how to apply a license container.
- Cloud based installations require a license server, standalone cloud installations are not supported.

### 1.3.2 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 engine process and not by command file anymore. If you start *viz.exe* and *VizGui.exe* independent, 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 it.

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

- HuvYuff Version 2.1.1
- Lagarith Version 1.3.27
- Newtek SpeedHQ

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## 1.4 Virtual Environments

The following GPUs are currently supported (Kepler are only supported in Viz Engine 3 Render Pipeline):

### Physical GPUs

NVidia M40 (377.35 only)

Physical GPUs
NVidia M60 (377.35 only) VDGA
NVidia M60 (426.04 only) VGPU (M60-8Q, M60-4Q, M60-2Q)
NVidia K2 (370.28 only) VDGA
NVidia K2 (370.28 only) VGPU (K280Q,K260Q)
NVidia K520 (370.35 only)

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

	Viz Fusion Render Pipeline	Viz Classic Render Pipeline
Amazon Cloud (AWS)	✓	✓
Microsoft Azure	not tested	✓
fra.me/nutanix	not tested	✓
VMWare ESXi (6.0, 6.50)	✓	✓
AliBaba Cloud	not tested	✓

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

## 1.5 New Features

### 1.5.1 Key Features

Summary	Key
<a href="#">Engine 4.0 Improved Eclipse integration</a>	VIZENG-20111
<a href="#">Engine 4.0 Finalize WIBU licensing</a>	VIZENG-19802
<a href="#">New text and font handling</a>	VIZENG-17809
<a href="#">Automatic propagation and housekeeping of clip playlist</a>	VIZENG-17787
<a href="#">Unified Video and StandardPC(VGA) version</a>	VIZENG-17128

Native REST interface	VIZENG-16715
Engine 4.0 New command interface	VIZENG-13595
Engine 4.0 Reality Fusion Render Pipeline	VIZENG-12972
8 issues	

## 1.5.2 New Features: Renderer

Summary	Key
Allow camera tracking in GFX channels	VIZENG-20731
Cinema4d: import for Viz4 and Octane material support	VIZENG-20037
Clip Player: Implement reading of P2 MXF audio files in Matrox ClipPlayer	VIZENG-2482
Command to retrieve the WIBU container ID	VIZENG-20159
Config Filename and Migration Improvement	VIZENG-20603
Cubemap rendering	VIZENG-18579
DVE for live inputs fails silently if output resolution is progressive but input is interlaced	VIZENG-14972
Delete deprecated time code commands	VIZENG-16091
Expose graph to VizArtist	VIZENG-20530
Font Editor, configure default for kerning	VIZENG-5912
Global Illumination in combination with Substance shaders	VIZENG-18540
HDR Background draw not working anymore	VIZENG-13648
Implement a replacement of Rest extension of VizEngine	VIZENG-16699

Implement color difference keyer in new viz_engine_4	VIZENG-200 90
Implement necessary configuration values	VIZENG-183 51
Integrate SSR into VizEngine4	VIZENG-201 00
Introducing new 'Dongleless' licensing system	VIZENG-447 5
License information added to 'clog' generated log file	VIZENG-209 53
Maya FBX import: support stingray PBS materials	VIZENG-200 70
New Cyc / CoCyc plugin which reflects the actual Cyc-Editor with soft edges in the Tracking Hub.	VIZENG-213 79
New way to define holdout- and trash matte	VIZENG-213 96
Remove DVS Centaurus support from VizEngine	VIZENG-209 01
Remove Matrox Buffer Based and Stream Based Hardware (X.mio2 / DSX LE 3 / X.mio2+) from VizEngine	VIZENG-209 02
Remove Methods to handle CaptureDevice (xMio2) from Viz Engine	VIZENG-209 34
Remove VideoRenderer flicker filter	VIZPL-1129
Remove create_default_renderer option	VIZENG-772 7
Remove global access to command answers during command execution	VIZENG-157 59
Rename feature for scripts in the GUI	VIZENG-166 82
Render editor with render system editor	VIZENG-200 80
Render transparent objects	VIZENG-204 02
Renderer: Video inputs rendered as texture are visually different in V3 and V4 pipeline	VIZENG-218 24
Rendergraph: Allow nested graphs	VIZENG-184 47

Rendergraph: Expose parameters in command map	VIZENG-210 79
Restarting in n-GPU Configuration	VIZENG-100 46
Soft Shadow/self shadowing problem with Substances	VIZENG-196 68
Softshadows are rendered in front of texture fonts	VIZENG-131 89
Substance and HDR Lighting	VIZENG-142 91
Substance shader emissive intensity not working - the PBR Material Definition supports this now	VIZENG-118 45
Support pre loading of clips in the stage assigned through Control plug-ins.	VIZENG-410 5
Support underline on selected text	VIZENG-103 50
Talent reflection container plugin	VIZENG-210 04
Talent reflection for Screen Space Reflections	VIZENG-206 66
Text underline in Viz4	VIZENG-202 92
V4: Add intensity parameters to be animatable for new lights	VIZENG-212 26
V4: HDR image import	VIZENG-187 86
V4: Implement LensDistortion	VIZENG-206 82
V4: Implement Shader Storage Buffer Objects	VIZENG-186 74
V4: Implement vertex skinning	VIZENG-207 43
V4: Picking for text handling	VIZENG-204 13
V4: Render Scene with default lighting	VIZENG-208 74
V4: Rendering for on-screen text editing	VIZENG-203 48

V4: Support for Tonemapping	VIZENG-18888
V4: Talent reflection	VIZENG-20501
V4: Transformation manipulators for Scene Editor	VIZENG-21260
V4: add gamma mask to masking	VIZENG-21954
V4: animatable channels for new light and material type	VIZENG-20648
V4: animatable environment rotation	VIZENG-20812
V4: background skybox rendering	VIZENG-18781
V4: command map for tonemapping	VIZENG-20784
V4: environment map render	VIZENG-20489
V4: fbx import standard materials as pbr	VIZENG-21185
V4: handling events for on-screen text editing	VIZENG-20411
V4: light add specular and diffuse intensity	VIZENG-20478
V4: light layer plugin	VIZENG-21357
V4: shadow mapping receiver	VIZENG-20725
V4: stencil buffer masking	VIZENG-20637
V4: support clipper plugin	VIZENG-20817
V4: support dxt compress / decompress for new images	VIZENG-19770
V4: tonemap mask	VIZENG-20634
Vertical cross cube mapping with EXR	VIZENG-19861

70 issues

### 1.5.3 New Features: Video IO

Summary	Key
Remove Methods to handle CaptureDevice (xMio2) from Viz Engine	VIZENG-20934
Remove Matrox Buffer Based and Stream Based Hardware (X.mio2 / DSX LE 3 / X.mio2+) from VizEngine	VIZENG-20902
Remove DVS Centaurus support from VizEngine	VIZENG-20901
Implement necessary configuration values	VIZENG-18351
DVE for live inputs fails silently if output resolution is progressive but input is interlaced	VIZENG-14972
Support pre loading of clips in the stage assigned through Control plug-ins.	VIZENG-4105
Clip Player: Implement reading of P2 MXF audio files in Matrox ClipPlayer	VIZENG-2482

7 issues

## 1.6 Bugfixes

### 1.6.1 Bugfixes: Renderer

Summary	Key
No extended performance displayed in Scene Editor	VIZENG-21832
Render to Disk (Post) creates empty folder	VIZENG-21451
Fixed crash and undefined behavior when incompatible NVidia drivers are installed. Viz Engine shows a message and refuses to start in this case.	VIZENG-21384



Cinema 4D Live link will not work message logged at end of bundle installer even when Installed C4D > 15	VIZENG-20997
TIFFFetchNormalTag: Warning, Incompatible type for "RichTIFFIPTC"; tag ignored.	VIZENG-20752
Command map parameter clamping	VIZENG-20358
Vertical cross cube mapping with EXR	VIZENG-19861
Soft Shadow/self shadowing problem with Substances	VIZENG-19668
GUI - stage not shown if gui was started second time	VIZENG-9948

9 issues

## 1.6.2 Bugfixes: Video IO

Summary	Key
VizEngine: Dual program output in one VizEngine not working anymore	VIZENG-21879
NDI: Dragging 1080i input (might be clip / source dependent) to scene could lead to crashes	VIZENG-21507
Matrox: Watchdog fails to trigger in DualChannel setups	VIZENG-10442

3 issues

## 1.7 Changes

### 1.7.1 Changes: Renderer

- Multiple plug-in directories can be configured within Viz Engine. If plug-ins are installed to another directory than the default, add the directory in the Viz Configuration **Plugins** section.

**⚠ Note:** If the plug-ins contain \*.vip files and \*.dll or other, make sure to move/copy them manually to the *VizEngine\* directory! Otherwise **ERROR 126** shows when loading the plug-in.

## 1.7.2 Changes: VideoIO

- The mapping of inputs has been changed. Any input can now be changed to any available physical sources. This is mainly used for preparing Viz Engines to switch from classic SDI configurations to an IP based workflow.
- Media Assets of type "Stream" have been merged into "Live" Sources.
- The number of Live sources has been increased to 32.
- 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)
- The combination of Matrox and NDI outputs is only possible on system topology based boards (X.mio3 and above).

---

## 1.8 Known Issues

- Error message "Windows Media Player Rich Preview Handler has stopped working while opening specific clips with Softclip x64". To fix open **Windows Explorer > Tools menu > Folder options > View tab**, and deselect **Show preview handlers** in the preview pane.
- Transition Logic scenes require to have `GeomAutoFree = 1` set in the Viz Config file. With inactive `GeomAutoFree`, system stability is not guaranteed.
- Bones and Skin live motion data tracking requires Tracking Hub 1.1.2 (released together with Viz Engine 3.11).

### 1.8.1 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.

### 1.8.2 Windows 10

- 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.

### 1.8.3 Videowall

- Video IO Mode V4 is not supported on videowall setups.
- Videowall with Matrox NDI input is currently not supported. Use Viz NDI integration instead.
- 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 != 100% decrease render performance. On videowall setup, `gfx_channels_antialiased = 0` should be turned off in 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. We recommend running some performance tests with this flag turned on or off.
- Windows scaling can lead to unwanted side effects.
- The maximum resolution on videowall setups with multiple GPUs is limited to 16392px by 16392px.
- The video cutout option for videowall setups is not supported any longer because of technical limitations.
- 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.

### 1.8.4 Configuration

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

### 1.8.5 Viz Fusion Renderer

Summary	Key
AJA input freezes using Fusion renderer	VIZENG-2323 2
Back layer and front layer scenes are not rendered unless main layer is set	VIZENG-2335 5
Classic Renderer: Fusion Keyer uses wrong channel when multiple keyers are configured	VIZENG-2339 4
Execution logic is not applied to a template created from Transition Logic scene	VIZENG-2175 5

Fonts: Vertical fonts are not imported into Graphic Hub	VIZENG-21665
Fusion Keyer: Denoised Matte	VIZENG-23326
Fusion Render: Incorrect word wrapping in Right to Left mode	VIZENG-23314
Fusion Renderer: Incorrect text bounding box for vertical text with leading and trailing spaces	VIZENG-23346
Fusion Renderer: media preview picking does not work	VIZENG-21561
Fusion Renderer: multiple GFX and Image Channels are not yet supported in DVE mode	VIZENG-21214
Fusion Renderer: no directional shadow when cascades=1	VIZENG-23336
Import: Some FBX files have an xyz offset	VIZENG-21285
Increase maximum possible audio tracks to 64	VIZENG-23366
No Clip Playback with Alpha in Texture & IoMode =V4	VIZENG-23369
Orientation by character does not work	VIZENG-21643
Renderer: Command RENDERER_PREVIEW_SIZE without arguments prints license wrong warning	VIZENG-21500
Renderer: No placeholders for live inputs on non-video board machines	VIZENG-20141
Renderer: Only 16bit png color maps can be used inside PBR materials	VIZENG-20886
Stage: Startkeyframe gets set wrong when hitting keyframe button	VIZENG-21385
Text: removing TextFX resets shadow settings	VIZENG-21445
Viewport tile content wrongly scaled in some cases	VIZENG-20492
Viz Engine uses a fixed list of locations to find Viz Artist	VIZENG-23292

22 issues

- SuperChannels are not supported by the Viz Fusion Render Pipeline.
- Only Razor Fonts are supported in 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.

## 1.8.6 Viz Classic Renderer

- Scene Transitions within GFX channels or Superchannels are not supported.
- Using Transition Logic inside GFX Channels or Superchannels is not supported.
- Soft Shadow intensity is currently not working together with Global Illumination.
- We recommend to use 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 `CurlAuthUnsafe = 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** enabled fullscreen output.
- Blending cubemapped images are not supported.
- Cubemapping with WebBrowser plug-in is not supported.
- Fonts need to be re-imported to use new Pathrendering or Razor fonts technology.
- Masks are not supported on Razor Fonts and 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 a 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 check-mark 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 3.x.
  - 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.

### 1.8.7 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.

### 1.8.8 Matrox

- 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.

### 1.8.9 X.mio3 Boards

- If the Viz instance is closed unexpected, 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).

### 1.8.10 X.mio5 Boards

- Streampunk ledger RDS does not list the Matrox X.mio5 nodes. This is due 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 X.mio5 board has been tested to support up to 12 Inputs (1080i 50 and 60M) on a 10GbE network.

### 1.8.11 Other Video Boards

- When Viz Engine is in OnAir 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.
- 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.
- Bluefish Supernova S+ stops during exit on 1080p systems when GPUDirect is turned on, due to an error in the driver in combination with GPUDirect (VIZENG-16618).
- 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).

### 1.8.12 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.

### 1.8.13 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 connection to the namingserver fails, please verify the communication port in the config file (Port 19396).



## 1.9 Supported Hardware And Software

This software has been tested to run on:

- Windows Server 2016
- Windows 10 (LTSC 1809)

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

### 1.9.1 Supported Systems

System
DELL Precision R7920
HP Z8
HP Z4
HP Z840
HP Z440
HP ZBook 17G3
HPE DL380 Gen9

### 1.9.2 Supported GPUs

Turing GPUs	Volta GPUs	Pascal GPUs	Maxwell GPUs	Kepler GPUs
RTX 6000	GV100	NVidia Quadro P6000	Nvidia Quadro M6000	Nvidia Quadro K6000
RTX 4000		NVidia Quadro P5200	Nvidia Quadro M4000	Nvidia Quadro K5000
		Nvidia Quadro P4200	Nvidia Quadro M2000	Nvidia Quadro K5200
		Nvidia Quadro P4000	Nvidia M40	Nvidia Quadro K4000
		Nvidia Quadro P3200	Nvidia M60	Nvidia Quadro K4200
		Nvidia Quadro P2200		Nvidia Quadro K2000
		Nvidia Quadro P2000		Nvidia Quadro K2200

Turing GPUs	Volta GPUs	Pascal GPUs	Maxwell GPUs	Kepler GPUs
		Nvidia Quadro P1000		Nvidia Quadro K2
<b>Orange</b> entries are recommended for rendering graphics on Viz Reality Fusion pipeline.				

### 1.9.3 Supported Video Boards

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

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

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

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## 3 Installation And Support

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### 3.1 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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### 3.2 Support

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