



Viz Engine Release Notes

Version 4.2



Viz Engine



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1 Viz Engine 4.2.0

Release Date: 2020-12-04

These are the release notes for Viz Engine version 4.2.0. This document describes the user-visible changes that have been made to the software since release 4.1.0.

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

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.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).

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	10.1.101.24973
Bluefish	5.11.0.45
Bluefish Supernova Firmware	145
AJA	14.0.1.40
Codemeter Runtime Kit	7.10a
AV PCL/PCI Plura Timecode Reader	5.34
Sentinel Runtime (legacy)	8.11.42480

1.2.1 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.

1.2.2 Nvidia Drivers


Information: Please refer to 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 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)

Setting	
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.

1.2.3 Matrox Drivers

- For Matrox video cards, driver version 10.1.101.24973 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.

1.2.4 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).

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.
- 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.

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 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 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

1.4 Virtual Environments

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

Physical GPUs
NVidia M40 (377.35 only)
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
New Browser plugin	VIZPL-1305
Engine 4.2.0 Fusion Keyer Improvements	VIZENG-23928
Fusion Renderer Text compatibility Stage 2	VIZENG-23561
Unreal Engine V2 integration add-ons	VIZENG-23534
Improved Video-I/O for Viz Engine 4.2 - V4 pipeline	VIZENG-23425
Use fusion keyed inputs as textures in the scene tree	VIZENG-23412
Engine I/O for Libero using SHM - Stage 2	VIZENG-23268
Engine 4.2.0 Fusion Renderer Improvements	VIZENG-23266
Variable input-to-output delay line with auto detect on Viz Engine, buffer on video board/GPU	VIZENG-21333

9 issues

1.5.2 New Features: Renderer

Summary	Key
Change accepted parameters for "GEOM SAVE_TO_DATABASE" to be consistent with other commands	VIZENG-24224
Classic Pipeline: Support Color Space Conversion	VIZENG-24128
Fusion Renderer: OpenGL 4.5 RenderSystem implementation for improved performance	VIZENG-23437
Fusion Renderer: Shader cache to improve startup time	VIZENG-23499
Fusion Renderer: Text shadow casting with Razor Fonts	VIZENG-23455

Fusion Renderer: generate default UVs for polygon plugin geometries	VIZENG-24285
Fusion Renderer: generate key signal for SSR	VIZENG-24057
Fusion Renderer: improved video output performance	VIZENG-23604
Fusion Renderer: shortcuts to hide vga preview/exit on air	VIZENG-23529
Fusion Renderer: support Polygon Plugin rendering	VIZENG-24251
Fusion Renderer: support text as shadow caster	VIZENG-23420
HDR/SDR Workflow: scale graphics gamut to BT 709 color space within BT 2020	VIZENG-23670
Handling of sequential timecode in Unified I/O	VIZENG-23272
IO V4: prevent matte scene texture delay	VIZENG-23849
Implement Video IO for fusion scenes in software tricaster	VIZENG-23119
Improve Error Messages on Superchannels	VIZENG-22516
Improved video input graph performance	VIZENG-23683
Increase number of realtime lights per geometry to 16 per type	VIZENG-23618
Lens Distortion performance improvements	VIZENG-23963
Merge transition logic geometry automatically on scene save	VIZENG-24452
Performance optimized Libero sequence	VIZENG-23973
Preload Textures ON in default config	VIZENG-22804
Replace cube file loading with on-the-fly generation	VIZENG-23971
Retain clipchannel properties in superchannel when clip channels are changed	VIZENG-23663

SMURF: add timecode names	VIZENG-236 50
SSR text reflection on other objects	VIZENG-235 09
Send HDR meta data over SMURF	VIZENG-235 20
Separate Fill & Key output for Viz Arena	VIZENG-234 81
Store/access chroma key presets via Shared Memory	VIZENG-235 58
Support 10-bit Matrox inputs as texture	VIZENG-238 31
Support Viz-NDI in video i/o v4 for fusion keyer	VIZENG-239 57
Support multiple instances of the Global Magnifier	VIZENG-234 09
UE4: Support automatic capturing via VizrtAutoCapture blueprint	VIZENG-235 54
UE4: Support center shift in viewport capturing	VIZENG-235 46
UE4: fix color difference between unreal and viz	VIZENG-235 51

35 issues

1.5.3 New Features: Video IO

Summary	Key
Reduce minimal required files to load a watch folder in the clip player	VIZENG-244 58
Allow fill+key output with DSX.Core	VIZENG-243 25
IO V3: support DirectShow clip player textures in Fusion Pipeline	VIZENG-242 77
SMURF-Input: Add support for 16bit input formats	VIZENG-241 64

SMURF-RenderPreview: Output format should match configured render format (phase 1+phase 2)	VIZENG-241 56
SMURF-Aux: Output format should match configured render format (phase 1+phase 2)	VIZENG-241 55
Add bits per component to input configuration	VIZENG-240 55
Implement 8-bit YUVA input shaders for IO V4	VIZENG-240 46
Support 10-bit Matrox Inputs in IO Mode V4	VIZENG-240 19
RTP output should work similar to clip out	VIZENG-240 11
Replace cube file loading with on-the-fly generation	VIZENG-239 71
Video-IO V4: RGBA 8-Bit conversion for SHM-Aux channels	VIZENG-238 39
Support 10-bit Matrox inputs as texture	VIZENG-238 31
Make shared memory key of SHM-Aux channels configurable	VIZENG-238 21
SMURF Preview: Include timecodes	VIZENG-238 18
Improved video input graph performance	VIZENG-236 83
HDR/SDR Workflow: scale graphics gamut to BT 709 color space within BT 2020	VIZENG-236 70
Can't synchronize VizEngine to UHD live input	VIZENG-236 06
Fusion Renderer: improved video output performance	VIZENG-236 04
Change NDI source without freezing input	VIZENG-235 98
Add custom output resolutions for NDI	VIZENG-234 59
Variable input delay after input processing and calculation of camera delay	VIZENG-234 16
Implement Video IO V4 for NDI inputs	VIZENG-233 96

Implement Video IO for fusion scenes in software tricaster	VIZENG-23119
Clip player jumps from first frame to last one, when loop_mode is off	VIZENG-23098
DVE scaling/positioning is not handled simultaneously	VIZENG-22605
26 issues	

1.6 Bugfixes

1.6.1 Bugfixes: Renderer

Summary	Key
Engine crash when adding certain plugin to a container with synchronized properties	VIZENG-24543
Pie slice animation can flash at beginning of animation	VIZENG-24529
Engine crash when creating videowall in Multiplay	VIZENG-24476
"ERROR: OCS_Context" on a system with 2 GPUs	VIZENG-24402
Viz crash with Fusion TL scenes which include GEOM_TEXT objects	VIZENG-24393
Opening VizOne browser from ControlVideo Plugins fails	VIZENG-24374
SUPERCHANNEL*{n}*A_TO_B*DIRECTOR GET returns wrong value for NULL	VIZENG-24357
Fusion Pipeline: GFX channel as DVE remains black	VIZENG-24356
After an explicit SCENE RELOAD, superchannels are not properly cleared	VIZENG-24341
VizEngine crashing when loading a clip with Viz Libero	VIZENG-24310
Cannot clear selected transition director of a superchannel via script	VIZENG-24177

Can't animate Alpha of a material when using fusion pipeline	VIZENG-24020
Animations transferred to wrong container are deleted in stage	VIZENG-23987
Renderer jitters when loading images from local hard drive	VIZENG-23891
Engine crash on loading a scene / Changed return value of dispatcher callback of Graffiti plugin	VIZENG-23804
Viz crash when compiling a script	VIZENG-23600
UE4: input jitters when setting camera delay in Viz	VIZENG-23579
Viz engine crashes on TUIO messages	VIZENG-23453
Classic Renderer: Fusion Keyer uses wrong channel when multiple keyers are configured	VIZENG-23394
Title and Safe area aren't visible correct in Trio preview	VIZENG-23332
GFX channel key inside 4.x scene	VIZENG-22976
Remove Legacy StreamInService to prevent crash	VIZENG-22793
Quality difference inside Trio preview	VIZENG-22350
Dynamic Texture in scene tree causes subsequent ezJavascript plugins to lose code	VIZENG-21618

24 issues

1.6.2 Bugfixes: Video IO

Summary	Key
Viz Engine clip player hangs when working with active watchfolder	VIZENG-24552
Engine (Artist mode) crash on startup with GPU_Direct = 1 and Bits_per_channel = 16 and UHD input	VIZENG-24471

X.mio 5 Connectors are assigned to the wrong SFP	VIZENG-244 48
Creating XAVC clip using clip out channel is not working	VIZENG-243 31
Clip Player: Embedded timecode goes missing when video clip is paused	VIZENG-242 52
Engine crashes when playing a clip with different resolution than output resolution	VIZENG-240 48
Clip Player: go to end of recording fails	VIZENG-240 29
Clip Player: loading of recording fails	VIZENG-240 28
Clip player: REPLAY sometimes freezes	VIZENG-240 14
More than 1 RTSP stream with M.264 crashes Viz	VIZENG-238 80
Changing of watchfolder fails	VIZENG-238 59
Setting clip in point for recording fails in onair mode	VIZENG-238 57
Performance improvements in UHD	VIZENG-238 43
Matrox RTSP fail init due to copy paste error	VIZENG-237 57
When using MatroxNdi, exits sometimes hang	VIZENG-237 38
Time code received over SMURF sometimes does not match with the frame	VIZENG-237 01
Allow 10-bit DVE on X.mio 3	VIZENG-236 54
Clip Player: Prevent crash when audio is off for clip	VIZENG-236 52
Clip Player: Prevent jump in interlace when continuing for seamless playback	VIZENG-235 07
Better handle behavior when cores of CPU exceeds the number of DSX.core licenses	VIZENG-234 67
Viz Engine clip player doesn't continue playing when working with channel recorder	VIZENG-233 13

Clip Player: received time code is not correct after clip is loaded	VIZENG-23191
Clip Player: sent commands get not applied correctly	VIZENG-23099
Remove Legacy StreamInService to prevent crash	VIZENG-22793
DVE Effect jittering	VIZENG-21471
Matrox Post-Renderer: AVI - Post-Rendering fails when output format is 1080i50/60M and create proxy is enabled.	VIZENG-15478
Invalid timecode when playback clip rendered with Matrox Post-Renderer in P2_MXF container.	VIZENG-15477
Matrox Post-Renderer: DNxHD rendered in QT_MOV container does not contain alpha.	VIZENG-15476
28 issues	

1.7 Changes

1.7.1 Upcoming Changes

The Matrox based NDI implementation will be removed in Viz Engine 4.3. The native NDI implementation still remains and existing configuration file entries will be migrated automatically.

1.7.2 Changes: Renderer

- Support for Leap Motion has been removed.
- Support for old lens file formats has been removed. Old files will be converted automatically.

1.7.3 Changes: VideoIO

- 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).
- The combination of Matrox and NDI outputs is only possible on system topology based boards (X.mio3 and above).
- NDI output not available when zero Viz Engine outputs are configured.
- NDI output not available on Matrox cards mapped to zero outputs (e.g. 40).

1.7.4 Changes: Plug-ins

- BrowserCEF plug-in has been updated and renamed to Browser plug-in. Existing Scenes are migrated when saved again.
-

1.8 Known Issues

1.8.1 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 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 engine is not in On Air mode.

1.8.2 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.

1.8.3 Windows 10

- Sentinel runtime installer causes a blue screen when installed on Windows 10 with 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.

1.8.4 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. 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 with multiple GPUs is limited to 16392px by 16392px.
- The video cutout option for videowall setups is no longer supported due to 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.

1.8.5 Configuration

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

1.8.6 Viz Fusion Renderer

Summary	Key
AJA input freezes using Fusion renderer	VIZENG-23232
Execution logic is not applied to a template created from Transition Logic scene	VIZENG-21755
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

Import: Some FBX files have an xyz offset	VIZENG-21285
Increase maximum possible audio tracks to 64	VIZENG-23366
OnAir output uses wrong camera matrices if post processing (PP) in scene editor is disabled	VIZENG-24451
Optimize resource allocation in clip players	VIZENG-24444
Orientation by character does not work in Fusion	VIZENG-21643
PBR Material not transparent when using clips with Alpha	VIZENG-24278
Renderer: 16bit png images as Ambient Occlusion maps can lead to incorrect results	VIZENG-20886
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
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 clip player hangs when working with active watchfolder	VIZENG-24596
Viz Engine uses a fixed list of locations to find Viz Artist	VIZENG-23292

18 issues

- SuperChannels are not supported by the Viz Fusion Render Pipeline.
- Browser plug-in is not supported on 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.

1.8.7 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 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 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.

1.8.8 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.

1.8.9 Matrox

- 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.
- The output of the Matrox board can show green and purple stripes. This is a known issue, not resolvable by software. As a workaround, modify the h- or v-phase or change the genlock and switch it back again.
- 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.

1.8.10 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).

1.8.11 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 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.

1.8.12 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.
- 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).

1.8.13 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.


1.8.14 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 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 2019
- Windows 10 (LTSC 1809)

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

1.9.1 Supported Systems

System
DELL R3930
DELL Precision R7920
HP Z8
HP Z4
HP Z840
HP Z440
HP ZBook 17G6
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

Turing GPUs	Volta GPUs	Pascal GPUs	Maxwell GPUs	Kepler GPUs
		Nvidia Quadro P2200		Nvidia Quadro K2000
		Nvidia Quadro P2000		Nvidia Quadro K2200
		Nvidia Quadro P1000		Nvidia Quadro K2

Orange 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.

2 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](#)

3 Installation And Support

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.

3.2 Support

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