

Vortex Studio 2019c Release Notes



OVERVIEW

This version of CM Labs' powerful simulation creation and deployment suite is packed with innovative features that greatly expand the functionality of Vortex Studio:

- The Vortex Console, a brand new collection of tools, can be used to build your own simulator interface with interactive menus, custom control pages and unique look and feel. You can design pages that control the weather, set the time of day, emulate a complete human-machine interface, or add a database to record and report key simulation metrics in both metrics and US customary units.
- A new *machine guided control* extension is available to help an excavator operator visualize the orientation and course of an excavator bucket. This graphical view can easily be added in a console page.
- Modular vehicles now support the tire models already available in the Vortex Editor.

With this release, we greatly improved the integration of Vortex with third party software:

- A new Vortex plugin has been developed in order to take advantage of the graphical power of the Unreal® engine to enhance the visuals of your Vortex simulation.
- Hydrodynamic ocean simulation of ship models is taken a step further with the integration of the Marin© XRI toolkit. Sample vessels are also provided in the Vortex Content pack.
- The Vortex plugin for VBS integration (Bohemia Interactive) now supports amphibious vehicles. Water surfaces in VBS are detected and Vortex vehicles with proper buoyancy will behave as expected.

Vortex Studio Create

Epic Unreal® Engine integration

Highly realistic graphics and stable rendering performances are paramount to a realistic simulation. In order to bring your simulation graphics to the next level, a Vortex Studio plugin has been developed for Epic Games *Unreal Engine* platform. The best of both world can now be used in the same project: Vortex Studio real-time high-fidelity dynamics simulation and the high-quality visuals of the Unreal engine.

Information between the two engines is exchanged without coding complicated extensions or scripts. Vortex Studio vehicles (or any other mechanisms) can be imported directly in the Unreal Editor.

The creation stage can be completed with both the Vortex Studio Editor and the Unreal Editor. VHL interfaces of a Vortex mechanism are connected in the Unreal editor to receive information from the simulation.

The Unreal landscape can be streamed by Vortex in real-time and allows you to drive a Vortex vehicle across large maps. Collisions with objects in the Unreal world are also properly handled.

A package can later be deployed to create a fully functional standalone simulator with Vortex Studio hardware capabilities such as CAN Open devices and motion platform.

The Vortex Studio plugin for Unreal is available free of charge on the Unreal Marketplace.

Marin XRI hydrodynamic simulation models

Vortex Studio now incorporates Marin© XRI features in its ocean extension. By using specific vessels provided in Vortex Content, higher fidelity in hydrodynamic simulation is obtained with regard to a ship's motion and its behaviour in waves and current. You will also be able to build your own ship models using Marin's proprietary format XMF file.

Vortex Studio Activate

The 2019c Vortex Studio Console provides the tools needed to build your own simulator interface.

Vortex Studio Console

With this collection of extensions, you can:

- Identify and select the different equipments and their accessories with thumbnail images. Exercises or scenarios can also be added to equipments and selected by the operator.
- Create graphical interfaces to interact with the vehicle controls and simulation parameters:
- Create real-time interactive graphs to display important metrics during the simulation.
- Incorporate a database to automatically collect data over several simulation sessions and display a summary report after the exercise is completed. This is especially useful for training purposes.
- Customize your simulator screens with relevant controls for each role: instructor, student, different operators...
- Customize the visual aspect of your simulator with your company's branding

Various user-interface elements such as push button, slider, rotary knob, 3-way switch or display panel can be incorporated on any simulator node. By using a touch screen, you can provide the operator with an ergonomic way of controlling equipment, removing the need for mouse, keyboard or other external devices. Equipment controls are easily linked to user-interface widgets built using the Qt format.

The *Excavator demo scene* included in the Vortex Studio Content pack provides an example of how a console is built and used. Please refer to the Vortex Studio Content starting guide.

SYSTEM REQUIREMENTS

Supported Platforms

Vortex Studio 2019c runs on the following platforms:

- Microsoft Windows 10 (x64) v. 1903
- Linux (Ubuntu 14 LTS, CentOS 7)

Note: not all features are available under Linux. See documentation for more details.

Hardware Requirements

Minimum for Vortex Studio Create:

- CPU Intel i7-4700 or equivalent – must support AVX2 instructions set
- RAM 8GB for Vortex Studio Player
16GB for Vortex Studio Editor
- GPU NVIDIA graphics card compatible with supported drivers (see further)

Recommended for Vortex Studio Create:

- CPU Intel i7-4700 or better
- RAM 16GB for Vortex Studio Player
32GB for Vortex Studio Editor
- GPU NVIDIA GeForce GTX 970 (or better) with supported driver

Recommended for Vortex Studio Activate:

- CPU Intel i7-7700 or better
- RAM 16GB for Vortex Studio Player
- GPU NVIDIA GeForce GTX 1070 (or better) with supported driver

Supported Compiler

Vortex Studio 2019c supports the following C++ compiler:

- Microsoft Visual Studio 2015 (VC14) and above

Supported Graphics

Vortex Studio 2019c has been extensively tested with **NVIDIA GeForce** graphics cards.

- NVIDIA GTX 970 and 1070 are tested with driver 417.22.
- NVIDIA GTX 1070 and RTX 2070 are tested with driver 440.97.

The GTX 1070 and RTX 2070 cards have been explicitly tested for high performance rendering with NVIDIA's 440.97 WHQL driver.

All other GTX and RTX graphic cards listed in the NVidia release notes of the 440.97 driver should work with Vortex Studio, but some performance or rendering degradation might occur.

- RTX 2080
- GTX 1050, 1060, 1080
- GTX 950, 960, 970, 980
- GTX 750, 760, 770, 780
- Equivalent Notebook GPUs

Vortex Studio 2019c has been extensively tested with **NVIDIA Quadro** graphics cards.

- NVIDIA Quadro P5000 has been certified with driver 441.12

All other Quadro graphic cards listed in the NVidia release notes of the 441.12 driver should work with Vortex Studio, but some performance or rendering degradation might occur.

Vortex Studio 2019c does not officially support the **AMD** and **Intel** graphics cards, but may run (with visual artifacts) on some of them.

Important Note: *on computers equipped with multiple graphics cards (e.g., laptops with both integrated Intel card and dedicated NVIDIA graphics card), the default configuration of these systems is to auto-select the card to run the application, which might prevent Vortex Studio from running (or show a blank viewport). In the NVIDIA Control Panel, select **Manage 3D Settings** and change the **Preferred** graphics processor to **High-performance NVIDIA processor**.*

Supported VR Hardware

Vortex Studio 2019c supports the following VR hardware via the OpenVR protocol:

- HTC Vive
- HTC Vive Pro

A Steam account is needed to configure and use the VR hardware in a Windows 10 environment.

Python

Python 2.7.13 is supported. The corresponding Anaconda distribution 4.3.0.1 allows for an easy integration of Vortex on various platforms.

Simulink/MATLAB

Simulink/MATLAB 2015 and above, with real-time UDP protocol, are supported.

Licensing

Vortex uses RLM by Reprise Software™ for licensing.

COMPATIBILITY NOTICE

We recommend that you back up your assets before migrating to the latest version. If saved, it will not be possible to open them again in their original version.

From any version of Vortex Studio

Files from these versions should open with no issue in the newest release. We recommend that you use the new “Save All Child Documents” feature to ensure your files are kept up to date.

From Vortex 6.8 and earlier

Files from these versions will not open in the newest release. Please convert them with a supported version first (see further).

Between any Vortex version

Record-and-Playback as well as Keyframe files created with previous versions may not work with Vortex Studio 2019c.

From any version of Vortex Studio Academic

Note that content saved in Vortex Studio Academic cannot be opened with commercial Vortex Studio licenses such as Create or Activate. Academic can open and run content created with other licenses, however.

END-OF-LIFE NOTICE

Since Vortex Studio 2017

To import assets created before Vortex Studio 2017a, please convert them with a supported version of Vortex first. Note that Vortex Studio 2018a was the last version to directly support files created with Vortex 6.7 and 6.8.

Since Vortex 6.5

CM Labs recommends that you port your Vortex-based projects from x86 to x64. Vortex 6.5 was the last release with dedicated x86 binaries and installers.

Since Vortex 6.3

VxVehicle and VxCable are no longer supported. If you have been using these APIs, please convert your assets using Vehicle Systems and Cable Systems instead.

Microsoft Visual Studio 2010

Vortex Studio fully supports Microsoft Visual Studio 2015 (VC14) and above. If you are still using VC10, please upgrade now to continue to benefit from the frequent Vortex Studio updates and new features.

FIXED ISSUES

Bugs and workflow issues have been fixed during the development of 2019c. Below are some of the problems and limitations solved:

| Summary | Description |
|--|--|
| Dialog when stopping Vortex service | The remote Vortex services are now automatically stopped during installation and upgrade without the need to go through the confirmation dialog |
| Dynamics display option in remote debugger | Dynamics display options in the setup file are now correctly applied when launching the Vortex Remote Debugger |
| Light probe extension not always enabled | The light probe extension is now properly handled in configurations |
| Editor Explorer window scrolls back with multi-selection | The Explorer window does not scroll needlessly anymore when selecting items beyond the window's size |
| Tire ruts not always using the disturbed material | Tire ruts now use the disturbed material in all cases |
| Merge Material command not available in undo stack | The Merge Material command is now properly recorded in the undo stack |
| Texture cube preview is broken | The preview of a texture using the cube shape now works properly |
| Incoherent reporting during installation | The Vortex Setup utility now properly reports error in all cases |
| Saved state not set properly when moving initial view camera | Moving the initial view camera and saving right after now properly sets the saved/unsaved state of a scene |
| Configurations do not accept drag and drop of multiple extensions | Multiple extensions can now be drag and dropped in one operation |
| Vortex Toolkit installer does not enable Windows Error Reporting | The Error Reporting registry key is now properly created during Vortex Studio installation. This enables the creation of a log in case of errors |
| Animation path waypoint text is not easily readable | The text displayed on a waypoint in the 3D view when using the Animation path extension is now more easily readable. |

KNOWN ISSUES

| Summary | Description |
|---------|-------------|
| N/A | |

DEPRECATIONS

The followings were deprecated in release 2019c: