



VR-Vantage 2.8 Release Notes

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Systems Supported and System Requirements

This section describes platform support and system requirements for VR-Vantage. To take full advantage of VR-Vantage's visualization capabilities and optimize performance, you must use a modern game computer with a high quality NVidia graphics card.

For the most up-to-date information about systems supported, see the Product Versions page on the MAK web site at <https://www.mak.com/support/product-versions>. For hardware requirements, see <https://www.mak.com/support/hardware-recommendations>.

VR-Vantage is available for the platforms listed in Table 1. For toolkit users, application code must be built with the indicated compilers in order to link to VR-Vantage libraries.

Table 1: Platforms supported

Operating System	Compiler
Windows 10	Microsoft Visual C + + 15.0 (64 bit)
Red Hat Enterprise Linux 8.0 (64-bit libraries)	default compiler
CentOS — versions that are equivalent to supported versions of Red Hat Linux.	default compiler

The VC 14 build is binary compatible with all MAK VC 15 products.



YOU MUST INSTALL THE VR-VANTAGE DATA PACKAGE.

It is not optional. It contains data that VR-Vantage applications require.

Third-Party Libraries Supported

VR-Vantage uses the indicated versions of the following libraries:

- ♦ VR-Link 5.7
- ♦ Qt 5.10.1 (VC 15), Qt 5.14.0 (Red Hat 8)
- ♦ OpenSceneGraph 3.6.4
- ♦ Boost 1.63.0
- ♦ FreeGlut 2.4.0 (Windows), 2.6.0 (Linux)
- ♦ GL-Studio 7.0 (VC 15)
- ♦ DI-Guy 13.4 (development version)
- ♦ Triton 3.73
- ♦ Silverlining 5.086
- ♦ SpeedTree 6.3.2
- ♦ Oculus Rift Development Kit 1.26
- ♦ CDB API 2.2 (Windows), 2.1 (Linux)
- ♦ osgEarth 3.0
- ♦ CUDA 9.2 (Windows), 10.2 (Linux).
- ♦ CIGI — CCL 4.0.4

3D Video Cards Supported

VR-Vantage 2.8 supports NVIDIA graphics cards that support OpenGL 4.5 or above. While we support NVidia Quadro cards, we strongly recommend GeForce cards. If you use a Kepler Series Quadro card, read the instructions in [“Using Kepler Series Quadro Cards,”](#) on page 4. VR-Vantage does not support AMD graphics hardware.

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VR-Vantage strives to provide the best 3D scene quality possible and cutting edge visualization effects. To provide this functionality, VR-Vantage takes advantage of OpenGL features that may not be supported on older video cards. When this is the case, you can disable these features, allowing VR-Vantage to run in 3D modes.

OpenGL 4.5 is the minimum requirement for rendering a 3D scene in VR-Vantage. For the best visual quality and highest performance you should use the most recent NVIDIA GeForce card. The minimum recommended card is the 9xx series.

Some laptops have an NVIDIA graphics card and an Intel graphics card. You must configure your computer to use the NVIDIA card. To do so:

1. Open the NVIDIA Control Panel (in the System Tray).
2. Select Manage 3D Settings.
3. Select Global Settings.
4. Select Preferred Graphics Processor.
5. Select High-performance NVIDIA Processor.



You should always try to use the latest drivers available for your video card. For video streaming on Windows, you must use driver 397.44 or later. For video streaming on Linux, you must use driver 387.26 or later.



If you use an external monitor with your laptop and your laptop is not using the NVIDIA graphics card when running VR-Vantage, try setting the main display to be the laptop's built-in monitor instead of an external monitor.

Using Kepler Series Quadro Cards

There is a known issue with the Quadro drivers on Kepler series Quadro cards. NVIDIA says its related to the fact that the default profile optimizes for a fixed eyepoint (for applications like CAD). To run on these cards, you must change the global profile for the driver, as follows:

1. Open the NVIDIA Control Panel.
2. Select the Manage 3D Settings page.
3. Select the Global Settings tab.
4. In the list of driver profiles, select Workstation App – Dynamic Streaming.

We are working with NVIDIA to have their drivers recognize our applications and apply this profile automatically. In the meantime, to use Kepler series Quadro, you must make this change manually.

Disk Space Requirements

A full installation of VR-Vantage requires approximately 35 GB of disk space.

Required Software for Toolkit Users

If you plan to build VR-Vantage applications using the VR-Vantage Toolkit, you must download and install VR-Link 5.7.

If you plan to build the VR-Vantage GUI, you must download and install QT 5.10.1 (VC 15) or 5.14.0 (Red Hat 8). You can download it at <https://www.mak.com/support/bonus-material>.

Qt is also available as a free download under the LGPL version 2.1 license at <https://www.qt.io>. This version should be satisfactory for most VR-Vantage customers. If you need a Qt commercial license, you must purchase the license from Qt.

If you plan to extend CIGI functionality, you must use the CIGI Class Library 4.0.3.2 (CCL) provided in your installation of VR-Vantage (in *./packages*). Even if you are not working with CIGI 4, you must use this version of the CCL.

Compiler Compatibility on Windows

MAK provides versions of product releases that have been compiled with different versions of Microsoft Visual C++. When you run MAK products together on the same computer, for example, the Logger and a VR-Vantage application, we strongly recommend that you run versions compiled with the same compiler. Mixing products compiled with different versions of the compiler on the same computer can result in program instability. The exception to this is that products built with VC 14 and VC 15 are binary compatible.

License Manager

VR-Vantage 2.8 uses FLEXlm 11.13.0.2.



You must update your License Manager software for this release. You can continue to use old licenses if maintenance is up to date.

The License Manager files are not part of the VR-Vantage installer. You can download them at:

- Windows: <http://ftp.mak.com/out/MAKLicenseManager-win64-setup.exe>
- Linux: <http://ftp.mak.com/out/MAKLicenseManager-linux64-setup.tar.gz>

A license manager FAQ is available at

<https://www.mak.com/support/license-support>

Using MAK Products on Virtual Machines

You can run MAK products on virtual machines. For more information, see the Cloud & Virtualization page on our website at <https://www.mak.com/learn/cloud-virtualization>.

Network Compatibility

VR-Vantage 2.8 is compliant with RPR FOM 1.0 and RPR FOM 2.0 and includes FOM mappers for many draft versions of the RPR FOM. It is compliant with RTIs that support the HLA 1.3 specification, the SISO DLC HLA API 1516 version of the IEEE 1516 specification (SISO-STD-004.1-2004), or HLA Evolved.

To use an RTI with VR-Vantage it must use the same operating system and be built with the same compiler.

VR-Vantage 2.8 supports DIS 4, 5, 6, and 7, and can therefore interoperate with DIS applications of any of these versions.

FOM Support

VR-Vantage 2.8 has built-in support for versions 0.5, 0.7, 0.8, 1.0, and 2.0 (drafts 6, 14, 17, 20 and the final version) of the RPR FOM. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper.

Backwards Compatibility

VR-Vantage 2.8 applications and some files are not backwards compatible. Specific incompatibilities are as follows:

- ♦ Applications from a given release cannot control display engines from a different release. (In other words, a VR-Vantage 2.8 application cannot control a VR-Vantage 2.4 display engine.)
- ♦ Plug-ins built against one version cannot be used with the other.
- ♦ Model files (MEDF and MEIF) built with one version do not work with the other.

Support for MAK Data Logger Recordings

VR-Vantage 2.8 works seamlessly with MAK Data Logger 5.5.1 and later. Older versions of the Logger may have two problems:

- ♦ There are known issues with DIS 7 extended attribute packets. These have been fixed in VR-Forces 4.6 and later, VR-Vantage 2.3 and later, and MAK Data Logger 5.5.1 and later. When using an older Data Logger with either VR-Forces 4.6 and later or VR-Vantage 2.3 and later, DIS 7 configurations can lead to crashes.
- ♦ There have been minor updates to the FOMs that are distributed with VR-Forces 4.6 and later or VR-Vantage 2.3 and later. These FOMs are available with MAK Data Logger 5.5.1 and later, but were not available in older Loggers. Older Loggers work, but you must configure the Logger to use the correct FOM, which should be copied from the newer VR-Vantage or VR-Forces.

Users using MAK Data Logger 5.5.1 will have no problems.

New Features and Product Updates

VR-Vantage 2.8 has the following new features and updates:

Terrains

- ♦ The new 2D View Layer option allows you to choose to view a specific layer of an osgEarth map if any are defined. See the chapter on 2D View Layers in the *Adding Content to MAK Applications Reference Manual*.
- ♦ When you create a 2D Observer View for a terrain that includes 2D View Layers, that view includes the currently specified 2D View Layer.
- ♦ You can now drag and drop any saved observer view (.osrx) file onto the Observer Views Panel to load it.
- ♦ You can also drag and drop an .mtf file onto the main window to open that terrain file.
- ♦ The Add Terrain Patch dialog box now allows you to add multiple patches at once. See the section “Adding Elevation Data (Terrain Patches) to a Terrain” in the *Adding Content to MAK Applications Reference Manual*.
- ♦ SilverLining stars are now configured using a csv file. For details, see “SilverLining” in the Introduction to VR-Vantage chapter of the *VR-Vantage Users Guide*.

Models

- ♦ Articulated parts now support the extension metric. The extension articulated part is similar to the translation articulated part. The difference is extension only works on the Y axis.
- ♦ Models with propellers and rotors, such as propeller planes and helicopters, can now be configured to spin up and spin down and have that be visualized.

- ♦ The visualization of tank treads now shows them moving at the correct speed based on the velocity of the entity.
- ♦ VR-Vantage now shows wheels rotating in conjunction with a vehicle's velocity and also angles the wheels as the vehicle turns. Vehicles simulated by VR-Forces, or other simulators that do not publish detailed information about wheel orientation, look more realistic.
- ♦ Windmill models are now supported. They respond realistically to wind direction and speed, and rotate relative to their mass.

Weather

- ♦ VR-Vantage can now visualize local weather areas. Local weather areas can be created using VR-Forces tactical graphics weather area types. Local weather areas can be set to enable rain using the local area environmental conditions. Rain shafts will be present based on the intensity of the rain. Local rain intensity will have priority over global rain intensity.
- ♦ A new precipitation type has been added to the Weather page of the Environment Conditions dialog box: sleet. See the section “Specifying Precipitation Type and Intensity” in the Scenes and Environment Effects chapter of the *VR-Vantage Users Guide*.
- ♦ The cloud cover feature, including the Cloud Cover Editor in the Scene dialog box, has been replaced with an improved Atmospheric Conditions table on the Environment Conditions Settings page of the Scene dialog box. In the Atmospheric Conditions table, you can now set cloud cover and create atmospheric configurations at up to 10 different altitudes. See “Setting the Wind Direction, Speed, and Visibility” in the Scenes and Environmental Effects chapter in the VR-Vantage Users Guide.

GUI

- ♦ You will see a new compass style when using 3D views. Instead of the round compass at the top right, there is now a horizontal compass across the top that indicates the direction where the observer is looking. This is either true or magnetic north, based on the Heading specified in the Display Units Settings.

Configuration, Performance, and Startup

- ♦ Reverse Z buffering is now enabled by default. As a result, the command line argument for reverse Z changed from `--useReverseZBuffer` to `--disableReverseZBuffer`, allowing you to disable the feature as needed.
- ♦ You can choose to enable adaptive tick rate to improve performance in scenes with many human characters. See “Adaptive Tick Rate” in the Optimizing Performance chapter of the *VR-Vantage Users Guide*.

CIGI Support

- ♦ You can set the color on the fog atmosphere obscurant using CIGI. See “Atmosphere Component Controls,” under Section 29.3.1, “Component Control Message Formats,” in the *VR-Vantage Users Guide*.
- ♦ You can use CIGI to set rain and snow accumulation parameters. See “Rain and Snow Accumulation” under Section 29.3.1, “Component Control Message Formats,” in the *VR-Vantage Users Guide*.

API Changes

- ♦ The DtOverlaySpiderWebModel class now allows you to specify whether the heading is relative to True or Magnetic north.
- ♦ The DtOverlaySpiderWebModel now has a setIsDecorated function that allows you to include informative labels on spider web graphics.

Documentation

- ♦ The online help, accessed from the Help menu in VR-Vantage Stealth and VR-Vantage IG, is now in an HTML format with a more modern look and an improved search utility. The help is built into VR-Vantage and does not require an internet connection.

Documentation Updates

Documentation has been updated for this release. The guides are provided as PDF files in the *./doc* directory. Online help is available from the VR-Vantage Help menu. You can also find the most current PDFs at <https://www.mak.com/support/product-user-guides>.

Fixed Bugs

Problems identified in previous releases have been fixed. For a summary, please see the *./doc/FixedDefectsVRV.csv* file.

Known Problems

- ♦ There are a few issues that require you to add the application name to the *BlackApps.dat* file.
 - Under certain circumstances, opening VR-Vantage on a second display prevents the program from starting.
 - In addition, launching from the main display and then moving the mouse cursor to the other monitor causes the program to freeze and not respond.

If you experience any of these issues, edit the Nahimic *BlackApps.dat* file and add the application name (for example, *vrvantage.exe*) to the list. You can search *C:\ProgramData* for *BlackApps.dat* to locate it. This file might be found in *C:\ProgramData\A-Volute\A-Volute.Nahimic\Modules\Scheduled\Configurator*, or *C:\ProgramData\A-Volute\A-Volute.28054DF1F58B4\Modules\ScheduledModules\Configurator*, or something similar.

- ♦ There is a known problem with VR-Vantage and CentOS 8 running out of memory. When the OS runs out of memory or starts using the swap memory, it can become unresponsive. Here are some potential solutions:
 - Adjust the terrain being loaded in VR-Vantage to have fewer osgEarth layers and simpler models to reduce the memory consumption.
 - Add more RAM to your computer.
 - Upgrade the Linux kernel to at least version 5.7. We have found that the default kernel of 4.18 becomes unresponsive when the swap is being used but the 5.7 kernel does not have this problem.
- ♦ On Linux machines, when you use the built-in screen capture feature, the screenshot is not adjusted for gamma corrected. It appears dark in the default image viewer on Linux but displays correctly in other applications.
- ♦ When using Reverse Z Buffering in conjunction with Reduce Z Fighting Near Far Clip Policy (the default) and Triton dynamic ocean, significant performance slowdowns sometimes occur. Changing the Near Far Clip Policy to Fixed will resolve the issue; when Reverse Z Buffering enabled, the Reduce Z Fighting policy is not needed.
- ♦ The first time you stream video using GStreamer, it generates a message indicating a critical error. This is a bug in GStreamer. There is no critical error. Subsequent uses of GStreamer do not generate this error.
- ♦ GStreamer as delivered does not work on some builds of Linux. See “Streaming Video” in the Using Streaming Video chapter of the *VR-Vantage Users Guide* for more information.
- ♦ There is an occasional issue with some earth files that causes the wrong LOD to show up on the terrain. If this occurs, delete the cache in *./appData/cache* and add the following to the terrain section of your earth file: `progressive="true"`.
- ♦ Indirect rendering and MetaFlight terrains have problems with holes appearing as LODs are paging in. The workaround is to disable indirect rendering for MetaFlight terrains.