



VR-Vantage 2.0.1 Release Notes

This document provides the following release-specific information for VR-Vantage™ 2.0.1:

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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 MÄK web site at: <http://www.mak.com/support/productversions.php>.

VR-Vantage is available for the following operating systems:

Table 1: Platforms supported

Operating System	Compiler
Windows Vista, Windows 7, Windows 8	Microsoft Visual C++ 10.0 SP1 (32 and 64 bit)
Red Hat Enterprise Linux 6.0. (64 bit libraries)	default compiler
CentOS - versions that are equivalent to supported versions of Red Hat Linux.	default compiler



YOU MUST INSTALL THE VR-VANTAGE DATA PACKAGE.

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

Third Party Library Support

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

- ♦ VR-Link 5.1.3
- ♦ Qt 4.7.4
- ♦ OpenSceneGraph 3.1.4
- ♦ Boost 1.46.1
- ♦ FreeGlut 2.4.0
- ♦ GL-Studio 5.0.2
- ♦ DI-Guy 13.1.0
- ♦ Triton 3.26
- ♦ Silverlining 3.040
- ♦ SpeedTree 6.3.2
- ♦ osgEarth 2.6_rev154200.

MÄK will provide modified source code for OSG and osgEarth upon request, as per the OSGPL license. Please contact support@mak.com for download links.

3D Video Cards Supported

VR-Vantage 2.0.1 supports NVIDIA graphics cards that support OpenGL 3.3 or above. While we support NVidia Quadro cards, we strongly recommend GeForce cards. VR-Vantage does not support AMD (formerly ATI) graphics hardware.



You must use NVidia driver 340.29 or later.



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 3.3 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.

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 board.

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 5.1.3. You can download it from:

- ♦ <ftp://ftp.mak.com/out/products/vrlink5.1.3-win-vc10.exe>
- ♦ <ftp://ftp.mak.com/out/products/vrlink5.1.3-linux-rh6.tar.gz>

If you plan to build the VR-Vantage GUI, you must download and install QT 4.7.4. You can download it at: <http://www.mak.com/support/resources/bonus-material.html>

Qt is also available as a free download under the LGPL version 2.1 license at qt.digia.com. This version should be satisfactory for most VR-Vantage customers. If you need a Qt commercial license, you must purchase the license from Digia.

Compiler Compatibility on Windows

MÄK provides versions of product releases that have been compiled with Microsoft Visual C++ 8.0, 10.0, 11.0, and 12.0 (most products are not available for all of these compilers). When you run MÄK products together, 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.

License Manager

VR-Vantage 2.0.1 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:
<ftp://ftp.mak.com/out/MAKLicenseManager-win-setup.exe> (for 32-bit systems)
<ftp://ftp.mak.com/out/MAKLicenseManager-win64-setup.exe>
- ♦ Linux:
<ftp://ftp.mak.com/out/MAKLicenseManager-linux-setup.tar.gz> (for 32-bit systems)
<ftp://ftp.mak.com/out/MAKLicenseManager-linux64-setup.tar.gz>

A license manager FAQ is available at:

<http://www.mak.com/license-support.html>

Running the 32-bit Version of VR-Vantage

While VR-Vantage is supported on 32-bit operating systems and processors, it is not recommended. Modern applications like VR-Vantage take advantage of large pools of memory to load complicated and beautiful content. Using a 32-bit operating system or machine, will mean some content may not be available, and VR-Vantage may perform worse than with a 64-bit environment.

Using MÄK Products on Virtual Machines

In general, MÄK products run on virtual machines without any problems. The exception to this statement is that applications that use 3D graphics, such as VR-Vantage and the VR-Forces front-end, require a graphics card. Standard graphics cards typically do not work with VMs. To use a 3D enabled environment in a VM, please contact your VM vendor for options. NVidia produces the NVidia GRID card, which is designed to solve this problem. Your VM vendor may have additional information. For more information on NVidia GRID, please see <http://www.nvidia.com/object/virtual-gpus.html>

Network Compatibility

HLA only

VR-Vantage 2.0.1 is compliant with:

- ♦ RPR-FOM 0.5, 0.7, 0.8, 1.0, and a subset of 2.0 (draft 6, 14, 17, and 20)
- ♦ MÄK RTI 2.x, 3.x, 4.x
- ♦ Pitch RTI 1.3 C++ interface.

Other 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), and HLA Evolved. To use an RTI with VR-Vantage it must use the same operating system and be built with the same compiler.

DIS only

VR-Vantage 2.0.1 supports DIS 4, 5, 6, and 7 and can therefore interoperate with DIS applications of any of these versions.

FOM Support

VR-Vantage 2.0.1 has built-in support for versions 0.5, 0.7, 0.8, 1.0, and 2.0, drafts 6, 14, 17, and 20 of the RPR FOM. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, VR-Vantage 2.0.1 uses RPR FOM 1.0.

If you want to use VR-Vantage with VR-Forces 3.9 or later and RPR FOM version 2, draft 17, use the *VR-Link20017-1.fed* file.

Backwards Compatibility

VR-Vantage 2.0.1 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 2.0.1 application cannot control a VR-Vantage 1.6 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.

New Features and Product Updates

VR-Vantage 2.0.1 has the following new features:

- Upgrade to VR-Link 5.1.3.
- Upgrade to FLEXIm 11.13.0.2.



You must update your License Manager. Please see [“License Manager,”](#) on page 1-4 for details.

- Support for Oculus Rift 0.5.0.1. The Oculus Rift integration now supports Direct Display mode rendering. For details, please see Section C.2.1, [“Direct Display Mode,”](#) in *VR-Vantage Users Guide*.
- *DtOsgModelInstanceSignaler* is now *DtModelSignaler*.
- VR-Vantage has changed how it processes streamed data. For details, please see [“Processing Streamed Data,”](#) on page 1-9.
- Changes to render settings:
 - Settings on the Render Settings page related to visualizing ocean have been moved to a new Ocean Render Settings page.
 - Settings that affect lighting have been moved to a new Lighting Render Settings page. The Enable Advanced Lighting and Shading setting is now called Enable Lighting.
 - The Visualize Mode option has been renamed Component Visualization.
 - You can now set the LOD scale, texture height, and texture width for ocean planar reflections. For details, please see Section 1.13.1, [“Configuring Ocean Planar Reflections,”](#) in *VR-Vantage Users Guide*.
 - A new setting, Colorize Per Drawable has been added to the Render Settings page. For details, please see Section 1.5, [“Coloring Draw Calls,”](#) in *VR-Vantage Users Guide*.

- ♦ The Experimental Ocean Settings dialog box has been renamed Experimental Features. The Paged LOD Magnification Scale Factor setting has been moved to this page from the Render Settings page.
- ♦ You can now set an LOD distance for buoyancy models for surface vehicles. For details, please see Section 10.14, “[Enabling Buoyancy for Surface Entities](#),” in *VR-Vantage Users Guide*.
- ♦ The Sensors page has added a new option – Monochrome Mode. New sensor modes have been added – Visual Camera (which is full color) and Monochrome Camera.
- ♦ The list of observer modes has been updated. Inset observer mode was removed. The Out-the-Window observer modes that includes CameraFX sensors have been renamed IR (CameraFX), IR Blackhot (CameraFX), and NVG (CameraFX). A new observer mode has been added – Visual Camera (CameraFX). The new mode uses the new Visual Camera sensor mode.
- ♦ Enabling and disabling view controls is now a global setting rather than being observer-specific. Therefore it has been removed from the Observer Settings page, the Observer Control Panel, and the Observer Settings Toolbar. You now enable or disable view controls on the Settings menu and the Display Settings Toolbar. You can override the GUI settings on a per-connection basis. For details, please see Section 7.11, “[Controlling the Observer from Other Applications](#),” in *VR-Vantage Users Guide*.
- ♦ VR-Vantage can smoothly transition between saved observer views instead of jumping immediately to the selected view. For details, please see “[Animating Transitions Between Observer Views](#),” on page 7-31 in *VR-Vantage Users Guide*.
- ♦ New speed scaling modes for observer movement. You can specify that VR-Vantage base speed scaling on altitude above sea level or altitude above ground level. For more information, please see “[Setting the Speed Scaling Mode](#),” on page 7-27 in *VR-Vantage Users Guide*.
- ♦ Lighting is now managed as follows:
 - Light points that are part of the terrain, such as runway lights, automatically turn on at dusk and turn off at dawn.
 - Vehicle lights and buoy lights are always on.
 - Dynamic lights that are part of the terrain, such as street lights automatically turn on at dusk and turn off at dawn.
- ♦ Flashlight mode aims a beam of light on the scene. For details, please see Section 16.8, “[Flashlight Mode](#),” in *VR-Vantage Users Guide*.
- ♦ You can now set a scale factor for the emissivity of emissive textures. For details, please see Section 16.2.2, “[Specifying the Emissive Lighting Scale](#),” in *VR-Vantage Users Guide*.
- ♦ You can now set a global value for ambient material values and diffuse material values. For details, please see Section 16.6.2, “[Configuring the Material Ambient and Diffuse Values](#),” in *VR-Vantage Users Guide*.

- You can now configure randomization of SpeedTree height and orientation. For details, please see Section 8.9.1, “[Randomizing the Size of SpeedTrees](#),” in *VR-Vantage Configuration Guide*.
- Instrument panels. Instrument panels are individual cockpit instrument displays that you can arrange on the screen. By contrast, cockpit displays are fixed displays that take up the entire screen. For details, please see Section 10.11, “[Displaying Instrument Panels](#),” in *VR-Vantage Users Guide*.
- Inset views now list the entity for which they were created in the title bar. However, if you change the view in the window to look at other entities, the title does not change.
- A new environment variable, `VRV_GL_DEBUG`, enables the OpenGL debug callback and sends messages to the console.
- You must use NVidia driver 340.29 or later.
- Use of the cache element in earth files to change the location for caching terrain data is no longer recommended. It has been removed from all earth files provided with VR-Vantage. Use the `OSGEARTH_CACHE_PATH` environment variable. For more information, please see Section 4.10.1, “[Caching Terrain Server Data](#),” in *VR-Vantage Configuration Guide*.
- Added view controls to the VR-Vantage Control API for depth of field, wind conditions, cloud cover, and visibility. Also added an example that shows how to create user view control messages.

Using Incremental Compiling with Streamed Data

Users of streamed terrains might want to consider using Incremental Compiling. This is an OSG option that allows the processing of streamed data to be spread across multiple frames, reducing performance spikes. To use it, create the environment variable `OSG_ICO`. (It does not need a value. It just needs to exist.)



Using `OSG_ICO` may cause LOD issues with other paged formats. It is only recommended for streamed terrains.

Processing Streamed Data

VR-Vantage has several “processors” that search through streamed-in data looking for things like SpeedTrees, objects that need effects textures attached, buoys, beacons, and so on. In previous versions of VR-Vantage, all of these different processors would look through everything that streamed in. So, for example, the SpeedTree code looked through the point buildings looking for SpeedTrees, and the point building processor looked through SpeedTrees.

We have changed this so that the processors register feature names that they want to process. The registration data is in `./importConfig/registrant_feature_list.csv`. For example, in `registrant_feature_list.csv`, it states that the processor for SpeedTrees, speed-TreeManager, is mapped to Vegetation. In *VR-TheWorld Online - MAK Earth.earth*, SpeedTrees are configured as follows:

```
<model name="trees" driver="feature_custom">
  <features name="Vegetation" driver="wfs">
```

The feature name is Vegetation. This means that it will be processed by the speedTree-Manager.

Similarly, the featureDataBroker, which is responsible for creating streamed buoys, beacons, and the lights and marks that might be attached to them, is mapped to 57-data and dynamicFeatures. (Processors can be mapped to more than one layer type.) Examples of using this processor are:

```
<model name="LateralBuoysUS5HA52M" driver="feature_custom"
  enabled="true">
  <features name="s57-data" driver="ogr">
```

and

```
<model name="TaxiwayLights" driver="feature_custom">
  <features name="dynamicFeatures" driver="ogr">
```

`registrant_feature_list.csv` file is fully commented and provides additional information about this scheme.

We have updated earth files to use the new scheme. If you are using custom earth files, you must update them to take advantage of this new processing method. If you use VR-TheWorld Server, you must update your earth files (or your `registrant_feature_list.csv` files).

Documentation Updates

VR-Vantage documentation has been updated for this release.

Section 3.6, Optimizing Performance, in *VR-Vantage Users Guide* is now Chapter 1 in *VR-Vantage Configuration Guide*.

As noted in [“New Features and Product Updates,”](#) on page 1-6, the View Control icon has moved from the Observer Settings Toolbar to the Display Settings Toolbar. However some screen captures in the manuals and first experience guides show the old toolbar configurations.

Fixed Bugs

VR-Vantage 2.0.1 fixes the following problems that were present in previous releases:

- *VR-Vantage Users Guide* had the incorrect capitalization for the `--autoConnect` command-line option.
- Settings a window as fixed size did not work. 55420
- The VR-Vantage Control Toolkit did not include view controls for some settings. Added depth of field, wind conditions, cloud cover, and visibility. Also added an example that shows how to create user view control messages. 55403
- Buoys did not load on the Massachusetts S-57 terrain. 55361
- There was no default LOD for buoyancy. 55359
- When using global ambient and / or diffuse values that differed from the hard-coded defaults, the master had the right values, but the slave had the hard-coded values. 55319
- Render to texture settings were overridden by the post processor manager. 55280
- Post processors were not initialized correctly for new channels. 55279
- On Linux, SpeedTree shaders recompiled every time instead of using the cache. 55177
- Some DI-Guy characters were broken. 55160
- SpeedTree billboards did not face the observer on geocentric terrains. 55148
- Performance declined after removing a large number of unique models when instancing was enabled. 55136
- Particle systems were not synchronized between the master and the slave. 55116
- It was not easy to remove the F2 key binding for the frame rate display. 55069
- In XR observer mode, model scaling did not work for DI-Guy models. 55034
- Buildings reflected on the ocean even though they were obscured by for. 55031
- Severe flickering occurred when ownship eyepoint changes between underwater and above water. 55029
- VR-Vantage rendered a full moon reflection on the ocean, when the environmental conditions were set to a “No Moon” state. 55028

- ♦ The Hawaii airport model did not load from cache. 54997
- ♦ Entity selection and bounding volumes did not work when instancing was enabled. 54976
- ♦ VR-Vantage crashed if you connected to a remote display engine while the Scene dialog box was open. 54888
- ♦ When attached, the observer did not use the distance to object for speed scaling. 54885
- ♦ Rain and ocean spray post processing not synchronized between master and slave on initialization. 54884
- ♦ Some settings did not get restored to startup or factory settings when you clicked the revert buttons. 54878
- ♦ In some circumstances, some cloud types became out of synch between the master and remote display engines. 54574

