

# VR-Vantage® Toolkit

## Flexible Platform for 2D/3D Innovation

### Overview

The VR-Vantage Toolkit is a powerful and flexible platform for developing 2D and 3D visualization applications. Using a C++ API, you can easily embed out-the-window visuals, 2D tactical maps, sensor or camera displays, or 3D informational overlays directly into your own simulation applications. If you are building your own application, the VR-Vantage Toolkit provides the visual features you need to get the job done quickly, whether you are building a first-person virtual trainer, a custom command-and-control interface, or a 3D battlefield analysis tool. With the VR-Vantage Toolkit, you can also extend or customize MÄK's VR-Vantage IG, VR-Vantage XR, VR-Vantage Stealth, or VR-Vantage PVD applications.

### Turbo-charge Your Development

Are you considering using OpenSceneGraph for your project? Because OSG is a popular open-source 3D scene graph API, it is an excellent starting point for developing visual applications. However, a typical OSG user must spend lots of time and money on architecture and infrastructure development before even starting to implement project-specific functionality.

The VR-Vantage Toolkit provides the higher-level visualization platform you need, so that you don't have to build it yourself. VR-Vantage uses OpenSceneGraph as its core, but adds a broad range of content and capability — pre-integrated into a single, commercially supported off-the-shelf package. Start with the VR-Vantage Toolkit, and you can immediately begin working on your application-specific functionality, giving you a leg up on your competition, and allowing you to execute your projects with much lower risk.

### Built-in Content and Capability

VR-Vantage comes with a rich set of top-quality 3D entity models from companies like SimthetiQ and RealDB that support attached parts, damage representations, and articulated parts such as turrets and guns. Built-in support for Boston Dynamics' DI-Guy™, DiSTI's GL Studio®, IDV's SpeedTree®, and Sundog's SilverLining™ means that you don't need to integrate and configure extra modules, or buy additional run-time licenses to have great looking human characters, interactive cockpit displays, dynamic trees and bushes, weather effects, and volumetric clouds. HLA and DIS support through MÄK's own VR-Link networking toolkit is included, so that interoperability is a given, not an add-on. And CGI support is also built-in, so you can easily build custom IGs that can be controlled by separate simulation hosts.

### Terrain Agility

Applications built with the VR-Vantage Toolkit are Terrain Agile — able to work with a wide variety of terrain approaches, formats, and protocols. The tool can load traditional databases, like hand-modeled OpenFlight, page large-area terrains, like MetaFlight, and build visual databases "on-the-fly" from source data like DTED, GeoTIFF, and Shapefiles. It can even dynamically create 3D terrain by streaming in elevation, imagery, and features to build up large areas and cutting-in site models for high fidelity ground detail.



### USE CASES

- CUSTOMIZING EXISTING VR-VANTAGE APPLICATIONS
- BUILDING NEW APPLICATIONS WITH 3D/2D VISUALS
- BUILDING INTEGRATED VISSIM APPLICATIONS
- AFTER ACTION REVIEW
- INSTRUCTOR OPERATOR STATIONS
- TACTICAL MAP DISPLAYS
- PROJECT DEMONSTRATION
- SITUATION ANALYSIS
- COMMON OPERATING PICTURE
- SIMULATION DEBUGGING
- FLIGHT SIMULATORS
- UAV OPERATOR STATIONS
- GROUND CREW TRAINERS
- VISUAL AND SENSOR IMAGE GENERATORS



## FEATURES

- 3D VISUALS FOR VIRTUAL SIMULATORS
- 2D MOVING MAP DISPLAYS
- SENSOR OR CAMERA CHANNELS
- BUILT ON OPENSCENEGAPH
- DISTRIBUTED RENDERING
- GAME-LIKE NAVIGATION
- QT-BASED GUI FRAMEWORK
- HLA, DIS, AND CIGI COMPLIANT
- DI-GUY HUMAN CHARACTERS
- GL STUDIO COCKPIT DISPLAYS
- SPEEDTREE VEGETATION
- LOADED WITH CONTENT

## Distributed Rendering

VR-Vantage's built-in distributed rendering architecture supports many different display configurations — from simple desktop applications to multi-channel displays for video walls or training devices.

## Uncompromised Flexibility

VR-Vantage offers a higher-level API above the scene graph, to provide as much power as possible. But you always have access to the scene graph layer as well, so that you can easily incorporate existing OSG nodekits, file loaders, and extensions. You can also write code at the OpenGL level, or incorporate custom shaders.

Whether you need to add support for new networking protocols or terrain formats, modify or extend our Qt-based run-time control GUI, or add custom drawable objects to the scene graph, you always have the flexibility to extend.

## A Complete Solution

Like MÄK's other toolkits VR-Link (for interoperability) and VR-Forces (for simulation), the VR-Vantage Toolkit includes full class documentation and source code examples, and is backed by MÄK's renowned technical support — with direct access to MÄK developers. Used in combination, MÄK's toolkits form a full integrated synthetic environment upon which to build your simulation solutions.

