

VR-Vantage® IG

3D Image Generation for Out-the-Window, Camera, and Sensor Channels

Overview

VR-Vantage IG is an image generation software solution from VT MÄK. Install it on any standard PC with an NVIDIA graphics card and immediately start generating realistic 3D scenes of your simulation environment. Whether you use it to render a first-person view for a virtual trainer, to provide a sensor channel for a UVS simulation, or to generate simulated security camera feeds for a homeland security application, VR-Vantage IG is easy to deploy and configure.

Simulate a UVS Video Stream

VR-Vantage supports MISB (Motion Imagery Standards Board) streaming video and meta-data standards out of the box. You can connect VR-Vantage IG to your MPEG-2 compliant Unmanned Vehicle System (UVS) control station and receive a simulated video stream of your virtual environment. You can also direct your video stream to a TCP socket, web-page, or local file to record what your sensors captured.

Host-IG Interface

VR-Vantage IG supports the industry-standard CIGI (Common Image Generator Interface) protocol for controlling the IG from a separate simulation host. Through CIGI, your host application can control the eyepoint, place and control moving models, load terrains, set visual parameters, and more. VR-Vantage IG can also provide mission functions by responding to line-of-sight and height-above-terrain queries.

But VR-Vantage IG does not *require* you implement a dedicated IG control protocol like CIGI. It also natively supports the HLA and DIS protocols, so that it can generate scenes based directly on the CGF and other entity traffic that you are already publishing on your distributed simulation network. You can send special DIS or HLA messages to control the eyepoint, or use the run-time GUI to place the eyepoint at a simulated camera location on the terrain, or to attach to a specific HLA or DIS entity.

SensorFX for Physics-based Sensor Displays

The SensorFX module converts VR-Vantage IG from a visual scene generator to a sensor scene generator. Based on the SenSim and SigSim run-time products from JRM Technologies, SensorFX models the physics of light energy as it is emitted, reflected, and transmitted through the atmosphere and into a sensing device. It also models the collection and processing properties of the sensing device to render an accurate electro-optical (EO), night vision (NVG), or infrared (IR) scene. Many of the models that come with VR-Vantage IG are already "sensor-ready", but you can use JRM's Genesis tool to materially classify the textures in your terrain and custom models.



Visualize

USE CASES

- FLIGHT SIMULATORS
- UVS OPERATOR STATIONS
- GROUND CREW TRAINERS
- VISUAL AND SENSOR IMAGE GENERATORS

FEATURES

- PC-BASED IG SOFTWARE
- 3D IMAGE GENERATION
- CIGI, HLA, AND DIS COMPLIANT
- SHADER-BASED ENVIRONMENT RENDERING
- SENSORFX MODULE FOR EO/IR/NVG
- CAMERAFX: LOW-COST NVG, EO, IR
- MULTI-CHANNEL DISTRIBUTED RENDERING
- GL STUDIO COCKPIT DISPLAYS
- DI-GUY HUMAN CHARACTERS
- SPEEDTREE VEGETATION
- LARGE AREA TERRAIN DATABASE PAGING
- TERRAIN AGILE
- BASED ON OPENSCENEGRAPH
- STREAMING VIDEO WITH META DATA



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Link – Simulate – Visualize → Your World

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VR-Vantage® PVD

Interactive Real-time Tactical Map

Overview

Increase your awareness of the virtual battlefield with the VR-Vantage Plan View Display (PVD). By overlaying HLA (1.3, IEEE 1516, or HLA Evolved) or DIS entities and information onto 2D views of tactical, strategic, and visual databases, you gain new insight into the virtual battle. The VR-Vantage PVD is a key component of any mission planning or course of action analysis tool.

Standard map formats and an intuitive user interface allow you to easily answer questions about the placement of forces and how terrain might affect the engagement. The PVD displays line-of-sight information, track histories, sensor coverage areas, and fire and detonate lines. Use tactical graphics, such as lines, points, areas, symbols, and text to understand and analyze a simulation. The fast map view allows you to quickly and easily navigate to the portion of the terrain database you want to view.

Customization

The PVD comes with MILSTD 2525B icons but you can also use your own custom entity or aggregate symbols or extend our symbol decorations to display custom information. The PVD's display is adaptable, giving you the flexibility to enable only the features you need. With an available C++ toolkit, you can customize the PVD or embed 2D tactical map views in other applications. The PVD is the perfect foundation for a custom situational awareness display.

Terrain Agility

Applications built with VR-Vantage PVD 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.

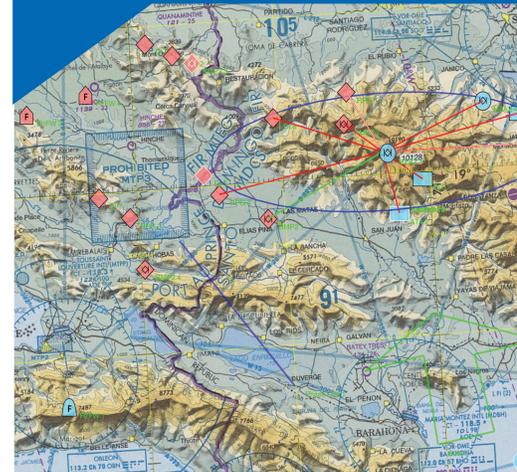
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VR-Vantage Toolkit: MÄK's Flexible Platform for 2D/3D Innovation

The VR-Vantage Toolkit is a powerful and flexible platform for developing 2D and 3D visualization applications. With MÄK's VR-Vantage Toolkit, you can customize, extend, or embed VR-Vantage IG and VR-Vantage PVD functionality in your own application - you can even use the toolkit to build your 2D/3D system from scratch.

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.

Visualize



USE CASES

- AFTER ACTION REVIEW
- INSTRUCTOR OPERATOR STATIONS
- TACTICAL MAP DISPLAYS
- MISSION PLANNING
- COA ANALYSIS

FEATURES

- VIEW MULTIPLE TYPES OF MAPS
- IMPORTS POLYGONAL DATABASES, RASTER MAPS, AND VECTOR DATA
- TACTICAL OVERLAYS
- LINE-OF-SIGHT TOOL
- TOOLKIT API FOR USER CUSTOMIZATION
- CONTOUR AND GRID LINES
- ENTITY, AGGREGATE, AND SENSOR DISPLAY
- HLA AND DIS COMPLIANT
- DISPLAY VECTOR FEATURE DATA