

VR-Vantage® XR

Common Operating Picture for Battlefield Visualization

Overview

VR-Vantage XR is MÄK's premier battlefield visualization tool. It combines all the functionality of VR-Vantage Stealth and VR-Vantage PVD into a single integrated application – and adds a unique “eXaggerated Reality” (XR) mode as well. Using VR-Vantage XR, you can quickly achieve a “big picture” understanding of a battlefield situation while retaining an immersive sense of perspective. Whether you use it as a common operating picture for command & control, as an advanced demonstration capability, as an after-action-review display for training, or for situational awareness during simulation exercises, VR-Vantage XR gives you the information you need for better battlefield decision making.

Common Operating Picture

With VR-Vantage XR, you can simultaneously view the virtual world in 2D and 3D, with configurable information overlays presented in both displays. Click on an entity on the 2D map to “see what he sees” in a 3D inset window. Drop simulated cameras anywhere in the world to zoom in on multiple parts of the battle at once. Switch any visual channel from Stealth to PVD mode with a single click. Or use a 2D inset to help with navigation as you fly your 3D eyepoint around the battlefield in the main display. VR-Vantage XR lets you watch entity-level engagements without losing the command-level view.

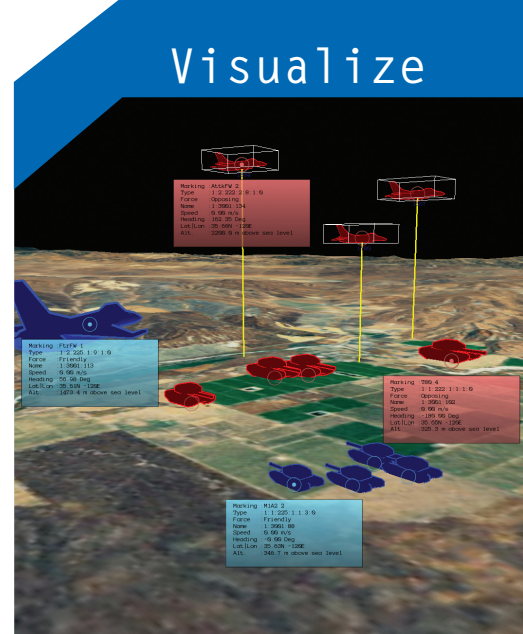
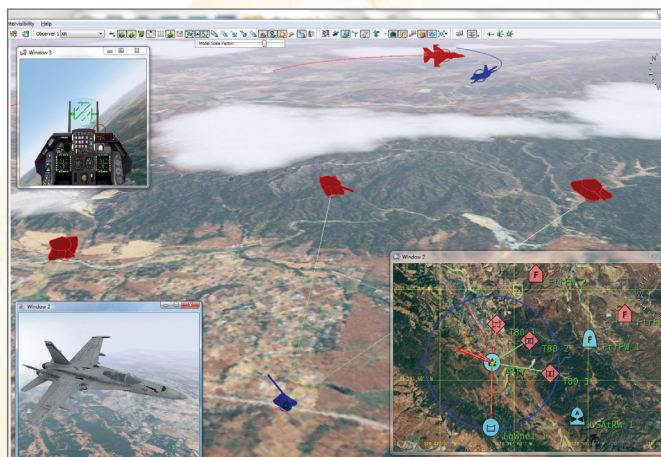
Exaggerated Reality

The exaggerated reality mode that gives VR-Vantage XR its name, augments your 3D view of the virtual world using a powerful set of visualization features and techniques designed to give you a rapid understanding of a battlefield situation. Entity models can be scaled to remain visible even from a distance, or displayed notionally as MILSTD 2525B icons floating over 3D terrain. Vehicles and human character may be drawn using bold-colored models — so that you can recognize allegiances at a glance. As you zoom in and out, you can switch dynamically between these symbolic icons and the realistically textured 3D models that you would expect in a Stealth viewer or out-the-window display.

Focused on Information

VR-Vantage XR visually presents the widest variety of information about your distributed simulation environment — including all of the overlay features found in both VR-Vantage Stealth and VR-Vantage PVD. In addition to the typical entity display, VR-Vantage XR draws many informational overlays, including:

- Trailing effects are the special effects that follow moving entities. They appear as dust trails behind ground vehicles, the wake behind ships, or footprints.
- Attacker/target lines are the graphics that display who is engaging with whom.
- Track histories are graphical representations that show where entities have been.



USE CASES

- AFTER ACTION REVIEW
- INSTRUCTOR OPERATOR STATIONS
- PROJECT DEMONSTRATION
- SIMULATION ANALYSIS
- COMMON OPERATING PICTURE
- COMMAND AND CONTROL
- CONCEPT DEMONSTRATION



- Entity labels show info about an entity as well as its location, even if it's hard to locate.
- Sensor volumes show electromagnetic emissions from an entity's sensor systems.
- Height-above-terrain indicators show how high above the terrain an entity is located.
- Intervisibility lines display the line of sight between entities or between places in a synthetic environment.
- Aggregate icons and bounding volumes show the location of aggregate units and the space they take up.

It can also draw both 2D and 3D representations of tactical graphics from MÄK's VR-Forces CGF, such as waypoints, routes, and areas. Picture-in-picture inset views allow you to see what any vehicle is seeing, even as you watch it travel across the terrain.

Intuitive Navigation

Whether you're flying freely over the terrain in 3D, following an entity as it moves through the scene, or panning and zooming over a 2D tactical map — navigation is easy in VR-Vantage XR. We've combined the best elements of first-person-shooters, real-time-strategy games, and "spin the earth" virtual globe applications, to provide an interface that you'll find familiar the moment you start to use it.

Navigate through the world by dragging the terrain, clicking on a destination, or maneuvering the eyepoint using familiar first-person-shooter controls. You can orbit around buildings or props, follow or track moving entities, jump in the cockpit for an out-the-window view, or mount your virtual camera on a vehicle. Save a list of your favorite views for rapid retrieval.

Terrain Agility

VR-Vantage XR is 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, Geo-TIFF 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.

Built-in Content and Capability

VR-Vantage XR comes with a rich set of top-quality 3D entity models from companies like Simthetic 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. And HLA and DIS support through MÄK's own VR-Link networking toolkit is included, so that interoperability is a given, not an add-on.

Distributed Rendering

VR-Vantage XR's built-in distributed rendering architecture supports large, multi-channel, "situation room" style displays. An intuitive GUI allows you to connect to remote display engines running on additional PCs to increase your field of view.

Flexibility and Extension

While VR-Vantage XR comes ready-to-run out of the box, it can also be extended using the VR-Vantage Toolkit — based on OpenSceneGraph. Using the toolkit, developers can extend almost any aspect of VR-Vantage XR, embed it into simulations, or create new applications.

FEATURES

- INCLUDES ALL STEALTH AND PLAN VIEW DISPLAY FEATURES
- SIMULTANEOUS 2D AND 3D DISPLAYS
- EXAGGERATED REALITY VIEW FOR ENHANCED SITUATIONAL AWARENESS
- 2D AND 3D INFORMATIONAL OVERLAYS
- GAME-LIKE NAVIGATION
- TERRAIN AGILE – INCLUDING STREAMING TERRAIN
- BUILT-IN SUPPORT FOR HLA AND DIS
- GEOCENTRIC OR PROJECTED TERRAINS
- CUSTOMIZABLE THROUGH VR-VANTAGE TOOLKIT