VR-Forces®

Simulate

The Complete Simulation Solution

Overview

VR-Forces is a powerful and flexible simulation environment for generating and executing battlefield scenarios. It has all the necessary simulation features for use as a tactical leadership trainer, threat generator, behavior model testbed, or Computer Generated Forces (CGF) application.

Simple Scenario Editing

The VR-Forces CGF provides an intuitive user interface that allows you to build scenarios by positioning forces, creating routes and waypoints, and assigning tasks or plans with a simple point and click. Lay down the basic outline on a 2D tactical map, then switch to 3D scenario editing mode to accurately position entities within a complex urban environment. Turn on XR mode to gain a big picture understanding of your scenario, without losing your 3D perspective. Bring up a 3D inset view for any entity to see the world from its perspective.

Powerful Simulation Engine

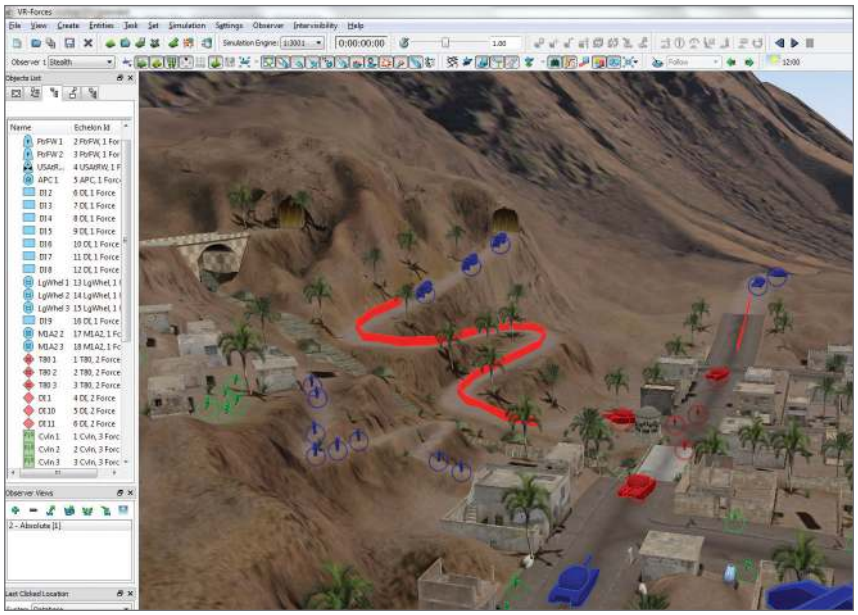
VR-Forces comes with simulation models for a wide variety of battlefield entities and weapon systems. During scenario execution, VR-Forces vehicles and human entities interact with the terrain, follow roads, move in convoys, avoid obstacles, communicate over simulated radios, detect and engage enemy forces, and calculate damage. Through multi-resolution modeling, VR-Forces can switch between aggregate and entity level movement models "on-the-fly" based on scenario events such as sensor detection, or area of interest.

USE CASES

- TACTICAL / COMMAND STAFF TRAINING
- CONCEPT EXPLORATION AND VALIDATION
- SCENARIO GENERATION
- AIR TRAFFIC MANAGEMENT
- HUMAN BEHAVIOR STUDIES
- EXPERIMENTATION & VIRTUAL PROTOTYPING

Model Editing Tools

A simple GUI-based entity editor allows you to edit or extend the set of simulation models available to VR-Forces. Vehicle dynamics, sensor capabilities, and damage models can be configured using a GUI-based parameter editor or by editing text-based parameter files.



Distributed Architecture

VR-Forces features a fully distributed architecture. You can divide responsibilities among multiple simulation engines for greater scalability, or run multiple front-end GUIs for collaborative scenario generation or training.

150 CAMBRIDGE PARK DRIVE, 3RD FLOOR | CAMBRIDGE, MA 02140 | USA TEL 1.617.876.8085 FAX 1.617.876.9208 WEB www.mak.com

VT MÄK
A company of VT Systems

FEATURES

- 2D / 3D INTERFACE FOR SCENARIO AUTHORING
- DISTRIBUTED SIMULATION ENGINE WITH REMOTE GUI CONTROL
- CORRELATED SIMULATION AND VISUALIZATION
- HLA AND DIS COMPLIANT
- TERRAIN AGILE, INCLUDING STREAMING TERRAIN
- PARAMETERIZED DYNAMICS, SENSORS, AND DAMAGE MODELS
- GUI-BASED MODEL AND PARAMETER EDITORS
- BATCH MODE FOR ANALYSIS
- REAL-TIME AND NON-REAL-TIME OPERATION
- C++ TOOLKIT TO EXTEND OR EMBED IN CUSTOM APPLICATIONS

Terrain Agility

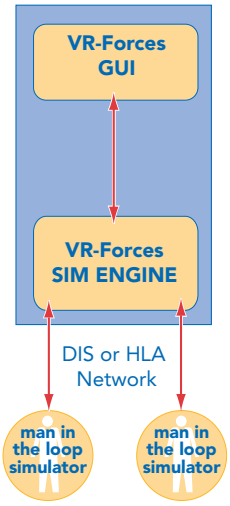
Correlating terrain data between parts of a simulation is challenging. This is why VR-Forces is designed to simulate on and visualize terrain data from many different industry standard formats. VR-Forces can simulate directly on terrains built for visual systems such as OpenFlight® and MetaFlight® with perfect correlation. It can also make use of typical simulation system terrain formats such as CTDB. When your simulation requires quickly generating a scenario in a new location, VR-Forces can read terrain directly from source data such as DTED, ESRI® shapefiles, or can even stream in elevation and imagery over a network, from terrain servers like MÄK's VR-TheWorld Server. VR-Forces can simulate in dense urban environments, including the interiors of multi-story buildings, or simulate scenarios that span the entire globe.

The VR-Forces Toolkit

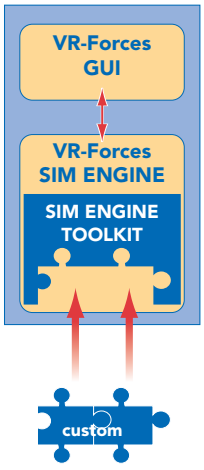
The VR-Forces application provides a robust CGF environment out-of-the-box, but it can also be customized or extended through a powerful developer's toolkit. A C++ API allows you to customize nearly every aspect of the VR-Forces simulation engine and GUI, or integrate VR-Forces functionality into your own applications. A composable architecture allows you to independently add, replace, or modify the simulation engine's vehicle dynamics, behaviors and tactics, damage models, sensors, countermeasures, and weapons. A Remote Control API allows you to control the VR-Forces simulation engine from remote applications. And the VR-Forces GUI API, based on the VR-Vantage Toolkit, allows you to fully customize the VR-Forces user interface — whether you're just adding a few menu items, or building a custom IOS application for your project.

Flexible, Portable, Supported

VR-Forces fits into a wide variety of system architectures, and natively supports the DIS and HLA interoperability protocols. It includes extensive documentation for end-users, modelers, and developers. And it is backed by MÄK's renowned technical support — customers have direct access to VR-Forces' core engineers. You can also be confident that the product will always keep up with industry demand for new features, terrain formats, and interoperability standards.

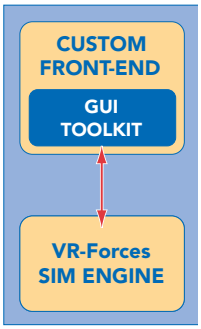


As a Threat Generator



Test Environment for Custom Behaviors and Vehicle Dynamics

Embedded Directly into an Application



Customized VR-Forces Front End

Supported Platforms

- Windows® XP/Vista/7
- Linux®

Supported Terrain Formats

- Web-services-based streaming terrain: WMS, TMS
- 3D Simulation Terrain: OpenFlight/ MetaFlight, CTDB
- Source Elevation and Feature Formats: DTED, ESRI shapefiles, .dfd, VMAP
- Raster Maps: GeoTIFF, CADRG, .bmp, .png, .jpeg, etc.