

VBS2 VTK

High Fidelity Simulation - Affordable COTS Technology

VBS2® is a fully interactive, three-dimensional, game-based platform designed for tactical training, mission rehearsal, experimentation, visualisation, and much more. In addition, VBS2 Virtual Training Kit (VTK) encompasses a full feature suite of products that enable rapid content creation, HLA / DIS integration, and training assessment.

Included in the VBS2 VTK:

VBS2 Desktop Trainer

Scenario Editor

Real-Time Editor (RTE)

After Action Review (AAR)

Visitor 4: Terrain Generator

Oxygen 2: Model Editor

FSM Editor: Finite State Machine Editor

Content Libraries

LVCGame: HLA / DIS Gateway

CNR Sim Lite: Radio Comms

Emulator

Scripting Interface



Create scenarios quickly to train real world conditions



Train full spectrum warfare in a single simulation

Use Cases:

VBS2 is an out-of-the-box training solution capable of simulating a wide range of situations at the tactical level. It can be federated with other HLA compliant simulations to meet specific training outcomes, for example connecting dismounted infantry in VBS2 with a high fidelity armoured vehicle simulator, or simulating a Special Forces team conducting a counter-insurgency mission while the overall campaign is controlled by a higher level constructive simulation such as OneSAF.

Specific applications include:

- Mission rehearsal and/or AO familiarisation.
- Tactical training up to Combat Team level
- Combined Arms or Joint Training
- Convoy training (including integration of virtual reality technology)
- IED defeat
- Analysis of options (decision support)
- Fire support / forward air controller training
- Complimentary virtual environment for live and constructive simulation or crew procedural trainers
- Navigation
- Mission simulation (for example aviation elements practicing LZ procedures)
- Vehicle checkpoints and area control
- Helicopter loadmaster training
- Procedural training for UAV operators
- Cultural awareness training
- Visualisation of weapon effects
- Weapon (or platform) familiarisation or experimentation
- Training in urban environments (eg MOUT)



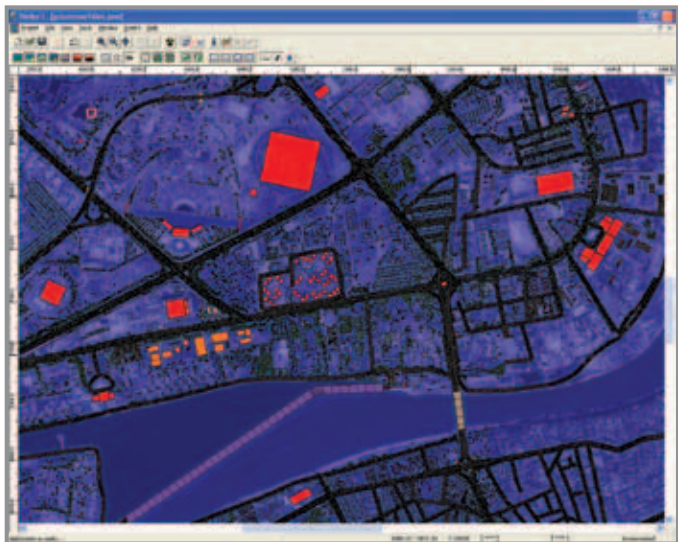
VBS2 VTK

VBS2 Desktop Trainer

The core of the VBS2 VTK, the Desktop Trainer, is a game-based, cutting-edge visualisation engine that supports full scale battlefield environments including individuals, ground/air/sea vehicles, animals, geospecific and geotypical environments, and much more. The engine is capable of displaying sophisticated technologies, such as Night Vision and IR display, ballistic projectile trajectories, sound attenuation, terrain deformation, physics based simulation, to name a few. Capable of large scale terrain and high detail environments, the Desktop Trainer meets most modern simulation requirements.

Scenario Editor

A well designed exercise is essential for effective training. Our Scenario Editor sets the standard for scenario creation: it is fast and easy to use with the capability of developing scenarios that simulate complex actions and events. It provides feature rich capabilities and a scripting sub-layer that can accomplish sophisticated missions.



Real-Time Editor (RTE)

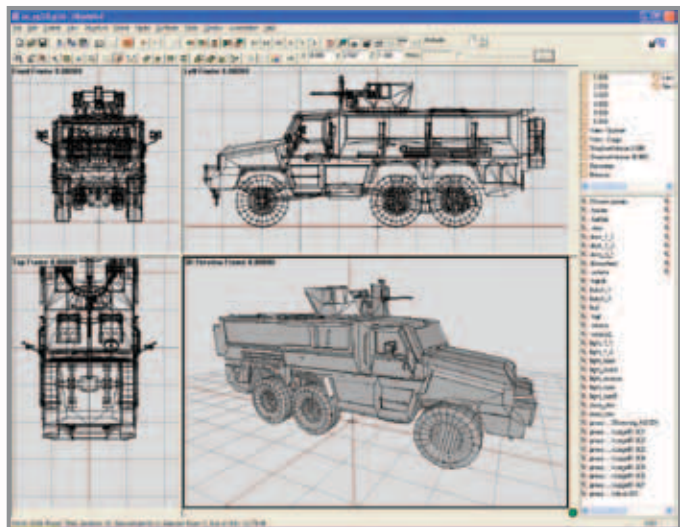
The RTE enables instructors to adjust scenarios on the fly or inject new and changing conditions to challenge trainees with unexpected situations as they would be in real-world missions. The instructor can create, delete, modify, move, kill and resurrect objects and entities in the game, including those being played by humans. The changes are adopted instantaneously without interruption to the scenario.

Visitor 4: Terrain Generator

Visitor 4 provides users an easy method to create their own environments by rapidly generating terrains imported from terrain formats such as GeoTIFF, Shapefile, DEM or DTED. Population of this terrain is made easy by using vector based shapes and converting them into automatically generated trees, grass, buildings, roads, and more. Terrains can be made in a matter of days, rather than weeks or months, making exercises relevant and timely.

Oxygen 2: Model Editor

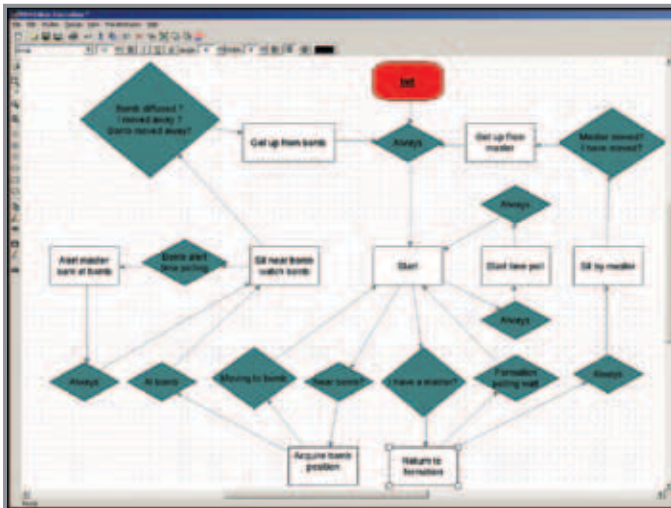
Accurate 3D models are a key feature of VBS2 and we provide our own modelling tool, Oxygen 2, to import or generate 3D models. Oxygen 2 is a 3D modelling and texture mapping tool designed to work hand-in-hand with the VBS2 engine. Users can import and export to other modelling platforms or create models from scratch. For example, 3D vehicle representations can be brought to life through the addition of turreted weapons, crew positions, instrument panels and animation. Oxygen 2 has a 3D viewer that shows a real-time render of the model with full textures and materials using the core VBS2 graphics engine.





Finite State Machine (FSM) Editor

As a key requirement for a modern virtual environment, Artificial Intelligence (AI) is a feature of VBS2 that is being continually enhanced. By using the FSM editor, very complex AI behaviours can be created, such as crowds, ambient activity, and enemy behaviour. The FSM AI is configurable through a flowchart interface, making logic trees easy to understand and define.



Content Libraries

Hundreds of units, weapons and vehicles have been modelled for the VBS series including USMC, ADF, US Army, NZDF, Incident Response, Eastern European and Middle Eastern representations. Additionally, we provide a wide range of geotypical structures and vegetation that can be used to populate custom locations. Most of these assets have unique behaviours and features that simulate the real world equivalent, allowing immediate generation of environments and scenarios.



LVC Game: HLA / DIS Gateway

Calytrix's LVC Game connects serious games with serious training. In co-operation with Bohemia Interactive Simulations, Calytrix created LVC Game to provide a fully bi-directional HLA/DIS gateway for VBS2 with existing HLA and DIS defence environments like JSAF and JCATS. Supporting full bi-directional interoperability, LVC Game enables tools like OneSAF to leverage the VBS2 visualisation engine.



CNR Sim Lite: Radio Simulator

Calytrix's Combat Net Radio Simulator (CNR-Sim) is a software-only radio/intercom simulator. It is an affordable, easy to use, cross-platform tool that allows teams to communicate over a simulation network. Its simple push-to-talk interface supports multiple teams and switches quickly between any number of configurable communication channels. The CNR-Sim Pro version (purchased separately) supports replay of recorded voice traffic during the VBS2 AAR.



Application Scripting Interface (ASI)

VBS2 has powerful built-in scripting capabilities, allowing users to further develop scenarios and missions. Included are over 1100 fully documented script commands allowing the creation of complex scripted systems that would require full source code access in any other simulation engine. For example, VBS2 scripts can be used for something as simple as setting up a firing range (e.g. resetting targets and refilling ammunition boxes), through to enabling units to conceal weapons, scripting artillery/air strikes, reviving AI units, customising the VBS2 user interface or even creating entirely new user interfaces.

Additionally, VBS2 has a separate C++ API called VBS2Fusion that further extends the development possibilities without necessitating the VBS2 scripting language. VBS2Fusion was made for customers who need tight integration of third-party software or hardware or wish to extend VBS2 into new directions.

VBS2VTK Features:

❑ "Real Virtuality 2" 3D engine

Real-time rendering of large, high-fidelity terrain areas with an emphasis on simulating the real world (rotation of the Earth, accurate star field, time-lapsed weather, ambient life etc).

❑ Wide variety of 3D representations

Highly accurate 3D representations of ADF, NZDF, USMC and Middle Eastern units, vehicles and weapons are included, with thermal signatures coming soon. The entire US Army and UK equipment fleets are currently in development.

❑ A flexible, networked training environment

Combat teams of infantry and armoured elements can practice manoeuvres with human-operated aircraft and artillery in support in the VBS2 virtual environment or by linking with other HLA/DIS compliant applications.

❑ Comprehensive scenario editors

Setting the standard in run-time authoring capabilities, the Real Time Editor (RTE) allows any aspect of the simulation to be modified during training. Users can place an IED, assign behaviour to insurgent AI or create a city without interrupting the scenario.

❑ Rapid terrain generation

Real-world terrain areas can be rapidly created (within a few hours) from source data (DTED, shape, imagery), 3D models (buildings, vegetation etc) imported from 3DS or OpenFlight.

❑ Rapid development

VBS2 script and intuitive modelling tools enable the rapid development of diverse features including complex weapon platforms, vehicle checkpoint functionality and UAV interfaces, saving clients time and money.

❑ Flexible support options

Bohemia interactive can quickly develop models or terrain, modify the simulation engine to suit new requirements, integrate new hardware, provide training courses for VBS2 operators or administrators and also deliver varying levels of product support. BI has a proven record of delivering on time and on budget, having completed numerous development projects for government agencies around the world.

<p>VBS2 Development Suite</p> <p>Terrain Editor - used to develop a base terrain area from real-world source data</p>	
<p>VBS2 Scenario Editor</p> <p>Entities and objects are placed on terrain within the simulation</p>	 <p>Characters Objects (e.g. vegetation or additional buildings) Vehicles</p>
<p>VBS2 Runtime Scenario</p> <p>A seamless integration of scenario and terrain elements</p>	
<p>VBS2 After Action Review</p> <p>An accurate recreation of events in 2D and 3D complete with statistics and bookmarks</p>	



Rapid fielding: generate missions in hours (not weeks) for relevant training

Realise immediate return on investment: execute complex exercises that would be too costly in real world conditions

