

VBS[®]FUSION[™]

Hooking you into the VBS3 core



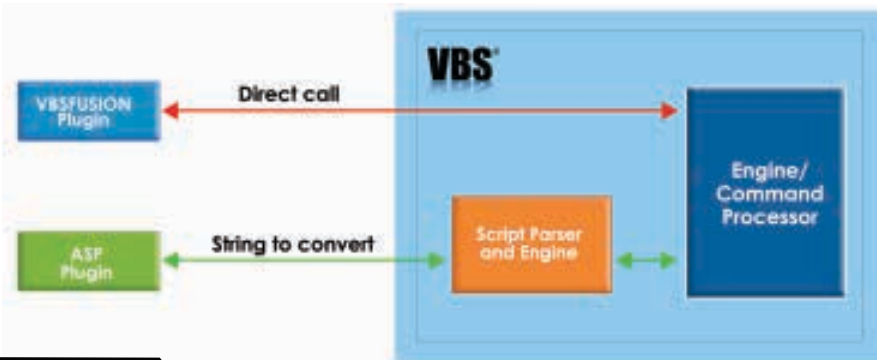
S I M U L A T I O N S

VBSFusion is the official Application Programming Interface (API) for VBS. VBSFusion gives you direct access to the VBS engine, allowing you to develop new applications or plug-ins which leverages the power, graphics and simulation engine of VBS. VBSFusion enables you to create a customized training experience for the end user.



VBSFusion is ideal for integrating VBS with external hardware and software systems, for enhancing simulation fidelity, providing augmented displays within the virtual environment, and enhancing the user experience.

VBSFusion is the fastest, most powerful, and best supported tool for building on the VBS platform.



Leverage the full power of the VBS engine

Flexible Integration

VBSFusion can be used to integrate the following systems with VBS3

- External hardware, e.g. simulated weapons, sensors
- External systems, e.g. C2 Systems
- Non-DIS capable simulations
- External simulations where more detail is required than HLA/DIS provides, e.g. integration of simulating weapon turret motion to a high level of fidelity or simulating morale of troops
- External simulators allowing VBS to be used as the visualization for a simulator, e.g. AFV simulator, weapons simulator, artillery simulator
- External middleware products
- Run-time access to VBS terrain and model geometry information

Greater Entity Control

- Creation of an external system capable of controlling entities, with a more compressive user interface than VBS provides; for example:
 - External artillery call-for-fire interface (e.g. VBS3Fires)
 - C2 interface to quickly control groups of entities
 - Vehicle controls to more intuitively fly a plane/helicopter or drive a vehicle
 - Control of convoys
- Visualization and control of the VBS mission state via graphical user interfaces (GUIs)
- Creation and control of low-fidelity entities to facilitate higher entity counts

Improved Visual Feedback

- Creation of Heads Up Display (HUD) for VBS missions
- Streaming of VBS visuals to external applications

Heightened Fidelity

Improvement of the fidelity of certain aspects of the VBS simulation; for example:

- Flight dynamics
- Ballistics
- Damage effects of certain munition types
- Vehicle behavior
- Physics simulation
- Entity motion

Advanced Artificial Intelligence (AI) Control

- Control of entity behavior to replace or supplement the VBS AI engine
- Creation of a plug-n-play AI framework allowing an AI entity to have many profiles which can be 'swapped' within the same scenario, to highlight the effect of different enemy courses of action
- Development of improved vehicle convoy behavior
- Integration possible with external AI middleware products

Superior After-Action Review (AAR) Data

- Recording of a richer data set about a simulation scenario than is currently possible
- Export of captured data to spreadsheet or database format
- Data mining of AAR data to identify hidden trends in a scenario
- Generation of graphs, charts and reports based on AAR data

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Features:

◉ No VBS scripting knowledge required

Programs can now access VBS solely through an API.

◉ Seamlessly integrates with scripting functionality

The API can be used alongside VBS scripts for any scenario allowing integration with existing VBS scripting libraries, and aids backwards compatibility.

◉ Multiplayer compatible

Changes on one machine will be automatically reflected across the network, where applicable.

◉ Compatible with widely used open source C++ libraries

VBSFusion has been tested for compatibility with commonly used open-source libraries like Boost, Simple Vector Library and GALib.

◉ Includes VBS development executables

This provides additional debugging features and a powerful new in-game developer console.

◉ Direct core access

This significantly increases the execution speed compared to application scripting interface (ASI)-based plug-ins.

◉ Expanded function library

Significantly advanced functionality available when compared to ASI, and new features and functions added regularly.

◉ Skeletal control

Full skeletal control of VBS entities. Up to 75 separate bones can be controlled individually for each entity.

◉ Specialized unit and vehicle classes

Specialized C++ classes to represent different types of VBS entities. These classes can be used to efficiently manage different VBS entities; for example, units, vehicles, projectiles, triggers, waypoints, etc.

◉ Event Handling

The VBSFusion event handler provides event handling capabilities. Event handling relates to the definition of code and functions which need to be executed when specific events occur. The VBSFusion event handling feature provides a mechanism for VBS to automatically invoke a function within a user plugin when a particular event occurs within the simulation environment. Examples of events within a mission include units getting created, a unit firing a shot, etc. Delete the parenthesis mark.

◉ Low-level movement control

This allows far greater control of VBS entities. These functions will be created to work when VBS AI is completely disabled. This will allow many more entities to be simulated in VBS when controlled by external simulations.

◉ Customized 2D and 3D drawing

Ability to draw and manipulate 2D and 3D objects within the VBS environment. Special 2D functionality is available to create HUD.

◉ Error checking and error log

All VBSFusion functions are monitored through a global error handler which checks for the completeness of all VBSFusion calls.

◉ Run-time access to VBS terrain information

Run-time access to VBS terrain geometry data during mission execution.

◉ VBS type handling

VBSFusion has easy access to VBS object types through simple enumerated data classes. The API also contains a set of utilities which can be used to create customized type files.

◉ Camera handling support

Comprehensive camera handling features perform a wide variety of fully customizable viewpoint operations. The API also contains a camera handling queue, which can be used to pre-script a series of camera operations controlled either by a condition or a timer.

◉ Monitor, modify and control VBS waypoints, triggers, groups, vehicles and entities

Users have great control over VBS waypoints, triggers, vehicles and entities.

◉ Full support for VBS events

VBSFusion provides a seamless architecture for handling events generated within the VBS environment.

◉ Interop Interface

VBSFusion Interop interface provides a way to show externally controlled entities within the VBS environment which reduces the complexities in handling this feature inside VBSFusion. This allows more user friendly interface to the users which will be easy to use. Two Interop based system mechanisms are available for VBSFusion. Namely:

- ◉ Callback based Interop system
- ◉ API based Interop system

