



B-HAVE Module for VR-Forces 1.2

This release note contains the following release-specific information for B-HAVE Module for VR-Forces Release 1.2 for VR-Forces 3.11:

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Systems Supported

B-HAVE Module for VR-Forces 1.2 for VR-Forces 3.11 is available for:

- ♦ Windows XP and Vista, MSVC++ 7.1 and 8.0
- ♦ Red Hat Enterprise Linux Workstation 4 and 5
- ♦ Fedora 7.

For complete system requirements, please see *VR-Forces 3.11 Release Notes*.

Disk Space Requirements

A full installation of the B-HAVE Module requires approximately 138 MB of disk space.

MÄK Product Compatibility

The B-HAVE Module for VR-Forces is compatible only with the version of VR-Forces for which it was built. It has the same compatibility with simulation protocols and versions and third party libraries as the version of VR-Forces for which it was built.

FLEXIm Support

The B-HAVE Module for VR-Forces uses FLEXIm 11.4-2. You must obtain and install a license file for the B-HAVE Module in addition to your VR-Forces license file.

New Features and Updates

The B-HAVE Module for VR-Forces 1.2 has the following new features:

- ♦ Algorithms that govern traffic behaviors for vehicles and pedestrians have been improved. PathData must be regenerated.
- ♦ Ability to send text messages to entities from the B-HAVE menu.
- ♦ The B-HAVE Module remote control API is included and documented.
- ♦ Terrain redrawing during bounding box and seed selection in the TDB Tool has been optimized.
- ♦ Lua tables now support checkpointing.
- ♦ Some Lua functions have been replaced.
- ♦ Support for the VR-Forces 3D Front End and MÄK Stealth
- ♦ Support for Linux.

Road Traffic

The B-HAVE Module has improved behavior of entities simulating traffic on roads. Ground entities can move along roads while keeping in lanes, slowing and stopping for vehicles in front of them, giving way to pedestrians and other objects in the road, and giving way at intersections. For details, please see [Section 2.5, “Road Traffic”](#), in *B-HAVE Module for VR-Forces User’s Guide*.



The improved traffic handling requires additional information in the PathData. Therefore, to use this feature, you must regenerate the PathData for any terrain databases that have Prefer-Roads enabled.

Sending Text Messages

You can send text messages to entities from the B-HAVE menu. This feature is similar to the Send Text Message task introduced in VR-Forces 3.11. Entity plans can include tests for receipt of messages. With this new feature you can send messages to entities without needing to work through an entity task. For details, please see [Section 4.3, “Sending Text Messages”](#), in *B-HAVE Module for VR-Forces User’s Guide*.

Remote Control API

The B-HAVE Module provides an extension to the VR-Forces Remote Control API that lets you access B-HAVE Module functionality. The API allows you to programmatically send messages to create entities and query or modify their behavior during a simulation. For example, through the API, you can assign a new B-HAVE Module task or assign a Lua script to a specific entity. The API comes with a set of routines to control the set of Lua scripts available to the simulation. For details, please see Chapter 6, [B-HAVE Messages API](#), in *B-HAVE Module for VR-Forces User’s Guide*.

Changes to Lua Functions

- ♦ `AIPerceptionInfoGetNearestSeenEnemy()` replaces `AIPerceptionGetNearestSeenEnemy()`.
- ♦ `AIPerceptionInfoGetNearestObstacleSeenEnemy()` replaces `AIPerceptionGetNearestObstacleSeenEnemy()` .
- ♦ `AIPerceptionInfoGetNearestObstacleSeenEntity ()` replaces `AIPerceptionGetNearestObstacleSeenEntity ()`
- ♦ `AIUtilIsColliding()` replaces `AIUtilCheckVisible()`
- ♦ `AIUtilGetNearestCollisionInfo()` replaces `AIUtilTraceLine()`
- ♦ `AIHideGetResearchType()` and `AIHideSetResearchType()` have been removed
- ♦ The following are new functions:
 - `AIDrivingSetCourtesy()`
 - `AIDrivingGetCourtesy()`
 - `AISetMovementModePenaltyFactor()`
 - `AIEntitySetViewTarget()`.

Support for the VR-Forces 3D Front End and MÄK Stealth

The B-HAVE Module includes a plug-in for the MÄK Stealth and VR-Forces 3D Front End that lets you view path data in the 3D display. The plug-in is installed automatically for the 3D Front End and optionally for the Stealth.

The version of the B-HAVE Module compiled with MSVC++ 8.0 does not have a plug-in for the 3D Front End. The plug-in provided with the MSVC++ 8.0 version of the B-HAVE Module only works with the MSVC++ 7.1 version of Stealth 6.2.

The Linux versions of the B-HAVE Module do not include a plug-in for the MÄK Stealth and VR-Forces 3D Front End. This is because the plug-in requires the use of shared memory, which is not supported by some of the underlying software used by the B-HAVE Module.

Support for Linux

The B-HAVE Module is now available for the Linux versions listed in “[Systems Supported](#),” on page 2.

To install the B-HAVE Module on Linux, follow this procedure:

1. Copy the installation file to the directory in which you installed VR-Forces 3.11.
2. CD to the installation directory.
3. Untar the installation file, for example:

```
tar -xf bhavel.2-redhatentws4-gcc344-tYSg.tar.gz
```

- To uninstall the B-HAVE Module, run `./plugins/B-HAVE/uninstall.sh`, where `.` is the installation directory for VR-Forces.

Documentation Updates

B-HAVE Module for VR-Forces User's Guide has been updated for this release.

Bug Fixes

The following problems have been fixed in this release:

- ♦ Event processing in the Lua "Finite State Machine" (FSM) module. Previously, when triggering a state change with an event (using `SetEvent()`), the event was not cleared after the state change, so that it would be fired again at next `Eval()`, until another event was set. That could trigger another state change if this new state was accepting this same event.
- ♦ Fixed handling of entity name changes. B-HAVE was crashing when deleting an entity that had been renamed.
- ♦ `AIPerceptionGetNearestSeenEntity()` is now working.

Known Problems

B-HAVE Module Release 1.2 has the following known problems:

- ♦ PathData cannot be generated on geocentric or geodetic terrain databases, so most functions of the B-HAVE Module will not work on these databases.
- ♦ Civilian lifeforms are not configured by default to spot other civilians, only armed entities. This is done for performance reasons, but can be changed in the OPE files. Edit the visual-sensor detection-types parameter to change what types of entities are spotted.
- ♦ The ALEntitySetSpeed Lua command and the VR-Forces Set Ordered Speed command set the same parameter of an entity, so Lua scripts that call ALEntitySetSpeed every tick will override any ordered speed set from the GUI or plan.
- ♦ Obstacles will sometimes be ignored if their perimeter is too big.
- ♦ Using the default dead-reckoning thresholds, vehicles in traffic appear to move too much when stopping or starting. To reduce this effect, you can do either or both of the following:
 - Change the dead-reckoning threshold in VR-Forces, as described in Section 1.8, “Setting Thresholds for Entity Updates”, in *VR-Forces Configuration Guide*. Lowering the dead-reckoning threshold will cause VR-Forces to send more packets on the network, but the location of entities will be represented more accurately.
 - Reduce the smooth period in the MÄK Stealth to a value such as 0.1, as described in Section 7.9, “Setting Trajectory Smoothing”, in *MÄK Stealth User’s Guide*.