VR-Engage 1.2 Release Notes

This release note provides release-specific information for VR-Engage Release 1.2.

Document ID: VRN-1.2-2-180130

System Requirements

This section lists supported platforms and software requirements.

Platforms Supported

VR-Engage 1.2 supports Windows 7 and Windows 10. It has been built with the following compiler versions:

- Microsoft Visual C++ 10.0 (64-bit)
- Microsoft Visual C++ 12.0 (64-bit).

The version built with Microsoft Visual C++ 12.0 supports air vehicles and human characters only. Wheeled and tracked ground vehicles are supported only in the version built with Microsoft Visual C++ 10.0 (the Vortex vehicle dynamics libraries used by VR-Engage are not available for Microsoft Visual C++ 12.0).

Product Compatibility

VR-Engage 1.2 has been built against a version of VR-Forces 4.5 that has had several patches or fixes applied. This patched version of VR-Forces 4.5 is called VR-Forces 4.5-BinaryComp-g. If you are using VR-Engage 1.2 in conjunction with VR-Forces (for example, executing scenarios in VR-Forces, and taking manual control of entities in the scenario from VR-Engage), we strongly recommend using this version of VR-Forces.

As the name suggests, VR-Forces 4.5-BinaryComp-g is binary compatible with VR-Forces 4.5, meaning that any plug-ins that you may have built against VR-Forces 4.5 can be used with VR-Forces 4.5-BinaryComp-g without re-compiling or modification.

3D Video Cards Supported

VR-Engage 1.2 supports NVIDIA graphics cards that support OpenGL 3.3 VR-Engage does not support AMD (formerly ATI) graphics hardware.

The recommended NVIDIA drivers for VR-Engage 1.2 are those as close to 376.53 as possible, but no later. Drivers after that date have a minor memory leak issue when running Triton ocean with moving boats. This was a problem with drivers as recent as 378.78. This problem may be fixed in future versions of NVIDIA drivers, but it is safest to use the drivers nearest to 376.53.

VR-Engage strives to provide the best 3D scene quality possible and cutting edge visualization effects. To provide this functionality, VR-Engage takes advantage of OpenGL features that may not be supported on older video cards. When this is the case, you can disable these features, allowing VR-Engage to run in 3D modes.

OpenGL 3.3 is the minimum requirement for rendering a 3D scene in VR-Engage. For the best visual quality and highest performance you should use the most recent NVIDIA GeForce card.

Some laptops have an NVIDIA graphics card and an Intel graphics card. You must configure your computer to use the NVIDIA card. To do so:

1. Open the NVIDIA Control Panel (in the System Tray).
2. Select Manage 3D Settings.
3. Select Global Settings.
4. Select Preferred Graphics Processor.
5. Select High-performance NVIDIA Processor.

You should always try to use the latest drivers available for your video board.

Supported Input Devices

VR-Engage can support any device that Windows recognizes as a joystick.

VR-Engage has tested the following game controllers and has Direct Input configurations set up for them:

- Logitech F310
- Logitech F710
- Logitech G27 Steering Wheel
- Thrustmaster Hotas Warthog
- Thrustmaster T-Flight Hotas X.

The mappings for these devices and for the keyboard are described in Chapter 8, *Mouse, Keypad, and Controller Mappings*, in *VR-Engage Users Guide*.

Please contact support@mak.com for assistance configuring other devices.

Qt Compatibility

VR-Engage 1.2 uses Qt 5.5.1.

Oculus Rift HMD Support

VR-Engage 1.2 supports Oculus Rift CV1.

Licensing

The VR-Engage application requires a VR-Engage run-time license in order to run. Internally, VR-Engage relies on VR-Vantage capabilities for its 3D visualization, VR-Forces capabilities for its ownship simulation, VR-Link for its networking, and so on, but these capabilities are built into VR-Engage and do not require separate run-time licenses of these MAK products.

MAK License Management

To run VR-Engage, you must install license management software. The License Manager files are not part of the VR-Engage installer. You can download them at:

- ftp://ftp.mak.com/out/MAKLicenseManager-win64-setup.exe

License manager support is available at:

http://www.mak.com/support/licenses

Vortex License (for Ground Vehicle Dynamics)

VR-Engage uses Vortex from CM Labs for its ground vehicle dynamics. A Vortex run-time license is required. MAK is providing temporary Vortex licenses to customers of VR-Engage and VR-Engage Ground.

To use the Vortex license, create an environment variable called CMLABS_LICENSE and point it to the Vortex license (probably *C:\MAK\MAKLicenseManager/VortexLicense.lic*).

VR-Forces Licensing Issues

With only a VR-Engage license, you can run VR-Engage, choose a terrain database to simulate on, create and place an entity, and control that entity. VR-Engage can only simulate and control a single entity at a time. When you "Change Role" and create a different entity to simulate, the entity you were previously simulating will be deleted and replaced by the new one.

If you are running a copy of VR-Forces on your network (which requires a separate VR-Forces license of course), then VR-Engage can interact with VR-Forces in a variety of ways:

- VR-Engage allows you to join a VR-Forces session and take manual control of one of the entities in the VR-Forces scenario. If you are controlling a VR-Forces entity, and then "Change Role" and ask to control a different entity, the original entity will still exist, as it is owned by VR-Forces.
- VR-Engage can initiate and receive changes to the terrain, for example, opening doors or destroying buildings. (VR-Forces acts as the dynamic terrain server).
- VR-Engage can reflect changes to time-of-day and weather that are published by VR-Forces.
- VR-Engage allows you to assign certain tasks to entities that are simulated by VR-Forces (for example, tell a subordinate to follow you, or move to a location you designate).

In order to simplify the startup workflow for certain use cases, VR-Engage gives you the ability to launch a VR-Forces back-end directly from the VR-Engage user interface, and to instruct VR-Forces to load and host a scenario of your choosing. This allows you to avoid separately launching VR-Forces from the start menu or command line, and automatically ensures that VR-Forces uses the same interoperability parameters as VR-Engage. A VR-Forces back-end license is always required to run VR-Forces, whether you launch it from the VR-Engage user interface, or launch it separately from the Start Menu or command line. If you do not have a VR-Forces back-end license available, VR-Engage will not allow you to launch VR-Forces and host a VR-Forces scenario.

When VR-Engage starts up, it looks for a running VR-Forces and if it finds one, it connects to it. If it does not find one, it offers you the option to host and load a VR-Forces scenario, or start an Unhosted session. If you host a VR-Forces scenario, you will consume a VR-Forces license, which will prevent you from starting VR-Forces independently if you only have one license. If you start an Unhosted session, you can start or join a session only as an individual player - you cannot load and run a scenario.

Network Compatibility

HLA only

VR-Engage 1.2 was built against VR-Link 5.3.1 and is compliant with:

- RPR-FOM 1.0 and 2.0.
- MAK RTI 3.x, 4.x, and other RTIs that meet the HLA 1.3 and HLA Evolved specifications and are built with the same compilers as VR-Engage.

DIS only

VR-Engage 1.2 supports DIS 4, 5, 6, and 7, and can therefore interoperate with DIS applications of any of these versions.

New Features and Updates

This release of VR-Engage has the following updates and new features:

- New radio plug-in to VR-Forces that enables a user to talk to VR-Engage players over a simulated radio. It includes a simple UI that allows the user to choose a channel and then push-to-talk. This plug-in is included in the VR-Engage overlay for VR-Forces.
- VR-Engage no longer requires a separate RTDynamics license.
- New standalone radio application with the same capabilities as the radio plug-in to VR-Forces.
- Characters embarked on a vehicle can now listen on all radio channels, not just the intercom.
- Human characters in VR-Engage now appear with the correct weapon. Previously, a player with a rifle would always appear with the rifle deployed, even when the role-player switched to holding a grenade. Now when a player switches weapons, other VR-Engage players see that player holding the appropriate weapon. An observer (that is, another player) will see the animation of a player throwing a grenade.
- Human characters can now stow weapons. Previously humans were always configured to be holding some type of weapon. Now users can switch between deployed weapons and a stowed weapon state.
- Humans can now hold weapons in a ready state, that is, pointing towards the ground.

- You can now switch between mouse-look mode for humans and using the mouse to select menu options by pressing **CTRL**.
- Chaff and flares can be manually deployed from aircraft. The task menu now has an option to enable/disable automatic deployment of chaff/flares (letting the CGF decide when to utilize them). The player can launch flares via the keyboard (**C** for chaff, **F** for flares). For details, please see Table 8-3, in *VR-Engage Users Guide*.
- The LAV supports keyboard control. For details, please see Table 8-4, in *VR-Engage Users Guide*.
- Fixed-wing aircraft can now take off and land.
- Upgraded to Vortex Essentials 2017
- Improved RT Dynamics integration, now supporting rotary wing.
- Improved Vortex integration allows custom vehicle integration.
- New Audio system, supports sound distance latency and environmental audio.
- New player types: Police officer role, including no-weapon option.
- Interaction with dynamic objects (doors, windows).
- Interaction with dynamic panels on vehicles/props.
- New Vehicles: Police Car, Ambulance, HMMWV, Technical Truck.
- Improved performance.
- New autopilot capability for fixed-wing and rotary-wing aircraft. Use the Action menu to switch between modes. Available modes are:
  - OFF.
  - PATH. Aircraft Hold centered on an object named "path" if it exists, current location otherwise.
  - ALT/HDG. Fly at the current altitude and heading.
  - ALT. Aircraft Hold centered on current location.

Documentation

VR-Engage Users Guide and *VR-Engage First Experience* are provided as PDF files in the *./doc* directory. Online help is available from the VR-Engage Help menu. Documentation has been updated for this release.

Fixed Bugs

This release fixes the following bugs:

- It was not possible to set the orientation for RTDynamics aircraft in VR-Forces. 61209
- The trees in Ala Moana looked gray. 61195
- The Trigger Event menu option was only available on the Action menu for humans. 61347
- RTDynamics entities jittered on geocentric terrain. 61208
- Vehicles got stuck on vegetation on some terrains. 61204
- Bullet holes were not displayed on target posters. 61187
- Mouse control was lost when the Action menu was displayed.
- The R. Flight Hotas X joystick did not have a wheel brake configured. 61308
- Radio-to-radio communication on the LAV now works.

Known Problems

VR-Engage has the following known problems:

- There is intermittent flickering on the screen when using the Baqa terrain. The workaround is to disable HDR when using this terrain.
- It is possible to unexpectedly walk off a helicopter you're embarked on, by walking on the ramp while it is airborne (you will sink down and end up in mid-air if the helicopter is airborne. Reset the player and start moving around again.
- If you task the fire_team unit to perform a move to location task, the unit will spread out into a fairly widely spaced formation. Doing this in a constricted area such as the warehouse area in Hawaii will lead to unexpected results, as the entities struggle to get into formation.
- Occasionally, when you return to "Choose Role" mode after flying an aircraft, the UI gets into an unexpected state. The HUD stays visible and the observer attachment controls do not work as expected. If this happens, the workaround to return to normal operation is to click on the Reset View button.
- Multiple players should not try to control the same vehicle or person in the same role. If multiple players take control of an entity in the same role, and then one of the players relinquishes control by returning to the Choose Role Panel, the remaining player also loses control of that entity. If this happens, the remaining player can regain control of the entity by going through the Choose Role process. Note that two players can concurrently control the same vehicle if they are in different roles (for example, one player is Driver, and the other is Gunner or Commander).
- VR-Engage with Oculus Rift does not work with SensorFX.

- When two players are simultaneously controlling a LAV, one as driver and one as gunner, and the driver disembarks or changes role, the gunner's controls stop working. The workaround is for the player in the gunner role to click **ESC** twice in a row. This effectively causes the player to re-engage in the gunner role, thereby resetting the controls. A similar problem exists with the M1A2, with the same workaround.