



# VR-Forces 4.2.2 Release Notes

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## Systems Supported

VR-Forces 4.2.2 is available for the platforms listed in [Table 1](#). For toolkit users, application code must be built with the indicated compilers in order to link to VR-Forces libraries.

Table 1: Platforms supported

Operating System	Compiler
Windows XP (32 bit only) Windows Vista Windows 7 Windows 8	Microsoft Visual C++ 10.0 (32 bit and 64 bit)
Red Hat Enterprise Linux 6 (64 bit libraries)	default compiler

## 3D Video Cards Supported

VR-Forces 4.2.2 supports NVIDIA graphics cards sold in 2008 or later, that support OpenGL 3.3 or above. While we support NVIDIA Quatro cards, we strongly recommend GeForce cards. VR-Forces does not support AMD (formerly ATI) graphics hardware.

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.

## Disk Space Requirements

A full installation of VR-Forces requires approximately eight GB of disk space.

## Compiler Compatibility on Windows

MÄK provides versions of product releases that have been compiled with different versions of Microsoft Visual C++ (for example, 8.0 and 10.0). When you run MÄK products together on the same computer, for example, VR-Forces and VR-Vantage Stealth, we strongly recommend that you run versions compiled with the same compiler. Mixing products compiled with different versions of the compiler can result in program instability.

## MÄK Product Compatibility

To build VR-Forces applications, you must link with VR-Link 4.0.9d. If you are building for HLA and want to link with the MÄK RTI, use MÄK RTI 3.x or later, although we recommend use of the latest release. If you are building for HLA Evolved, you must use MÄK RTI 4.0.4 or later.

## Qt Release Compatibility

If you want to do development using the VR-Forces GUI API, you need to use Qt, a cross-platform GUI toolkit from Digia. The VR-Forces GUI was built with Qt release 4.7.4. Qt is available as a free download under the LGPL version 2.1 license at [qt.digia.com](http://qt.digia.com). This version should be satisfactory for most VR-Forces customers. If you need a Qt commercial license, you must purchase the license from Digia.

## FLEXlm Support

VR-Forces 4.2.2 uses FLEXlm 11.11. If you have a previous version of FLEXlm installed, you can install the MÄK License Manager and run FLEXlm from that directory, or you can copy the files installed by MÄK License Manager to your previous FLEXlm directory on your license server. You do not need to change license files (unless your maintenance agreement has expired.)

## Third Party Library Support

VR-Forces 4.2.2 uses the indicated versions of the following libraries:

- ♦ VR-Link 4.0.9d.
- ♦ OpenSceneGraph 3.0.1.
- ♦ Boost 1.46.1.
- ♦ FreeGlut 2.4.0.
- ♦ DI-Guy 12.5.
- ♦ GL-Studio 4.2.3.

MÄK will provide modified source code for OSG and osgEarth upon request, as per the OSGPL license. Please contact [support@mak.com](mailto:support@mak.com) for download links.

## VR-Forces 32-bit Does Not Support Some Large Terrain Databases

The 32-bit versions of VR-Forces cannot support large terrain databases whose use results in exceeding the memory capabilities of 32-bit applications and operating systems. For example, the 32-bit versions of VR-Forces cannot run scenarios that use the *VR-TheWorld Online - MAK Earth.mtf* terrain, which has a highly detailed terrain of Honolulu, Hawaii.

## Running 32-bit Applications on 64-bit Windows 7

Windows 7 has a bug that causes applications to crash when running a 32 bit application on 64 bit Windows with large addresses enabled (which allows 32-bit applications to use more than 2 GB of memory). This bug affects VR-Link-based applications, such as VR-Forces. Microsoft has a hotfix that fixes this problem. For details and the hotfix download, please go to <http://support.microsoft.com/kb/2588507>.

## Using MÄK Products on Virtual Machines

In general, MÄK products run on virtual machines without any problems. The exception to this statement is that applications that use 3D graphics, such as VR-Vantage and the VR-Forces front-end, may not work properly. This is due to lack of support for NVIDIA drivers by virtual machines. We continue to investigate ways to resolve this problem.

## Network Compatibility

### **HLA only**

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VR-Forces 4.2.2 was built against VR-Link 4.0.9d and is compliant with:

- ♦ RPR-FOM 1.0 and a subset of 2.0 (draft 6 and 17)
- ♦ MÄK RTI 3.x, 4.x, and other RTIs that meet the HLA 1.3, IEEE 1516 SISO DLC API, or HLA Evolved specifications and are built with the same compilers as VR-Forces.

VR-Forces 4.2.2 is compatible with applications that use earlier versions of VR-Link if they support versions of the RPR FOM listed.

The VR-Forces 4.2.2 front-end is not compatible with RTI-NG Pro because it uses a non-standard version of *xerces\_c\_2\_7.dll*.

### **DIS only**

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VR-Forces 4.2.2 supports DIS 4, 5, and 6, and can therefore interoperate with DIS applications of any of these versions.

## ***Backwards Compatibility***

The VR-Forces 4.2.2 APIs are not compatible with VR-Forces 3.x or earlier. It is largely compatible with the 4.2 and 4.1.x API. Small changes may be necessary to migrate from 4.1.1.

Scenarios created with VR-Forces 3.12 and 4.x are forward compatible.

## ***RPR FOM Versions Supported***

VR-Forces 4.2.2 has built-in support for versions 1.0 and 2.0 (draft 6 and 17) of the RPR FOM and RPR FOM 2.0, draft 17 with DI-Guy extensions. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, VR-Forces 4.2.2 uses RPR FOM 1.0.

If you are building an application with the VR-Forces toolkit and you want to specify a version of the RPR FOM through code, pass the version number (for example, 2.0006) to the *DtRprFomMapper* constructor and pass the resulting object to the *DtExerciseConn* constructor. Also, make sure you are using a federation execution name that corresponds to the right FED file. For example:

```
DtExerciseConn conn("VR-Link20006", "MyApp", new DtRprFomMapper(2.0006));
```

In order to support RPR FOM 1.0, we have added the following extensions (which are supported in later versions of the RPR FOM):

- ♦ EnvironmentProcess
- ♦ GriddedData
- ♦ EmbeddedSystem.IFF
- ♦ EmbeddedSystem.IFF.NatoIFF
- ♦ EmbeddedSystem.IFF.NatoIFF.NatoIFFTransponder
- ♦ EmbeddedSystem.IFF.NatoIFF.NatoIFFInterrogator
- ♦ EmbeddedSystem.IFF.SovietIFF
- ♦ EmbeddedSystem.IFF.SovietIFF.SovietIFFTransponder
- ♦ EmbeddedSystem.IFF.SovietIFF.SovietIFFInterrogator
- ♦ EmbeddedSystem.IFF.RRB
- ♦ BaseEntity.AggregateEntity
- ♦ ObjectRoot.BaseEntity.PhysicalEntity.Lifeform.

For both RPR FOM 1.0 and 2.0 VR-Forces 4.2.2 relies on the LgrControl and View-Control custom MÄK extensions.

## ***New Features and Updates***

VR-Forces 4.2.2 is primarily a maintenance release. It has the following new feature:

- VR-Forces will try to force use of NVIDIA<sup>®</sup> high-performance video cards on laptops equipped with Optimus<sup>™</sup>.

## ***Documentation Updates***

Documentation has not been updated for this release. This release note covers all new features.

## ***Bug Fixes***

This release fixes the following problems that were present in prior releases (with bug-tracking numbers):

- Fixed a bug in dynamic ocean that could cause crashes on certain video card drivers when using CUDA<sup>™</sup> acceleration.
- Fixed crash bug when opening display settings dialog on PVD.
- Made observer settings strings use unicode so that they can be translated to languages using multi-byte characters.
- The addSensorPropagator example did not work. 52625
- The follow controller did not check max speed when using ordered speed. Therefore, the follow task did not always work correctly. 52284
- The LCAC entity's movement configuration was fixed, including removing the ability to drive on roads. 51505

## ***Known Problems***

VR-Forces Release 4.2.2 has the following known problems (with bug-tracking numbers):

- OSG's TerraPage pager only supports a single viewpoint. Using multiple viewpoints (channels or windows) with a TerraPage database will cause a memory leak or crash.
- Some task and set dialog boxes use “requestors”, which query information from the back-end in order to populate the dialog box. When sending a task to an Embedded Entity that uses one of these dialog boxes, the dialog box displays the parent's information, not the embedded entity's. The Set Resources dialog box is one example of this problem. 52141
- If you create a variable binding in the OPD Editor, it does not get saved. 51169
- If you load a saved scenario and then move a lifeform, its heading gets set to 0. 51122

- ♦ The Fire at Target task does not work correctly for rotary wing and fixed wing entities. 51086
- ♦ If you drag a scenario script in the Scripted Tasks window, it gets reset to the default template. 51052
- ♦ Sometimes child DI-Guy entities are invisible. 51000
- ♦ Expand All and Collapse All affect the entire aggregate rather than working up or down from the selected aggregate member. 51166
- ♦ Aggregates have various difficulties moving into formation. 51160 51036
- ♦ If you load the MAK Earth terrain after you have loaded other terrains, it does not page in the highest LODs. 51151
- ♦ If you connect to a terrain server and then connect to it again without first closing the connection, the terrain becomes unusable. 51044
- ♦ Some environmental effects do not work well if you have multiple observers.
- ♦ If you attach the observer to an entity that is displaying communications lines and you turn off communications lines, VR-Vantage crashes. 51120
- ♦ Restoring CameraFX sensors to factory settings breaks the sensors. 51159
- ♦ GL Studio (and therefore cockpits) is not supported on Linux.
- ♦ Sound effects are not supported on Linux.
- ♦ Enabling wakes, spray effects, and the buoyancy model when in PVD observer mode can seriously degrade performance. These features are disabled by default. If you inadvertently enable them and experience this problem, switching to Stealth mode and back to PVD restores performance. 51037
- ♦ The SMS upgrade process does not update DI-Guy appearances. As a result, the old random appearance list is used and upgraded SMSs will not use skinned characters. 51010
- ♦ Attaching object to an entity does not work except for waypoints. 50849
- ♦ Saving large Lua objects can hang the back-end. 50750
- ♦ When you disaggregate an aggregate, it is collapsed instead of being expanded. 50459
- ♦ If an aggregate is moving to a location, setting its formation causes the task to be skipped. 50452
- ♦ When you add a Lua task to a menu, it does not appear on the menu until you reload the scenario. 50315
- ♦ Ships that are given a patrol route task do not move along the route from the end to the beginning. They go directly from the end point to the start point. 50378
- ♦ Some bounding volumes are incorrect. 50737

- ♦ If you create an object on a terrain that has multiple LODs that has not paged in to the highest LOD, and you set the altitude to some value above the terrain, it is possible that when the terrain pages in to the highest LOD, the location you specified will no longer be at the desired altitude above the terrain. It might even be below the terrain. The reverse can also occur. If you place an object when the highest resolution LOD is paged in and then zoom out, the object might disappear from view. However, in this case, the object is still in the correct location relative to the highest resolution of the terrain.
- ♦ On Linux, if you install VR-Forces in one directory and user data in another directory, VR-Forces will not start. 50538
- ♦ If you change the color of a text tactical graphic to black, the text is not displayed. 50525
- ♦ Links from the Developers Guide to PDF documentation sometimes go to the first page of the PDF instead of the intended location. This behavior depends on the browser and version of the Adobe Acrobat Reader plug-in that it uses. It is a known problem in Mozilla Firefox.
- ♦ If you create a folder in the Save dialog box and it has a space at the end of the name, Windows does not recognize the existence of the folder. If you try to delete it, the system may blue screen. Running scandisk can solve this problem. 50190
- ♦ If the check() function in a reactive task does not return a value, the back-end will crash.
- ♦ The following examples do not come pre-built in the Linux installer:
  - addConditionalGui
  - addSetGui
  - addSimCommandGui
  - interfaceContentGui.

In order to do build them to be used with VR-Forces, you must use the make command as follows:

```
make install
```

This should generate the files needed to use the plugins in Linux. 49336

- ♦ The first time you load a terrain (including the terrains supplied with VR-Forces), VR-Forces caches textures in its fast load format. This is a slow process. However thereafter, the terrain will load quickly. If you want to avoid runtime caching, you can preprocess the terrain with the medfTool before you load it. If you want to disable runtime caching, you can do so as described in [Section 13.13, "Configuring File Caching,"](#) in *VR-Forces Configuration Guide*.
- ♦ Use of radio communications lines can affect performance. The front-end and back-end can become unsynchronized due to a slowdown in the networking thread.
- ♦ Changing the GUI icon or model mapping in the Entity Editor changes the icon or model for all Simulation Model Sets, not just the one being edited. 48443



- ♦ Ground vehicles and lifeforms will not avoid feature obstructions on geocentric terrains. 43868
- ♦ Some metaflight terrains, such as HarrisAfghanVillageFlatEarthMetaflight and HarrisAfghanVillageGeocentricMetaFlight will not display in the 2D view when first loaded. To see the terrain, change to a 3D view mode, and press the spacebar (center view on terrain) to move the eyepoint to the terrain location. After this, the terrain can be viewed in the 2D view. 43797
- ♦ The imagery for the Makland terrain database is much larger than the actual terrain data, which is confined to the square inset in the lower left corner of the image. This means that if you try to simulated entities on the outer areas of the image, simulation will fail because there is no terrain data there. 43867
- ♦ Geometry files referenced by a MetaFlight file must be in OpenFlight format, and not in Vega Prime's binary format (.vsb). MÄK's terrain libraries do not support .vsb files. 11772
- ♦ Rotary-wing entities are not able to reach moving waypoints or land on moving ships. A rotary-wing entity will approach a given waypoint or landing point, but will never completely reach the goal. 12801
- ♦ Embarked entities controlled by joystick cannot disembark. For example, if you use a joystick to control a fixed-wing taking off from a carrier, the aircraft will take off, but it will remain in an embarked state. 37175
- ♦ Lifeform entities cannot be configured with multiple weapon systems. 40408
- ♦ Not all languages can be used to name entity types in the entity editor. 42241
- ♦ Although the indirect fire controller will wait until the target location is paged in before executing a fire for effect task, it does not take into account the dispersion radius. This means that depending on the size of the page and the radius, some detonations might happen underground. 42682
- ♦ When DtBallisticGun::createDetonationInteraction has its "assureMiss" parameter set to true, it may not have terrain paged in for the area in which it needs to create the detonation (on the ground nearby). 42730
- ♦ In some cases, VR-Forces will fail to load a scenario if the main window of the GUI application does not have focus. 43547
- ♦ The road driving feature in VR-Forces requires that the road vectors making the network be connected at their edges. Some data does not have accurate positions for road ends, which will cause them to be disconnected, and the road driving unable to plan a path along those roads. 42895
- ♦ If you have a large size obstacle, it is possible that entities might get confused and travel through it. If this happens to you, it is recommended that you make smaller obstacles. 45549
- ♦ When creating some lifeform entities, the 3D model attached to the mouse pointer when placing is inconsistent with the entity type that is being created. The entity that is created, however, is the correct type and does show the correct 3D model after it is created. 43728

The following known problems apply to the front-end:

- ♦ VR-Forces may crash on exit on Linux if your Linux installation is not at the latest version of *libselinux* (as of the date of this release).
- ♦ Some strings in the graphical user interface are not included in the translation files. Some strings, such as those on the Create menu, are in configuration files. Others are in settings files. You can translate these strings by identifying the appropriate configuration file and translating the strings. 47806
- ♦ The TerraSimSampleUrbanMetaFlight terrain is not initially visible when loaded in PVD. To see the terrain, press **e** to zoom in. This problem potentially exists for all paged terrains whose page-in distance is less than the default observer distance in PVD mode.
- ♦ Changing the hierarchy of raster map layers may cause a crash. 44498
- ♦ When a DI-Guy character is given an animation that involves kneeling, the DIS posture is set to kneeling. Therefore when the animation completes, the entity will continue to kneel. 38103