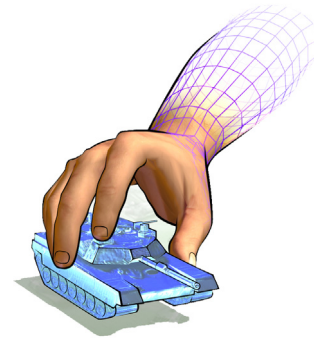




VR-Forces 3.11.0.2 Release Notes

This release note contains the following release-specific information for VR-Forces Release 3.11.0.2:

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Systems Supported

VR-Forces 3.11.0.2 is available for the platforms listed in Table 1. For the availability of other platforms, contact your MÄK salesperson. 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
Red Hat Enterprise Linux Workstation 4, 5 *	Default compiler
Fedora Core 7	
Windows XP	Microsoft Visual C++ 7.1 Microsoft Visual C++ 8.0 SP1
Windows Vista	Microsoft Visual C++ 8.0 SP1
*The VR-Forces 3D Front End for Linux is only available on WS 4.	

Libraries and Binaries Built with Visual Studio 2005

All MÄK products built with Microsoft Visual Studio require the C Runtime Library to function. The C runtime libraries have always been available from Microsoft for download, they are also installed on a user's machine when a Microsoft compiler is installed. The C runtime libraries are not part of the normal Windows installation. For customers who plan to use MÄK products on machines that do not have a compiler installed, MÄK has historically distributed a copy of the C Runtime Libraries with MÄK products. These libraries were put in the *bin* directory used by the MÄK products. MÄK products would then use the libraries in the *bin* directory and customers would not have a problem if copies of the libraries were not already installed.

Unfortunately, with the release of the new C Runtime Libraries required by Microsoft Visual Studio 2005 (MSVC++8.0), the libraries can no longer just be copied into the *bin* directory of an application. The libraries need to be installed correctly into Windows system folders. (The process is actually a little more complicated, a manifest file needs to be created to tell Windows where to find the libraries.)

To accommodate this change, MÄK is distributing the Windows installer for the C runtime libraries with all MÄK products released for MSVC++8.0. The installer is named *vc8dist_x86.exe* and is in the base directory of any installed MÄK product.

Running the installer requires Administrator privileges for the machine the installer is run on. MÄK has chosen to not integrate the MÄK installer and the Microsoft installer so as not to require users to have Administrator privileges to install MÄK products. Therefore, if you do not have a compiler installed, or get error messages like "Software has not been installed correctly, please re-install", you must apply the patch.

For more information see this Microsoft URL:

<http://msdn2.microsoft.com/en-us/library/ms235299.aspx>

Building on Linux

The example Makefiles require gmake 3.81 or later. For operating systems with an older version of gmake (currently only Red Hat WS 4), a binary has been included for your convenience in the *./mkbin* directory. This version includes a memory fix that is needed to use our makefiles. The source code for the modified gmake is freely available from <http://ftp.mak.com/out/gmake3.80-patch1.tar.gz>.

Before you compile the examples, go to the top level of your installation and create a symbolic link called 'VR-Link' to your VR-Link installation, and another called 'RTI' to your RTI installation. You must use the versions listed under [MÄK Product Compatibility](#).

Disk Space Requirements

A full installation of VR-Forces requires approximately 600 MB of disk space. Terrain databases use approximately 110 MB and documentation (primarily the class reference) uses 200 MB.

Compiler Compatibility on Windows

MÄK provides versions of product releases that have been compiled with Microsoft Visual C++ 7.1 and 8.0. When you run MÄK products together on the same computer, for example, VR-Forces and the 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 3.11.1. If you are building for HLA and want to link with the MÄK RTI, use MÄK RTI 3.x.

VR-Forces 3.11.0.2 is binary compatible with VR-Forces 3.11. This means that it works with VR-Forces 3D Front End for VR-Forces 3.11, B-HAVE Module 1.2 for VR-Forces 3.11, and Human Characters for MÄK Products 1.0.

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 Trolltech. The VR-Forces GUI was built with Qt release 4.3.3. A VR-Forces developer's license includes a Qt development license. MÄK provides you with a Qt license key and a link for downloading Qt.

FLEXlm Support

VR-Forces 3.11.0.2 uses FLEXlm 11.4. You must copy the files in *./flexlm11.4* to your license server directory. You do not need to change license files (unless your maintenance agreement has expired.)

Third-Party Library Requirements

DtTerrainProfileWidget is based, in part, on the work of the Qwt project (<http://qwt.sf.net>). To compile examples or user projects, you must download the QWT distribution at <ftp://ftp.mak.com/out/qwt-0.4.1.zip>. This distribution is known to work with VR-Forces. Set the MAK_QWTDIR environment variable to point to the location of the QWT library.

Patch Required for AMD Dual-processor Windows PCs

VR-Link-based products use a high resolution counter for time calculations on Windows PCs. Customers who are running Windows on PCs with multiple AMD Athlon 64-bit processors may notice clock jitter, which may cause time in MÄK products to run backwards. This occurs when the Windows scheduler changes the CPU the MÄK process is using. If the high resolution counters on each processor are not synchronized, the application may witness a decrease in the high resolution counter value stored in the processor causing an incorrect time calculation. To fix this problem, apply the AMD Dual-Core Optimizer patch provided by AMD. You can get the patch at:

http://www.amd.com/us-en/Processors/TechnicalResources/0,,30_182_871_9706,00.html



If you get an error when you try to access this URL, reload the page.

Font Support on Linux

The *fontconfig* provided with Red Hat Enterprise Linux Workstation 4 does not properly name the fonts. Newer operating systems are not affected by this issue. In order to load the fonts, you'll need to provide the following alias in *fontconfig*. The alias can either be added to the system configuration in */etc/fonts/fonts.conf* or it can be added to *~/.fonts.conf* on a per-user basis. For more information about *fontconfig*, please see <http://fontconfig.org/fontconfig-user.html>.

```
<alias>
  <family>MAK MilStd 2525b</family>
  <prefer><family>MilStd 2525b</family></prefer>
</alias>
```

Network Compatibility

HLA only

VR-Forces 3.11.0.2 was built against VR-Link 3.11.1 and is compliant with:

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

VR-Forces 3.11.0.2 is compatible with applications that use earlier versions of VR-Link if they support versions of the RPR FOM listed.

DIS only

VR-Forces 3.11.0.2 supports DIS 2.0.4, IEEE 1278.1, 2.1.4, and IEEE 1278.1a, and can therefore interoperate with DIS applications of any of these versions.

Backwards Compatibility

The VR-Forces 3.11.0.2 APIs are not compatible with VR-Forces 3.10.x or earlier. Scenarios and object parameter databases created with VR-Forces 3.10.x are forward compatible. VR-Forces 3.11.0.2 is fully compatible with applications and plug-ins built with VR-Forces 3.11. For more information, please see [“Installing VR-Forces 3.11.0.2 and Related Applications,”](#) on page 7.

RPR FOM Versions Supported

VR-Forces 3.11.0.2 has built-in support for versions 1.0 and 2.0 (draft 6 and 17) of the RPR FOM. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, VR-Forces 3.11.0.2 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 3.11.0.2 relies on the LgrControl and ViewControl custom MÄK extensions.

New Features and Updates

VR-Forces 3.11.0.2 is a bug-fix release. However, the installer includes two optional plug-ins that improve integration with QualNet and allow you to adjust performance and quality in the VR-Forces 3D Front End. These plug-ins are fully described in *VR-Forces 3.11.0.1 Release Notes*

VR-Forces 3.11.0.2 installs two new scenarios for use with QualNet. They are called `vrforces-dtedTest` and `carBomb`, and are installed in the `./data/scenarios/QualNet` directory. The `carBomb` scenario requires the B-HAVE Module.

Installing VR-Forces 3.11.0.2 and Related Applications

VR-Forces 3.11.0.2 installs into its own directory, just like any other maintenance or feature release. However, it changes the registry so that other installers that look for VR-Forces 3.11 automatically find VR-Forces 3.11.0.2 instead.

After you install VR-Forces 3.11.0.2, you can install related applications and plug-ins, such as VR-Forces 3D Front End 1.0.1 and B-HAVE 1.2 for VR-Forces 3.11 to the VR-Forces 3.11.0.2 directory.

When you install some MÄK plug-ins on top of VRF 3.11.0.2, the installer places the start menu shortcuts in the VRF 3.11 program group by default. Be sure to change the program group during the installation process.

The VR-Forces 3.11.0.2 installation wizard gives you a choice of installing Typical, Minimal, or Custom versions of VR-Forces. If you choose Typical, the installer automatically installs the QualNet Ease-of-Use plug-in and the Performance Options plug-in. If you choose Custom, you can specify which plug-ins, if any, to install.

Fixed Bugs

This release fixes the following problems that were present in prior releases:

- If the GUI was set to not show destroyed objects, entities that were set from destroyed to restored did not get displayed after they were restored.
- Under some conditions, MÄK Data Logger files caused VR-Forces to crash.
- There was a possible memory corruption in the `scenarioMerge` utility on Linux.
- Entities with multiple emitter systems only showed one in the Entity Information dialog box.
- After clicking the Cancel button on the Set Formation dialog box, you could not select entities on the map.
- The When Entity Destroyed condition did not work with cultural features.
- The Move to Location task did not work with fixed-wing entities.
- Implementations for `setWorldAcceleration()` and `worldAcceleration()` were missing from *DtSimObjectStateRepository*.

- ♦ Information about emitter systems was displayed incorrectly in the Entity Information dialog box.
- ♦ The Set Restore set data request ground-clamped rotary-wing and fixed-wing entities.
- ♦ The `vrfCheckLicense()` functions could not be called from other DLLs.
- ♦ Copying and pasting entities affected ground clamping. This sometimes prevented entities from moving.
- ♦ Fixed-wing entity state variables were set inconsistently depending on whether an entity was created at a certain altitude or created on the ground and had its altitude set afterwards.
- ♦ Fixed wing entities and missiles tried to follow non-existent targets and sent out too many console messages. The notification level was changed to eliminate the messages.
- ♦ Centering an entity in the view did not work if the entity was not located on the loaded terrain.
- ♦ User-created conditional statements that were nested in other conditions, could not be edited.
- ♦ After running a scenario for several hours, the front-end took a long time to close the scenario.
- ♦ Aggregates were displayed as being destroyed after expanding and collapsing them.
- ♦ The Move Into Formation dialog box did not show the correct orientation of the aggregate.
- ♦ Transmitter lines were drawn incorrectly.
- ♦ Transmitters sometimes were displayed as question marks.
- ♦ Embarked entities blocked line-of-sight for the entities on which they were embarked.
- ♦ VR-Forces sent too many state updates when fixed-wing entities traveled on a straight line on UTM databases.
- ♦ The `line-of-sight-tests` parameter in *physicalWorldParams.mtl* did not work.
- ♦ If, while VR-Forces was planning a path, the entity or destination was moved, VR-Forces hung.
- ♦ Large numbers of vector obstructions caused a delay when a scenario was first played. However, there is now a delay when the first entity is created.

Known Problems

VR-Forces Release 3.11.0.2 has the following known problems:

- ♦ The intervisibility display does not always reflect what simulated entities perceive in the back-end. For example, the intervisibility does not ignore water surface polygons while entity models do.
- ♦ Occasionally, VR-Forces is unable to load a scenario. When this happens, delete the contents of the `./data/temp` directory and try loading again.
- ♦ The Subordinate Manager allows duplicate entries to exist.
- ♦ Subsurface entities sink to unreasonable depths when destroyed.
- ♦ DIs may unexpectedly change posture when climbing steep terrain.
- ♦ Determining when a scenario is completely loaded (all entities have been created and the aggregate hierarchy is completely constructed) is up to the user. Deciding when a scenario is completely loaded and ready to run can be difficult with large, distributed scenarios.
- ♦ Avoidance of linear vector features often fails at segment intersections.
- ♦ Auto-generated aggregate formation routes may contain spurious points if the original route contains sharp turns and short line segments.
- ♦ Intersection lines in intervisibility fans sometime change colors as you change the zoom level.
- ♦ Torpedoes can fly above water in certain circumstances.
- ♦ Fixed-wing entities crash when tasked to move into formation.
- ♦ Surface entities cannot move on the *California_High.gdb* terrain database.
- ♦ A disembark statement followed by a set formation statement in a plan does not work.
- ♦ You cannot use the lifeform acquire controller with a missile launcher.
- ♦ Ground entities' speed does not affect turning radius.
- ♦ Entity intervisibility with point features does not work correctly.
- ♦ Rotary-wing terrain avoidance sometimes fails.
- ♦ Putting the *vrfSim* console in select mode freezes the back-end.
- ♦ Rotary-wing entities do not maintain correct altitude in geocentric terrain when moving very large distances.
- ♦ You cannot create a new scenario with a Linux GUI and a Windows back-end.
- ♦ Aggregate subordinates cannot execute their own individual plans.
- ♦ In-frustum sensor geometry does not work for angles greater than 90 degrees.
- ♦ 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.
- ♦ Terrain databases processed with the balance option may display incorrectly.
- ♦ Surface entities are not configured with weapons.

- ♦ You cannot load vector data on geocentric terrain.
- ♦ When you record a scenario with MÄK Logger 4.0, at the beginning of the recording session, VR-Forces may freeze for a while due to the large number of messages required for subscription and publication.
- ♦ Do not play the *maklanddemoHLA1516_vrlink_xml.lgr* file (included with MÄK Logger 4.0 release) while running VR-Forces using draft 17 of the RPR FOM. Running this file in this particular configuration produces memory leaks. Run VR-Forces using RPR FOM 1.0 when working with this Logger recording.
- ♦ 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.
- ♦ Reorganizing an aggregate while it is executing a task may produce unexpected results. The aggregate may be unable to complete its task.
- ♦ When control objects are placed on moving objects (such as a route on a moving aircraft carrier), they produce a flood of network packets.
- ♦ Open File dialog boxes may be slow to display file lists. This is due to underlying problems with the Qt toolkit.
- ♦ When you execute a task that requires use of an Open File dialog box, you may receive an error message similar to:

Exception Processing Message

This is due to problems in the Qt Toolkit. To work around this problem, insert a floppy disk in the A: drive.
- ♦ Ground vehicles can climb up unrealistically steep slopes (greater than 70 degrees in some cases).
- ♦ Features cannot be selected on geodetic terrain databases in the TDB Tool.
- ♦ Embarked entities cannot shoot or be shot at by other entities.
- ♦ The *DtOrganizationManager* cannot handle changing the force of an entity. It is unable to update the echelon ID of the entity correctly.
- ♦ Fixed-wing entities do not respond to Turn to Heading tasks.
- ♦ Dead lifeform entities may unexpectedly block line of sight. Their bounding volumes are always upright, regardless of whether or not they are dead.
- ♦ Rotary-wing entities do not avoid other entities. They will fly through one another.
- ♦ Transmitters on newly created entities sometimes do not stay in position with the entity, and stay in a static position on the screen as the map is moved. To fix this problem, toggle the **Options** → **View Transmitters** menu command.
- ♦ The target acquisition and selection model can sometimes get 'stuck' trying to acquire a target. If a target has been selected but is unable to be acquired for some reason, it will continue in a futile attempt to acquire that target, even if there are other more viable targets available.

- ♦ If you set the pan increment to 100% for small terrains, the map does not pan by 100%. This is due to the algorithm used to calculate the distance that the map is offset.
- ♦ Transmitter lines are not drawn if the sender is off screen.
- ♦ If you use the MÄK Logger to record VR-Forces scenarios in HLA1516 (particularly with RPR FOM version 2.0 draft 17), and you are using the MÄK RTI, VR-Forces and the Logger may become unresponsive. To avoid this problem, disable `RTI_enableLrcWebService` in the *rid.mtl* configuration file.
- ♦ The MÄK Logger does not record batch file runs if a previous recording exists. By default, the Logger does not allow you to overwrite existing files using the remote control API. So, once you record a batch run, you cannot record a subsequent run of the same batch. You can work around this problem by editing the `lgrConfig.xml` file to permit overwriting of Logger files. Make the following edits in the configuration file for each protocol for which you want to record batch runs:

Add the following lines to the `<defaults>` section:

```
<var name="processRemoteControl" type="bool" value="true"/>
<var name="recordRemoteControl" type="bool" value="true"/>
<var name="allowDeleteRemoteControl" type="bool" value="true"/>
```

Add the following lines to the `<commands name="startup">` section:

```
<command domain="Simulation" protocol="DIS"
  command="SetRemoteControlSettings">
  <param name="process" var="processRemoteControl"></param>
  <param name="record" var="recordRemoteControl"></param>
  <param name="allowDelete" var="allowDeleteRemoteControl"></param>
</command>
```

Use the appropriate value for the protocol attribute.

- ♦ If you create an aggregate composed of rotary-wing entities, in which some or all of them are on the ground, when you start the scenario, they will be destroyed. To prevent this from happening, set the aggregate's altitude to a reasonable height above terrain (such that all rotary-wing entities are airborne) before starting the scenario.
- ♦ 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.
- ♦ Certain GeoTIFF images may fail to load on linux. If you encounter such an image, please contact MÄK support.
- ♦ Rotary wing entities which are on the ground remain ground clamped even when given a set location request with a high altitude.

