# MÄK VR-Forces Release 1.1 Release Notes

This release note supports VR-Forces Release 1.1 and 1.1-ngc. This release fixes several bugs in the initial release of VR-Forces and adds new features and platform support. It covers the following:



Because DMSO RTI 1.3 NG is not link compatible with the previous generation of DMSO RTI releases, we have released a separate version of the VR-Forces for each version of the DMSO RTI: one that works with RTI NG, and one that works with the previous generation of RTIs. The version that supports RTI NG is installed in the directory *vrforces1.1-ngc*. The version that supports the previous generation of RTIs is installed in the directory *vrforces1.1*.



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# Systems Supported

Table 1 lists the platforms currently supported by MÄK VR-Forces 1.1. Other platforms may follow. Application code must be built with the indicated compilers in order to link to VR-Forces libraries.

Table 1: Platforms supported

| Platform | Compiler |
|---|---|
| SGI IRIX 6.5 (VR-Forces 1.1-ngc only) | MipsPro7.2.1 C++ compiler (available from SGI) |
| SGI IRIX 6.2 or later (VR-Forces 1.1 only) | MipsPro7.1 C++ compiler (available from SGI) |
| PC with Red Hat Linux 6.0 (Linux 2.2.5) | GNU C++ (g++) distributed with Red Hat distribution. The command: `g++ -v` returns: `gcc version egcs-2.91.66 19990314/Linux (ecgs-1.1.2 release)` |
| PC with Windows NT, SGI NT | Microsoft Visual C++ 6.0. |

## System Requirements for PCs

VR-Forces Release 1.1 requires Windows NT 4.0, Service Pack 3 or later. Minimum system requirements are:

- RAM:
  - 32 MB for DIS exercises
  - 64 MB for HLA federates

Depending on the size of your terrain databases, you may need more RAM.

- Hard disk space - Approximately 120 MB for complete installation of application and toolkit. Approximately 90 MB for application alone. Most of this is for the terrain databases shipped with VR-Forces. You may need considerably more space depending on the databases you plan to use.
- Two or more multiples of the amount of RAM for virtual memory. Running VR-Forces in HLA may require increased amounts of virtual memory.

## Network Compatibility

***HLA only***

VR-Forces 1.1 contains built-in support for RPR FOM versions 0.5, 0.7, 0.8, and 1.0. RPR FOM version 1.0 is the default. If you want HLA applications based on VR-Forces 1.0 (for which 0.8 was the default RPR FOM version) to work with HLA applications based on VR-Forces 1.1 without doing any special FOM mapping, configure your VR-Forces-1.1-based application to use RPR FOM 0.8 by passing

```
new DtRprFomMapper(0.8)
```

as the mapper argument to the DtExerciseConn constructor.

***DIS only***

This release 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.

## RPR FOM Versions Supported

VR-Forces 1.1 has built-in support for RPR FOM versions 0.5, 0.7, 0.8, and 1.0. All RPR FOM classes are supported. The default version is 1.0. We provide FED files for all the supported versions in the VR-Forces root directory. They are called *VR-Link05.fed*, *VR-Link07.fed*, *VR-Link08.fed* and *VR-Link.fed* (for RPR FOM1.0).

If you want to use a version other than 1.0, pass the version number (0.5, 0.7, or 0.8) 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-Link08", "MyApp", new DtRprFomMapper(0.8));
```

The VR-Forces application has a `-f` command line option that you can use to choose an RPR FOM version by passing either `vlRPR05`, `vlRPR07`, `vlRPR08`, or `vlRPR10` as the argument to `-f`.

## RTI Support

The NG-compatible version of VR-Forces 1.1 comes with an version of MÄK RTI 1.3.2 that is link-compatible with DMSO RTI1.3 NG (makRti1.3.2-ngc). The VR-Forces 1.1-ngc release has also been tested with DMSO RTI 1.3 NG.

The non-NG-compatible version of VR-Forces 1.1 comes with a version of MÄK RTI 1.3.2 that is link-compatible with DMSO RTI 1.3 v4, v5, and v6 (makRti1.3.2). The VR-Forces 1.1 release has also been tested with those DMSO RTI 1.3 releases.

Due to slight network incompatibilities between MÄK RTI 1.3.1 and MÄK RTI 1.3.2 (including a switch to WinSock2 on the Windows platform), you must move to MÄK RTI version 1.3.2 when you move to VR-Forces 1.1. (Applications based on older VR-Forces versions will work with MÄK RTI 1.3.2 too).

On UNIX, VR-Forces example Makefiles are set up to build against either the appropriate DMSO RTI version (NG or otherwise) or the MÄK RTI. If you've sourced the appropriate DMSO RTI environment file (*rtienv.sh* for RTI NG, or *rti.env* for the previous generation RTI), we use the DMSO RTI, otherwise we use the MÄK RTI, which we get to through the RTI link in the VR-Forces root directory. However, it shouldn't matter whether you build against the MÄK RTI or the corresponding DMSO RTI version. In either case, you can switch between RTI implementations at run-time.

When using the MÄK RTI, remember to make sure that VR-Forces can find your FED file, and optional *rid.mtl* file, by either putting them in the directory from which you are running, or by setting the environment variable RTI_CONFIG to the directory that contains them.

The NGC version of VR-Forces has been compiled and linked with the compiler and linker options dictated by RTI NG. Please see MÄK example Makefiles or RTI NG documentation for these flags, which vary by platform.

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**!** RTI NG requires you to link with *liborbsvcs.so*, *libACE.so*, and *libTAO.so* on UNIX platforms. Although the MÄK RTI does not use these third party libraries, executables provided by MÄK in -ngc releases have been linked against these libraries so that they can be used with either the MÄK RTI or DMSO RTI NG. Because of this, these executables expect libraries by those names to be present on the library search path. For this reason, empty libraries by these names are supplied with the MÄK RTI.

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# New features

This section describes features that have been added to this release of VR-Forces:

- Ability to control the location of the Stealth
- Ability to attach the Stealth to an entity from a popup menu
- New default directory structure on PCs
- Update to license management procedure on PCs
- Other, miscellaneous new features and changes.

## Controlling the Location of the Stealth Eyepoint

You can control the location of the Stealth eyepoint by choosing an option on the popup menu. To move the Stealth eyepoint:

1. Right-click on the Simulation View at the location where you want the Stealth to be placed.
2. From the popup menu, choose Teleport Stealth. The Stealth eyepoint moves to the specified location, in absolute view-mode, six meters above the ground.

## Attaching the Stealth to One or More Entities

You can attach the Stealth to one or more entities by choosing an option on the popup menu. To attach the Stealth to an entity:

1. Select the entity or entities that you want the Stealth to be attached to.
2. On the popup menu, choose Stealth Attach.

If you attach the Stealth to one entity, it is attached in compass mode. If you attach the Stealth to more than one entity, it is attached in group mode.

## New Default Directory Structure on PCs

On PCs, the default installation directory is now *C:\MAK\VR-Forcesx.x*. Formerly it was *C:\Program Files\MAK\VR-Forcesx.x*. We made this change because directory names with spaces, such as *Program Files,* can cause confusion when they are part of environment variables.

## License Management Procedure

On MS-Windows platforms only, the procedure for getting the host ID has changed slightly. Instead of opening a DOS command window and running *lmhostid.exe*, you can now double-click *vrf\flexlm\lmhostid.bat*. A DOS window opens automatically, displays the host ID, and stays open so you can record the host ID.

## Miscellaneous New Features and Changes

This section lists minor changes and updates:

- The Open Scenario dialog box and Save Scenario dialog box default to *..\data\scenarios* and the Open Terrain dialog box defaults to *..\data\terrain*.
- If you set the location for an aggregate, its member entities are positioned at the new location in formation, and at the current orientation of the leader.
- The command staff for an aggregate is displayed regardless of whether or not you change the setting in the *vrf.lab* file.
- Remote aggregate symbols are hidden by default.
- You cannot close a scenario if you are in the middle of editing a plan.
- If you close the Edit Plan window without saving changes, you are prompted to save them.
- You can select multiple control objects using the marquee (rubber band).
- You can display multiple View Plan windows (for different entities) at the same time. The name of the entity that the plan applies to is listed in the title bar for each View Plan window.

# *Documentation Updates*

This release includes an online version of *MÄK VR-Forces Developer's Guide* for customers who have purchased the VR-Forces development license. The version provided is a beta quality draft. The final version was not available at the time the software media was created. Please contact MÄK to obtain the final version. This manual also includes instructions for creating VR-Forces plugins.

There are a number of inconsistencies between descriptions of menu commands and dialog box fields in *MÄK VR-Forces User's Guide* and the actual commands and field names. In most cases these differences are minor and should not affect your ability to use the manual along with VR-Forces. The electronic version of the manual shipped with this release corrects these inconsistencies. The online manual corrects the following additional errors and omissions in the printed manual:

- Chapter 2, "Installing VR-Forces," does not include information about setting your netmask if you are not on a class C network. If you are not using a class C network, see "Setting the Network Mask" on page 8.
- The name of the installation directory is VR-Forcesx.x. (Page 2-2)
- On page 2-3, it states that the executable in *./binRPR* is for use with the HLA RPR FOM. The executable has built-in support for the RPR FOM, but it can be used with other FOMs if you use the FOM mapping feature, which is described in Selecting A FOM Mapper on page 9-4.

- The directory structure described on page 2-2 and 2-3 does not mention the *plugins* directory. Plugins are enhancements that you can add to VR-Forces, but which do not require the full API. Plugins are documented in *MÄK VR-Forces Developer's Guide*.
- Table 4-1 on page 4-8 does not mention the Edit menu. The Edit menu has one command - Global Settings, which allows you to change settings for the current Simulation View window and future windows as well.
- The description of the tdbtool (page 5-11) should note that to use the tdbtool, the DLLs installed in the bin directories must be in the path or in the same directory as the tdbtool executable.
- The description of the default force ID under step 2 in the middle of page 6-3 is incorrect. You cannot set the default force ID in the Entities menu. The description in the following section, "Understanding Friendly and Hostile Forces," is correct.
- The discussion of groups on page 6-8 does not explain the Simulation View track group or the Simulation View local-entity group. The Simulation View track group shows you all the entities that VR-Forces is tracking via the Toggle Track Select command. The Simulation View local-entity group is not supported in this release.
- The section "Setting Entity Parameters," on page 6-16, should note that you can set parameters only for local entities.
- Section 6.8.9, on page 6-19 discusses setting the sector of responsibility. To clarify this section, note that the sector center is relative to the heading of the entity (body coordinates). A sector center of 0 (zero) is not fixed geographically (for example due North). It changes relative to the terrain as the heading of the entity changes. The default sector size is 90°.
- The primary description of creating an aggregate, on page 6-21, is incorrect. The description labeled "Right-click Method:" is the correct way to create an aggregate.
- To expand and collapse an aggregate (page 6-21), you must select the appropriate command from the popup menu. The Entities menu does not have these commands.
- To procedure for setting an aggregate's formation (page 6-23) is incorrect. Select the aggregate first, then select the Set Formation command.
- Page 8-3 states that you can only view the plan for one entity at a time. The new feature allowing multiple View Plan windows makes the second paragraph and second procedure in "Viewing Plans" obsolete.
- If you use the `-h` command line option, the help window stays open for about 10 seconds.
- If you use the `-L` command line option, the pathname can be relative to the *bin* directory or it can be an absolute pathname.

## Setting the Network Mask

Under Windows NT, VR-Forces assumes you are running on a class C network using a netmask of 255.255.255.0. (In a class C network, the first three components of the IP address are the same for all machines. In a class B network, the first two components of the IP address are the same; the second two identify the machine.)

If your machine is configured to use a netmask other than 255.255.255.0, create a DtNETMASK environment variable to specify your netmask.

Under Windows 95/98, VR-Forces automatically figures out your machine's netmask. However, if you specify a DtNETMASK environment variable, VR-Forces uses the value you specify.

The DtNETMASK variable should specify your netmask in a C-language style hexadecimal format. For example:

| | |
|---|---|
| if your netmask is: | `255.255.0.0` |
| the hexadecimal representation is: | `0xFFFF0000` |

The default value of DtNetmask is 0xFFFFFF00, which corresponds to the netmask 255.255.255.0.

### Setting the Network Mask for Windows NT

To set the DtNETMASK variable for Windows NT:

1. Start the Windows NT Control Panel. Open the System applet.
2. Enter the DtNETMASK variable name and appropriate hexadecimal value in the fields at the bottom of the System dialog box.
3. Click Set.

### Setting the Network Mask for Windows 95/98

To set the DtNETMASK variable for Windows 95/98:

1. Add the following line to your *AUTOEXEC.BAT* file (replace the hexadecimal number with your netmask):

   ```
   SET DtNETMASK=0xFFFF0000
   ```

2. Reboot the PC.

## Known Problems

VR-Forces Release 1.1 has the following known problems:

- The Skip Task command does not work. When you choose Skip Task, an entity stops executing its plan.
- When you choose Set Target, the cursor does not change to select mode.
- If you open a scenario with the *montydted.gdb* terrain file and you give an entity a Move to Waypoint task, the behavior of the entity becomes erratic.
- If you cancel creation of a control object, you get an error message. There is no error; close the error message.
- In the Entity List window, if you select the All Hostile group, no entities get selected. If you select the All Neutral group, the hostile entities get selected.
- If you open the Edit Plan window for the leader of an aggregate from the Entities menu (as opposed to the popup menu), VR-Forces does not associate the plan with the aggregate. Therefore, when you open the View Plan window for the aggregate, the current task is not highlighted. To avoid this problem, when you want to edit the plan for an aggregate, open the Edit Plan window from the popup menu.

  If you have a plan for an aggregate that is exhibiting this problem, you can repair it as follows:

1. Open the scenario in the paused state.
2. Expand the aggregate.
3. Select the leader of the aggregate.
4. Choose Entities → Edit Plan.
5. In the Edit Plan window, choose Edit → Delete All Statements.
6. In the Edit Plan window, choose Plan → OK.
7. Save the scenario.
8. Close the scenario.

   The next time you run the scenario, the View Plan window will correctly highlight the task that the aggregate is executing.

## Fixed Bugs

The following problems that were present in VR-Forces Release 1.0 have been fixed:

- The Simulation Tab has been removed from the Global Settings dialog box.
- You can delete multiple control objects.
- The sequencing of triggers and tasks now works as described in *MÄK VR-Forces User's Guide*. Prior to this fix, when a trigger finished, the entity returned to the interrupted task or the last task, rather than going to the next task.