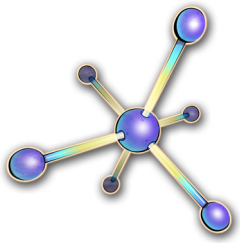

VR-Exchange 1.6 Release Notes

This release note provides release-specific information for VR-Exchange Release 1.6.

Document ID: VRE-1.6-2-100224

System Requirements

This section lists supported platforms and software requirements.

Platforms Supported

VR-Exchange 1.6 supports:

Table 1-1: Platforms supported

Broker	Platform	Compiler
HLA, DIS, TENA	Red Hat Enterprise Linux Workstation 4.0, 5.0	Default compiler
HLA, DIS, TENA	PC with Windows XP/Vista	Microsoft Visual C++ 7.1, 8.0
HLA, DIS	PC with Windows XP/Vista	Microsoft Visual C++ 9.0 (32-bit)

You must have administrator privileges to install MÄK products on Windows Vista.

External Library Requirements

VR-Exchange 1.6 is built with VR-Link 3.13.2, pThreads 2.70, and Qt 4.5. The TENA broker is built with TENA 5.2.2.

TENA users must install TENA middleware and any libraries required by their LROM. HLA users must install an RTI.

Using Libraries and Binaries Built with Visual Studio 2005 and Later

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) and later, 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 and later. The 32-bit installer is named *vcredist_x86.exe*; the 64-bit installer (if supported) is named *vcredist_x64.exe*. They are in the base directory of any installed MÄK product that requires them.

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 who 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

! You must ensure that the preprocessor defines `_SECURE_SCL=0`, and `_HAS_ITERATOR_DEBUGGING=0` are set for MSVC++8.0 and MSVC++9.0 builds. If these are not set, random crashes and assertions may be encountered during runtime.

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 customers, 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

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

Brokers Provided

VR-Exchange 1.6 includes brokers for:

- HLA 1.3
- HLA 1516 (SISO Standard DLC C++ API for IEEE 1516)
- TENA 5.2.2
- DIS.

Table 2 lists the translators for each broker.

Table 2: Broker translators

Translator	HLA	DIS	TENA
Acknowledge	X	X	X
Action Request	X	X	
Action Response	X	X	
Aggregate	X	X	X
Collision	X	X	X
Comment	X	X	X
Create Entity	X	X	
Data	X	X	X
Data Query	X	X	
Designator	X	X	X
Detonation	X	X	X
Emitter System	X	X	X
Entity State	X	X	X
Environment Process	X	X	X
Event Report	X	X	
Fire	X	X	X
Gridded Data	X	X	
IFF	X	X	X
Logger Control	X	X	
Radio Receiver	X	X	X
Radio Signal	X	X	X
Radio Transmitter	X	X	X
Remove Entity	X	X	
Repair Complete	X	X	

Table 2: Broker translators

Translator	HLA	DIS	TENA
Repair Response	X	X	
Resupply Cancel	X	X	
Resupply Offer	X	X	
Resupply Received	X	X	
Service Request	X	X	
Set Data	X	X	X
Start	X	X	X
Stop	X	X	X
Transfer Control	X	X	
View Control	X	X	

VR-Exchange can translate environmental processes. However, it cannot convert custom data inside these PDUs. Therefore, it is recommended that you disable environmental process translation if you are using VR-Forces and translating between DIS and HLA.

New Features and Updates

VR-Exchange 1.6 has the following new features:

- Full support for DIS.
- The DIS and HLA brokers can enable and disable translation of articulated parts. This can be used when your exercise has circular dependencies or otherwise non-standard configurations of articulated parts that might confuse the brokers.
- Some translators now support publication conditions. If an object does not contain a specified publication condition, the object is not published.
- Brokers can now filter objects dynamically by their ID. Wildcards such as *,?, and [abcd] are supported.
- The TENA broker has a new transport type modifier.

New Translators

The DIS and HLA brokers have the following new translators:

- Action Request
- Action Response
- Data Query
- Gridded Data
- Logger Control
- Repair Complete
- Repair Response
- Resupply Cancel
- Resupply Offer
- Resupply Received
- Service Request
- Transfer Control
- View Control.

Documentation Updates

VR-Exchange Users Guide and the online help have been updated. The following new translators are not documented in *VR-Exchange Users Guide*:

- Logger Control
- Repair Complete
- Repair Response
- Resupply Cancel
- Resupply Offer
- Resupply Received
- Service Request
- Transfer Control.

Bug Fixes

VR-Exchange fixes the following problems that were present in previous releases:

- Radio Signals were incorrectly translating Signal Count as 0 under HLA.
- The TENA Broker was unable to use any LROM that did not have everything defined.
- Radio Signals under RPR FOM 2.0, draft 17 were not encoding and decoding hostRadioId into or from streamData.
- Interactions were not sent Stamped
- The user defined tag was dropped by the HLA Broker.
- The MC02 example code failed to call initializeDimensions in the radioDimensions class.

Known Problems

VR-Exchange has the following known problems:

- On Linux you might encounter the following message:

  ```
  VR-Exchange caught exception: DtSharedMemoryPoolManager()
    create has error with shmget: Invalid argument().
  ```

  This error may occur:

  – When the queue manager cannot reserve enough shared memory for the internal message queues. To correct the error do one of the following:

    • Increase the maximum shared memory allocations on your platform. On Linux the root user can do this by modifying the *shmmax* file:

  ```
  echo "33554432" > /proc/sys/kernel/shmmax
  ```

This number is typically the maximum number of bytes allocatable in shared memory. Please consult your operating system documentation first.

    • Reduce the number of buckets in the message queues.

- Because of write permissions in the */tmp* dirrectory. When VR-Exchange creates shared memory queues, it creates temporary files in */tmp*. The files are called: */tmp/OQ.shared /tmp/IQ.shared*, and */tmp/CQ.shared*. If those files exist and the person running VR-Exchange does not have permission to open them for writing, VR-Exchange will print out the error. To correct the problem, delete the files.
- Under Linux, the TCP connection sometimes fails to start. If this happens, you will be unable to successfully start any brokers. Shutting down the portal and starting it again usually fixes the problem.

- If you are using the MÄK RTI in lightweight mode, misconfiguring the HLA connections can cause a feedback loop to occur. A symptom of this is seeing the number of entities rapidly increase, with the same Entity ID. Although this is not a bug, it is mentioned here to help you diagnose this problem should it occur.

  To avoid such situations, when using the RTI in lightweight mode, make sure the first three characters of each connection's HLA Execution Name are unique.