



VR-Exchange 1.4 Release Notes

This release note provides release-specific information for VR-Exchange Release 1.4.

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System Requirements

This section lists supported platforms and software requirements.

Platforms Supported

VR-Exchange 1.4 supports:

Table 1: Platforms supported

Broker	Platform	Compiler
HLA, DIS	Red Hat Enterprise Linux Workstation 3.0	GNU C++ (GCC) 3.2
HLA, TENA, DIS	Red Hat Enterprise Linux Workstation 4.0	GNU C++ (GCC) 3.4.4
HLA, TENA, DIS	Red Hat Fedora Core 3	GNU C++ (GCC) 3.4.4
HLA, TENA, DIS	PC with Windows XP	Microsoft Visual C++ 7.1, 8.0

External Library Requirements

VR-Exchange 1.4 is built with VR-Link 3.11, pThreads 2.70, and Qt 3.3.5. The TENA broker is built with TENA 5.2.1.

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

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 *vcredist_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 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>

Brokers Provided

VR-Exchange 1.4 includes brokers for:

- ♦ HLA 1.3
- ♦ HLA 1516 (SISO Standard DLC C++ API for IEEE 1516)
- ♦ TENA 5.2.1
- ♦ DIS.

[Table 2](#) lists the translators for each broker.

Table 2: Broker translators

Translator	HLA	TENA	DIS
Acknowledge	X	X	X
Aggregate	X	X	X
Collision	X	X	
Comment	X	X	X
Data	X	X	X
Designator		X	
Detonation	X	X	X
Entity State	X	X	X
Environment Process	X		
Fire	X	X	X
IFF	X	X	
Emitter System	X	X	
Radio Receiver	X	X	X
Radio Signal	X	X	X
Radio Transmitter	X	X	X
Set Data	X	X	X

Table 2: Broker translators

Translator	HLA	TENA	DIS
Start	X	X	X
Stop	X	X	X

New Features and Updates

VR-Exchange 1.4 has the following new features:

- ♦ Support for TENA 5.2.1
- ♦ Built with VR-Link 3.11
- ♦ Support for FLEXlm 11.4
- ♦ New command line option, (`--dontStartBrokers`)
- ♦ New DIS translators
- ♦ New HLA translators
- ♦ New configuration parameter, (`parseUnknownlds`)
- ♦ API changes.

Support for FLEXlm 11.4

VR-Exchange 1.4 requires FLEXlm 11.4. To install FLEXlm 11.4, copy the files from the `./flexlm11.4` directory to the directory in which you have installed your license server. FLEXlm 11.4 supports all previously issued license files. However, as always, your maintenance must be up-to-date to use new versions of MÄK products.

The `--dontStartBrokers` Command-Line Option

The `--dontStartBrokers` command-line option specifies that VR-Exchange not load brokers listed in *VR-Exchange.mtl*. If you use this option, you must start the brokers manually. This is considered an advanced feature, but may be useful for VR-Exchange automation.

New DIS Translators

The DIS broker has the following new translators:

- ♦ Start/Resume
- ♦ Stop/Freeze
- ♦ Acknowledge
- ♦ Comment
- ♦ Data
- ♦ SetData
- ♦ Radio Transmitter
- ♦ Radio Receiver
- ♦ Radio Signal.

New HLA Translators

The HLA broker has added Data and SetData translators.

The `parseUnknownIds` Parameter (DIS Broker)

The `parseUnknownIds` parameter tells the DIS Broker to try to parse a DIS ID out of a Portal Object ID if there is not already a known entity available. For example, if the portal ID (A String) is "1:2:3", and if the DIS Broker has not already discovered entity "1:2:3", it will try to create a DIS ID from the string, in this case 1:2:3.

API Changes

The DIS Broker API has the following new function:

```
static void DtDisBroker::setGlobalIdMapperCreator(func);
```

It allows you to install new subclasses of the *DtGlobalIdMapper* class for use in the DIS Broker.

The HLA Broker API has the following changes:

- ♦ The *DtPortalCommentInteraction* class was modified, as follows:
 - Changed `originatingEntity()` to `senderId()` and `receivingEntity()` to `receiverId()` name to be more consistent with DIS, TENA, and HLA VR-Link accessors and mutators.
 - Added Comment Field, Variable and Fixed Datums to match DIS, HLA and TENA
- ♦ The *DtPortalRadioSignalInteraction* member function `hostRadioIndex()` was changed to `hostRadioId()`, as it is a string identifier, not an index.

- When you exit VR-Exchange, it waits for all brokers to shut down first. A dialog box informs you that VR-Exchange is waiting for all brokers to exit. You can click Cancel to stop the wait.

Documentation Updates

The PDF version of *VR-Exchange User's Guide* has been updated. The following notes apply to the printed version of *VR-Exchange User's Guide*:

- The `--noGUI` command-line option applies only to Linux.
- Throughout *VR-Exchange User's Guide*, references to v5.1.1 should be updated to v5.2.1.
- Appendix B, *LROM Mapper Library Dependencies*, has been removed from the manual.
- Sections A.1.3 and A.1.4 have been removed.
- Section 3.5.3 has been moved to Appendix A.
- Section 3.5.1 has been moved to Chapter 2.
- In Table 1-1, the Application Specific row has been replaced with Radio Signal.
- The print version of *VR-Exchange User's Guide* states that VR-Exchange includes a VR-Link license. This is no longer true.
- *VR-Exchange User's Guide* has additional corrections and new sections.
- The following information supplements section 3.2.2 “Specifying the ID,” in *VR-Exchange User's Guide*.

The following table shows the reserved broker IDs used by VR-Exchange. These are default values; which can be changed via command line or configuration file parameters.

Table 3: Reserved broker IDs

ID	Usage
0	Portal broker identifier
1	Queue manager
2	Reserved
3	Reserved
4	vrfMessageDump broker identifier
5	Reserved

Bug Fixes

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

- ♦ DIS Broker:
 - The Aggregate Translator did not register all entities in the globalID Mapper.
 - The Aggregate Translator did not unregister aggregates in the globalId Mapper when the aggregate was removed.
- ♦ HLA Broker:
 - The HLA Comment Translator now transmits variable datums correctly. Previously there were offset problems.
- ♦ TENA Broker:
 - The TENA Comment Translator now transmits variable datums correctly. Previously there were offset problems.
 - The TENA Comment Translator now populates the receiver ID correctly.

Portal API

- ♦ The *DtPortalSetDataInteraction* class no longer sends the SetData message as "Data" Interaction.
- ♦ The Portal Radio Signal Object was missing the following fields:
 - Detailed Modulation Type
 - PseudoNoiseSpectrum In Use
 - FrequencyHopInUse
- ♦ The Portal Radio Signal Interaction was missing the following fields:
 - DatabaseIndex
 - Duration
 - StartOffset.

Known Problems

VR-Exchange has the following known problems:

- ♦ In Windows, double-clicking on a broker in the portal view launches the Broker window in the background. You may need to close other windows to bring it to the front.
- ♦ The `--version` and `--help` command line options for *vrx.exe*, *hla13Broker.exe*, *hla1516Broker.exe*, and *tenaBroker.exe* do not display any information.

- ♦ 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
```

i

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

- Reduce the number of buckets, or the size of the buckets in the message queues in *VR-Exchange.mtl*.
- ♦ Because of write permissions in the */tmp* directory. 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.
- ♦ If you are using the MÄK RTI in lightweight mode, misconfiguring the HLA brokers 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 HLA Broker's *execName* are unique, for example:

```
hla13Broker.exe --execName Boston --brokerName Broker1  
--brokerId 6  
hla13Broker.exe --execName Newton --brokerName Broker2  
--brokerId 7
```

Adding the following broker would cause the feedback loop:

```
hla13Broker.exe --execName Newburyport  
--brokerName Broker3 --brokerId 8
```