



VR-Exchange 2.8 Release Notes

This release note contains the following release-specific information for VR-Exchange 2.8.

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Systems Supported and System Requirements

For the most up-to-date information about systems supported, see the Product Versions page on the MAK web site at: <https://www.mak.com/support/product-versions>. For hardware requirements, see <https://www.mak.com/support/hardware-recommendations>.

VR-Exchange 2.8 is available for the platforms listed in Table 1.

Table 1. Platforms supported

Broker	Operating System	Compiler
HLA, DIS		
	Windows 10	Microsoft Visual C++ 14.0 (64-bit)
	Red Hat Enterprise Linux 8.0 (64-bit libraries)	default compiler
DDS		
	Windows 10	Microsoft Visual C++ 14.0 (64-bit) (RTI DDS only)
	Red Hat Enterprise Linux 8.0 (64-bit libraries)	default compiler

The VC 14 build is binary compatible with all MAK VC 15 products.

If you require TENA support, contact support (<https://jira.mak.com/servicedesk/customer/portal/1>) for assistance.

External Library Requirements

VR-Exchange 2.8 is built with VR-Link 5.8.

VR-Exchange 2.8 RH8 and VC14 use Qt 5.15.2.

DDS Support

VR-Exchange supports the RTI DDS Broker. Requires the RTI Connex DDS Software. You can download it from <https://www.rti.com>. The RTI DDS broker is supported on all platforms.

Compiler Compatibility on Windows

MAK provides versions of product releases that have been compiled with different versions of Microsoft Visual C++. When you run MAK products together on the same computer, for example, the Logger and VR-Vantage, 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. The exception to this is that products built with VC 14 and VC 15 are binary compatible.

License Manager

VR-Exchange 2.8 uses FLEXlm 11.17.1. You must install the license management software to run VR-Exchange. If you are upgrading from a version of VR-Exchange that used an older version of FLEXlm, you must upgrade your license management files. You do not need a new license. Licenses are forward compatible.

The License Manager files are not part of the VR-Exchange installer. You can download them at:

- Windows: <http://ftp.mak.com/out/MAKLicenseManager-win64-setup.exe>
- Linux: <http://ftp.mak.com/out/MAKLicenseManager-linux64-setup.tar.gz>

A license manager FAQ is available at <https://www.mak.com/support/license-support>.

Network Compatibility

VR-Exchange 2.8 is compliant with RPR FOM 1.0 and RPR FOM 2.0 and includes FOM mappers for many draft versions of the RPR FOM. It is compliant with RTIs that support the HLA 1.3 specification, the SISO DLC HLA API 1516 version of the IEEE 1516 specification (SISO-STD-004.1-2004), or HLA Evolved. MAK recommends HLA Evolved.

To use an RTI with VR-Exchange, it must use the same operating system and be built with the same compiler.

VR-Exchange 2.8 supports DIS 4, 5, 6, and 7, and can therefore interoperate with DIS applications of any of these versions. MAK recommends DIS 7.

RTI Support

We recommend using the latest version of the MAK RTI. However, VR-Exchange should work with other RTIs that conform to the HLA 1.3 specification, the IEEE 1516 SISO DLC API, or HLA Evolved, and are built using the same compiler as your version of VR-Exchange.

When using the MAK RTI, remember to make sure that VR-Exchange 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 to the directory that contains them.

Support for HLA Evolved

The VR-Exchange 2.8 HLA Evolved broker is compatible with MAK RTI 4.0.4 or later, VR-Link 4.0.4 or later, and the HLA Evolved specification.

The HLA Evolved libraries included with the MAK RTI 4.0 through 4.0.3 were unintentionally built against one of the last draft versions of the HLA 1516-2010 specification header files. Between the version of the header files used by the MAK RTI and the final version of the specification there was one change. The HLA Evolved API has three functions for `createFederationExecution`. In the version originally used by the MAK RTI there was an ambiguity. Due to optional parameters, two of these functions could be invoked in such a way that it was not clear which one was being used. Here are the functions as they used to be:

```
// variation 1
virtual void createFederationExecution (
    std::wstring const & federationExecutionName,
    std::wstring const & fomModule,
    std::wstring const & logicalTimeImplementationName = L"");

// variation 2
virtual void createFederationExecution (
    std::wstring const & federationExecutionName,
    std::vector<std::wstring> const & fomModules,
    std::wstring const & logicalTimeImplementationName = L"");

// variation 3
virtual void createFederationExecution (
    std::wstring const & federationExecutionName,
    std::vector<std::wstring> const & fomModules,
    std::wstring const & mimModule,
    std::wstring const & logicalTimeImplementationName = L"");
```

Variation one is unambiguous. However, consider the following code:

```
createFederationExecution( L"FedExName", vectorOfFomModules, L" " );
```

It is not clear whether you are using variation two or three, and the compiler would throw an error.

To fix this ambiguity, the final version of the HLA Evolved API renamed the third version of the function to `createFederationExecutionWithMIM`. However this revision did not make it into the header files used by the MAK RTI. MAK RTI 4.0.4 corrects this and uses the final version of the HLA Evolved header files. As a result, we recommend that anyone using the MAK RTI with HLA Evolved upgrade to this version. Because the API has changed between RTI 4.0.3 and 4.0.4, any HLA Evolved federates built against previous MAK RTI versions will need to be recompiled against the new version.

Because VR-Link's HLA libraries are built against the MAK RTI, this issue also exists in previous versions of VR-Link that supported HLA Evolved. We recommend that anyone using VR-Link with HLA Evolved upgrade to version 4.0.3, which is built against the latest RTI and uses the renamed function.

This problem affects MAK products built against the MAK RTI and VR-Link that support HLA Evolved, such as VR-Exchange 2.0. VR-Exchange 2.0.1 has been built against VR-Link 4.0.4 and is now compliant with the final version of the standard.

As a general rule, any version of VR-Exchange is compatible with any version of the RTI that supports the same platform. However, due to this header file change, previous versions of VR-Exchange and the MAK RTI will not be compatible when using HLA Evolved. This change does not affect compatibility between VR-Exchange and the MAK RTI when using HLA 1.3 or 1516-2000.

When using HLA Evolved:

- VR-Exchange 2.0 is only compatible with MAK RTI 4.0, 4.0.1, 4.0.2, and 4.0.3.
- VR-Exchange 2.0.1 and later releases are only compatible with MAK RTI 4.0.4 and later releases.

Brokers Provided

VR-Exchange 2.8 includes brokers for:

- HLA 1.3 RPR FOM 1 and 2.
- HLA 1516 RPR FOM 1 and 2 (SISO Standard DLC C++ API for IEEE 1516).
- HLA Evolved RPR FOM 1 and 2.
- DIS, versions 4–7.
- DDS (RH7, VC12, VC14).

Table 2 lists the translators for each broker.

Table 2. Broker translators

Translator	HLA	DIS	DDS	TENA
Acknowledge	X	X		X
Action Request	X	X		
Action Response	X	X		
Action Sonar	X	X		
Additional Passive Activities	X	X		
Aggregate	X	X		X
Areal Object	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	X
Emitter System	X	X		X
Entity State	X	X	X	X
Environment Process	X	X		X
Event Report	X	X		
Fire	X	X	X	X
Gridded Data	X	X		

Table 2. Broker translators (continued)

Translator	HLA	DIS	DDS	TENA
IFF	X	X		X
Linear Object	X	X		
Logger Control	X	X		
Point Object	X	X		
Propulsion Noise	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		
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		



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.

Additional Brokers

The following brokers are available on request. Please contact your MAK salesperson for details.

Brokers:

- AFMSTT Broker.
- ERF Broker.
- MATREX Broker (Version 7.1)
- MRF Broker (Version 6.2 / 7.1).

Experimental Brokers (These brokers support a subset of the FOM):

- ADS-B Broker.
- AviationSimNet Broker (Version 3.4).
- COT Broker.

New Features and Updates

VR-Exchange 2.8 has the following new features and updates.

- Dark mode is now the default in the graphical user interface. Light mode, the former standard, is also available. See "[Disabling and Enabling Dark Mode](#)" in the *VR-Exchange Users Guide*.
- The VR-Exchange installer now respects the MAK_INSTALL_DIR environment variable for choosing default installation path.
- The online help, accessed from the Help menu, is now in an HTML format with a more modern look and an improved search utility. The help is built into VR-Exchange and does not require an internet connection.

Fixed Bugs

Problems identified in previous releases have been fixed.

- Corrected a typo in the VR-Exchange Preferences. VRX-75
- Resetting and clearing interactions incorrectly had the same behavior. Clearing interactions has been fixed to ensure that it deletes information on the interactions but preserves the counts. VRX-77

Known Problems

For information about issues that you might encounter while using VR-Exchange, see the [Troubleshooting](#) appendix in the *VR-Exchange Users Guide*.

