



VR-Link 5.10 Release Notes

This release note contains release-specific information for VR-Link 5.10.

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Systems Supported and System Requirements

For information about platform and system support, see the Product Specifications & Dependencies page on the MAK website at: <https://www.mak.com/mak-one-specs>.

For hardware requirements, visit <https://www.mak.com/mak-one/support/help> and click the Hardware Requirements link.

VR-Link for C# supports all Windows compilers.

VR-Link for Java supports all compilers and operating systems. VR-Link for Java requires Java 9.

Compiler Compatibility on Windows

MAK provides versions of product releases that have been compiled with different versions of Microsoft Visual C++. MAK ONE products built with VC++ 14 and later are binary compatible and will work together. When you run MAK ONE 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 or binary compatible compilers.

MAK RTI HLA 4 binary file names conform to the SISO-REF-075 standard, which includes a compiler marker to specify the compiler version. This prevents HLA applications from loading binary files from non-compatible compilers. The MAK RTI HLA 4 libraries are built using the Visual Studio 2017 compiler and use the vc141 compiler marker.

Disk Space Requirements

A full installation of VR-Link requires approximately 3 GB of disk.

License Manager

VR-Link 5.10 uses FLEXlm 11.17.1. You must install the license management software to run VR-Link.

The MAK License Manager files are not part of the VR-Link installer. You can download them from the MAK ONE Product Downloads page (<https://www.mak.com/mak-one-downloads>).

Installation of the license manager is covered in the *MAK ONE Installation Guide*, available online at <https://mak.com/mak-one-installation-guide>. You can also contact your MAK distributor or use the [Support Portal](https://www.mak.com/mak-one/support/portal) at <https://www.mak.com/mak-one/support/portal> if you need assistance.

RTI Support

We recommend using the latest version of the MAK RTI. However, VR-Link should work with other RTIs that conform to the HLA 1.3 specification, the IEEE 1516 SISO DLC API, HLA Evolved, or HLA 4, and are built using the same compiler as your version of VR-Link.

When using the MAK RTI, remember to make sure that VR-Link 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.

New Features and Major Updates

VR-Link 5.10 has new features and updates, including:

- VR-Link supports the new HLA 4 (IEEE HLA 1516-2025) interface specification.
- Added support for Red Hat 9.
- DIS Spy is now included with VR-Link.
- There is now a control that allows you to select which FOM tables are merged.
- Upgraded the Boost version to 1.84.0 for compatibility with C++20.
- The BlowingParticulateMatter attribute is now in the MAK_LandSurfaceLayer class. This adds support for particulate effects such as snowstorms, sandstorms, blowing tumbleweeds, and so on.
- Added a Turbulence object class and updated the MAK METOC FOM to support it.

Fixed Bugs

Table 1. Fixed Bugs

Key	Summary	Release Notes	Fix versions
VRL-758	Add command-line options to set Site/Host IDs for HLA federates	Added the command-line flags for SiteId, HostId and ApplicationNumber, and ExercisId. They are now in the common Base Conn_INITIALIZER class, allowing them to be used by both DIS and HLA.	VR Link 5.10
VRL-789	Update examples to use MAK-VRFExt-10_evolved and NETN-ETR	Updated VR-Link to use the MAK-VRFExt-10_evolved.xml FOM Module to support VR-Forces.	VR Link 5.10
VRL-815	Command line parse fails on string with space " "	Fixed to enable command-line options to process FOM modules that have a space in the name.	VR Link 5.10

Table 1. Fixed Bugs (continued)

Key	Summary	Release Notes	Fix versions
VRL-845	Add --setFomModuleList command-line argument to VR-Link	This new argument overwrites any FOM Modules set to load with those listed. It accepts a comma-separated list of module names; the best practice is to list them in hierarchical order to prevent any issues related to dependencies. The syntax is --setFomModuleList "module1, module2, ... moduleN".	VR Link 5.10
VRL-849	Remove --suppressDefaultModules argument from VRL examples	The new --exConnConfigFile and --setFomModuleList command-line options were added and are more useful than the old option. It was removed from the examples included with VR-Link.	VR Link 5.10
VRL-961	Update MAK-One-YYYY federation name to MAK-ONE-YYYY	Changed the capitalization of the federation name.	VR Link 5.10

Feature List

Table 2. Feature List

Key	Summary	Release Notes	Fix versions
VRL-253	Add DIS Spy to VR-Link installation	DIS Spy is now included with VR-Link.	VR Link 5.10
VRL-339	Port MAK Enumerations doc reader to VR-Link	The DtEnumLoader class has been ported from VR-Forces to VR-Link, allowing VR-Link to process enumerations specified in XML format so that the enumerated values can be looked up by string or vice-versa. VR-Link includes the SISO-REF-010.xml for standardized SISO enumerations as well as MAK-specific enumerations, which are defined in DIG-REF-002.xml for DI-Guy specific enumerations and MAK-Enums.xml for MAK enumerations used in the MAK ONE suite.	VR Link 5.10
VRL-431	Remove auto_ptr and binary_function from our codebase	These were deprecated for C++11 and removed for C++17. Updated the code to use unique_ptr.	VR Link 5.10
VRL-551	Add Turbulence object class to MAK-METOC	Added a Turbulence object class and updated the MAK METOC FOM to support it.	VR Link 5.10

Table 2. Feature List (continued)

Key	Summary	Release Notes	Fix versions
VRL-739	Rework FOM Config file feature to Modular Config file	There is a new command-line option, --exConnConfigFile, that accepts exercise configuration files in XML format. These configuration files define exercise connection settings for DIS and HLA. You can use the option more than once to submit multiple files, and the variables in the last file in the list replace any previously defined variables of the same name. FOM modules are the only exception; they are additive. For more information, refer to the MAK ONE Interoperability Guide.	VR Link 5.10
VRL-763	Upgrade to Boost 1.84.0 and remove internal Boost versions	Upgraded the Boost version for compatibility with C++20.	VR Link 5.10
VRL-764	Upgrade to OneTBB 2021	Upgraded for C++20 compatibility.	VR Link 5.10
VRL-775	HLA 4 for VR-Link	VR-Link supports the new HLA 4 (IEEE HLA 1516-2025) interface specification.	VR Link 5.10
VRL-791	Change MTL parameters to const char* for C++20 compatibility	The MTL library API has been updated to replace char* parameters to const char* for C++20 compatibility.	VR Link 5.10
VRL-794	Create a hook for DIS and HLA into Unreal with VR-Link	Added the ability to send and receive messages about the Publisher, Reflected Object Lists, and the Exercise Connection between VR-Link and Unreal.	VR Link 5.10

Table 2. Feature List (continued)

Key	Summary	Release Notes	Fix versions
VRL-809	Add more Entity State Attributes to C#/Java EntityStateMessage	Added C# support for these entity state attributes: InfraredSignatureIndex, LiveEntityMeasuredSpeed, PropulsionSystemsData, VectoringNozzleSystemData, AcousticSigRepIndex, and IsPartOf.	VR Link 5.10, VR Link 5.9.1a
VRL-817	Add Red Hat 9 support	Added support for Red Hat 9.	VR Link 5.10, VR Link 5.9.1b
VRL-822	Implement config work in examples	Updated the VR-Link examples to use the new exercise connection configuration (exConnConfig) file.	VR Link 5.10
VRL-825	Refactor ExerciseConnInitializer classes to VLPI	Moved DtExerciseConnConfig class to VR-Link's protocol independent VL library. This enables protocol agnostic applications to read and process MAK exercise connection configuration files.	VR Link 5.10
VRL-826	Create DtTransferControlManager class	Added an experimental DtTransferControlManager class to assist in transferring ownership of entities and their related subsystems. This class is experimental and not complete.	VR Link 5.10
VRL-828	Add section to docs for what C# does and does not support	Updated chapter 9.1 - Introduction to the C# API in the VR-Link API documentation with information on what is supported by C# versus C++.	VR Link 5.10

Table 2. Feature List (continued)

Key	Summary	Release Notes	Fix versions
VRL-860	Add HLA 4 Support for C# and Java	Added support for HLA 4 for both C# and Java VR-Link example federates: talk, listen and f18.	VR Link 5.10
VRL-865	Add control for which FOM tables are merged	Added enumeration masks to VR-Link to control which tables in a FOM are merged or not during an RTI merge operation. Used by the DtFedTarget class.	VR Link 5.10
VRL-886	Add BlowingParticulateMatter attribute to MAK_LandSurfaceLayer class	The BlowingParticulateMatter attribute is now in the MAK_LandSurfaceLayer class. This adds support for particulate effects such as snowstorms, sandstorms, blowing tumbleweeds, and so on.	VR Link 5.10
VRL-901	Extend DtCloudTypeEnum32 to include GroundFog and Sandstorm	Added two additional cloud types to the DtCloudTypeEnum32 enumeration for GroundFog (1014) and Sandstorm (1015) conditions.	VR Link 5.10
VRL-956	More helpful output for articulated part attachment failures	Added debug output to help detect circular dependencies between articulated and attached parts.	VR Link 5.10
VRL-962	Update CodeGenerator to output VC15 solutionproject files	The VR-Link Code Generator has been updated to create VC++ 15 solution and project files for Windows.	VR Link 5.10

Known Problems

Problems can arise with any product. MAK has a knowledge base of the problems that we know about, which is always changing as new problems are identified and new solutions are found. To learn how to address known problems with VR-Link and other MAK ONE products, access the MAK ONE Product Support Knowledge Base: <https://www.mak.com/knowledge>.

If the problem you are experiencing is not addressed in the knowledge base, please contact your MAK distributor or use the [Support Portal](#) at <https://www.mak.com/mak-one/support/portal>.