



MÄK Data Logger 5.4 Release Notes

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Systems Supported

Table 1 lists the platforms currently supported by MÄK Logger 5.4. Application code must be built with the indicated compilers in order to link to Logger libraries.

Table 1: Platforms supported

Platform	Compiler
Red Hat Enterprise Linux Workstation 6.0	Default compiler (64-bit)
Red Hat Enterprise Linux Workstation 7.0	Default compiler (64-bit)
Windows Vista, Windows 7, Windows 8	Microsoft Visual C++ 10.0 (32-bit and 64 bit)
	Microsoft Visual C++ 12.0 (64 bit)

Logger API

You must have VR-Link 5.2.1 and its required compiler versions to link the Logger libraries, but you do not need it to run the executables. Please see VR-Link documentation for information about required compilers.

You must have a VR-Link developer's license to compile plug-in or applications using the Logger API.

Qt Toolkit Compatibility

The Logger GUI is built using the Qt Toolkit, a cross-platform GUI toolkit. Logger 5.4 uses Qt 4.7.4 for MSVC++ 10.0. It uses Qt 4.8.7 for MSVC++ 12. You do not need Qt to do development that does not affect the GUI.

If you plan to build the Logger GUI, you must download and install the appropriate version of Qt. You can download it at: <http://www.mak.com/support/resources/bonus-material>.

Qt is also available as a free download under the LGPL version 2.1 license at qt.digia.com. This version should be satisfactory for most Logger customers. If you need a Qt commercial license, you must purchase the license from Digia.

Compiler Compatibility on Windows

Current and prior releases of MÄK products have been compiled using different versions of the Visual C++ compiler. When you run MÄK products together, for example, the Logger and the Stealth, we strongly recommend that you run versions created with the same compiler. Mixing products compiled with different compilers can result in program instability.

License Manager

To run the licensed version of Logger, you must install license management software. Logger 5.4 uses FLEXlm 11.13.0.2. If you are upgrading from a version of the MÄK Data Logger 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 Logger installer. You can download them at:

- ♦ Windows:
<ftp://ftp.mak.com/out/MAKLicenseManager-win-setup.exe> (for 32-bit systems)
<ftp://ftp.mak.com/out/MAKLicenseManager-win64-setup.exe>
- ♦ Linux: <ftp://ftp.mak.com/out/MAKLicenseManager-linux64-setup.tar.gz>

A license manager support is available at:

<http://www.mak.com/support/licenses>

ODBC Driver Support

The Logger database export feature supports the following ODBC drivers:

- ♦ MySQL ODBC 2.50 Driver
- ♦ MySQL ODBC 5.351 Driver
- ♦ MySQL ODBC 5.1 Driver
- ♦ MySQL ODBC 5.2w Driver.
- ♦ Microsoft Access.

For the VC10 64-bit Logger, a 64 bit connector is required.

The MySQL 5.1 server and connector can be downloaded at:

- ♦ server: <http://dev.mysql.com/downloads/mirror.php?id=411970>
- ♦ connector: <http://dev.mysql.com/downloads/mirror.php?id=411736>

Network Compatibility

HLA only

Logger 5.4 was built against VR-Link 5.2.1 and is compliant with:

- ♦ RPR-FOM 1.0, RPR FOM 2.0 drafts 6, 14, 17, and 20, and RPR FOM 2.0 (final version).
- ♦ MÄK RTI 4.1 or later.

DIS only

Logger 5.4 supports DIS 4, 5, 6, and 7.

RTI Support

We recommend using the latest version of the MÄK RTI. However, the Logger 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 the Logger.

When using the MÄK RTI, remember to make sure that the Logger 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 the directory that contains them.

Support for HLA Evolved

Logger 5.4 updates the HLA Evolved version to be compatible with MÄK RTI 4.0.4 or later, VR-Link 5.2.1, and the HLA Evolved specification. A full discussion of this issue is as follows:

The HLA Evolved libraries included with the MÄK 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 MÄK 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 MÄK 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 MÄK RTI. 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 MÄK 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 MÄK RTI versions will need to be recompiled against the new version.

Because VR-Link's HLA libraries are built against the MÄK 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 or later, which is built against the latest RTI and uses the renamed function.

This problem affects MÄK products built against the MÄK RTI and VR-Link that support HLA Evolved, such as Logger 5.0. Logger 5.2 has been built against VR-Link 5.2.1 and is compliant with the final version of the standard.

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

When using HLA Evolved:

- ♦ Logger 5.0 is only compatible with MÄK RTI 4.0, 4.0.1, 4.0.2, and 4.0.3.
- ♦ Logger 5.1 and later releases are only compatible with MÄK RTI 4.0.4 and later releases.

FOM Support

Logger 5.4 has built-in support for RPR FOM versions 0.5, 0.7, 0.8, 1.0, 2.0 drafts 6, 14, 17, and 20, and RPR FOM 2.0 final version. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, Logger 5.4 uses RPR FOM 2.0.

For information about FOM mapping and selecting the correct FOM Configuring the Logger for HLA in Chapter 2, "Installing and Configuring the Logger", in *MÄK Data Logger Users Guide*.

New FED File Naming Convention

Logger 5.4 uses the FOM naming conventions introduced in VR-Link 5.2. This section describes these changes.

Historically, VR-Link has named FED files using the convention `VR-Link<RPR FOM version>.fed` or `VR-Link<RPR FOM version>.xml`. For example, the FED file for RPR FOM 2, draft 17 was `VR-Link20017-1.fed`. This naming scheme has two problems. First, it is confusing for end-users of applications that use VR-Link (but who are not themselves VR-Link customers) to be using a FOM named that way. Second, the file-name was not versioned, so any updates that we would make to the existing FOMs could cause compatibility problems. In fact for this latter reason, we had refrained from fixing a few minor bugs that we found over the years until now.

Effective with this release, VR-Link introduces a new naming convention: `MAK-<FOM name><FOM revision><FOM version>.fed` (or `.xml`, or `_evolved.xml`, as appropriate). For example, `VR-Link20017-1.fed` has been renamed `MAK-RPR20017-1-1.fed`.

Additionally, given the power of HLA Evolved FOM Modules, starting with RPR 2.0 we are now providing the RPR standard FOM for HLA Evolved, currently named `RPR_FOM_v2.0_1516-2010`. MÄK's extensions, are in FOM Modules that our software will automatically add to an exercise. This means that if you have another RPR-based FOM, such as NETN or NASMP, you will have a much easier time using it without needing to modify the FOM.

VR-Link continues to include FED files and XML files using the old convention, so you do not have to change any existing scripts or code.

[Table 2](#) lists legacy FED files and how they map to new FED files. Many of the FED files delivered in previous releases do not have updated versions, usually because they are rarely used.

Table 2: Old FED file to new FED file mappings

Old FOM	New FOM
HLA 1.3	
DI-Guy-13_0.fed	
DI-Guy.fed	
VR-Link.fed	MAK-RPR1-1-1.fed
VR-Link05.fed	
VR-Link07.fed	
VR-Link08.fed	
VR-Link10.fed	MAK-RPR1-1-1.fed
VR-Link16.fed	
VR-Link20006.fed	
VR-Link20014.fed	
VR-Link20017-1.fed	MAK-RPR20017-1-1.fed
VR-Link20017-6.fed	MAK-RPR20017-6-1.fed
VR-Link20017.fed	

Table 2: Old FED file to new FED file mappings

Old FOM	New FOM
VR-Link20020.fed	MAK-RPR2-1-1.fed
VR-LinkBOML16.fed	
VR-LinkDDM.fed	
VR-LinkMC02.fed	MAK-RPR1-MC02-1-1.fed
VR-LinkTM.fed	MAK-RPR1-TimeManagement-1-1.fed
VRL-20017-1-Link16.fed	
VRL-DIGuy20017.fed	
VRL-DIGuy20017DDM.fed	
1516-2000	
DI-Guy-13_0.xml	
DI-Guy.xml	
VR-Link.xml	MAK-RPR1-1-1.xml
VR-Link20014.xml	
VR-Link20017-1.xml	MAK-RPR20017-1-1.xml
VR-Link20017-6.xml	MAK-RPR20017-6-1.xml
VR-Link20020.xml	MAK-RPR2-1-1.xml
VR-LinkBOML16.xml	
VR-LinkDDM.xml	
VR-LinkTM.xml	MAK-RPR1-TimeManagement-1-1.xml
VRL-DIGuy20017.xml	
VRL-DIGuy20017DDM.xml	
HLA Evolved	
DIGuyModule_1300.xml	MAK-DIGuy-1_evolved.xml
DIGuyModule_1302.xml	
RPR_FOM_v2.0_draft20_1516-2010.xml	RPR_FOM_v2.0_1516-2010.xml
VR-Link20014_base_evolved.xml	
VR-Link20014_evolved.xml	
VR-Link20017-1_base_evolved.xml	MAK-RPR20017-Base-1-1_evolved.xml
VR-Link20017-1_base_evolved_with-UpdateRate.xml	
VR-Link20017-1_evolved.xml	MAK-RPR20017-1-1_evolved.xml

Table 2: Old FED file to new FED file mappings

Old FOM	New FOM
VR-Link20017-1_evolved_withUpdateRate.xml	
VR-Link20017-6_base_evolved.xml	MAK-RPR20017-Base-6-1_evolved.xml
VR-Link20017-6_evolved.xml	MAK-RPR20017-6-1_evolved.xml
VR-LinkDDM_base_evolved.xml	
VR-LinkDDM_evolved.xml	
VR-Link_LgrControl_evolved.xml	MAK-LgrControl-1_evolved.xml
VR-Link_ViewControl_evolved.xml	
VR-Link_VrlExt_evolved.xml	MAK-VRFExt-1_evolved.xml
VR-Link_base_evolved.xml	MAK-RPR1-Base-1-1_evolved.xml
VR-Link_evolved.xml	MAK-RPR1-1-1_evolved.xml
VRL-DIGuy20017DDM_evolved.xml	
VRL-DIGuy20017_evolved.xml	
updateRate.xml	MAK-updateRate-1_evolved.xml
VR-LinkBOML16_module.xml	MAK-BOML16-1_evolved.xml
	MAK-VRFAggregate-1_evolved.xml

Backwards Compatibility

The Logger file format has changed. Logger 5.4 can play files recorded with previous versions. It prompts you to save them to the new format. Files recorded by Logger 5.4 cannot be played by previous versions of the Logger.

New Features

Logger 5.4 has the following new features:

- ♦ A redesigned timeline. For details, please see discussions of the timeline in *MÄK Data Logger Users Guide*.
- ♦ The Logger file format has changed. Logger 5.4 can play files recorded with previous versions. It prompts you to save them to the new format. Files recorded by Logger 5.4 cannot be played by previous versions of the Logger.
- ♦ Support for MSVC++ 12.
- ♦ Support for Red Hat 7.
- ♦ Support for new VR-Link FOM names. For details, please see “[New FED File Naming Convention](#),” on page 5.
- ♦ New buttons on the Annotations toolbar (Insert Range Annotation and Update Annotation).
- ♦ New configuration commands:
 - Ability to set the interval between tick marks in the Packet Count View and Packet Size View. Use the `SetPacketViewInterval` command.
 - Ability to disable making `requestAttributeValue` update calls when the Logger discovers an object. Can be set on the Preferences dialog box, HLA Configuration page or using the `EnableRequestUpdates` command.
 - Ability to specify that when receiving requests for attribute value updates, only send values that have been updated in the file. Do not send default values. Can be set on the Preferences dialog box, HLA Configuration page or using the `SetSendOnlyUpdatedValues` command.
 - The Logger will now listen to the simulation network when connected and a file is not loaded for playback. This idle listening will improve the startup of recording when there are a large number of objects. In HLA, the idle listening will allow the Logger to discover all the objects and request and receive the initial updates. When record is pressed, the Logger will dump the current state of the objects to the tape and begin recording packets as they are received. The listening while idle behavior can be configured via the `SetListenWhenIdle` command in the config file or command line. An icon in the status bar indicates when the Logger is listening to simulation traffic. For details, please see Section 6.5, “[Listening to the Network](#)”, in *MÄK Data Logger Users Guide*.
 - Ability to passively subscribe to object and interaction classes. Can be set on the Preferences dialog box, HLA Configuration page or using the `SetPassiveSubscription` command.
- ♦ New options for DIS indexing. Checkpoints can be resampled when you export a recording. You can also include interactions in checkpoints. For details, please see Section 5.2, “[Configuring Indexing](#)”, in *MÄK Data Logger Users Guide*.
- ♦ Ability to scale the Packet View. For details, please see Section 7.6.1, “[Scaling the Packet Count View](#)”, in *MÄK Data Logger Users Guide*.

- Playback speed can be reduced to as low as 0.001.
- Changes made in the Preferences dialog box are saved to the configuration file. A check box on each page lets you disable this feature for that page.
- Ability to map a FOM attribute name or data type field to another datatype for display purposes in the Traffic Analyzer. Use the **attributeMap** option in *datatypeDefault.mtl*. For more information, please see Section 10.7.5, “[Removing Brackets from the Display of Array Types](#)”, in *MÄK Data Logger Users Guide*.
- All files have been rerecorded using the new FOM naming convention. Applications, such as VR-Vantage or VR-Forces that want to receive them must also use the new FOMs.
- In previous releases, when the Logger paused, it set the Frozen bit and changed entity velocity and acceleration values to 0. This prevented applications that did not respect the Frozen bit from incorrectly dead reckoning entities. Now, we set the Frozen bit and, by default, change the entities' dead reckoning algorithm to static. This allows us to keep the current velocity and acceleration values while the entities remain still. You can disable changing the dead reckoning algorithm. In this case it is the responsibility of the receiving application to respect the Frozen bit or otherwise handle dead reckoning properly. For more information, please see Section 5.4, “[Setting the Dead Reckoning Algorithm on Pause](#)”, in *MÄK Data Logger Users Guide*.

Bug Fixes

This release fixes the following problems:

- The export of a Logger file to multiple files did not generate any output files. 41802
- DIS connection dialog now fills in the netmask with the interface's netmask when changing interfaces. This corrects issues on linux 64-bit systems with multiple network interface cards. 48220
- The use of the command line parameter `-r "SetPlayOnLoad 1"` (or used in the configuration file) with a Logger file will now start playing immediately. 48599
- When simultaneously playing a file that is being recorded, if the playback reaches its stop time (for example by pressing the jump-to-end button), it will try to continue playing by waiting until the file expands or a configurable amount of time has passed (default is to wait indefinitely). Previously it stopped playback. 52044
- Reason that connection fails are now provided in pop-up message dialog, specifically mismatching compiler versions. 52057
- A new `SetFilterMomSubscription` command controls whether MOM classes are filtered (enabled by default). 53728
- Some example plug-in binaries were missing. 54265
- The Logger was slow to startup when there were many entities in the exercise. 54617

- ♦ Record PDU created with default constructor will not be rejected by the Logger. Must be from VR-Link 5.2 or later. 54890
- ♦ The Logger no longer crashes when forced to resign by the RTI. It resets itself to a pre-connected state and it can be reconnected if desired. 52058
- ♦ When switching from skipping to normal playback while paused, the Logger will send output as expected. Previously, this situation would result in no output being sent. 55522
- ♦ If the Logger cannot maintain a high tick rate (or a delayed tick) will now time-stamp received packets with their elapsed time from last tick instead of all using the same timestamp from last tick. 54932
- ♦ When using DtExerciseConnInitializer to set connection parameters for DtDis-Logger, the initializer netmask will no longer be ignored if the DtDisLogger netmask has not been set. 55921
- ♦ When recording with time management, the Logger will now advance and record packets instead of getting stuck at time 0. 56047
- ♦ When running in time managed mode, the Logger will now correctly capture initial udpates from a VRF scenario that was loaded before recording begins. 56240
- ♦ During time regulating playback, jumping backwards or forwards is now played back with timestamps that are both monotonically increasing and continuous. This adjustment of time stamps can be enabled for non-time managed mode. 56346
- ♦ The minimum playback speed has been lowered from 0.25 to 0.001. 56361
- ♦ The HLA Generic Publisher no longer sends out all attributes on the first tick. 55949
- ♦ The ordering of timestamps applied to packets coming from the network as been corrected so that out of order packets no longer occur. 56012
- ♦ Jumping during playback of a tape with embarked entities will now refresh the relative location information needed for host and relative location information. 57377
- ♦ Playing a RPR 1.0 tape with RPR 2.0 connection will no longer cause a crash. The tape will still not play correctly, but it will no longer crash. 57482
- ♦ HLA interactions are sent with a current timestamp during playback. 57548

Known Problems

This section lists known problems with Logger functionality:

- ♦ The HLA 1516 Logger crashes on exit if you use the MÄK RTI 2.4.2 through 3.1.1. This is due to a problem in the RTI.
- ♦ Logger files that include the VR-Forces embarkation feature in DIS exercises, such as *embarkedemoDIS.lgr*, do not reset embarkation status after time jumps. To correct the embarkation state of entities, stop playback and start playing the file from the beginning.
- ♦ On Linux, online help may not work if the Logger lib directory is not in the LD-LIBRARY_PATH or the RTI *lib* directory is before it.

Playing HLA 1.3 Logger Files in HLA 1516 Federations

In general, the Logger uses the same file format for HLA 1.3 and HLA 1516 Logger files. You can record a Logger file from an HLA 1.3 federation, and play it back into an HLA 1516 federation (and vice versa). However, you must use the same FOM representation during record and playback. For example, if you use an HLA-1.3-style FED file during recording, you must use an HLA-1.3 style FED file during playback, even if you are using the IEEE 1516 version of the Logger and an IEEE 1516 RTI. (VR-Link and the MÄK RTI allow you to use HLA-1.3-style FED files with IEEE-1516-based federates, and vice versa).

The main reason that consistency in FOM format is necessary is that IEEE 1516 uses different names for the "Root" classes of the Object class hierarchies. A 1.3-style FED file requires a Root class a 1516-style XML files requires a Root class called *HLAObjectRoot*. The reason this can be a problem is that if the Logger is playing an HLA-1.3-based Logger file into a federation that is using a 1516-based XML file it might come across an instance of a class called, for example, "ObjectRoot.Vehicle". If it tries to register an object of this class, the RTI will complain that no such class exists. There might be a class called *HLAObjectRoot.Vehicle* in the current FOM, but the RTI or Logger does not know that this is actually the same class.