

RTI DDS Toolkit

Release Notes

Version 3.0.0



© 2019 Real-Time Innovations, Inc.
All rights reserved.
Printed in U.S.A. First printing.
May 2019.

Trademarks

Real-Time Innovations, RTI, NDDS, RTI Data Distribution Service, DataBus, Connex, Micro DDS, the RTI logo, 1RTI and the phrase, “Your Systems. Working as one,” are registered trademarks, trademarks or service marks of Real-Time Innovations, Inc. All other trademarks belong to their respective owners.

Copy and Use Restrictions

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form (including electronic, mechanical, photocopy, and facsimile) without the prior written permission of Real-Time Innovations, Inc. The software described in this document is furnished under and subject to the RTI software license agreement. The software may be used or copied only under the terms of the license agreement.

Technical Support

Real-Time Innovations, Inc.

232 E. Java Drive

Sunnyvale, CA 94089

Phone: (408) 990-7444

Email: support@rti.com

Website: <https://support.rti.com/>

Contents

Chapter 1 Supported Platforms	1
Chapter 2 Compatibility	
2.1 Incompatible with Older Versions of Connex DDS using UDPv6 and Shared Memory	2
2.2 Incompatible with Older Versions of Connex DDS	2
2.3 Incompatibility when Regenerating Complex Data Types that were Originally Created in 2.0.0.104	3
2.4 Additional Steps when Upgrading from a Release Older than 1.2.0.90	3
2.5 Additional Steps when Upgrading from a Release Older than 1.3.0.91	3
2.6 Required: VI Package Manager Version 2014	4
2.7 Toolkit Uses String Length of 1024	4
2.8 Improved Performance when Managing Large Data	4
Chapter 3 What's New in 3.0.0	
3.1 New minimum version of LabVIEW	5
3.2 Support for encrypted keys	5
3.3 Ability to show RTI Connex DDS core log messages	5
3.4 Support for blocking reads	5
3.5 Ability to run Complex Type Generator programmatically	5
3.6 Compatibility with LabVIEW applications and source distributables	6
3.7 Sample info includes message with meaning of secs and nanosecs	6
Chapter 4 What's Fixed in 3.0.0	
4.1 Continuous errors if logger queue size was zero	7
4.2 Sequences sent with fewer elements than maximum size for the sequence were not read correctly	7
Chapter 5 Known Issues	
5.1 Monitoring Library cannot be Used as DomainParticipant's Base Profile when Creating Custom Secure Profile	8
5.2 No Data Received if access_scope in Publisher/Subscriber Presentation QoS is TOPIC_ PRESENTATION	8
Chapter 6 Additional Documentation	9

Chapter 1 Supported Platforms

RTI® DDS Toolkit is supported on these platforms:

- Windows® Systems:
 - Windows 7 SP1 (32-bit and 64-bit)
 - Windows 8.1 (32-bit and 64-bit)
 - Windows 10 (32-bit and 64-bit)
 - Windows Server 2008 R2 SP1 (64-bit)
 - Windows Server 2012 R2 (64-bit)
- Real-Time Targets:
 - NI™ Linux® 3 on ARMv7 CPU (tested on cRIO-9068 target)
 - NI Linux 3 on 64-bit Intel CPU (tested on cRIO-9031 target)

You will also need:

- National Instruments® LabVIEW® 2016 or later (32-bit)
- JKI VI Package Manager 2016 or later

Chapter 2 Compatibility

2.1 Incompatible with Older Versions of Connex DDS using UDPv6 and Shared Memory

RTI Connex® *DDS* 5.1.0 and earlier releases used a UDPv6 locator kind that was not compliant with the value in the RTPS specification. The value used in *Connex DDS* 5.1.0 was 5 while the RTPS specification specifies a value of 2. Because of this issue, *Connex DDS* could not inter-operate with other DDS vendors over UDPv6.

This problem is resolved starting with *Connex DDS* 5.2.0. Note, however, that out-the-box backward compatibility with *Connex DDS* 5.1.0 and lower, when using both the UDPv6 and SHMEM transports, is broken.

For details on how to resolve this issue, see the *Connex DDS Core Libraries Release Notes* for 5.2.0:

https://community.rti.com/static/documentation/connex-dds/5.2.0/doc/manuals/connex_dds/html/files/RTI_ConnexDDS_CoreLibraries_ReleaseNotes/index.htm#ReleaseNotes/Transport_Compatibility.htm.

2.2 Incompatible with Older Versions of Connex DDS

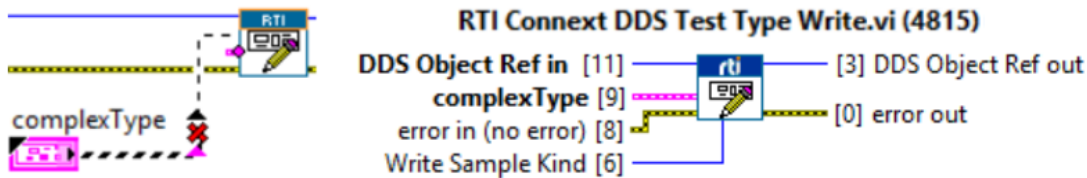
In *Connex DDS* 5.1.0, the default **message_size_max** for the UDPv4, UDPv6, TCP, Secure WAN, and shared-memory transports changed to provide better out-of-the-box performance. *RTI DDS Toolkit* 1.1.0 and higher also uses the new default value for **message_size_max**. Consequently, *RTI DDS Toolkit* 1.1.0 and higher is not out-of-the-box compatible with applications running older versions of *Connex DDS* or *RTI Data Distribution Service*.

For details on how to resolve this issue, see the Transport Compatibility section of the *Connex DDS Core Libraries Release Notes* for 5.1.0:

https://community.rti.com/rti-doc/510/ndds.5.1.0/doc/pdf/RTI_CoreLibrariesAndUtilities_ReleaseNotes.pdf.

2.3 Incompatibility when Regenerating Complex Data Types that were Originally Created in 2.0.0.104

The 'complexType' input of the previous *Write* subVI has been changed from the 2nd left pin to the 3rd one. This doesn't affect the functionality if the *Write* subVI is not regenerated (because it is saved and used as it was originally generated). However if you regenerate the type, the VIs that were using it will no longer be able to use it until the wire is reconnected to the correct pin.



2.4 Additional Steps when Upgrading from a Release Older than 1.2.0.90

If you are upgrading from a release older than 1.2.0.90, there are important steps you must take. Briefly, changes are required because:

- The *Create Reader/Writer* subVIs have been deprecated. We strongly recommend that you upgrade the VIs to use the *Simple Create Reader/Writer* or *Advanced Create Reader/Writer*.
- The *RTI DDS Toolkit* library name changed from **lvdds.1.0.dll** to **rtilvdds.dll**.

See Section 1.1 in the *Getting Started Guide* for details on upgrading.

2.5 Additional Steps when Upgrading from a Release Older than 1.3.0.91

If you are upgrading from a release older than 1.3.0.91, there are important steps you must take. Briefly, changes are required because:

- The DDS Write/Read Object Reference has been removed for all our VIs.
- The configuration of several Call Library Function Nodes has been modified and they no longer receive a reference as a parameter.

See Section 1.1 in the *Getting Started Guide* for details on upgrading.

2.6 Required: VI Package Manager Version 2014

The *RTI DDS Toolkit* requires VI Package Manager (VIPM) to be installed. Due to a limitation in VIPM, version 2014 of VIPM is required. For details visit JKI website: <http://support.jki.net/entries/66745297-VIPM-2013-cannot-install-packages-built-in-VIPM-2014>.

2.7 Toolkit Uses String Length of 1024

In *RTI DDS Toolkit*, the default string length is 1024 characters. This may create incompatibilities with other DDS data types in your system that use string lengths != 1024. See Section 6.2 in the *Getting Started Guide* to learn how to change the string length. (RTI Issue ID LABPLG-565)

2.8 Improved Performance when Managing Large Data

We have improved the performance when managing large data by setting the following properties. (Note: they cannot be changed from the QoS XML file):

- Dynamic data:
 - **serialization.trim_to_size** = DDS_BOOLEAN_TRUE
 - **serialization.max_size_serialized** = DDS_LENGTH_UNLIMITED
 - **serialization.min_size_serialized** = TypeCode's minimum serialized size
- Data Writer:
 - **dds.data_writer.history.memory_manager.fast_pool.pool_buffer_max_size** = 1024
- Data Reader:
 - **dds.data_reader.history.memory_manager.fast_pool.pool_buffer_max_size** = 1024

Chapter 3 What's New in 3.0.0

3.1 New minimum version of LabVIEW

The minimum version of LabVIEW supported is now 2016 (instead of 2015).

3.2 Support for encrypted keys

This release adds support for encrypted private keys on Windows and CompactRIO™ systems. If a private key is encrypted, a password must be supplied. For more information, see the *Getting Started Guide: Section 6.8.1, Managing Custom Security Profiles with the Security Panel (Windows Systems)*” (despite the section name, this feature is also supported on CompactRIO systems) and Section 6.8.2, Managing Custom Security Profiles with SubVIs.

3.3 Ability to show RTI Connex DDS core log messages

This release includes an option to show internal *RTI Connex DDS* core log messages. You can enable this feature in the Administration Panel.

3.4 Support for blocking reads

The *Read* VI now allows you to perform a read that can stay blocked until a timeout expires or a new sample arrives. This helps reduce CPU usage since there is no need to continuously poll for new samples.

3.5 Ability to run Complex Type Generator programmatically

The ComplexType Generator functionality now can be used programmatically. The Tools palette has a new VI called *DDS Generate Custom Type VIs*. This VI encapsulates the Complex Type Generator functionality with the same configuration parameters.

3.6 Compatibility with LabVIEW applications and source distributables

DDS Toolkit DLL dependencies can now be packed into LabVIEW applications (.exe's) and source distributables.

3.7 Sample info includes message with meaning of secs and nanosecs

The 'DDS Sample Info' cluster includes a message with the meaning of *sec* and *nanosec*. This message is only explanatory, it does not affect the new or existing code at all.

Chapter 4 What's Fixed in 3.0.0

4.1 Continuous errors if logger queue size was zero

Setting the internal logger queue size to 0 caused a continuous flow of error messages in the LabVIEW debugging window, such as:

```
LVDDS_Logger_log_new_message: Error when registering the message.
```

This problem has been resolved.

[RTI Issue ID LABPLG-720]

4.2 Sequences sent with fewer elements than maximum size for the sequence were not read correctly

When sending sequences with fewer elements than the maximum size for that sequence, a DataReader received values for *all* the elements in the sequence and the values were always default values. Now sequences are read correctly.

[RTI Issue ID LABPLG-771]

Chapter 5 Known Issues

5.1 Monitoring Library cannot be Used as DomainParticipant's Base Profile when Creating Custom Secure Profile

When creating a DomainParticipant from a Custom Secure Profile, non-secure Monitoring cannot be enabled for that DomainParticipant. If this situation occurs, the toolkit will throw error 5080, which means that the DomainParticipant cannot be created.

[RTI Issue ID LABPLG-474]

5.2 No Data Received if access_scope in Publisher/Subscriber Presentation QoS is TOPIC_PRESENTATION

If you set the access_scope in the Presentation QoS of the Publisher/Subscriber as seen below, Readers won't be able to read data:

```
<subscriber_qos>
  <presentation>
    <access_scope>TOPIC_PRESENTATION_QOS</access_scope>
    <ordered_access>true</ordered_access>
  </presentation>
</subscriber_qos>
```

Chapter 6 Additional Documentation

RTI DDS Toolkit uses *RTI Connex DDS* for communication. For details on *RTI Connex DDS* and the Quality of Service (QoS) settings, visit <http://community.rti.com/documentation>.