RTI Limited Bandwidth Plugins

Release Notes

Version 6.1.2

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Trademarks

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Release Notes

1 Supported Platforms

The *RTI® Limited Bandwidth Plugins* distribution includes:

- Limited Bandwidth Endpoint Discovery Plugin (LBED)
- Limited Bandwidth Participant Discovery Plugin (LBPD)
- Limited Bandwidth Real-Time Publish Subscribe Plugin (LBRTPS)
- Compression Real-Time Publish Subscribe Plugin (ZRTPS)

Table 1 Supported Platforms lists the platforms supported by these plugins. For details on these platforms, see the *RTI Connext DDS Core Libraries Platform Notes*.

Note: POSIX®-compliant architectures that end with "FACE_GP" are not supported. Custom target platforms are not supported.

Table 1 Supported Platforms

Operating System	
Linux®	All platforms on Intel® x64 CPUs listed in the *RTI Connext® DDS Core Libraries Release Notes* for the same version number, except SUSE® Linux Enterprise Server 12.
QNX®	QNX Neutrino® 6.4.1 *(For LBED Plugin only)*
Windows®	All Windows platforms listed in the *RTI Connext DDS Core Libraries Release Notes*.

1.1 Requirements when Using Microsoft Visual Studio

You must have the appropriate Microsoft® Visual Studio® Redistributable Package installed on the machine where you are *running* an application linked with dynamic libraries. For details, see the *RTI Connext DDS Core Libraries Platform Notes*.

2 Compatibility

Limited Bandwidth Plugins is an optional product for use with *Connext DDS* with the same version number.

The plugins are not fully tested and supported in combination with *RTI DDS Spy (rtiddsspy)*, *RTI Recording Service*, *RTI Shapes Demo*, *RTI Persistence Service*, or *RTI Database Integration Service*.

When using the LBPD plugin with *RTI Routing Service*, either the 'key' or 'participant_name' property may be used. If the 'participant_name' property is used, it must match the participant name generated by *Routing Service*, which uses this format for naming participants: "RTI Routing Service: <service name>.<domain_route name>#{1,2}".

For backward compatibility information between 6.1.2 and previous releases, see the *Migration Guide* on the RTI Community Portal (https://community.rti.com/documentation).

3 What's New in 6.1.2

3.1 New Platforms

This release adds support for these platforms:

- Ubuntu® 22.04 LTS (x64)
- Windows 11 and Visual Studio 2022 (x64)

3.2 Third-Party Software Upgrades

The following third-party software used by *Limited Bandwidth Plugins* has been upgraded.

Third-Party Software	Previous Version	Current Version
Zlib	1.2.11	1.2.12

This upgrade may fix potential vulnerabilities. See 4.6 Fixes Related to Vulnerabilities on page 4.

For information on third-party software used by *Connext* products, see the “3rdPartySoftware” documents in your installation: **<NDDSHOME>/doc/manuals/connext_dds_professional/release_notes_3rdparty**.

4 What's Fixed in 6.1.2

4.1 Memory Leak when ZRTPS or LBRTPS Sub-Transport Library was Set

When using the ZRTPS and LBRTPS transport plugins, and a sub-transport was set using the **dds.transport.<lbrtps|zrtps>.subtransport** properties, the library defined in these properties was opened and never closed, causing a memory leak.

This behavior has been fixed. Now the sub-transport library is correctly closed when the ZRTPS or LBRTPS transport is destroyed.

[RTI Issue ID COREPLG-602]

4.2 Crash when Installing Some DataReader Listeners in DomainParticipant that used LBPD

The Limited Bandwidth Participant Discovery (LBPD) Plugin, internally creates a *DataWriter* and a *DataReader* for exchanging the static discovery information. These endpoints are created using the user *DomainParticipant* (the one in which you enabled the plugin).

If you installed a *DataReader* listener in your *DomainParticipant* with LBPD, that listener was also installed for LBPD's internal *DataReader*. When the listener's associated event was triggered for the internal *DataReader*, a crash occurred because the internal endpoints did not have all the information required for exercising the user listeners.

The issue did not occur for *DataWriter* listeners because none of the currently available events can be triggered for the internal LBPD *DataWriter*. Not all *DataReader* listeners caused a crash. The internal *DataReader* has some listeners already installed, which override the user's listeners. The latter are as follows:

- **on_data_available()**
- **on_sample_lost()**
- **on_sample_rejected()**
- **on_requested_incompatible_qos()**

This issue has been fixed. Now, users' listeners installed at the *DomainParticipant* level are not invoked for the internal LBPD endpoints.

[RTI Issue ID COREPLG-604]

4.3 Segmentation Fault if Participant with ZRTPS or LBRTPS Transports Enabled also used TCP sub-transport

Participants with the ZRTPS or LBRTPS transport plugins enabled, used in combination with TCP as a sub-transport (achieved by loading the property **dds.transport.<lbrtps|zrtps>.subtransport**) would fail with a segmentation fault on the receiving thread after processing the received message. This problem has been fixed.

[RTI Issue ID COREPLG-620]

4.4 Memory Leak when External Compression Library Set and Used for ZRTPS Transport

When using the ZRTPS transport plugin and an external compression library (the property **dds.transport.zrtps.compression_library** was set to EXTERNAL_COMPRESSION), the library set in the property **dds.transport.zrtps.external_library** was opened and never closed, causing a memory leak.

This problem has been resolved. Now the external library is correctly closed when the ZRTPS transport is destroyed.

[RTI Issue ID COREPLG-629]

4.5 Admin Console Did Not Work with Limited Bandwidth Plugins

Admin Console crashed when used with *RTI Limited Bandwidth Plugins*. This was due to a problem in *Limited Bandwidth Plugins*, which has been resolved by COREPLG-604.

[RTI Issue ID ADMINCONSOLE-1094]

4.6 Fixes Related to Vulnerabilities

This release fixes some potential vulnerabilities, described below.

4.6.1 Potential memory corruption when using Zlib compression due to vulnerability in Zlib

The ZRTPS transport in the *Limited Bandwidth Plugins* had a third-party dependency on Zlib version 1.2.11, which is known to be affected by one publicly disclosed vulnerability.

This vulnerability has been fixed by upgrading Zlib to the latest stable version, 1.2.12. See 3.2 Third-Party Software Upgrades on page 2 for more details.

The impacts on *Connext* applications of using the previous version were:

- Out-of-bounds memory accesses, crashing the application
- Exploitable by triggering compression of an RTPS message with a malicious payload
- CVSS v3.1 Score: 7.5 HIGH
- CVSS v3.1 Vector: AV:N/AC:L/PR:N/UI:N/S:U/C:N/I:N/A:H

[RTI Issue ID COREPLG-631]

5 Previous Releases

5.1 What's New in 6.1.1

5.1.1 Third-Party Software Upgrades

The following third-party software used by ZRTPS has been upgraded:

Third-Party Software	Previous Version	Current Version
bzip2	1.0.6	1.0.8
zlib	1.2.6	1.2.11

For information on third-party software used by *Connext DDS* products, see the "3rdPartySoftware" documents in your installation: **<NDDSHOME>/doc/manuals/connext_dds_professional/release_notes_3rdparty**.

5.2 What's Fixed in 6.1.1

5.2.1 Log Messages did not Print According to Verbosity

When the verbosity property was set in the LBPD or LBED plugin, there was an inconsistency between the verbosity levels of the plugin and the log messages that should have been printed:

- Exceptions were not printed when the verbosity property was set to 0.
- Warnings were not printed when the verbosity property was set to 1.
- Debug messages were not printed when the verbosity property was set to 2.

This is now fixed:

- A negative verbosity value won't print any log message.
- Verbosity = 0 (default) will print exceptions and fatal errors.
- Verbosity = 1 will print exceptions, fatal errors, and warnings.
- Verbosity = 2 and up will print all available log messages.

[RTI Issue IDs COREPLG-549 and COREPLG-552]

5.2.2 Potential Crash if DomainParticipant Name has 255 Characters (or More) in LBED Static Configuration File

If the name of a *DomainParticipant* in the LBED static configuration XML file had 255 or more characters, it was stored internally as a non-null terminated string.

When the string was used internally, for example, to look up the *DomainParticipant's* configuration when it was discovered, the behavior was undefined and may have resulted in not finding the *DomainParticipant* or in a crash.

This issue is now fixed. Now, the null character is always appended to every string, independently of its size.

[RTI Issue ID COREPLG-576]

5.3 What's New in 6.1.0

This release adds support for these platforms:

- Red Hat Enterprise Linux 7.6
- Ubuntu® 20.04 LTS (x64)

6 Known Issues

6.1 Transport-Related Limitations for ZRTPS

The following are known transport-interaction limitations when using the ZRTPS transport plugin:

- Neither Shared Memory (SHMEM) nor UDPv6 may be used as sub-transports.
- The UDPv4 transport may not be used simultaneously as a transport and a ZRTPS sub-transport.

6.2 Some QoS not Supported by LBED Discovery Plugin

The following QoS (introduced in *Connext DDS* 5.0) are not currently supported in the LBED Plugin configuration file:

- AvailabilityQosPolicy
- TypeConsistencyEnforcementQosPolicy

6.3 Some Features not Supported

The following features are not currently supported by the LBPD Plugin:

- Security
- TopicQueries
- The **locator_reachability_lease_duration** in the DiscoveryConfigQosPolicy
- Propagation of properties in the PropertyQosPolicy during discovery

The following features are not currently supported by the LBED Plugin:

- Security
- Custom content filters
- Writer-side content filtering

7 Available Documentation

The following documentation is provided with *Limited Bandwidth Plug-ins*:

- *Installation Guide*:
  <NDDSHOME>/doc/manuals/addon_products/limited_bandwidth_plugins/RTI_LimitedBandwidthPlugins_InstallationGuide.pdf
- *User's Manual*:
  <NDDSHOME>/doc/manuals/addon_products/limited_bandwidth_plugins/RTI_LimitedBandwidthPlugins_UsersManual.pdf
- Example code

  For Linux systems:
  /home/your user name/rti_workspace/version/examples/connext_dds/c/limited_bandwidth_plugins

  For Windows systems:
  C:\Users\your user name\Documents\rti_workspace\version\examples\connext_dds\c\limited_bandwidth_plugins