RTI Secure WAN Transport

Release Notes

Version 6.0.0

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Chapter 1 Supported Platforms

This release of *RTI® Secure WAN Transport* is supported on the platforms in Table 1.1 Supported Platforms.

Table 1.1 Supported Platforms

Operating System	Version
Android®	All Android platforms listed in the *RTI Connext® DDS Core Libraries Release Notes* for the same version number. Note: RTI WAN Server is not supported.
iOS®	All iOS platforms listed in the *RTI Connext DDS Core Libraries Release Notes* for the same version number. Note: RTI WAN Server is not supported.
Linux®	All Linux platforms in the *RTI Connext DDS Core Libraries Release Notes* for the same version number, except not supported on SUSE® Enterprise Server.
OS X®	All OS X platforms listed in the *RTI Connext DDS Core Libraries Release Notes* for the same version number.
QNX®	All QNX Neutrino® 6.5 and higher platforms listed in the *RTI Connext DDS Core Libraries Release Notes* for the same version number.
Windows®	All Windows platforms listed in the *RTI Connext DDS Core Libraries Release Notes* for the same version number.

Secure WAN Transport is also supported on the platforms in Table 1.2 Custom Supported Platforms; these are target platforms for which RTI offers custom support. If you are interested in these platforms, please contact your local RTI representative or email sales@rti.com.

Table 1.2 Custom Supported Platforms

Operating System	Version
Linux	RedHawk™ Linux 6.5 Wind River® Linux 8

Chapter 2 Compatibility

RTI Secure WAN Transport is an optional product for use with *RTI Connext® DDS* with the same version number.

Secure WAN Transport 6.0.0 is API-compatible with OpenSSL® versions 1.0.1c through 1.0.2o. It is not API-compatible with OpenSSL® 1.1.0a or above. Note that *Secure WAN Transport* 6.0.0 has only been tested by RTI using OpenSSL 1.0.2o.

If you were using OpenSSL 1.0.1: Because *RTI Connext DDS* 5.2.3 and higher uses OpenSSL 1.0.2, the number of bits of any Diffie-Hellman (DH) parameters must now be at least 1024 (see https://www.openssl.org/blog/blog/2015/05/20/logjam-freak-upcoming-changes/). Therefore, if you are using the property **tls.cipher.dh_param_files** and there is a DH parameter file that has fewer than 1024 bits, you must regenerate the file with at least 1024 bits.

For backward compatibility information between 6.0.0 and previous releases, see the *Migration Guide* on the RTI Community Portal (https://community.rti.com/documentation).

Chapter 3 What's New in 6.0.0

3.1 New Platforms

This release adds support for the following platforms:

Operating System	CPU	Compiler	RTI Architecture Abbreviation
Ubuntu 18.04 LTS	x64	gcc 7.3.0	x64Linux4gcc7.3.0
Wind River Linux 8	ARMv7	gcc 5.2.0	armv7aWRLinux8gcc5.2.0 (custom target platform)

See the *RTI Connext DDS Core Libraries Platform Notes* for details.

3.2 New APIs

New APIs are provided to get the library version number of *Secure WAN*:

- NDDS_Transport_WAN_get_library_version()
- NDDS_Transport_WAN_get_build_version_string()

3.3 Updated OpenSSL Version

This release uses OpenSSL 1.0.2o (instead of 1.0.2n).

Chapter 3 What's Fixed in 6.0

3.1 Possible segmentation fault in WAN transport during participant deletion

The WAN transport may have crashed during participant deletion. In particular, this issue was only triggered after logging at least one message from the WAN transport threads.

This problem has been resolved. The WAN transport no longer crashes as a result of this issue.

[RTI Issue ID COREPLG-399]

3.2 Changes in hello world dtls example to simplify how static linking is enabled

The hello world dtls example has been updated to simplify how static linking is enabled. Specifically, previous releases of this example required you to define the "USE_STATIC_LINK" variable to link statically. Now this step is no longer required.

[RTI Issue ID COREPLG-430]

3.3 Wrong exception printed when using create_function_ptr property

The WAN transport plugin's **create_function_ptr** property was not properly validated. Therefore, the following message was printed when that property was used:

```
[D0064|ENABLE] NDDS_Transport_WAN_plugin_property_from_DDS_property:Unexpected property:
dds.transport.wan_plugin.wan.create_function_ptr. Closest valid property:
dds.transport.wan_plugin.wan.create_function
```

Note that, despite the exception, the property did have effect.

This problem has been resolved: the unexpected log message no longer appears.

[RTI Issue ID COREPLG-451]

Chapter 4 Known Issues

- When communicating over some networks, the *Secure WAN Transport* plug-ins may fail to send data larger than the MTU (maximum transmission unit) size available for the network. This is especially likely over wide-area networks. This scenario is also a suggested configuration of the DTLS protocol, according to the DTLS specification, which is IETF RFC 4347.

  If problems occur while sending large packets, set the **maximum_message_size** transport property to the MTU of your network *minus 28 bytes for the DTLS header* and set up your application according to the Large Data Use Cases "How To" provided in the online (HTML) documentation. For example, for an MTU size of 1500 bytes (for standard Ethernet), set **maximum_message_size** to 1500 - 28 = 1472.

  One instance of this problem for which there is no workaround is the case where the discovery packets are larger than your network's MTU. This could occur if user data, propagated properties, or type-codes are configured.
- An application using the WAN transport may appear to hang for several minutes if the WAN server is shut down and not restarted before the application tries to contact it, or if the application is unable to communicate with the WAN server.

  Two scenarios under which the application tries to contact the STUN server are during shut down and while establishing a connection with the initial peers.

  This issue is due to a sequence of synchronous STUN transactions with the STUN server. If you need to run WAN transport without a STUN server, here are some recommendations:
  - Decrease the blocking time by decreasing the number of STUN retransmissions. To do so, change the property, **stun_number_of_retransmissions**. For example, a change from the default of 7 retries to 5 retries will result in a total period of 3.1 seconds per synchronous operation. Note however, that this may impact the ability to reliably set up connections to peers over a WAN.

- Decrease the blocking time by using a participant ID limit of zero when configuring the initial peer descriptors.

  For example, when the peer descriptor **wan://::1:10.10.1.150** is specified, DDS will try to contact five participants with the same WAN ID in different ports. Usually there is only one participant using the same WAN ID. Although the other four participants will never be reachable, the application still tries to establish communication with them by contacting the STUN server.

  You can reduce the number of participants to which the application will try to contact to one by using a participant ID limit of zero in the peer descriptor. For example, **0@wan://::1:10.10.1.150**.

  For information on peer descriptors, see the *Discovery* chapter in the *RTI Connext DDS Core Libraries User's Manual*.

5 Third-Party Licenses

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).

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