

# **RTI Real-Time WAN Transport**

## **Installation Guide**

**Version 7.2.0**



## Trademarks

RTI, Real-Time Innovations, Connex, Connex Drive, NDDS, 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 solely under and subject to RTI's standard terms and conditions available at <https://www.rti.com/terms> and in accordance with your License Acknowledgement Certificate (LAC) and Maintenance and Support Certificate (MSC), except to the extent otherwise accepted in writing by a corporate officer of RTI.

## Third-Party Software

RTI software may contain independent, third-party software or code that are subject to third-party license terms and conditions, including open source license terms and conditions. Copies of applicable third-party licenses and notices are located at [community.rti.com/documentation](https://community.rti.com/documentation). IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOUR USE OF THIRD-PARTY SOFTWARE COMPLIES WITH THE CORRESPONDING THIRD-PARTY LICENSE TERMS AND CONDITIONS.

## Notices

### *Deprecations and Removals*

Any deprecations or removals noted in this document serve as notice under the Real-Time Innovations, Inc. Maintenance Policy #4220 and/or any other agreements by and between RTI and customer regarding maintenance and support of RTI's software.

*Deprecated* means that the item is still supported in the release, but will be removed in a future release. *Removed* means that the item is discontinued or no longer supported. By specifying that an item is deprecated in a release, RTI hereby provides customer notice that RTI reserves the right after one year from the date of such release and, with or without further notice, to immediately terminate maintenance (including without limitation, providing updates and upgrades) for the item, and no longer support the item, in a future release.

**Technical Support**

Real-Time Innovations, Inc.

232 E. Java Drive

Sunnyvale, CA 94089

Phone: (408) 990-7444

Email: [support@rti.com](mailto:support@rti.com)

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

# Contents

---

<b>1 Paths Mentioned in Documentation</b>	<b>1</b>
<b>2 Download Instructions</b>	<b>3</b>
<b>3 Installation Instructions</b>	
3.1 Installing an Evaluation or LM Version	5
3.2 Installing a Regular Version	6
3.2.1 Installing on Windows Systems	6
3.2.2 Installing on Linux and Other Systems	7
3.3 Installing Cloud Discovery Service (Optional)	8
<b>4 Additional Documentation</b>	<b>9</b>

# 1 Paths Mentioned in Documentation

The documentation refers to:

- **<NDDSHOME>**

This refers to the installation directory for *RTI® Connex®*. The default installation paths are:

- macOS® systems:  
**/Applications/rti\_connex\_dds-7.2.0**
- Linux systems, non-*root* user:  
**/home/<your user name>/rti\_connex\_dds-7.2.0**
- Linux systems, *root* user:  
**/opt/rti\_connex\_dds-7.2.0**
- Windows® systems, user without Administrator privileges:  
**<your home directory>\rti\_connex\_dds-7.2.0**
- Windows systems, user with Administrator privileges:  
**C:\Program Files\rti\_connex\_dds-7.2.0**

You may also see **\$NDDSHOME** or **%NDDSHOME%**, which refers to an environment variable set to the installation path.

Wherever you see **<NDDSHOME>** used in a path, replace it with your installation path.

**Note for Windows Users:** When using a command prompt to enter a command that includes the path **C:\Program Files** (or any directory name that has a space), enclose the path in quotation marks. For example:

```
"C:\Program Files\rti_connex_dds-7.2.0\bin\rtiddsgen"
```

Or if you have defined the **NDDSHOME** environment variable:

```
"%NDDSHOME%\bin\rtiddsgen"
```

- *<path to examples>*

By default, examples are copied into your home directory the first time you run *RTI Launcher* or any script in *<NDDSHOME>/bin*. This document refers to the location of the copied examples as *<path to examples>*.

Wherever you see *<path to examples>*, replace it with the appropriate path.

Default path to the examples:

- macOS systems: */Users/<your user name>/rti\_workspace/7.2.0/examples*
- Linux systems: */home/<your user name>/rti\_workspace/7.2.0/examples*
- Windows systems: *<your Windows documents folder>\rti\_workspace\7.2.0\examples*

Where 'your Windows documents folder' depends on your version of Windows. For example, on Windows 10, the folder is *C:\Users\<your user name>\Documents*.

Note: You can specify a different location for **rti\_workspace**. You can also specify that you do not want the examples copied to the workspace. For details, see *Controlling Location for RTI Workspace and Copying of Examples* in the *RTI Connex Installation Guide*.

## 2 Download Instructions

If you install an *RTI Connex* evaluation ("eval") or LM ("lm") package (such as **rti\_connex\_dds-7.2.0-eval-x64Win64VS2017.exe** or **rti\_connex\_dds-7.2.0-lm-x64Win64VS2017.exe**), then *Real-Time WAN Transport* and *RTI Cloud Discovery Service* are both included in the package and you don't need to download them<sup>1</sup>; however, you will need a *Connex Anywhere* license file to use *Real-Time WAN Transport* and *Cloud Discovery Service* in the evaluation or LM package. See the *License Management* chapter, in the [RTI Connex Installation Guide](#).

Otherwise (for example, when installing the *RTI Connex Professional* package), you will need to additionally download the *Real-Time WAN Transport* package from the RTI Customer Portal, accessible from <https://support.rti.com/>; in that case, you do not need a license file to use *Real-Time WAN Transport*.

You will need your username and password to log into the portal. If you do not have this info, please contact [license@rti.com](mailto:license@rti.com).

Once you have logged into the portal, select the **Downloads** link, then select the appropriate version of *Real-Time WAN Transport* for your platform. Download both of the following:

- **rti\_real\_time\_wan\_transport-7.2.0-host-<host platform>.rtipkg**

For example: **rti\_real\_time\_wan\_transport-7.2.0-host-x64Linux.rtipkg**.

- **rti\_real\_time\_wan\_transport-7.2.0-<target architecture>.rtipkg**

For example: **rti\_real\_time\_wan\_transport-7.2.0-target-x64Linux4gcc7.3.0.rtipkg**.

---

<sup>1</sup>The evaluation and LM packages also include *RTI Security Plugins* and a prebuilt version of OpenSSL 3.0.9. If you wish to build your own version of OpenSSL 3.0.9, you can find the source code here: <https://www.openssl.org/source/>.

Architecture names are described in the [RTI Connex Core Libraries Platform Notes](#). See also the [RTI Real-Time WAN Transport Release Notes](#) for any updates.

Optionally, you can download and install *Cloud Discovery Service* for use with *Real-Time WAN Transport* (unless you have installed the *RTI Connex* evaluation ("eval") or LM ("lm") package, which already includes *Cloud Discovery Service*). *Cloud Discovery Service* is required if the *DomainParticipants* communicating over a WAN are behind cone NATs (see [RTI Real-Time WAN Transport](#) in the *RTI Connex Core Libraries User's Manual* for more information):

- **rti\_cloud\_discovery\_service-7.2.0-host-<host platform>.rtipkg**

For example: **rti\_cloud\_discovery\_service-7.2.0-host-x64Linux.rtipkg**.

- **rti\_cloud\_discovery\_service-7.2.0-target-<arch>.rtipkg**

For example: **rti\_cloud\_discovery\_service-7.2.0-target-x64Linux4gcc7.3.0.rtipkg**.

If you need help with the download process, contact **support@rti.com**.



## 3 Installation Instructions

You do not need administrator privileges. All directory locations are meant as examples only; adjust them to suit your site. <NDDSHOME> is described in [1 Paths Mentioned in Documentation on page 1](#).

### 3.1 Installing an Evaluation or LM Version

1. Install the evaluation ("eval") or LM ("lm") bundle as described in the *Installing RTI Connex* chapter, in the [RTI Connex Installation Guide](#).

To use *Real-Time WAN Transport* in the evaluation or LM bundle, you need a valid *Connex Anywhere* license. See the *License Management* chapter, in the [RTI Connex Installation Guide](#).

The installer places files into an **rti\_connex\_dds-7.x.y** directory, including the *Real-Time WAN Transport* functionality. Unlike with the regular version, the evaluation or LM version does not require the installation of a separate *Real-Time WAN Transport* package.

2. If not already included, add <NDDSHOME>\lib<architecture> to your Path environment variable. For example (enter this on one line):

On Linux and macOS systems:

```
export PATH=<NDDSHOME>/lib/<architecture>:${PATH}
```

On Windows systems:

```
set PATH=<NDDSHOME>\lib\<architecture>;%PATH%
```

These commands set your Path environment variable temporarily. To set your path longer term, consult your operating system's documentation.

After installing, see the *RTI Real-Time WAN Transport* part in the [RTI Connex Core Libraries User's Manual](#). You can also find an example here:

[https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connexdds/real\\_time\\_wan\\_transport](https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connexdds/real_time_wan_transport).

## 3.2 Installing a Regular Version

### 3.2.1 Installing on Windows Systems

1. Install the *Real-Time WAN Transport* host and target **.rtipkg** files on top of *RTI Connex*.

There are two ways to install these files: from *RTI Launcher* or from the command line.

#### To install from *RTI Launcher*:

- a. Start *RTI Launcher*:

```
cd <NDDSHOME>
bin\rtilauncher
```

- a. From the **Configuration** tab, click on **Install RTI Packages**.
- b. Use the + sign to add the **.rtipkg** files that you want to install.
- c. Click **Install**.

#### To install from the command line:

```
cd <NDDSHOME>\bin
.\rtipkginstall <path to .rtipkg file>
```

This will install files into the existing **rti\_connexdds-7.x.y** directory. The installer will put the *Real-Time WAN Transport* libraries in **<NDDSHOME>\lib<architecture>**.

2. If not already included, add **<NDDSHOME>\lib<architecture>** to your Path environment variable. For example (enter this on one line):

```
set PATH=<NDDSHOME>\lib<architecture>;%PATH%
```

This command sets your Path environment variable temporarily. To set your path longer term, consult your operating system's documentation.

3. To verify your installation, find the *Real-Time WAN Transport* library (*nddsrwt*) in **<install dir>\lib<target architecture>**.

See the [RTI Connex Core Libraries Platform Notes](#) for a list of the *Real-Time WAN Transport* libraries for your platform.

After installing, see the *RTI Real-Time WAN Transport* part in the [RTI Connex Core Libraries User's Manual](#). You can also find an example here: [https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connexdds/real\\_time\\_wan\\_transport](https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connexdds/real_time_wan_transport).

## 3.2.2 Installing on Linux and Other Systems

1. Install the *Real-Time WAN Transport* host and target **.rtipkg** files on top of *RTI Connex*.

There are two ways to install these files: from *RTI Launcher* or from the command line.

### To install from *RTI Launcher*:

- a. Start *RTI Launcher*:

```
cd <NDDSHOME>/bin
./rtilauncher
```

- a. From the **Configuration** tab, click on **Install RTI Packages**.
- b. Use the + sign to add the **.rtipkg** files that you want to install.
- c. Click **Install**.

### To install from the command line:

```
cd <NDDSHOME>/bin
./rtipkginstall <path to .rtipkg file>
```

This will install files into the existing **rti\_connex\_dds-7.x.y** directory. The installer will put the *Real-Time WAN Transport* libraries in **<NDDSHOME>/lib/<architecture>**.

2. If the following are not already included in your path:

- a. Add **<NDDSHOME>/bin** to your PATH environment variable:

```
export PATH=<NDDSHOME>/bin:$PATH
```

- b. Add **<NDDSHOME>/lib/<architecture>** to your library search path (pointed to by the LD\_LIBRARY\_PATH environment variable on Linux systems, DYLD\_LIBRARY\_PATH on macOS systems).

For example (enter this on one line):

```
export LD_LIBRARY_PATH=<NDDSHOME>/lib/<architecture>:${LD_LIBRARY_PATH}
```

These commands set your paths temporarily. To set them longer term, consult your operating system's documentation.

3. To verify your installation, find the *Real-Time WAN Transport* library (**libnddsrwt**) in **<install dir>/lib/<target architecture>**.

See the [RTI Connex Core Libraries Platform Notes](#) for a list of the *Real-Time WAN Transport* libraries for your platform.

After installing, see the *RTI Real-Time WAN Transport* part in the [RTI Connex Core Libraries User's Manual](#). You can also find an example here: [https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connex\\_dds/real\\_time\\_wan\\_transport](https://github.com/rticommunity/rticonnextdds-examples/tree/release/<version>/examples/connex_dds/real_time_wan_transport).

## 3.3 Installing Cloud Discovery Service (Optional)

If you have installed the regular version (in [3.2 Installing a Regular Version on page 6](#)), you can optionally install *Cloud Discovery Service* from *RTI Launcher* or the command line just as you did above. For details, see the "Installation" chapter of the [RTI Cloud Discovery Service](#) documentation.

If you are installing an evaluation ("eval") or LM ("lm") bundle, it already includes *Cloud Discovery Service*. Follow the instructions in the *Installing RTI Connex* chapter, in the [RTI Connex Installation Guide](#), regarding how to install the evaluation or LM bundle.

To use *Cloud Discovery Service* in the evaluation or LM bundle, you need a valid *Connex Anywhere* license, same as the one as described in [3.1 Installing an Evaluation or LM Version on page 5](#). See the *License Management* chapter, in the [RTI Connex Installation Guide](#).

## 4 Additional Documentation

The following documentation on *Real-Time WAN Transport* is provided with the *RTI Connex* distribution.

- Release Notes: <NDDSHOME>/doc/manuals/addon\_products/realtime\_wan\_transport/release\_notes/RTI\_RealTime\_WAN\_Transport\_ReleaseNotes.pdf
- User's Manual:  
  
<NDDSHOME>/doc/manuals/connext\_dds\_professional/users\_manual/RTI\_ConnextDDS\_CoreLibraries\_UsersManual.pdf
- API Reference HTML documentation: Under the **Modules** tab, navigate to **RTI Connex API Reference, Transports, Built-in Transport Plugins, Real-Time WAN Transport**.

<NDDSHOME> and <path to examples> are described in [1 Paths Mentioned in Documentation on page 1](#).