

RTI TLS Support

Installation Guide

Version 6.0.0



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The security features of this product include software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

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1 Introduction

RTI® TLS Support is an optional product for use with the TCP transport that is included with *RTI Connexxt® DDS*. If you choose to use *TLS Support*, it must be installed on top of a *Connexxt DDS* installation with the same version number; it can only be used on architectures that support TCP transport.

The distribution file uses the naming convention, **rti-tls-<architecture>.rtipkg**, where *<architecture>* will match your system architecture. (System architecture names are described in the *RTI Connexxt DDS Core Libraries Platform Notes*.)

TLS Support also requires OpenSSL. See the *TLS Support Release Notes* for the version number. OpenSSL is available from RTI's Support Portal, or you may obtain it from another source.

To see a simple 'Hello, World' example application that uses TCP and TLS, look in the **hello_world_tcp** and **hello_builtin_tcp** example directories for C. (See [2 Paths Mentioned in Documentation on page 2](#) for the path to the examples.)

2 Paths Mentioned in Documentation

The documentation refers to:

- **<NDDSHOME>**

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

- Mac® OS X® systems:
/Applications/rti_connex_dds-6.0.0
- UNIX-based systems, non-*root* user:
/home/<your user name>/rti_connex_dds-6.0.0
- UNIX-based systems, *root* user:
/opt/rti_connex_dds-6.0.0
- Windows® systems, user without Administrator privileges:
<your home directory>\rti_connex_dds-6.0.0
- Windows systems, user with Administrator privileges:
C:\Program Files\rti_connex_dds-6.0.0

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-6.0.0\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:

- Mac OS X systems: **/Users/<your user name>/rti_workspace/6.0.0/examples**
- UNIX-based systems: **/home/<your user name>/rti_workspace/6.0.0/examples**
- Windows systems: **<your Windows documents folder>\rti_workspace\6.0.0\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 DDS Core Libraries Getting Started Guide*.

3 Installing on UNIX-Based Systems

All directory locations are meant as examples only; adjust them to suit your site. <NDDSHOME> is described in [2 Paths Mentioned in Documentation on page 2](#).

1. Install *TLS Support* on top of *Connex DDS*. There are two ways to install it: from *RTI Launcher* or from the command line.

To install from *RTI Launcher*:

- a. Start *RTI Launcher*:

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

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

To install from the command line:

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

This will extract files into the existing **rti_connex_dds-6.x.y** directory. The package installer will put the TLS libraries in <NDDSHOME>/lib/<architecture>.

2. Include <NDDSHOME>/lib/<architecture> in your **LD_LIBRARY_PATH** environment variable, if it is not already included. For example (enter this on one line):

```
setenv LD_LIBRARY_PATH
    ${<NDDSHOME>/lib/i86Linux3gcc4.8.2:${LD_LIBRARY_PATH}}
```

3. Install OpenSSL.
 - a. Make sure you have GNU's version of the tar utility, **gtar** (which handles long file names), and GNU's version of the unzip utility, **gunzip**.

- b. Move the downloaded OpenSSL distribution file to a directory of your choice, such as **/local/rti**, and change to that directory:

```
cd /local/rti
```

- c. Use **gunzip** to uncompress the OpenSSL file. For example (your filename may be different):

```
gunzip openssl-<version>-i86Linux3gcc4.8.2.tar.gz
```

- d. Use **gtar** to extract the distribution from the uncompressed file. For example:

```
gtar xvf openssl-<version>-i86Linux3gcc4.8.2.tar
```

This will extract files into **/local/rti/openssl-<version>**.

- e. Include the resulting **bin** directory for OpenSSL in your PATH. For example, if you install OpenSSL in **/local/rti**, its **bin** directory will be here:

/local/rti/openssl-<version>/i86Linux3gcc4.8.2/release/bin

An example of setting the PATH is seen below (enter this on one line):

```
setenv PATH  
/local/rti/openssl-<version>/i86Linux3gcc4.8.2/release/bin:$PATH
```

- f. Include the resulting **lib** directory in your LD_LIBRARY_PATH. For example, assuming we want to use the "release" version of the OpenSSL libraries (enter this on one line):

```
setenv LD_LIBRARY_PATH /local/rti/openssl-<version>/  
i86Linux3gcc4.8.2/release/lib:${LD_LIBRARY_PATH}
```

- g. To verify your installation, enter:

```
openssl version
```

You should see a response similar to:

```
OpenSSL <version>
```


4 Installing on Windows Systems

You do not need administrator privileges. All directory locations are meant as examples only; adjust them to suit your site. <NDDSHOME> is described in [2 Paths Mentioned in Documentation on page 2](#).

1. Install *TLS Support* on top of *Connex DDS*. There are two ways to install it: from *RTI Launcher* or from the command line.

To install from *RTI Launcher*:

- a. Start *RTI Launcher*:

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

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

To install from the command line:

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

This will extract files into the existing **rti_connex_dds-6.x.y** directory. The package installer will put the TLS libraries in <NDDSHOME>\lib\<architecture>.

2. Add the *TLS Support lib* directory to your **Path** environment variable if it is not already included: %NDDSHOME%\lib\<architecture>.
3. Install OpenSSL:
 - a. Right-click the distribution file and extract the contents in a directory of your choice.
 - b. Add the resulting **bin** directory for OpenSSL to your Path environment variable. For example, if you install OpenSSL in **c:\rti**, its **bin** will be here:

```
c:\rti\openssl-<version>\<architecture>\release\bin
```

- c. To verify your installation, open a command prompt and enter:

```
openssl version
```

You should see a response similar to:

```
OpenSSL <version>
```