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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/). This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Notice

Any deprecations noted in this document serve as notice under the Real-Time Innovations, Inc. Maintenance Policy #4220.

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/
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1 Paths Mentioned in Documentation

The documentation refers to:

- `<NDDSHOME>`

  This refers to the installation directory for *RTI® Connext® DDS*. The default installation paths are:
  - macOS® systems:
    `/Applications/rti_connext_dds-6.1.1`
  - Linux systems, non-*root* user:
    `/home/<your user name>/rti_connext_dds-6.1.1`
  - Linux systems, *root* user:
    `/opt/rti_connext_dds-6.1.1`
  - Windows® systems, user without Administrator privileges:
    `<your home directory>\rti_connext_dds-6.1.1`
  - Windows systems, user with Administrator privileges:
    `C:\Program Files\rti_connext_dds-6.1.1`

You may also see `SNDDSHOME` 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:

```bash
"C:\Program Files\rti_connext_dds-6.1.1\bin\rtiddsgen"
```

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

```bash
"%NDDSHOME%\bin\rtiddsgen"
```
1 Paths Mentioned in Documentation

- `<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/6.1.1/examples`
- Linux systems: `/home/<your user name>/rti_workspace/6.1.1/examples`
- Windows systems: `<your Windows documents folder>`\rti_workspace\6.1.1\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 Connext DDS Installation Guide.
2 Download Instructions


You will need your username and password to log into the portal; these are included in the letter confirming your purchase or license-managed (LM) copy. If you do not have this letter, please contact license@rti.com.

Secure WAN Transport also requires OpenSSL. OpenSSL is available from RTI’s Support Portal, or you may obtain it from another source.

Once you have logged into the portal, select the Downloads link, then select the appropriate version of Secure WAN Transport and OpenSSL for your platform.

For Secure WAN Transport, download both:

- rti_secure_wan_host-6.1.1-<host platform>.rtipkg
- rti_secure_wan-6.1.1-<target architecture>.rtipkg

For OpenSSL, download both:

- openssl-1.1.1n-6.1.1-host-<host platform>.rtipkg
- openssl-1.1.1n-6.1.1-target-<target architecture>.rtipkg

Architecture names are described in the RTI Connext DDS Core Libraries Platform Notes.

If you need help with the download process, contact support@rti.com.
3 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 1 Paths Mentioned in Documentation on page 1.

1. Install the Secure WAN Transport host and target .rtipkg files on top of RTI Connext DDS.

There are two ways to install: 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_connext.dds-6.x.y directory; including placement of the rtiwanserver application in \bin.  

2. If not already included, add <NDDSHOME>\bin and <NDDSHOME>\lib\<architecture> to your PATH environment variable. For example:

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

3. To verify your installation, enter:
### 3 Installing on Windows Systems

**rtiwanserver -help**

You should see a response similar to:

```
Usage: rtiwanserver [options] ...
Options:
  -help          Display this information
  -address <string>  Server address (default: gethostname() output)
  -port <integer>   Server port (default: 3478)
  -verbosity <integer> Log verbosity [0-5] (default:1-exceptions -)
```

4. Optionally, install the OpenSSL host package. This is needed if you want to use Secure WAN Transport with tools such as RTI Admin Console. (Use the same process that you used for the `.rtipkg` files above.)

5. Install the OpenSSL target package. (Use the same process that you used for the `.rtipkg` files above.)

   The installer will put the OpenSSL target libraries in `<NDDSHOME>\third_party\openssl-1.1.1n`.

6. Add the OpenSSL `lib` directory to your PATH environment variable. For example, assuming you want to use the "release" version of the OpenSSL libraries (enter this on one line):

   ```
   set PATH= <NDDSHOME>\third_party\openssl-1.1.1n\<architecture>\release\lib;%PATH%
   ```

7. To verify your OpenSSL installation, enter:

   ```
   openssl version
   ```

   You should see a response similar to:

   ```
   OpenSSL <version>
   ```

   If you get a version other than OpenSSL 1.1.1n, your PATH may be pointing with a higher precedence to a different version of OpenSSL. You may need to place version 1.1.1n first or earlier in your PATH.

   You may run into this OpenSSL warning:

   ```
   WARNING: can't open config file: [default openssl built-in path]\openssl.cnf
   ```

   To resolve this issue, set the environment variable OPENSSL_CONF to the path to the `openssl.cnf` file you are using. For example (enter this all on one line):

   ```
   set OPENSSL_CONF= <NDDSHOME>\third_party\openssl-1.1.1n\<architecture>\release\ssl\openssl.cnf
   ```
4 Installing on Linux and Other Systems

This chapter applies to all supported operating systems except Windows, which is covered in 3 Installing on Windows Systems on page 4.

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.

1. Install the Secure WAN Transport host and target .rtipkg files on top of RTI Connext DDS.

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

   **To install from RTI Launcher:**
   
   a. Start RTI Launcher:
      
      ```
      cd <NDDSHOME>/bin
      ./rti_launcher
      ```
   
      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_connext_dds-6.x.y directory; including placement of the rtiwanserver application in /bin.

2. If it is not already included, add <NDDSHOME>/bin to your PATH environment variable:

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

3. If it is not already included: 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}
```

4. To verify your installation, enter:

```
rtiwanserver -help
```

You should see a response similar to:

```
Usage: rtiwanserver [options] ...
Options:
  -help               Display this information
  -address <string>   Server address (default: gethostname() output)
  -port <integer>     Server port (default: 3478)
  -verbosity <integer> Log verbosity [0-5] (default:1-exceptions -)
```

5. Optionally, install the OpenSSL host package. This is needed if you want to use Secure WAN Transport with tools such as RTI Admin Console. (Use the same process that you used for the .rtipkg files above.)

6. Install the OpenSSL target package. (Use the same process that you used for the .rtipkg files above.)

The installer will put the OpenSSL target libraries in `<NDDSHOME>/third_party/openssl-1.1.1n`.

7. Add the OpenSSL `lib` directory to your library search path. For example, assuming you want to use the "release" version of the OpenSSL libraries (enter this on one line):

```
export LD_LIBRARY_PATH=
<NDDSHOME>/third_party/openssl-1.1.1n/<architecture>/release/lib:${LD_LIBRARY_PATH}
```

8. To verify your OpenSSL installation, enter:

```
openssl version
```

You should see a response similar to:

```
OpenSSL <version>
```

If you get a version other than OpenSSL 1.1.1n, your PATH may be pointing with a higher precedence to a different version of OpenSSL. You may need to place version 1.1.1n first or earlier in your PATH.

You may run into this OpenSSL warning:

```
WARNING: can't open config file: [default openssl built-in path]/openssl.cnf
```

To resolve this issue, set the environment variable OPENSSL_CONF to the path to the `openssl.cnf` file you are using. For example (enter this all on one line):

```
export OPENSSL_CONF=
<NDDSHOME>/third_party/openssl-1.1.1n/<architecture>/release/ssl/openssl.cnf
```
5 Additional Documentation

The following documentation on Secure WAN Transport is provided with the RTI Connext DDS distribution.

- User's Manual:


- API Reference HTML documentation:

  `<NDDSHOME>/doc/api/connext_dds/secure_wan_transport/index.html`

- Example code:

  `<path to examples>/connext_dds/<language>/hello_world_wan`

`<NDDSHOME>` and `<path to examples>` are described in 1 Paths Mentioned in Documentation on page 1.