RTI Data Distribution Service, Professional Edition

Getting Started Guide

Version 4.5

RTI The Global Leader in DDS

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Chapter 1   Welcome to RTI Data Distribution Service, Professional Edition

RTI Data Distribution Service, Professional Edition includes RTI's core DDS libraries; a set of basic utilities for generating code, testing your connectivity, and examining network packets; plus a rich set of tools and run-time services that can record, route, and analyze DDS data.

RTI Data Distribution Service, Professional Edition includes these components:

❏ **RTI Analyzer** is a system-level debugging tool that can find *RTI Data Distribution Service* objects in a running system, organize them, and display their communication parameters.

❏ **RTI Data Distribution Service** is network middleware available for a wide variety of processors and operating systems. *RTI Data Distribution Service* is delivered as linkable binary libraries (target libraries) with development tools and documentation that aid in the use of the libraries.

❏ **RTI Distributed Logger** is a library that enables applications to publish their log messages to DDS. The log message data can be visualized with *RTI Monitor*, a separate GUI application that can run on the same host as your application or on a different host. Since the data is provided in a DDS topic, you can also use *rtiddsspy* or even write your own visualization tool.

❏ **RTI Launcher** is a graphical application that allows you to run and configure any *RTI Professional Edition* component. It automatically detects which *RTI Professional Edition* components are installed and enables their launch buttons.

❏ **RTI Message Service** is publish/subscribe networking middleware that implements the Java Message Service (JMS) specification. *RTI Message Service* is specifically designed for high-performance distributed applications. Its unique peer-to-peer architecture and targeted high-performance and real-time capabilities extend the specification to provide unmatched value.

❏ **RTI Monitor** provides a detailed, graphical view into your entire DDS application. It displays the Quality of Service (QoS) parameters for every DDS entity in the system as well as detailed statistics on connections, traffic, errors, and resource usage. *RTI Monitor* simplifies troubleshooting and integration.

❏ **RTI Monitoring Library** is a plug-in that enables DDS applications to provide monitoring data to *RTI Monitor*.

❏ **RTI Persistence Service** saves data from *RTI Data Distribution Service* publishing applications to memory or permanent storage, so it can be delivered to subscribing applications that join the system at a later time—even if the publishing application has already terminated. Data can be persisted to files or an external database. *RTI Persistence Service* implements the optional Persistence Profile, defined in the OMG's Data Distribution Service for Real-time Systems specification.

❏ **RTI Real-Time Connect** provides bidirectional integration between *RTI Data Distribution Service* and a database. The database can be used to log and persist real-time data and messages, to provide a SQL interface to *RTI Data Distribution Service*, and for integration between *RTI Data Distribution Service* and enterprise applications. *RTI Real-Time Connect* uses *RTI Data Distribution Service* and supports three databases: Oracle Database, Oracle TimesTen In-Memory Database, and MySQL *RTI Real-Time Connect* provides *low latency messaging*—as fast as 43 microseconds between nodes, *high throughput*—up to 80,000 messages or 950 megabits of data per second, and *embedded and real-time operating system support*—for use in intelligent devices and sensors.

❏ **RTI Recording Service** can record high-rate data arriving in real time with minimal impact on system behavior. It can reliably record large amounts of real-time data without having prior knowledge of the data-types or topics in the system. *RTI Recording Service* is operating-system and programming-language agnostic, recording data from a heterogeneous networked system running *RTI Data Distribution Service*. You can also replay the recorded data by injecting it back into the DDS cloud. The replay feature even allows you to change data rates and QoS settings and provides fidelity to within 10 milliseconds of the recorded data rate.

The *Recording Console* provides a point-and-click interface for *RTI Recording Service*. This interface significantly reduces *RTI Recording Service* configuration time and complexity, and does not require any programming. The *Recording Console* makes it easy to use apply *RTI Recording Service* for testing algorithms and other processing logic against pre-recorded test data, conducting regression testing from 'golden' data inputs, or recording live data from the field for post-mission analysis.

❏ **RTI Routing Service** is an out-of-the-box solution for integrating disparate and geographically dispersed systems. It scales DDS applications across domains, LANs and WANs, including firewall and NAT traversal. *RTI Routing Service* also supports DDS-to-DDS bridging by allowing you to make transformations in the data along the way. This allows unmodified DDS applications to communicate even if they were developed using incompatible interface definitions. This is often the case when integrating new and legacy applications or independently developed systems.

❏ **RTI Shapes Demo** is an application that illustrates the powerful real-time messaging and application integration capabilities of *RTI Data Distribution Service*, including data-centric publish/subscribe, real-time Quality of Service (QoS), fault tolerance and automatic discovery. *RTI Shapes Demo* is a turnkey, graphical application and does not require any programming.

❏ **RTI Spreadsheet Add-in for Microsoft Excel** integrates *RTI Data Distribution Service* with Microsoft® Excel®. By using cell functions, Excel can subscribe to topic data and display it in real-time. You can use this live data for formulas, graphs and other Excel features, just like any other regular cell data. You can also publish data from a spreadsheet. *RTI Spreadsheet Add-in for Microsoft Excel* works with all data types. (Available for Windows systems only.)

❏ **Wireshark** is a network-level analysis tool that can capture RTPS packets, show their contents, and analyze network usage. (Note: For Windows Systems, Win-Pcap is also included with this component.)

If you have questions, please email **support@rti.com** or call (408) 990-7444.

1.1 Available Architectures

RTI Data Distribution Service, Professional Edition is available for the following architectures:

Table 1.1 **Available Architectures**

Operating System	CPU	Compiler or Software Development Kit	RTI Architecture
CentOS 5.4, 5.5 (2.6 kernel)	Pentium class	gcc 4.1.2	i86Linux2.6gcc4.1.2
		Sun Java Platform Standard Edition JDK 1.6	i86Linux2.6gcc4.1.2jdk
	x64	gcc 4.1.2	x64Linux2.6gcc4.1.2
		Sun Java Platform Standard Edition JDK 1.6	x64Linux2.6gcc4.1.2jdk
Red Hat Enterprise Linux 4.0 (2.6 kernel)	Pentium class	gcc 3.4.3	i86Linux2.6gcc3.4.3
		Sun Java Platform Standard Edition JDK 1.5 and 1.6	i86Linux2.6gcc3.4.3jdk
	x86_64 and AMD64	gcc 3.4.5	x64Linux2.6gcc3.4.5
		Sun Java Platform Standard Edition JDK 1.5 and 1.6	x64Linux2.6gcc3.4.5jdk
Red Hat Enterprise Linux 5.0 (2.6 kernel)	Pentium class	gcc 4.1.1	i86Linux2.6gcc4.1.1
		Sun Java Platform Standard Edition JDK 1.5 and 1.6	i86Linux2.6gcc4.1.1jdk
	x86_64 and AMD64	gcc 4.1.1	x64Linux2.6gcc4.1.1
		Sun Java Platform Standard Edition JDK 1.5 and 1.6	x64Linux2.6gcc4.1.1jdk
Red Hat Enterprise Linux 5.1, 5.2, 5.4, 5.5 (2.6 kernel)	Pentium class	gcc 4.1.2	i86Linux2.6gcc4.1.2
		Sun Java Platform Standard Edition JDK 1.6	i86Linux2.6gcc4.1.2jdk
	x86_64 and AMD64	gcc 4.1.2	x64Linux2.6gcc4.1.2
		Sun Java Platform Standard Edition JDK 1.6	x64Linux2.6gcc4.1.2jdk
Red Hat Enterprise Linux 6.0, 6.1 (2.6 kernel)	Pentium class	gcc 4.4.5	i86Linux2.6gcc4.4.5
	x64	gcc 4.4.5	x64Linux2.6gcc4.4.5
Windows 7	x86	Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Visual Studio 2010	i86Win32VS2010
		Visual Studio 2010 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet4.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	i86Win32jdk

Table 1.1 **Available Architectures**

Operating System	CPU	Compiler or Software Development Kit	RTI Architecture
Windows 7 x64 Edition	x64	Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet2.0
		Visual Studio 2010	x64Win64VS2010
		Visual Studio 2010 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet4.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	x64Win64jdk
Windows 2000	x86	Visual Studio 2005 SP1	i86Win32VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	i86Win32jdk
Windows 2003	x86	Visual Studio 2005 SP 1	i86Win32VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Visual Studio 2008 SP1	i86Win32VS2008
		Visual Studio 2008 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	i86Win32jdk
Windows 2003 x64 Edition	x64	Visual Studio 2005 SP 1	x64Win64VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet2.0
		Visual Studio 2008 SP 1	x64Win64VS2008
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	x64Win64jdk
Windows Server 2008 R2 x64 Edition	x64	Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet2.0
		Visual Studio 2010	x64Win64VS2010
		Visual Studio 2010 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet4.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	x64Win64jdk

Table 1.1 **Available Architectures**

Operating System	CPU	Compiler or Software Development Kit	RTI Architecture
Windows Vista	x86	Visual Studio 2005 SP 1	i86Win32VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Visual Studio 2008 SP 1	i86Win32VS2008
		Visual Studio 2008 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	i86Win32jdk
Windows Vista 64-bit Edition	x64	Visual Studio 2005 SP 1	x64Win64VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet2.0
		Visual Studio 2008 SP1	x64Win64VS2008
		Visual Studio 2008 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	x64Win64jdk
Windows XP Professional [a]	x86	Visual Studio 2005 SP 1	i86Win32VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Visual Studio 2008 SP 1	i86Win32VS2008
		Visual Studio 2008 SP 1 (C++/CLI, C# 8.0 or 9.0)	i86Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	i86Win32jdk
Windows XP Professional x64 Edition	x64	Visual Studio 2005 SP 1	x64Win64VS2005
		Visual Studio 2005 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win64dotnet2.0
		Visual Studio 2008 SP 1	x64Win64VS2008
		Visual Studio 2008 SP 1 (C++/CLI, C# 8.0 or 9.0)	x64Win32dotnet2.0
		Sun Java Platform Standard Edition JDK 1.5 or 1.6	x64Win64jdk

a. Windows XP does not support IP_TOS unless registry changes are made. See http://support.microsoft.com/kb/248611, http://www.microsoft.com/technet/technetmag/issues/2007/02/CableGuy/default.aspx.

Chapter 2 Installation

2.1 Before You Install

If you are about to install a version of *RTI Data Distribution Service, Professional Edition* that is **not** license-managed, you must remove any previously installed versions that **are** license-managed.

2.2 Installing on a Linux System

RTI Data Distribution Service, Professional Edition is provided in a self-extracting file, one per architecture. You do not need to be *root* to run the self-extracting file.

Throughout this document, we refer to 4.5*x*; the *x* represents the letter of the current release.

The installer will guide you through the installation process and allow you to specify an installation location (the default is your $HOME directory)—the directory **RTI** will be added to the location you specify. This is *not* a GUI-based installer.

1. Run the self-extracting file for your architecture. For example:

   ```
   ./RTI_Professional_Edition-4.5x-RHEL5_32_lic.sh
   ```

   Assuming you have selected **/opt** as your installation directory, you will end up with the following components under **/opt/RTI** (the **RTI** directory is appended to your installation path automatically):

   - **docs_<version>/RTI_DDS_ProfessionalEdition_GettingStarted.pdf** — This document.

   - **installers_<version>/Wireshark_<version>** — This directory contains a compressed distribution (.tar.gz) file for *Wireshark* and the *RTI Wireshark Getting Started Guide*.

- **ndds.<*version*> —** This directory includes *RTI Data Distribution Service, RTI Distributed Logger, RTI Message Service, RTI Monitoring Library,* and *RTI Persistence Service.*

- **RTI_Analyzer_<*version*>**

- **RTI_Launcher_<*version*>**

- **RTI_Monitor_<*version*>**

- **RTI_Real-Time_Connect_<*version*>**

- **RTI_Recording_Service_<*version*>**

- **RTI_Routing_Service_<*version*>**

- **rti_set_bash_<*version*>.sh** — You can use this script to set some of the environment variables in bash.

- **rti_set_tcsh_<*version*>.sh** — You can use this script to set some of the environment variables in tcsh.

- **RTI_Shapes_Demo_<*version*>**

2. You will be asked if you want to open the *Getting Started Guide*. Enter either **y** (for yes) or **n** (for no). To view the *Getting Started Guide*, you must have an application capable of reading PDF documents, such as Evince.

3. You will also be asked if you want to start *RTI Launcher*. Enter either **y** (for yes) or **n** (for no). To run *RTI Launcher*, you must be running a graphical environment (such as X11, GNOME or KDE). *RTI Launcher* is described in Chapter 3.

4. *RTI Wireshark* is not automatically installed with the *RTI Professional Edition* self-extracting file because it requires root privilege. The *RTI Wireshark* installer is extracted into the **installers_<*version*>/Wireshark_<*version*>** directory. Install *Wireshark* using the instructions in **installers_<*version*>/Wireshark_<*version*>/RTI_Wireshark_GettingStarted.pdf**.

5. See Installing the License File (Section 2.4).

After Installation:

❏ See the documentation for each component. Each of the components you installed may have *Release Notes*, a *Getting Started Guide*, and a *User's Manual*.

While you can skip the installation instructions in each component's *Getting Started Guide* or *User's Manual*, please read the rest of the document. These documents may describe other required steps for setting up the components.

❏ *RTI Launcher* provides a convenient way to run and configure all of your *RTI Professional Edition* components.

❏ *RTI Real-Time Connect* requires one of these databases: Oracle Database, Oracle TimesTen In-Memory Database, or MySQL. See the *RTI Real-Time Connect Release Notes* for details on supported database versions.

❏ To build and run your first *RTI Data Distribution Service*-based application, see Chapter 3 in the *RTI Data Distribution Service Getting Started Guide*.

2.3 Installing on a Windows System

RTI Data Distribution Service, Professional Edition is provided as an installer, one for 32-bit Windows architectures and another for 64-bit Windows architectures. You do not need to have administrator privilege to run the installer.

If you run the installer with administrator privilege, *RTI Professional Edition* will be installed for all users on the same machine. The *RTI Real-Time Connect* daemons will be installed as Windows services in manual mode.

If you run the installer without administrator privilege, *RTI Professional Edition* will be installed for the current user only. The *RTI Real-Time Connect* daemons will be installed, but not as Windows services; they will have to be run from the command line.

Note: If you need to install both the 32- and 64-bit versions on the same machine, see Section 2.3.1 before continuing with the installation instructions below.

1. Open the **.exe** file to run the installer, which will guide you through the installation process and allow you to select an installation directory.

The default installation directory is **C:\Program Files\RTI** if you have adminis-
trator privilege, or **C:\Documents and Settings\<*user*>\My Documents\RTI** if
you do not have administrator privilege.
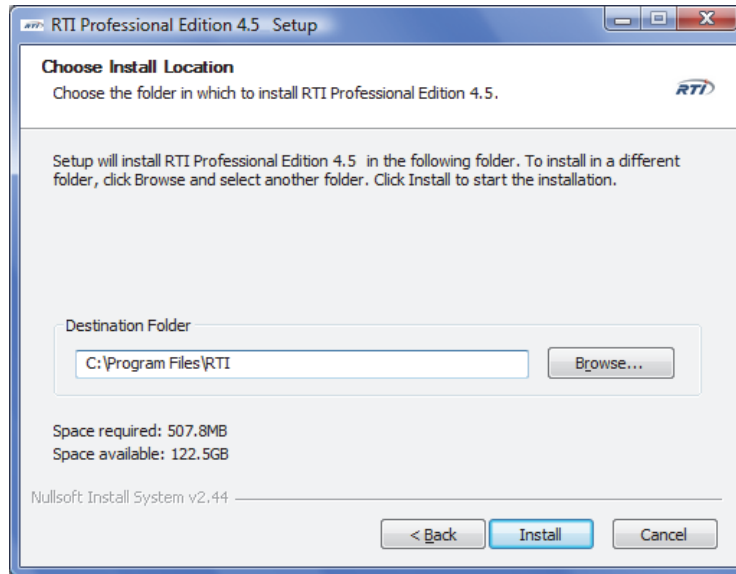
You will end up with the following components in your installation directory:

- **docs <*version*>\RTI_DDS_ProfessionalEdition_GettingStarted.pdf**
— This document.

- **installers <*version*>**

    - **Microsoft Redist** — This directory contains installers for the Microsoft
      Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security
      Update. You will need the x86 version if you plan to use *RTI Launcher.*

    - **RTI Spreadsheet Add-in for Microsoft Excel <*version*>** — This direc-
      tory contains the installer for *RTI Spreadsheet Add-in for Microsoft Excel* and
      its *Getting Started Guide.*

    - **Wireshark <*version*>** — This directory contains the installer for *Wire-
      shark* and its *Getting Started Guide.*

- **ndds.<*version*>** — This directory includes *RTI Data Distribution Service, RTI
Distributed Logger, RTI Message Service, RTI Monitoring Library,* and *RTI Persis-
tence Service.*

- **RTI Analyzer** *\<version\>*

- **RTI_Launcher_***\<version\>*

- **RTI_Monitor_***\<version\>*

- **RTI Real-Time Connect** *\<version\>*

- **RTI Recording Service** *\<version\>*

- **RTI_Routing_Service_***\<version\>*

- **RTI Shapes Demo** *\<version\>*

- **rti_set_env_***\<version\>***.bat**
  — You can use this batch file to set some of the environment variables.

- **uninstall_RTI_Professional_Edition_***\<version\>***.exe**

2. Optionally, install *RTI Spreadsheet Add-in for Microsoft Excel*:

   RTI Spreadsheet Add-in for Microsoft Excel is not automatically installed by the *RTI Professional Edition* installer because it requires administrator privilege. The *RTI Spreadsheet Add-in* installer is extracted into the **installers** *\<version\>***\RTI Spreadsheet Add-in for Microsoft Excel** *\<version\>* directory. Install the add-in using the instructions in **installers** *\<version\>***\RTI Spreadsheet Add-in for Microsoft Excel** *\<version\>***\RTI_Spreadsheet_Addin_GettingStarted.pdf**.

3. Optionally, install *Wireshark*:

   Wireshark is not automatically installed by the *RTI Professional Edition* installer because it requires administrator privilege. The *RTI Wireshark* installer is extracted into the **installers** *\<version\>***\Wireshark** *\<version\>* directory. Install Wireshark using the instructions in **installers** *\<version\>***\Wireshark** *\<version\>***\RTI_Wireshark_GettingStarted.pdf**.

4. See Installing the License File (Section 2.4).

After Installation:

❏ <u>See the documentation for each component.</u> Each of the components may have *Release Notes*, a *Getting Started Guide*, and a *User's Manual*. They can all be accessed through the **Start** menu under **RTI 45*x*/RTI Professional Edition 4.5*x* Components/\<component name\>** (where *x* represents the letter of the current release).

   While you can skip the installation instructions in each component's *Getting Started Guide* or *User's Manual*, please read the rest of the document. <u>These documents may describe other required steps for setting up the components, such as license-file installation</u>.

❏ *RTI Launcher* provides a convenient way to run and configure all of your *RTI Professional Edition* components.

❏ *RTI Real-Time Connect* requires one of these databases: Oracle Database, Oracle TimesTen In-Memory Database, or MySQL. See the *RTI Real-Time Connect Release Notes* for details on supported database versions.

❏ The installation of *RTI Real-Time Connect* adds **<RTI Real-Time Connect install dir>/lib/<architecture>** to your System Path environment variable if you install as administrator or to your User Path environment variable if you install as non-administrator.

❏ To build and run your first *RTI Data Distribution Service*-based application, see Chapter 3 in the *RTI Data Distribution Service Getting Started Guide*.

2.3.1 Installing 32-bit and 64-bit Packages on the Same Machine

This section describes a special situation not applicable to most users.

If you need to install both the 32-bit and 64-bit packages on the same machine (for example, if you need 32-bit *and* 64-bit libraries on the same machine for cross compilation), we recommend installing both packages under the same directory.

If you install both packages on a 32-bit machine, some 64-bit products will not be installed because they cannot be run on a 32-bit machine (specifically, *RTI Real-Time Connect, RTI Routing Service,* and *RTI Persistence Service* will not be installed).

If you install both packages on a 64-bit machine, the last installation of some products will overwrite the previous installation.

2.4 Installing the License File

You will receive a license file in an email from RTI.

To install the license file, follow these steps:

1. Put the license file named **rti_license.dat** in the top-level directory where you installed *RTI Professional Edition* (such as **/opt/rti** on Linux systems or **C:\Program Files\RTI** on Windows systems).

2. Set the environment variable **RTI_LICENSE_FILE** to the full path of the license file, including the filename (such as **/opt/rti/rti_license.dat** on Linux systems or **C:\Program Files\RTI\rti_license.dat** on Windows systems).

If you have any problems with your license file, please email **support@rti.com**.

Note: Even if your distribution of *RTI Professional Edition* is not license-managed, you always need a license file to run *RTI Analyzer*, *RTI Monitor* and *RTI Spreadsheet Add-in for Microsoft Excel*.

2.5 Uninstalling RTI Professional Edition

On a Linux System:

No uninstaller is provided for *RTI Professional Edition* on Linux systems. Simply remove the directories that you want to uninstall.

To remove the *entire* contents of the installation directory, enter the following (if you changed any files that you want to save, copy them to a new location first):

```
rm -rf <installation directory>
```

On a Windows System:

The *RTI Professional Edition* uninstaller will remove *all* the components that were previously installed by the *RTI Professional Edition* installer. It will remove both 32-bit and 64-bit installations, as well as all files that you added to any of the component directories.

Run the uninstaller by selecting **Start, RTI 45*x*, Uninstall RTI Professional Edition 4.5*x*** or **Start**, **Control Panel**, **Add or Remove Programs**, **RTI Professional Edition 4.5*x*** (where *x* represents the letter of the current release).

This will not uninstall *Wireshark* or *RTI Spreadsheet Add-in for Microsoft Excel*, since they were not installed by the *RTI Professional Edition* installer. To uninstall these two components, see the instructions in their individual *Getting Started Guides*.

Chapter 3   Using RTI Launcher

RTI Launcher is a graphical application that allows you to run and configure any installed *RTI Professional Edition* component.

RTI Launcher automatically detects which *RTI Professional Edition* components are installed and enables their launch buttons.

RTI Launcher is automatically installed with *RTI Professional Edition*.

3.1   Starting RTI Launcher

On a Linux system:

❏ You must have a graphical environment (such as X11, GNOME or KDE) running.

❏ Open a command prompt and navigate to the *RTI Professional Edition* installation directory. Run the script **RTI_Launcher_<*version*>/scripts/rtilauncher**.

❏ Alternatively, you can use your browser to navigate to your *RTI Professional Edition Installation* directory and double click **RTI_Launcher_<*version*>/scripts/rtilauncher**.

Note: If you have the license-managed distribution of *RTI Professional Edition*, by default at start up, *RTI Launcher* will look for the license file named **rti_license.dat** in the top-level directory where you installed *RTI Professional Edition*. You can configure *RTI Launcher* to look in a different location by using the Configuration Tab (Section 3.2.4).

On a Windows system:

New Requirement for Release 4.5e

1. If you have not already done so, you must install the Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security Update.

   The update is provided in "***<install dir>*\installers 4.5*x*\Microsoft Redist**\" (where *x* represents the letter of the current release) or you can download it from here: http://www.microsoft.com/download/en/details.aspx?id=26347

   Make sure you install the x86 version, even if you are using a 64-bit machine.

2. Use the **Start** button to select **RTI 45*x*, RTI Professional Edition 4.5*x* Launcher** (where *x* represents the letter of the current release).

Troubleshooting:

If you see either of these messages when you run *RTI Launcher* on a Windows System:
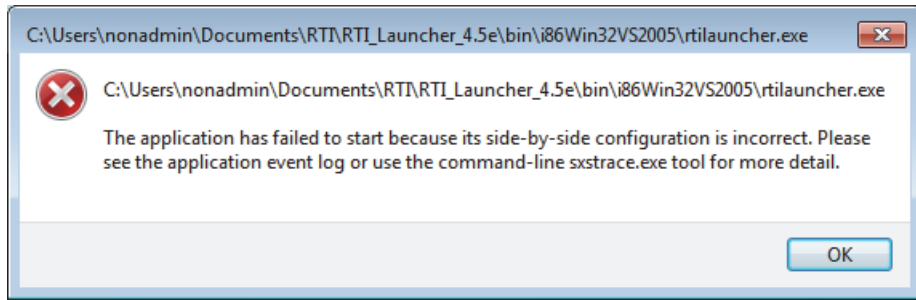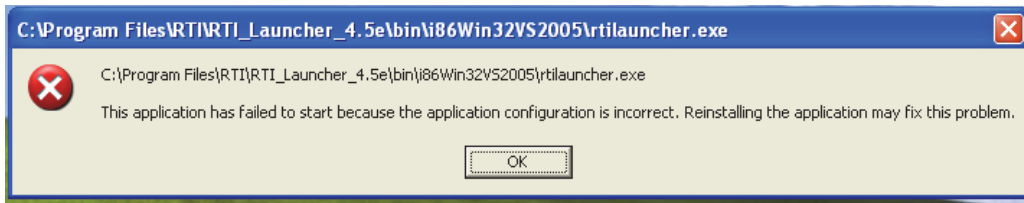
These messages indicate that the Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security Update has not been installed.

3.2 A Tour of RTI Launcher

RTI Launcher's main window includes four tabs:

3.2.1 Tools Tab

The **Tools** tab includes buttons for:

❏ **Analyzer**—displays *RTI Data Distribution Service* objects and their communication parameters.

❏ **Monitor**—provides a graphical view into your entire DDS application, including QoS and detailed statistics on connections, traffic, errors, and resource usage.

❏ **Recording Console**—can record real-time data without having prior knowledge of the data-types or topics in the system; can also replay that data back into the DDS cloud.

❏ **Wireshark**—captures RTPS packets, shows their contents, and analyzes network usage.

❏ **Spreadsheet Add-in**
for Microsoft Excel—integrates *RTI Data Distribution Service* with Microsoft Excel. You can use Excel cell functions to subscribe to topic data and then use the data in real-time for formulas, graphs and other Excel features. You can also publish data from a spreadsheet.

RTI Launcher

3-3

To start one of the tools, left-click the tool's button. Right-clicking a button will give you additional options.

If a tool is not installed, its button will be gray and will not work.

Not all tools are available on all platforms. For example, *RTI Spreadsheet Add-in for Microsoft Excel* is only available on Windows systems.

As described in Chapter 2, *Wireshark* and *RTI Spreadsheet Add-in for Microsoft Excel* are not automatically installed with *RTI Professional Edition*. *RTI Launcher* will attempt to detect their presence by examining the registry on Windows systems or the PATH on Linux systems.

3.2.2 Services Tab

The **Services** tab includes buttons to launch:

❏ **Recording Service - Record** —records real-time data without having prior knowledge of the data-types or topics in the system. (This service is also available by using *Recording Console* in the Tools tab.)

❏ **Recording Service - Replay** —replays recorded data by injecting it back into the DDS cloud. You can change data rates and QoS settings. (This service is also available by using *Recording Console* in the **Tools** tab.)

❏ **Persistence Service** —saves data from *RTI Data Distribution Service* publishing applications to memory or permanent storage, so it can be delivered to subscribing applications that join the system at a later time—even if the publishing application has already terminated. Data can be persisted to files or an external database.

❏ **Routing Service**—integrates disparate and geographically dispersed systems. It scales DDS applications across domains, LANs and WANs, including firewall and NAT traversal. *RTI Routing Service* also supports DDS-to-DDS bridging by allowing you to make transformations in the data along the way.

❏ **Real-Time Connect**—provides bidirectional integration between *RTI Data Distribution Service* and a database (Oracle Database, Oracle TimesTen In-Memory Database, or MySQL).

If a tool is not installed, its button will be gray and will not work.

To start one of the services, left-click the appropriate button, use the resulting dialog to configure the service, then click **Run** at the bottom of the configuration dialog. The service will start in a separate command window.

The configuration dialog is similar for all the services. For example, the configuration dialog for *RTI Persistence Service* looks like this:
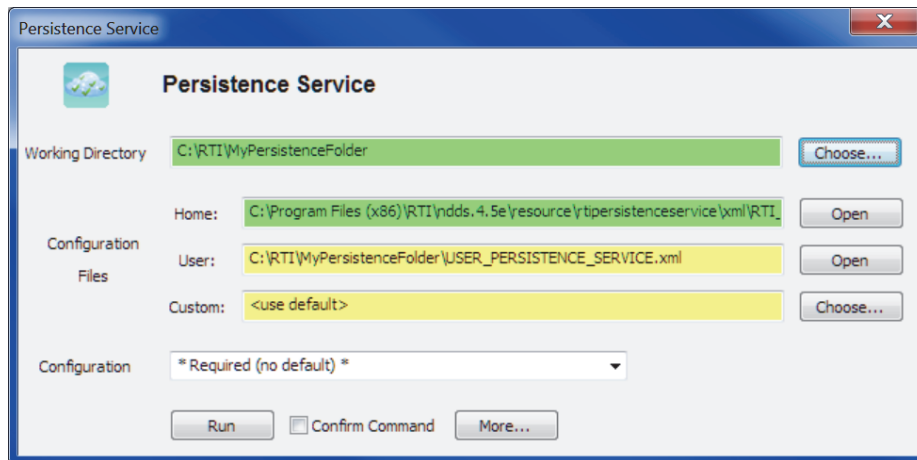
As seen above, some fields are highlighted in colors.

❏ Green indicates a field has a valid entry.

❏ Yellow indicates an entry is missing but it is not a required field.

❏ Red indicates a field that must be filled in.
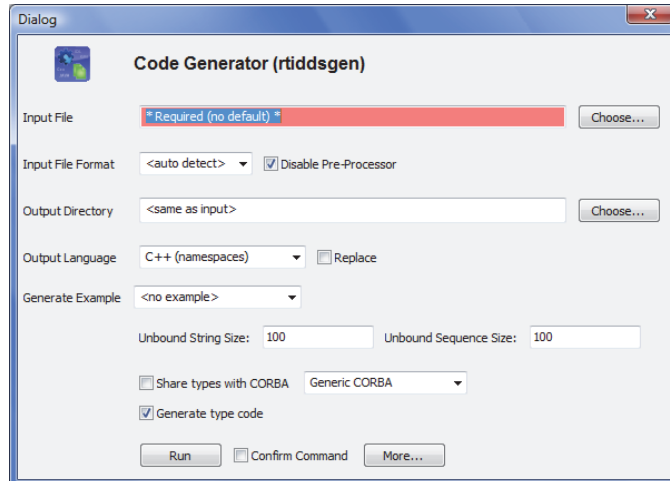
RTI Launcher

3.2.3 Utilities Tab

The **Utilities** tab includes buttons for:

❏ **Code Generator**—generates example code and makefiles/project files for your data types.

❏ **Type Conversion**—converts data type formats between XML, IDL, and XSD.

❏ **Recording Service–Convert**—converts to commonly accepted formats for export to data analysis tools.

❏ **Shapes Demo**—demonstrates DDS capabilities by publishing and subscribing to colored moving shapes.

❏ **DDS Spy**—subscribes to any DDS data.

❏ **DDS Ping**—publishes DDS ping messages to test system connectivity.

Each utility's configuration dialog is different; some have required parameters.

For example, in *rtiddsgen's* configuration dialog, you must specify an input file, as indicated by the red field shown in the dialog to the right:

3.2.4   Configuration Tab

The **Configuration** tab:

❏ Displays the installation directory in which *RTI Launcher* will look for components.

❏ For license-managed distributions only: Displays and allows changes to the license file location—it must point to a valid *RTI Professional Edition* license file. See Installing the License File (Section 2.4).

❏ Displays the *RTI Professional Edition* version number and installed platforms.

❏ Provides links to documentation and other resources.
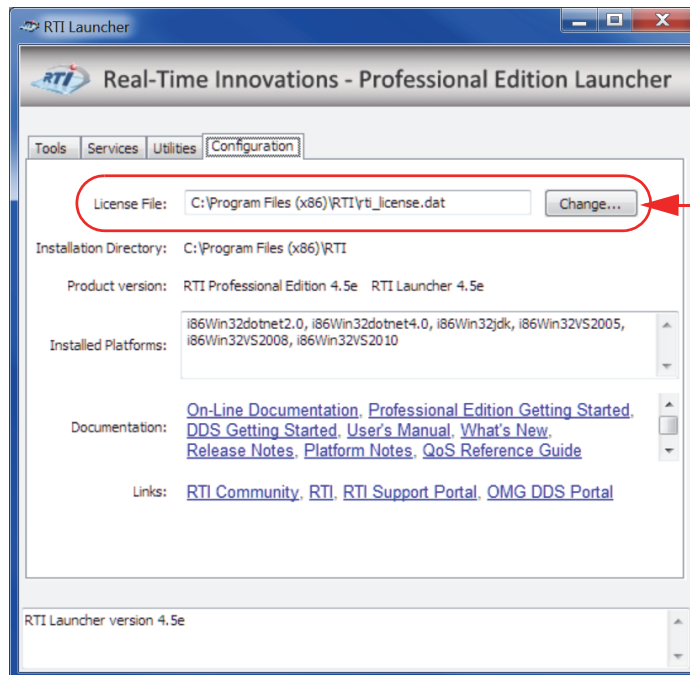
With a license-managed distribution, you can change the license file location here.