# *RTI Real-Time Connect*

## Release Notes

Version 4.5f

Your systems. Working as one.


Printed in U.S.A. First printing.
March 2012.

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## 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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# Release Notes

## 1 Supported Platforms and System Requirements

*RTI® Real-Time Connect* 4.5f requires *RTI Connext™* (formerly *RTI Data Distribution Service*) 4.5f.

*Real-Time Connect* supports Oracle TimesTen In-Memory Database 11.2.1, MySQL 5.1, and Oracle Database 11g Release 2; you must have at least one of these installed. Details on the supported platform configurations are specified in Table 1.1.

- ❏ The *Real-Time Connect* to Oracle TimesTen daemon, **rtirtc_timesten[.exe]**, has been built and tested on all supported platform configurations with TimesTen 11.2.1.
- ❏ The *Real-Time Connect* to Oracle 11g daemon, **rtirtc_oracle[.exe]**, has been built and tested on all supported platform configurations with Oracle 11.2.0.
- ❏ The *Real-Time Connect* to MySQL daemon, **rtirtc_mysql[.exe]**, has been built and tested on all supported platform configurations with MySQL 5.1.44.

Table 1.1 **Supported Platforms**[1]

| Operating System | | CPU | Database | 32-bit | 64-bit |
|---|---|---|---|---|---|
| **Linux®** | CentOS 5.4, 5.5 | x86 and x64 | TimesTen 11.2.1 | Yes | Yes |
| | | | Oracle 11g | Yes | Yes |
| | | | MySQL 5.1 | Yes | Yes |
| | Red Hat Enterprise Linux 5.0-5.2, 5.4, 5.5 (2.6 kernel) | x86 and x64 | TimesTen 11.2.1 | Yes | Yes |
| | | | Oracle 11g | Yes | Yes |
| | | | MySQL 5.1 | Yes | Yes |
| | Ubuntu® Server 10.04 (2.6 kernel) | x86 and x64 | MySQL 5.1 | Yes | Yes |

Table 1.1 **Supported Platforms**[1]

| Operating System | | CPU | Database | 32-bit | 64-bit |
|---|---|---|---|---|---|
| **Windows®** | Windows 2000, Windows 2003, Windows XP Professional, Windows Vista® | x86 | TimesTen 11.2.1 | Yes | No |
| | | | Oracle 11g | Yes | No |
| | | | MySQL 5.1 | Yes | No |
| | Windows 7 | x86 and x86_64[2] | TimesTen 11.2.1 | Yes | Yes |
| | | | Oracle 11g | Yes | Yes |
| | | | MySQL 5.1 | Yes | Yes |
| | Windows Server 2008 R2 | x86_64[2] | TimesTen 11.2.1 | No | Yes |
| | | | Oracle 11g | No | Yes |
| | | | MySQL 5.1 | No | Yes |

1. Additional platforms not listed in this document may be supported through special development and maintenance agreements. Contact your RTI sales representative for details.

2. Requires Microsoft Visual C++ Redistributable Package on computers that do not have Visual C++ 2010 installed.

## 1.1 ODBC Driver Requirements

The *Real-Time Connect*-to-MySQL daemon requires the separate installation of the MySQL ODBC 5.1.6 (or higher) driver. For non-Windows platforms, the installation of UnixODBC 2.2.12 (or higher) is also required. See Section 2.4 for additional details on ODBC driver compatibility.

# 2 Compatibility

## 2.1 Compatibility with RTI Connext and RTI Data Distribution Service

*Real-Time Connect* 4.5f is not compatible with *RTI Data Distribution Service* 4.2c and lower.

*Real-Time Connect* 4.5f is compatible with *Connext* 4.5f and higher, as well as *RTI Data Distribution Service* 4.5[b-f], 4.4, 4.3 and 4.2e, except as noted below.

### 2.1.1 Compatibility with Older Versions When Sending 'Large Data'

The large data format in *RTI Data Distribution Service* 4.2e, 4.3, 4.4b and 4.4c is not compliant with RTPS 2.1. 'Large data' refers to data that cannot be sent as a single packet by

the transport. This issue has been resolved, starting with *RTI Data Distribution Service* 4.4d; it is also resolved in *Connext*.

As a result, by default, large data in *Real-Time Connect* 4.5 is not compatible with *Data Distribution Service* 4.4c and earlier. You can achieve backward compatibility by setting the following properties to 1 in the XML QoS profiles used to configure the *Real-Time Connect* publications and subscriptions:

- **dds.data_writer.protocol.use_43_large_data_format**
- **dds.data_reader.protocol.use_43_large_data_format**

#### 2.1.2 Compatibility with RTI Data Distribution Service 4.2e

Out of the box, *Real-Time Connect* 4.5 is not compatible with *RTI Data Distribution Service* 4.2e when the data types contain 8-byte or larger primitive types (double, long long, unsigned long long or long double). To enable compatibility, *Real-Time Connect* will have to be run with the command line option **-use42eAlignment**.

#### 2.1.3 Compatibility with RTI Data Distribution Service over Shared Memory

*Real-Time Connect* is not compatible with applications built with *RTI Data Distribution Service* 4.5e and earlier releases when communicating over shared memory. For more information, please see the Transport Compatibility section in the *RTI Core Libraries and Utilities Release Notes*.

### 2.2 Compatibility with Other Versions of Real-Time Connect

*Real-Time Connect* 4.5 is compatible with *Real-Time Connect* 4.4, 4.3 and 4.2 with the same exceptions that apply to *Connext*. Therefore, *Real-Time Connect* 4.5f will not be compatible with an older *Real-Time Connect* version if it is not compatible with the associated *Connext* version.

### 2.3 Configuration Compatibility

#### 2.3.1 Configuration File Format

Starting with *Real-Time Connect* 4.5b, the format of the configuration file changed from INI to XML. The deprecated format is still functional to preserve backwards compatibility. However it should not be used as it may be removed in future releases.

#### 2.3.2 Configuration File Loading

Starting with *Real-Time Connect* 4.5b, the way configuration files are loaded has changed:

These are the new approaches, listed in load order:

- **$NDDSHOME/resource/qos_profiles_4.5x/xml/NDDS_QOS_PROFILES.xml**
- Files in the environment variable NDDS_QOS_PROFILES
- **<working directory>/USER_QOS_PROFILES.xml**
- **<*Real-Time Connect executable location*>/../../resource/xml/RTI_REAL_TIME_CONNECT.xml**
- **<*working directory*>/USER_REAL_TIME_CONNECT.xml**
- File specified using the command line parameter **-cfgFile**

The following configuration loading options have been deprecated:

- **$RTIRTCHOME/resource/xml/RTI_RTC_QOS_PROFILES.xml**
- **$RTIRTCHOME/resource/ini/RTI_RTC.ini**
- File in the RTIRTC_INI environment variable (deprecated in 4.4d)
- File specified using the command line parameter **-inifile**

Although the old options are still functional to preserve backwards compatibility, its usage should be avoided as they may be removed in future releases.

### 2.3.3 Command-Line Options

Starting with *Real-Time Connect* 4.5b, the following command-line options have been deprecated:

- **-inifile** (Replaced with **-cfgFile**)
- **-loglevel** (Replaced with **-verbosity**)

The deprecated options are still functional to preserve backwards compatibility. However they should not be used as they may be removed in future releases.

## 2.4 ODBC Driver Compatibility

*Real-Time Connect* to MySQL links to the UnixODBC library **libodbc.so.1**. In release 2.3.1, UnixODBC changed the library version from 1 to 2. If after installing UnixODBC *Real-Time Connect* cannot find **libodbc.so**, create a symlink to **libodbc.so.1** from **libodbc.so.2**.

# 3 Deliverables

You will receive the following with your copy of *Real-Time Connect*:

- *Real-Time Connect Getting Started Guide*, **RTI_RTC_GettingStarted.pdf**. This document guides you through the steps of installing *Real-Time Connect* and running a first application.
- *Real-Time Connect* installation file. This file includes the *Real-Time Connect* executables, library, and documentation.
- Oracle TimesTen installation file. This file includes the Oracle TimesTen libraries and executables, demo programs, utilities, and documentation.

If any of these items are missing, please contact RTI for support (**support@rti.com**).

# 4 What's New in 4.5f

- *Real-Time Connect* 4.5f adds compatibility with *Connext* 4.5f.
- This release includes monitoring capabilities. It is statically linked with *RTI Monitoring Library*. You can enable this feature by specifying the property **rti.monitor.library** for the participants you want to monitor. (See Section 4.7 in the *Real-Time Connect User's Manual* and Section 22.9 in the *RTI Core Libraries and Utilities User's Manual* for details.) Then you can use *RTI Monitor* (provided with *RTI Connext Messaging*) to see the results.

# 5 What's Fixed in 4.5f

## 5.1 Real-Time Connect did not Support Writer-Side Content Filtering

The *DataWriters* created by *Real-Time Connect* (when new entries were added to the RTIDDS_PUBLICATIONS table) were unable to perform writer side filtering.

Although the *Real-Time Connect* Daemon did not log an error, the filtering results may have been erroneous. *DataReaders* using ContentFilteredTopics may have received samples that should have been filtered out, and vice-versa.

[RTI Bug # 14251]

### 5.2 Misleading Error Message if Column Name Exceeded Maximum Length

In *Real-Time Connect* the maximum length of a database column is 30 characters. However, when this limit was exceeded, the *Real-Time Connect* Daemon reported a misleading error message.

The table creation may have succeeded since the 30 character limit is imposed by *Real-Time Connect*, not the underlying database. Then the *Real-Time Connect* Daemon failed after the table was created with an error such as:

```
[DDSQLDaemonCore_onUpdateMetaTableEntry,line
3740:ERROR:4096:5009]
[CNA:CNATable] ODBC call failed: [unixODBC][MySQL][ODBC 5.1
Driver][mysqld-5.1.44-community]
```

This error did not provide any information indicating that the maximum column length was exceeded. This problem has been resolved. The error message has been improved and now the table creation will fail if the column length is exceeded.

[RTI Bug # 14252]

## 6 Known Issues

### 6.1 Manual Table Creation in Oracle and MySQL Does Not Trigger Daemon to Create Publication/Subscription when Typecode is Unknown

If an entry is inserted into the RTIDDS_PUBLICATIONS or RTIDDS_SUBSCRIPTIONS table *and* the typecode for the data type specified in the entry has not yet been discovered by the daemon, the daemon will delay the creation of the DDS publication/subscription if the table does not already exist in the database. When either the daemon discovers the typecode or the user manually creates the table, the daemon should create the corresponding DDS publication/subscription.

However, for the Oracle 10g and MySQL databases only, in the situation described above, if you create a table manually for a pending entry, the daemon is not triggered to create the corresponding publication/subscription. The workaround is to update the entry by modifying the entry in the corresponding meta-table. This will trigger the daemon to create the publication/subscription.

## 6.2 WCHAR and WVARCHAR Not Supported as Primary Keys for MySQL

Due to a bug in MyODBC (MySQL bug# 17983), tables with a WCHAR or WVARCHAR column in the primary key are not supported in conjunction with MySQL.

## 6.3 WCHAR and WVARCHAR Not Published Correctly for MySQL

The contents of WCHAR and WVARCHAR fields are not published correctly by *Real-Time Connect* Publications in MySQL. Zero (0) is published instead of the correct value.

## 6.4 IdentifierSeparatorChar Cannot Be '.' for MySQL

When using MySQL, the IdentifierSeparatorChar cannot be '.' due to a bug in MyODBC (MySQL bug# 15547). The default IdentifierSeparatorChar for MySQL is '$'.

## 6.5 IdentifierSeparatorChar Cannot Be '.' for TimesTen Cache Connect to Oracle

If your application uses IDL types that contain strings, long doubles, or hierarchical IDL types, the IdentiferSeparatorChar cannot be '.' when using TimesTen Cache Connect to Oracle. This is due to a bug in Cache Connect to Oracle that causes quoted column names containing the character '**.**' (such as "**A.B**") to be handled incorrectly.

## 6.6 Applications with Disabled Inline-Keyhash

If the *Connext* application has a keyed data-type and has **DataWriterProtocolQosPolicy.disable_inline_keyhash** set to TRUE (not the default setting), *Real-Time Connect* may misinterpret samples as being from the wrong instance or report deserialization errors.

## 6.7 Real-Time Connect Daemon with '-nodaemon' Option does not Communicate over Shared Memory with MySQL 5.0 Server or Oracle 10g Server when Running as Windows 2003 or Windows Vista Service

On Windows 2003 and Windows Vista systems, if you run the *Real-Time Connect* daemon for MySQL 5.0 and Oracle 10g with the **-nodaemon** option, it will not communicate with the MySQL and Oracle database servers.

There are three ways to enable communication:

1. Run both the *Real-Time Connect* Daemon and the database server as services.
2. Run both the *Real-Time Connect* Daemon and the database server from the command line.

3. Use the *Real-Time Connect* command-line option, **-dbtransport 1**, to communicate using UDPv4.

## 6.8 Table Initialization in Database Replication Scenarios May Require Keeping Copy of Table In Memory for Oracle and MySQL

If *Real-Time Connect* is configured in table replication mode using the INI attribute, **TableReplicationMode**, the daemon may end up keeping a copy of the whole table in memory. This may be a problem for databases such as Oracle and MySQL where tables may become quite large.

To avoid the problem, disable table initialization by setting **dw.durability.kind** in **RTIDDS_PUBLICATIONS** and **dw.durability.kind** in **RTIDDS_SUBSCRIPTIONS** to **VOLATILE_DURABILITY_QOS**.

## 6.9 Cannot Run Real-Time Connect for Oracle as a Windows Service

If *Real-Time Connect* for Oracle is run as a Windows service, the following error is reported:

```
Error 1053: The service did not respond to the start or control
request in a timely fashion
```