RTI Database Integration Service

Release Notes

Version 5.2.0

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Printed in U.S.A. First printing.
June 2015.

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Release Notes

1 Supported Platforms and System Requirements

RTI® Database Integration Service (formerly known as *Real-Time Connect*) requires *RTI Connext™ DDS* with the same version number.

Database Integration Service supports Oracle TimesTen In-Memory Database, MySQL, and Oracle Database; you must have at least one of these installed; use the version shown in Table 1.1.

Note: Requires Microsoft Visual C++ 2010 Redistributable Package on computers that do not have Visual C++ 2010 installed. The Redistribution Package can be obtained from the following Microsoft website:

- For x86 architectures:
  http://www.microsoft.com/download/en/details.aspx?id=5555
- For x64 architectures:
  http://www.microsoft.com/download/en/details.aspx?id=14632

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Table 1.1 **Supported Platforms**[1]

Operating System	CPU	Compiler	RTI Architecture	Oracle TimesTen 11.2.1	Oracle Database 11g R2	SQL Server 2012 SP1	MySQL 5.1.44[2]
CentOS 5.4, 5.5	x86	gcc 4.1.2	i86Linux2.6gcc4.1.2	YES	YES		YES
	x64	gcc 4.1.2	x64Linux2.6gcc4.1.2	YES	YES		YES
Red Hat® Enterprise Linux 5.0 (2.6 kernel)	x86	gcc 4.1.1	i86Linux2.6gcc4.1.1	YES	YES		YES
	x64	gcc 4.1.1	x64Linux2.6gcc4.1.1	YES	YES		YES
Red Hat Enterprise Linux 5.1, 5.2, 5.4, 5.5 (2.6 kernel)	x86	gcc 4.1.2	i86Linux2.6gcc4.1.2	YES	YES		YES
	x64	gcc 4.1.2	x64Linux2.6gcc4.1.2	YES	YES		YES
Ubuntu® 12.04 LTS	x86	gcc 4.6.3	i86Linux3.xgcc4.6.3				YES
	x64	gcc 4.6.3	x64Linux3.xgcc4.6.3				YES

Table 1.1 **Supported Platforms**[1]

Operating System	CPU	Compiler	RTI Architecture	Oracle TimesTen 11.2.1	Oracle Database 11g R2	SQL Server 2012 SP1	MySQL 5.1.44[2]
Windows® 7	x86	Visual Studio® 2010 SP1	i86Win32VS2010	YES	YES	YES	YES
	x64	Visual Studio 2010 SP1	x64Win64VS2010	YES	YES	YES	YES
Windows 8	x86	Visual Studio 2012	i86Win32VS2012		YES	YES	
	x64	Visual Studio 2012	x64Win64VS2012		YES	YES	
Windows Server 2003	x86	Visual Studio 2008 SP1	i86Win32VS2008	YES	YES		YES
Windows Server 2008 R2	x64	Visual Studio 2010 SP1	x64Win64VS2010	YES	YES	YES	YES
Windows Server 2012 R2	x64	Visual Studio 2012	x64Win64VS2012		YES	YES	
Windows Vista®	x86	Visual Studio 2008 SP1	i86Win32VS2008	YES	YES		YES
Windows XP® Professional SP2	x86	Visual Studio 2008 SP1	i86Win32VS2008	YES	YES		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. Tested in PERSISTENT mode with file system

1.1 ODBC Driver Requirements

The *Database Integration Service*-to-MySQL daemon requires the separate installation of the MySQL ODBC 5.1.6 (or higher) driver. For non-Windows platforms, the installation of Unix-ODBC 2.2.12 (or higher) is also required. See Section 2.5 for additional details on ODBC driver compatibility.

2 Compatibility

2.1 Compatibility with Unbounded Types

Database Integration Service does not support topics that contain unbounded types. Any topic containing unbounded sequences or strings will be ignored by *Database Integration Service*.

2.2 Compatibility with RTI Connext DDS and RTI Data Distribution Service

Database Integration Service is not compatible with *RTI Data Distribution Service* 4.2c and lower.

Database Integration Service 5.2.0 is compatible with *Connext DDS* 5.2.0 and lower, as well as *RTI Data Distribution Service* 4.5[b-e], 4.4, 4.3 and 4.2e, except as noted below.

2.2.1 Compatibility with Older Versions

In *Connext DDS* 5.1.0, the default **message_size_max** for the UDPv4, UDPv6, TCP, Secure WAN, and shared-memory transports changed to provide better out-of-the-box performance. *Database Integration Service* 5.2.0 also uses the new default value for **message_size_max**. Consequently, *Database Integration Service* 5.2.0 is not out-of-the-box compatible with applications running older versions of *Connext DDS* or *RTI Data Distribution Servic*e. Please see the *RTI Connext DDS Core Libraries Release Notes* for instructions on how to resolve this compatibility issue with older *Connext DDS* and *RTI Data Distribution Service* applications.

2.2.2 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 is resolved in versions 4.4d and higher.

As a result, by default, large data in *Database Integration Service* 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 *Database Integration Service* publications and subscriptions:

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

2.2.3 Compatibility with RTI Data Distribution Service 4.2e

Out of the box, *Database Integration Service* 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, run *Database Integration Service* with the command-line option **-use42eAlignment**.

2.2.4 Compatibility with RTI Data Distribution Service over Shared Memory

Database Integration Service 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 Connext DDS Core Libraries Release Notes*.

2.3 Compatibility with Other Versions of Database Integration Service

Database Integration Service 4.5 and higher is compatible with *Real-Time Connect* 4.2 - 4.4, with the same exceptions that apply to *Connext DDS*. Therefore, *Database Integration Service* 4.5 and higher is not compatible with an older *Real-Time Connect* version if it is not compatible with the associated *Connext DDS* version.

2.4 Configuration Compatibility

2.4.1 Configuration File Format

Starting with *Database Integration Service* 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.

2.4.2 Configuration File Loading

Starting with *Database Integration Service* 4.5b, the way configuration files are loaded has changed. These are the new approaches, listed in load order:

- **<NDDSHOME>/resource/xml/NDDS_QOS_PROFILES.xml**
- Files in the environment variable **NDDS_QOS_PROFILES**

- ❏ **<*working directory*>/USER_QOS_PROFILES.xml**
- ❏ **<NDDSHOME/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 specified 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.

2.4.3 Command-Line Options

Starting with *Database Integration Service* 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.

2.5 ODBC Driver Compatibility

Database Integration Service 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 *Database Integration Service* cannot find **libodbc.so**, create a symlink to l**ibodbc.so.1** from **libodbc.so.2**.

3 What's New in 5.2.0

- ❏ SQL Server 2012 SP1 is now supported for some platforms (see Table 1.1).
- ❏ Windows platforms that used Visual Studio 2005 are no longer supported.
- ❏ The product name has changed from *RTI Real-Time Connect* to *RTI Database Integration Service*.

4 What's Fixed in 5.2.0

4.1 Possible Buffer Overflow when Deleting Subscription in MySQL

A buffer overflow may have occurred when deleting a subscription. This issue only affected Database Integration Service for MySQL.This problem has been resolved.

[RTI Issue ID RTC-210]

5 Known Issues

5.1 No Support for Unbounded Types

Database Integration Service does not support topics that contain unbounded types. Hence, any topic containing any unbounded sequence or string will be ignored by *Database Integration Service*.

5.2 Manual Table Creation does not Trigger Daemon to Create Publication/ Subscription when Typecode Unknown

This issue only applies when using the Oracle or MySQL databases.

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.

5.3 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.

5.4 WCHAR and WVARCHAR Not Published Correctly for MySQL

The contents of WCHAR and WVARCHAR fields are not published correctly by *Database Integration Service* Publications in MySQL. Zero (0) is published instead of the correct value.

5.5 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 '$'.

5.6 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.

5.7 Applications with Disabled Inline-Keyhash

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

5.8 Shared Memory Communication Problems when Using -nodaemon Option

This issue only applies using MySQL 5.0 Server or Oracle 10g Server while running as a Windows 2003 service or a Windows Vista service.

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

There are three ways to enable communication:

1. Run both the *Database Integration Service* Daemon and the database server as services.
2. Run both the *Database Integration Service* Daemon and the database server from the command line.
3. Use the *Database Integration Service* command-line option, **-dbtransport 1**, to communicate using UDPv4.

5.9 Table Initialization in Database Replication Scenarios may Require Keeping Copy of Table in Memory for Oracle and MySQL

If *Database Integration Service* 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**.

5.10 Type Code Limitation for SQL Server

The maximum type-code length that can be stored in SQL Server is 8,000 bytes.

[RTI Issue ID RTC-187]

5.11 No Support for NCHAR Type for SQL Server

This release does not support the NCHAR type for use with SQL Server.

[RTI Issue ID RTC-189]

5.12 Change Tracking Retention Period for SQL Server not Configurable

Monitoring a SQL Server database table for changes and publishing them to a DDS Topic depends on the Change Tracking facility in SQL Server. The retention period is fixed at two days, with automatic cleanup enabled.

[RTI Issue ID RTC-172]

5.13 Publishing Database Changes for a Table Cannot be Re-enabled for SQL Server

If a table is added to the publications in a SQL Server database so that changes to the table are published by the *Real-Time Connect* daemon and it is subsequently removed, that table may not be added back to the publications unless the *Real-Time Connect* daemon is restarted. Otherwise, *Real-Time Connect* will silently fail to publish changes to that table.

[RTI Issue ID RTC-190]

5.14 Cannot Run Real-Time Connect as Windows Service over Shared Memory—Windows 2003 and Newer Platforms

If you start *Real-Time Connect* as a Windows service on Windows 2003 or newer platforms, the shared-memory transport is not supported. For details on how to configure DDS applications to use different transport settings, please see the *RTI Connext Core Libraries and Utilities User's Manual* (Section 8.5.7, TRANSPORT_BUILTIN QosPolicy).

[RTI Issue ID RTC-198]