RTI Database Integration Service

Release Notes

Version 6.0.1
Trademarks

RTI, Real-Time Innovations, Connext, NDDS, the RTI logo, 1RTI and the phrase, “Your Systems. Working as one,” are registered trademarks, trademarks or service marks of Real-Time Innovations, Inc. All other trademarks belong to their respective owners.

Copy and Use Restrictions

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form (including electronic, mechanical, photocopy, and facsimile) without the prior written permission of Real-Time Innovations, Inc. The software described in this document is furnished under and subject to the RTI software license agreement. The software may be used or copied only under the terms of the license agreement.

This is an independent publication and is neither affiliated with, nor authorized, sponsored, or approved by, Microsoft Corporation.

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

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/
Contents

Chapter 1 Supported Platforms and System Requirements
  1.1 ODBC Driver Requirements ................................................................. 2

Chapter 2 Compatibility
  2.1 Compatibility with Unbounded Types ......................................................... 4
  2.2 Compatibility with RTI Connext DDS ......................................................... 4
  2.3 ODBC Driver Compatibility ...................................................................... 4

Chapter 3 What's New in 6.0.1
  3.1 New Platforms ......................................................................................... 5
  3.2 Removed platforms .................................................................................. 5
  3.3 Removed support for -use42eAlignment .................................................... 5

Chapter 4 Previous Releases
  4.1 What’s New in 6.0 ..................................................................................... 6
    4.1.1 New Platforms .................................................................................. 6
    4.1.2 Removed Platforms and Databases ...................................................... 6
    4.1.3 MySQL Version ................................................................................. 7
    4.1.4 Storage of Mutable Types ................................................................. 7

Chapter 5 Known Issues
  5.1 No Support for Unbounded Types .............................................................. 8
  5.2 Manual Table Creation does not Trigger Daemon to Create Publication/Subscription when Typecode Unknown ................................................................. 8
  5.3 WCHAR and WVARCHAR Not Supported as Primary Keys for MySQL ................. 8
  5.4 WCHAR and WVARCHAR Not Published Correctly for MySQL ....................... 9
  5.5 IdentifierSeparatorChar Cannot Be ‘,’ for MySQL ..................................... 9
  5.6 Applications with Disabled Inline-Keyhash ............................................. 9
  5.7 Table Initialization in Database Replication Scenarios may Require Keeping Copy of Table in Memory for MySQL ................................................................. 9
  5.8 Type Code Limitation for SQL Server ..................................................... 9
5.9 No Support for NCHAR Type for SQL Server ................................................................. 9
5.10 Change Tracking Retention Period for SQL Server not Configurable ............................ 9
5.11 Publishing Database Changes for a Table Cannot be Re-enabled for SQL Server ................. 10
5.12 Cannot Run as Windows Service over Shared Memory ..................................................... 10
5.13 Types wchar, wstring, and long double not Supported with PostgreSQL Database .......... 10
5.14 Adding New Subscriptions to RTIDDS_SUBSCRIPTION Table at Run Time not Supported for PostgreSQL Database ........................................................................ 10
5.15 Database Integration Service to MySQL UTF Support .................................................... 10
Chapter 1 Supported Platforms and System Requirements

*RTI® Database Integration Service* requires *RTI Connext® DDS* software with the same version number.

*Database Integration Service* supports Microsoft® SQL Server™, MySQL™, and PostgreSQL®. You must have at least one of these installed; use the version shown in the tables below.

**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 websites:


### Table 1.1 Supported Linux Platforms

<table>
<thead>
<tr>
<th>Operating System</th>
<th>CPU</th>
<th>PostgreSQL(^1)</th>
<th>MySQL(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CentOS™ 6.0, 6.2-6.4</td>
<td>x86</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>x64</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Red Hat® Enterprise Linux® 6.0-6.5, 6.7, 6.8</td>
<td>x86</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>x64</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>SUSE® Linux Enterprise Server 11 (SP2, SP3), 12 SP2</td>
<td>x64</td>
<td>YES(^3)</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)See 1.1 ODBC Driver Requirements on the next page.

\(^2\)Tested with MySQL 5.5.

\(^3\)Tested with PostgreSQL 9.5.2+ on SUSE 11 SP3 systems with x64 CPUs. Only subscriptions are supported.
### 1.1 ODBC Driver Requirements

#### Table 1.2 Supported Windows Platforms

<table>
<thead>
<tr>
<th>Windows Version</th>
<th>CPU</th>
<th>Visual Studio Version</th>
<th>SQL Server&lt;sup&gt;1&lt;/sup&gt;</th>
<th>MySQL&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 8</td>
<td>x86</td>
<td>2012, 2013</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x64</td>
<td>2012, 2013</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Windows 8.1</td>
<td>x86</td>
<td>2013</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Windows 10</td>
<td>x86</td>
<td>2015, 2017, 2019</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x64</td>
<td>2015, 2017, 2019</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Windows Server 2012 R2</td>
<td>x64</td>
<td>2012, 2013</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server 2016</td>
<td>x86</td>
<td>2015, 2017, 2019</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x64</td>
<td>2015, 2017, 2019</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

For details on these platforms, see the *RTI Connext DDS Core Libraries Platform Notes.*

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

#### 1.1 ODBC Driver Requirements

- **MySQL**
  
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, UNIX-ODBC 2.2.12 (or higher) must also be installed. See 2.3 ODBC Driver Compatibility on page 4.

- **PostgreSQL**
  
The *Database Integration Service*-to-PostgreSQL daemon requires the separate installation of the PostgreSQL ODBC driver. This release of *Database Integration Service* has been tested with PostgreSQL ODBC driver version 09.05.0300.

---

<sup>1</sup>Tested with SQL Server 2012 SP3.

<sup>2</sup>Tested with MySQL 5.7 on Windows Server 2012 only.
The UnixODBC driver manager is also required. This release of *Database Integration Service* has been tested with UnixODBC driver manager version 2.3.4.
Chapter 2 Compatibility

Below is basic compatibility information for this release.

For backward compatibility information between 6.0.1 and previous releases, see the Migration Guide on the RTI Community Portal (https://community.rti.com/documentation).

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

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

Database Integration Service 6.0.1 is compatible with Connext DDS 6.0.1 and lower. It is also compatible with RTI Data Distribution Service 4.5[b-e], 4.4, 4.3 and 4.2e, except as noted in the RTI Connext DDS Core Libraries Release Notes for 5.3.1.

2.3 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 libodbc.so.1 from libodbc.so.2.
Chapter 3 What’s New in 6.0.1

3.1 New Platforms

This release adds support for these platforms:

- Windows 10 (x86, x64) with Visual Studio® 2019
- Windows Server 2016 (x86, x64) with Visual Studio 2019

3.2 Removed platforms

These platforms are no longer supported:

- Windows 7
- Windows Server 2008 R2

3.3 Removed support for -use42eAlignment

The -use42eAlignment command-line option is no longer supported.
Chapter 4 Previous Releases

4.1 What’s New in 6.0.0

4.1.1 New Platforms

- CentOS 6.0, 6.2-6.4
- Red Hat Enterprise Linux 6.0-6.5, 6.7, 6.8
- SUSE Linux Enterprise Server 12

4.1.2 Removed Platforms and Databases

The following platforms are no longer supported (for any database):

- CentOS 5.x
- Red Hat Enterprise Linux 5.x
- Ubuntu 12.04 LTS

The following platforms are no longer supported when using MySQL\textsuperscript{a}:

- Windows 7 with Visual Studio 2010
- Windows 8 with Visual Studio 2012 or Visual Studio 2013
- Windows Server 2008 R2 with Visual Studio 2010
- Windows Server 2012 R2 with Visual Studio 2012 or Visual Studio 2013

These databases are no longer supported:

\[ \text{\textsuperscript{a}These platforms can be used with other databases, see Table 1.2 Supported Windows Platforms} \]
4.1.3 MySQL Version

This release is compatible with MySQL 5.5 (instead of 5.1).

4.1.4 Storage of Mutable Types

This release adds support for storing samples with mutable extensibility. Subscription to mutable types is only supported in tables with table_schema equal to JSON or JSONB.

This feature is only supported when using the MySQL and PostgreSQL databases.
Chapter 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 MySQL database.

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 MySQL database 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 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.

5.7 Table Initialization in Database Replication Scenarios may Require Keeping Copy of Table in Memory for 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 MySQL where tables may become quite large.

To avoid the problem, disable table initialization by setting dw.durability.kind in RTDDS_PUBLICATIONS and dw.durability.kind in RTDDS_SUBSCRIPTIONS to VOLATILE_DURABILITY_QOS.

5.8 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]

5.9 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]

5.10 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
5.11 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 Database Integration Service daemon and it is subsequently removed, that table may not be added back to the publications unless the Database Integration Service daemon is restarted. Otherwise, Database Integration Service will silently fail to publish changes to that table.

[RTI Issue ID RTC-198]

5.12 Cannot Run as Windows Service over Shared Memory

If you start Database Integration Service as a Windows service, 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 DDS Core Libraries User’s Manual (Section 8.5.7, TRANSPORT_BUILTIN QosPolicy).

[RTI Issue ID RTC-198]

5.13 Types wchar, wstring, and long double not Supported with PostgreSQL Database

Subscriptions to topics whose types contain wchar, wstring, or long double members are not supported with PostgreSQL integration.

[RTI Issue ID RTC-263]

5.14 Adding New Subscriptions to RTIDDS_SUBSCRIPTION Table at Run Time not Supported for PostgreSQL Database

This version of Database Integration Service does not support creating new subscriptions after startup for a PostgreSQL database. Subscription will have to be defined in the configuration XML file or added to the RTIDDS_SUBSCRIPTION table before starting the Database Integration Service daemon.

[RTI Issue ID RTC-264]

5.15 Database Integration Service to MySQL UTF Support

Database Integration Service does not support MySQL databases with UTF-8 character set. Consequently, communication between the database service and the Database Integration Service daemon (rtirte_mysql) is not established and the updates on the publication and subscription tables are not propagated. You may detect this behavior by checking if the table RTIRTC_TBL_INFO has not been created.
You can check the current database character set with the following SQL statement:

```sql
SELECT DEFAULT_CHARACTER_SET_NAME, DEFAULT_COLLATION_NAME FROM INFORMATION_SCHEMA.SCHEMATA
WHERE SCHEMA_NAME = '<dbname>';```

To fix this situation you need to specify the latin1 character set. Here are two ways to do this:

**Method 1**

Change the default character set of the database used by *Database Integration Service*:

1. Stop the *Database Integration Service* daemon.
2. Run the following SQL statement to change the database character set:

   ```sql
   ALTER DATABASE DEFAULT CHARACTER SET latin1;
   ```
3. Delete all the *Database Integration Service* metatables: RTIDDS_PUBLICATIONS, RTIDDS_SUBSCRIPTIONS, RTIRTC_LOG, and RTIRTC_TBL_INFO.
4. Restart the *Database Integration Service* daemon.

**Method 2**

Comment out the following lines or change them to “latin1” inside the file `my.ini` in your home directory or MySQL installation directory.

```ini
default-character-set=utf8
character-set-server=utf8
```

The MySQL service should be restarted after changing the values. Also, the database should be recreated after restarting:

```sql
drop database <dbname>;
create database <dbname>;
```

[RTI Issue ID RTC-141]