

RTI Persistence Service

Release Notes

Version 5.3.0



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Release Notes

1 Supported Platforms

RTI® Persistence Service is included with *RTI Connext® DDS*. If you choose to use it, it must be installed on top of *RTI Connext DDS* with the same version number.

Persistence Service is supported on the platforms listed in [Table 1.1](#). No custom platforms are supported.

Table 1.1 **Supported Platforms**

Platforms	Description
AIX®	AIX 7.1 platform on POWER7 CPU with XLC/C++ 12.1 (architecture 64p7AIX7.1xlc12.1). Tested in PERSISTENT mode with a filesystem. No external database support.
INTEGRITY®	INTEGRITY 10.0.2 on x86 CPU with multi 5.0.6 (architecture pentiumInty10.0.2.pcx86). Supports Transient Durability Mode only. Available as a library, not an executable.
Linux®	All Linux platforms on x86/x64 CPUs listed in the <i>RTI Core Libraries Release Notes</i> for the same version number, except not supported on any custom target Linux platform. Tested in PERSISTENT mode with a filesystem and MySQL 5.1.44.
OS® X	All OS X architectures listed in the <i>RTI Core Libraries Release Notes</i> for the same version number. Tested in PERSISTENT mode with a filesystem. No external database support.
Solaris™	All Solaris platforms listed in the <i>RTI Core Libraries Release Notes</i> for the same version number. Tested in PERSISTENT mode with a filesystem and MySQL 5.1.44.
Windows®	All Windows platforms listed in the <i>RTI Core Libraries Release Notes</i> for the same version number. Tested in PERSISTENT mode with a filesystem and MySQL 5.1.44.

2 Compatibility

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

- ❑ Prior to 5.2.0, **service_cleanup_delay** was not supported and *Persistence Service* did not purge information regarding an instance after receiving a dispose for the instance.

Starting in 5.2.0, **service_cleanup_delay** is supported. This provides a way to cause disposed instances to be immediately removed from *Persistence Service*.

- If you want disposed instances to be purged:
Set **service_cleanup_delay** = 0 (the default) and **use_durability_service** (in the Persistence Service configuration) = 1
- If you want to keep the old behavior, so that disposed instances are not purged, there are two options:
Set **use_durability_service** = 0 (the default)
or
Set **use_durability_service** = 1 and **service_cleanup_delay** = INFINITE

- ❑ *Persistence 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 Connex DDS Core Libraries Release Notes*.
- ❑ In *Connex 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. *Persistence Service* 5.1.0 also uses the new value for **message_size_max**. Consequently, *Persistence Service* 5.1.0 and higher is not out-of-the-box compatible with applications running older versions of *Connex DDS* or *RTI Data Distribution Service*. Please see the *RTI Connex DDS Core Libraries Release Notes* for instructions on how to resolve this compatibility issue with older *Connex DDS* and *RTI Data Distribution Service* applications.
- ❑ The types of the remote administration topics in 5.1.0 and higher are not compatible with 5.0.0, therefore:
 - The 5.0.0 *Record* and *Replay* shells, *Admin Console* 5.0.0 and *Connex DDS* 5.0.0 user applications performing administration are not compatible with *Recording Service* 5.1.0 and higher.
 - The 5.1.0 and higher *Record* and *Replay* shells, *Admin Console* 5.1.0 and higher, and *Connex DDS* 5.1.0 and higher user-applications performing administration are not compatible with *Recording Service* 5.0.0.

2.1 Command-Line Options Compatibility

Starting with version 4.5b, the command-line parameter **-srvName** has been replaced with **-cfgName**, which is a required parameter.

2.2 Library API Compatibility

The following fields in the *RTI_PersistenceServiceProperty* structure have new names (starting in 4.5d Rev. 12):

- ❑ **app_name** has been replaced with **application_name**
- ❑ **stack_size** has been replaced with **thread_stack_size**

2.3 Persistent Storage

2.3.1 ODBC Compatibility

When *Persistence Service* is configured in PERSISTENT mode, you may choose between storing the topic data in files or in an external relational database.

In principle, you can use any database that provides an ODBC driver, since ODBC is a standard. However, not all ODBC databases support the same feature set. Therefore, there is no guarantee that the persistent durability features will work with an arbitrary ODBC driver.

Persistence Service has been tested with the MySQL 5.1.44 with MySQL ODBC 5.1.6.

The usage of MySQL 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.

2.3.2 Storage Schema Compatibility

In *Connex DDS 5.2.0*, the schema of the information persisted into files or into an external relational database changed. Consequently, you will not be able to open *Connex DDS 5.1.0* and earlier files and databases with *Connex DDS 5.2.0*.

2.4 Persistence Service Synchronization



Starting with version 5.0.0, the format of the `<synchronization>` tag value under `<persistence_service>` tag has changed.

Before 5.0.0, the value of the tag was a boolean indicating whether or not sample synchronization was enabled.

Starting with version 5.0.0, there are two different kinds of information that can be synchronized independently: data samples and durable subscription state. The `<synchronization>` tag value is no longer a boolean; now it is a complex value that may contain up to three new tags:

- `<synchronize_data>`
- `<synchronize_durable_subscriptions>`
- `<durable_subscription_synchronization_period>`

Any existing XML configuration files that use the old `<synchronization>` tag as follows:

```
<dds>
  <persistence_service>
    ...
    <synchronization>true</synchronization>
  </persistence_service>
```

must be changed to:

```
<dds>
  <persistence_service>
    ...
    <synchronization>
      <synchronize_data>true</synchronize_data>
    </synchronization>
  </persistence_service>
```

For more information on *Persistence Service* synchronization, see the *RTI Persistence Service* chapters in the *RTI Connex DDS Core Libraries User's Manual*.

3 Optional Database Components

When *Persistence Service* is used in PERSISTENT mode, you can configure it to store DDS samples into a relational database, such as MySQL.

In principle, you can use any database that provides an ODBC driver, since ODBC is a standard. However, not all ODBC databases support the same feature set. Therefore, there is no guarantee that the persistent durability features will work with an arbitrary ODBC driver.

RTI has tested *Persistence Service* with MySQL 5.1.44 with MySQL ODBC 5.1.6.

The usage of MySQL 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.

- ❑ To use MYSQL, you will need:
 - MySQL 5.1.44 or higher (download from <http://www.mysql.com>)
 - MySQL ODBC 5.1.6 driver or higher (download from <http://dev.mysql.com/downloads/connector/odbc>)
 - UnixODBC 2.2.12 or higher (download from <http://www.unixodbc.org>.)

The Durable Writer History and Durable Reader State features in *RTI Connext DDS* also use a relational database. Therefore, the installation instructions for MySQL are provided in the *RTI Core Libraries Getting Started Guide Addendum for Database Setup*.

If you need help with the download or installation process, contact support@rti.com.

4 What's New in 5.3.0

4.1 New Platforms

This release adds support for platforms on the following operating systems:

- ❑ OS X 10.10 and 10.12
- ❑ Ubuntu 16.04 LTS
- ❑ Windows 7, Windows Server 2008 R2

See the *RTI Core Libraries Platform Notes* for details.

4.2 Platforms on Legacy Operating Systems

The following legacy operating systems have reached end-of-life from their corresponding vendors. Please contact RTI support or your account manager if you require version 5.3 to run on these platforms:

- ❑ CentOS® 5.x
- ❑ Red Hat® Enterprise Linux 5.x
- ❑ SUSE® 11

4.3 Removed Platforms

Platforms on the following operating systems are no longer supported:

- ❑ AIX 5.3
- ❑ OS X 10.8
- ❑ Windows Vista, Windows XP Pro, Windows 2003

4.4 Ignoring XML-Application Tags in Configuration

Persistence Service will ignore any XML-Application tags that are in the loaded XML configuration. Previous versions failed to load the XML configuration.

4.5 Support for Native Heap Monitoring

Persistence Service incorporates a native heap memory monitor that allows you to analyze the allocations performed at the service and *RTI Connexx DDS* layers. You can use heap monitoring through the command line with the following options:

-heapSnapshotPeriod: <sec> Enables heap monitoring. Generate heap snapshot every <sec>.

-heapSnapshotDir: <dir>> Output directory where the heap monitoring snapshot are dumped. The filenames of the generated dump files have the following format:

RTI_heap_<appName>_<processId>_<index>.log

where <appName> is the name you assigned to the service execution through the **-appName** parameter, <processId> is the process ID of the service execution, and <index> is an integer that automatically increases each snapshot period.

For details related to the format of the snapshot files see the API Reference HTML documentation for *Connexx DDS*.

5 What's Fixed in 5.3.0

5.1 New Database Locking Mechanism two avoid two instances of RTI Persistence Service to use the same Database

Starting two instances of *Persistence Service* configured to use the same database may have caused inconsistencies and database corruption issues.

This problem has been resolved. Starting in version 5.3.0, a new database locking mechanism has been implemented that will prevent a second instance from starting start if another instance is already using the same database. In this case, the following error message is reported:

```
Database is already in use by another RTI Persistence Service or was
ungracefully terminated.
Delete all the entries in the PERSISTENCE_SERVICE table before restarting
the service
: main:!start persistence service
```

This feature is only available when persistence storage is enabled (<persistence_storage> tag).

You can disable the database locking feature by using the command-line option, **-disableDatabaseLocking**.

[RTI Issue ID PERSISTENCE-120]

6 Known Issues

6.1 TCP Transport not Supported

Persistence Service does not support the TCP transport.

6.2 Coherent Changes not Propagated as Coherent Set

Persistence Service will propagate the samples inside a coherent change. However, it will propagate these samples individually, not as a coherent set.

6.3 BLOBs not Supported by ODBC Storage

The ODBC storage does not support BLOBs. The maximum size for a serialized sample is 65535 bytes in MySQL.

6.4 TopicQueries not Supported in PERSISTENT Mode

Getting TopicQuery data from a *Persistence Service* instance configured to store data on disk is not currently supported.

Note: Getting TopicQuery data from a *Persistence Service* instance running in TRANSIENT (storing data in memory) mode is supported.

[RTI Issue ID PERSISTENCE-143]

7 Available Documentation

The following documentation is provided with the *Persistence Service* distribution. (The paths show where the files are located after *Persistence Service* has been installed in <NDDSHOME>):

- ❑ General information on *RTI Persistence Service*

Open <NDDSHOME>/ReadMe.html, then select **RTI Persistence Service**.

- ❑ Example code

By default, the *Persistence Service* examples are copied here:

- Mac OS X systems:

`/Users/your user name/rti_workspace/version/examples/persistence_service/
<language>/hello_world_persistence`

- UNIX-based systems:

`/home/your user name/rti_workspace/version/examples/persistence_service/
<language>/hello_world_persistence`

- Windows systems:

`<your home directory>\rti_workspace\version\examples\persistence_service\
<language>/hello_world_persistence`

Additional documentation is provided with *Connexx DDS*:

- ❑ Configuration, use cases, and execution of *Persistence Service*:

RTI Connexx DDS Core Libraries User's Manual
(<NDDSHOME>/doc/manuals/connexx_dds/
RTI_ConnexxDDS_CoreLibraries_UsersManual.pdf)

- ❑ Overview of persistence and durability features:

Open <NDDSHOME>/ReadMe.html, choose your desired API (C, C++, or Java), then select **Modules, RTI Connexx DDS API Reference, Durability and Persistence**.