

RTI Ada Language Support

Release Notes

Version 5.2.0



Your systems. Working as one.



© 2015 Real-Time Innovations, Inc.
All rights reserved.
Printed in U.S.A. First printing.
June 2015.

Trademarks

Real-Time Innovations, RTI, NDDS, RTI Data Distribution Service, DataBus, Connex, Micro DDS, 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.

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/>

Release Notes

This document provides information on *RTI® Ada Language Support* and supplements the *RTI Connex™ DDS Core Libraries Release Notes*. All requirements, compatibility, and known issues described in the *RTI Connex DDS Core Libraries Release Notes* are also applicable to *RTI Ada Language Support*.

1 System Requirements

1.1 Supported Operating Systems

Ada Language Support provides the libraries required to build *Connex DDS* Ada applications for the following platforms when using AdaCore GNAT Pro 7.3.1 (<http://www.adacore.com>):

Table 1.1 Supported Platforms

Operating System	CPU	Compiler	RTI Architecture Abbreviation
CentOS 6.0, 6.2-6.4 (2.6 kernel)	x64	gcc 4.4.5	x64Linux2.6gcc4.4.5
Red Hat® Enterprise Linux® 6.0-6.5 (2.6 kernel)			

1.2 Disk and Memory Usage

Disk usage for the combined host and target installation is approximately 350 MB.

1.3 Networking Support

Networking support is the same as described in the *RTI Connex DDS Core Libraries Release Notes*.

2 Compatibility

2.1 Wire-Protocol Compatibility

Ada Language Support communicates over the wire using Real-time Publish-Subscribe (RTPS) protocol 2.1 and is compatible with *Connex DDS* 5.x and 4.5f, as well as *RTI Data Distribution Service* 4.2 - 4.5, except as noted in the *RTI Connex DDS Core Libraries Release Notes*.

2.2 Code Compatibility

Like the *Connex DDS* Core Libraries, *Ada Language Support* uses an API that is an extension of the DCPS layer of the OMG Data Distribution Service (DDS) standard API, version 1.2.

Ada Language Support supports the DDS Standard APIs as well as some RTI extension APIs.

API Differences:

The following features are supported in other languages, but are *not* supported in *Ada Language Support*:

- ☐ Dynamic Data
- ☐ TypeCode, TypeCodeFactory
- ☐ Custom flow controllers
- ☐ Custom content filters
- ☐ Transport Registration and configuration through the NDDS_Transport_Support API
- ☐ Request-Reply API

The above unsupported features are not part of the OMG DDS specification; they are RTI extensions.

3 What's New in 5.2.0

- ☐ This release adds support for Red Hat Enterprise Linux 6.5 platforms.
- ☐ It uses GNAT 7.3.1 (was 7.2.2) and GPRBUILD 2.2.1 (was 2.1.2).

4 What's Fixed in 5.2.0

4.1 Incorrect Values Received by DataReaders in Ada for Types with Members that Require 8-Byte Alignment

When using *Ada Language Support*, a *DataReader* may have received erroneous values for samples from a *DataWriter* that published a type including members requiring 8-byte alignment, such as long long, unsigned long long, or long double. For example:

```
struct MyType{
    long m1;
    long long m2;
    long m3;
};
```

In the above example, a *DataReader* subscribing to *MyType* received incorrect values for *m2* and *m3* in samples from a *DataWriter* publishing *MyType*. No error was reported. This problem has been resolved.

[RTI Issue ID CORE-6726]

4.2 Argument "The_Reader" for on_data_available() is Now Read-Only

In previous versions, the argument **The_Reader** in the **on_data_available()** callback was passed as "in out." According to the OMG specification, this argument should be passed using "in" mode. This problem has been resolved.

[RTI Issue ID CORE-6039]

5 Limitations

- ❑ Bit fields in the IDL are not supported for Ada.
- ❑ The **Hello_dynamic** example that is available in other languages is not available in Ada.
- ❑ When using the **-example** flag in *rtiddsgen* to generate example code for Ada, the generated project file for compiling and the publisher and subscriber source files are placed under the **samples** directory, instead of at the top-level directory. Use the Ada project file under the **samples** directory to compile the example (or use the generated makefile that is located at the top level to compile).
- ❑ The code generated by *rtiddsgen* for Ada language is not in pure Ada—it will contain both C and Ada code (Ada code is a wrapper around the C code); therefore a compatible C compiler is needed to compile the generated code.

6 Known Issues

6.1 Reopening IDL Modules not Supported by *rtiddsgen* for Ada

Reopening a module in IDL is not supported when using *rtiddsgen* for Ada. For example, the following IDL file is not supported in Ada:

```
module ModuleA {
    struct Struct1 {
        long longValue;
    };
};
.....
module ModuleA {
    struct Struct2 {
        short shortValue;
    };
};
```

[RTI Issue ID CODEGENII-231]

6.2 API Reference HTML Documentation for Ada May be Inaccurate Regarding Internal APIs

Due to the way the online documentation is generated in this release, some of the internal APIs that are not intended to be called by users (typically with filenames ending with **Low_Level.ads** or **impl.ads**, and those APIs that are lacking detailed descriptions) may also appear in the Ada online documentation and should be ignored. When in doubt, refer to the corresponding documentation for another language to determine which APIs are meant to be public.

The parameter names mentioned in the descriptions of some of the APIs may not exactly match the actual parameter names that appear in the Ada **.ads** file. However, there is usually an obvious one-to-one correspondence between the parameters as described in the descriptions compared to the APIs listed in the Ada **.ads** file.

[RTI Issue ID CORE-6290]

6.3 **API Reference HTML Documentation for Ada May Use Incorrect Entity Names**

Links in the Ada online documentation may display wrong entity names. For example, for DDS.DomainParticipant, the displayed name may be DomainParticipant.DDS. This only affects the links. This issue is caused by AdaCore's tool for documentation generation. RTI is investigating it with AdaCore.

[RTI Issue ID CORE-6270]