

# RTI Connex Micro Training



If you are developing software for complex distributed systems and your applications run in high-assurance systems or resource-limited devices, Connex<sup>TM</sup> Micro is your standards-based solution. It provides a small-footprint communications infrastructure to help applications meet stringent size, weight and power (SWaP) requirements well beyond the reach of traditional messaging middleware. It also serves as the foundation for safety- or security-certifiable components in critical systems that are not well-served with commercial off-the-shelf (COTS) software.

Now, RTI Connex Micro training can help equip your team with the skills to rapidly take advantage of all the features and capabilities of this compact, safety-certifiable middleware for avionics and resource-constrained environments.

## Training Highlights

Concepts and benefits of the data-centric model for publish-subscribe distributed systems

Process for building Connex Micro code for any platform, including mobile platforms such as Android

Configuration of Connex Micro builds

Development of plugins and plugin interfaces

Essentials for building certifiable systems that include Connex Micro code

## RTI Connex Micro

Connex Micro is an innovative, comprehensive software communications infrastructure for resource-limited devices – those with minimal memory, Flash, CPU power or no operating system. It can also be safety and security certified.

It is based on the Object Management Group (OMG) Data Distribution Service (DDS) standard that delivers low-latency, high-throughput, scalability and Quality of Service (QoS) capabilities for complex real-time distributed systems.

## Training Course

In this two-day course, participants will learn the benefits of taking the DDS real-time publish-subscribe paradigm to safety-critical avionics platforms with constrained resources. They will be able to begin effectively using RTI Connex Micro as part of their distributed systems.

## Participant Requirements

This course was designed for all software architects and developers. It will be useful whether or not they have prior DDS experience. Source code and hands-on examples use C, so some C programming experience will be helpful.

## Learning Objectives

After completing this two-day course, participants will be able to:

- Successfully complete selected hands-on exercises using the Connex Micro API
- Explain the potential of a data-centric model for publish-subscribe distributed systems
- Build Connex Micro source code for any platform, including non-mainstream platforms
- Configure the Connex Micro build process and plug in component implementations for your environments
- Build certifiable systems that include Connex Micro code

## Course Outline

### Overview

**Introduction to Connex DDS:** the value of DDS

**Fundamentals of Connex DDS:** principles of DDS, provisions of the DDS specification, and how Connex Micro relates to the specification

**Application Development:** DDS programming model, the importance of data, and how to achieve desired behavior through Quality of Service (QoS) and Discovery information

**Features and API of Connex Micro:** capabilities Connex Micro brings to system architecture and the APIs it provides

**Building Connex Micro:** how to set up a tool chain for your environment, use cmake and build libraries from the supplied source code

**Connex Micro Architecture:** Connex Micro modules and how they work with one another

**Porting Connex Micro:** how to port Connex Micro to other hardware, operating system, or C compiler platforms

**Writing Connex Micro Plugins:** benefits of replacing the implementation of certain Connex Micro components and the interface required for a plugin

**Interoperability between Connex Micro and Connex DDS:** constraints to consider when using Connex Micro with Connex DDS, Connex Tools, and other DDS implementations

**Cross-Platform Development for Android:** how the Connex Micro build environment supports cross-platform development and the process of developing a Connex Micro application for Android

### Conclusion

## Instructor

The course instructor will be an expert engineer and member of the RTI Professional Services team. The instructor will have practical, hands-on field experience working with clients who incorporated Connex Micro into their complex distributed systems.

## RTI Professional Services

Your success with developing complex distributed systems is the primary objective of the RTI Professional Services team.

Our engineering experts help you mitigate project risk, increase productivity, and delivery quality on a shorter schedule.

Contact us today at [solutions@rti.com](mailto:solutions@rti.com) to request this course or discuss other design, development, training or support needs.

### About RTI

Real-Time Innovations (RTI) is the Industrial Internet of Things (IIoT) connectivity company. The RTI Connex<sup>®</sup> databus is a software framework that shares information in real time, making applications work together as one, integrated system. It connects across field, fog and cloud. Its reliability, security, performance and scalability are proven in the most demanding industrial systems. Deployed systems include medical devices and imaging; wind, hydro and solar power; autonomous planes, trains and cars; traffic control; Oil and Gas; robotics, ships and defense.

RTI is the largest vendor of products based on the Object Management Group (OMG) Data Distribution Service<sup>™</sup> (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California.



Your systems. Working as one.

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