



COURSE CATALOG

March 28, 2022 Edition

RTI Academy

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Connex Developer Training

Course description

The *Connex Developer Training* learning plan contains a set of key courses for any professional building a distributed system using Connex.

The RTI Professional Services team has been training customers for years, gathering experience about what RTI customers need and what use-cases must be addressed in order to train customers efficiently and minimize future risk while at the same time improving efficiency at work.

The syllabus covered in the live training *Connex DDS Professional Training* delivered by the RTI Professional Services team has been enhanced and recorded in short easy-to-watch videos. You can even find topics covered in this *Connex Developer Training* course in RTI Academy that are not covered in the Virtual Instructor-Led Training (VILT) offerings.

If you decide to go through the full *Connex Developer Training*, you will become an expert in topics that will be crucial for the success of your project.

This course is targeted for Developers. Architects may also benefit from parts of this course.

Course content

This Learning Plan is formed by 18 courses:

- Introduction to Connex (44m)
- Coding and Compiling (30m)
- Hands-on exercises (5h)
- API Walkthroughs (1h 15m)
- Basic Data Modeling (44m)
- Protocols (2h 5m)
- Quality of Service (Part 1) (2h 13m)
- Quality of Service (Part 2) (2h)
- XML and QoS (1h 43m)
- Sending Data (2h 49m)
- Receiving Data (2h 5m)
- Conditions and WaitSets (1h 21m)
- Statuses and Listeners (2h 2m)
- Using Keyed Topics (Part 1) (2h 51m)
- Using Keyed Topics (Part 2) (1h 9m)
- Request Reply API (2h)
- XML Application Creation (1h 45m)
- Performance and RTI PerfTest (43m)

Prerequisites

No previous knowledge about Connex is required for this course.

Access Level

This course is available for customers with Premium Support.

Required material

We recommend you to have Connex Professional installed. You may want to follow the demonstrations.

Duration

The course has 33 hours of content.

Performance evaluations

The Connex Developer Training contains hands-on exercises and a lot of demonstrations. We recommend doing the exercises before looking at the solutions (that are also provided). The duration of the exercises is expected to be 5 hours.

Fundamentals of RTI Connex

Course description

The course *Fundamentals of RTI Connex* covers very quickly the most basic concepts you need to know in order to begin using Connex. It is a very simple introduction built to create awareness about those basic concepts, so it cannot be considered a full training.

With this course you will also learn about which tools and features Connex provides to ease your task of building a distributed system.

This course is targeted for everyone who wants to learn the basics of Connex (Developers, Project Managers, Architects, etc.).

Course content

This Learning Plan is formed by 6 different courses:

- Connex Product Suite (30m)
- DDS Introduction (26m)
- Basic Data Modeling (44m)
- Publishing and Subscribing (17m)
- QoS and Application Configuration (35m)
- Connectivity and Discovery (15m)

Prerequisites

No previous knowledge about Connex is required for this course.

Access Level

This course is available for customers with Basic, Essential and Premium Support.

Required material

No requirements.

Duration

The course has 3 hours of content.

Performance evaluations

Each of the 6 different courses contains a Test for self-evaluation purposes.

Writing a Connexrt Chat Application using the Modern C++ API

Course description

The course *Writing a Connexrt Chat Application using the Modern C++ API* shows how to approach a practical problem from scratch. From analyzing the requirements to configuring the QoS policies to meet the last requirement.

With this course you will put in practice some of the concepts learned in other courses and you will see how one of the RTI Professional Services engineers approaches the typical challenges found during development of a simple application.

This course is targeted for Developers that want to get more hands-on experience with Connexrt Professional.

Course content

This Course is formed by 18 different lessons covering the following topics:

- Requirements
- System Overview
- Data Model
- DDS System Overview and Design
- QoS Design and Configuration
- Generating code from IDL
- Entity creation
- Setting QoS
- Publishing and subscribing to messages and User Info (using WaitSets and polling)
- Using Content-filtered Topics
- Using Partitions
- Implementing graceful and ungraceful exits

Access Level

This course is available for customers with Basic, Essential and Premium Support.

Required material

We recommend having Connexrt installed on your environment and being able to compile and run a simple Hello World application.

Duration

The course has 2 hours of content.

Performance evaluations

There are no tests or evaluation mechanisms built into this course.

Prerequisites

We recommend going through the *Fundamentals of RTI Connexrt* before going through this course.

Writing a Connex Chat Application using Connector and Python

Course description

The course *Writing a Connex Chat Application using Connector and Python* shows how to approach a practical problem from scratch. The implementation is done using XML Application Creation, System Designer, Connector and the Python API for Connector: a different approach compared with the course *Writing a Connex Chat Application using the Modern C++ API*.

This course is a great resource to see how to design a system using XML Application Creation.

This course is targeted for Developers that want to get more hands-on experience with Connex Professional.

Course content

This Course is formed by 11 different lessons covering the following topics:

- Introduction
- Creating Types, QoS and DDS entities using System Designer
- Creating connector, inputs and outputs
- Publishing and Subscribing to user info and chat messages
- Filtering chat messages using CFT
- Creating chat groups using Partitions
- Detecting when an user is gone

Prerequisites

You must watch before:

- *Fundamentals of RTI Connex*
- *Writing a Connex Chat Application using the Modern C++ API*

Access Level

This course is available for customers with Basic, Essential and Premium Support.

Required material

We recommend having Connex installed on your environment and being able to compile and run a simple Hello World application.

Duration

The course has 1.5 hours of content.

Performance evaluations

There are no tests or evaluation mechanisms built into this course.

Understanding Connex Secure

Course description

This course covers how to enable Connex Secure and configure it for various security use cases. You will also learn about how to monitor and deploy Connex Secure.

This course is targeted for Developers and Architects who need to plan for using Connex Secure in their system or who will start to use it soon.

Course content

This Course is formed by 27 different lessons covering the following topics:

- Threat Model
- DDS Secure Intro
- Governance
- Permissions
- Security Logging
- Deployment and Migration
- 9 different Demonstrations

Prerequisites

We recommend having a minimum level of knowledge about Connex before going through this course. If you don't have it, you can get it by going through the *Fundamentals of RTI Connex*.

Access Level

This course is available for customers with Essential and Premium Support.

Required material

The course provides a bundle with the application used during the demonstrations.

Duration

The course has 5 hours of content.

Performance evaluations

There are no tests or evaluation mechanisms built into this course.

Understanding Connex Micro

Course description

This course begins with an overview of Connex Micro, focusing on its modular architecture and configurability. It continues by exploring the various features of Connex Micro, paying particular attention to those features with which Connex Professional users may not be familiar.

It also covers the details that make Connex Micro appropriate for resource-constrained systems, and how to tune for such systems.

Finally, the course explores the specific differences between Connex Micro and Connex Professional, how these products can work together, and how to leverage RTI tools in Micro-based systems.

This course is targeted for Developers and Architects that will use Connex Micro in their system.

Course content

This Course is formed by 55 different lessons covering the following topics:

- Introduction to Connex Micro
- Architecture Overview
- Architecture in Practice
- Getting Started
- Transports
- Configuring Discovery
- Working with QoS
- Configuring DomainParticipant Resource Allocations
- Configuring Endpoint Resource Allocations
- Logging
- Comparison to Connex Professional
- Demonstrations

Prerequisites

We recommend having a minimum level of knowledge about Connex before going through this course. If you

don't have it, you can get it by going through the *Fundamentals of RTI Connex*.

Access Level

This course is available for customers with Essential and Premium Support.

Required material

We recommend you to follow the demonstrations if you have access to the Connex Micro product.

Duration

The course has 4 hours of content.

Performance evaluations

There are no tests or evaluation mechanisms built into this course.

Connex 6.1 Product Update

Course description

This course provides an update on what's new in Connex 6.1.

This course is targeted for everybody using RTI products.

Course content

This Course is formed by 7 different videos covering the following topics:

- Introduction
- Connectivity across WAN
- Scalability improvements
- Languages and APIs
- OpenSSL
- Developer Productivity
- Observability

Required material

None.

Duration

The course has 30 minutes of content.

Performance evaluations

There are no tests or evaluation mechanisms built into this course.

Prerequisites

None.

Access Level

This course is available for customers with Basic, Essential and Premium Support.



About RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connex[®] is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connex shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,800 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

RTI is the leading vendor of products compliant with the Object Management Group[®] (OMG[®]) Data Distribution Service (DDS[™]) standard. RTI is privately held and headquartered in Sunnyvale, California with regional offices in Colorado, Spain and Singapore.

Download a free 30-day trial of the latest, fully-functional Connex software today: www.rti.com/downloads