

DATASHEET

# RTI Connex Tools

ACCELERATING THE DEVELOPMENT OF DISTRIBUTED SYSTEMS

## HIGHLIGHTS

Powerful tools for developing deep insights into the performance, health and resource utilization of IIoT systems

Multiple views of distributed data for debugging, monitoring, analytics and administration

Quick access to install, configure and run RTI Connex DDS components

Data logging with real-time notifications as error or warning conditions occur

Record and replay DDS data for algorithm development, regression testing and post-mission analysis

Integration with Microsoft Excel for rapid understanding of real-time DDS data

Wireshark plug-in for viewing and analyzing packets at the wire level for online troubleshooting or offline analysis

Fun and powerful Shapes demo to quickly learn about Connex DDS

Simple command-line utilities for checking connectivity and data activities

RTI Connex<sup>®</sup> Tools provide deep visibility into running systems, help troubleshoot application connectivity, solve complex data integration problems and speed time to market. Connex Tools are critical for Industrial Internet of Things developers whether they are just starting out with DDS or have been building DDS applications for a while. Connex Tools ease the entire development lifecycle from design to production.

## POWERFUL TOOLS FOR ENTIRE DEVELOPMENT PROCESS

### Development and troubleshooting

Diagnosing a connectivity issue is challenging, especially during development when most debugging mechanisms are primitive. Tools that provide insight into a distributed system can help analyze the root cause, find the right solution and shorten product time to market.

### System monitoring and administration

Maintaining the health of application connectivity is critical in developing IIoT systems. Insightful tools that provide minimally-intrusive visibility into running systems will enable developers to resolve operational problems, fine tune system performance

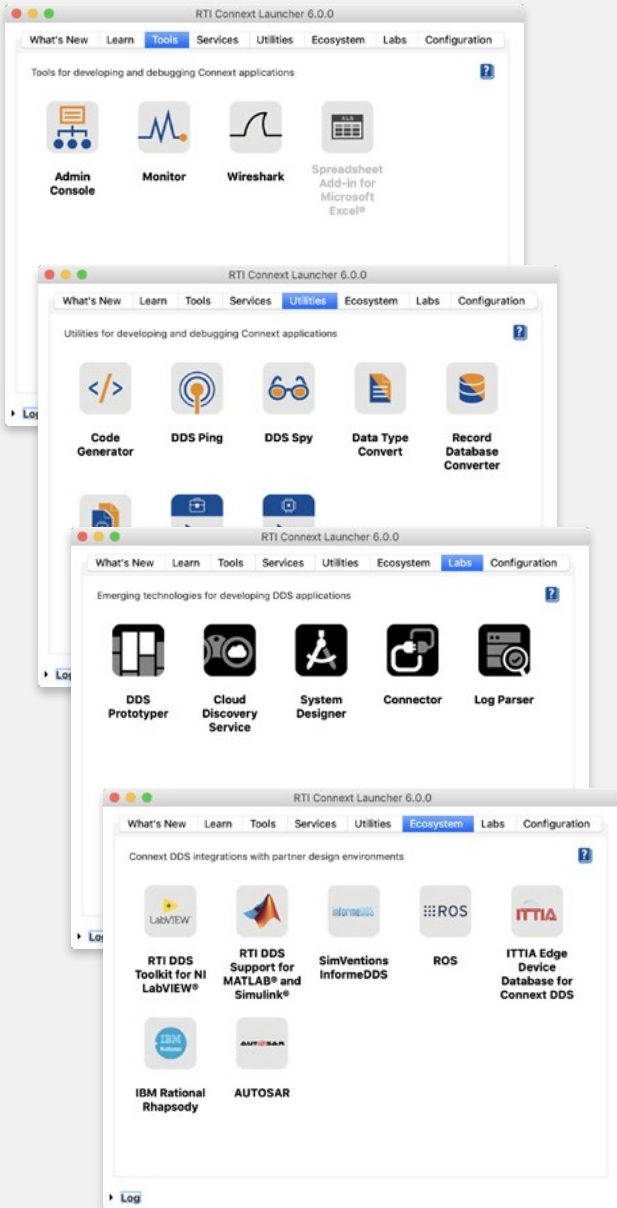
### Functional, systems and performance testing

Tools that provide a variety of ways to simulate error conditions significantly improve code quality and reduce the effort for both R&D and QA teams.

**RTI TOOLS INCLUDED IN CONNEXT DDS PROFESSIONAL**

**LAUNCHER:** Start Here

Launcher is a “single pane of glass” view for insight into the entire Connex DDS environment. It keeps tabs on all Connex Tools. An intuitive Launcher interface helps effortlessly add new components and target platforms to the current Connex DDS environment, see what is already installed, find documentation and web resources, create new source-code projects and run all the Connex tools and command-line utilities.



RTI Connex Launcher

**ADMINISTRATION CONSOLE:** Take Control

Administration Console is an essential tool for troubleshooting and monitoring all Connex DDS infrastructure services as well as visualizing data directly from your system. The Administration Console minimizes troubleshooting time and effort in all stages of application development by proactively analyzing system configuration and log messages. Problems get highlighted, making them easy to find and address. The Administration Console provides multiple views into your system, allowing developers to:

- Inspect and visualize instances and samples
- Show samples as graphs or tables
- Identify QoS mismatches (match graphs)
- Find data type mismatches
- Discover and inspect processes, topics and data types
- And much more

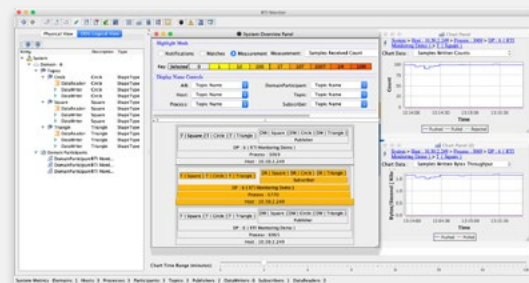


Administration Console

**MONITOR:** Troubleshoot Like a Pro

Monitor helps troubleshoot DDS-enabled applications throughout the entire process of integration and testing. It also provides continuous visibility into deployed systems in production through real-time graphical views of the entire ecosystem of applications connected by Connex DDS. Monitor aids in diagnosing unusual behavior patterns and reduces risks associated with connectivity issues and network usage.

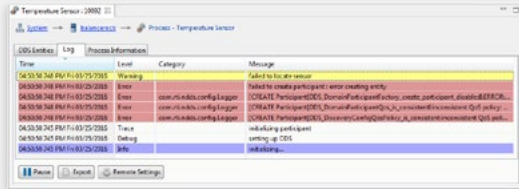
Monitor is critical when it comes to performance optimization. RTI provides an instrumentation package in addition to the Connex DDS libraries. The package can produce a wealth of real-time performance data from the running applications and publish this data to the Monitor. The instrumentation has minimal performance overhead for applications.



Monitor

**DISTRIBUTED LOGGER:** Receive Real-Time Warnings

Distributed Logger delivers real-time notifications when error or warning conditions occur anywhere in the DDS environment. It enables applications to log messages using existing logging infrastructure and to publish them to Connext DDS. It also publishes Connext DDS log messages to the same topics. Warnings and errors are correlated from Connext DDS with log messages from applications, greatly aiding troubleshooting. All the log messages can be centrally collected and saved for later analysis and troubleshooting. Both Monitor and Admin Console can be used to see and analyze the messages.

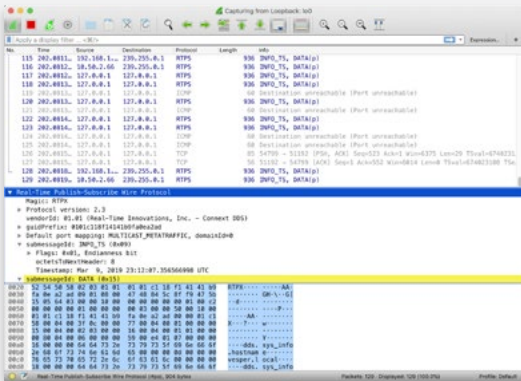


Distributed Logger

**WIRESHARK:** Understand Network Packets

Wireshark is a purpose-built network protocol analyzer that looks at all the network packets and captures the ones of interest. RTI provides special plugins for decoding DDS messages and examining their content. The display shows packets in real time as they arrive. Wireshark is invaluable for learning DDS as well as a go-to tool for deep packet inspection and network connectivity troubleshooting. It is free and available for download from the RTI Community Portal (<https://community.rti.com/downloads>).

While the standard ping utility can confirm basic reachability between machines, it cannot check if the ports needed for DDS discovery are open. RTI Ping (rtiddsping) utility does exactly that! It can find out in seconds if firewall settings on the network are preventing DDS discovery traffic.

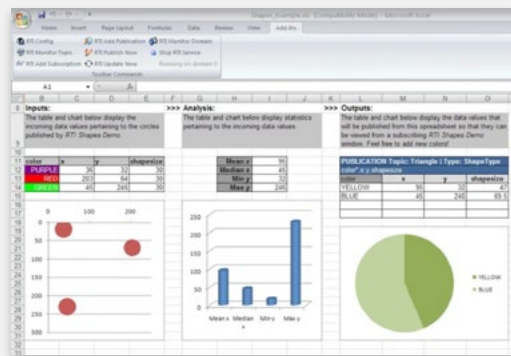


Wireshark

**ADD-IN FOR MICROSOFT EXCEL:** Teach Spreadsheets New Tricks

Turn spreadsheets into powerful analytic and visualization capability for IIoT systems. RTI Add-in for Microsoft Excel provides turnkey, bi-directional integration between Connext DDS and Microsoft Excel. It displays IIoT data in spreadsheets as cells; formulas and charts come to life with real-time data streams.

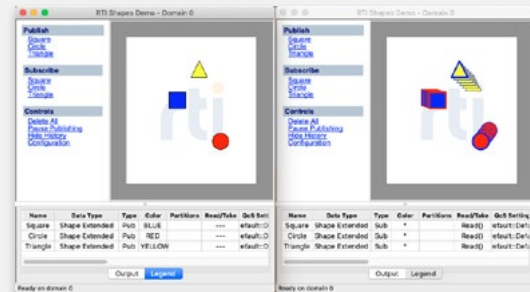
The integration of Connext DDS with Excel is simple to configure and use, with no need for external servers or gateways. The add-in automatically discovers available data streams and schemas. Spreadsheets simply participate in the DDS “conversation” with other applications as data publishers and data subscribers. Wizards help easily create ad-hoc publications and subscriptions using an intuitive point-and-click interface.



Add-In for Microsoft Excel

**SHAPES:** Learn DDS Quickly

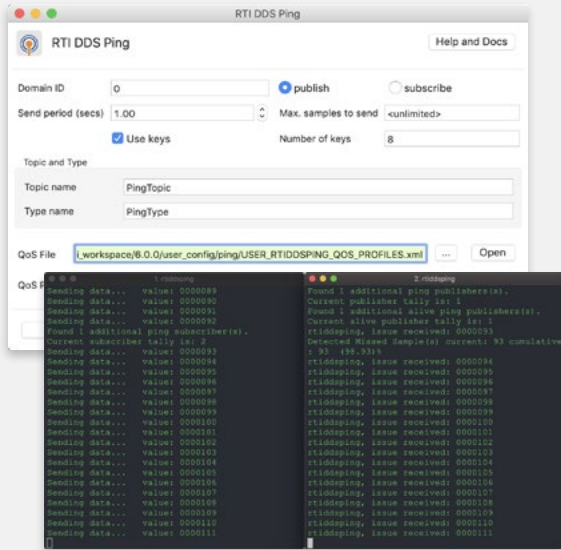
Development teams come up to speed quickly on DDS fundamentals with Shapes. The Shapes Demo is a powerful learning tool for understanding DDS concepts, such as publish-subscribe messaging, data centricity and Quality of Service (QoS). Shapes is a visually appealing, game-like application that allows you to experiment by modeling the desired behavior without coding. It is suitable for users of any level and does not require programming skills or prior DDS knowledge. It is free and available for download from the RTI Community Portal (<https://community.rti.com/downloads>).



Shapes Demo

### DDS PING: Reach Out

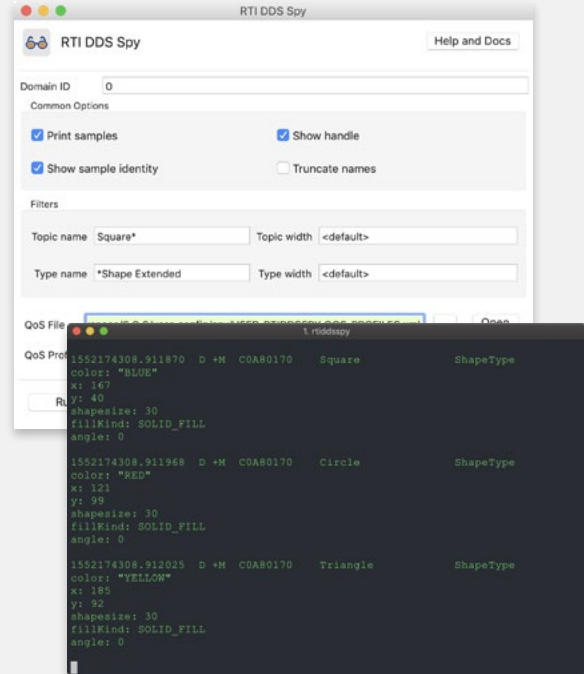
DDS Ping can help discover quickly if firewall settings on the network are preventing DDS discovery traffic. While the standard ping utility can confirm basic reachability between machines, it cannot check if the ports needed for DDS discovery are open. DDS Ping (rtiddsping) utility does exactly that.



DDS Ping

### DDS SPY: Take a Peek

DDS Spy enables inspection of data that applications are publishing. It is a command-line utility that can subscribe to select DDS topics and display data samples it receives to the terminal.



DDS Spy

## ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework provider for smart machines and real-world systems. The company's RTI Connex<sup>®</sup> product enables intelligent architecture by sharing information in real time, making large applications work together as one.

With over 1,500 deployments, RTI software runs the largest power plants in North America, connects perception to control in vehicles, coordinates combat management on US Navy ships, drives a new generation of medical robotics, controls hyperloop and flying cars, and provides 24/7 medical intelligence for hospital patients and emergency victims.

RTI is the best in the world at connecting intelligent, distributed systems. These systems improve medical care, make our roads safer, improve energy use, and protect our freedom.

RTI is the leading vendor of products compliant with the Object Management Group<sup>®</sup> (OMG) Data Distribution Service<sup>™</sup> (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California with regional headquarters in Spain and Singapore.

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

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