

DATASHEET

RTI DDS Toolkit for LabVIEW

FAST, SECURE AND INTEROPERABLE PUBLISH/SUBSCRIBE DATA COMMUNICATIONS

HIGHLIGHTS

Easy-to-use data communications infrastructure

Built on the DDS open standard for secure, real-time systems

Deployable to NI Linux Real-Time Controllers

Works with RTI Connex Tools for integrating and debugging distributed applications

Bundled with LabVIEW 2017 and higher

The RTI® DDS Toolkit for LabVIEW allows you to reliably and securely exchange data across highly distributed and heterogeneous systems. Built on RTI Connex DDS, the market-leading implementation of the open standard Data Distribution Service (DDS) for Real-Time Systems, the RTI DDS Toolkit seamlessly exchanges data between LabVIEW VIs and other DDS compliant applications.

OVERVIEW

The RTI DDS Toolkit for LabVIEW helps you overcome several distributed system challenges:

- Deliver low latency and high throughput while scaling to large systems
- Provide data privacy, integrity and access control
- Reliably publish data to many subscribers, including streaming data
- Easily integrate LabVIEW with other applications

The RTI DDS Toolkit provides a set of subVIs for publishing and subscribing to data. They allow you to easily exchange data between LabVIEW VIs and other applications that use DDS.

The RTI DDS Toolkit, including support for LabVIEW on NI Linux Real-Time, is integrated with LabVIEW 2017 and

higher in the Block Diagram / Data Communication Palette. You can install it by clicking on the 'Install' shortcut, or directly from the VI Package Manager.

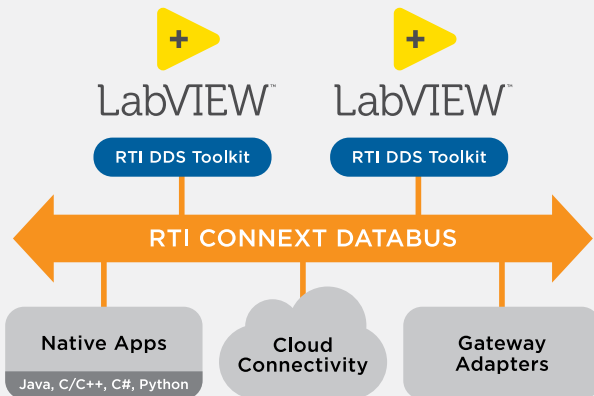
RICH ECOSYSTEM

The RTI DDS Toolkit works seamlessly with the RTI Connex product line. Capabilities include:

- Connex DDS libraries and SDK for all major programming languages, operating systems and CPU families, including CompactRIO



- Data-aware routing between networks and security domains
- Tools for integrating, debugging and monitoring distributed systems
- Real-time data recording for post-mission analysis and debugging
- Replay of recorded data for testing and simulation
- Adapters and adapter SDK for easy integration with other protocols and existing applications
- Transports for low-bandwidth networks such as satellite and radio
- Bi-directional database integration for data sharing between SQL and DDS applications
- Bi-directional integration with Microsoft Excel
- REST/HTTP interface for web applications and scripting



OPTIMIZED FOR MISSION-CRITICAL REAL-TIME SYSTEMS

The RTI DDS Toolkit for LabVIEW employs a completely decentralized communications architecture. It does not require any servers, services or message brokers. The messaging infrastructure is completely embedded in the RTI subVIs, which communicate peer-to-peer. This delivers:

- Minimum latency because there is no intermediate software or gratuitous network hops
- Maximum throughput and scalability because there is no service acting as a bottleneck or choke point
- Non-stop availability because there is no single point of failure
- Easy embedding because there are no services that must be started and administered

Automatic discovery eliminates the need for deployment-time configuration. Applications are plug-and-play, facilitating use in dynamic networks. The ConnexT DDS middleware automatically discovers and routes data between matching publishers and subscribers at runtime; systems are self-forming and self-healing.

Multicast support provides highly scalable one-to-many and many-to-many data distribution. Messages only have to be sent over the network once, regardless of the number of subscribers. The network switch automatically routes data to all subscribing nodes. This maintains low latency even for very broad data distribution. Since network-level multicast is unreliable, ConnexT DDS includes an optional reliability protocol optimized for real-time behavior.

Fine-grained control over messaging Quality of Service (QoS) and security allows you to optimize tradeoffs between latency, throughput, CPU overhead and network overhead. The security, timeliness and reliability of data delivery are configurable per-stream and per-application. This eases integration of applications with disparate performance needs such as real-time and IT applications.

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework provider for smart machines and real-world systems. The company's RTI ConnexT® 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® (OMG) Data Distribution Service™ (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 ConnexT DDS software today: <https://www.rti.com/downloads>.

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