

DATASHEET

RTI DDS Toolkit for LabVIEW

FAST, SECURE AND INTEROPERABLE DATA COMMUNICATION FRAMEWORK

HIGHLIGHTS

Publish and share data between one or more LabVIEW applications, controllers, and native applications

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

Deployable to NI Linux Real-Time Controllers

Works with RTI Connex Tools for integrating and debugging distributed applications

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

OVERVIEW

The RTI DDS Toolkit for LabVIEW streamlines data integration and data distribution between multiple LabVIEW applications, NI Linux Real-Time controllers, and third-party applications that use DDS.

Using the VI blocks provided in the toolkit, LabVIEW applications can communicate by publishing the data they produce and subscribing to the data they consume. The toolkit automatically discovers and routes data between matching publishers and subscribers. By abstracting communication and managing all the low-level networking details, the RTI Toolkit can significantly reduce the amount of custom code required to support system communications.

- Delivers low latency and high throughput while scaling to large systems
- Provides data privacy, integrity and access control
- Reliably publishes data to many subscribers, including streaming data

- Seamlessly communicates between LabVIEW and other applications developed using Connex

The RTI DDS Toolkit for LabVIEW provides a set of subVIs for publishing and subscribing to data. It allows developers to easily exchange data between LabVIEW VIs and other applications that use DDS through a mapping of the DDS API to LabVIEW subVIs. It also includes LabVIEW panels for configuration and administration.

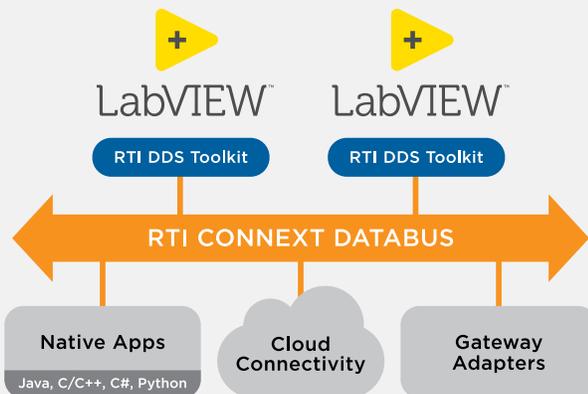
The toolkit, including support for LabVIEW on NI Linux Real-Time, is integrated with LabVIEW in the Block Diagram / Data Communication Palette. You can install it by clicking on the 'Install' shortcut, or directly from the VI Package Manager.



RICH ECOSYSTEM

The RTI DDS Toolkit for LabVIEW is directly integrated 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



RTI DDS Toolkit for LabVIEW enables integration with various applications

OPTIMIZED FOR MISSION-CRITICAL REAL-TIME SYSTEMS

The RTI DDS Toolkit for LabVIEW employs a completely decentralized communication architecture without requiring 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 Connex 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, Connex includes an optional reliability protocol optimized for real-time behavior.

The toolkit includes support for DDS Security and is integrated with OpenSSL. Fine-grained control over messaging Quality of Service (QoS) and security allows developers 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.

For more information, please contact your RTI representative or visit www.rti.com.

ABOUT RTI

Real-Time Innovations (RTI) is the infrastructure software company for smart-world systems. Across industries, RTI Connex® is the leading software framework for intelligent distributed systems. RTI runs a smarter world.

RTI is the market leader in products compliant with the Data Distribution Service (DDS™) standard. RTI is privately held and headquartered in Silicon Valley with regional offices in Colorado, Spain, and Singapore.

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