



# RTI Connex DDS

The World's Leading DDS Implementation



Developing applications with demanding performance, timeliness and reliability requirements? Need interoperability or software portability? RTI Connex DDS reduces the time, cost and risk of adopting a real-time Service Oriented Architecture (SOA) and Open Architecture (OA). It is the most popular implementation of the DDS standard, augmented with many powerful tools and run-time services. Connex DDS is used in hundreds of mission-critical systems, in industries such as aerospace & defense, process automation, transportation, finance and medical.

## Highlights:

Fully compliant with DDS API and DDS-RTPS wire interoperability protocol

Proven in over 350,000 deployed CPUs, 500 unique product designs and 350 research and university projects

Highest U.S. DoD maturity level, TRL 9

Industry-leading performance, scalability and security

Productivity-enhancing development, debugging, integration and visualization tools

Free for evaluation and qualifying IR&D, research and university projects

## Options:

Source code

Adapters for legacy system integration and reuse, relational databases, ESBs, CEP engines and LabVIEW

Java Message Service (JMS) API

Tools and run-time services

Small-footprint edition for resource-constrained and safety-critical systems

Low-bandwidth transport plug-in

The Object Management Group (OMG) Data Distribution Service for Real-Time Systems (DDS) is the only open standard for messaging that supports the unique Quality of Service (QoS) requirements of both enterprise and real-time systems. It can deliver in excess of 50x the performance of non-real-time standards such as JMS, AMQP and Web Services. As a result, it often provides the only standards-compliant alternative to proprietary or custom integration.

RTI drove creation of the DDS standard and has been the definitive market leader since its adoption. First with support for both the DDS Application Programming Interface (API) and DDS-RTPS wire interoperability protocol, Connex DDS is proven in hundreds of unique product designs. More than 350,000 copies are deployed today.

With unparalleled expertise in applying DDS to realize the benefits of real-time SOA and OA, RTI is the ideal partner on your DDS project. RTI's Professional Services team has worked hand-in-hand with hundreds of customers to successfully deploy some of the world's highest performance, largest scale and most mission-critical distributed systems.

## Optimized for Real-Time and Embedded Systems

### Peer-to-peer communication

An innovative, completely decentralized architecture delivers ultra-low-latency, high throughput and virtually unlimited scalability. Applications directly exchange data in a true peer-to-peer manner. There are no servers, message brokers or daemon processes acting as bottlenecks or single points of failure.

### High-performance architecture

Zero-copy interfaces and shared memory communication support High Performance Computing (HPC). Core libraries are written in C for maximum performance and efficiency. Non-Java applications do not require a Java Virtual Machine (JVM) or Application Server.

### Broad language and platform support

All leading enterprise, embedded and real-time operating systems are supported. This includes MILS separation kernels and ARINC 653 OSes. C, C++, C#, Java and Ada APIs are available.

### Transport and network flexibility

Applications are independent of the underlying transport and protocol. TCP and IP are not required. RTI's reliability protocol supports Disconnected, Intermittent and Low-bandwidth (DIL) networks such as radio and satellite.

## Well-Suited for Mission-Critical Systems

### High availability

RTI's serverless architecture has no single point of failure. Systems are self-healing when applications disconnect and reconnect. Automatic failover provides continuous availability when an application is no longer accessible.

### Inherently secure architecture

Because applications directly communicate, security policies can be enforced by the operating system (OS) — such as a Mandatory Access Control (MAC) or partitioned OS. Secure TLS and DTLS transports are also provided for authentication and encryption.

## Productivity-Enhancing Tools

### Analyzer

Accelerates integration and debugging by providing visibility into a running system including applications, QoS and interface definitions.

### Spreadsheet add-in

Provides real-time data visualization, analysis and injection using Microsoft Excel.

### Wireshark integration

Captures and displays discovery metadata and user data, aiding in the diagnosis of network-level connection and timing issues.

## Complementary Products

**Connex Integrator** complements Connex DDS by providing an integration and mediation platform for independently developed DDS and non-DDS applications. It exposes existing, non-DDS applications as a service in a DDS-based SOA and DDS-based systems as a service in an enterprise SOA. It also transforms data types to provide interoperability between independently developed DDS application. In addition to DDS, Connex Integrator includes adapters to third-part JMS providers, relational databases, TCP/IP sockets, files and an adapter Software Development Kit (SDK) for creating custom adapters.

**Connex Messaging** extends the functionality of Connex DDS. It includes enhanced messaging capabilities, including Java Message Service (JMS) and distributed logging APIs. Additional tools provide system performance and health monitoring as well as real-time data recording and playback. It also includes run-time services for federation and persistence. Connex DDS and Connex Messaging are API compatible and wire interoperable.

**Connex Micro** provides a small-footprint messaging solution for resource-limited devices and high-assurance applications, such as those that require high levels of safety or security certification (including DO-178B). Connex Micro implements a subset of the DDS API and DDS-RTPS wire protocol for portability and interoperability with Connex DDS.

### OMG DDS Compliance

- DDS API 1.2
  - Minimum profile
  - Persistence profile
  - Ownership profile
  - ContentFilteredTopic & QueryCondition
- DDS Interoperability Wire Protocol (RTPS) 2.1
- Web-enabled DDS (draft)
- XTypes: Extensible and Dynamic Topic Types (draft)
- UML Profile for DDS (third-party)
- lwCCM: DDS for Lightweight CCM (third-party)

### About RTI

RTI is the world leader in delivering fast, scalable, communications software that address the challenges of building and integrating real-time operational systems. RTI Connex solutions meet the needs of enterprise-wide integration — from the operational edge to the enterprise data center. The RTI standards-based software infrastructure improves the efficiency of operational systems while facilitating better decisions, actions and outcomes for the business enterprise.

For over ten years, RTI has delivered industry-leading products and solutions for customers in markets ranging from Aerospace & Defense, Process Automation, Financial Services, Energy, Automotive, Health Sciences and Transportation Management.

Founded in 1991, RTI is privately held and headquartered in Sunnyvale, California.



Your systems. Working as one.

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