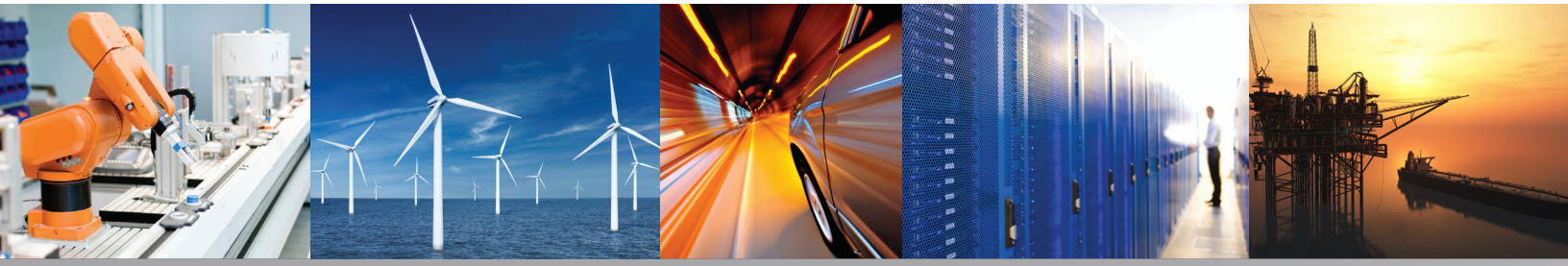
RTI Connext DDS Secure

Secure Messaging for Intelligent Machines



RTI Connext™ DDS Secure provides the world's first off-the-shelf messaging platform that delivers the security, performance and safety required for deployment of the Industrial Internet of Things (IIoT). It is also the first solution to comply with the new Data Distribution Service (DDS) Security specification from the Object Management Group (OMG).

Highlights:

- Provides authentication, authorization, non-repudiation, confidentiality and integrity
- Protects discovery information, metadata and data
- Defends against unauthorized access, tampering and replay
- Operates without centralized servers for high performance, scalability and availability
- Runs over any transport including TCP, UDP, multicast and shared memory
- Integrates with existing security infrastructures and hardware acceleration
- Secures unmodified existing DDS applications

Securing critical infrastructure – including medical, energy, manufacturing, transportation and defense systems – is not only essential for safety and economic reasons, it is also extraordinarily challenging. Security cannot come at the expense of performance or reliability. The machines that make up these systems must perform at the speed of the physical processes they manage. And even brief unplanned outages can have calamitous consequences.

Connext DDS Secure is the world's first messaging platform to address IIoT security, real-time performance and reliability requirements.

The architecture of Connext DDS is fundamentally high performance and reliable. Unlike messaging middleware designed for IT systems, Connext DDS does not require centralized brokers, servers or administration. Applications automatically discover each other and communicate peer-to-peer. As a result, Connext DDS delivers very low latency and does not have a single point of failure. It is also well suited for autonomous and embedded systems like intelligent machines.

Connext DDS Secure provides a robust set of security capabilities including authentication, access control, encryption, data tagging and logging.

Standard Capabilities

Authentication	• X.509 Public Key Infrastructure (PKI) with a pre-configured shared Certificate Authority (CA) • Digital Signature Algorithm (DSA) with Diffie-Hellman and RSA for authentication and key exchange
Access Control	• Specifications via permissions file signed by shared CA • Control over ability to join DDS Domains and Partitions, read or write Topics • Control on individual objects and Quality of Service (QoS) via plugins
Cryptography	• Protected key distribution • AES128 and AES256 for encryption • HMAC-SHA1 and HMAC-SHA256 for message authentication and integrity
Data Tagging	• Used to specify security metadata, such as classification level • Sent during endpoint discovery • Can be used to determine access privileges (via plugin)
Logging	• Log security events to a local file or distribute securely over Connext DDS

Customizable

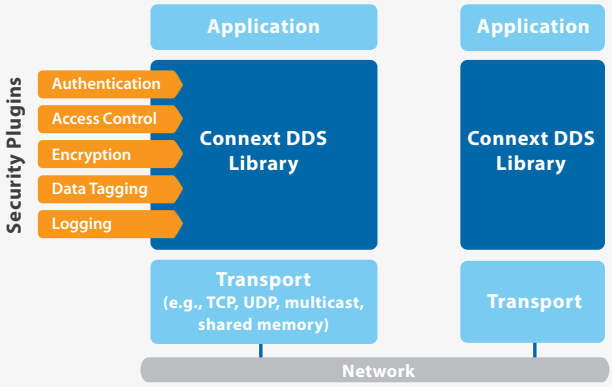
An optional SDK allows implementation of custom security plugins. These can be used to integrate with existing authentication infrastructures, support additional encryption algorithms or leverage hardware acceleration.

Transport Flexibility

Security is implemented above the transport layer. Any Connext DDS transport can be used securely, including UDP, TCP and shared memory. Support for UDP multicast (both reliable and best effort) enables efficient data distribution when there are many subscribers to the same data.

Optimized Performance

Only data that must be private has to incur the overhead of encryption and decryption. This is much more efficient than TLS and other transport-layer security approaches that encrypt all data. Other data can be efficiently signed with a Message Authentication Code (MAC) to ensure authenticity.



About RTI

Real-Time Innovations (RTI) is the Industrial Internet of Things (IIoT) connectivity company. The RTI Connext® databus is a software framework that shares information in real time, making applications work together as one, integrated system. It connects across field, fog and cloud. Its reliability, security, performance and scalability are proven in the most demanding industrial systems. Deployed systems include medical devices and imaging; wind, hydro and solar power; autonomous planes, trains and cars; traffic control; Oil and Gas; robotics, ships and defense.

RTI is the largest vendor of products based on the Object Management Group (OMG) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California.

rti
Your systems. Working as one.

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