

DATASHEET

RTI Connex DDS Secure

FIRST CONNECTIVITY SOFTWARE DESIGNED FOR ARCHITECTING AND SECURING SYSTEMS OF SYSTEMS

HIGHLIGHTS

Fine-grained security to defend against unauthorized access, tampering and replay

Pluggable design to protect your application with minimal-to-no changes

Provides authentication, authorization, confidentiality and integrity

Operates without centralized servers for high performance, scalability and availability

NEW! Connects securely across WAN and LAN environments with Real-Time WAN Transport

SECURING AUTONOMOUS SYSTEMS

Securing autonomous systems – such as those in medical, energy, transportation and defense industries – requires careful architecting of the entire distributed system. These systems often include diverse technology components from different project teams or third-party suppliers. As a result, these systems tend to offer different levels of trust and performance. One option is for OEMs to write and maintain the integration code to connect these complex devices.

However, complex systems are constrained to the most stringent low-latency, highly reliable and scalable data communication requirements. Therefore, finding the right balance between securing the systems and preserving the most reliable performance across these heterogeneous environments is vital.

Connex Secure takes a data-centric approach to securing data including:

- Interoperability between DDS security applications based on the system's data model.

RTI Connex[®] DDS Secure is a software connectivity framework that enables system architects to build secure and scalable systems of systems. Built on the Connex databus and fully compliant with the Object Management Group[®] (OMG[®]) DDS Security[™] specification, Connex Secure supports fine-grained security, providing the flexibility to implement required capabilities such as authentication, encryption and access control without compromising performance.

- Optimized security and performance by authenticating and encrypting only sensitive data.
- Automatic discovery of each participant for trusted peer-to-peer communications.

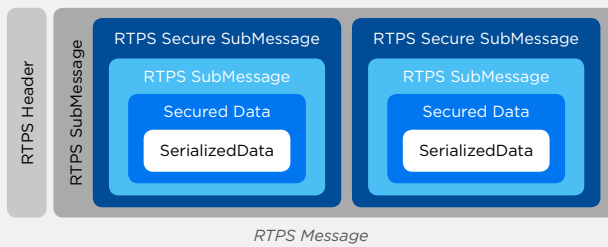
Connex Secure is built upon and supported by RTI's unparalleled expertise in architecting, developing and deploying intelligent distributed systems.

CAPABILITIES DELIVERED WITH BUILT-IN SECURITY PLUGINS

Fine-grained security

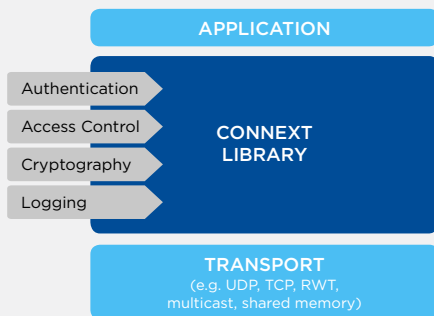
Choose between non-secured, signed and encrypted topics to meet your security requirements and use cases, while optimizing performance. Not only can select topics be protected, but they can be protected at varying levels of granularity. Fine-grained security allows architects to:

- Sign/encrypt the entire RTPS message
- Sign/encrypt select RTPS sub messages
- Sign/encrypt the serialized user data



Pluggable and customizable

The Connex platform enables fast, flexible changes. Minimal-to-no changes are required for existing DDS applications when using built-in plugins. The plugins only need to be configured via XML to enable security. An optional software development kit is available for custom plugins, crypto modules, support for custom hardware such as crypto accelerators or TPMs or logging integration.



Built-in plugins accelerate DDS application development

Authentication

- X.509 Public Key Infrastructure (PKI) with Certificate Authorities (CA), and support for certificate chaining and certificate revocation lists
- RSA or Elliptic Curve DSA (ECDSA) for authentication
- Diffie Hellman (DH) or ECDH in ephemeral mode for perfect forward secrecy for shared secret agreements

Access Control

- Configured by domain using a shared Governance file signed by shared CA

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connex[®] is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connex shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,700 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

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 offices in Colorado, Spain and Singapore.

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

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- Control over ability to join DDS Domains and Partitions and Reading or Writing Topics
- Control on individual objects and Quality of Service (QoS) via plugins

Cryptography

- AES-GCM in GMAC mode with 128-, 192- and 256-bit keys for data integrity
- AES-GCM with 128-, 192- and 256-bit keys for data confidentiality and integrity
- AES-GCM in GMAC mode with 256-bit key for data source authentication

Logging

- Designed to support auditing of all DDS security-relevant events, increasing system visibility
- Log security events to a file or propagate securely over DDS

Transport agnostic

Since security is implemented above the transport layer, any Connex transport can be used securely, including UDP, TCP, shared memory and the new Real-Time WAN Transport. Support for UDP multicast (both reliable and best effort) enables efficient data distribution to multiple authenticated subscribers to the same data.

NEW NETWORK SUPPORT

Connex Secure now offers enhanced support for geographically dispersed systems, including those that span diverse networks:

Real-Time WAN Transport

With this feature, users can communicate reliably across Wide Area Networks (WANs), including geographically distributed systems; traverse NATs; and maintain consistent communication as endpoints move or IP addresses change.

Cloud Discovery Service

When used with Real-Time WAN Transport, this add-on product enables users to create performant, scalable systems that span diverse networks. It's also available as an add-on to Connex[®] DDS Professional.