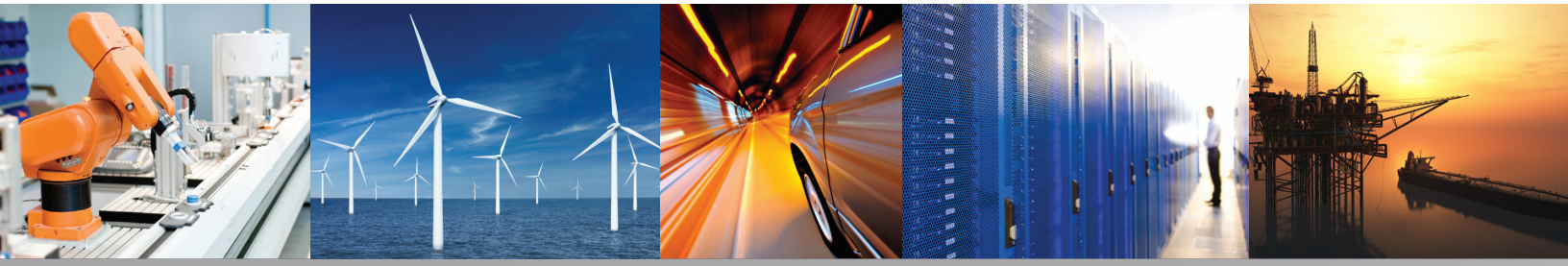
RTI Connext DDS Micro

Small-Footprint Messaging Software for Resource-Constrained Applications



Help your distributed applications meet stringent Size, Weight and Power (SWaP) requirements well beyond the reach of traditional messaging middleware. Connext™ DDS Micro provides a small-footprint communications infrastructure for machine-to-machine (M2M) applications where size and efficiency matter. It is standards-compliant and fully interoperable with other Connext™ DDS products.

Highlights:

- Small memory footprint
- User configurable feature set through build options
- Support for low power CPUs
- Scalability from embedded 16-bit microcontrollers to multicore 64-bit CPUs
- Bundled source code
- Pre-built support for Linux (x86), Windows, FreeRTOS (ARM), VxWorks (PowerPC) and devices without OS (ARM)
- Portability to other embedded or real-time operating systems
- Completely decentralized and easy-to-embed architecture with no message brokers or daemon processes
- Standards compliance: based on DDS programming interface and RTPS wire interoperability protocol

Embedded systems and devices are ubiquitous. You can find them in cars, production-line environments and medical equipment – and they increasingly connect to a network or even the Internet. With this emergent Internet of Things, system developers are faced with the challenge of distributing the increasing variety and volume of data produced by these systems and devices so it can be acted upon in real time for enhanced automation, analytics and business intelligence.

Connext DDS Micro provides a small-footprint modular messaging solution for resource-limited devices that have minimal memory, flash, CPU power or even no operating system.

By abstracting out low-level networking and communication details and providing a flexible integration framework, Connext DDS Micro minimizes the amount of device or application specific code that has to be created. By providing a high-level and standards-compliant alternative to in-house development, Connext DDS Micro significantly reduces the development costs and system communications risks.

Comprehensive Messaging Solution

Peer-to-peer communication
Connext DDS Micro uses an innovative, completely decentralized architecture. Applications directly exchange data in a true peer-to-peer manner – no servers, message brokers or daemon processes act as bottlenecks or single points of failure. As a result, Connext DDS Micro delivers the consistent low-latency, high throughput and scalability required for big data in motion.

Plug-and-play communication
Devices and applications are automatically discovered and connected at run-time. No system administration or directory service is required, allowing use in autonomous, dynamic and ad hoc intelligent systems.

Real-time Quality of Service (QoS)
Applications have comprehensive control over and visibility into real-time behavior, including timing, deadlines, resource utilization and system state. QoS can be specified per-topic and per-subscriber.

Optimized publish/subscribe
Data can be reliably multicast to multiple applications and devices for extremely efficient streaming data distribution. With multicast, messages can be routed and filtered by the network switch instead of by the middleware or application software.

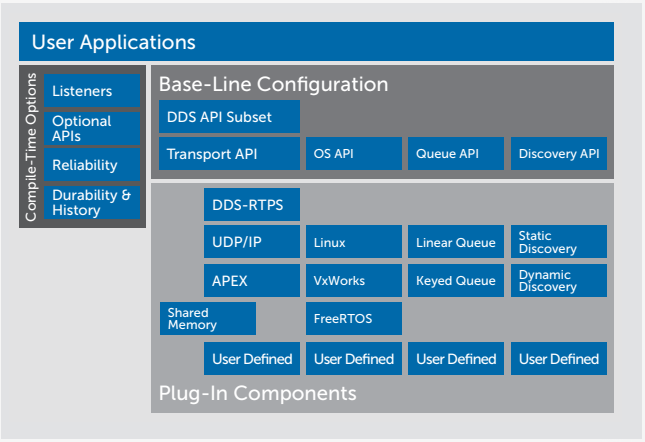
Wire efficiency
The Real-Time Publish-Subscribe (RTPS) protocol is extremely wire efficient. Data is sent in a compact binary representation. Most metadata is only exchanged once, at discovery time.

Optimized for Small-Footprint Applications

Low memory requirement
Connext DDS Micro is a library that links with your application. The library size is optimized for small footprint applications and memory allocation is kept to a minimum.

Highly portable
Bundled source code enables developers to port Connext DDS Micro to new operating systems, compilers or processor architectures. RTI Connext DDS Micro has no built-in dependency on operating system services. Applications can be implemented on platforms with minimal operating system capabilities or no operating system at all. Processor support ranges from 16-bit microcontrollers with 32-bit integer support to multicore Intel and PowerPC CPUs. Leading enterprise operating systems, including Linux and Windows, are supported as well to ease application development and testing.

Modular and user-configurable architecture
A small kernel provides the baseline capabilities for publish-subscribe messaging. By rebuilding the kernel from source code, additional features such as asynchronous notification, reliable communication and filtering can be compiled in, allowing application-specific trade-offs between available features and footprint.



Modular user-configurable architecture enables developers to trade off available features and footprint.

Complementary Products

Connext DDS Micro is fully interoperable with Connext DDS Professional, the world's most popular implementation of the DDS standard, which is augmented with many powerful tools and run-time services.

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.

Your systems. Working as one.

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