

PARTNER SOLUTION DATASHEET

# Design and Simulate DDS-Based Applications

OPTIMIZE MODEL-BASED DESIGN WITH MATHWORKS DDS BLOCKSET AND RTI CONNEXT

## HIGHLIGHTS

Integrates RTI Connex<sup>®</sup> DDS with MathWorks Simulink<sup>®</sup> for direct modeling and simulation of DDS-based applications

Accelerates all software lifecycle phases: development, integration, testing, maintenance and upgrades

Reduces project risks and costs through integration of real-world DDS elements in the design phase

Increases functionality and productivity via interoperability with the Connex suite of applications including XML Application Creation and System Designer

Allows for introduction of QoS parameters into the design and simulation phase

## DESIGN AND MODEL FOR DDS-BASED APPLICATIONS

Next generation systems depend on access to real-time data across a complex, interdependent group of applications and devices. That's why many engineering teams rely on RTI Connex DDS as their software middleware framework to enable modern distributed systems to run as designed.

Before a project gets to the implementation stage, it must be repeatedly modeled and tested in order to reduce program risk and potential expensive re-design down the road. Data flows need to be built into the model from the earliest stages, based on realistic parameters such as durability or reliability. For this, engineers rely on Simulink by MathWorks for fast, accurate modeling and simulation.

Now, integrating Simulink with Data Distribution Service<sup>™</sup> (DDS) protocols is easy and automatic. DDS Blockset by MathWorks is a productivity tool that fully integrates Simulink with Connex, providing engineers with DDS custom blocks to model communication between Simulink and pure DDS applications. System designers and application developers can incorporate Connex into their Simulink designs as virtual components without special coding, ready to connect to

Designing a new system can be complex and expensive. To reduce project risk, engineers need to use real-world parameters with their modeling and simulation in order to design, simulate, test, make changes and then do it all over again. Now, MathWorks provides a direct integration to RTI Connex<sup>®</sup>. DDS Blockset streamlines design for Connex users by providing the apps and blocks for modeling and simulating software applications that publish or subscribe to the DDS<sup>™</sup> protocol.

other Simulink and non-Simulink components through the DDS databus. Users can generate code from Simulink models and deploy their models integrated with Connex DDS.

## GENERATE DDS EXECUTABLES AND DEPLOY THEM IN CONNEXT

DDS Blockset is a productivity tool that enables engineers to import DDS systems represented in XML-based files using the DDS-XML standard. This is used to create a skeleton Simulink model as a starting point for developing algorithms for DDS applications. It generates C++ code and XML files from Simulink models (with Embedded Coder<sup>®</sup>), eliminating the need for custom integration code.

It provides blocks and apps for publishing and subscribing samples to Connex, including their corresponding Quality of Service (QoS). Users can simulate DDS models configured as Publishers and Subscribers to DDS Topics and QoS including HISTORY to verify the runtime behavior with specified QoS policies. The blockset defines a system using DDS-XML, called a DDS dictionary, for users to manage, create and edit DDS definitions in Simulink. Users can import DDS specifications

as XML files to create a skeleton Simulink model as a starting point for developing algorithms for DDS applications.

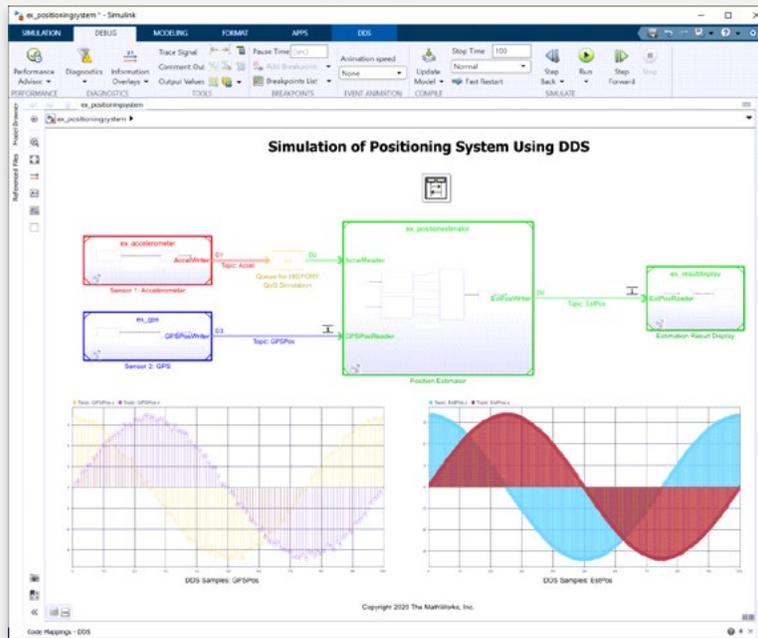
To help accelerate the design lifecycle, RTI System Designer can be used to create and manage DDS systems represented in the DDS-XML standard. System Designer is a tool used to graphically design and configure all the aspects of a Connex DDS distributed system (publishers, subscribers, QoS, etc). These DDS-XML systems can be used in a variety of applications within the RTI Connex DDS suite.

The DDS Blockset features a DDS Application Quick Start to create default DDS definitions or use predefined DDS definitions created in DDS Simulink models. Engineers can configure DDS models as Publishers and Subscribers to

DDS Topics using preconfigured blocks for faster design and modeling.

**TRY IT TODAY**

DDS Blockset is developed and distributed by MathWorks. For a trial version or to learn more, please contact your MathWorks representative or visit [www.mathworks.com/products/dds.html](http://www.mathworks.com/products/dds.html). For details on how to leverage DDS Blockset with Connex DDS, or to request a trial version of Connex DDS, please contact your RTI representative or visit [www.rti.com](http://www.rti.com).



DDS Blockset by MathWorks integrates Simulink with RTI Connex DDS

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**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 1,500 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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