

Topic: N141-046

## Real-Time Innovations

DDS Enabled Mission Data Recording and Reconstruction for Surface Combatants

RTI, the world's largest embedded middleware provider, is developing a software platform for recording and reconstructing operational data in Navy surface combatant ships. This unified, open, and modular recording product is capable of capturing quantitative and qualitative data in a distributed system along with tools for real-time data analysis, transformation, storage and reconstruction/replay. It incorporates the Data Distribution Service (DDS) messaging technology widely used on Navy networks. The product, initially planned for use on the Littoral Combat Ship (LCS), can be used to provide comprehensive data recording, replay, and analytics in a wide variety of industries. Extensive product testing and integration work in preparation for transition to operational systems is planned. RTI is now looking for DDS customers to evaluate and provide product feedback.

### Technology Category Alignment:

Command, Control, Communications, Computers, & Intelligence (C4I)

Advanced Computing/Software Development

Networks and Communications

Cyber

Modular/Open/Reconfigurable Architectures

### Contact:

Mr. Jerry Schaefer

[jerry@rti.com](mailto:jerry@rti.com)

(408) 990-7400

<http://www.rti.com>

**SYSCOM:** NAVSEA

**Contract:** N00024-16-C-4030

 Corporate Brochure: [https://navystp.com/vtm/open\\_file?type=brochure&id=N00024-16-C-4030](https://navystp.com/vtm/open_file?type=brochure&id=N00024-16-C-4030)

# Department of the Navy SBIR/STTR Transition Program

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NAVSEA #16-583

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## WHO

**SYSCOM:** NAVSEA

**Sponsoring Program:** PEO LCS

**Transition Target:** Littoral Combat Ship (LCS) Common Software Architecture (CSA)

**TPOC:**  
(619)553-5937

**Other transition opportunities:**

Aegis Combat System  
Ship Self-Defense System (SSDS)  
USS Zumwalt Class (DDG-1000)  
San Antonio Class Landing Platform/Dock (LPD)

**RTI Connex is the World's Leading Implementation of the Data Distribution Service (DDS) Standard Mandated for use by DoD**



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## WHAT

**Operational Need and Improvement:** The Navy needs an ability to record and and reconstruct transmitted mission data on the Littoral Combat Ship (LCS) Common Software Architecture (CSA).

**Specifications Required:** Like many Navy systems, LCS CSA has a requirement for data logging and replay. However, LCS CSA must handle large volumes of real-time data and the recorder must be able to handle this without interfering with the system performance requirements. To date, every customer creates their own one-off custom implementation. RTI will create a general COTS product usable by the majority of DDS customers, freeing them from the task of supporting and maintaining their own tool.

**Technology Developed:** RTI is developing a software platform for recording and reconstructing operational data in Navy surface combatant ships. This unified, open, and modular recording product is capable of capturing quantitative and qualitative data in a distributed system along with tools for real-time data analysis, transformation, storage and reconstruction/replay. It incorporates the Data Distribution Service (DDS) messaging technology widely used on Navy networks.

**Warfighter Value:** The primary use of mission data recording and reconstruction is for support tasks such as testing, integration, troubleshooting, training, and forensic analysis.

## WHEN

**Contract Number:** N00024-16-C-4030 **Ending on:** January 29, 2018

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Complete Reqts Elicitation and Detailed Design	Low	LCS CSA stakeholder consensus	4	December 2016
Complete LCS SETR Tech Review	Low	LCS CSA compliance	5	March 2017
Pursue Standardization	Med	RFP issued by OMG C4I DTF	6	June 2017
Early Access Release (EAR)	Low	EAR product release to customers	7	November 2017

## HOW

**Projected Business Model:** RTI plans to add the data recording and reconstruction to its existing RTI Connex DDS product suite. RTI has used this model many times in the past to provide additional capabilities to its customers.

**Company Objectives:** RTI intends to add a next generation DDS recording and replay capability to its RTI Connex DDS Professional standard product suite offering, which will increase the value of the product for existing users, and make it more appealing to new prospective customers.

**Potential Commercial Applications:** RTI anticipates that the new DDS record and replay product will be appealing to the entire RTI customer base which spans many industries including medical devices, autonomous vehicles, flight simulators, air traffic control systems, clean energy production, and many others.

**Contact:** Mr. Jerry Schaefer, Director  
[jerry@rti.com](mailto:jerry@rti.com) 408-990-7400