OMG: RTPS TCP/IP PSM for DDS Interoperability

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Table 1: Data sheet for RTPS TCP/IP PSM for DDS Interoperability RFP

Title	TCP/IP Platform-Specific Model (PSM) for the DDS Real-Time Publish Subscribe (RTPS) Protocol
Acronym	RTPS TCP/IP PSM
Version	
OMG Document Number	mars/17-09-24
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About RFP	https://www.omg.org/techprocess/meetings/schedule/RTPS_TCP-IP_PSM_for_DDS_Interop_RFP.html
Document	https://www.omg.org/cgi-bin/doc?mars/17-09-24.pdf

Note: The following is an excerpt from the actual document. It is provided here as a convenience and is not authoritative. Refer to the original document as the authoritative reference.

Motivation

The data_distribution_service_dds Real-time Publish-Subscribe wire protocol (DDSI-RTPS) specification defines a set of requirements for a wire protocol suitable for the Data Distribution Service (DDS). Primary considerations in the design of the rtps wire protocol are: performance, configurability (tuning quality-of-service), fault-tolerance (no single points of failure), extensibility (support new transports), plug-and-play connectivity (automatic discovery), modularity, scalability, and type safety.

RTPS imposes very little requirements on the underlying transport: a connectionless service capable of sending packets best-effort is sufficient. A connection-oriented protocol can be used but is not required. The mechanisms of the underlying protocol map to the generalized notions of the RTPS pim.

The original DDSI-RTPS specification defined a psm built upon the udp because of its simplicity, universal availability, best-effort and connectionless capabilities, predictable behavior, scalability, and multicast support.

However, some data_distribution_service_dds systems would benefit from an RTPS PSM built upon the tcp. Among other scenarios, a TCP PSM would be better suited for communication through firewalls, where often UDP traffic is filtered; could leverage existing TCP-based load-balancing infrastructure; and would allow DDS to be deployed in some applications where governance mandates TCP exclusively. Therefore, the goal of this rfp is to meet the requirements set forth by the RTPS PIM with minimum possible overhead using TCP.