

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 *Real-time Publish-Subscribe (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 *Platform Independent Model (PIM)*.

The original *DDSI-RTPS* specification defined a *Platform Specific Model (PSM)* built upon the *User Datagram Protocol (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 *Transmission Control Protocol (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 *Request For Proposal (RFP)* is to meet the requirements set forth by the RTPS PIM with minimum

possible overhead using TCP.

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