

# **CoreDX DDS**

## **Feature List**

Version 3.4.0

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## Welcome

Welcome to CoreDX DDS, a high-performance implementation of the OMG Data Distribution Service (DDS) standard. The CoreDX DDS Publish-Subscribe messaging infrastructure provides high-throughput, low-latency data communications in an extremely small footprint.

The CoreDX DDS software has been designed and implemented to meet the Object Management Group (OMG™) Data Distribution Service (DDS) standard, version 1.2. The specification can be found at the OMG web site ([http://www.omg.org/technology/documents/formal/data\\_distribution.htm](http://www.omg.org/technology/documents/formal/data_distribution.htm)). The specification defines an Application Programming Interface (API) to facilitate Data-Centric Publish-Subscribe (DCPS) communications as well as an optional Data Local Reconstruction Layer (DLRL). Furthermore, the Real Time Publish Subscribe Interoperability protocol (RTPS) defines the wire-protocol to provide interoperability between DDS implementations.

### **CoreDX provides support for the DCPS API and the RTPS transport protocol.**

At this time, CoreDX provides a compliant implementation of the DCPS API. There are some features that are not currently implemented, or that do not currently meet the full intent of the specification. The purpose of this document is to concisely identify the CoreDX implementation status of each and every DCPS API feature.

The following table enumerates each function, Quality of Service (QoS), and Listener operation identified in the DCPS specification. The CoreDX implementation state of each API feature is identified as one of the following:

- “DONE”: the feature is implemented to the full extent of the specification
- “PARTIAL”: the feature is implemented, but does not perform to the full extent of the specification
- “TODO”: the feature is not currently implemented
- “NA”: the feature is identified as optional, and has not yet been implemented

| Module                          | Object | Method                        | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|---------------------------------|--------|-------------------------------|----------|--------|----------|-----------|---------|
| <b>DOMAIN</b>                   |        |                               |          |        |          |           |         |
| <b>DomainParticipantFactory</b> |        |                               |          |        |          |           |         |
|                                 |        | create_participant()          |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | delete_participant()          |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_instance()                |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | lookup_participant()          |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_default_participant_qos() |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | set_default_participant_qos() |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_qos()                     |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | set_qos()                     |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        |                               |          |        |          |           |         |
| <b>DomainParticipant</b>        |        |                               |          |        |          |           |         |
|                                 |        | get_qos()                     |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | set_qos()                     |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_listener()                |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | set_listener()                |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | enable()                      |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_statuscondition()         |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | get_status_changes()          |          | DONE   | DONE     | DONE      | DONE    |
|                                 |        | create_publisher()            |          | DONE   | DONE     | DONE      | DONE    |

| Module | Object                        |   | OPTIONAL | C Lang  | C++ Lang | Java Lang | C# Lang |
|--------|-------------------------------|---|----------|---------|----------|-----------|---------|
|        | Method                        |   |          |         |          |           |         |
|        | delete_publisher()            |   |          | DONE    | DONE     | DONE      | DONE    |
|        | create_subscriber()           |   |          | DONE    | DONE     | DONE      | DONE    |
|        | delete_subscriber()           |   |          | DONE    | DONE     | DONE      | DONE    |
|        | create_topic()                |   |          | DONE    | DONE     | DONE      | DONE    |
|        | delete_topic()                |   |          | DONE    | DONE     | DONE      | DONE    |
|        | create_contentfilteredtopic() | X |          | DONE    | DONE     | DONE      | DONE    |
|        | delete_contentfilteredtopic() | X |          | DONE    | DONE     | DONE      | DONE    |
|        | create_multitopic()           | X |          | NA      | NA       | NA        | NA      |
|        | delete_multitopic()           | X |          | NA      | NA       | NA        | NA      |
|        | find_topic()                  |   |          | PARTIAL | PARTIAL  | PARTIAL   | PARTIAL |
|        | lookup_topicdescription()     |   |          | DONE    | DONE     | DONE      | DONE    |
|        | get_builtin_subscriber()      |   |          | DONE    | DONE     | DONE      | DONE    |
|        | ignore_participant()          |   |          | DONE    | DONE     | DONE      | DONE    |
|        | ignore_topic()                |   |          | TODO    | TODO     | TODO      | TODO    |
|        | ignore_publication()          |   |          | TODO    | TODO     | TODO      | TODO    |
|        | ignore_subscription()         |   |          | TODO    | TODO     | TODO      | TODO    |
|        | delete_contained_entities()   |   |          | DONE    | DONE     | DONE      | DONE    |
|        | assert_liveliness()           |   |          | DONE    | DONE     | DONE      | DONE    |
|        | get_default_publisher_qos()   |   |          | DONE    | DONE     | DONE      | DONE    |
|        | set_default_publisher_qos()   |   |          | DONE    | DONE     | DONE      | DONE    |

| Module                            | OPTIONAL |  | C Lang  | C++ Lang | Java Lang | C# Lang |
|-----------------------------------|----------|--|---------|----------|-----------|---------|
| Object                            |          |  |         |          |           |         |
| Method                            |          |  |         |          |           |         |
| get_default_subscriber_qos()      |          |  | DONE    | DONE     | DONE      | DONE    |
| set_default_subscriber_qos()      |          |  | DONE    | DONE     | DONE      | DONE    |
| get_default_topic_qos()           |          |  | DONE    | DONE     | DONE      | DONE    |
| set_default_topic_qos()           |          |  | DONE    | DONE     | DONE      | DONE    |
| get_domain_id()                   |          |  | DONE    | DONE     | DONE      | DONE    |
| get_discovered_participants()     |          |  | DONE    | DONE     | DONE      | DONE    |
| get_discovered_participant_data() |          |  | DONE    | DONE     | DONE      | TODO    |
| get_discovered_topics()           | X        |  | PARTIAL | PARTIAL  | PARTIAL   | PARTIAL |
| get_discovered_topic_data()       | X        |  | PARTIAL | PARTIAL  | PARTIAL   | PARTIAL |
| contains_entity()                 |          |  | DONE    | DONE     | DONE      | DONE    |
| get_current_time()                |          |  | DONE    | DONE     | DONE      | DONE    |
|                                   |          |  |         |          |           |         |
| TOPIC DEFINITION                  |          |  |         |          |           |         |
| TopicDescription                  |          |  |         |          |           |         |
| get_participant()                 |          |  | DONE    | DONE     | DONE      | DONE    |
| get_type_name()                   |          |  | DONE    | DONE     | DONE      | DONE    |
| get_name()                        |          |  | DONE    | DONE     | DONE      | DONE    |
|                                   |          |  |         |          |           |         |
| Topic                             |          |  |         |          |           |         |
| enable()                          |          |  | DONE    | DONE     | DONE      | DONE    |

| Module                      |                                    |   | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|-----------------------------|------------------------------------|---|----------|--------|----------|-----------|---------|
| Object                      |                                    |   |          |        |          |           |         |
| Method                      |                                    |   |          |        |          |           |         |
|                             | get_qos()                          |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | set_qos()                          |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_listener()                     |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | set_listener()                     |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_statuscondition()              |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_status_changes()               |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_participant()                  |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_type_name()                    |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_name()                         |   |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_inconsistent_topic_status()    |   |          | DONE   | DONE     | DONE      | DONE    |
|                             |                                    |   |          |        |          |           |         |
| <b>ContentFilteredTopic</b> |                                    |   |          |        |          |           |         |
|                             | attribute: filter_expression       | X |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_related_topic()                | X |          | DONE   | DONE     | DONE      | DONE    |
|                             | get_expression_parameters()        | X |          | DONE   | DONE     | DONE      | DONE    |
|                             | set_expression_parameters()        | X |          | DONE   | DONE     | DONE      | DONE    |
|                             |                                    |   |          |        |          |           |         |
| <b>MultiTopic</b>           |                                    |   |          |        |          |           |         |
|                             | attribute: subscription_expression |   |          |        |          |           |         |
|                             | get_expression_parameters()        | X |          | NA     | NA       | NA        | NA      |

| Module                      |          |  |        |          |           |         |
|-----------------------------|----------|--|--------|----------|-----------|---------|
| Object                      |          |  |        |          |           |         |
| Method                      | OPTIONAL |  | C Lang | C++ Lang | Java Lang | C# Lang |
| set_expression_parameters() | X        |  | NA     | NA       | NA        | NA      |
|                             |          |  |        |          |           |         |
| <b>TypeSupport</b>          |          |  |        |          |           |         |
| register_type()             |          |  | DONE   | DONE     | DONE      | DONE    |
| get_type_name()             |          |  | DONE   | DONE     | DONE      | DONE    |
|                             |          |  |        |          |           |         |
| <b>Publisher</b>            |          |  |        |          |           |         |
| enable()                    |          |  | DONE   | DONE     | DONE      | DONE    |
| get_qos()                   |          |  | DONE   | DONE     | DONE      | DONE    |
| set_qos()                   |          |  | DONE   | DONE     | DONE      | DONE    |
| get_listener()              |          |  | DONE   | DONE     | DONE      | DONE    |
| set_listener()              |          |  | DONE   | DONE     | DONE      | DONE    |
| get_statuscondition()       |          |  | DONE   | DONE     | DONE      | DONE    |
| get_status_changes()        |          |  | DONE   | DONE     | DONE      | DONE    |
| create_datawriter()         |          |  | DONE   | DONE     | DONE      | DONE    |
| delete_datawriter()         |          |  | DONE   | DONE     | DONE      | DONE    |
| lookup_datawriter()         |          |  | DONE   | DONE     | DONE      | DONE    |
| suspend_publications()      | X        |  | NA     | NA       | NA        | NA      |
| resume_publications()       | X        |  | NA     | NA       | NA        | NA      |
| begin_coherent_changes()    |          |  | TODO   | TODO     | TODO      | TODO    |

| Module | Object | Method                            | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|--------|--------|-----------------------------------|----------|--------|----------|-----------|---------|
|        |        | end_coherent_changes()            |          | TODO   | TODO     | TODO      | TODO    |
|        |        | wait_for_acknowledgments()        |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_participant()                 |          | DONE   | DONE     | DONE      | DONE    |
|        |        | delete_contained_entities()       |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_default_datawriter_qos()      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | set_default_datawriter_qos()      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | copy_from_topic_qos()             |          | DONE   | DONE     | DONE      | DONE    |
|        |        |                                   |          |        |          |           |         |
|        |        | <b>DataWriter</b>                 |          |        |          |           |         |
|        |        | enable()                          |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_qos()                         |          | DONE   | DONE     | DONE      | DONE    |
|        |        | set_qos()                         |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_listener()                    |          | DONE   | DONE     | DONE      | DONE    |
|        |        | set_listener()                    |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_statuscondition()             |          | DONE   | DONE     | DONE      | DONE    |
|        |        | get_status_changes()              |          | DONE   | DONE     | DONE      | DONE    |
|        |        | register_instance()               |          | DONE   | DONE     | DONE      | DONE    |
|        |        | register_instance_w_timestamp()   |          | DONE   | DONE     | DONE      | DONE    |
|        |        | unregister_instance()             |          | DONE   | DONE     | DONE      | DONE    |
|        |        | unregister_instance_w_timestamp() |          | DONE   | DONE     | DONE      | DONE    |



| Module       |                                       | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|--------------|---------------------------------------|----------|--------|----------|-----------|---------|
| Object       | Method                                |          |        |          |           |         |
|              | get_key_value()                       |          | DONE   | DONE     | DONE      | DONE    |
|              | lookup_instance()                     |          | DONE   | DONE     | DONE      | DONE    |
|              | write()                               |          | DONE   | DONE     | DONE      | DONE    |
|              | write_w_timestamp()                   |          | DONE   | DONE     | DONE      | DONE    |
|              | dispose()                             |          | DONE   | DONE     | DONE      | DONE    |
|              | dispose_w_timestamp()                 |          | DONE   | DONE     | DONE      | DONE    |
|              | wait_for_acknowledgements()           |          | DONE   | DONE     | DONE      | DONE    |
|              | get_liveliness_lost_status()          |          | DONE   | DONE     | DONE      | DONE    |
|              | get_offered_deadline_missed_status()  |          | DONE   | DONE     | DONE      | DONE    |
|              | get_offered_incompatible_qos_status() |          | DONE   | DONE     | DONE      | DONE    |
|              | get_publication_matched_status()      |          | DONE   | DONE     | DONE      | DONE    |
|              | get_topic()                           |          | DONE   | DONE     | DONE      | DONE    |
|              | get_publisher()                       |          | DONE   | DONE     | DONE      | DONE    |
|              | assert_liveliness()                   |          | DONE   | DONE     | DONE      | DONE    |
|              | get_matched_subscriptions()           |          | DONE   | DONE     | DONE      | DONE    |
|              | get_matched_subscription_data()       |          | DONE   | DONE     | DONE      | DONE    |
|              |                                       |          |        |          |           |         |
| SUBSCRIPTION |                                       |          |        |          |           |         |
| Subscriber   |                                       |          |        |          |           |         |
|              | enable()                              |          | DONE   | DONE     | DONE      | DONE    |



| Module                           |  |   | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|----------------------------------|--|---|----------|--------|----------|-----------|---------|
| Object                           |  |   |          |        |          |           |         |
| Method                           |  |   |          |        |          |           |         |
| enable()                         |  |   |          | DONE   | DONE     | DONE      | DONE    |
| get_qos()                        |  |   |          | DONE   | DONE     | DONE      | DONE    |
| set_qos()                        |  |   |          | DONE   | DONE     | DONE      | DONE    |
| get_listener()                   |  |   |          | DONE   | DONE     | DONE      | DONE    |
| set_listener()                   |  |   |          | DONE   | DONE     | DONE      | DONE    |
| get_statuscondition()            |  |   |          | DONE   | DONE     | DONE      | DONE    |
| get_status_changes()             |  |   |          | DONE   | DONE     | DONE      | DONE    |
| read()                           |  |   |          | DONE   | DONE     | DONE      | DONE    |
| take()                           |  |   |          | DONE   | DONE     | DONE      | DONE    |
| read_w_condition()               |  | X |          | DONE   | DONE     | DONE      | DONE    |
| take_w_condition()               |  | X |          | DONE   | DONE     | DONE      | DONE    |
| read_next_sample()               |  |   |          | DONE   | DONE     | DONE      | DONE    |
| take_next_sample()               |  |   |          | DONE   | DONE     | DONE      | DONE    |
| read_instance()                  |  |   |          | DONE   | DONE     | DONE      | DONE    |
| take_instance()                  |  |   |          | DONE   | DONE     | DONE      | DONE    |
| read_next_instance()             |  |   |          | DONE   | DONE     | DONE      | DONE    |
| take_next_instance()             |  |   |          | DONE   | DONE     | DONE      | DONE    |
| read_next_instance_w_condition() |  | X |          | DONE   | DONE     | DONE      | DONE    |
| take_next_instance_w_condition() |  | X |          | DONE   | DONE     | DONE      | DONE    |
| return_loan()                    |  |   |          | DONE   | DONE     | DONE      | DONE    |

| Module                                  |  |          |        |          |           |
|-----------------------------------------|--|----------|--------|----------|-----------|
| Object                                  |  | OPTIONAL | C Lang | C++ Lang | Java Lang |
| Method                                  |  |          |        |          | C# Lang   |
| get_key_value()                         |  |          | DONE   | DONE     | DONE      |
| lookup_instance()                       |  |          | DONE   | DONE     | DONE      |
| create_readcondition()                  |  |          | DONE   | DONE     | DONE      |
| create_querycondition()                 |  | X        | DONE   | DONE     | DONE      |
| delete_readcondition()                  |  |          | DONE   | DONE     | DONE      |
| get_liveliness_changed_status()         |  |          | DONE   | DONE     | DONE      |
| get_requested_deadline_missed_status()  |  |          | DONE   | DONE     | DONE      |
| get_requested_incompatible_qos_status() |  |          | DONE   | DONE     | DONE      |
| get_sample_lost_status()                |  |          | DONE   | DONE     | DONE      |
| get_sample_rejected_status()            |  |          | DONE   | DONE     | DONE      |
| get_subscription_matched_status()       |  |          | DONE   | DONE     | DONE      |
| get_topicdescription()                  |  |          | DONE   | DONE     | DONE      |
| get_subscriber                          |  |          | DONE   | DONE     | DONE      |
| delete_contained_entities()             |  |          | DONE   | DONE     | DONE      |
| wait_for_historical_data()              |  |          | DONE   | DONE     | DONE      |
| get_matched_publications()              |  |          | DONE   | DONE     | DONE      |
| get_matched_publication_data()          |  |          | DONE   | DONE     | DONE      |
|                                         |  |          |        |          |           |
| <b>SampleInfo</b>                       |  |          |        |          |           |
| sample_state                            |  |          | DONE   | DONE     | DONE      |

| Module                     |  |          |        |          |           |         |
|----------------------------|--|----------|--------|----------|-----------|---------|
| Object                     |  | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
| Method                     |  |          |        |          |           |         |
| view_state                 |  |          | DONE   | DONE     | DONE      | DONE    |
| instance_state             |  |          | DONE   | DONE     | DONE      | DONE    |
| disposed_generation_count  |  |          | DONE   | DONE     | DONE      | DONE    |
| no_writer_generation_count |  |          | DONE   | DONE     | DONE      | DONE    |
| sample_rank                |  |          | DONE   | DONE     | DONE      | DONE    |
| generation_rank            |  |          | DONE   | DONE     | DONE      | DONE    |
| absolute_generation_rank   |  |          | DONE   | DONE     | DONE      | DONE    |
| source_timestamp           |  |          | DONE   | DONE     | DONE      | DONE    |
| instance_handle            |  |          | DONE   | DONE     | DONE      | DONE    |
| publication_handle         |  |          | DONE   | DONE     | DONE      | DONE    |
| valid_data                 |  |          | DONE   | DONE     | DONE      | DONE    |
|                            |  |          |        |          |           |         |
| ReadCondition              |  |          |        |          |           |         |
| get_datareader()           |  |          | DONE   | DONE     | DONE      | DONE    |
| get_sample_state_mask()    |  |          | DONE   | DONE     | DONE      | DONE    |
| get_view_state_mask()      |  |          | DONE   | DONE     | DONE      | DONE    |
| get_instance_state_mask()  |  |          | DONE   | DONE     | DONE      | DONE    |
|                            |  |          |        |          |           |         |
| QueryCondition             |  | X        |        |          |           |         |
| get_query_expression()     |  | X        | DONE   | DONE     | DONE      | DONE    |



| Module | Object | Method                               | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|--------|--------|--------------------------------------|----------|--------|----------|-----------|---------|
|        |        | struct                               |          | DONE   | DONE     | DONE      | DONE    |
|        |        | union                                |          | DONE   | DONE     | DONE      | DONE    |
|        |        | sequence, bounded and unbounded      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | fixed                                |          | TODO   | TODO     | TODO      | TODO    |
|        |        | <b>Other Data Types</b>              |          |        |          |           |         |
|        |        | enum                                 |          | DONE   | DONE     | DONE      | DONE    |
|        |        | string, bounded and unbounded        |          | DONE   | DONE     | DONE      | DONE    |
|        |        | wstring                              |          | TODO   | TODO     | TODO      | TODO    |
|        |        | array                                |          | DONE   | DONE     | DONE      | DONE    |
|        |        | constant                             |          | DONE   | DONE     | DONE      | DONE    |
|        |        | DynamicType_TypeSupport              | X        | DONE   | DONE     | DONE      | DONE    |
|        |        | DynamicType_DataReader               | X        | DONE   | DONE     | DONE      | DONE    |
|        |        | DynamicType_DataWriter               | X        | DONE   | DONE     | DONE      | DONE    |
|        |        |                                      |          |        |          |           |         |
|        |        | <b>QUALITY OF SERVICE (Standard)</b> |          |        |          |           |         |
|        |        | <b>USER_DATA</b>                     |          |        |          |           |         |
|        |        | sequence<octet>                      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>TOPIC_DATA</b>                    |          |        |          |           |         |
|        |        | sequence<octet>                      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>GROUP_DATA</b>                    |          |        |          |           |         |





| Module | Object | Method                     | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|--------|--------|----------------------------|----------|--------|----------|-----------|---------|
|        |        | period                     |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>LATENCY_BUDGET</b>      |          |        |          |           |         |
|        |        | duration                   | X        | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>OWNERSHIP</b>           |          |        |          |           |         |
|        |        | kind=SHARED                |          | DONE   | DONE     | DONE      | DONE    |
|        |        | kind=EXCLUSIVE             | X        | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>OWNERSHIP_STRENGTH</b>  |          |        |          |           |         |
|        |        | value                      | X        | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>LIVELINESS</b>          |          |        |          |           |         |
|        |        | kind=AUTOMATIC             |          | DONE   | DONE     | DONE      | DONE    |
|        |        | kind=MANUAL_BY_PARTICIPANT |          | DONE   | DONE     | DONE      | DONE    |
|        |        | kind=MANUAL_BY_TOPIC       |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>TIME_BASED_FILTER</b>   |          |        |          |           |         |
|        |        | duration                   |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>PARTITION</b>           |          |        |          |           |         |
|        |        | sequence<string> name      |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>RELIABILITY</b>         |          |        |          |           |         |
|        |        | kind=RELIABLE              |          | DONE   | DONE     | DONE      | DONE    |
|        |        | kind=BEST_EFFORT           |          | DONE   | DONE     | DONE      | DONE    |
|        |        | <b>TRANSPORT_PRIORITY</b>  |          |        |          |           |         |



| Module                                 |          |  |         |          |           |         |
|----------------------------------------|----------|--|---------|----------|-----------|---------|
| Object                                 |          |  |         |          |           |         |
| Method                                 | OPTIONAL |  | C Lang  | C++ Lang | Java Lang | C# Lang |
| <b>CoreDX_LoggingQosPolicy</b>         | X        |  |         |          |           |         |
| flags                                  | X        |  | DONE    | DONE     | DONE      | DONE    |
| uri                                    | X        |  | TODO    | TODO     | TODO      | TODO    |
| <b>CoreDX_EntityNameQosPolicy</b>      | X        |  |         |          |           |         |
| value                                  | X        |  | PARTIAL | PARTIAL  | PARTIAL   | PARTIAL |
| <b>CoreDX_PeerParticipantQosPolicy</b> | X        |  |         |          |           |         |
| value                                  | X        |  | DONE    | DONE     | PARTIAL   | PARTIAL |
| <b>DDS_TypecodeQosPolicy</b>           | X        |  |         |          |           |         |
| value                                  | X        |  | DONE    | DONE     | DONE      | DONE    |
| encoding                               | X        |  | DONE    | DONE     | DONE      | DONE    |
| <b>CoreDX_RTPSWriterQosPolicy</b>      | X        |  |         |          |           |         |
| heartbeat_period                       | X        |  | DONE    | DONE     | DONE      | DONE    |
| nack_response_delay                    | X        |  | DONE    | DONE     | DONE      | DONE    |
| nack_suppress_delay                    | X        |  | DONE    | DONE     | DONE      | DONE    |
| min_buffer_size                        | X        |  | DONE    | DONE     | DONE      | DONE    |
| max_buffer_size                        | X        |  | DONE    | DONE     | DONE      | DONE    |
| <b>CoreDX_RTPSReaderQosPolicy</b>      | X        |  |         |          |           |         |
| heartbeat_response_delay               | X        |  | DONE    | DONE     | DONE      | DONE    |
| <b>CoreDX_DiscoveryQosPolicy</b>       | X        |  |         |          |           |         |
| discovery_kind                         | X        |  | DONE    | DONE     | DONE      | DONE    |

| Module    | Object                    | Method                           | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|-----------|---------------------------|----------------------------------|----------|--------|----------|-----------|---------|
|           |                           | heartbeat_period                 | X        | DONE   | DONE     | DONE      | DONE    |
|           |                           | nack_response_delay              | X        | DONE   | DONE     | DONE      | DONE    |
|           |                           | nack_suppress_delay              | X        | DONE   | DONE     | DONE      | DONE    |
|           |                           | min_buffer_size                  | X        | DONE   | DONE     | DONE      | DONE    |
|           |                           | max_buffer_size                  | X        | DONE   | DONE     | DONE      | DONE    |
| LISTENERS |                           |                                  |          |        |          |           |         |
|           | DomainParticipantListener |                                  |          |        |          |           |         |
|           |                           | on_offered_deadline_missed()     |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_offered_incompatible_qos()    |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_liveliness_lost()             |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_publication_match()           |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_inconsistent_topic()          |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_requested_deadline_missed()   |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_requested_incompatible_qos(); |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_sample_rejected()             |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_liveliness_changed()          |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_data_on_readers()             |          | TODO   | TODO     | TODO      | TODO    |
|           |                           | on_data_available()              |          | DONE   | DONE     | DONE      | DONE    |
|           |                           | on_subscription_match()          |          | DONE   | DONE     | DONE      | DONE    |

| Module | Object                    | Method                           | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|--------|---------------------------|----------------------------------|----------|--------|----------|-----------|---------|
|        |                           | on_sample_lost()                 |          | DONE   | DONE     | DONE      | DONE    |
|        | <b>PublisherListener</b>  |                                  |          |        |          |           |         |
|        |                           | on_offered_deadline_missed()     |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_offered_incompatible_qos()    |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_liveliness_lost()             |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_publication_match()           |          | DONE   | DONE     | DONE      | DONE    |
|        | <b>DataWriterListener</b> |                                  |          |        |          |           |         |
|        |                           | on_offered_deadline_missed()     |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_offered_incompatible_qos()    |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_liveliness_lost()             |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_publication_match()           |          | DONE   | DONE     | DONE      | DONE    |
|        | <b>TopicListener</b>      |                                  |          |        |          |           |         |
|        |                           | on_inconsistent_topic()          |          | DONE   | DONE     | DONE      | DONE    |
|        | <b>SubscriberListener</b> |                                  |          |        |          |           |         |
|        |                           | on_data_on_readers()             |          | TODO   | TODO     | TODO      | TODO    |
|        |                           | on_requested_deadline_missed()   |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_requested_incompatible_qos(); |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_sample_rejected()             |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_liveliness_changed()          |          | DONE   | DONE     | DONE      | DONE    |
|        |                           | on_data_available()              |          | DONE   | DONE     | DONE      | DONE    |

| Module                    | Object                           | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|---------------------------|----------------------------------|----------|--------|----------|-----------|---------|
|                           | Method                           |          |        |          |           |         |
|                           | on_subscription_match()          |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_sample_lost()                 |          | DONE   | DONE     | DONE      | DONE    |
| <b>DataReaderListener</b> |                                  |          |        |          |           |         |
|                           | on_requested_deadline_missed()   |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_requested_incompatible_qos(); |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_sample_rejected()             |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_liveliness_changed()          |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_data_available()              |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_subscription_match()          |          | DONE   | DONE     | DONE      | DONE    |
|                           | on_sample_lost()                 |          | DONE   | DONE     | DONE      | DONE    |
|                           |                                  |          |        |          |           |         |
| <b>DDL Mappings</b>       |                                  |          |        |          |           |         |
| <b>Basic Data Types</b>   |                                  |          |        |          |           |         |
|                           | short                            |          | DONE   | DONE     | DONE      | DONE    |
|                           | long                             |          | DONE   | DONE     | DONE      | DONE    |
|                           | long long                        |          | DONE   | DONE     | DONE      | DONE    |
|                           | unsigned short                   |          | DONE   | DONE     | DONE      | DONE    |
|                           | unsigned long                    |          | DONE   | DONE     | DONE      | DONE    |
|                           | unsigned long long               |          | DONE   | DONE     | DONE      | DONE    |
|                           | float                            |          | DONE   | DONE     | DONE      | DONE    |

| Module                       | Object | Method                          | OPTIONAL | C Lang | C++ Lang | Java Lang | C# Lang |
|------------------------------|--------|---------------------------------|----------|--------|----------|-----------|---------|
|                              |        | double                          |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | long double                     |          | TODO   | TODO     | TODO      | TODO    |
|                              |        | char                            |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | wchar                           |          | TODO   | TODO     | TODO      | TODO    |
|                              |        | boolean                         |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | octet                           |          | DONE   | DONE     | DONE      | DONE    |
| <b>Structured Data Types</b> |        |                                 |          |        |          |           |         |
|                              |        | struct                          |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | union                           |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | sequence, bounded and unbounded |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | fixed                           |          | TODO   | TODO     | TODO      | TODO    |
| <b>Other Data Types</b>      |        |                                 |          |        |          |           |         |
|                              |        | enum                            |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | string, bounded and unbounded   |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | wstring                         |          | TODO   | TODO     | TODO      | TODO    |
|                              |        | array                           |          | DONE   | DONE     | DONE      | DONE    |
|                              |        | constant                        |          | DONE   | DONE     | DONE      | DONE    |
| <b>Miscellaneous</b>         |        |                                 |          |        |          |           |         |
|                              |        | namespaces                      |          | DONE   | DONE     | DONE      | DONE    |

## Additional Implementation Notes:

Many of these notes are specific to the current CoreDX version (version 1.0.4), and may not be applicable in later releases as the product is enhanced.

### General

1. DataReader read() and take() operations do not support the 'own=1' flag on the sample sequence. The 'own' flag is used as an indication to the middleware that the caller would/would not like their own copy of the returned sample data. Currently, only 'own=0' is supported, which means that the DataReader loans ownership of the sample data to the caller of read/take(), and the caller must 'return' the loan via the return\_loan() method.
2. DDL: Nested (embedded) namespaces are not supported
3. DDL: Arrays of sequences are not supported
4. DDL: Nested (embedded) structures are not supported. Note that you can include structures declared earlier in the DDL. For example, the following DDL IS supported:

```
struct SenderType
{
    string firstname;
    string lastname;
};
struct StringMsg
{
    SenderType sender;
    string msg;
};
```

But, the following DDL IS NOT supported:

```
struct StringMsg
{
    struct SenderType {
        string firstname;
        string lastname;
    } sender;
    string msg;
};
```

### C++ Language Binding

1. DDL: ENUM types cannot be used as a 'KEY' in user defined data structures.
2. The DDS::OfferedIncompatibleQosStatus and DDS::RequestedIncompatibleQosStatus structures contain a 'C' sequence (as defined in include/dds/core/dds\_seq.h), not a 'C++' sequence. [Note: The interface to the C sequence is different than the C++ interface.]
3. Concerning DDS Listeners: The specification includes the concept of a 'NIL' Listener. In order to provide an easy to use C++ listener implementation, we have augmented the Listener class with a 'nil\_listeners' attribute. This is a bit-mask which can be used to indicate which listener methods should be considered to be 'NIL'. For example, if you wish to specify a NIL 'sample\_lost()' method on a DataReaderListener, it can be accomplished by the following:



```
class MyDRListener : public DDS::DataReaderListener
{
};
```

```
MyDRListener drListener;
drListener.nil_listeners = DDS::SAMPLE_LOST_STATUS;
```

Then, install 'drListener' on a DataReader via the constructor or set\_listener() method.

# About Twin Oaks Computing

With corporate headquarters located in Castle Rock, Colorado, USA, Twin Oaks Computing is a company dedicated to developing and delivering quality software solutions. We leverage our technical experience and abilities to provide innovative and useful services in the domain of data communications. Founded in 2005, Twin Oaks Computing, Inc delivered the first version of CoreDX DDS in 2008. The next two years saw deliveries to over 100 customers around the world. We continue to provide world class support to these customers while ever expanding.

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