CoreDX ™ Data Distribution Service

The leading Small Footprint DDS Middleware

C# Reference Manual

Twin Oaks Computing, Inc

Castle Rock, CO 80108

Nov 2011

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Contact

Twin Oaks Computing, Inc
755 Maleta Ln, Ste 203
Castle Rock, CO 80108
(720) 733-7906
contact@twinoakscomputing.com
http://www.twinoakscomputing.com
http://twitter.com/CoreDX_DDS

Contents

Chapter 1

Overview

Welcome to the CoreDX DDS for C# API documentation from Twin Oaks Computing, Inc.

Introduction

CoreDX DDS is a small-footprint, high-performance communications middleware compliant with the OMG Data Distribution Service (DDS) standard. CoreDX DDS supports multiple hardware architectures and operating systems, and is intended to facilitate the development of robust, near real-time, highly distributed systems.

This is the **CoreDX DDS for C# Reference Manual**. It provides a detailed reference for the CoreDX Data Distribution Service implementation from Twin Oaks Computing, Inc. The manual includes documentation on all of the CoreDX DDS data types and Application Programming Interface (API) routines.

The **CoreDX DDS Programmers Guide** provides more information on using the CoreDX API and related tools to produce a complete DDS enabled application.

The CoreDX DDS software provides a high-throughput, standards compliant, data communications infrastructure. CoreDX DDS offers the tools you need to realize Open Architecture goals. Built with a focus on performance, the CoreDX DDS software delivers a quality implementation of the OMG Data Distribution Service (DDS) standard.

The CoreDX DDS software implements the essential Data-Centric Publish-Subscribe (DCPS) communications layer as documented in the OMG DDS Standard. This standalone package, provides everything needed to integrate QoS enabled, Publish-Subscribe messaging into an application. The core software is written in the C language, and is optimized to be small and fast. The core package includes C and C++ language bindings for application integration. This reference manual describes the CoreDX DDS "C#" language binding.

Intended Audience

This document is intended for software developers who are integrating the CoreDX DDS software into their application(s). The reference manual assumes that the reader is competent in programming languages and software development concepts. CoreDX DDS supports multiple languages, and this reference manual focuses on the C# programming language.

Contents

The reference documentation includes information on the following API constructs:

1. Entities.This includes the primary objects with which an application must interact to enable DDS publish-subscribe communications.
    - DomainParticipantFactory
    - DomainParticipant
    - Topic
    - ContentFilteredTopic
    - MultiTopic
    - Publisher
    - Subscriber
    - DataReader
    - DataWriter
2. Quality of Service. This section documents the Quality of Service (QoS) structures that configure the behavior of the CoreDX middleware.
    - DomainParticipantFactoryQos
    - DomainParticipantQos
    - TopicQos
    - PublisherQos
    - SubscriberQos
    - DataReaderQos
    - DataWriterQos
3. Listeners and Events. This section covers the various structures and concepts involved in delivering events to the application.
    - DomainParticipantListener
    - TopicListener

- PublisherListener
- SubscriberListener
- DataReaderListener
- DataWriterListener

4. Status. This section describes the types of status maintained by the infrastructure.
   - InconsistentTopicStatus
   - LivelinessChangedStatus
   - LivelinessLostStatus
   - OfferedDeadlineMissedStatus
   - OfferedIncompatibleQosStatus
   - PublicationMatchedStatus
   - RequestedDeadlineMissedStatus
   - RequestedIncompatibleQosStatus
   - SampleLostStatus
   - SampleRejectedStatus
   - SubscriptionMatchedStatus
5. Miscellaneous. This section includes miscellaneous support objects.
   - Condition
   - GuardCondition
   - StatusCondition
   - QueryCondition
   - WaitSet

Chapter 2

Data Structure Documentation

2.1 DDS Entities

Classes

- class DomainParticipant

  The DomainParticipant is used to configure, create and destroy Publisher, Subscriber and Topic objects.

- class DomainParticipantFactory

  DomainParticipantFactory constructs DomainParticipants. The.

- class DataReader

  The DataReader entity allows the application to subscribe to and read data.

- class DataWriter

  The DataWriter entity provides an interface for the application to publish (write) data. The DataWriter is an abstract class that is extended to support a particular data type required by the application. A DataReader is associated with, and writes on, a single Topic.

- class Entity

  Base class for all DDS Entities.

- class DomainEntity

  Base class for all DDS Domain Entities.

- class Publisher

  The Publisher configures, creates, manages and destroys DataWriters.

- class Subscriber

  The Subscriber configures, creates, manages and destroys DataReaders.

- class Topic

  *Topic is the basic description of data to be published or subscribed. A topic is identified by a **name** and a **type.** A Topic is created by calling DomainParticipant.create_topic(). Prior to creating a Topic, the associated data type must be registered with the DomainParticipant via a call to the TypeSupportXYZ.register_type() function. [The register_type() function is auto-generated 'type-specific' code.].*

- class ContentFilteredTopic

  *ContentFilteredTopic provides a topic that may include data filtered from a related Topic. The ContentFilteredTopic is associated with another un-filtered topic **related_topic**. It applies a filter to the data of the related topic. If a data sample passes the filter, it will be made available to a DataReader associated with the ContentFilteredTopic.*

- struct DDS_MultiTopic

  DDS_MultiTopic provides a topic that may include data from multiple Topics.

2.2 DDS Quality of Service

Classes

- class DomainParticipantFactoryQos

  Structure that holds DomainParticipantFactory Quality of Service policies.

- class DomainParticipantQos

  Structure that holds DomainParticipant Quality of Service policies.

- class TopicQos

  Structure that holds DDS_Topic Quality of Service policies.

- class PublisherQos

  Structure that holds Publisher Quality of Service policies.

- class SubscriberQos

  Structure that holds DDS_Subscriber Quality of Service policies.

- class DataWriterQos

  Structure that holds DataWriter Quality of Service policies.

- class DataReaderQos

  Structure that holds DataReader Quality of Service policies.

2.3 DDS Conditions, Listeners, and WaitSets

Modules

- DDS Listeners
- DDS Conditions
- DDS WaitSets

2.4 DDS Listeners

Classes

- class DomainParticipantListener

  The DomainParticipantListener provides asynchronous notification of DomainParticipant events.

- class TopicListener

  The TopicListener provides asynchronous notification of Topic events.

- class PublisherListener

  The PublisherListener provides asynchronous notification of Publisher events.

- class DataWriterListener

  The DataWriterListener provides asynchronous notification of DataWriter events.

- class SubscriberListener

  The SubscriberListener provides asynchronous notification of Subscriber events.

- class DataReaderListener

  The DataReaderListener provides asynchronous notification of DataReader events.

2.5 DDS Conditions

Classes

- class Condition

  A Condition can be added to a WaitSet to provide synchronous event notification.

- class GuardCondition

  *A GuardCondition is a Condition where the **trigger_value** is under application control.*

- class ReadCondition

  A ReadCondition is a specialized Condition associated with a DataReader.

- class QueryCondition

  *The **trigger_value** is driven by the data available, after applying the filter, in the associated DataReader.*

2.6 DDS WaitSets

Classes

- class WaitSet

  A DDS_WaitSet maintains a set of Condition objects and allows the application to wait until one or more of them have a ***trigger_value*** *of TRUE.*

2.7 DDS Status Structures

Classes

- class InconsistentTopicStatus

  Status related to the on_inconsistent_topic listener methods of the TopicListener structure.

- class OfferedDeadlineMissedStatus

  Status related to the on_offered_deadline_missed listener methods of the DataWriter, Publisher, and DomainParticipant structures.

- class OfferedIncompatibleQosStatus

  Status related to the on_offered_incompatible_qos listener methods of the DataWriter, Publisher, and DomainParticipant structures.

- class LivelinessLostStatus

  Status related to the on_liveliness_lost listener methods of the DataWriter, Publisher, and DomainParticipant structures.

- class PublicationMatchedStatus

  Status related to the on_publication_matched listener methods of the DataWriter, Publisher, and DomainParticipant structures.

- class RequestedDeadlineMissedStatus

  Status related to the on_requested_deadline_missed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

- class RequestedIncompatibleQosStatus

  Status related to the on_requested_incompatible_qos listener methods of the DataReader, Subscriber, and DomainParticipant structures.

- class SampleRejectedStatus

  Status related to the on_sample_rejected listener methods of the DataReader, Subscriber, and DomainParticipant structures.

- class LivelinessChangedStatus

  Status related to the on_liveliness_changed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

- class SubscriptionMatchedStatus

  Status related to the on_subscription_matched listener methods of the DataReader, Subscriber, and DomainParticipant structures.

- class SampleLostStatus

Status related to the on_sample_lost listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Enumerations

- enum SampleRejectedStatusKind { NOT_REJECTED, REJECTED_BY_INSTANCE_LIMIT, REJECTED_BY_SAMPLES_LIMIT, REJECTED_BY_SAMPLES_PER_INSTANCE_LIMIT }

2.7.1 Detailed Description

- InconsistentTopicStatus
- LivelinessChangedStatus
- LivelinessLostStatus
- OfferedDeadlineMissedStatus
- OfferedIncompatibleQosStatus
- PublicationMatchedStatus
- RequestedDeadlineMissedStatus
- RequestedIncompatibleQosStatus
- SampleLostStatus
- SampleRejectedStatus
- _SubscriptionMatchedStatus

2.7.2 Enumeration Type Documentation

2.7.2.1 enum SampleRejectedStatusKind

Enumerator:

NOT_REJECTED

REJECTED_BY_INSTANCE_LIMIT

REJECTED_BY_SAMPLES_LIMIT

REJECTED_BY_SAMPLES_PER_INSTANCE_LIMIT

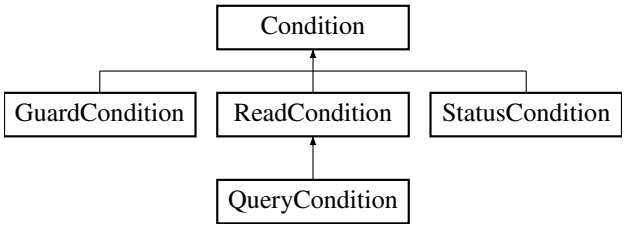
Chapter 3

API Documentation

3.1 Condition Class Reference

A Condition can be added to a WaitSet to provide synchronous event notification.

Inheritance diagram for Condition:



Public Member Functions

- bool get_trigger_value ()

3.1.1 Detailed Description

A Condition can be added to a WaitSet to provide synchronous event notification. A Condition has a **trigger_-value** which can be true or false.

3.1.2 Member Function Documentation

3.1.2.1 bool get_trigger_value ( ) [inline]

This routine returns the current value of the **trigger_value** in Condition **c.**

A non-zero return value indicates that the **trigger_value** is TRUE.

A zero return value indicates that the **trigger_value** is FALSE.

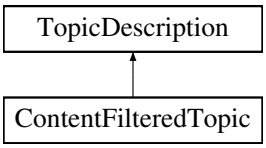
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/cond.cs

3.2 ContentFilteredTopic Class Reference

ContentFilteredTopic provides a topic that may include data filtered from a related Topic. The ContentFilteredTopic is associated with another un-filtered topic **related_topic**. It applies a filter to the data of the related topic. If a data sample passes the filter, it will be made available to a DataReader associated with the ContentFilteredTopic.

Inheritance diagram for ContentFilteredTopic:



Public Member Functions

- DomainParticipant get_participant ()

  *This operation returns the parent **DomainParticipant** of the Topic.*

- String get_type_name ()

  *This operation returns **type_name** of the Topic.*

- String get_name ()

  *This operation returns **topic_name** of the Topic.*

- Topic get_related_topic ()

  This returns the real Topic associated with the ContentFilteredTopic.

- ReturnCode_t get_expression_parameters (List< String > eparams)

  This accesses the current set of parameters used by the ContentFilteredTopic.

- ReturnCode_t set_expression_parameters (List< String > filter_parameters)

  This specifies a new set of parameters for use with the filter_expression.

3.2.1 Detailed Description

ContentFilteredTopic provides a topic that may include data filtered from a related Topic. The ContentFilteredTopic is associated with another un-filtered topic **related_topic**. It applies a filter to the data of the related topic. If a data sample passes the filter, it will be made available to a DataReader associated with the ContentFilteredTopic. The **filter_expression** is an SQL like condition expression, and **filter_parameters**

provide optional parameters that are referenced by the **filter_expression**. The syntax of the filter expression is similar to the WHERE clause in SQL. For example "x<4" is a valid filter expression. It would test that data member 'x' is less than value '4'. If the filter expression evaluates to TRUE, then the data sample will be available, otherwise the data sample would be 'filtered' (excluded).

CoreDX DDS supports the '**LIKE**' operator (and NOT LIKE) for regular expression string matching. The pattern string in a LIKE clause can contain '' to match zero or more characters, '_' to match a single character, or '[<characters>]' to match a range of characters.

CoreDX DDS also includes support for the '**IN**' operator. This provides a very powerful mechanism for testing that a value appears in a set of values. For example "symbol IN ('ge', 'msft', 'ibm')" will select all samples that have a symbol value of 'ge', 'msft', or 'ibm'. This could also be written as a series of equality tests combined with the OR operator; however, the IN operator is much more efficient. A filter that matches on several hundred or even thousands of values can be implemented very efficiently using the 'IN' operator.

The filter_expression can refer to parameters. The syntax for paramters is the percent sign '' followed by a number. The number is the index of the paramter in the **filter_paramters** sequence. Parameters are counted starting at zero. So, "%0" refers to the first parameter, and "%4" refers to the fifth paramter. Using this syntax, the expression "x<%0" would test the value of 'x' against the first parameter in the sequence.

See also

DDS_DomainParticipant_create_contentfilteredtopic()

3.2.2 Member Function Documentation

3.2.2.1 ReturnCode_t get_expression_parameters (List< String > *eparams*) [inline]

This accesses the current set of parameters used by the ContentFilteredTopic.

The **parameters** String Sequence is populated with the current set of parameters.

3.2.2.2 Topic get_related_topic ( ) [inline]

This returns the real Topic associated with the ContentFilteredTopic.

That is, the Topic provided when the ContentFilteredTopic was created.

3.2.2.3 ReturnCode_t set_expression_parameters (List< String > *filter_parameters*) [inline]

This specifies a new set of parameters for use with the filter_expression.

The **filter_expression** is an SQL like condition expression, and the **parameters** argument provides optional parameters that are referenced by the **filter_expression**. The syntax for refering to paramters in a filter_-expression is the percent sign '' followed by a number. The number is the index of the paramter in the **filter_paramters** sequence. Parameters are counted starting at zero. So, "%0" refers to the first parameter,

and "%4" refers to the fifth paramter. Using this syntax, the expression "x<%0" would test the value of 'x' against the first parameter in the sequence.

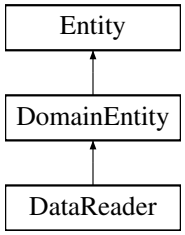
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/top.cs

3.3 DataReader Class Reference

The DataReader entity allows the application to subscribe to and read data.

Inheritance diagram for DataReader:



Public Member Functions

- new ReturnCode_t enable ()
- override InstanceHandle_t get_instance_handle ()
- ReadCondition create_readcondition (uint sample_states, uint view_states, uint instance_states)
- QueryCondition create_querycondition (uint sample_states, uint view_states, uint instance_states, String query_expression, List< String > query_parameters)

  Creates a DDS_QueryCondition.

- ReturnCode_t delete_readcondition (ReadCondition rc)
- ReturnCode_t delete_contained_entities ()
- ReturnCode_t set_qos (DataReaderQos qos)
- ReturnCode_t get_qos (DataReaderQos qos)
- ReturnCode_t set_listener (DataReaderListener new_listener, uint mask)
- DataReaderListener get_listener ()
- TopicDescription get_topicdescription ()
- Subscriber get_subscriber ()
- ReturnCode_t get_sample_rejected_status (out SampleRejectedStatus status)
- ReturnCode_t get_liveliness_changed_status (out LivelinessChangedStatus status)
- ReturnCode_t get_requested_deadline_missed_status (out RequestedDeadlineMissedStatus status)
- ReturnCode_t get_requested_incompatible_qos_status (out RequestedIncompatibleQosStatus status)
- ReturnCode_t get_subscription_matched_status (out SubscriptionMatchedStatus status)
- ReturnCode_t get_sample_lost_status (out SampleLostStatus status)
- ReturnCode_t wait_for_historical_data (Duration_t max_wait)
- ReturnCode_t get_matched_publications (List< InstanceHandle_t > publication_handles)

3.3.1 Detailed Description

The DataReader entity allows the application to subscribe to and read data. The DataReadre is an abstract class that is extended to support a particular data type required by the application. A DataReader is associated with a single TopicDescription (Topic, MultiTopic, or ContentFilteredTopic).

3.3.2 Member Function Documentation

3.3.2.1 QueryCondition create_querycondition (uint *sample_states,* uint *view_states,* uint *instance_states,* String *query_expression,* List< String > *query_parameters*) [inline]

Creates a DDS_QueryCondition.

The returned QueryCondition can be used as an argument to read_w_condition() or take_w_condition().

The **query_expression** is an SQL like condition expression, and **query_parameters** provide optional parameters that are referenced by the **query_expression**. The syntax of the query expression is similar to the WHERE clause in SQL. For example "x<4" is a valid query expression. It would test that data member 'x' is less than value '4'. If the query expression evaluates to TRUE, then the data sample will be available, otherwise the data sample will be 'filtered' (excluded).

CoreDX DDS supports the '**LIKE**' operator (and NOT LIKE) for regular expression string matching. The pattern string in a LIKE clause can contain '' to match zero or more characters, '_' to match a single character, or '[<characters>]' to match a range of characters.

CoreDX DDS also includes support for the '**IN**' operator. This provides a very powerful mechanism for testing that a value appears in a set of values. For example "symbol IN ('ge', 'msft', 'ibm')" will select all samples that have a symbol value of 'ge', 'msft', or 'ibm'. This could also be written as a series of equality tests combined with the OR operator; however, the IN operator is much more efficient. A query that matches on several hundred or even thousands of values can be implemented very efficiently using the 'IN' operator.

The query_expression can refer to parameters. The syntax for paramters is the percent sign '' followed by a number. The number is the index of the paramter in the **query_paramters** sequence. Parameters are counted starting at zero. So, "%0" refers to the first parameter, and "%4" refers to the fifth paramter. Using this syntax, the expression "x<%0" would test the value of 'x' against the first parameter in the sequence.

See also

FooDataReader::read_w_condition().
FooDataReader::take_w_condition().

Not Yet Supported

QueryConditions are not yet supported as triggers for a WaitSet.

3.3.2.2 ReadCondition create_readcondition (uint *sample_states,* uint *view_states,* uint *instance_states*) [inline]

Creates a ReadCondition that is associated with this DataReader. The returned condition can be added to a WaitSet or used in a call to the specialized **read()** or **take()** operations. For example see DataReaderFoo.read_w_condition();

3.3.2.3 ReturnCode_t delete_contained_entities ( ) [inline]

This operation deletes all the ReadCondition and QueryCondition objects previously created by means of the DataReader.create_readcondition() and DataReader.create_querycondition() operations.

After successful execution, the application may delete the Publisher by calling Subscriber.delete_datareader().

If any of the objects cannot be deleted, this routine will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

3.3.2.4 ReturnCode_t delete_readcondition (ReadCondition *rc*) [inline]

Destroys a ReadCondition (or QueryCondition). The provided **a_condition** must have been previously created via a call to DataReader.create_readcondition() or DataReader.create_querycondition().

The **a_condition** argument must belong to DataReader **dr.** Otherwise, the error ReturnCode_t.RETCODE_PRECONDITION_NOT_MET will be returned.

If the DataReader is actively processing the ReadCondition, this routine will return ReturnCode_t.RETCODE_ERROR; in this case, the delete_readcondition() call should be re-tried.

3.3.2.5 new ReturnCode_t enable ( ) [inline, virtual]

Enables the DataReader. A DataReader is created either enabled or not based on the SubscriberQos setting **entity_factory.** When a DataReader is not enabled, only the following sub-set of all DataReader operations are legal:

- operations to get and set QoS policies,
- get_statuscondition(),
- get_status_changes(),

Any other operation may return the ReturnCode_t.RETCODE_NOT_ENABLED error. DataReader_enable() may be called on an already enabled DataReader [it will have no effect].

Reimplemented from Entity.

3.3.2.6 override InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented from Entity.

3.3.2.7 DataReaderListener get_listener ( ) [inline]

This operation returns the currently installed DataReaderListener.

3.3.2.8 ReturnCode_t get_liveliness_changed_status (out LivelinessChangedStatus *status*) [inline]

Provides access to the current LivelinessChangedStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.9 ReturnCode_t get_matched_publications (List< InstanceHandle_t > *publication_handles*) [inline]

This operation retrieves the list of DataWriters currently matched with this DataReader **dr.** This list will include the handles that identify DataWriters which have matching Topic and compatible QoS with DataReader.

If a DataWriter has been ignored by a call to DomainParticipant.ignore_publication(), then it will not appear in the list.

Parameters

publication_handles A vector that will be populated with InstanceHandle_t(s).

3.3.2.10 ReturnCode_t get_qos (DataReaderQos *qos*) [inline]

Returns the current DataReaderQos settings held in the DataReader **dr.** This routines copies data from the DataReader QoS properties into **qos.**

3.3.2.11 ReturnCode_t get_requested_deadline_missed_status (out RequestedDeadlineMissedStatus *status*) [inline]

Provides access to the current RequestedDeadlineMissedStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.12 ReturnCode_t get_requested_incompatible_qos_status (out RequestedIncompatibleQosStatus *status*) [inline]

Provides access to the current RequestedIncompatibleQosStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.13 ReturnCode_t get_sample_lost_status (out SampleLostStatus *status*) [inline]

Provides access to the current SampleLostStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.14 ReturnCode_t get_sample_rejected_status (out SampleRejectedStatus *status*) [inline]

Provides access to the current SampleRejectedStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.15 Subscriber get_subscriber ( ) [inline]

Returns the Subscribier that contains DataReader **dr.**

3.3.2.16 ReturnCode_t get_subscription_matched_status (out SubscriptionMatchedStatus *status*) [inline]

Provides access to the current SubscriptionMatchedStatus of the DataReader. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.3.2.17 TopicDescription get_topicdescription ( ) [inline]

Returns the TopicDescription associated with DataReader **dr.**

3.3.2.18 ReturnCode_t set_listener (DataReaderListener *new_listener,* uint *mask*) [inline]

Installs a DataReaderListener on DataReader **dr.** Only one listener may be attached to a DataReader at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

3.3.2.19 ReturnCode_t set_qos (DataReaderQos *qos*) [inline]

Sets the DataReaderQos values. These QoS values affect the behavior of the DataReader. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_-INCONSISTENT_POLICY will be returned, and no changes will be made to the DataReader QoS.

3.3.2.20 ReturnCode_t wait_for_historical_data (Duration_t *max_wait*) [inline]

This routine blocks until all 'historical' data is received.

Parameters

max_wait The maximum amount of time to block while waiting. Can be set to { INFINITE_SEC, INFINITE_NSEC }

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/dr.cs

3.4 DataReaderListener Class Reference

The DataReaderListener provides asynchronous notification of DataReader events.

Public Attributes

- requested_deadline_missed_delegate on_requested_deadline_missed
- requested_incompatible_qos_delegate on_requested_incompatible_qos
- sample_rejected_delegate on_sample_rejected
- liveliness_changed_delegate on_liveliness_changed
- data_available_delegate on_data_available
- subscription_matched_delegate on_subscription_matched
- sample_lost_delegate on_sample_lost

3.4.1 Detailed Description

The DataReaderListener provides asynchronous notification of DataReader events. This listener can be installed during DataReader creation, Subscriber.create_datareader(), as well as by calling DataReader.set_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.4.2 Member Data Documentation

3.4.2.1 data_available_delegate on_data_available

3.4.2.2 liveliness_changed_delegate on_liveliness_changed

3.4.2.3 requested_deadline_missed_delegate on_requested_deadline_missed

3.4.2.4 requested_incompatible_qos_delegate on_requested_incompatible_qos

3.4.2.5 sample_lost_delegate on_sample_lost

3.4.2.6 sample_rejected_delegate on_sample_rejected

3.4.2.7 subscription_matched_delegate on_subscription_matched

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.5 DataReaderQos Class Reference

Structure that holds DataReader Quality of Service policies.

Public Attributes

- DurabilityQosPolicy durability
- DeadlineQosPolicy deadline
- LatencyBudgetQosPolicy latency_budget
- LivelinessQosPolicy liveliness
- ReliabilityQosPolicy reliability
- DestinationOrderQosPolicy destination_order
- HistoryQosPolicy history
- ResourceLimitsQosPolicy resource_limits
- UserDataQosPolicy user_data
- OwnershipQosPolicy ownership
- TimeBasedFilterQosPolicy time_based_filter
- ReaderDataLifecycleQosPolicy reader_data_lifecycle

3.5.1 Detailed Description

Structure that holds DataReader Quality of Service policies.

See also

DataReader::set_qos()
DataReader::get_qos()
Subscriber::create_datareader()
Subscriber::set_default_datareader_qos()
Subscriber::get_default_datareader_qos()

3.5.2 Member Data Documentation

3.5.2.1 DeadlineQosPolicy deadline

The requested update frequency for data instances.

3.5.2.2 DestinationOrderQosPolicy destination_order

The destination order logic requested by the DataReader.

3.5.2.3 DurabilityQosPolicy durability

The durability policy requested by the DataReader.

3.5.2.4 HistoryQosPolicy history

The data history requested by the DataReader.

3.5.2.5 LatencyBudgetQosPolicy latency_budget

The latency requested by the DataReader.

3.5.2.6 LivelinessQosPolicy liveliness

The liveliness mechanism requested by the DataReader.

3.5.2.7 OwnershipQosPolicy ownership

The type of 'ownership' offered by the DataReader.

3.5.2.8 ReaderDataLifecycleQosPolicy reader_data_lifecycle

Controls the auto-purge behavior of the DataReader.

3.5.2.9 ReliabilityQosPolicy reliability

The transport reliability requested by the DataReader.

3.5.2.10 ResourceLimitsQosPolicy resource_limits

The resource limits set on the DataReader.

3.5.2.11 TimeBasedFilterQosPolicy time_based_filter

The maximum update frequency required/desired by the DataReader.

3.5.2.12 UserDataQosPolicy user_data

A sequence of octets associated with the DataReader.

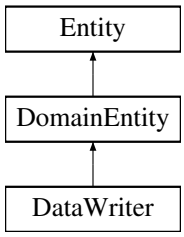
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.6 DataWriter Class Reference

The DataWriter entity provides an interface for the application to publish (write) data. The DataWriter is an abstract class that is extended to support a particular data type required by the application. A DataReader is associated with, and writes on, a single Topic.

Inheritance diagram for DataWriter:



Public Member Functions

- override ReturnCode_t enable ()
- override InstanceHandle_t get_instance_handle ()
- ReturnCode_t set_qos (DataWriterQos qos)
- ReturnCode_t get_qos (DataWriterQos qos)
- ReturnCode_t set_listener (DataWriterListener new_listener, uint mask)
- DataWriterListener get_listener ()
- Topic get_topic ()
- Publisher get_publisher ()
- ReturnCode_t wait_for_acknowledgments (Duration_t max_wait)

  Block until this writer has received acknowledgements for all written data.

- ReturnCode_t assert_liveliness ()
- ReturnCode_t get_liveliness_lost_status (out LivelinessLostStatus status)
- ReturnCode_t get_offered_deadline_missed_status (out OfferedDeadlineMissedStatus status)
- ReturnCode_t get_offered_incompatible_qos_status (out OfferedIncompatibleQosStatus status)
- ReturnCode_t get_publication_matched_status (out PublicationMatchedStatus status)
- ReturnCode_t get_matched_subscriptions (List< InstanceHandle_t > subscription_handles)
- ReturnCode_t get_matched_subscription_data (SubscriptionBuiltinTopicData subscription_data, InstanceHandle_t subscription_handle)

3.6.1 Detailed Description

The DataWriter entity provides an interface for the application to publish (write) data. The DataWriter is an abstract class that is extended to support a particular data type required by the application. A DataReader is associated with, and writes on, a single Topic.

3.6.2 Member Function Documentation

3.6.2.1 ReturnCode_t assert_liveliness ( ) [inline]

This operation manually asserts the liveliness of the DataWriter **dw.** This operation is useful if the LIVELINESS QoS setting is MANUAL_BY_PARTICIPANT_LIVELINESS_QOS or MANUAL_BY_TOPIC_-LIVELINESS_QOS; otherwise, it has no effect.

The **write** operation automatically asserts livelines on the DataWriter and its DomainParticipant. Therefore, **assert_liveliness** is required only if hte application is not writing data frequently enough to satisfy the LIVELINESS setting.

3.6.2.2 override ReturnCode_t enable ( ) [inline, virtual]

Enables the DataWriter. A DataWriter is created either enabled or not based on the PublisherQos setting **entity_factory.** When a DataWriter is not enabled, only the following sub-set of all DataWriter operations are legal:

- operations to get and set QoS policies,
- get_statuscondition(),
- get_status_changes(),

Any other operation may return the RETCODE_NOT_ENABLED error. DataWriter_enable() may be called on an already enabled DataWriter [it will have no effect].

Reimplemented from Entity.

3.6.2.3 override InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented from Entity.

3.6.2.4 DataWriterListener get_listener ( ) [inline]

This operation returns the currently installed DataWriterListener.

3.6.2.5 ReturnCode_t get_liveliness_lost_status (out LivelinessLostStatus *status*) [inline]

Provides access to the current LivelinessLostStatus of the DataWriter. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.6.2.6 ReturnCode_t get_matched_subscription_data (SubscriptionBuiltinTopicData *subscription_data,* InstanceHandle_t *subscription_handle*) [inline]

This operation returns data that describes a particular matched DataReader identified by **subscription_handle.** An appropriate handle can be obtained through a call to DataWriter.get_matched_subscriptions().

If **subscription_handle** does not identify a matched DataReader, this routine will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

3.6.2.7 ReturnCode_t get_matched_subscriptions (List< InstanceHandle_t > *subscription_handles*) [inline]

This operation retrieves the list of DataReaders currently matched with the DataWriter **dw.** This list will include the handles that identify DataReaders which have matching Topic and compatible QoS with DataWriter.

If a DataReader has been ignored by a call to DomainParticipant.ignore_subscription(), then it will not appear in the list.

Parameters

subscription_handles A vector that will be populated with InstanceHandle_t(s).

3.6.2.8 ReturnCode_t get_offered_deadline_missed_status (out OfferedDeadlineMissedStatus *status*) [inline]

Provides access to the current OfferedDeadlineMissedStatus of the DataWriter. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.6.2.9 ReturnCode_t get_offered_incompatible_qos_status (out OfferedIncompatibleQosStatus *status*) [inline]

Provides access to the current OfferedIncompatibleQosStatus of the DataWriter. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.6.2.10 ReturnCode_t get_publication_matched_status (out PublicationMatchedStatus *status*) [inline]

Provides access to the current PublicationMatchedStatus of the DataWriter. As a side-effect, this routine will reset the **total_count_change** and **current_count_change** status fields to zero.

3.6.2.11 Publisher get_publisher ( ) [inline]

Returns the Publisher that contains DataWriter **dw.**

3.6.2.12 ReturnCode_t get_qos (DataWriterQos *qos*) [inline]

Returns the current DataWriterQos settings held in the DataWriter **dw.** This routines copies data from the DataWriter QoS properties into **qos.**

3.6.2.13 Topic get_topic ( ) [inline]

Returns the Topic associated with DataWriter **dw.**

3.6.2.14 ReturnCode_t set_listener (DataWriterListener *new_listener,* uint *mask*) [inline]

Installs a DataWriterListener on DataWriter **dw.** Only one listener may be attached to a DataWriter at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

3.6.2.15 ReturnCode_t set_qos (DataWriterQos *qos*) [inline]

Sets the DataWriterQos values. These QoS values affect the behavior of the DataWriter. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_-INCONSISTENT_POLICY will be returned, and no changes will be made to the DataWriter QoS.

3.6.2.16 ReturnCode_t wait_for_acknowledgments (Duration_t *max_wait*) [inline]

Block until this writer has received acknowledgements for all written data.

This routine will block until all data written by the writer has been acknowledged, or until the 'max_wait' duration has passed. 'max_wait' can be set to INFINITE, in which case this routine may block indefinitely.

Return values

DDS_RETCODE_TIME_OUT returned if 'max_wait' passes before all acks are received

DDS_RETCODE_OK returned if all acks have been received before 'max_wait'

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/dw.cs

3.7 DataWriterListener Class Reference

The DataWriterListener provides asynchronous notification of DataWriter events.

Public Attributes

- offered_deadline_missed_delegate on_offered_deadline_missed
- offered_incompatible_qos_delegate on_offered_incompatible_qos
- liveliness_lost_delegate on_liveliness_lost
- publication_matched_delegate on_publication_matched

3.7.1 Detailed Description

The DataWriterListener provides asynchronous notification of DataWriter events. This listener can be installed during DataWriter creation, Publisher.create_datawriter(), as well as by calling DataWriter.set_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.7.2 Member Data Documentation

3.7.2.1 liveliness_lost_delegate on_liveliness_lost

3.7.2.2 offered_deadline_missed_delegate on_offered_deadline_missed

3.7.2.3 offered_incompatible_qos_delegate on_offered_incompatible_qos

3.7.2.4 publication_matched_delegate on_publication_matched

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.8 DataWriterQos Class Reference

Structure that holds DataWriter Quality of Service policies.

Public Attributes

- DurabilityQosPolicy durability
- DurabilityServiceQosPolicy durability_service
- DeadlineQosPolicy deadline
- LatencyBudgetQosPolicy latency_budget
- LivelinessQosPolicy liveliness
- ReliabilityQosPolicy reliability
- DestinationOrderQosPolicy destination_order
- HistoryQosPolicy history
- ResourceLimitsQosPolicy resource_limits
- TransportPriorityQosPolicy transport_priority
- LifespanQosPolicy lifespan
- UserDataQosPolicy user_data
- OwnershipQosPolicy ownership
- OwnershipStrengthQosPolicy ownership_strength
- WriterDataLifecycleQosPolicy writer_data_lifecycle

3.8.1 Detailed Description

Structure that holds DataWriter Quality of Service policies.

See also

DataWriter::set_qos()
DataWriter::get_qos()
Publisher::create_datawriter()
Publisher::set_default_datawriter_qos()
Publisher::get_default_datawriter_qos()

3.8.2 Member Data Documentation

3.8.2.1 DeadlineQosPolicy deadline

The deadline committed to by the DataWriter.

3.8.2.2 DestinationOrderQosPolicy destination_order

The destination order logic offered by the DataWriter.

3.8.2.3 DurabilityQosPolicy durability

The durability policy offered by the DataWriter.

3.8.2.4 DurabilityServiceQosPolicy durability_service

The durability service configuration offered by the DataWriter.

3.8.2.5 HistoryQosPolicy history

The data history maintained by the DataWriter.

3.8.2.6 LatencyBudgetQosPolicy latency_budget

The latency allowed by the DataWriter.

3.8.2.7 LifespanQosPolicy lifespan

The expiration time for old samples managed by the DataWriter.

3.8.2.8 LivelinessQosPolicy liveliness

The liveliness mechanism offered by the DataWriter.

3.8.2.9 OwnershipQosPolicy ownership

The type of 'ownership' offered by the DataWriter.

3.8.2.10 OwnershipStrengthQosPolicy ownership_strength

The measure of 'ownership strength' offered by the DataWriter.

3.8.2.11 ReliabilityQosPolicy reliability

The transport reliability offered by the DataWriter.

3.8.2.12 ResourceLimitsQosPolicy resource_limits

The resource limits set on the DataWriter.

3.8.2.13 TransportPriorityQosPolicy transport_priority

The transport priority supported by the DataWriter.

3.8.2.14 UserDataQosPolicy user_data

A sequence of octets associated with the DataWriter.

3.8.2.15 WriterDataLifecycleQosPolicy writer_data_lifecycle

Indicates if unregistered instances should be automatically disposed by the DataWriter.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.9 DDS Class Reference

The 'DDS' class includes several convient constants.

Public Attributes

- const int LENGTH_UNLIMITED = -1
- const int DURATION_INFINITE_SEC = 0x7fffffff
- const uint DURATION_INFINITE_NSEC = 0xffffffff
- const int DURATION_ZERO_SEC = 0
- const int DURATION_ZERO_NSEC = 0
- const int TIMESTAMP_INVALID_SEC = -1
- const uint TIMESTAMP_INVALID_NSEC = 0xffffffff
- const uint READ_SAMPLE_STATE = 0x0001
- const uint NOT_READ_SAMPLE_STATE = 0x0002
- const uint ANY_SAMPLE_STATE = 0x00FF
- const uint NEW_VIEW_STATE = 0x0001
- const uint NOT_NEW_VIEW_STATE = 0x0002
- const uint ANY_VIEW_STATE = 0x00FF
- const uint ALIVE_INSTANCE_STATE = 0x0001
- const uint NOT_ALIVE_DISPOSED_INSTANCE_STATE = 0x0002
- const uint NOT_ALIVE_NO_WRITERS_INSTANCE_STATE = 0x0004
- const uint NOT_ALIVE_INSTANCE_STATE = 0x0006
- const uint ANY_INSTANCE_STATE = 0x00FF
- const uint INCONSISTENT_TOPIC_STATUS = 0x0001
- const uint OFFERED_DEADLINE_MISSED_STATUS = 0x0002
- const uint REQUESTED_DEADLINE_MISSED_STATUS = 0x0004
- const uint OFFERED_INCOMPATIBLE_QOS_STATUS = 0x0020
- const uint REQUESTED_INCOMPATIBLE_QOS_STATUS = 0x0040
- const uint SAMPLE_LOST_STATUS = 0x0080
- const uint SAMPLE_REJECTED_STATUS = 0x0100
- const uint DATA_ON_READERS_STATUS = 0x0200
- const uint DATA_AVAILABLE_STATUS = 0x0400
- const uint LIVELINESS_LOST_STATUS = 0x0800
- const uint LIVELINESS_CHANGED_STATUS = 0x1000
- const uint PUBLICATION_MATCHED_STATUS = 0x2000
- const uint SUBSCRIPTION_MATCHED_STATUS = 0x4000
- const uint ALL_STATUS = 0xffff
- const QosPolicyId_t USERDATA_QOS_POLICY_ID = QosPolicyId_t.USERDATA_QOS_-POLICY_ID
- const QosPolicyId_t DURABILITY_QOS_POLICY_ID = QosPolicyId_t.DURABILITY_QOS_-POLICY_ID

- const QosPolicyId_t PRESENTATION_QOS_POLICY_ID = QosPolicyId_t.PRESENTATION_QOS_POLICY_ID
- const QosPolicyId_t DEADLINE_QOS_POLICY_ID = QosPolicyId_t.DEADLINE_QOS_POLICY_ID
- const QosPolicyId_t LATENCYBUDGET_QOS_POLICY_ID = QosPolicyId_t.LATENCYBUDGET_QOS_POLICY_ID
- const QosPolicyId_t OWNERSHIP_QOS_POLICY_ID = QosPolicyId_t.OWNERSHIP_QOS_POLICY_ID
- const QosPolicyId_t OWNERSHIPSTRENGTH_QOS_POLICY_ID = QosPolicyId_t.OWNERSHIPSTRENGTH_QOS_POLICY_ID
- const QosPolicyId_t LIVELINESS_QOS_POLICY_ID = QosPolicyId_t.LIVELINESS_QOS_POLICY_ID
- const QosPolicyId_t TIMEBASEDFILTER_QOS_POLICY_ID = QosPolicyId_t.TIMEBASEDFILTER_QOS_POLICY_ID
- const QosPolicyId_t PARTITION_QOS_POLICY_ID = QosPolicyId_t.PARTITION_QOS_POLICY_ID
- const QosPolicyId_t RELIABILITY_QOS_POLICY_ID = QosPolicyId_t.RELIABILITY_QOS_POLICY_ID
- const QosPolicyId_t DESTINATIONORDER_QOS_POLICY_ID = QosPolicyId_t.DESTINATIONORDER_QOS_POLICY_ID
- const QosPolicyId_t HISTORY_QOS_POLICY_ID = QosPolicyId_t.HISTORY_QOS_POLICY_ID
- const QosPolicyId_t RESOURCELIMITS_QOS_POLICY_ID = QosPolicyId_t.RESOURCELIMITS_QOS_POLICY_ID
- const QosPolicyId_t ENTITYFACTORY_QOS_POLICY_ID = QosPolicyId_t.ENTITYFACTORY_QOS_POLICY_ID
- const QosPolicyId_t WRITERDATALIFECYCLE_QOS_POLICY_ID = QosPolicyId_t.WRITERDATALIFECYCLE_QOS_POLICY_ID
- const QosPolicyId_t READERDATALIFECYCLE_QOS_POLICY_ID = QosPolicyId_t.READERDATALIFECYCLE_QOS_POLICY_ID
- const QosPolicyId_t TOPICDATA_QOS_POLICY_ID = QosPolicyId_t.TOPICDATA_QOS_POLICY_ID
- const QosPolicyId_t GROUPDATA_QOS_POLICY_ID = QosPolicyId_t.GROUPDATA_QOS_POLICY_ID
- const QosPolicyId_t TRANSPORTPRIORITY_QOS_POLICY_ID = QosPolicyId_t.TRANSPORTPRIORITY_QOS_POLICY_ID
- const QosPolicyId_t LIFESPAN_QOS_POLICY_ID = QosPolicyId_t.LIFESPAN_QOS_POLICY_ID
- const QosPolicyId_t DURABILITYSERVICE_QOS_POLICY_ID = QosPolicyId_t.DURABILITYSERVICE_QOS_POLICY_ID
- const ReturnCode_t RETCODE_OK = ReturnCode_t.RETCODE_OK
- const ReturnCode_t RETCODE_ERROR = ReturnCode_t.RETCODE_ERROR
- const ReturnCode_t RETCODE_UNSUPPORTED = ReturnCode_t.RETCODE_UNSUPPORTED
- const ReturnCode_t RETCODE_BAD_PARAMETER = ReturnCode_t.RETCODE_BAD_PARAMETER

- const ReturnCode_t RETCODE_PRECONDITION_NOT_MET = ReturnCode_t.RETCODE_PRECONDITION_NOT_MET
- const ReturnCode_t RETCODE_OUT_OF_RESOURCES = ReturnCode_t.RETCODE_OUT_OF_RESOURCES
- const ReturnCode_t RETCODE_NOT_ENABLED = ReturnCode_t.RETCODE_NOT_ENABLED
- const ReturnCode_t RETCODE_IMMUTABLE_POLICY = ReturnCode_t.RETCODE_IMMUTABLE_POLICY
- const ReturnCode_t RETCODE_INCONSISTENT_POLICY = ReturnCode_t.RETCODE_INCONSISTENT_POLICY
- const ReturnCode_t RETCODE_ALREADY_DELETED = ReturnCode_t.RETCODE_ALREADY_DELETED
- const ReturnCode_t RETCODE_TIMEOUT = ReturnCode_t.RETCODE_TIMEOUT
- const ReturnCode_t RETCODE_NO_DATA = ReturnCode_t.RETCODE_NO_DATA
- const DomainParticipantQos PARTICIPANT_QOS_DEFAULT = null
- const TopicQos TOPIC_QOS_DEFAULT = null
- const PublisherQos PUBLISHER_QOS_DEFAULT = null
- const SubscriberQos SUBSCRIBER_QOS_DEFAULT = null
- const DataWriterQos DATAWRITER_QOS_DEFAULT = null
- const DataReaderQos DATAREADER_QOS_DEFAULT = null

Static Public Attributes

- static readonly InstanceHandle_t HANDLE_NIL = new InstanceHandle_t((IntPtr)0)

3.9.1 Detailed Description

The 'DDS' class includes several convient constants.

3.9.2 Member Data Documentation

3.9.2.1 const uint ALIVE_INSTANCE_STATE = 0x0001

3.9.2.2 const uint ALL_STATUS = 0xffff

3.9.2.3 const uint ANY_INSTANCE_STATE = 0x00FF

3.9.2.4 const uint ANY_SAMPLE_STATE = 0x00FF

3.9.2.5 const uint ANY_VIEW_STATE = 0x00FF

3.9.2.6 const uint DATA_AVAILABLE_STATUS = 0x0400

3.9.2.7 const uint DATA_ON_READERS_STATUS = 0x0200

3.9.2.8 const DataReaderQos DATAREADER_QOS_DEFAULT = null

3.9.2.9 const DataWriterQos DATAWRITER_QOS_DEFAULT = null

3.9.2.10 const QosPolicyId_t DEADLINE_QOS_POLICY_ID = QosPolicyId_t.DEADLINE_QOS_-POLICY_ID

3.9.2.11 const QosPolicyId_t DESTINATIONORDER_QOS_POLICY_ID = QosPolicyId_t.DESTINATIONORDER_QOS_POLICY_ID

3.9.2.12 const QosPolicyId_t DURABILITY_QOS_POLICY_ID = QosPolicyId_t.DURABILITY_-QOS_POLICY_ID

3.9.2.13 const QosPolicyId_t DURABILITYSERVICE_QOS_POLICY_ID = QosPolicyId_t.DURABILITYSERVICE_QOS_POLICY_ID

3.9.2.14 const uint DURATION_INFINITE_NSEC = 0xffffffff

3.9.2.15 const int DURATION_INFINITE_SEC = 0x7fffffff

3.9.2.16 const int DURATION_ZERO_NSEC = 0

3.9.2.17 const int DURATION_ZERO_SEC = 0

3.9.2.18 const QosPolicyId_t ENTITYFACTORY_QOS_POLICY_ID = QosPolicyId_t.ENTITYFACTORY_QOS_POLICY_ID

3.9.2.19 const QosPolicyId_t GROUPDATA_QOS_POLICY_ID = QosPolicyId_t.GROUPDATA_-QOS_POLICY_ID

3.9.2.20 readonly InstanceHandle_t HANDLE_NIL = new InstanceHandle_t((IntPtr)0) [static]

3.9.2.21 const QosPolicyId_t HISTORY_QOS_POLICY_ID = QosPolicyId_t.HISTORY_QOS_-POLICY_ID

3.9.2.22 const uint INCONSISTENT_TOPIC_STATUS = 0x0001

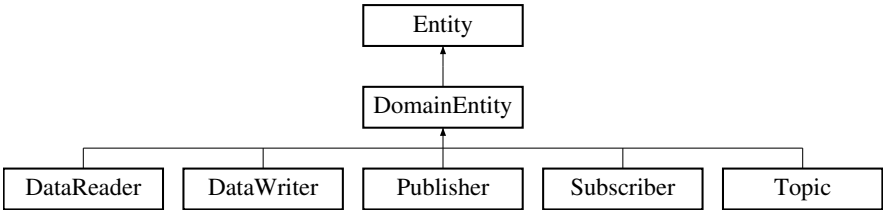
3.9.2.23 const QosPolicyId_t LATENCYBUDGET_QOS_POLICY_ID = QosPolicyId_t.LATENCYBUDGET_QOS_POLICY_ID

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.10 DomainEntity Class Reference

Base class for all DDS Domain Entities.

Inheritance diagram for DomainEntity:



3.10.1 Detailed Description

Base class for all DDS Domain Entities.

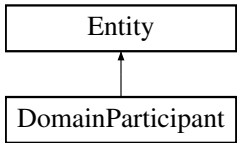
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/entity.cs

3.11 DomainParticipant Class Reference

The DomainParticipant is used to configure, create and destroy Publisher, Subscriber and Topic objects.

Inheritance diagram for DomainParticipant:



Public Member Functions

- override ReturnCode_t enable ()

  Enables the DomainParticipant.

- override InstanceHandle_t get_instance_handle ()
- ReturnCode_t get_qos (DomainParticipantQos qos)
- ReturnCode_t set_qos (DomainParticipantQos qos)
- ReturnCode_t set_listener (DomainParticipantListener new_listener, uint mask)
- DomainParticipantListener get_listener ()
- Publisher create_publisher (PublisherQos qos, PublisherListener listener, uint mask)
- ReturnCode_t delete_publisher (Publisher p)
- Subscriber create_subscriber (SubscriberQos qos, SubscriberListener listener, uint mask)
- ReturnCode_t delete_subscriber (Subscriber s)
- Topic create_topic (string topic_name, string type_name, TopicQos qos, TopicListener listener, uint mask)
- ReturnCode_t delete_topic (Topic topic)
- ContentFilteredTopic create_contentfilteredtopic (String name, Topic related_topic, String filter_expression, List< String > filter_parameters)
- ReturnCode_t delete_contentfilteredtopic (ContentFilteredTopic cft)
- MultiTopic create_multitopic (String name, String type_name, String subscription_expression, List< String > expression_params)
- ReturnCode_t delete_multitopic (MultiTopic a_multitopic)
- Topic find_topic (String topic_name, Duration_t timeout)
- TopicDescription lookup_topicdescription (String name)
- Subscriber get_builtin_subscriber ()
- ReturnCode_t ignore_participant (InstanceHandle_t handle)
- ReturnCode_t ignore_topic (InstanceHandle_t handle)
- ReturnCode_t ignore_publication (InstanceHandle_t handle)
- ReturnCode_t ignore_subscription (InstanceHandle_t handle)

- long get_domain_id ()
- ReturnCode_t delete_contained_entities ()
- ReturnCode_t assert_liveliness ()
- ReturnCode_t set_default_publisher_qos (PublisherQos qos)
- ReturnCode_t get_default_publisher_qos (PublisherQos qos)
- ReturnCode_t set_default_subscriber_qos (SubscriberQos qos)
- ReturnCode_t get_default_subscriber_qos (SubscriberQos qos)
- ReturnCode_t set_default_topic_qos (TopicQos qos)
- ReturnCode_t get_default_topic_qos (TopicQos qos)
- ReturnCode_t get_discovered_participants (List< InstanceHandle_t > participant_handles)
- ReturnCode_t get_discovered_participant_data (ParticipantBuiltinTopicData participant_data, InstanceHandle_t participant_handle)
- ReturnCode_t get_discovered_topics (List< InstanceHandle_t > topic_handles)
- ReturnCode_t get_discovered_topic_data (TopicBuiltinTopicData topic_data, InstanceHandle_t topic_handle)
- bool contains_entity (InstanceHandle_t handle)
- ReturnCode_t get_current_time (Time_t current_time)

3.11.1 Detailed Description

The DomainParticipant is used to configure, create and destroy Publisher, Subscriber and Topic objects. The DomainParticipant is a container for the objects that it creates. The objects operate within the **domain** identified by the **domain_id** provided when the DomainParticipant was created. Objects within different **domains** do not communicate or interfere with each other.

3.11.2 Member Function Documentation

3.11.2.1 ReturnCode_t assert_liveliness ( ) [inline]

This operation manually asserts the liveliness of the DomainParticipant **dp.** This operation indicates that the DomainParticipant is still alive. It is effective only if the DomainParticipant contains on ore more DataWriter objects with LIVELINES QoS set to MANUAL_BY_PARTICIPANT_LIVELINESS_QOS. In this case, the operation will assert the liveliness of those particular DataWriter objects.

Writing data via the DataWriter **write** operation automatically asserts the liveliness of the DataWriter and its containing DomainParticipant. Therefore, the use of DomainParticipant.assert_liveliness() is needed only if the application is not writing data frequently enough to keep the DataWriter considered 'alive'.

3.11.2.2 bool contains_entity (InstanceHandle_t *handle*) [inline]

This operation checks whether or not the given handle **a_handle** represents an object that was created by the DomainParticipant **d.** This applies recursively to all objects created by the DomainParticipant.

The routine will return true (non-zero) if the handle is found, zero otherwise.

3.11.2.3 ContentFilteredTopic create_contentfilteredtopic (String *name,* Topic *related_topic,* String *filter_expression,* List< String > *filter_parameters*) [inline]

This operation creates a ContentFilteredTopic.

The ContentFilteredTopic is associated with another un-filtered topic **related_topic.**

The **filter_expression** is an SQL like condition expression, and **filter_parameters** provide optional parameters that are referenced by the **filter_expression.** The syntax of the filter expression is similar to the WHERE clause in SQL. For example "x<4" is a valid filter expression. It would test that data member 'x' is less than value '4'. If the filter expression evaluates to TRUE, then the data sample will be available, otherwise the data sample would be 'filtered' (excluded).

The filter_expression can refer to parameters. The syntax for paramters is the percent sign '' followed by a number. The number is the index of the paramter in the **filter_paramters** sequence. Parameters are counted starting at zero. So, "%0" refers to the first parameter, and "%4" refers to the fifth paramter. Using this syntax, the expression "x<%0" would test the value of 'x' against the first parameter in the sequence.

3.11.2.4 MultiTopic create_multitopic (String *name,* String *type_name,* String *subscription_expression,* List< String > *expression_params*) [inline]

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.5 Publisher create_publisher (PublisherQos *qos,* PublisherListener *listener,* uint *mask*) [inline]

This operation creates a Publisher with the specified PublisherQoS settings and PublisherListener. The value **DDS.PUBLISHER_QOS_DEFAULT** may be provided for the **qos** argument. This will indicate that the the default publisher QoS settings held in the DomainParticipant should be used.

This operation may fail and return NULL if the QoS settings are internally inconsistent.

3.11.2.6 Subscriber create_subscriber (SubscriberQos *qos,* SubscriberListener *listener,* uint *mask*) [inline]

This operation creates a Subscriber with the specified SubscriberQos and SubscriberListener. The value **DDS.SUBSCRIBER_QOS_DEFAULT** may be provided for the **qos** argument. This will indicate that the the default subscriber QoS settings held in the DomainParticipant should be used.

This operation may fail and return NULL if the QoS settings are internally inconsistent.

3.11.2.7 Topic create_topic (string *topic_name,* string *type_name,* TopicQos *qos,* TopicListener *listener,* uint *mask*) [inline]

This operation creates a Topic with the specified TopicQos settings and TopicListener.

The value **DDS.TOPIC_QOS_DEFAULT** may be provided for the **qos** argument. This will indicate that the the default topic QoS settings held in the DomainParticipant should be used.

The topic is created with a reference to the data type indicated by the **type_name** argument. The data type must have been registered with the DomainParticipant (by a call to **register_type()** on the appropriate **TypeSupport** object) prior to calling **create_topic().**

This operation may fail and return NULL if the QoS settings are internally inconsistent.

The topic returned from this operation (if not NULL) must be deleted by calling DomainParticipant.delete_topic().

3.11.2.8 ReturnCode_t delete_contained_entities ( ) [inline]

This operation deletes all the objects created by means of the **create** operations on DomainParticipant **dp.** This routine will recursively call the corresponding delete_contained_entities() operation on each of the contained objects (Publishers, Subscribers, Topics, ContentFilteredTopics, and MultiTopics). If successful, this operation will recursively delete all objects contained with this DomainParticipant. After successful execution, the application may delete the DomainParticipant by calling DomainParticipantFactory.delete_participant().

If any of the objects cannot be deleted, this routine will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

3.11.2.9 ReturnCode_t delete_contentfilteredtopic (ContentFilteredTopic *cft*) [inline]

This operation deletes a previously allocated ContentFilteredTopic. This operation will fail if there are any DataReader, DataWriter, ContentFilteredTopic, or MultiTopic objects that reference the specified Topic. In this case, the operation will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

The Topic must be owned by DomainPartipant **dp;** otherwise ReturnCode_t.RETCODE_PRECONDITION_NOT_MET will be returned.

3.11.2.10 ReturnCode_t delete_multitopic (MultiTopic *a_multitopic*) [inline]

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.11 ReturnCode_t delete_publisher (Publisher *p*) [inline]

This operation deletes an existing Publisher. A Publisher cannot be deleted if it contains any DataWriter objects. In this case, **delete_publisher** will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

If the DomainParticipant **dp** does not contain the provided Publisher **p,** the operation will return **ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.**

3.11.2.12 ReturnCode_t delete_subscriber (Subscriber *s*) [inline]

This operation deletes an existing Subscriber. A Subscriber cannot be deleted if it contains any DataReader objects. In this case, **delete_subscriber** will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

If the DomainParticipant **dp** does not contain the provided Subscriber **s,** the operation will return **ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.**

3.11.2.13 ReturnCode_t delete_topic (Topic *topic*) [inline]

This operation deletes a Topic. This operation will fail if there are any DataReader, DataWriter, ContentFilteredTopic, or MultiTopic objects that reference the specified Topic. In this case, the operation will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

The Topic must be owned by DomainPartipant **dp;** otherwise ReturnCode_t.RETCODE_PRECONDITION_NOT_MET will be returned.

3.11.2.14 override ReturnCode_t enable ( ) [inline, virtual]

Enables the DomainParticipant.

This is crappy

A DomainParticipant is created either enabled or not based on the DomainParticipantFactoryQoS setting **entity_factory.** When a DomainPartcipant is not enabled, only the following sub-set of all DomainParticipant operations are legal:

- operations to get and set QoS policies,
- factory operations (create, delete),
- get_statuscondition(),
- get_status_changes(),
- lookup operations

Any other DomainParticipant operation will return the ReturnCode_t.RETCODE_NOT_ENABLED error. DomainParticipant.enable() may be called on an already enabled DomainParticipant [it will have no effect].

Reimplemented from Entity.

3.11.2.15 Topic find_topic (String *topic_name,* Duration_t *timeout*) [inline]

This operation returns a Topic identified by the provided **topic_name.** If a topic with name **topic_name** is known to exist, the function returns this matching topic immediately. Otherwise, the operation will block for up to the **timeout** duration. If a topic with name **topic_name** is discovered or otherwise created, the operation will cease to wait, and will return the matching topic.

If a matching topic is not known by the time the **timout** has expired, the operation will return NULL.

Like DomainParticipant_create_topic(), the topic returned from this operation (if not NULL) must be deleted by calling DomainParticipant.delete_topic().

3.11.2.16 Subscriber get_builtin_subscriber ( ) [inline]

Returns the built-in Subscriber.

Each DomainParticipant contains several built-in Topic objects as well as corresponding DataReader objects to access them. These built-in DataReader objects belong to the single built-in Subscriber that is accessed through this operation.

The built-in Topics are used to communicate information about other DomainParticipant, Topic, DataReader, and DataWriter objects.

An application should not explicitly delete the Subscriber returned by this operation - it is managed internally.

See also

ParticipantBuiltinTopicDataDataReader
PublicationBuiltinTopicDataDataReader
SubscriptionBuiltinTopicDataDataReader

3.11.2.17 ReturnCode_t get_current_time (Time_t *current_time*) [inline]

This operation returns the current value of the time used by the service.

3.11.2.18 ReturnCode_t get_default_publisher_qos (PublisherQos *qos*) [inline]

Provides access to the default PublisherQos settings held in the factory. The provided **qos** argument is populated with the default qos settings.

3.11.2.19 ReturnCode_t get_default_subscriber_qos (SubscriberQos *qos*) [inline]

Provides access to the default SubscriberQos settings held in the factory. The provided **qos** argument is populated with the default qos settings.

3.11.2.20 ReturnCode_t get_default_topic_qos (TopicQos *qos*) [inline]

Provides access to the default TopicQos settings held in the factory. The provided **qos** argument is populated with the default qos settings.

3.11.2.21 ReturnCode_t get_discovered_participant_data (ParticipantBuiltinTopicData *participant_data,* InstanceHandle_t *participant_handle*) [inline]

This operation returns data that describes a particular discovered participant identified by **participant_handle.** An appropriate handle can be obtained through a call to DomainParticipant.get_discovered_participants().

If **participant_handle** does not identify a known DomainParticipant, this routine will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

3.11.2.22 ReturnCode_t get_discovered_participants (List< InstanceHandle_t > *participant_handles*) [inline]

This operation returns the list of handles identifying the DomainParticipant objects that have been discovered. The returned list will include only participants which are in the same domain as participant **d,** and which are not explicitly ignored as a result of a call to DomainParticipant.ignore_participant().

3.11.2.23 ReturnCode_t get_discovered_topic_data (TopicBuiltinTopicData *topic_data,* InstanceHandle_t *topic_handle*) [inline]

This operation returns data that describes a particular discovered topic identified by **topic_handle.** An appropriate handle can be obtained through a call to DomainParticipant.get_discovered_topics().

If **topic_handle** does not identify a known Topic, this routine will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.24 ReturnCode_t get_discovered_topics (List< InstanceHandle_t > *topic_handles*) [inline]

This operation returns the list of handles identifying the Topic objects that have been discovered. The returned list will include only topics which are in the same domain as participant **d,** and which are not explicitly ignored as a result of a call to DomainParticipant.ignore_topic().

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.25 long get_domain_id ( ) [inline]

Gets the **domain_id** to which the DomainParticipant belongs.

3.11.2.26 override InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented from Entity.

3.11.2.27 DomainParticipantListener get_listener ( ) [inline]

This operation returns the currently installed DomainParticipantListener. Because the infrastructure makes a copy of the listener provided in DomainParticipant.set_listener(), the returned structure pointer will not match the pointer originally provided. However, the function pointers within the structure will match. Also, the application should not free the data referenced by the returned pointer.

3.11.2.28 ReturnCode_t get_qos (DomainParticipantQos *qos*) [inline]

Gets the DomainParticipantQoS settings of the DomainParticipant.

3.11.2.29 ReturnCode_t ignore_participant (InstanceHandle_t *handle*) [inline]

Instructs the DomainParticipant **dp** to ignore the external DomainParticipant identified by **handle.** This will cause the infrastructure to behave as if the external participant **handle** did not exist. The handle can be discovered by accessing the built-in topic **DCPSParticipant** via the appropriate built-in DataReader.

There is no mechanism to reverse this operation.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.30 ReturnCode_t ignore_publication (InstanceHandle_t *handle*) [inline]

This operation instructs the DomainParticipant **dp** to ignore a Publication identified by **handle.** The handle can be discovered by accessing the built-in topic **DCPSPublication** via the appropriate built-in DataReader.

There is no mechanism to reverse this operation.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.31 ReturnCode_t ignore_subscription (InstanceHandle_t *handle*) [inline]

This operation instructs the DomainParticipant **dp** to ignore a Subscription identified by **handle.** The handle can be discovered by accessing the built-in topic **DCPSSubscription** via the appropriate built-in DataReader.

There is no mechanism to reverse this operation.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.32 ReturnCode_t ignore_topic (InstanceHandle_t *handle*) [inline]

This operation instructs the DomainParticipant **dp** to ignore a Topic identified by **handle.** This can be used to save resources if a participant will never participate on certain Topics. The handle can be discovered by accessing the built-in topic **DCPSTopic** via the appropriate built-in DataReader.

There is no mechanism to reverse this operation.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.11.2.33 TopicDescription lookup_topicdescription (String *name*) [inline]

This operation returns an existing, locally-created TopicDescription, named **name.** If a TopicDescription named **name** does not exist, then this routine will return NULL.

3.11.2.34 ReturnCode_t set_default_publisher_qos (PublisherQos *qos*) [inline]

Sets the default PublisherQos held in the DomainParticipant. This default qos will be used during subsequent calls to DomainParticipant.create_publisher() if the special DDS.PUBLISHER_QOS_DEFAULT value is provided for **qos**. This routine may fail if the provided **qos** argument is not internally consistent. In this

case, ReturnCode_t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipant.

3.11.2.35 ReturnCode_t set_default_subscriber_qos (SubscriberQos *qos*) [inline]

Sets the default SubscriberQos held in the DomainParticipant. This default qos will be used during subsequent calls to DomainParticipant.create_subscriber() if the special DDS.SUBSCRIBER_QOS_DEFAULT value is provided for **qos**. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipant.

3.11.2.36 ReturnCode_t set_default_topic_qos (TopicQos *qos*) [inline]

Sets the default TopicQos held in the DomainParticipant. This default qos will be used during subsequent calls to DomainParticipant.create_topic() [and related] if the special DDS.TOPIC_QOS_DEFAULT value is provided for **qos**. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipant.

3.11.2.37 ReturnCode_t set_listener (DomainParticipantListener *new_listener,* uint *mask*) [inline]

This operation installs a DomainParticipantListener on the DomainParticipant. Only one listener may be attached to a DomainParticipant at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

The infrastructure will make an internal copy of the listener structure so that it need not be persisted by the application.

3.11.2.38 ReturnCode_t set_qos (DomainParticipantQos *qos*) [inline]

Sets the DomainParticipantQoS values. These QoS values affect the behavior of the DomainParticipant. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipant QoS.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/dp.cs

3.12 DomainParticipantFactory Class Reference

DomainParticipantFactory constructs DomainParticipants. The.

Public Member Functions

- DomainParticipant create_participant (uint domain_id, DomainParticipantQos qos, DomainParticipantListener listener, uint mask)

  This operation creates a new DomainParticipant object. The caller provides the domain_id to which the Participant should belong. The listener and mask arguments are used to specify a set of callback routines which will be invoked upon detection of certain events. The qos argument specifies the DomainParticipant Quality of Service settings that should be used when creating the DomainParticipant. It may be specified as DDS_PARTICIPANT_QOS_DEFAULT to instruct CoreDX to use the default qos settings held in the DomainParticipantFactory. This routine will return NULL if it fails to create a DomainParticipant.

Static Public Member Functions

- static DomainParticipantFactory get_instance ()

Properties

- static DomainParticipantFactory Instance `[get]`

Related Functions

(Note that these are not member functions.)

- ReturnCode_t delete_participant (DomainParticipant participant)

  Destroys the provided DomainParticipant.

- DomainParticipant lookup_participant (uint domain_id)

  *Returns a previously created DomainParticipant belonging to the specified **domain_id**.*

- ReturnCode_t set_default_participant_qos (DomainParticipantQos qos)

  Sets the default DDS_DomainParticipantQos held in the factory.

- ReturnCode_t get_default_participant_qos (DomainParticipantQos qos)

  Provides access to the default Participant qos held in the factory.

- ReturnCode_t set_qos (DomainParticipantFactoryQos qos)

Sets the DomainParticipantFactory QoS values.

- ReturnCode_t get_qos (DomainParticipantFactoryQos qos)
  Provides access to the QoS settings of the DomainParticipantFactory.

3.12.1 Detailed Description

DomainParticipantFactory constructs DomainParticipants. The. DomainParticipantFactory is used to configure, create and destroy DomainParticipant instances.

Author

Twin Oaks Computing, Inc

3.12.2 Member Function Documentation

3.12.2.1 DomainParticipant create_participant (uint *domain_id*, DomainParticipantQos *qos*, DomainParticipantListener *listener*, uint *mask*) [inline]

This operation creates a new DomainParticipant object. The caller provides the domain_id to which the Participant should belong. The listener and mask arguments are used to specify a set of callback routines which will be invoked upon detection of certain events. The qos argument specifies the DomainParticipant Quality of Service settings that should be used when creating the DomainParticipant. It may be specified as DDS_PARTICIPANT_QOS_DEFAULT to instruct CoreDX to use the default qos settings held in the DomainParticipantFactory. This routine will return NULL if it fails to create a DomainParticipant.

Returns

DomainParticipant

3.12.2.2 static DomainParticipantFactory get_instance ( ) [inline, static]

Get access to the singleton DomainParticipantFactory.

3.12.3 Friends And Related Function Documentation

3.12.3.1 ReturnCode_t delete_participant (DomainParticipant *participant*) [related]

Destroys the provided DomainParticipant.

This routine will fail if all Entities (Publishers, Subscribers, etc) created through the specified DomainParticipant have not yet been deleted. (In this case, DDS_RETCODE_PRECONDITION_NOT_MET will be returned.)

3.12.3.2 ReturnCode_t get_default_participant_qos (DomainParticipantQos *qos*) [related]

Provides access to the default Participant qos held in the factory.

The provided **qos** argument is populated with the default qos settings.

3.12.3.3 DomainParticipant lookup_participant (uint *domain_id*) [related]

Returns a previously created DomainParticipant belonging to the specified **domain_id**.

If there are multiple DomainParticipants in existence within the specified domain, one of them will be returned.

3.12.3.4 ReturnCode_t set_default_participant_qos (DomainParticipantQos *qos*) [related]

Sets the default DDS_DomainParticipantQos held in the factory.

This default qos will be used during subsequent calls to DDS_DomainParticipantFactory_create_participant() if the special DDS_PARTICIPANT_QOS_DEFAULT value is provided for **qos**.

This routine may fail if the provided **qos** argument is not internally consistent. In this case, DDS_-INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipantFactory.

3.12.3.5 ReturnCode_t set_qos (DomainParticipantFactoryQos *qos*) [related]

Sets the DomainParticipantFactory QoS values.

These QoS values affect the behavior of the factory.

This routine may fail if the provided **qos** argument is not internally consistent. In this case, DDS_-INCONSISTENT_POLICY will be returned, and no changes will be made to the DomainParticipantFactory.

3.12.4 Property Documentation

3.12.4.1 DomainParticipantFactory Instance [static, get]

A C# style property with accessor. use it like this: DomainParticipantFactory.Instance.create_participant()

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/dpf.cs

3.13 DomainParticipantFactoryQos Class Reference

Structure that holds DomainParticipantFactory Quality of Service policies.

Public Attributes

- EntityFactoryQosPolicy entity_factory

3.13.1 Detailed Description

Structure that holds DomainParticipantFactory Quality of Service policies.

See also

DomainParticipantFactory::set_qos()
DomainParticipantFactory::get_qos()

3.13.2 Member Data Documentation

3.13.2.1 EntityFactoryQosPolicy entity_factory

Controls the behavior of the DomainParticipant 'create' operations.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.14 DomainParticipantListener Class Reference

The DomainParticipantListener provides asynchronous notification of DomainParticipant events.

Public Attributes

- inconsistent_topic_delegate on_inconsistent_topic
- offered_deadline_missed_delegate on_offered_deadline_missed
- offered_incompatible_qos_delegate on_offered_incompatible_qos
- liveliness_lost_delegate on_liveliness_lost
- publication_matched_delegate on_publication_matched
- requested_deadline_missed_delegate on_requested_deadline_missed
- requested_incompatible_qos_delegate on_requested_incompatible_qos
- sample_rejected_delegate on_sample_rejected
- liveliness_changed_delegate on_liveliness_changed
- data_available_delegate on_data_available
- subscription_matched_delegate on_subscription_matched
- sample_lost_delegate on_sample_lost
- data_on_readers_delegate on_data_on_readers

3.14.1 Detailed Description

The DomainParticipantListener provides asynchronous notification of DomainParticipant events. This listener can be installed during DomainParticipant creation, DomainParticipantFactory.create_participant(), as well as by calling DomainParticipantset_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.14.2 Member Data Documentation

3.14.2.1 data_available_delegate on_data_available

3.14.2.2 data_on_readers_delegate on_data_on_readers

3.14.2.3 inconsistent_topic_delegate on_inconsistent_topic

3.14.2.4 liveliness_changed_delegate on_liveliness_changed

3.14.2.5 liveliness_lost_delegate on_liveliness_lost

3.14.2.6 offered_deadline_missed_delegate on_offered_deadline_missed

3.14.2.7 offered_incompatible_qos_delegate on_offered_incompatible_qos

3.14.2.8 publication_matched_delegate on_publication_matched

3.14.2.9 requested_deadline_missed_delegate on_requested_deadline_missed

3.14.2.10 requested_incompatible_qos_delegate on_requested_incompatible_qos

3.14.2.11 sample_lost_delegate on_sample_lost

3.14.2.12 sample_rejected_delegate on_sample_rejected

3.14.2.13 subscription_matched_delegate on_subscription_matched

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.15 DomainParticipantQos Class Reference

Structure that holds DomainParticipant Quality of Service policies.

Public Attributes

- UserDataQosPolicy user_data
- EntityFactoryQosPolicy entity_factory

3.15.1 Detailed Description

Structure that holds DomainParticipant Quality of Service policies.

See also

DomainParticipant::set_qos()
DomainParticipant::get_qos()
DomainParticipantFactory::create_participant()
DomainParticipantFactory::set_default_participant_qos()
DomainParticipantFactory::get_default_participant_qos()

3.15.2 Member Data Documentation

3.15.2.1 EntityFactoryQosPolicy entity_factory

Controls the behavior of the DomainParticipant **create** operations.

3.15.2.2 UserDataQosPolicy user_data

A sequence of octets associated with a DomainParticipant.

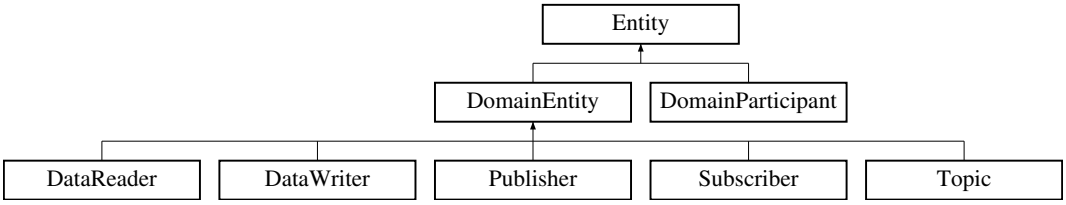
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.16 Entity Class Reference

Base class for all DDS Entities.

Inheritance diagram for Entity:



Public Member Functions

- virtual StatusCondition get_statuscondition ()
- virtual uint get_status_changes ()
- virtual ReturnCode_t enable ()
- virtual InstanceHandle_t get_instance_handle ()

3.16.1 Detailed Description

Base class for all DDS Entities.

3.16.2 Member Function Documentation

3.16.2.1 virtual ReturnCode_t enable ( ) [inline, virtual]

Enable this Entity. An Entity will begin to communicate only after it is enabled.

Reimplemented in DomainParticipant, DataReader, DataWriter, Publisher, and Subscriber.

3.16.2.2 virtual InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented in DomainParticipant, DataReader, DataWriter, Publisher, and Subscriber.

3.16.2.3 virtual uint get_status_changes ( ) [inline, virtual]

Gets the current status changes from this Entity.

3.16.2.4 virtual StatusCondition get_statuscondition ( ) [inline, virtual]

Gets the StatusCondition associated with this Entity.

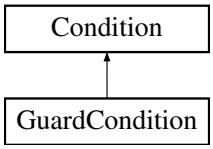
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/entity.cs

3.17 GuardCondition Class Reference

A GuardCondition is a Condition where the **trigger_value** is under application control.

Inheritance diagram for GuardCondition:



Public Member Functions

- GuardCondition ()

3.17.1 Detailed Description

A GuardCondition is a Condition where the **trigger_value** is under application control.

3.17.2 Constructor & Destructor Documentation

3.17.2.1 GuardCondition ( ) `[inline]`

This routine creates a GuardCondition.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/cond.cs

3.18 InconsistentTopicStatus Class Reference

Status related to the on_inconsistent_topic listener methods of the TopicListener structure.

Public Attributes

- int total_count

  Cummulative count of the discovered Topics having a matching name and inconsistent characteristics.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

3.18.1 Detailed Description

Status related to the on_inconsistent_topic listener methods of the TopicListener structure.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.19 LivelinessChangedStatus Class Reference

Status related to the on_liveliness_changed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int alive_count

  The number of 'active' DataWriters matched to this DataReader.

- int not_alive_count

  The number of 'not-alive' DataWriters matched to this DataReader.

- int alive_count_change

  *Change in **alive_count** since the last time the listener was called or status was read.*

- int not_alive_count_change

  *Change in **not_alive_count** since the last time the listener was called or status was read.*

- InstanceHandle_t last_publication_handle

  Handle identifying the most recent DataWriter whose liveliness changed.

3.19.1 Detailed Description

Status related to the on_liveliness_changed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.20 LivelinessLostStatus Class Reference

Status related to the on_liveliness_lost listener methods of the DataWriter, Publisher, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative number of times that an 'alive' DataWriter became not alive.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

3.20.1 Detailed Description

Status related to the on_liveliness_lost listener methods of the DataWriter, Publisher, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.21 OfferedDeadlineMissedStatus Class Reference

Status related to the on_offered_deadline_missed listener methods of the DataWriter, Publisher, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of deadlines missed by this DataWriter.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- InstanceHandle_t last_instance_handle

  Handle identifying the most recent instance whose deadline was missed.

3.21.1 Detailed Description

Status related to the on_offered_deadline_missed listener methods of the DataWriter, Publisher, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.22 OfferedIncompatibleQosStatus Class Reference

Status related to the on_offered_incompatible_qos listener methods of the DataWriter, Publisher, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of DataWriters discovered having matching Topic and incompatible QoS.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- QosPolicyId_t last_policy_id

  Id of the most recent requested incompatible QoS policy.

- QosPolicyCount[ ] policies

  A list of QoS policies and the total number of times each QoS policy was found to be incompatible.

3.22.1 Detailed Description

Status related to the on_offered_incompatible_qos listener methods of the DataWriter, Publisher, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.23 PublicationMatchedStatus Class Reference

Status related to the on_publication_matched listener methods of the DataWriter, Publisher, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of times this DataWriter has discovered a matching DataReader.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- int current_count

  The current number of DataReaders matched to the DataWriter.

- int current_count_change

  *Change in **current_count** since the last time the listener was called or status was read.*

3.23.1 Detailed Description

Status related to the on_publication_matched listener methods of the DataWriter, Publisher, and DomainParticipant structures.

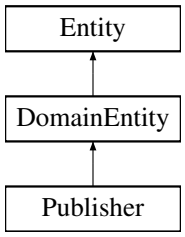
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.24 Publisher Class Reference

The Publisher configures, creates, manages and destroys DataWriters.

Inheritance diagram for Publisher:



Public Member Functions

- override ReturnCode_t enable ()
- override InstanceHandle_t get_instance_handle ()
- DomainParticipant get_participant ()
- DataWriter create_datawriter (Topic topic, DataWriterQos dw_qos, DataWriterListener listener, uint mask)
- ReturnCode_t delete_datawriter (DataWriter datawriter)
- ReturnCode_t delete_contained_entities ()
- DataWriter lookup_datawriter (String topic_name)
- ReturnCode_t set_qos (PublisherQos qos)
- ReturnCode_t get_qos (PublisherQos qos)
- ReturnCode_t set_listener (PublisherListener new_listener, uint mask)
- PublisherListener get_listener ()
- ReturnCode_t suspend_publications ()
- ReturnCode_t resume_publications ()
- ReturnCode_t begin_coherent_changes ()
- ReturnCode_t end_coherent_changes ()
- ReturnCode_t wait_for_acknowledgments (Duration_t max_wait)

  Block until all writers contained by this publisher have received acknowledgements.

- ReturnCode_t set_default_datawriter_qos (DataWriterQos qos)
- ReturnCode_t get_default_datawriter_qos (DataWriterQos qos)
- ReturnCode_t copy_from_topic_qos (DataWriterQos qos, TopicQos topic_qos)

3.24.1 Detailed Description

The Publisher configures, creates, manages and destroys DataWriters.

3.24.2 Member Function Documentation

3.24.2.1 ReturnCode_t begin_coherent_changes ( ) [inline]

Not Yet Supported

This operation is not yet implemented.

3.24.2.2 ReturnCode_t copy_from_topic_qos (DataWriterQos *qos*, TopicQos *topic_qos*) [inline]

This operation copies the QoS settings in **a_topic_qos** to the corresponding settings in **a_datawriter_qos.** The **a_datawriter_qos** parameter is populated with a copy of the QoS policies from the **a_topic_qos** structure. QoS entries in the datawriter qos structure will be overwritten with the values from the topic.

3.24.2.3 DataWriter create_datawriter (Topic *topic*, DataWriterQos *dw_qos*, DataWriterListener *listener*, uint *mask*) [inline]

This operation creates a DataWriter. The created DataWriter is contained within the Publisher **p.** It is associated with the Topic, ContentFilteredTopic, or MultiTopic indicated by **a_topic,** and has the DataWriterQos indicated by **qos.** The **qos** argument may be passed DDS.DATAWRITER_QOS_DEFAULT, which indicates that the Publisher should use its currently configured default data writer QoS values. The DataWriterListener **a_listener,** is installed at creation time.

The created DataWriter (if not NULL) must be destroyed by a call to Publisher.delete_datawriter().

This routine will fail if the provided QoS settings are internally inconsistent. In this case, the routine will return **NULL.**

3.24.2.4 ReturnCode_t delete_contained_entities ( ) [inline]

This operation deletes all the DataWriters created by means of the Publisher.create_datawriter() operation on the Publisher **p.** This routine will recursively call the corresponding delete_contained_entities() operation on each of the contained DataWriter objects. After successful execution, the application may delete the Publisher by calling DomainParticipant.delete_publisher().

If any of the objects cannot be deleted, this routine will return ReturnCode_t.RETCODE_-PRECONDITION_NOT_MET.

3.24.2.5 ReturnCode_t delete_datawriter (DataWriter *datawriter*) [inline]

This operation deletes a DataWriter. If the provided DataWriter **a_datawriter** was not created by Publisher **p,** the routine will fail and will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET.

3.24.2.6 override ReturnCode_t enable ( ) [inline, virtual]

Enables the Publisher. A Publisher is created either enabled or not based on the DomainParticipantQos setting **entity_factory.** When a Publisher is not enabled, only the following sub-set of all Publisher operations are legal:

- operations to get and set QoS policies,
- factory operations (create, delete),
- get_statuscondition(),
- get_status_changes(),
- lookup operations

Any other operation may return the ReturnCode_t.RETCODE_NOT_ENABLED error. Publisher_enable() may be called on an already enabled Subscriber [it will have no effect].

Reimplemented from Entity.

3.24.2.7 ReturnCode_t end_coherent_changes ( ) [inline]

Not Yet Supported

This operation is not yet implemented.

3.24.2.8 ReturnCode_t get_default_datawriter_qos (DataWriterQos *qos*) [inline]

Provides access to the default DataWriterQos settings held in the Publisher **p.** The provided **qos** argument is populated with the current default qos settings.

3.24.2.9 override InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented from Entity.

3.24.2.10 PublisherListener get_listener ( ) [inline]

This operation returns the currently installed PublisherListener.

3.24.2.11 DomainParticipant get_participant ( ) [inline]

This operation returns the DomainParticipant this Publisher belongs to.

3.24.2.12 ReturnCode_t get_qos (PublisherQos *qos*) [inline]

Returns the current PublisherQos settings held in the Publisher **p.** The **qos** parameter is populated with a copy of the current Publisher QoS properties.

3.24.2.13 DataWriter lookup_datawriter (String *topic_name*) [inline]

This operation retrieves a previously-created DataWriter contained in the Publisher, attached to a Topic named **topic_name.** If multiple DataWriters are found, one of them will be returned. If no matching DataWriter is found, this routine will return **NULL.**

3.24.2.14 ReturnCode_t resume_publications ( ) [inline]

Not Yet Supported

This operation is not yet implemented.

3.24.2.15 ReturnCode_t set_default_datawriter_qos (DataWriterQos *qos*) [inline]

Sets the default DataWriterQos held in the Publisher. This default qos will be used during subsequent calls to Publisher.create_datawriter() if the special DDS.DATAWRITER_QOS_DEFAULT value is provided for **qos**. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_-t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the Publisher.

3.24.2.16 ReturnCode_t set_listener (PublisherListener *new_listener,* uint *mask*) [inline]

Installs a PublisherListener on Publisher **p.** Only one listener may be attached to a Publisher at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

3.24.2.17 ReturnCode_t set_qos (PublisherQos *qos*) [inline]

Sets the PublisherQos values. These QoS values affect the behavior of the Publisher. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_-INCONSISTENT_POLICY will be returned, and no changes will be made to the Publisher QoS.

3.24.2.18 ReturnCode_t suspend_publications ( ) [inline]

Not Yet Supported

This operation is not yet implemented.

3.24.2.19 ReturnCode_t wait_for_acknowledgments (Duration_t *max_wait*) [inline]

Block until all writers contained by this publisher have received acknowledgements.

This routine will block until all data written by contained writers has been acknowledged, or until the 'max_wait' duration has passed. 'max_wait' can be set to INFINITE, in which case this routine may block indefinitely.

Return values

DDS_RETCODE_TIME_OUT returned if 'max_wait' passes before all acks are received

DDS_RETCODE_OK returned if all acks have been received before 'max_wait'

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/pub.cs

3.25 PublisherListener Class Reference

The PublisherListener provides asynchronous notification of Publisher events.

Public Attributes

- offered_deadline_missed_delegate on_offered_deadline_missed
- offered_incompatible_qos_delegate on_offered_incompatible_qos
- liveliness_lost_delegate on_liveliness_lost
- publication_matched_delegate on_publication_matched

3.25.1 Detailed Description

The PublisherListener provides asynchronous notification of Publisher events. This listener can be installed during Publisher creation DomainParticipant.create_publisher(), as well as by calling Publisher.set_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.25.2 Member Data Documentation

3.25.2.1 liveliness_lost_delegate on_liveliness_lost

3.25.2.2 offered_deadline_missed_delegate on_offered_deadline_missed

3.25.2.3 offered_incompatible_qos_delegate on_offered_incompatible_qos

3.25.2.4 publication_matched_delegate on_publication_matched

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.26 PublisherQos Class Reference

Structure that holds Publisher Quality of Service policies.

Public Attributes

- PresentationQosPolicy presentation
- PartitionQosPolicy partition
- GroupDataQosPolicy group_data
- EntityFactoryQosPolicy entity_factory

3.26.1 Detailed Description

Structure that holds Publisher Quality of Service policies.

See also

Publisher::set_qos()
Publisher::get_qos()
DomainParticipant::create_publisher()
DomainParticipant::set_default_publisher_qos()
DomainParticipant::get_default_publisher_qos()

3.26.2 Member Data Documentation

3.26.2.1 EntityFactoryQosPolicy entity_factory

Controls the behavior of the Publisher_create_datawriter() operation.

3.26.2.2 GroupDataQosPolicy group_data

A sequence of octets associated with the Publisher.

3.26.2.3 PartitionQosPolicy partition

Establishes a logical data partition. DataWriters and DataReaders that are 'in' the same partition (ie, the partition of the containing Publisher and Subscriber match) can communicate. If the partitions do not match, then they cannot communicate.

3.26.2.4 PresentationQosPolicy presentation

Controls the presentation of groups of changes.

See also

Publisher::begin_coherent_changes() begin_coherent_changes()
Publisher::end_coherent_changes() end_coherent_changes()
Subscriber::begin_access() begin_access()
Subscriber::end_access() end_access()

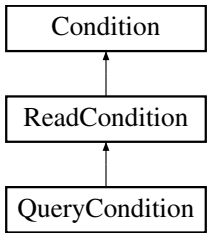
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.27 QueryCondition Class Reference

The **trigger_value** is driven by the data available, after applying the filter, in the associated DataReader.

Inheritance diagram for QueryCondition:



Public Member Functions

- String get_query_expression ()

  Provides access to the query expression.

- ReturnCode_t get_query_parameters (List< String > qparams)

  Provides access to the parameters of the query expression.

- ReturnCode_t set_query_parameters (List< String > parameters)

  Modifies the parameters of the query expression.

3.27.1 Detailed Description

The **trigger_value** is driven by the data available, after applying the filter, in the associated DataReader. CoreDX DDS fully supports QueryConditions as an argument to DataReader::read_w_condition() and DataReader::take_w_conditions()

See also

DataReader::create_querycondition()
FooDataReader::read_w_condition()
FooDataReader::take_w_condition()

Not Yet Supported

CoreDX DDS does not yet support QueryConditions as triggers for a WaitSet.

3.27.2 Member Function Documentation

3.27.2.1 String get_query_expression ( ) [inline]

Provides access to the query expression.

The query expression is an SQL syntax conditional expression that is provided when the QueryCondition is created.

See also

DataReader::create_querycondition()

3.27.2.2 ReturnCode_t get_query_parameters (List< String > *qparams*) [inline]

Provides access to the parameters of the query expression.

The query expression is an SQL syntax conditional expression that is provided when the QueryCondition is created. The query expression may contain references to positional parameters of the form '0', '1'. These parameters can be changed dynamically to affect the expression.

See also

DataReader::create_querycondition()
QueryCondition::set_query_parameters()

3.27.2.3 ReturnCode_t set_query_parameters (List< String > *parameters*) [inline]

Modifies the parameters of the query expression.

The **query_expression** is an SQL like condition expression, and the **parameters** argument provides optional parameters that are referenced by the **query_expression**. The syntax for refering to paramters in a query_-expression is the percent sign " followed by a number. The number is the index of the paramter in the **query_paramters** sequence. Parameters are counted starting at zero. So, "%0" refers to the first parameter, and "%4" refers to the fifth paramter. Using this syntax, the expression "x<%0" would test the value of 'x' against the first parameter in the sequence.

This routine allows the parameters to be changed dynamically.

See also

DataReader::create_querycondition()

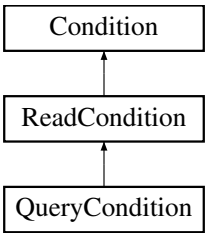
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/cond.cs

3.28 ReadCondition Class Reference

A ReadCondition is a specialized Condition associated with a DataReader.

Inheritance diagram for ReadCondition:



Public Member Functions

- uint get_sample_state_mask ()
- uint get_view_state_mask ()
- uint get_instance_state_mask ()
- DataReader get_datareader ()

3.28.1 Detailed Description

A ReadCondition is a specialized Condition associated with a DataReader. The **trigger_value** is driven by the data available in the associated DataReader. A ReadCondition is obtained by calling the DataReader_-create_readcondition() function. When the ReadCondition is no longer needed, it should be destroyed by a call to DataReader.delete_readcondition().

See also

DataReader::create_readcondition(long sample_states, long view_states, long instance_states)
DataReader::delete_readcondition(ReadCondition)

3.28.2 Member Function Documentation

3.28.2.1 DataReader get_datareader ( ) [inline]

Gets the single DataReader associated with this ReadCondition.

3.28.2.2 uint get_instance_state_mask ( ) [inline]

Gets the current value of the instance_state_mask in this ReadCondition.

3.28.2.3 uint get_sample_state_mask ( ) [inline]

Gets the current value of the sample_state_mask in this ReadCondition.

3.28.2.4 uint get_view_state_mask ( ) [inline]

Gets the current value of the view_state_mask in this ReadCondition.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/cond.cs

3.29 RequestedDeadlineMissedStatus Class Reference

Status related to the on_requested_deadline_missed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of detected deadline misses for any instance read by the DataReader.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- InstanceHandle_t last_instance_handle

  Handle identifying the most recent instance whose deadline was missed.

3.29.1 Detailed Description

Status related to the on_requested_deadline_missed listener methods of the DataReader, Subscriber, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.30 RequestedIncompatibleQosStatus Class Reference

Status related to the on_requested_incompatible_qos listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of discovered DataReaders having matching Topic and incompatible QoS.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- QosPolicyId_t last_policy_id

  Handle identifying the most recent QoS policy detected to be incompatible.

- QosPolicyCount[ ] policies

  A list of QoS policies and the total number of times each QoS policy was found to be incompatible.

3.30.1 Detailed Description

Status related to the on_requested_incompatible_qos listener methods of the DataReader, Subscriber, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.31 SampleInfo Class Reference

The SampleInfo structure contains information associated with each Sample. The DataReader.read() and take() operations return two vectors. One vector contains Sample(s) and the other contains SampleInfo(s). There is a one-to-one correspondence between items in these two vectors. Each Sample is described by the corresponding SampleInfo instance.

Public Attributes

- uint sample_state
- uint view_state
- uint instance_state
- Time_t source_timestamp
- Time_t reception_timestamp
- InstanceHandle_t instance_handle
- InstanceHandle_t publication_handle
- int disposed_generation_count
- int no_writers_generation_count
- int sample_rank
- int generation_rank
- int absolute_generation_rank
- bool valid_data

3.31.1 Detailed Description

The SampleInfo structure contains information associated with each Sample. The DataReader.read() and take() operations return two vectors. One vector contains Sample(s) and the other contains SampleInfo(s). There is a one-to-one correspondence between items in these two vectors. Each Sample is described by the corresponding SampleInfo instance.

3.31.2 Member Data Documentation

3.31.2.1 int absolute_generation_rank

The generation difference between this sample and the most recent sample. The **absolute_generation_rank** indicates the generation difference (ie, the number of times the instance was disposed and became alive again) between this sample, and the most recent sample (possibly not in the returned collection) of this instance.

3.31.2.2 int disposed_generation_count

The number of times the instance has become 'ALIVE' after being explicitly disposed. (Computed at the time the sample arrives at the DataReader.)

3.31.2.3 int generation_rank

The generation difference of this sample and the most recent sample in the collection. **generation_rank** indicates the generation difference (ie, the number of times the instance was disposed and became alive again) between this sample, and the most recent sample in the collection related to this instance.

3.31.2.4 InstanceHandle_t instance_handle

The handle that locally identifies the associated instance.

3.31.2.5 uint instance_state

Indicates whether the associated instance currently exists. **instance_state** can be one of:

DDS.ALIVE_INSTANCE_STATE

DDS.NOT_ALIVE_DISPOSED_INSTANCE_STATE

DDS.NOT_ALIVE_NO_WRITERS_INSTANCE_STATE

Can use DDS.NOT_ALIVE_INSTANCE_STATE as a test for either 'NOT_ALIVE' state. For example if (sample_info->view_state & DDS.NOT_ALIVE_INSTANCE_STATE) ...

3.31.2.6 int no_writers_generation_count

The number of times the instance has become 'ALIVE' after being automatically disposed due to no active writers. (Computed at the time the sample arrives at the DataReader.)

3.31.2.7 InstanceHandle_t publication_handle

The local handle of the source DataWriter.

3.31.2.8 Time_t reception_timestamp

The time when the sample was received by the DataReader.

3.31.2.9 int sample_rank

Number of samples related to this instances that follow in the collection returned by the DataReader **read** or **take** operations.

3.31.2.10 uint sample_state

The associated data sample has/has not been read previously.

sample_state indicates whether or not the DataReader has previously read the associated sample.

One of:

DDS.READ_SAMPLE_STATE

DDS.NOT_READ_SAMPLE_STATE.

Use DDS.ANY_SAMPLE_STATE to test for either state.

3.31.2.11 Time_t source_timestamp

The time provided by the DataWriter when the sample was written.

3.31.2.12 bool valid_data

Is set to true if the associated DataSample contains data. The associated DataSample may not contain data if it this sample indicates a change in sample state (for example ALIVE -> DISPOSED).

3.31.2.13 uint view_state

Associated instance has/has not been seen before. **view_state** indicates whether the DataReader has already seen samples for the most current generation of the related instance.

view_state can be one of:

DDS.NEW_VIEW_STATE

DDS.NOT_NEW_VIEW_STATE

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/si.cs

3.32 SampleLostStatus Class Reference

Status related to the on_sample_lost listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of all samples lost under the Topic.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

3.32.1 Detailed Description

Status related to the on_sample_lost listener methods of the DataReader, Subscriber, and DomainParticipant structures.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.33 SampleRejectedStatus Class Reference

Status related to the on_sample_rejected listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of samples rejected by the DataReader.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- SampleRejectedStatusKind last_reason

  The reason for rejecting the most recently rejected sample.

- InstanceHandle_t last_instance_handle

  The handle of the instance associated with the most recently rejected sample.

3.33.1 Detailed Description

Status related to the on_sample_rejected listener methods of the DataReader, Subscriber, and DomainParticipant structures.

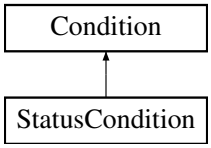
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.34 StatusCondition Class Reference

A StatusCondition is a condition associated with an Entity. The **trigger_value** is driven by the communication status of the associated Entity.

Inheritance diagram for StatusCondition:



Public Member Functions

- ReturnCode_t set_enabled_statuses (uint mask)
- uint get_enabled_statuses ()
- Entity get_entity ()

3.34.1 Detailed Description

A StatusCondition is a condition associated with an Entity. The **trigger_value** is driven by the communication status of the associated Entity.

3.34.2 Member Function Documentation

3.34.2.1 uint get_enabled_statuses ( ) [inline]

This routine returns the statuses which are enabled in this StatusCondition. The statuses are returned as a bitmask.

See also

DDS::ALL_STATUS

3.34.2.2 Entity get_entity ( ) [inline]

This routine returns the single entity associated with this StatusCondition.

3.34.2.3 ReturnCode_t set_enabled_statuses (uint *mask*) [inline]

This routine sets the statuses which are enabled in this StatusCondition. The statuses are provided as a bitmask.

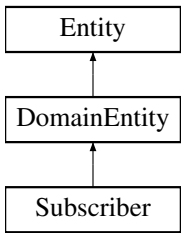
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/cond.cs

3.35 Subscriber Class Reference

The Subscriber configures, creates, manages and destroys DataReaders.

Inheritance diagram for Subscriber:



Public Member Functions

- override ReturnCode_t enable ()
- override InstanceHandle_t get_instance_handle ()
- DataReader create_datareader (TopicDescription topic, DataReaderQos dr_qos, DataReaderListener listener, uint mask)
- ReturnCode_t delete_datareader (DataReader datareader)
- ReturnCode_t delete_contained_entities ()
- DataReader lookup_datareader (String topic_name)
- ReturnCode_t get_datareaders (List< DataReader > readers, long sample_states, long view_states, long instance_states)
- DomainParticipant get_participant ()
- ReturnCode_t set_qos (SubscriberQos qos)
- ReturnCode_t get_qos (SubscriberQos qos)
- ReturnCode_t set_listener (SubscriberListener new_listener, uint mask)
- SubscriberListener get_listener ()
- ReturnCode_t begin_access ()
- ReturnCode_t end_access ()
- ReturnCode_t set_default_datareader_qos (DataReaderQos qos)
- ReturnCode_t get_default_datareader_qos (DataReaderQos qos)
- ReturnCode_t copy_from_topic_qos (DataReaderQos qos, TopicQos topic_qos)

3.35.1 Detailed Description

The Subscriber configures, creates, manages and destroys DataReaders.

3.35.2 Member Function Documentation

3.35.2.1 ReturnCode_t begin_access ( ) [inline]

This operation indicates that the application is about to access the data samples in any of the DataReader objects contained in the Subscriber **s.** The application is expected to use this operation only if PRESENTATION QosPolicy of the Subscriber has the access_scope set to GROUP. [Otherwise this routine has no effect.]

Not Yet Supported

This is currently unsupported in the C# language binding.

3.35.2.2 ReturnCode_t copy_from_topic_qos (DataReaderQos *qos,* TopicQos *topic_qos*) [inline]

This operation copies the QoS settings in **a_topic_qos** to the corresponding settings in **a_datareader_qos.** The **a_datareader_qos** parameter is populated with a copy of the QoS policies from the **a_topic_qos** structure. QoS entries in the datareader qos structure will be overwritten with the values from the topic.

3.35.2.3 DataReader create_datareader (TopicDescription *topic,* DataReaderQos *dr_qos,* DataReaderListener *listener,* uint *mask*) [inline]

This operation creates a DataReader. The created DataReader is contained within the Subscriber **s.** It is associated with the Topic, ContentFilteredTopic, or MultiTopic indicated by **a_topic,** and has the DataReaderQos indicated by **qos.** The **qos** argument may be passed DDS.DATAREADER_QOS_DEFAULT, which indicates that the Subscriber should use its currently configured default data reader QoS values. The DataReaderListener **a_listener,** is installed at creation time.

The created DataReader (if not NULL) must be destroyed by a call to Subscriber.delete_datareader().

This routine will fail if the provided QoS settings are internally inconsistent. In this case, the routine will return **NULL.**

3.35.2.4 ReturnCode_t delete_contained_entities ( ) [inline]

This operation deletes all the DataReaders created by means of the Subscriber.create_datareader() operation on the Subscriber **s.** This routine will recursively call the corresponding delete_contained_entities() operation on each of the contained DataReader objects. If successful, this operation will recursively delete all objects contained with this Subscriber. After successful execution, the application may delete the Subscriber by calling DomainParticipant.delete_subscriber().

If any of the objects cannot be deleted, this routine will return ReturnCode_t.RETCODE_-PRECONDITION_NOT_MET.

3.35.2.5 ReturnCode_t delete_datareader (DataReader *datareader*) [inline]

This operation deletes a DataReader. If the provided DataReader **a_datareader** was not created by Subscriber **s,** the routine will fail and will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET. If the indicated DataReader has any outstanding ReadCondition or QueryCondition objects the routine will fail and will return ReturnCode_t.RETCODE_PRECONDITION_NOT_MET. If the indicated DataReader has any outstanding 'loans' (from read() or take() operations), the routine will fail and will return ReturnCode_-.tRETCODE_PRECONDITION_NOT_MET.

3.35.2.6 override ReturnCode_t enable ( ) [inline, virtual]

Enables the Subscriber. A Subscriber is created either enabled or not based on the DomainParticipantQos setting **entity_factory.** When a Subscriber is not enabled, only the following sub-set of all Subscriber operations are legal:

- operations to get and set QoS policies,
- factory operations (create, delete),
- get_statuscondition(),
- get_status_changes(),
- lookup operations

Any other Subscriber operation may return the ReturnCode_t.RETCODE_NOT_ENABLED error. Subscriber_enable() may be called on an already enabled Subscriber [it will have no effect].

Reimplemented from Entity.

3.35.2.7 ReturnCode_t end_access ( ) [inline]

This operation closes a corresponding Subscriber.begin_access().

Not Yet Supported

This is currently unsupported in the C# language binding.

3.35.2.8 ReturnCode_t get_datareaders (List< DataReader > *readers,* long *sample_states,* long *view_states,* long *instance_states*) [inline]

This operation allows the application to access DataReader objects that contain samples with the specified **sample_states, view_states,** and **instance_states.**

If the PRESENTATION QosPolicy of the Subscriber to which the DataReader belongs has the access_scope set to GROUP, this operation should be invoked only inside a begin_access/end_access block. Otherwise it will return the error PRECONDITION_NOT_MET.

The returned collection of DataReader objects may either be a set (containing each DataReader at most once in no specified order), or a list (containing each DataReader one or more times in a specific order).

1. If PRESENTATION access_scope is INSTANCE or TOPIC, the returned collection is a set.
2. If PRESENTATION access_scope is GROUP and ordered_access is set to TRUE, then the returned collection is a list.

This difference supports alternate access mechanisms.

Not Yet Supported

This is currently unsupported in the C# language binding.

3.35.2.9 ReturnCode_t get_default_datareader_qos (DataReaderQos *qos*) [inline]

Provides access to the default DataReaderQos settings held in the Subscriber **s.** The provided **qos** argument is populated with the current default qos settings.

3.35.2.10 override InstanceHandle_t get_instance_handle ( ) [inline, virtual]

Gets the handle that locally identifies this Entity.

Reimplemented from Entity.

3.35.2.11 SubscriberListener get_listener ( ) [inline]

This operation returns the currently installed SubscriberListener.

3.35.2.12 DomainParticipant get_participant ( ) [inline]

This operation returns the DomainParticipant this Subscriber belongs to.

3.35.2.13 ReturnCode_t get_qos (SubscriberQos *qos*) [inline]

Returns the current SubscriberQos settings held in the Subscriber **s.** The **qos** parameter is populated with a copy of the current Subscriber QoS properties.

3.35.2.14 DataReader lookup_datareader (String *topic_name*) [inline]

This operation retrieves a previously-created DataReader contained in the Subscriber, attached to a Topic named **topic_name.** If multiple DataReaders are found, one of them will be returned. If no matching DataReader is found, this routine will return **NULL.**

This routine is useful to obtain access to a particular built-in DataReader.

3.35.2.15 ReturnCode_t set_default_datareader_qos (DataReaderQos *qos*) [inline]

Sets the default DataReaderQos held in the Subscriber. This default qos will be used during subsequent calls to Subscriber.create_datareader() if the special DDS.DATAREADER_QOS_DEFAULT value is provided for **qos**. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_-t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the Subscriber.

3.35.2.16 ReturnCode_t set_listener (SubscriberListener *new_listener,* uint *mask*) [inline]

Installs a SubscriberListener on Subscriber **s.** Only one listener may be attached to a Subscriber at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

3.35.2.17 ReturnCode_t set_qos (SubscriberQos *qos*) [inline]

Sets the SubscriberQos values. These QoS values affect the behavior of the Subscriber. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_-INCONSISTENT_POLICY will be returned, and no changes will be made to the Subscriber QoS.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/sub.cs

3.36 SubscriberListener Class Reference

The SubscriberListener provides asynchronous notification of Subscriber events.

Public Attributes

- requested_deadline_missed_delegate on_requested_deadline_missed
- requested_incompatible_qos_delegate on_requested_incompatible_qos
- sample_rejected_delegate on_sample_rejected
- liveliness_changed_delegate on_liveliness_changed
- data_available_delegate on_data_available
- subscription_matched_delegate on_subscription_matched
- sample_lost_delegate on_sample_lost
- data_on_readers_delegate on_data_on_readers

3.36.1 Detailed Description

The SubscriberListener provides asynchronous notification of Subscriber events. This listener can be installed during Subscriber creation, DomainParticipant.create_subscriber() as well as by calling Subscriber.set_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.36.2 Member Data Documentation

3.36.2.1 data_available_delegate on_data_available

3.36.2.2 data_on_readers_delegate on_data_on_readers

3.36.2.3 liveliness_changed_delegate on_liveliness_changed

3.36.2.4 requested_deadline_missed_delegate on_requested_deadline_missed

3.36.2.5 requested_incompatible_qos_delegate on_requested_incompatible_qos

3.36.2.6 sample_lost_delegate on_sample_lost

3.36.2.7 sample_rejected_delegate on_sample_rejected

3.36.2.8 subscription_matched_delegate on_subscription_matched

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.37 SubscriberQos Class Reference

Structure that holds DDS_Subscriber Quality of Service policies.

Public Attributes

- PresentationQosPolicy presentation
- PartitionQosPolicy partition
- GroupDataQosPolicy group_data
- EntityFactoryQosPolicy entity_factory

3.37.1 Detailed Description

Structure that holds DDS_Subscriber Quality of Service policies.

See also

Subscriber::set_qos(SubscriberQos)
Subscriber::get_qos(SubscriberQos)
DomainParticipant::create_subscriber()
DomainParticipant::set_default_subscriber_qos()
DomainParticipant::get_default_subscriber_qos()

3.37.2 Member Data Documentation

3.37.2.1 EntityFactoryQosPolicy entity_factory

Controls the behavior of the Subscriber.create_datareader() operation.

3.37.2.2 GroupDataQosPolicy group_data

A sequence of octets associated with the Publisher.

3.37.2.3 PartitionQosPolicy partition

∗ Establishes a logical data partition. DataWriters and DataReaders that are 'in' the same partition (ie, the partition of the containing Publisher and Subscriber match) can communicate. If the partitions do not match, then they cannot communicate.

3.37.2.4 PresentationQosPolicy presentation

Controls the presentation of groups of changes.

See also

Publisher::begin_coherent_changes()
Publisher::end_coherent_changes()
Subscriber::begin_access()
Subscriber::end_access()

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.38 SubscriptionMatchedStatus Class Reference

Status related to the on_subscription_matched listener methods of the DataReader, Subscriber, and DomainParticipant structures.

Public Attributes

- int total_count

  Cummulative count of the number of times this DataReader has discovered a matching DataWriter.

- int total_count_change

  *Change in **total_count** since the last time the listener was called or status was read.*

- int current_count

  The current number of DataWriters matched to the DataReader.

- int current_count_change

  *Change in **current_count** since the last time the listener was called or status was read.*

3.38.1 Detailed Description

Status related to the on_subscription_matched listener methods of the DataReader, Subscriber, and DomainParticipant structures.

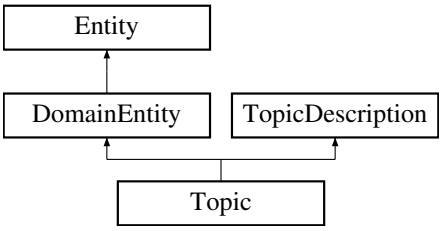
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.39 Topic Class Reference

Topic is the basic description of data to be published or subscribed. A topic is identified by a **name** and a **type.** A Topic is created by calling DomainParticipant.create_topic(). Prior to creating a Topic, the associated data type must be registered with the DomainParticipant via a call to the TypeSupportXYZ.register_type() function. [The register_type() function is auto-generated 'type-specific' code.].

Inheritance diagram for Topic:



Public Member Functions

- DomainParticipant get_participant ()

  *This operation returns the parent **DomainParticipant** of the Topic.*

- String get_type_name ()

  *This operation returns **type_name** of the Topic.*

- String get_name ()

  *This operation returns **topic_name** of the Topic.*

- override ReturnCode_t enable ()
- override InstanceHandle_t get_instance_handle ()
- ReturnCode_t set_qos (TopicQos qos)
- ReturnCode_t get_qos (TopicQos qos)
- ReturnCode_t set_listener (TopicListener new_listener, uint mask)
- TopicListener get_listener ()
- ReturnCode_t get_inconsistent_topic_status (out InconsistentTopicStatus status)

3.39.1 Detailed Description

Topic is the basic description of data to be published or subscribed. A topic is identified by a **name** and a **type.** A Topic is created by calling DomainParticipant.create_topic(). Prior to creating a Topic, the associated data type must be registered with the DomainParticipant via a call to the TypeSupportXYZ.register_type() function. [The register_type() function is auto-generated 'type-specific' code.].

3.39.2 Member Function Documentation

3.39.2.1 override ReturnCode_t enable ( ) [inline]

Enables the Topic. A Topic is created either enabled or not based on the DomainParticipantQos setting **entity_factory.** When a Topic is not enabled, only the following sub-set of all Topic operations are legal:

- operations to get and set QoS policies,
- get_name(), get_type_name(), get_participant()
- get_statuscondition(),
- get_status_changes(),

Any other operation may return the ReturnCode_t.RETURNCODE_NOT_ENABLED error. Topic.enable() may be called on an already enabled Topic [it will have no effect].

3.39.2.2 ReturnCode_t get_inconsistent_topic_status (out InconsistentTopicStatus *status*) [inline]

Provides access to the InconsistentTopicStatus of the Topic. As a side-effect, this routine will reset the **total_count_change** status field to zero.

3.39.2.3 override InstanceHandle_t get_instance_handle ( ) [inline]

Gets the handle that locally identifies this Entity.

3.39.2.4 TopicListener get_listener ( ) [inline]

This operation returns the currently installed TopicListener.

3.39.2.5 ReturnCode_t get_qos (TopicQos *qos*) [inline]

Returns the current TopicQos settings held in the Topic **t.** This routine copies the Topic QoS properites into **qos.**

3.39.2.6 ReturnCode_t set_listener (TopicListener *new_listener,* uint *mask*) [inline]

Installs a TopicListener on Topic **t.** Only one listener may be attached to a Topic at a time. A call to **set_listener()** will replace any current listener with **a_listener.**

a_listener can be NULL, which indicates a listener that does nothing.

The infrastructure will make an internal copy of the listener structure so that it need not be persisted by the application.

3.39.2.7 ReturnCode_t set_qos (TopicQos *qos*) [inline]

Sets the TopicQos values. These QoS values affect the behavior of the Topic. This routine may fail if the provided **qos** argument is not internally consistent. In this case, ReturnCode_t.RETCODE_INCONSISTENT_POLICY will be returned, and no changes will be made to the Topic QoS.

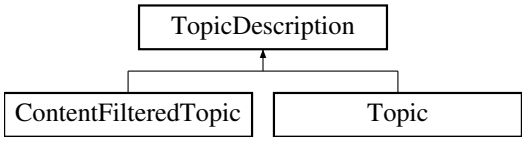
The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/top.cs

3.40 TopicDescription Interface Reference

TopicDescription is an interface that provides the foundation for Topic, ContentFilteredTopic, and MultiTopic.

Inheritance diagram for TopicDescription:



Public Member Functions

- DomainParticipant get_participant ()

  *This operation returns the parent **DomainParticipant** of the Topic.*

- String get_type_name ()

  *This operation returns **type_name** of the Topic.*

- String get_name ()

  *This operation returns **topic_name** of the Topic.*

3.40.1 Detailed Description

TopicDescription is an interface that provides the foundation for Topic, ContentFilteredTopic, and MultiTopic.

The documentation for this interface was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/top.cs

3.41 TopicListener Class Reference

The TopicListener provides asynchronous notification of Topic events.

Public Attributes

- inconsistent_topic_delegate on_inconsistent_topic

3.41.1 Detailed Description

The TopicListener provides asynchronous notification of Topic events. This listener can be installed during Topic creation (DomainParticipant.create_topic() and related) as well as by calling Topic.set_listener().

Note

The listener callback methods should be lightweight and should not block. If a callback method blocks, it will block all other callback operations within the same DomainParticipant.

3.41.2 Member Data Documentation

3.41.2.1 inconsistent_topic_delegate on_inconsistent_topic

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.42 TopicQos Class Reference

Structure that holds DDS_Topic Quality of Service policies.

Public Attributes

- TopicDataQosPolicy topic_data
- DurabilityQosPolicy durability
- DurabilityServiceQosPolicy durability_service
- DeadlineQosPolicy deadline
- LatencyBudgetQosPolicy latency_budget
- LivelinessQosPolicy liveliness
- ReliabilityQosPolicy reliability
- DestinationOrderQosPolicy destination_order
- HistoryQosPolicy history
- ResourceLimitsQosPolicy resource_limits
- TransportPriorityQosPolicy transport_priority
- LifespanQosPolicy lifespan
- OwnershipQosPolicy ownership

3.42.1 Detailed Description

Structure that holds DDS_Topic Quality of Service policies.

See also

Topic::set_qos()
Topic::get_qos()
DomainParticipant::create_topic()
DomainParticipant::set_default_topic_qos()

3.42.2 Member Data Documentation

3.42.2.1 DeadlineQosPolicy deadline

3.42.2.2 DestinationOrderQosPolicy destination_order

3.42.2.3 DurabilityQosPolicy durability

3.42.2.4 DurabilityServiceQosPolicy durability_service

3.42.2.5 HistoryQosPolicy history

3.42.2.6 LatencyBudgetQosPolicy latency_budget

3.42.2.7 LifespanQosPolicy lifespan

3.42.2.8 LivelinessQosPolicy liveliness

3.42.2.9 OwnershipQosPolicy ownership

3.42.2.10 ReliabilityQosPolicy reliability

3.42.2.11 ResourceLimitsQosPolicy resource_limits

3.42.2.12 TopicDataQosPolicy topic_data

3.42.2.13 TransportPriorityQosPolicy transport_priority

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/base.cs

3.43 WaitSet Class Reference

A DDS_WaitSet maintains a set of Condition objects and allows the application to wait until one or more of them have a **trigger_value** of TRUE.

Public Member Functions

- WaitSet ()
- void destroy ()
- ReturnCode_t attach_condition (Condition c)
- ReturnCode_t detach_condition (Condition c)
- ReturnCode_t wait (List< Condition > active_conditions, Duration_t timeout)
- ReturnCode_t get_conditions (List< Condition > attached_conditions)

3.43.1 Detailed Description

A DDS_WaitSet maintains a set of Condition objects and allows the application to wait until one or more of them have a **trigger_value** of TRUE. Multiple conditions may be attached to a WaitSet.

See also

Condition

3.43.2 Constructor & Destructor Documentation

3.43.2.1 WaitSet ( ) [inline]

Constructor.

3.43.3 Member Function Documentation

3.43.3.1 ReturnCode_t attach_condition (Condition *c*) [inline]

Adds the condition **c** to the WaitSet. If another thread is currently 'waiting' on the WaitSet, this newly added condition will unblock that thread if its **trigger_value** is TRUE.

3.43.3.2 void destroy ( ) [inline]

Destructor. Releases internal resources associated with the WaitSet. This WaitSet is destroyed, and must not be used after this call returns.

3.43.3.3 ReturnCode_t detach_condition (Condition *c*) [inline]

Adds the condition **c** to the WaitSet. If another thread is currently 'waiting' on the WaitSet, this newly added condition will unblock that thread if its **trigger_value** is TRUE.

3.43.3.4 ReturnCode_t get_conditions (List< Condition > *attached_conditions*) [inline]

Retrieves the current list of attached conditions. Populates the **attached_conditions** sequence.

3.43.3.5 ReturnCode_t wait (List< Condition > *active_conditions,* Duration_t *timeout*) [inline]

Causes the controlling thread to block until an attached condition is triggered or **timeout** elapses.

A return value of DDS_RETCODE_OK indicates that one or more of the attached conditions evaluated to TRUE. Those 'active' conditions are included in the 'out' parameter **active_conditions.**

A return value of DDS_RETCODE_TIMEOUT indicates that the timeout period elapsed without any of the conditions evaluating to TRUE.

The documentation for this class was generated from the following file:

- /home/ctucker/coredx_v3.4rc/src/dds_csharp/ws.cs

Chapter 4

Data Structure Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 5

Not Yet Supported

Member DataReader::create_querycondition(uint sample_states, uint view_states, uint instance_states, String query_e
QueryConditions are not yet supported as triggers for a WaitSet.

Class DDS_MultiTopic CoreDX does not yet implement MultiTopics.

Member DomainParticipant::create_multitopic(String name, String type_name, String subscription_expression, List<
This is currently unsupported in the C# language binding.

Member DomainParticipant::delete_multitopic(MultiTopic a_multitopic) This is currently unsupported in the C# language binding.

Member DomainParticipant::get_discovered_topic_data(TopicBuiltinTopicData topic_data, InstanceHandle_t topic_ha
This is currently unsupported in the C# language binding.

Member DomainParticipant::get_discovered_topics(List< InstanceHandle_t > topic_handles) This is currently unsupported in the C# language binding.

Member DomainParticipant::ignore_participant(InstanceHandle_t handle) This is currently unsupported in the C# language binding.

Member DomainParticipant::ignore_publication(InstanceHandle_t handle) This is currently unsupported in the C# language binding.

Member DomainParticipant::ignore_subscription(InstanceHandle_t handle) This is currently unsupported in the C# language binding.

Member DomainParticipant::ignore_topic(InstanceHandle_t handle) This is currently unsupported in the C# language binding.

Member Publisher::begin_coherent_changes() This operation is not yet implemented.

Member Publisher::end_coherent_changes() This operation is not yet implemented.

Member Publisher::resume_publications() This operation is not yet implemented.

Member Publisher::suspend_publications() This operation is not yet implemented.

Class QueryCondition CoreDX DDS does not yet support QueryConditions as triggers for a WaitSet.

Member Subscriber::begin_access() This is currently unsupported in the C# language binding.

Member Subscriber::end_access() This is currently unsupported in the C# language binding.

Member Subscriber::get_datareaders(List< DataReader > readers, long sample_states, long view_states, long instance_states) This is currently unsupported in the C# language binding.

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