

# Robotic Localization Service Specification

*FTF Beta 1*

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# Table of Contents

List of Figures.....	vii
List of Tables.....	viii
Preface.....	1
1. Scope.....	3
2. Conformance.....	3
3. Normative Reference.....	3
4. Terms and Definition.....	3
5. Symbol.....	3
6. Additional Information.....	4
6.1 Supporting Organizations.....	4
6.2 Acknowledgements.....	4
6.3 Background.....	4
7. Platform Independent Model.....	8
7.1 Format and Conventions.....	8
7.1.1 Class.....	8
7.1.2 Enumeration.....	8
7.2 Return Codes.....	9
7.3 Representing Robotic Localization Results.....	9
7.3.1 Relative and Mobile Coordinate Reference Systems.....	9
7.3.2 Identity Information.....	13
7.3.3 Error Information.....	16
7.3.4 Robotic Localization Architecture.....	22
7.4 Data Formats.....	29
7.4.1 Common data format.....	30
7.5 Filter Condition.....	32
7.5.1 Filter Operators.....	33

7.5.2	PropertyReference .....	46
7.5.3	Capability of Filter Condition.....	47
7.6	Service Interface.....	47
<b>8.</b>	<b>Platform Specific Model.....</b>	<b>57</b>
8.1	C++ PSM.....	57

# List of Figures

Figure 1 - Example of a typical robotic service situation requiring localization of an entity.....	6
Figure 2 - Relation of Robotic Localization Service specification with existing GIS specifications.....	6
Figure 3 - Relative and Mobile coordinate reference system.....	10
Figure 4 - Mobile CRS operations.....	12
Figure 5 - Identity information.....	14
Figure 6 - Error Type.....	17
Figure 7 - Error information.....	19
Figure 8 - Representation of error information related to multiple localization data.....	22
Figure 9 - RoLo Architecture.....	23
Figure 10 - RoLo Data Operation.....	26
Figure 11 - RoLo Data format.....	29
Figure 12 - Filter Condition Toplevel.....	34
Figure 13 - Logical Operators.....	35
Figure 14 - Spatial Operators.....	37
Figure 15 - Comparison Operators.....	41
Figure 16 - Expressions.....	44
Figure 17 - Property Reference.....	46
Figure 18 - Basic robotic localization module.....	47
Figure 19 - Structures of robotic localization modules with different functionalities.....	47
Figure 20 - Example of a cascading module connection.....	48
Figure 21 - RoLo Ability and RoLo Parameter Set.....	49
Figure 22 - RoLo Service.....	52

## List of Tables

Table 1 Returncode_t enumeration.....	9
Table 2 - RelativeCRS class.....	10
Table 3 - RelativeCartesianCRS class.....	10
Table 4 - RelativePolarCRS class.....	10
Table 5 - RelativeDatum class.....	11
Table 6 - MobileCRS class.....	11
Table 7 - MobileCartesianCRS class.....	11
Table 8 - MobilePolarCRS class.....	11
Table 9 - MobileDatum class.....	11
Table 10 - RoLo Mobile Operation class.....	12
Table 11 - Mobile2Static Operation class.....	12
Table 12 - Fixed2Mobile Operation class.....	12
Table 13 - Mobile2Mobile Operation class.....	13
Table 14 - IdentityCS class.....	14
Table 15 - NumericIdentityCS class.....	14
Table 16 - SymbolicCS class.....	14
Table 17 - Identity Datum class.....	15
Table 18 - IdentityCRS class.....	15
Table 19 - NumericIdentityCRS class.....	15
Table 20 - SymbolicCRS class.....	15
Table 21 - DirectSymbol class.....	15
Table 22 - RoLo SymbolRef class.....	15
Table 23 - RoLo Symbolic Position class.....	16
Table 24 - RoLo Error Type class.....	17
Table 25 - RoLo Error Type Operation class.....	17
Table 26 - ET_Reliability class.....	17
Table 27 - ET_Gaussian class.....	18
Table 28 - ET_UniformGaussian class.....	18
Table 29 - ET_ParticleSet class.....	18



Table 30 - ET_MixtureModel class.....	18
Table 31 - ET_LinearMixtureModel class.....	18
Table 32 - ET_MixtureOfGaussian class.....	18
Table 33 - RoLo Error class.....	19
Table 34 - Reliability class.....	19
Table 35 - Error Distribution class.....	19
Table 36 - Matrix class.....	20
Table 37 - Covariance Matrix class.....	20
Table 38 - Gaussian class.....	20
Table 39 - Uniform Gaussian class.....	20
Table 40 - Particle class.....	20
Table 41 - Particle Set class.....	21
Table 42 - Mixture Model class.....	21
Table 43 - Weighted Distribution class.....	21
Table 44 - Linear Mixture Model class.....	21
Table 45 - Mixture of Gaussian class.....	21
Table 46 - RoLo Position class.....	23
Table 47 - RoLo Element Specification class.....	24
Table 48 - Position Element Specification class.....	24
Table 49 - Error Element Specification class.....	24
Table 50 - RoLo Element class.....	25
Table 51 - Position Element class.....	25
Table 52 - Error Element class.....	25
Table 53 - NULL Element class.....	25
Table 54 - RoLo Architecture class.....	26
Table 55 - RoLo Data class.....	26
Table 56 - Position Element Operation class.....	27
Table 57 - Position Element Concatenated Operation class.....	27
Table 58 - Position Element Single Operation class.....	27
Table 59 - RoLo Data Operation class.....	27
Table 60 - RoLo Data Concatenated Operation class.....	28
Table 61 - RoLo Data Single Operation class.....	28

Table 62 - RoLo Data Transformation class.....	28
Table 63 - RoLo Data Mapping Operation class.....	28
Table 64 - RoLo Data Format class.....	29
Table 65 - Encoding Rule class.....	29
Table 66 - Specific Data Format class.....	29
Table 67 - User Defined Data Format class.....	30
Table 68 - Common Data Format class.....	30
Table 69 - Common data format type I.....	30
Table 70 - Common data format type II.....	31
Table 71 - Common data format type III.....	31
Table 72 - Filter Condition Extension of RoLo Service class.....	32
Table 73 - Filter Condition Node class.....	34
Table 74 - Filter Op class.....	34
Table 75 - LogicOp class.....	35
Table 76 - BinaryLogicOp class.....	35
Table 77 - UnaryLogicOp class.....	36
Table 78 - AtomicLogicOp class.....	36
Table 79 - And class.....	36
Table 80 - Or class.....	36
Table 81 - Not class.....	36
Table 82 - True class.....	36
Table 83 - False class.....	37
Table 84 - SpatialOp class.....	37
Table 85 - BBox class.....	38
Table 86 - FC_BinarySpatialOp class.....	38
Table 87 - FC_GeometryLiteral class.....	38
Table 88 - Equals class.....	38
Table 89 - Disjoint class.....	39
Table 90 - Crosses class.....	39
Table 91 - Intersects class.....	39
Table 92 - Touches class.....	39
Table 93 - Within class.....	39

Table 94 - Overlaps class.....	39
Table 95 - Contains class.....	40
Table 96 - DWithin class.....	40
Table 97 - Beyond class.....	40
Table 98 - ComparisonOp class.....	41
Table 99 - BinaryComparisonOp class.....	41
Table 100 - PropertyIsEqualTo class.....	42
Table 101 - PropertyIsNotEqualTo class.....	42
Table 102 - PropertyIsLessThan class.....	42
Table 103 - PropertyIsGreaterThan class.....	42
Table 104 - PropertyIsLessThanOrEqualTo class.....	42
Table 105 - PropertyIsGreaterThanOrEqualTo class.....	42
Table 106 - PropertyIsNull class.....	43
Table 107 - PropertyIsLike class.....	43
Table 108 - PropertyIsBetween class.....	43
Table 109 - Expression class.....	44
Table 110 - BinaryOperator class.....	44
Table 111 - Add class.....	45
Table 112 - Sub class.....	45
Table 113 - Mul class.....	45
Table 114 - Div class.....	45
Table 115 - Literal class.....	45
Table 116 - PropertyName class.....	46
Table 117 - Function class.....	46
Table 118 - FC_PropertyReference.....	47
Table 119 - RoLo Attribute Type class.....	49
Table 120 - RoLo Attribute Definition class.....	49
Table 121 - RoLo Attribute Definition Set class.....	50
Table 122 - RoLo Parameter Definition class.....	50
Table 123 - RoLo Attribute Value class.....	50
Table 124 - RoLo Attribute SingleValue class.....	50
Table 125 - RoLo Attribute ValueList class.....	51

Table 126 - RoLo Attribute class.....	51
Table 127 - RoLo Attribute Set class.....	51
Table 128 - RoLo Parameter Set class.....	51
Table 129 - RoLo Ability class.....	52
Table 130 - StreamType enumeration.....	52
Table 131 - Stream Parameter Definition class.....	53
Table 132 - Stream Parameter Set class.....	53
Table 133 - Stream Ability class.....	53
Table 134 - RoLo Stream class.....	53
Table 135 - OutStream class.....	54
Table 136 - InStream class.....	54
Table 137 - Service Parameter Definition class.....	55
Table 138 - Service Parameter Set class.....	55
Table 139 - Service Ability class.....	55
Table 140 - RoLo Service class.....	55

# Preface

## About the Object Management Group

### OMG

Founded in 1989, the Object Management Group, Inc. (OMG) is an open membership, not-for-profit computer industry standards consortium that produces and maintains computer industry specifications for interoperable, portable, and reusable enterprise applications in distributed, heterogeneous environments. Membership includes Information Technology vendors, end users, government agencies, and academia.

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## Platform Specific Model and Interface Specifications

CORBA services

CORBA facilities

OMG Domain specifications

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Helvetica/Arial - 10 pt: Exceptions

NOTE: Terms that appear in italics are defined in the glossary. Italic text also represents the name of a document, specification, or other publication.

# 1. Scope

This specification defines a localization service that can handle data and usages specific to use in robotics. It includes a platform-independent model (PIM) as well as a mapping of this PIM to platform-specific models (PSM) defined by C++.

# 2. Conformance

Any implementation or product claiming conformance to this specification shall support the platform independent model described in chapter 6.

# 3. Normative Reference

The following normative documents contain provisions which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

[ISO19103] International Organization for Standardization, Geographic information -- Conceptual schema language, 2005

[ISO19107] International Organization for Standardization, Geographic information -- Spatial schema, 2003

[ISO19111] International Organization for Standardization, Geographic information -- Spatial referencing by coordinates, 2007

[ISO19115] International Organization for Standardization, Geographic information – Metadata, 2003

[PER] International Telecommunication Union Telecommunication Standardization Sector, Specification of Packed Encoding Rules (PER), ITU-T Rec. X.691 (2002) / ISO/IEC 8825-2:2002

# 4. Terms and Definition

No terms are defined in this document.

# 5. Symbol

No symbols are defined in this document.

## 6. Additional Information

### 6.1 Supporting Organizations

The following companies supported parts of this specification:

National Institute of Advanced Industrial Science and Technology (AIST)  
New Energy and Industrial Technology Development Organization (NEDO)  
Shibaura Institute of Technology  
Technologic Arts Incorporated

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### 6.3 Background

This specification defines a localization service that can handle data and usages specific to use in robotics. It includes a platform-independent model (PIM) as well as a mapping of this PIM to platform-specific models (PSM) defined by C++.



Location information is a crucial factor in providing robotic services of every kind. Typically, a robotic system is defined as an apparatus equipped with the function of interacting with physical entities in the environment. Navigation, manipulation and human-robot interaction are typical features that require physical interaction with the environment, which distinguish a robotic system from information appliances. On performing such tasks, robots require geometric association between physical entities of interest and the robot itself for implementing and/or performing the given service scenario. Besides these examples, the number of location-based robotic tasks is continuously increasing as personal or service robot fields gradually expand, from controlled, stable factory environments to indeterminate, uncertain daily environments. However, currently there exists no standard means to represent the necessary location-related information in robotics, nor any common interface for constructing localization related software modules.

Note: In the context of this proposal and the originating RFP, the word “**localization**” means “to **locate** some **physical entities** through analysis of sensor data”, consistent with the common use of this term in robotics. Here the word “**locate**” may include not only measuring the position in the spatio-temporal space, but also heading orientation or pose information of the entity, or additional information such as error estimation or time of measurement. Also, the word “**physical entity**” (or “entity” in short) is used to describe the target to be localized, including robots, humans or other objects.

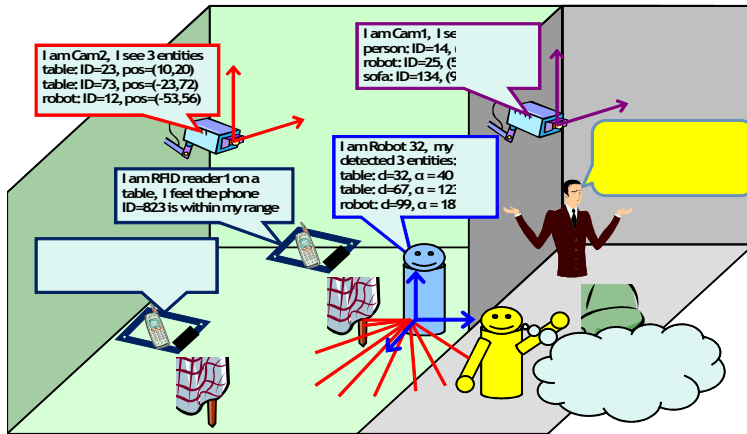
A Geographic Information System (GIS) is one of the most popular and established systems that treats location information. Many spatiotemporal location related specifications have been standardized in the International Organization for Standardization (ISO/TC211), and there already exist versatile production services based on these standards such as driving navigation systems or resource databases. However, current GIS specifications are not powerful enough to represent or treat information required in the field of robotics.

Although localization is still one of the main research topics in the field of robotics, the fundamental methodology and elements necessary are becoming established. Standardizing localization result representation and related interfaces in a generic form, independent to specific algorithms or equipment, are significant for decreasing costs and accelerating the market growth of robotic services. Moreover, clarifying what types of information are required in the field of robotics shall be useful for equipment vendors such as sensor manufacturers.

In this proposal, a new framework for robotic localization, i.e. representing and treating location information specific to robotic usage, is presented. Notions and items necessary for treating location information in robotic usage are reorganized and rearranged, in a generic form independent to specific algorithms or types of robotic services. This was done through extensive surveys and case studies on current and ongoing robotic products and researches. Based on the widespread GIS standard, a new specification for robotic localization services is proposed.

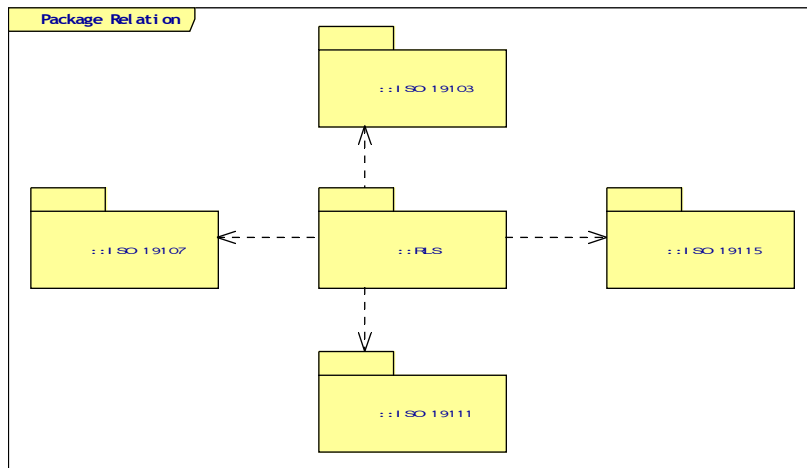
Figure 1 illustrates a typical robotic service situation where localization of various entities is required. Here, a robot in service needs to obtain the location of a cellular phone, utilizing information from various robotic entities in the environment. These robotic entities have the ability to estimate the location of the entities within their sensing range. Thus, the problem here is to aggregate the location estimations from the robotic entities, and to localize the cellular phone in target. However, this example also shows several factors that makes the localization service in robotics a difficult, challenging issue. **A) Some sensors only provide partial location information.** For example, the camera sensor can only provide 2D information, and RF tag reader can only provide proximity information. **B) Sensor outputs are not always correct.** Sometimes, they might measure two or more entities as a single object, or even miss it. This erroneous report occurs frequently when sensors are used in the uncontrolled daily environment. In order to tackle this erroneous situation, sensor outputs are usually treated to be probabilistic, with error estimation information. **C) Matching observations between different sensors require efforts.** Imagine you are viewing two photographs of a crowded street corner, taken from different angles but on the same instant. The issue here is to match every single person in one photograph to another. This is much more difficult when matching the observed entities from the wall camera and the output from the laser range scanner installed in the blue robot, as these two sensors measure different aspects of objects. This issue, the *identity*

association problem, happens every time multiple sensors are used. In other word, you are always not sure about the identity of the entity sensed. Thus, identity information shall also be treated to be probabilistic.



**Figure 1 - Example of a typical robotic service situation requiring localization of an entity**

As can be seen from these examples, operations in robotics require a much more detailed representation of location information. Still, interoperability with the current GIS systems shall be supported. In this proposal, we define a new framework for representing and treating location information suitable for robotic use, by extending existing GIS specifications. Using the GIS specification as a basis of the proposal will make it easy for robots to interconnect with existing GIS-based systems and utilize existing geographic datasets. Figure 2 illustrates the existing GIS standards that are related with this specification.



**Figure 2 - Relation of Robotic Localization Service specification with existing GIS specifications**

In order to fulfill the requirements for robotic localization, the following items are defined in the Platform-Independent Model, some part as an extension to existing GIS specification.

- Coordinate reference systems for representing information necessary for robotics usage
- Identity information representation

- Error information representation
- Data architecture for representing and operating on robotic localization results
- Robotic localization service interfaces

# 7. Platform Independent Model

## 7.1 Format and Conventions

### 7.1.1 Class

Classes described in this PIM are documented using tables of the following format:

**Table xx: <class name>**

<b>Description:</b> <description>				
<b>Derived From:</b> <parent class>				
<b>Attributes</b>				
<attribute name>	<attribute type>	<obligation>	<occurrence>	<description>
...	...			...
<b>Operations</b>				
<operation name>		<description>		
<direction>	<parameter name>	<parameter type>	<description>	
...	...	...	...	

Note that derived attributes or operations are not described explicitly. As the type of return code for every operation in this specification is Returncode\_t which is defined in section 6.2, this is omitted in the description table.

The 'obligation' and 'occurrence' are defined as following.

#### Obligation

- **M (mandatory):** This attribute shall always be supplied.
- **O (optional):** This attribute may be supplied.
- **C (conditional):** This attribute shall be supplied under a condition. The condition is given as a part of the attribute description.

#### Occurrence

The occurrence column indicates the maximum number of occurrences of the attribute values that are permissible. The following denotes special meanings.

- **N:** No upper limit in the number of occurrences.
- **ord:** The appearance of the attribute values shall be ordered.
- **unq:** The appeared attribute values shall be unique.

### 7.1.2 Enumeration

Enumerations are documented as follows:

**Table xx: <enumeration name>**

<constant name>	<description>
...	...

## 7.2 Return Codes

At the PIM level, we have modeled errors as operation return codes typed **Returncode\_t**. Each PSM may map these to either return codes or exceptions. The complete list of return codes is indicated below.

**Table 1 Returncode\_t enumeration**

OK	Successful return.
ERROR	Generic, unspecified error.
BAD_PARAMETER	Illegal parameter value.
UNSUPPORTED_PARAMETER	Unsupported parameter.
UNSUPPORTED_OPERATION	Unsupported operation.
TIMEOUT	The operation timed out.

## 7.3 Representing Robotic Localization Results

Modern robotic algorithms related to localization require not only simple spatial positioning information. Generally, various types of information related to spatial position are also required. In order to obtain precise results, measurement time and error estimation is crucial, especially when integrating measurements from multiple sensors. For robotics usage, complex spatial positioning such as pose information is also important. When sensors in use can perform measurements of multiple entities at once, identity information is also necessary in order to distinguish and associate measurements. As such, there is a variety of other information to be expressed in combination with simple spatial positioning. In order to make various robotic services treat and process this versatile information easily and effectively, our idea is to represent this heterogeneous information under a common, unified framework.

In this section, we propose a new framework for representing location information required in the field of robotics, by extending existing GIS specifications. Three types of information required in robotics usage are defined, and lastly, a generic framework for representing structured robotic localization results is defined.

### 7.3.1 Relative and Mobile Coordinate Reference Systems

In this specification, a relative coordinate reference system is defined as a coordinate reference system where the relation with the fixed world is not known at some instant, or users have no interest in referencing it to other coordinate reference systems. A mobile coordinate reference system is defined as a relative coordinate reference system on mobile platforms. That is, the relation with other coordinate reference systems may change by time.

The GIS standard on spatial reference system [ISO19111] allows the definition and use of such relative and mobile coordinate reference systems. However, there is no specific model or description on these systems. As these systems are quite commonly used in the field of robotics, here we explicitly define structures and operations

specific to these coordinate reference systems. Although here we define coordinate reference systems based on two coordinate systems of frequent usage, SC\_CartesianCS and SC\_PolarCS, users may define relative or mobile coordinate reference systems derivatives based on the coordinate system of their interest.

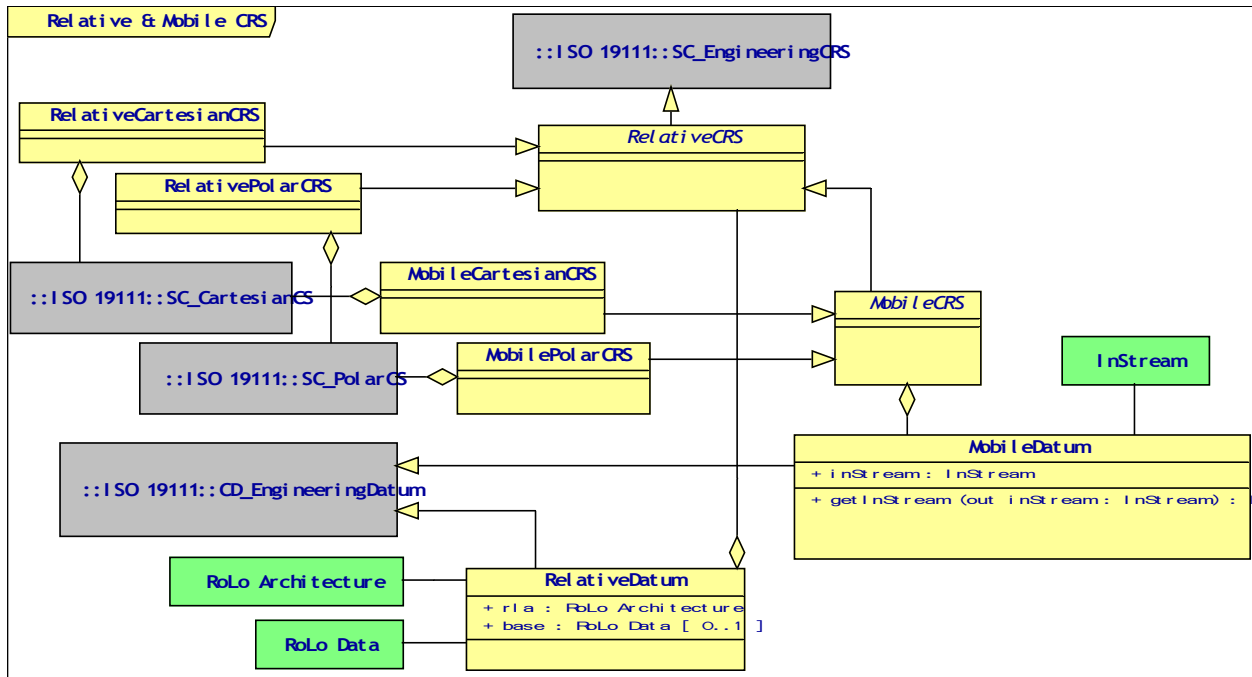


Figure 3 - Relative and Mobile coordinate reference system

Table 2 - RelativeCRS class

<b>Description:</b> Base abstract class for representing relative coordinate reference systems.
<b>Derived From:</b> SC_EngineeringCRS [ISO19111]

Table 3 - RelativeCartesianCRS class

<b>Description:</b> Relative coordinate reference systems based on Cartesian coordinate system.
<b>Derived From:</b> RelativeCRS

Table 4 - RelativePolarCRS class

<b>Description:</b> Relative coordinate reference system based on Polar coordinate system.
<b>Derived From:</b> RelativeCRS

**Table 5 - RelativeDatum class**

<b>Description:</b> Datum for the relative coordinate reference system. Holds a RoLo Data that				
<b>Derived From:</b> CD_EngineeringDatum [ISO19111]				
<b>Attributes</b>				
rla	RoLo Architecture	O	1	RoLo Architecture indicating the allowed structure for the base attribute. If the base attribute contains structural information, this may be omitted.
base	RoLoData	O	1	Data for determining the reference to other coordinate reference systems. Typically, this data includes spatial position for origin and pose for axis direction. If no relation with other coordinate reference systems is required, this can be empty.

**Table 6 - MobileCRS class**

<b>Description:</b> Abstract base class for representing mobile coordinate reference system.
<b>Derived From:</b> RelativeCRS

**Table 7 - MobileCartesianCRS class**

<b>Description:</b> Mobile coordinate reference systems based on Cartesian coordinate system.
<b>Derived From:</b> MobileCRS

**Table 8 - MobilePolarCRS class**

<b>Description:</b> Mobile coordinate reference system based on Polar coordinate system.
<b>Derived From:</b> MobileCRS

**Table 9 - MobileDatum class**

<b>Description:</b> Datum for the mobile coordinate reference system. This datum holds an InStream instance that is used to obtain positional information for determining the relation between the mobile coordinate reference system in target and another coordinate reference system. Users shall connect an OutStream object to this InStream, or shall supply positional information directly by the setData method of InStream. For example, if the mobile coordinate system is based on Cartesian coordinate system, spatial position information for mapping the origin and orientation information for determining axis directions may be supplied. However, some transformation algorithm require more complicated information such as measurement time or error information. The necessary information required can be determined by the ability information obtainable from the inStream object.				
<b>Derived From:</b> CD_EngineeringDatum [ISO19111]				
<b>Attributes</b>				
inStream	InStream	M	1	Input stream for obtaining base position.
<b>Operations</b>				
getInStream	Returns the input stream in use.			
out	inStream	InStream	Reference to the inStream object used in this datum.	

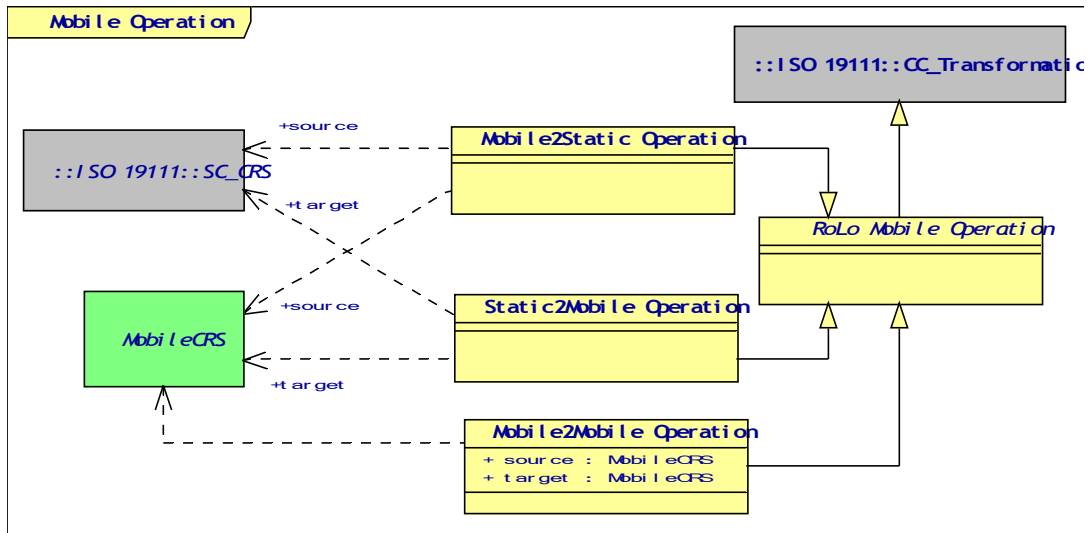


Figure 4 - Mobile CRS operations

Table 10 - RoLo Mobile Operation class

<b>Description:</b> Abstract base class for operations between mobile coordinate reference system and other coordinate reference systems.
<b>Derived From:</b> CC_Transformation [ISO19111]

Table 11 - Mobile2Static Operation class

<b>Description:</b> Transformation operation from mobile coordinate reference systems to other static, non-mobile coordinate reference systems..				
<b>Derived From:</b> RoLo Mobile Operation				
<b>Attributes</b>				
source	MobileCRS	M	1	The source mobile coordinate reference system.
target	CS_CRS [ISO19111]	M	1	The target coordinate reference system.

Table 12 - Fixed2Mobile Operation class

<b>Description:</b> Transformation operation from other static coordinate reference systems to mobile coordinate reference systems..				
<b>Derived From:</b> RoLo Mobile Operation				
<b>Attributes</b>				
source	CS_CRS [ISO19111]	M	1	The source coordinate reference system.
target	MobileCRS	M	1	The target mobile coordinate reference system.



**Table 13 - Mobile2Mobile Operation class**

<b>Description:</b> Transformation operation between mobile coordinate reference systems.				
<b>Derived From:</b> RoLo Mobile Operation				
<b>Attributes</b>				
source	MobileCRS	M	1	The source mobile coordinate reference system.
target	MobileCRS	M	1	The target mobile coordinate reference system.

### 7.3.2 Identity Information

Identity (ID), which is assigned for each localized targets, can also be treated as a value on some coordinate reference system. For example, MAC addresses used in Ethernet communication protocols can be represented as a coordinate value on a two-dimensional coordinate system, vendor code and vendor-dependent code. Electric Product Code (EPC) or ucode, used for identifying RF tags, is another example of identification systems defined by a multi-dimensional coordinate system. There also exist some ID systems, such as family names, that are usually not explicitly defined over some mathematical structure.

In general, each sensor holds its own ID system and each entity observed is assigned an ID from this local ID system. This is because, at least on the initial stage, there are no means to assign the observed entity a global ID. Thus, when multiple sensors are in use, there exist multiple local ID systems independent to each other, and it becomes necessary to properly manage and integrate these ID systems. Resolving the bindings between each local ID systems is called the ID association problem, and is one of the major research issues in the robotic localization field. Also, as we saw in the overview section, ID assignments are probabilistic, just like other location information.

Under these considerations, here we define coordinate reference systems and related structures for representing identity information. Here, two coordinate reference systems and accompanying coordinate systems are defined, for identity systems that are represented in numerical values and symbolic values. The actual coordinate value holding structure in GIS standard [ISO19107] only allows numeric values as coordinate value elements. Thus, similar structures in use with symbolic values are also defined.

Note that, operations on identity information (such as conversion from numeric ID to symbolic ID or mapping between different ID systems) can be constructed using `CC_CoordinateOperation` or relevant classes specified in GIS standard [ISO19111]. This is because the identity information define here is represented by using derived classes from GIS coordinate systems and coordinate reference systems.

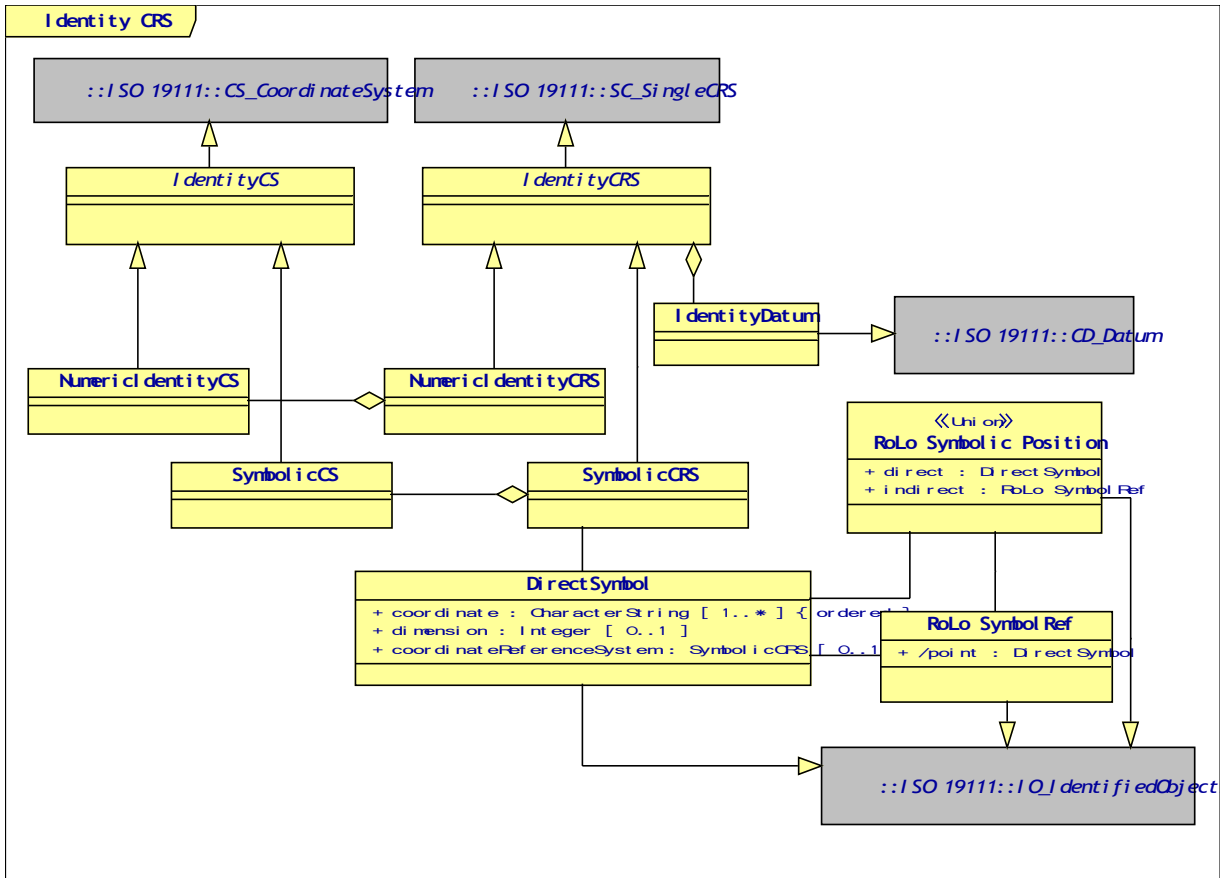


Figure 5 - Identity information

Table 14 - IdentityCS class

<b>Description:</b> Coordinate system for identity information.
<b>Derived From:</b> CS_CoordinateSystem [ISO19111]

Table 15 - NumericIdentityCS class

<b>Description:</b> Coordinate system for identity information, where each axis is defined over numerical values.
<b>Derived From:</b> IdentityCS

Table 16 - SymbolicCS class

<b>Description:</b> Coordinate system for identity information, where each axis is defined over a set of symbolic values.
<b>Derived From:</b> IdentityCS

**Table 17 - Identity Datum class**

<b>Description:</b> Datum for identity coordinate reference systems.
<b>Derived From:</b> CD_Datum [ISO19111]

**Table 18 - IdentityCRS class**

<b>Description:</b> Coordinate reference system for identity information.
<b>Derived From:</b> CD_Datum [ISO19111]

**Table 19 - NumericIdentityCRS class**

<b>Description:</b> Coordinate reference system for identity information, where each axis is defined over numerical values.
<b>Derived From:</b> IdentityCRS

**Table 20 - SymbolicCRS class**

<b>Description:</b> Coordinate reference system for identity information, where each axis is defined over a set of symbolic values.
<b>Derived From:</b> IdentityCRS

**Table 21 - DirectSymbol class**

<b>Description:</b> Class for holding symbolic identity information.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
coordinate	CharacterString	M	1	Values for each of the coordinate system axis.
dimension	Integer	O	1	Number of dimensions of this data.
coordinateReferenceSystem	SymbolicCRS	O	1	Reference to the coordinate reference system this data belongs to.

**Table 22 - RoLo SymbolRef class**

<b>Description:</b> Data holder for a reference to DirectSymbol				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
Point	DirectSymbol	M	1	Reference to the target DirectSymbol class instance.

**Table 23 - RoLo Symbolic Position class**

<b>Description:</b> Union of DirectSymbol and RoLo SymbolRef.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
direct	DirectSymbol	C	1	Symbolic identity data.
indirect	RoLo SymbolRef	C	1	Reference to symbolic identity data.
Condition: Either one of the element shall be contained.				

### 7.3.3 Error Information

Every sensing system in the real world cannot avoid having measurement error. As such, it is essential to know the reliability or deviation of measurements for performing localization and for utilizing the resulting estimation. Error information plays an important role in robotic operations. In GIS specifications, the only error concerned is the expected reliability of inter-coordinate transformation. However, complex and detailed error descriptions are required in modern localization methods. Thus, here we define additional structures for representing and operating on error information.

#### RoLo Error Type

Similar to the relation of coordinate reference system and the position in the traditional GIS systems, we here define Error types for describing the nature of error information. Every error information data references an error type, which indicates how the error is represented. This means that, the same error data can be represented in a different manner. Thus, operations for transforming between different error types are defined.

Note that, error information in the context of localization cannot exist solely by itself. Error information is an attribute to the location value. Thus, there exist two types of operation on error information in general. 1) Change in error representation type, and 2) change in the coordinate system the target location value is based on. The former operation is described in this section, and the latter is described later with the description on RoLo Architecture.

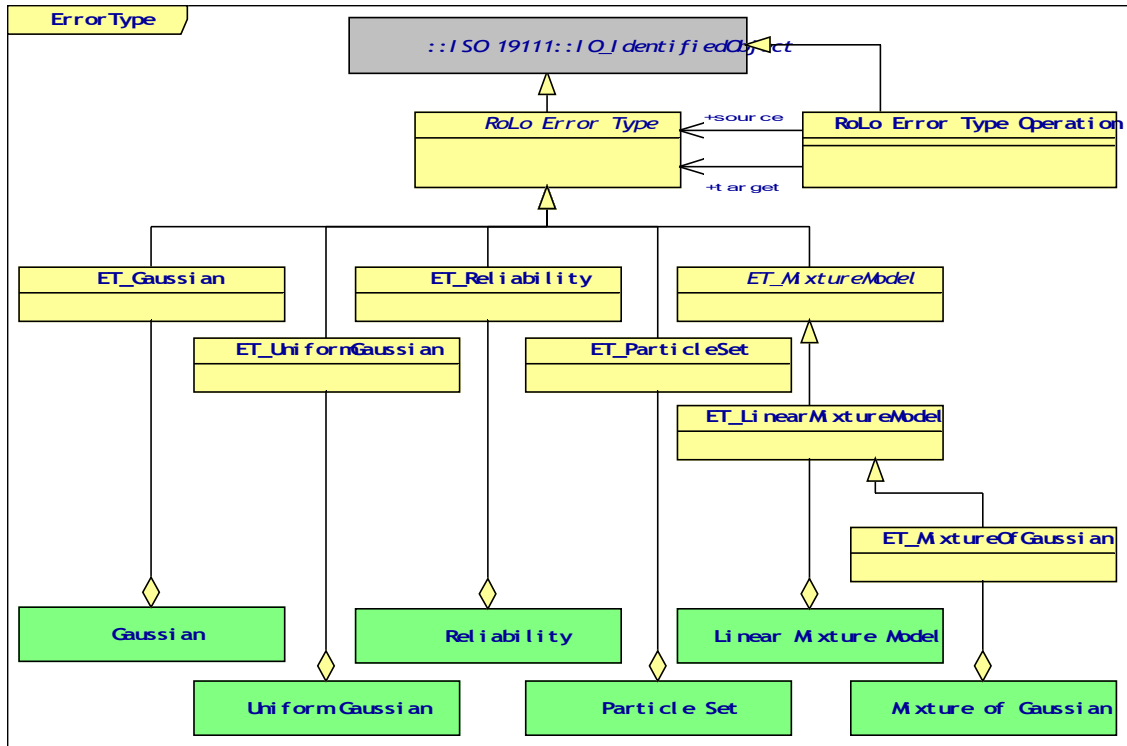


Figure 6 - Error Type

Table 24 - RoLo Error Type class

<b>Description:</b> Base class for describing error type.
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]

Table 25 - RoLo Error Type Operation class

<b>Description:</b> Denotes transformation of error value representation into different RoLo Error Type.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
source	RoLo Error Type	M	1	Source RoLo error type.
target	RoLo Error Type	M	1	Target RoLo error type.

Table 26 - ET\_Reliability class

<b>Description:</b> Error representation by a single scalar value.
<b>Derived From:</b> RoLo Error Type

**Table 27 - ET\_Gaussian class**

<b>Description:</b> Error representation as a single n-dimensional normal distribution.
<b>Derived From:</b> RoLo Error Type

**Table 28 - ET\_UniformGaussian class**

<b>Description:</b> Error representation as a single n-dimensional normal distribution, where deviation is assumed to be uniform in every dimension.
<b>Derived From:</b> RoLo Error Type

**Table 29 - ET\_ParticleSet class**

<b>Description:</b> Error representation as a set of particles. Particle set is used for approximating complicated distributions by means of limited number of sampling points.
<b>Derived From:</b> RoLo Error Type

**Table 30 - ET\_MixtureModel class**

<b>Description:</b> Abstract class for representing error representation type in mixture model.
<b>Derived From:</b> RoLo Error Type

**Table 31 - ET\_LinearMixtureModel class**

<b>Description:</b> Error representation as a linear mixture of probability distributions.
<b>Derived From:</b> ET_Mixture Model

**Table 32 - ET\_MixtureOfGaussian class**

<b>Description:</b> Error representation as a mixture of normal distributions.
<b>Derived From:</b> ET_LinearMixtureModel

## RoLo Error

Here classes for holding error information in different representations are described.

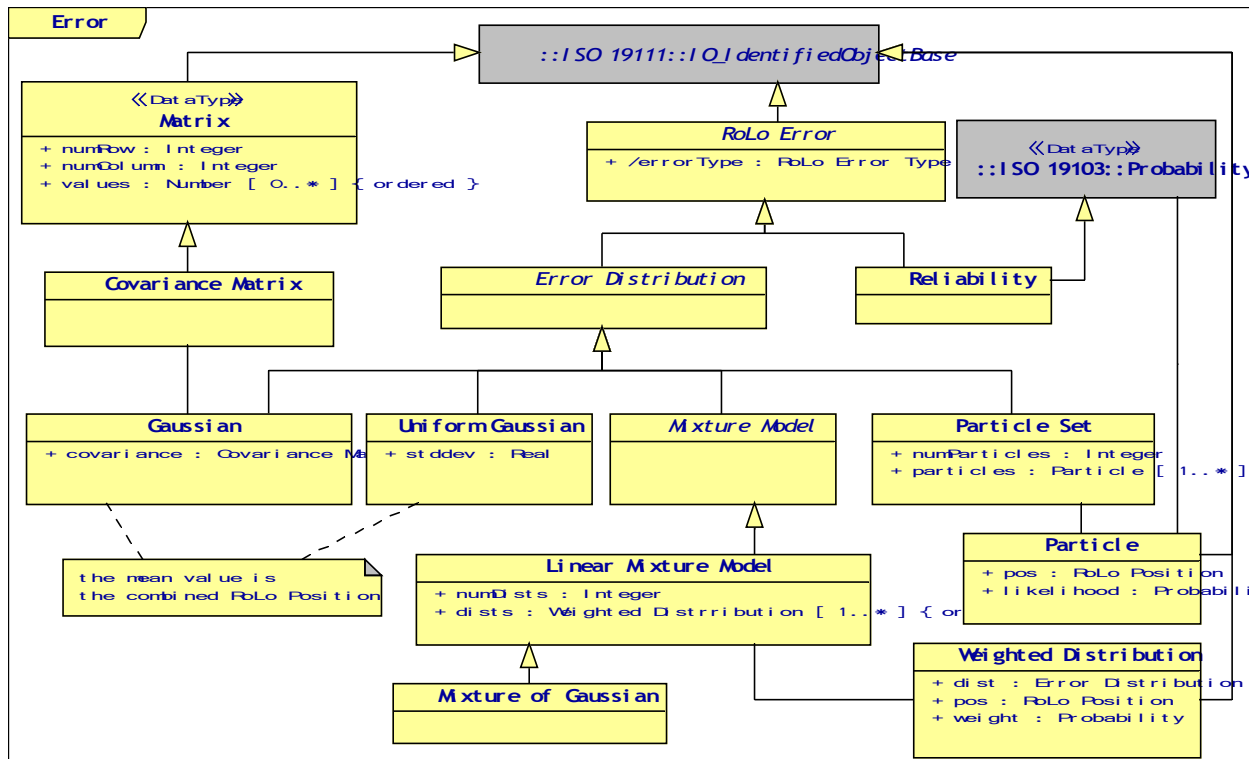


Figure 7 - Error information

Table 33 - RoLo Error class

<b>Description:</b> Base class for holding error information.□				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
errorType	RoLo Error Type	0	1	Reference to the error type indicating how this error information is represented.

Table 34 - Reliability class

<b>Description:</b> Reliability value. The derived attribute 'errorType' shall be ET_Reliability.
<b>Derived From:</b> RoLo Error, Probability [ISO19103]

Table 35 - Error Distribution class

<b>Description:</b> Base class for error information represented by a probability distribution.
<b>Derived From:</b> RoLo Error
<b>Attributes</b>

**Table 36 - Matrix class**

<b>Description:</b> N-dimensional matrix.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
numRow	Integer	M	1	Number of matrix rows.
numColumn	Integer	M	1	Number of matrix columns.
values	Number	M	1	Value elements of the matrix.

**Table 37 - Covariance Matrix class**

<b>Description:</b> An N-dimensional matrix describing covariance.				
<b>Derived From:</b> Matrix				

**Table 38 - Gaussian class**

<b>Description:</b> Error represented by an n-dimensional single normal distribution. The mean value is the accompanying RoLo Position in the RoLo Element. The derived attribute 'errorType' shall be ET_Gaussian.				
<b>Derived From:</b> Error Distribution				
<b>Attributes</b>				
covariance	Covariance Matrix	M	1	Indicates the covariance for the normal distribution. The dimensions of this matrix should match the dimension of the accompanying RoLo Position.

**Table 39 - Uniform Gaussian class**

<b>Description:</b> Error represented by a uniform normal distribution. Mean value is the accompanying RoLo Position in the RoLo Element. The derived attribute 'errorType' shall be ET_UniformGaussian.				
<b>Derived From:</b> Error Distribution				
<b>Attributes</b>				
stddev	Real	M	1	Standard deviation of the distribution common to every coordinate axis.

**Table 40 - Particle class**

<b>Description:</b> Representation of a particle.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes</b>				
pos	RoLo Position	M	1	Position represented by this particle.
likelihood	Probability	M	1	Likelihood of this particle.



**Table 41 - Particle Set class**

<b>Description:</b> Error represented by a set of particles. The expected value is the accompanying RoLo Position in the RoLo Element. Normally, this is used for representing distributions by Monte Carlo approximation, where distributions are approximated by a finite number of random samplings. The derived attribute 'errorType' shall be ET_ParticleSet.				
<b>Derived From:</b> Error Distribution				
<b>Attributes</b>				
numParticles	Integer	O	1	Number of particles held.
particles	RoLo Element	M	N	Particles used to describe the probability distribution.

**Table 42 - Mixture Model class**

<b>Description:</b> Abstract class for representing an error distribution by means of mixture of probability distributions.				
<b>Derived From:</b> Error Distribution				

**Table 43 - Weighted Distribution class**

<b>Description:</b> A distribution with a weight.				
<b>Derived From:</b> IO_IdentifiedObjectBase				
<b>Attributes</b>				
weight	Probability	M	1	Weight of this distribution.
pos	RoLo Position	M	1	Expected position for the distribution.
dist	Error Distribution	M	1	Distribution.

**Table 44 - Linear Mixture Model class**

<b>Description:</b> Error distribution represented by a linear mixture of probability distributions. The derived attribute 'errorType' shall be ET_LinearMixtureModel.				
<b>Derived From:</b> Mixture Model				
<b>Attributes</b>				
numDists	Integer	O	1	Number of distributions to be mixed.
dists	Weighted Distribution	M	N	List of error distributions to be combined.

**Table 45 - Mixture of Gaussian class**

<b>Description:</b> Error distribution represented by a mixture of normal distributions. The derived attribute 'errorType' shall be ET_MixtureOfGaussian. The error distributions used for mixture shall be instances of Gaussian class.				
<b>Derived From:</b> Linear Mixture Model				

### 7.3.4 Robotic Localization Architecture

The **Robotic Localization (RoLo) Architecture** defined here is a unified framework for organizing and representing complex data set required in robotic localization. Similar to the relation between GIS location data and coordinate reference system, two sets of structures are defined here.

- 1) Classes for holding the localization results (RoLo Data, RoLo Element and RoLo Position)
- 2) Classes for describing the structure or the meaning of localization results (RoLo Architecture, RoLo Element Specification)

These two sets of classes are in relation similar to that between GIS position data and coordinate reference systems: the latter describes the structure and meaning of the former. The RoLo Element and RoLo Element Specification pair binds the main localization data element to error information. The RoLo Data and RoLo Architecture pair defines the structure and relation among a set of RoLo Elements that forms the complete robotic localization results.

Normally, error information is combined with one main localization element. However, in certain cases, there is a need to hold an integrated error among multiple location data. For example, in a typical Kalman filter usage, multiple main location information such as spatial position and velocity are used to form a state vector. When the elements of the state vector are not independent, which is the usual case, the corresponding error, the covariance matrix, is related to multiple main elements. In such case, the Error Element Specification (derived from RoLo Element class) instance specifies which main information slot the error is related to, and the actual error data is contained by the Error Element class (derived from RoLo Element class) instances.

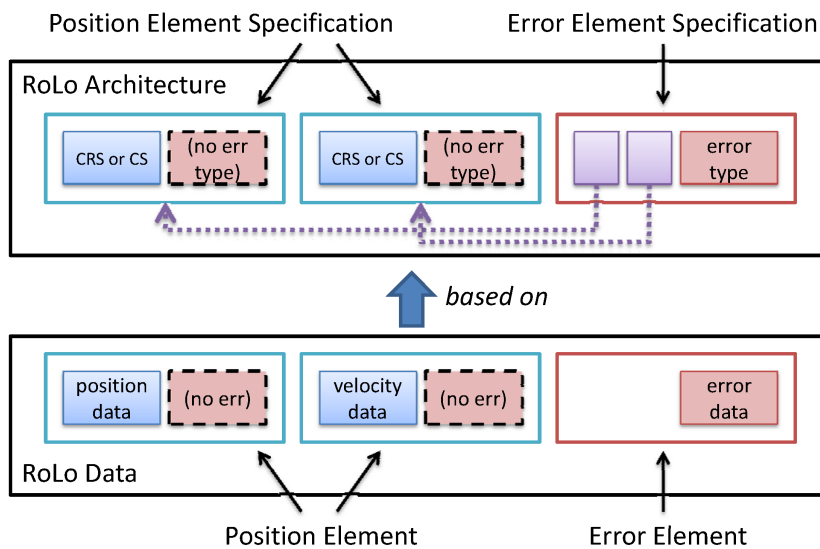


Figure 8 - Representation of error information related to multiple localization data

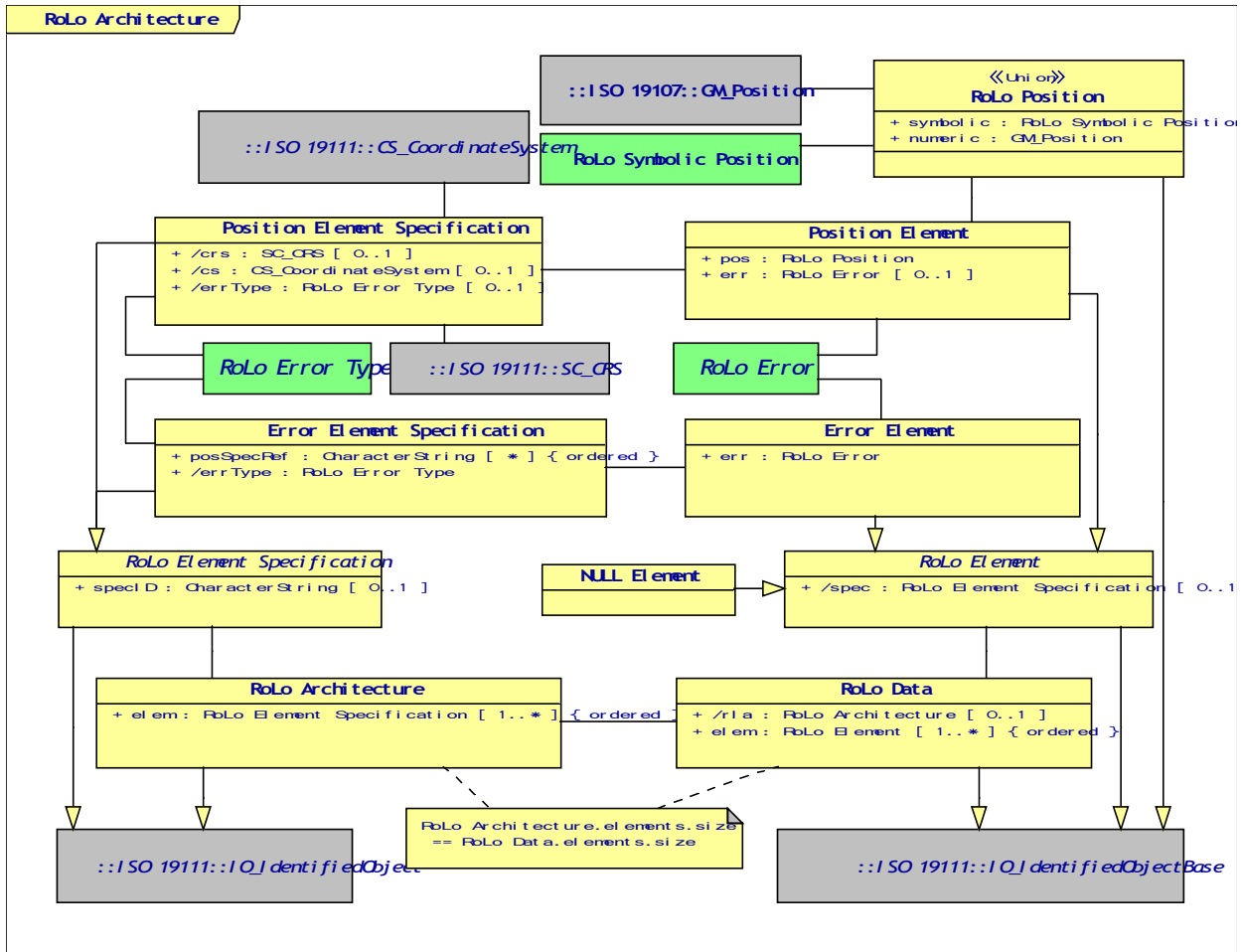


Figure 9 - RoLo Architecture

Table 46 - RoLo Position class

<b>Description:</b> Data container for localization results without error information. This is formed as a union of RoLo Symbolic Position class and GM_Position [ISO19107] class. The former is a container for symbolic symbols such as identity information, and the latter contains numerical data such as spatial coordinate values.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes:</b>				
symbolic	RoLo Symbolic Position	C	1	Symbolic data container
numeric	GM_Position	C	1	Numeric data container.
<b>Condition:</b> One and only one of the choice shall be chosen.				

**Table 47 - RoLo Element Specification class**

<b>Description:</b> Base abstract class for holding structural definition for RoLo Element. Instances of this RoLo Element Specification class contain meta-level information on what kind of data each RoLo Element data container holds.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes:</b>				
specID	CharacterString	M	1	Identifier for each RoLo Element Specification instances within a certain RoLo Architecture instance. This value should be interpreted as a local identifier within the RoLo Architecture instance this RoLo Element Specification instance belongs.

**Table 48 - Position Element Specification class**

<b>Description:</b> Definition holder for Position Element class. Every instance of Position Element Specification class shall hold a reference to either a coordinate reference system or a coordinate system that the positional data belongs to. When the coordinate system reference is specified, it is recommended that Position Element objects based on this specification objects hold information on which coordinate reference system they belong to.				
<b>Derived From:</b> RoLo Element Specification				
<b>Attributes:</b>				
crs	SC_CRS [ISO19111]	C	1	Reference to the Coordinate Reference System instance that the pos attribute in Position Element class belongs to.
cs	CS_CoordinateSystem [ISO19111]	C	1	Reference to the Coordinate System instance that the pos attribute in Position Element class is based on.
errType	ErrorType	O	1	Reference to RoLo Error Type instance. Specifies the type of err attribute in Position Element class. If this attribute does not exist, the Position element related with this instance shall not contain error information.
Condition: One and only one of the listed attributes shall be supplied				

**Table 49 - Error Element Specification class**

<b>Description:</b> Definition holder for Error Element class.				
<b>Derived From:</b> RoLo Element Specification				
<b>Attributes:</b>				
posSpecRef	CharacterString	M	N ord	Reference to Position Element Specification instance contained in the same RoLo Architecture instance as this class instance. The value of specID attribute in the target Position Element Specification is used. Indicates the Position Element Specification instances that the error information contained in Error Element instance is related with.
errType	ErrorType	M	1	Reference to RoLo Error Type instance. Specifies the type of err attribute in Position Element class.

**Table 50 - RoLo Element class**

<b>Description:</b> Base abstract class for holding each localization result element, combination of the main information and the accompanying error information.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes:</b>				
spec	RoLo Element Specification	O	1	Reference to RoLo Element Specification instance that this element is based on.

**Table 51 - Position Element class**

<b>Description:</b> Data container of each localization result element, combination of the main information and the accompanying error information. This subclass of RoLo Element holds the actual main information. The derived spec attribute shall be a reference to Position Element Specification.				
<b>Derived From:</b> RoLo Element				
<b>Attributes:</b>				
pos	RoLo Position	M	1	The main information.
err	RoLo Error	O	1	Error information related to the pos attribute of the same instance. If the Position Element Specification related with this Position Element instance does not contain errType attribute, this err attribute shall not be contained.

**Table 52 - Error Element class**

<b>Description:</b> Data container of error information that is related to multiple number of main information in the same RoLo Data. The elements related with this error information are defined in the accompanying Error Element Specification instance. The derived spec attribute shall be a reference to Error Element Specification.				
<b>Derived From:</b> RoLo Element				
<b>Attributes:</b>				
err	RoLo Error	M	1	Reference to RoLo Error Type instance. Specifies the type of err attribute in Position Element class.

**Table 53 - NULL Element class**

<b>Description:</b> Don't-care indicator. Used for indicating that this slot in RoLo Element Specification shall not be processed. The spec attribute value shall be ignored.				
<b>Derived From:</b> RoLo Element				

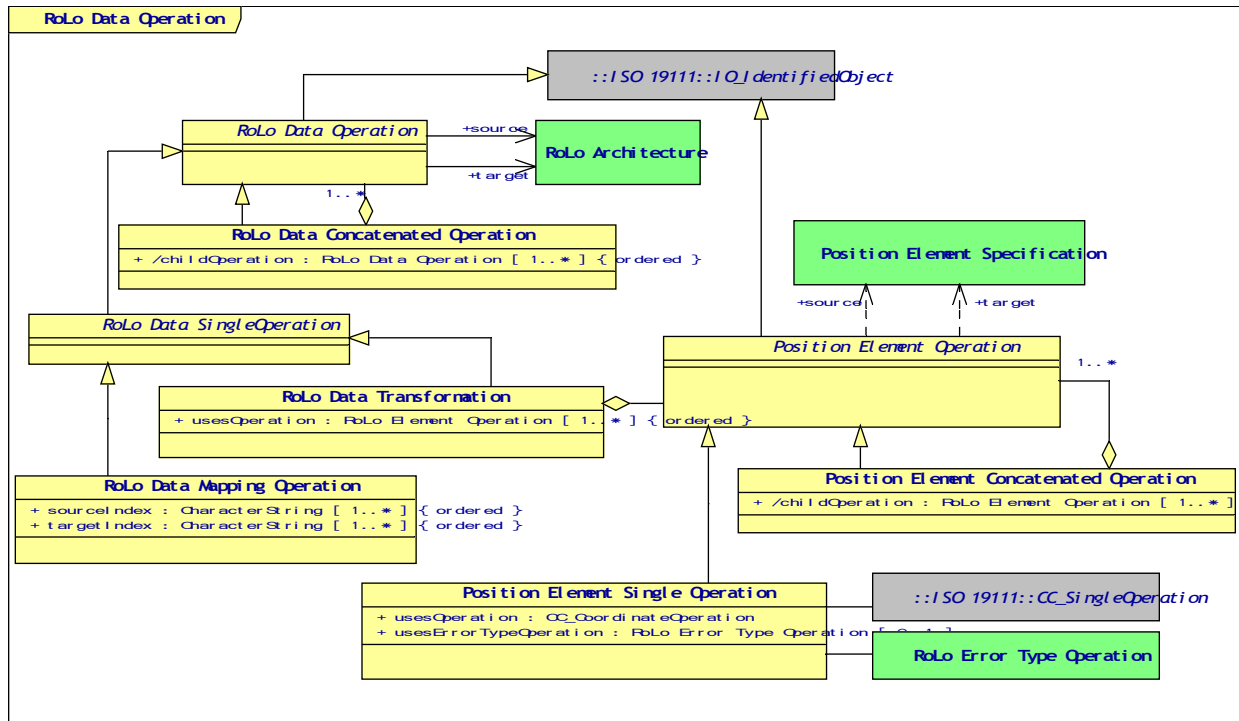
**Table 54 - RoLo Architecture class**

<b>Description:</b> Definition holder for the robotic localization result.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes:</b>				
elemSpec	RoLo Element Specification	M	N	Ordered list for the RoLo Element Specifications that defines the structure of the localization result data.

**Table 55 - RoLo Data class**

<b>Description:</b> Data container for the robotic localization result.				
<b>Derived From:</b> IO_IdentifiedObjectBase [ISO19111]				
<b>Attributes:</b>				
rla	RoLo Architecture	O	1	Reference to the corresponding RoLo Architecture.
elem	RoLo Element	M	N	Ordered list for the RoLo Element Specifications that defines the structure of the localization result data. Numbers of the elements shall match that of corresponding RoLo Architecture.

**Operations**



**Figure 10 - RoLo Data Operation**

**Table 56 - Position Element Operation class**

<b>Description:</b> Base abstract class for representing operations for transforming data between different RoLo Elements. RoLo Elements are basically composed by RoLo Position and RoLo Error. As the value of RoLo Error is also based on the coordinate reference system where the combined RoLo Position is based on, both the main information and the error information shall be transformed at once.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes:</b>				
source	Position Element Specification	M	1	Source Position Element Specification.
target	Position Element Specification	M	1	Target Position Element Specification.

**Table 57 - Position Element Concatenated Operation class**

<b>Description:</b> Concatenation of multiple Position Element Operations.				
<b>Derived From:</b> Position Element Operation				
<b>Attributes:</b>				
childOperation	Position Element Operation	M	N ord	Ordered list of Position Element Operation to be applied. Target Position Element Specification and source Position Element Specification for succeeding operations shall match.

**Table 58 - Position Element Single Operation class**

<b>Description:</b> Definition of an operation for transforming or converting data between different Position Element Specifications. The main information is processed by the CC_CoordinateOperation [ISO19111], and the error information should also be transformed.				
<b>Derived From:</b> Position Element Operation				
<b>Attributes:</b>				
usesOperation	CC_CoordinateOperation [ISO19111]	M	1	Operation to be used for transforming the main localization data. This operation may also be utilized to transform the accompanying error information.
UsesErrorType Operation	RoLo Error Type Operation	O	1	Operation to be used for converting the representation type of the error part. If not error conversion is necessary, this part may be omitted.

**Table 59 - RoLo Data Operation class**

<b>Description:</b> Base abstract class for representing operations for transforming data between different RoLo Architectures. The main purpose of this operation is to transform or to convert RoLo Data that contains Error Element. RoLo Data which contains Error Element need to know about how other elements within the same RoLo Architecture are operated. RoLo Data Operation performs necessary operations for Error Elements, alongside the operations for Position Elements.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes:</b>				
source	RoLo Architecture	M	1	Reference to the originate RoLo Architecture.
target	RoLo Architecture	M	1	Reference to the target RoLo Architecture.

**Table 60 - RoLo Data Concatenated Operation class**

<b>Description:</b> Concatenation of multiple RoLo Data Operations.				
<b>Derived From:</b> RoLo Architecture Operation				
<b>Attributes:</b>				
childOperation	RoLo Architecture Operation	M	N ord	Ordered list of RoLo Architecture Operation to be applied. Target RoLo Architecture and source RoLo Architecture for succeeding operations shall match.

**Table 61 - RoLo Data Single Operation class**

<b>Description:</b> Abstract class for representing an operation for transforming data between different RoLo Architectures.				
<b>Derived From:</b> RoLo Architecture Operation				

**Table 62 - RoLo Data Transformation class**

<b>Description:</b> Definition of an operation for transforming data between different RoLo Architecture.				
<b>Derived From:</b> RoLo Architecture Single Operation				
<b>Attributes:</b>				
usesOperation	RoLo Element Operation	M	N ord	Operations used for each of the RoLo Element Specification in this RoLo Architecture. The number of RoLo Element Specifications in this RoLo Architecture and that of usesOperation attribute shall match. The operation defined here is applied to each of the RoLo Elements in the order the corresponding RoLo Element Specifications are defined.

**Table 63 - RoLo Data Mapping Operation class**

<b>Description:</b> Definition of an operation for transforming data between different RoLo Architecture, that simply maps elements in the source RoLo Architecture to elements in the target RoLo Architecture. Only the structures of the RoLo Elements are altered, and the data content itself are not changed. With Error Elements, the reference to the Position Elements shall be modified appropriately. The two attributes contained are lists of RoLo Element Specification indices in source and target RoLo Architectures that defines how the mapping is to be performed.				
<b>Derived From:</b> RoLo Architecture Single Operation				
<b>Attributes:</b>				
sourceIndex	CharacterString	M	N ord	Ordered list of RoLo Element Specification relative IDs within the source RoLo Architecture, which is to be mapped to the RoLo Element Specification in the target RoLo Architecture represented by the targetIndex attribute value at same position. The numbers of sourceIndex attribute shall match that of targetIndex attribute
targetIndex	CharacterString	M	N ord	Ordered list of RoLo Element Specification relative Ids within the target RoLo Architecture.



## 7.4 Data Formats

When exchanging information amongst modules, knowledge on data structures is not enough. We need to specify the actual data representation format exchanged amongst modules.

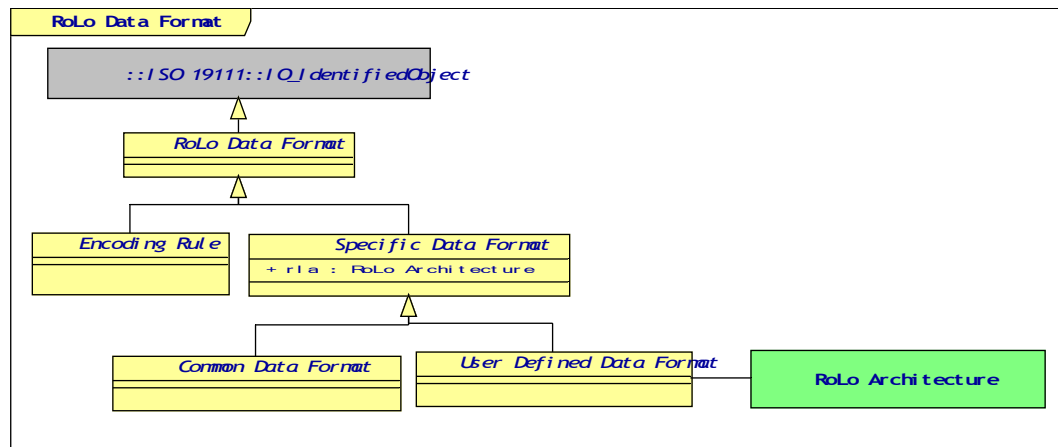


Figure 11 - RoLo Data format

Table 64 - RoLo Data Format class

<b>Description:</b> Base abstract class for data format definitions.
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]

Table 65 - Encoding Rule class

<b>Description:</b> Base abstract class for encoding rule. <i>Encoding rule</i> denotes some systematic mean that can determine the data format from corresponding data structure (i.e. RoLo Architecture). Packed Encoding Rule [PER] is an example of encoding rule. This is a reserved class for future extension.
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]

Table 66 - Specific Data Format class

<b>Description:</b> Abstract class for data formats where format description is tightly coupled with data structure. This is in contrast with the Encoding Rule class, where data formatting rules are independent to data structure definitions.				
<b>Derived From:</b> RoLo Data Format				
<b>Attributes:</b>				
rla	RoLo Architecture	M	1	Specifies data architecture that this data format can handle.

**Table 67 - User Defined Data Format class**

<b>Description:</b> Abstract class for user-defined, non-common data formats.
<b>Derived From:</b> Specific Data Format

**Table 68 - Common Data Format class**

<b>Description:</b> Abstract class for denoting Common Data Formats.
<b>Derived From:</b> Specific Data Format

### 7.4.1 Common data format

This specification allows a wide range of data formats for keeping compatibility to widely used data formats. This specification, however, defines three common data formats, representing location information in order to provide interoperability between modules which have lack of computing resources. Every module in Robotic Localization Service shall support at least one of these common data formats in order to transmit location information to enhance inter-module connectability as much as possible.

#### Type I

**Table 69 - Common data format type I**

Parameter	Format of value	Value type	Unit
Position	[x,y,z]	Real	meter
Orientation	[ $\theta, \phi, \psi$ ] (roll, pitch, yaw)	Real	degree
Timestamp	POSIX time	Real	millisecond
ID	--	Integer	--

The type I format delivers location information based on Cartesian coordinate system. It includes four parameters.

- **Position** – specifies the coordinate value in a right-handed 3-dimensional Cartesian coordinate system.
- **Orientation** – specifies the rotation along each axis in a right-handed 3-dimensional Cartesian coordinate system. The unit of this parameter is radians. The order of orientation is the rotation around x-axis, the rotation around y-axis, and the rotation around z-axis of 3-dimensional right-handed Cartesian coordinate system; roll, pitch, and yaw are conventional terms.
- **Timestamp** – specifies time at occurring measurement for current position and orientation. The format is compatible to POSIX time which is the number of second elapsed since midnight Coordinated Universal Time (UTC) of January 1, 1970. The resolution of timestamp is milliseconds.
- **ID** – specifies the identifier of current location information for robots and related entities.

## Type II

Table 70 - Common data format type II

Parameter	Format of value	Value type	Unit
Position	$[\gamma, \alpha, \beta]$	Real	radian
Orientation	$[\theta, \phi, \psi]$ (roll, pitch, yaw)	Real	degree
Timestamp	POSIX time	Real	millisecond
ID	--	Integer	--

The type II format delivers location information based on Polar coordinate system. It includes four parameters.

- **Position** – specifies the coordinate value in a 3-dimensional Polar coordinate system. The unit of each value is radian.
- **Orientation** – specifies the rotation along each axis in a right-handed 3-dimensional Cartesian coordinate system. The unit of this parameter is radians. The order of orientation is the rotation around x-axis, the rotation around y-axis, and the rotation around z-axis of 3-dimensional right-handed Cartesian coordinate system; roll, pitch, and yaw are conventional terms.
- **Timestamp** – specifies time at occurring measurement for current position and orientation. The format is compatible to POSIX time which is the number of second elapsed since midnight Coordinated Universal Time (UTC) of January 1, 1970. The resolution of timestamp is milliseconds.
- **ID** – specifies the identifier of current location information for robots and related entities.

## Type III

Table 71 - Common data format type III

Parameter	Format of value	Value type	Unit
Position	[longitude, latitude, height]	Real	degree, meter
Orientation	$[\theta, \phi, \psi]$ (roll, pitch, yaw)	Real	degree
Timestamp	POSIX time	Real	millisecond
ID	--	Integer	--

The type III format delivers location information based on geodetic coordinate system. It includes four parameters.

- **Position** – specifies the coordinate value in a geodetic coordinate system. The value of this parameter represents longitude, latitude, and height in order. The unit of longitude and latitude is degree and that of height is meter.
- **Orientation** – specifies the rotation along each axis in a right-handed 3-dimensional Cartesian coordinate system. The unit of this parameter is radians. The order of orientation is the rotation around x-axis, the rotation around y-axis, and the rotation around z-axis of 3-dimensional right-handed Cartesian coordinate system; roll, pitch, and yaw are conventional terms.

- **Timestamp** – specifies time at occurring measurement for current position and orientation. The format is compatible to POSIX time which is the number of second elapsed since midnight Coordinated Universal Time (UTC) of January 1, 1970. The resolution of timestamp is milliseconds.
- **ID** – specifying the identifier of current location information for robots and related entities.

## 7.5 Filter Condition

RoLo Service (or RoLo Stream) may have the functionality to filter localization results by a certain condition. We call the condition as "filter condition." When a filter condition is specified, each localization result is tested by the condition, and passed to the output stream only when it satisfies the condition.

If no condition is given, or the service has no such functionality, the "True" condition is used as the default condition, in which all localization results are passed to the output stream.

To handle Filter Condition functionality, RoLo Service shall have the following operations.

**Table 72 - Filter Condition Extension of RoLo Service class**

<b>Description:</b> Interface for the Robotic Localization Service.				
<b>Derived From:</b> OutStream				
<b>Attributes</b>				
inStream	InStream	O	N ord	An ordered list of input stream objects.
<b>Operations</b>				
getNumInStream		Returns the number of input streams.		
out	num	Integer	Number of input streams equipped in this module.	
getInStream		Returns the input stream of given index.		
in	index	Integer	Index number indicating the target InStream.	
out	stream	InStream	Reference to the target InStream.	
adjust		Method for adjusting localization results. For elements not required for adjustment, NULL element should be specified.		
in	data	RoLo Data	Data to be used for initialization or adjustment. Adjusts every element at once.	
getChild		Return the service connected to the InStream of this service module.		
in	index	Integer	Index number indicating the target child service.	
out	service	RoLo Service	Reference to the target child service	
getAbility		Obtain ability description for this service.		
out	ability	Service Ability	Ability description for this service	
setParameter		Set parameter values for this service.		
in	parameter	Service Parameter	Parameter values to be set.	
getParameter		Obtain current parameter values for this service.		
out	parameter	Service Parameter	Current parameter settings.	
<b>setFilterCondition</b>		<b>Set a filter condition</b>		
<b>in</b>	<b>condition</b>	<b>FC_FilterOperator</b>	<b>a filter condition to set</b>	

<b>getFilterCondition</b>		<b>Return the filter condition set to the service</b>	
<b>in</b>	<b>condition</b>	<b>FC_FilterOperator</b>	<b>a filter condition set to the service.</b>

### 7.5.1 Filter Operators

In order to specify a filter condition, we follow the specification of "OpenGIS Filter Encoding Implementation Specification" (ISO 19143), which is defined for "OpenGIS Web Feature Service Implementation Specification" (ISO 19142). While ISO 19143 only specifies XML encoding, we need object models for the condition. The following specification is re-written object model of ISO 19143.

Most of the non-abstracted operators described below have the same meanings as the XML elements in ISO 19143 that have the same names, respectively. However, there are two exceptions in this specification.

The first exception is FC\_True and FC\_False classes. They have no corresponding XML elements in ISO 19143. They denote simply logical true and false.

The second exception is FC\_PropertyName class. There are corresponding XML element, <propertyName> in ISO 19143, which specifies the position of a focusing property in a geographical feature. On the other hand, in the RLS specification, FC\_PropertyName specifies a RoLo Position or its component in a RoLo Data.

#### Top Level

FC\_Node class is the top level abstracted class for all elements that is used to express filter conditions. FC\_Node should have a class method called 'isInstanceOf' that receive a node (an instance of FC\_Node) and a class. The method shall check the node is an instance of the class or its derived class.

FC\_FilterOp class is the top level abstracted class for all operation used in filter conditions.

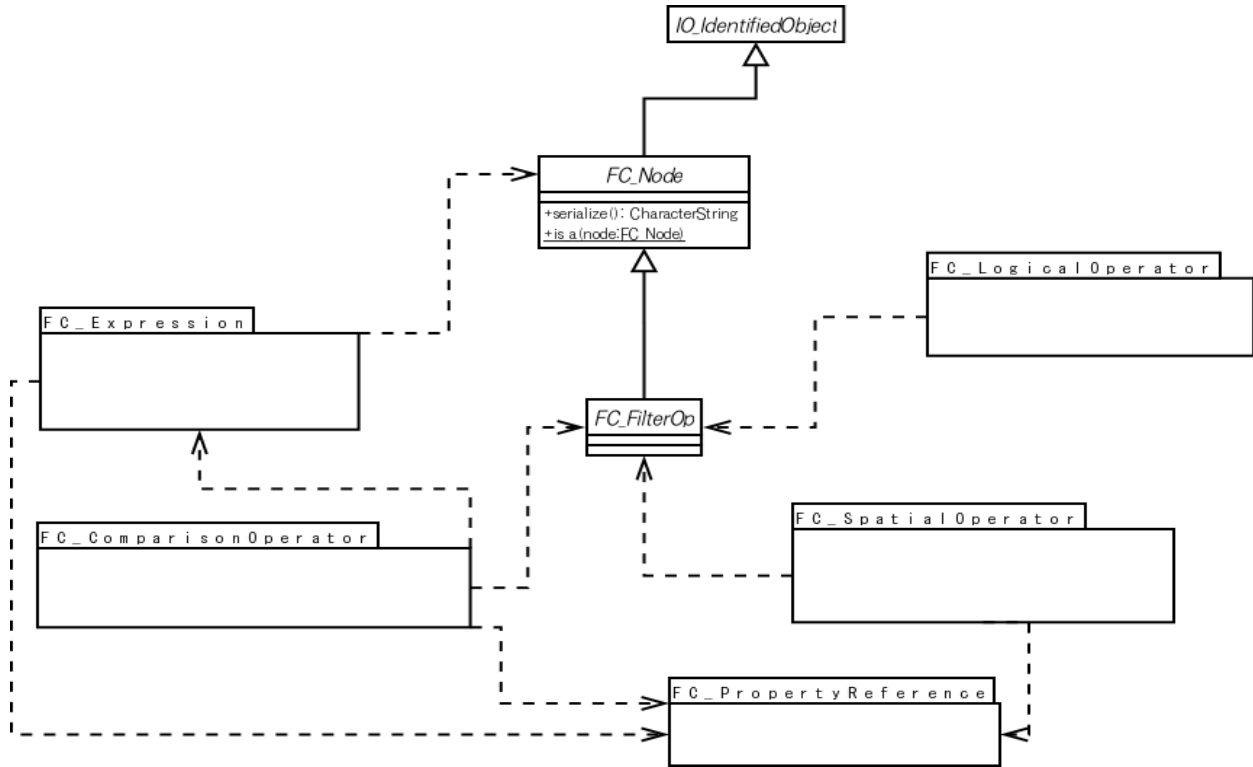


Figure 12 - Filter Condition Toplevel

Table 73 - Filter Condition Node class

FC_Node			
<b>Description:</b> abstracted class for tree node in filter operators			
<b>Derived From:</b>			
<b>Operations:</b>			
isInstanceOf	Returncode_t	Check a given node is an instance of class class.	
in	node	NC_Node	A node to be checked.
in	klass	Class	A class that node may belong to
out	belongness	boolean	if node belongs to klass, return true. otherwise, return false.

Table 74 - Filter Op class

FC_FilterOp	
<b>Description:</b> abstracted class for filter operator	
<b>Derived From:</b> FC_Node	

## Logical Operators

The Filter Condition facility should provide general logical operations like AND, OR, and NOT. FC\_And, FC\_OR, and FC\_Not are classes to denote these operations respectively.

The Filter Condition facility also may provide two atomic logical operation, FC\_True and FC\_False, which means logical true and false value.

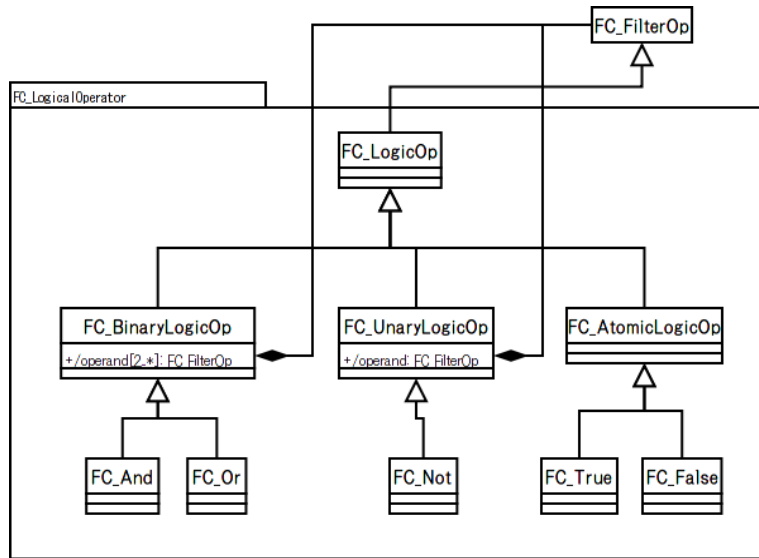


Figure 13 - Logical Operators

Table 75 - LogicOp class

FC_LogicOp	
<b>Description:</b>	abstracted class for logical operator node
<b>Derived From:</b>	FC_FilterOp

Table 76 - BinaryLogicOp class

FC_BinaryLogicOp				
<b>Description:</b>	abstracted class for logical operator node that takes two or more operands			
<b>Derived From:</b>	FC_LogicOp			
<b>Attributes</b>				
/operand	FC_FilterOp	M	2-N	A list of children nodes of the logic operation

**Table 77 - UnaryLogicOp class**

FC_UnaryLogicOp		
<b>Description:</b> abstracted class for logical operator node that takes an operand.		
<b>Derived From:</b> FC_LogicOp		
<b>Attributes</b>		
/operand	FC_FilterOp	a child node of the logic operation

**Table 78 - AtomicLogicOp class**

FC_AtomicLogicOp		
<b>Description:</b> abstracted class for atomic logical operator.		
<b>Derived From:</b> FC_LogicOp		

**Table 79 - And class**

FC_And		
<b>Description:</b> denote logical AND operation		
<b>Derived From:</b> FC_BinaryLogicOp		

**Table 80 - Or class**

FC_Or		
<b>Description:</b> denote logical OR operation		
<b>Derived From:</b> FC_BinaryLogicOp		

**Table 81 - Not class**

FC_Not		
<b>Description:</b> denote logical negation operation		
<b>Derived From:</b> FC_UnaryLogicOp		

**Table 82 - True class**

FC_True		
<b>Description:</b> denote logical truth value		
<b>Derived From:</b> FC_AtomicLogicOp		

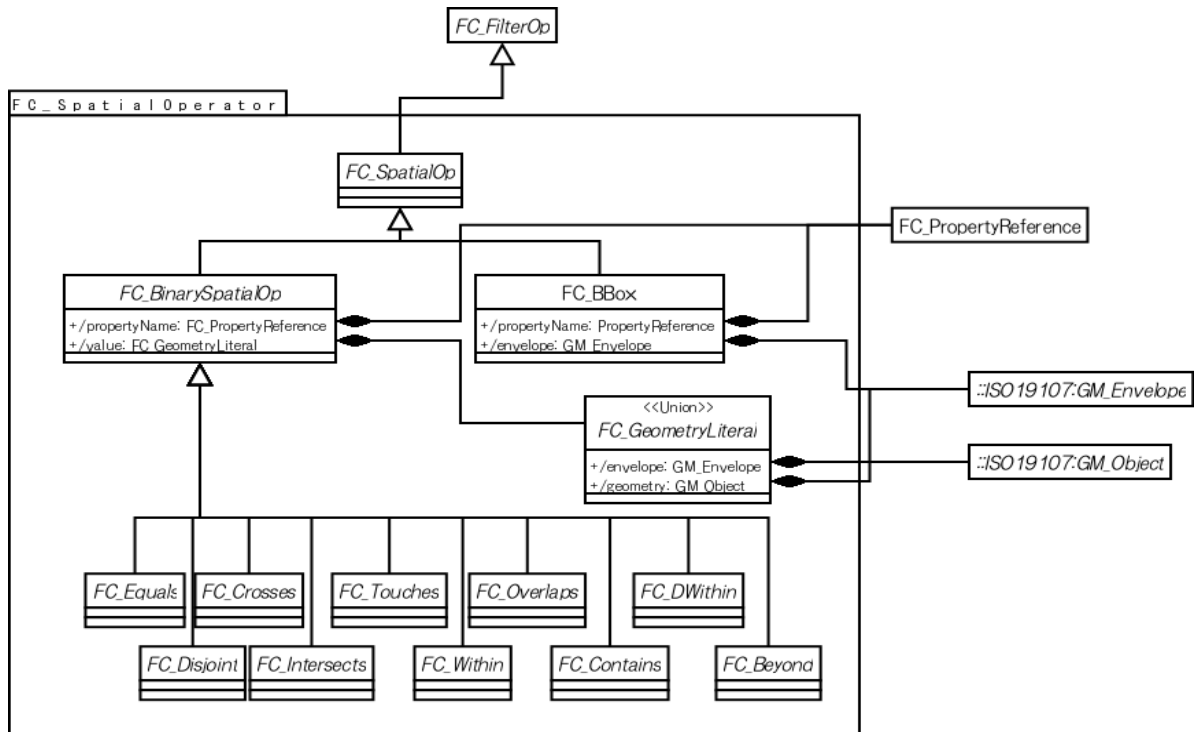


**Table 83 - False class**

<b>FC_False</b>
<b>Description:</b> denote logical false value
<b>Derived From:</b> FC_AtomicLogicOp

**Spatial Operators**

The Filter Condition facility shall provide whole or a part of spatial operators, which specify to check the spatial relationship between specified RoLo Position data and geometry.



**Figure 14 - Spatial Operators**

**Table 84 - SpatialOp class**

<b>FC_SpatialOp</b>
<b>Description:</b> abstracted class for spatial operations
<b>Derived From:</b> FC_FilterOp

**Table 85 - BBox class**

<b>FC_BBox</b>		
<b>Description:</b> denote boundary box condition. It means TRUE when a RoLo Position of a localization result specified by propertyName is overlapped with an envelope specified by geometry. Otherwise, it means FALSE.		
<b>Derived From:</b> FC_SpatialOp		
<b>Attributes</b>		
propertyName	FC_PropertyReference	Specify a reference to a RoLo position or its component.
Geometry	GML:Envelope	Specify an envelope the

**Table 86 - FC\_BinarySpatialOp class**

<b>FC_BinarySpatialOp</b>		
<b>Description:</b> abstracted class for binary spatial operators		
<b>Derived From:</b> FC_SpatialOp		
<b>Attributes</b>		
propertyName	FC_PropertyReference	Specify a reference to a RoLo position or its component.
value	FC_GeometryLiteral	Specify a geometry value

**Table 87 - FC\_GeometryLiteral class**

<b>FC_GeometryLiteral</b>		
<b>Description:</b> union of GML:Envelope and GML:Geometry.		
<b>Derived From:</b>		
<b>Attributes</b>		
envelope	GM_Envelope [ISO19107]	Specify an envelop (box) for a spatial comparison operation
geometry	GM_Object [ISO19107]	Specify a generic geometrical value for a spatial comparison operation

**Table 88 - Equals class**

<b>FC_Equals</b>		
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is equal to a geometry specified by value.		
<b>Derived From:</b> FC_BinarySpatialOp		

**Table 89 - Disjoint class**

<b>FC_Disjoint</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is disjoint to a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 90 - Crosses class**

<b>FC_Crosses</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is crossing with a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 91 - Intersects class**

<b>FC_Intersects</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is intersecting with a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 92 - Touches class**

<b>FC_Touches</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is touching with a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 93 - Within class**

<b>FC_Within</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is included by a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 94 - Overlaps class**

<b>FC_Overlaps</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result overlaps on a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 95 - Contains class**

<b>FC_Contains</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result contains a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

**Table 96 - DWithin class**

<b>FC_Dwithin</b>
<b>Description:</b>
<b>Derived From:</b> FC_BinarySpatialOp

**Table 97 - Beyond class**

<b>FC_Beyond</b>
<b>Description:</b> denote a RoLo Position (specified by propertyName) of a localization result is equal to a geometry specified by value.
<b>Derived From:</b> FC_BinarySpatialOp

## Comparison Operators

The Filter Condition facility should provide whole or a part of comparison operations, which check general comparison operations like ‘equal to,’ ‘less than,’ ‘greater than,’ and so on.

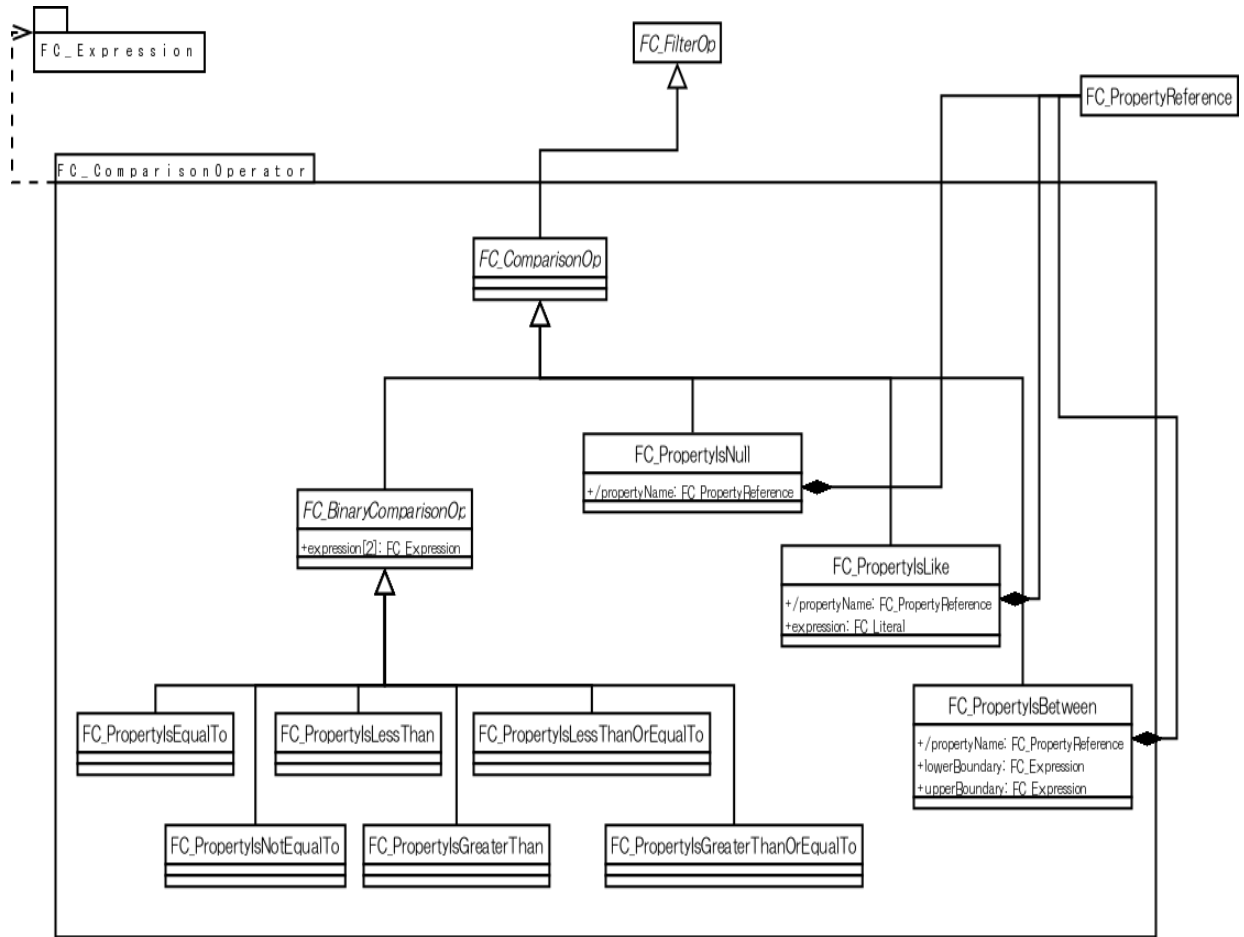


Figure 15 - Comparison Operators

Table 98 - ComparisonOp class

FC_ComparisonOp	
<b>Description:</b>	abstract class for numerical and symbolic comparison operation in filter condition.
<b>Derived From:</b>	FC_FilterOp

Table 99 - BinaryComparisonOp class

FC_BinaryComparisonOp				
<b>Description:</b>	abstract class for comparison operations that takes two expressions as operands.			
<b>Derived From:</b>	FC_FilterOp			
<b>Attributes</b>				
/operand	FC_Expression	M	2	Specify two expressions that are used for the comparison.

**Table 100 - PropertyIsEqualTo class**

<b>FC_PropertyIsEqualTo</b>
<b>Description:</b> denote that two expressions are equal to each other.
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 101 - PropertyIsNotEqualTo class**

<b>FC_PropertyIsNotEqualTo</b>
<b>Description:</b> denote that two expressions are not equal to each other.
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 102 - PropertyIsLessThan class**

<b>FC_PropertyIsLessThan</b>
<b>Description:</b> denote that the first expression is less than the second expression
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 103 - PropertyIsGreaterThan class**

<b>FC_PropertyIsGreaterThan</b>
<b>Description:</b> denote that the first expression is greater than the second expression.
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 104 - PropertyIsLessThanOrEqualTo class**

<b>FC_PropertyIsLessThanOrEqualTo</b>
<b>Description:</b> denote that the first expression is less than or equal to the second expression.
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 105 - PropertyIsGreaterThanOrEqualTo class**

<b>FC_PropertyIsGreaterThanOrEqualTo</b>
<b>Description:</b> denote that the first expression is greater than or equal to the second expression.
<b>Derived From:</b> FC_BinaryComparisonOp

**Table 106 - PropertyIsNull class**

<b>FC_PropertyIsNull</b>		
<b>Description:</b> denote that a RoLo Position or its component specified by propertyName is null.		
<b>Derived From:</b> FC_FilterOp		
<b>Attributes</b>		
propertyName	FC_PropertyReference	Specify a reference to a RoLo Position or its component.

**Table 107 - PropertyIsLike class**

<b>FC_PropertyIsLike</b>		
<b>Description:</b> denote that a RoLo Position or its component specified by propertyName matches with pattern.		
<b>Derived From:</b> FC_FilterOp		
<b>Attributes</b>		
propertyName	FC_PropertyReference	Specify a reference to a RoLo Position's identifier or its component.
pattern	FC_Literal	Specify a pattern to match.

**Table 108 - PropertyIsBetween class**

<b>FC_PropertyIsBetween</b>		
<b>Description:</b> denote that a RoLo Position or its component specified by propertyName is between two expressions specified by lowerBoundary and upperBoundary.		
<b>Derived From:</b> FC_FilterOp		
<b>Attributes</b>		
propertyName	FC_PropertyReference	Specify a reference to a RoLo Position's identifier or its component.
lowerBoundary	FC_Expression	Specify a lower boundary of the comparison.
upperBoundary	FC_Expression	Specify a upper boundary of the comparison..

## Expressions

The expression class and its ancestors are used to represent numerical or symbolic (character string) operations for the comparison operations.

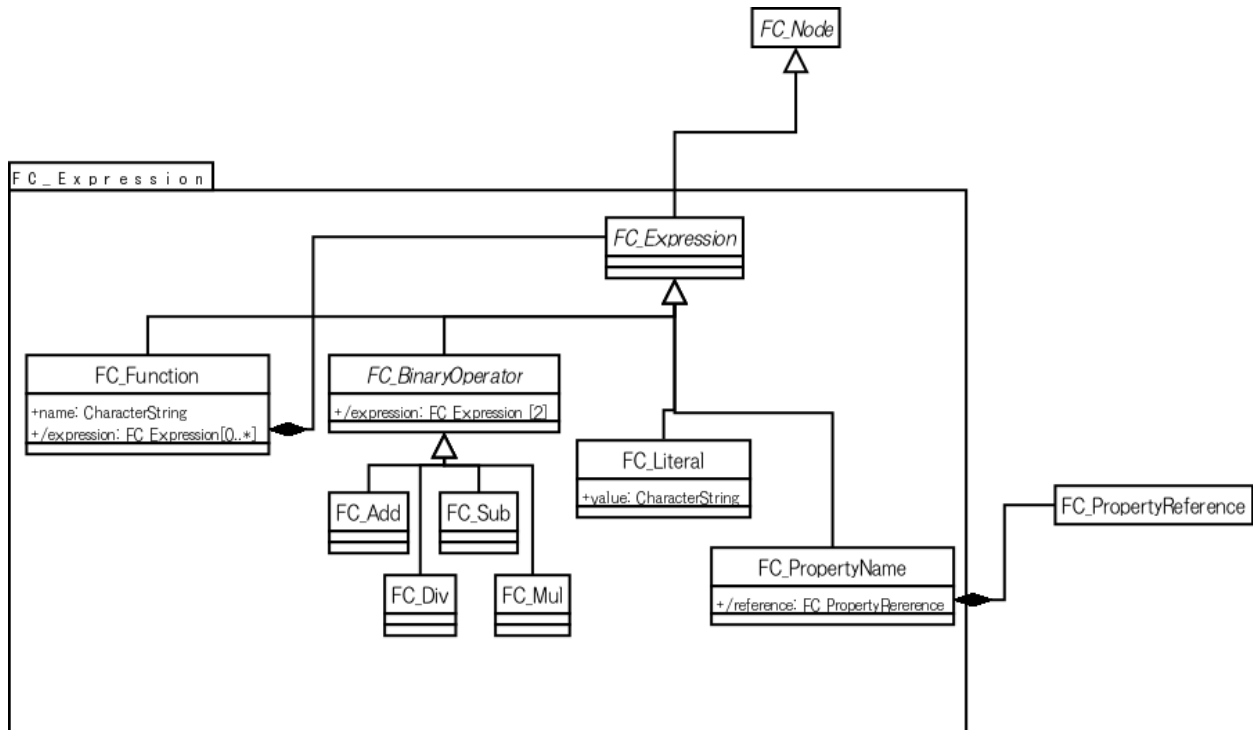


Figure 16 - Expressions

Table 109 - Expression class

FC_Expression	
<b>Description:</b> abstract class for expression node that is used for expression attribute of FC_ComparisonOP. An expression denotes a numerical or symbolic value that is handled in comparison operation of filter conditions.	
<b>Derived From:</b> FC_Node	

Table 110 - BinaryOperator class

FC_BinaryOperator				
<b>Description:</b> abstract class for expressions that take two operands.				
<b>Derived From:</b> FC_Expression				
<b>Attributes</b>				
/expression	FC_Expression	M	2	Specify two expressions that are used for the operation.



**Table 111 - Add class**

<b>FC_Add</b>		
<b>Description:</b> denote numerical addition of two expressions.		
<b>Derived From:</b> FC_BinaryOperator		

**Table 112 - Sub class**

<b>FC_Sub</b>		
<b>Description:</b> denote numerical subtract of two expressions.		
<b>Derived From:</b> FC_BinaryOperator		

**Table 113 - Mul class**

<b>FC_Mul</b>		
<b>Description:</b> denote numerical multiplication of two expressions.		
<b>Derived From:</b> FC_BinaryOperator		

**Table 114 - Div class**

<b>FC_Div</b>		
<b>Description:</b> denote numerical division of two expressions.		
<b>Derived From:</b> FC_BinaryOperator		

**Table 115 - Literal class**

<b>FC_Literal</b>		
<b>Description:</b> denote literal value of numbers, symbols, and character strings.		
<b>Derived From:</b> FC_Expression		
<b>Attributes</b>		
value	CharacterString	Specify a literal data in character string.

**Table 116 - PropertyName class**

FC_PropertyName		
<b>Description:</b> denote reference to RoLo position value or its component of a RoLo Data as a localization result.		
<b>Derived From:</b> FC_Expression		
<b>Attributes</b>		
Reference	FC_PropertyReference	Specify a reference to a RoLo position value or its component.

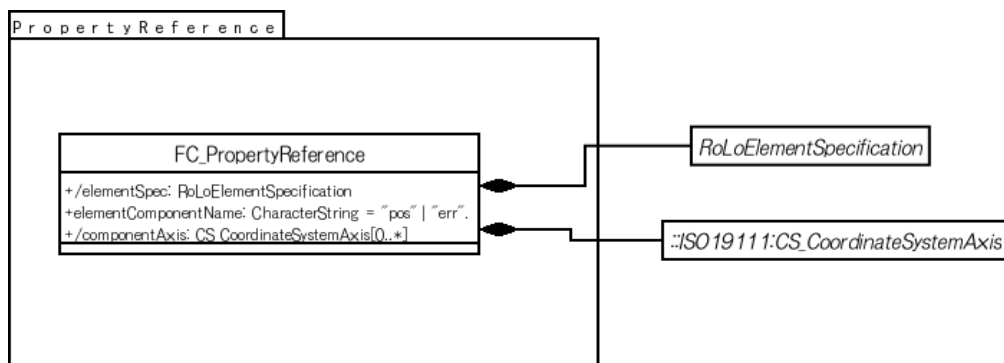
**Table 117 - Function class**

FC_Function				
<b>Description:</b> denote a named procedure that performs a distinct calculation. A function may accept zero or more expressions as input and generate a single scalar value.				
<b>Derived From:</b> FC_Expression				
<b>Attributes</b>				
name	CharacterString	M	1	Specify the name of the function.
/expression	FC_Expression	M	N	Specify zero or more arguments for the function.

## 7.5.2 PropertyReference

FC\_PropertyReference indicates a reference to a RoLo element or one of its components. This is used in comparison operators, spatial operators, and expressions. Generally, it specifies which part in a RoLo data is utilized for a filter condition.

The specification of the reference consists of three attributes, elementSpec, elementComponentName, and componentAxis. The elementSpec attribute specifies which RoLo element in a RoLo data is referred to. The elementComponentName attribute determines which of 'pos' and 'err' attributes in a position element is referred. The component Axis specifies which axis component in a RoLo position is referred if necessary.



**Figure 17 - Property Reference**

**Table 118 - FC\_PropertyReference**

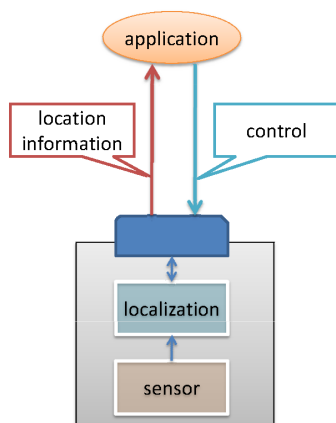
FC_PropertyReference		
<b>Description:</b> denote a reference to a RoLo position or its component		
<b>Derived From:</b> FC_Node		
<b>Attributes</b>		
/elementSpec	RoLoElementSpecification	Specify a RoLo Element Specification to refer in a RoLo Archicature.
elementComponentName	CharacterString	Specify which of position or error component is referred. The value shall be one of "pos" and "err".
componentAxis	CS_CoordinateSystemAxis [0..*]	Specify an axis in the referred position element.

### 7.5.3 Capability of Filter Condition

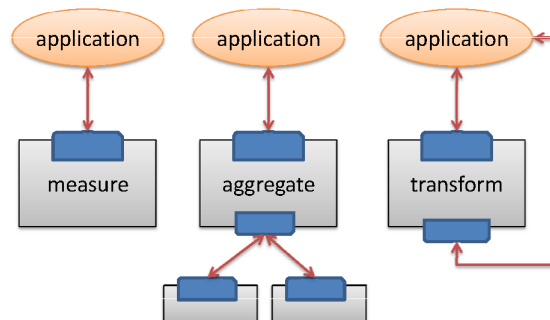
In order to inform user modules of the ability of filter conditioning of a RoLo Service, the RoLo Service module shall indicate its abilities in its "ability" attribute. The conceptual format of the ability of the filter condition is the same as the capability specification in ISO 19143 (OpenGIS Filter Encoding Implementation).

## 7.6 Service Interface

Several types of modules are commonly used in robotic localization services in general. The simplest form of module is that which receives data from sensors, calculates location and outputs the results. However, this type of interface strongly depends on sensor interfaces or sensor output formats. Strong dependency on specific products or vendors is not suitable for standardization. Moreover, when a location is calculated, many kinds of resources such as map data, specific to each sensing system, are required. It is impractical to include each of these resources into the standard specification. Thus, we decided to embed and hide the individual device or localization algorithm details inside the module structure (Figure 18).



**Figure 18 - Basic robotic localization module**

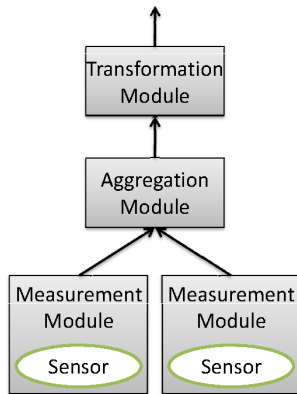


**Figure 19 - Structures of robotic localization modules with different functionalities**

On the other hand, if we focus on functionality required to localization modules, we can classify them into roughly three classes (Figure 19):

- A) Calculate localization results based on sensor outputs (measurement)
- B) Aggregate or integrate multiple localization results (aggregation)
- C) Transform localization results into different coordinate reference systems (transformation)

These functionalities differ in their internal algorithms or the number of input / output streams. However, in all of these, the main data to be exchanged is localization results. As we are focusing on the interface of RLS modules, and not on their functionalities, we decided to abstract these different types of modules into a single form of module. This abstract module holds  $n$  ( $\geq 0$ ) input streams and one output stream. By abstracting various types of modules and assuming a uniform interface, complex module compositions such as hierarchical or recursive module connections can be easily realized (Figure 20).



**Figure 20 - Example of a cascading module connection**

The Robotic Localization Service (RLS) module has one output *stream* and  $n$  ( $\geq 0$ ) input streams. As the functionality of the output stream is the most important to RLS, the service module itself is modeled as an output stream. Each stream owns an *ability* description, which shows how this stream can perform and be configured. This includes the list of RoLo Architecture or data formats that this stream can handle, or other configurable parameters specific to the module. Each service module also owns an ability description for the service it provides, besides the ability description for its output stream. The configurable *parameters* defined in the ability description can be specified values via the module interface, restricted by the ability description held by the service module or the belonging stream modules.

If each module can represent what it can perform, or provide information on available configurable parameters, a large amount of development efforts can be reduced. By defining the “meaning” of parameters, the ambiguity in functional definition or parameters can be eliminated, resulting in increase of developing efficiency. Moreover, advanced features can be implemented such as verification of inter-module connection, automatic search of specific modules or semi-automatic parameter negotiation between modules. In cases where sensors or robots distributed in the environment cooperate with each other, namely the Network Robot environment, it becomes essential to register each module’s capabilities in repositories and make them searchable.

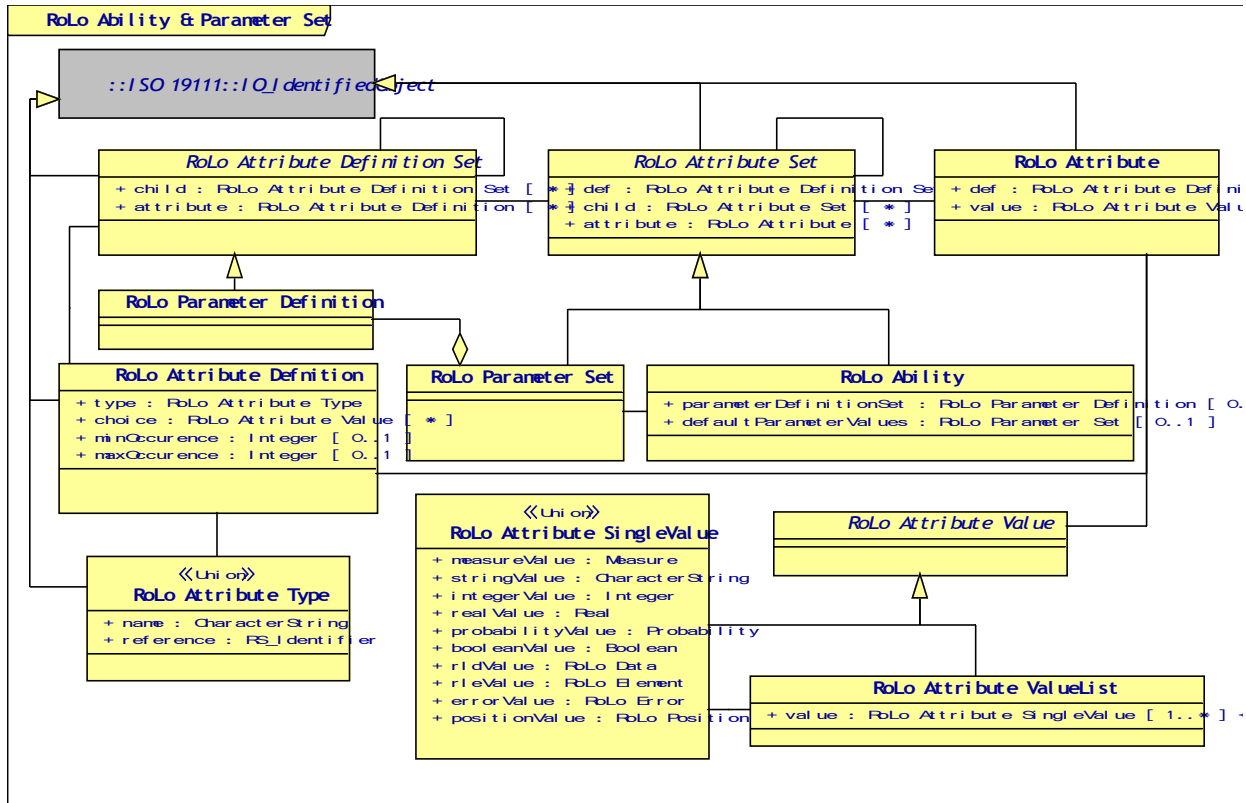


Figure 21 - RoLo Ability and RoLo Parameter Set

Table 119 - RoLo Attribute Type class

<b>Description:</b> Type reference for describing RoLo Attribute Definition.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
name	CharacterString	C	1	Name of the Type.
reference	RS_Identifier [ISO19115]	C	1	Identifier of the Type.
Condition: One and only one of the attributes shall be specified.				

Table 120 - RoLo Attribute Definition class

<b>Description:</b> Definition of a single attribute. If both minOccurrence and maxOccurrence are specified as 1, then this attribute is mandatory. If minOccurrence is specified as 0, this attribute is optional.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
type	RoLo Attribute Type	M	1	Type descriptor for this attribute.

choice	RoLo Attribute Value	O	N	List of the available choices for this attribute's value.
minOccurence	Integer	O	1	Minimal occurrence of this attribute. If omitted, the defaulting value is 0.
maxOccurence	Integer	O	1	Maximal occurrence of this attribute. If omitted, the defaulting value is 1.

**Table 121 - RoLo Attribute Definition Set class**

<b>Description:</b> Abstract class that represents a hierarchical set of attribute definitions.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
child	RoLo Attribute Definition Set	O	N	Child attribute definition sets included.
attribute	RoLo Attribute Definition	M	N	Attribute definitions.

**Table 122 - RoLo Parameter Definition class**

<b>Description:</b> Represents a parameter definition for modules. Users may extend this class to describe natures of their own module implementations.
<b>Derived From:</b> RoLo Attribute Definition Set

**Table 123 - RoLo Attribute Value class**

<b>Description:</b> Abstract class for holding values for RoLo Attribute. May be a single value or a list of values.
<b>Derived From:</b> (none)

**Table 124 - RoLo Attribute SingleValue class**

<b>Description:</b> Value holder for RoLo Attribute.				
<b>Derived From:</b> RoLo Attribute Value				
<b>Attributes</b>				
measureValue	Measure [ISO19103]	C	1	Measurement value with unit.
stringValue	CharacterString	C	1	String value.
integerValue	Integer	C	1	Integer value.
realValue	Real	C	1	Real value.
probabilityValue	Probability [ISO19103]	C	1	Probability value.
booleanValue	Boolean	C	1	Boolean value.
rldValue	RoLo Data	C	1	RoLo Data value.

rleValue	RoLo Element	C	1	RoLo Element value.
errorValue	RoLo Error	C	1	RoLo Error value.
positionValue	RoLo Position	C	1	RoLo Position value.
Condition: One and only one of the choices shall be specified.				

**Table 125 - RoLo Attribute ValueList class**

<b>Description:</b> Represents a list of RoLo Attribute SingleValue.				
<b>Derived From:</b> RoLo Attribute Value				
<b>Attributes</b>				
value	RoLo Attribute SingleValue	M ord	N	Ordered list of values.

**Table 126 - RoLo Attribute class**

<b>Description:</b> Represents a single attribute.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
def	RoLo Attribute Definition	M	1	Definition of this attribute.
value	RoLo Attribute Value	M	1	Value of this attribute

**Table 127 - RoLo Attribute Set class**

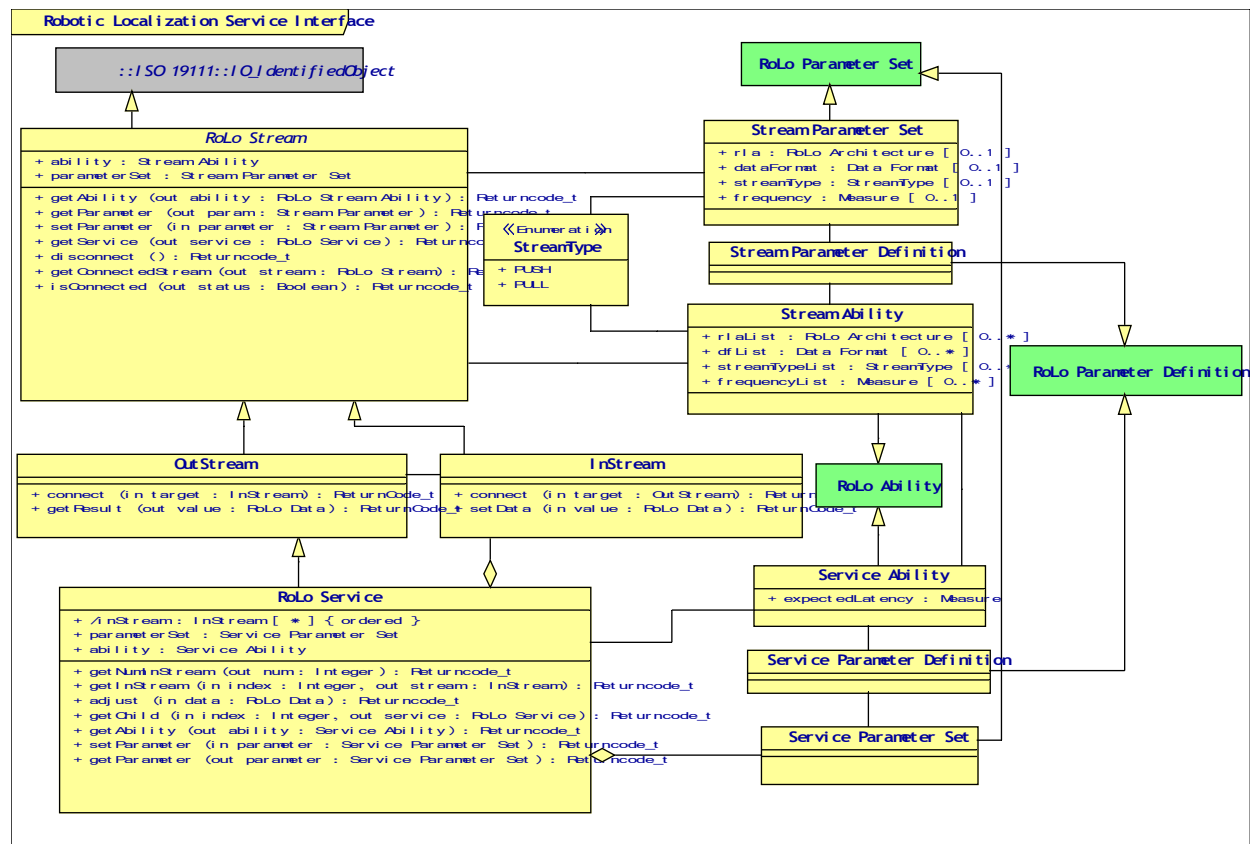
<b>Description:</b> Represents a hierarchical set of attributes.				
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]				
<b>Attributes</b>				
def	RoLo Attribute Definition Set	M	1	Definition of this attribute set.
child	RoLo Attribute Set	O	N	Child attribute sets included.
attribute	RoLo Attribute	M	N	Attributes.

**Table 128 - RoLo Parameter Set class**

<b>Description:</b> Parameter value sets.				
<b>Derived From:</b> RoLo Attribute Set				

**Table 129 - RoLo Ability class**

<b>Description:</b> Describes module ability.				
<b>Derived From:</b> RoLo Attribute Set				
<b>Attributes</b>				
parameterDefinitionSet	RoLo Parameter Definition Set	O	1	Definitions for the parameters, that describes the parameters for which module this ability description stands for.
defaultParameterVals	RoLo Parameter Set	O	1	Default values for the parameter value. If the attribute parameterDefinitionSet is specified, this should be specified and shall contain default values for all the parameters.



**Figure 22 - RoLo Service**

**Table 130 - StreamType enumeration**

PUSH	Indicates that the stream is in data pushing mode, i.e., the stream triggers data passing.
PULL	Indicates that the stream is in data receiving mode, i.e. the counterpart of the stream triggers data passing.



**Table 131 - Stream Parameter Definition class**

<b>Description:</b> Definitions for the Stream parameter set.
<b>Derived From:</b> RoLo Parameter Definition

**Table 132 - Stream Parameter Set class**

<b>Description:</b> Represents setting parameters for the stream. If each specific implementation has special parameters, this class may be extended to be added the necessary descriptions.				
<b>Derived From:</b> RoLo Parameter				
<b>Attributes</b>				
rla	RoLo Architecture	C	1	RoLo Architecture to be used.
df	RoLo Data Format	M	1	Data format.
streamType	StreamType	M	1	Stream type.
frequency	Measure [ISO19103]	O	1	Data passing frequency.
Condition: If the RoLo Architecture can be identified by the specified data format, the rlaList attribute may not necessary be specified explicitly.				

**Table 133 - Stream Ability class**

<b>Description:</b> Ability description for RoLo Stream. The ‘parameter’ attribute derived from RoLo Ability class shall be based on Stream Parameter class. If each specific implementation has special functionalities, this class may be extended to be added the necessary descriptions.				
<b>Derived From:</b> RoLo Ability				
<b>Attributes</b>				
rlaList	RoLo Architecture	C	N	List of reference to RoLo Architectures supported by this stream
dfList	RoLo Data Format	M	N	List of reference data formats supported by this stream. When every RoLo Architecture in rlaList owns a fixed RoLo Data Format, this attribute can be omitted. Otherwise, this shall be specified. The stream object shall determine whether the combination of specified RoLo Architecture and RoLo Data Format can be used.
streamTypeList	StreamType	M	N	List of supported stream types.
frequencyList	Measure [ISO19103]	O	N	List of supported data passing frequencies.
Condition: If the RoLo Architecture instances for each of the supported data format can be identified, then rlaList may not necessary be specified explicitly.				

**Table 134 - RoLo Stream class**

<b>Description:</b> Base abstract class for representing streams.
<b>Derived From:</b> IO_IdentifiedObject [ISO19111]

Attributes				
ability	Stream Ability	M	1	Holds ability description for this stream.
parameterSet	Stream Parameter Set	M	1	Holds the current parameter settings.
Operations				
getAbility		Operation for obtaining the ability description for this stream		
out	ability	Stream Ability	Ability description of this stream.	
setParameter		Operation for setting values to the configurable parameters.		
in	parameter	Stream Parameter	Parameter-value pair to be set. Users may specify values for only a subset of configurable parameters.	
getParameter		Operation for obtaining status of configurable parameters.		
out	parameter	RoLo Parameter	Current status of parameter values.	
getService		Returns the service using this stream.		
out	service	RoLo Service	Reference to the service using this stream.	
getConnectedStream		Obtain currently connected stream.		
out	stream	RoLo Stream	Stream that is currently connected to this stream. If no stream is connected, ERROR is returned. Otherwise, OK is returned.	
isConnected		Check whether this stream is connected to other stream.		
out	status	Boolean	If true, connected. Otherwise, not connected.	
disconnect		Disconnects this stream from the currently connected stream.		

**Table 135 - OutStream class**

<b>Description:</b> Represents output streams.				
<b>Derived From:</b> RoLo Stream				
Operations				
connect		Connect to given stream.		
in	target	InStream	Target stream to connect.	
getResult		Obtain localization result.		
out	value	RoLo Data Set	Resulting localization data.	

**Table 136 - InStream class**

<b>Description:</b> Represents input streams.				
<b>Derived From:</b> RoLo Stream				
Operations				
connect		Connect to given stream.		
in	target	OutStream	Target stream to connect.	
setData		Set data to this stream.		
in	value	RoLo Data Set	Localization data to be set to this stream.	

**Table 137 - Service Parameter Definition class**

<b>Description:</b> Definitions for the Service parameter set.
<b>Derived From:</b> RoLo Parameter Definition

**Table 138 - Service Parameter Set class**

<b>Description:</b> Base class for holding parameters for RoLo Service. If each specific implementation has special parameters, this class may be extended to be added the necessary descriptions.
<b>Derived From:</b> RoLo Parameter Set

**Table 139 - Service Ability class**

<b>Description:</b> Ability description for RoLo Service. The ‘parameter’ attribute derived from RoLo Ability class shall be based on Service Parameter class. If each specific service implementation has special functionalities, this class may be extended to be added the necessary descriptions.				
<b>Derived From:</b> RoLo Ability				
<b>Attributes</b>				
expectedLatency	Measure [ISO19103]	M	1	Expected latency. This ability descriptor is especially useful for Robotic Localization Service users.
inStreamAbility	Stream Ability	O	N	Ability descriptions for the input stream in this service.
outStreamAbililty	Stream Ability	M	1	Ability descriptions for the output stream in this service.

**Table 140 - RoLo Service class**

<b>Description:</b> Interface for the Robotic Localization Service.				
<b>Derived From:</b> OutStream				
<b>Attributes</b>				
inStream	InStream	O	N ord	An ordered list of input stream objects.
<b>Operations</b>				
getNumInStream		Returns the number of input streams.		
out	num	Integer	Number of input streams equipped in this module.	
getInStream		Returns the input stream of given index.		
in	index	Integer	Index number indicating the target InStream.	
out	stream	InStream	Reference to the target InStream.	
adjust		Method for adjusting localization results. For elements not required for adjustment, NULL element should be specified.		
in	data	RoLo Data	Data to be used for initialization or adjustment. Adjusts every element at once.	
getChild		Return the service connected to the InStream of this service module.		

in	index	Integer	Index number indicating the target child service.
out	service	RoLo Service	Reference to the target child service
getAbility		Obtain ability description for this service.	
out	ability	Service Ability	Ability description for this service
setParameter		Set parameter values for this service.	
in	parameter	Service Parameter	Parameter values to be set.
getParameter		Obtain current parameter values for this service.	
out	parameter	Service Parameter	Current parameter settings.

## 8. Platform Specific Model

### 8.1 C++ PSM

A sample implementation in C++ language of the proposed platform independent model specified in section 6 is described in the set of C++ header files that accompany this document.

# Annex A

## Sample C++ Headers

(normative)

```
// $Id: Ability.hpp,v 1.2 $

#pragma once
#include <string>
#include <set>
#include <ISO19103/Primitive.hpp>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <ISO19115.hpp>
#include <RLS/RoLoArchitecture.hpp>
#include <RLS/Error.hpp>

namespace RLS
{
    class RoLoAttributeValue
    {
    };

    class RoLoAttributeSingleValue
        : public RoLoAttributeValue
    {
    public:
        union {
            ::ISO19103::Measure measureValue;
            std::string stringValue;
            int integerValue;
            double realValue;
            ::ISO19103::Probability probabilityValue;
            RoLoData rldValue;
            RoLoElement rleValue;
            RoLoError errorValue;
            RoLoPosition positionValue;
        } value;
    };

    class RoLoAttributeValueSet
        : public RoLoAttributeValue
    {
    public:
        std::set<RoLoAttributeSingleValue> value;
    };
}
```

```

};

// actually union
class RoLoAttributeType {
    std::string name;
    ::ISO19115::RS_Identifier reference;
};

class RoLoAttributeDefinition
    : public ISO19111::IO_IdentifiedObject
{
public:
    RoLoAttributeType type;
    std::set<RoLoAttributeValue> choice;
    int minOccurence, maxOccurence;
};

class RoLoAttributeDefinitionSet
    : public ISO19111::IO_IdentifiedObject
{
public:
    std::set<RoLoAttributeDefinitionSet> child;
    std::set<RoLoAttributeDefinition> attribute;
};

class RoLoParameterDefinition
    : public RoLoAttributeDefinitionSet
{
};

class RoLoAttribute
    : public ISO19111::IO_IdentifiedObject
{
public:
    RoLoAttributeDefinition *def;
    RoLoAttributeValue val;
};

class RoLoAttributeSet
    : public ISO19111::IO_IdentifiedObject
{
public:
    RoLoAttributeDefinitionSet *def;
    std::set<RoLoAttributeSet> child;
    std::set<RoLoAttribute> attribute;
};

```

```

class RoLoParameterSet
  : public RoLoAttributeSet
{
};

class RoLoAbility
  : public RoLoAttributeSet
{
public:
  RoLoParameterDefinition parameterDefinitionSet;
  RoLoParameterSet defaultParameterValues;
};

}

// $Id: DataFormat.hpp,v 1.1 $

#pragma once
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <RLS/RoLoArchitecture.hpp>

namespace RLS
{
  class RoLoDataFormat
    : public ISO19111::IO_IdentifiedObject
  {
  };

  class EncodingRule
    : public RoLoDataFormat
  {
  };

  class SpecificDataFormat
    : public RoLoDataFormat
  {
public:
  RoLoArchitecture *rla;
  };

  class UserDefinedDataFormat
    : public SpecificDataFormat
  {
  };

  class CommonDataFormat
    : public SpecificDataFormat

```



```

    {
    };

}
// $Id: Error.hpp,v 1.1 $

#pragma once
#include <ISO19103/Primitive.hpp>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <RLS/ErrorType.hpp>
#include <RLS/RoLoPosition.hpp>

namespace RLS
{
    using namespace RLS;
    class RoLoPosition;

    class RoLoError
        : public ISO19111::IO_IdentifiedObjectBase
    {
    public:
        RoLoErrorType *errorType;
    };

    class Reliability
        : public RoLoError, public ISO19103::Probability
    {
    };

    class ErrorDistribution
        : public RoLoError
    {
    };

    class Matrix
    {
    public:
        int numRows, numColumn;
        ISO19103::Number *values;
    };

    class CovarianceMatrix
        : public Matrix
    {
    };

    class Gaussian

```

```

    : public ErrorDistribution
{
public:
    CovarianceMatrix covariance;
};

class UniformGaussian
    : public RoLoErrorType
{
    double stddev;
};

class Particle
    : public ISO19111::IO_IdentifiedObjectBase
{
    RoLoPosition pos;
    ISO19103::Probability likelihood;
};

class ParticleSet
    : public ErrorDistribution
{
public:
    int numParticles;
    Particle *particles;
};

class MixtureModel
    : public ErrorDistribution
{
};

class WeightedDistribution
    : public ISO19111::IO_IdentifiedObjectBase
{
public:
    ErrorDistribution dist;
    RoLoPosition pos;
    ISO19103::Probability weight;
};

class LinearMixtureModel
    : public MixtureModel
{
public:
    int numDists;
    WeightedDistribution *dists;
};

```

```

};

class MixtureOfGaussian
  : public LinearMixtureModel
{
};

}

// $Id: ErrorType.hpp,v 1.1 $

#pragma once
#include <ISO19111/IO_IdentifiedObject.hpp>

namespace RLS
{
  class RoLoErrorType
    : public ISO19111::IO_IdentifiedObject
  {
  };

  class RoLoErrorTypeOperation
    : public ISO19111::IO_IdentifiedObject
  {
  public:
    RoLoErrorType *source, *target;
  };

  class ET_Reliability
    : public RoLoErrorType
  {
  };

  class ET_Gaussian
    : public RoLoErrorType
  {
  };

  class ET_UniformGaussian
    : public RoLoErrorType
  {
  };

  class ET_ParticleSet
    : public RoLoErrorType
  {
  };
}

```

```

class ET_MixtureModel
  : public RoLoErrorType
{
};

class ET_LinearMixtureModel
  : public RoLoErrorType
{
};

class ET_MixtureOfGaussian
  : public ET_LinearMixtureModel
{
};

}
// $Id: Identity.hpp,v 1.2 $

#pragma once
#include <string>
#include <vector>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <ISO19111/CS_CoordinateSystem.hpp>
#include <ISO19111/SC_CoordinateReferenceSystem.hpp>
#include <ISO19111/CD_Datum.hpp>

namespace RLS
{
  class IdentityCS
    : public ISO19111::CS_CoordinateSystem
  {
  };

  class NumericIdentityCS
    : public IdentityCS
  {
  };

  class SymbolicCS
    : public IdentityCS
  {
  };

  class IdentityDatum
    : public ISO19111::CD_Datum
  {

```

```

};

class IdentityCRS
  : public ISO19111::SC_SingleCRS
{
};

class NumericIdentityCRS
  : public IdentityCRS
{
};

class SymbolicCRS
  : public IdentityCRS
{
};

class DirectSymbol
  : public ISO19111::IO_IdentifiedObjectBase
{
public:
  std::vector<std::string> coordinate;
  SymbolicCRS *coordinateReferenceSystem;
};

class RoLoSymbolRef
  : public ISO19111::IO_IdentifiedObjectBase
{
public:
  DirectSymbol *point;
};

class RoLoSymbolicPosition
  : public ISO19111::IO_IdentifiedObjectBase
{
  union {
    DirectSymbol direct;
    RoLoSymbolRef indirect;
  };
};

}
// $Id: MobileCRS.hpp,v 1.2 $

#pragma once
#include <ISO19111/CS_CoordinateSystem.hpp>
#include <ISO19111/CD_Datum.hpp>

```

```

#include <RLS/RelativeCRS.hpp>
#include <RLS/Service.hpp>

namespace RLS
{
    class MobileCRS
        : public RelativeCRS
    {
    };

    class MobileCartesianCRS
        : public MobileCRS
    {
    };

    class MobilePolarCRS
        : public MobileCRS
    {
    };

    class MobileDatum
        : public ISO19111::CD_EngineeringDatum
    {
    public:
        InStream *inStream;
        Returncode_t getInStream(InStream **inStream);
    };
}
// $Id: MobileOperation.hpp,v 1.1 $

#pragma once
#include <ISO19111/CC_Operation.hpp>
#include <ISO19111/SC_CoordinateReferenceSystem.hpp>
#include <ISO19111/CD_Datum.hpp>

namespace RLS
{
    class RoLoMobileOperation
        : public ISO19111::CC_Transformation
    {
    };

    class Mobile2StaticOperation
        : public RoLoMobileOperation
    {
    public:

```

```

    MobileCRS *source;
    ISO19111::SC_CRS *target;
};

class Staic2MobileOperation
  : public RoLoMobileOperation
{
public:
    ISO19111::SC_CRS *source;
    MobileCRS *target;
};

class Mobile2MobileOperation
  : public RoLoMobileOperation
{
public:
    MobileCRS *source, *target;
};

}
// $Id: RelativeCRS.hpp,v 1.1 $

#pragma once
#include <ISO19111/SC_CoordinateReferenceSystem.hpp>
#include <ISO19111/CD_Datum.hpp>

namespace RLS
{
    class RelativeCRS
      : public ISO19111::SC_CRS
    {
    };

    class RelativeCartesianCRS
      : public RelativeCRS
    {
    };

    class RelativePolarCRS
      : public RelativeCRS
    {
    };

    class RelativeDatum
      : public ISO19111::CD_EngineeringDatum
    {
        RoLoArchitecture rla;
    };
}

```

```

    RoLoData base;
};

}
// $Id: Returncode_t.hpp,v 1.1 $

#pragma once

namespace RLS
{
    enum Returncode_t {
        OK,
        ERROR,
        BAD_PARAMETER,
        UNSUPPORTED_PARAMETER,
        UNSUPPORTED_OPERATION,
        TIMEOUT
    };
}

// $Id: RoLoArchitecture.hpp,v 1.1 $

#pragma once
#include <string>
#include <vector>
#include <ISO19103/Primitive.hpp>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <ISO19111/CS_CoordinateSystem.hpp>
#include <ISO19111/SC_CoordinateReferenceSystem.hpp>
#include <RLS/ErrorType.hpp>
#include <RLS/Error.hpp>
#include <RLS/RoLoPosition.hpp>

namespace RLS
{
    using namespace RLS;

    class RoLoElementSpecification
        : public ISO19111::IO_IdentifiedObject
    {
    public:
        std::string specID;
    };

    class PositionElementSpecification
        : public RoLoElementSpecification
    {

```



```

public:
    union {
        ISO19111::SC_CRS crs;
        ISO19111::CS_CoordinateSystem cs;
    };
    RoLoErrorType *errType;
};

class ErrorElementSpecification
    : public RoLoElementSpecification
{
public:
    std::vector<std::string> posSpecRef;
};

class RoLoElement
    : public ISO19111::IO_IdentifiedObjectBase
{
public:
    RoLoElementSpecification *spec;
};

class PositionElement
    : public RoLoElement
{
public:
    RoLoPosition pos;
    RoLoError err;
};

class ErrorElement
    : public RoLoElement
{
public:
    RoLoError err;
};

class NULLElement
    : public RoLoElement
{
};

class RoLoArchitecture
    : public ISO19111::IO_IdentifiedObject
{
public:
    std::vector<RoLoElementSpecification> elemSpec;
};

```

```

};

class RoLoData
  : public ISO19111::IO_IdentifiedObjectBase
{
public:
  RoLoArchitecture *rla;
  std::vector<RoLoElement> elem;
};

}
// $Id: RoLoDataOperation.hpp,v 1.2 $

#pragma once
#include <string>
#include <vector>
#include <set>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <ISO19111/CC_Operation.hpp>
#include <RLS/RoLoArchitecture.hpp>

namespace RLS
{
  class PositionElementOperation
    : public ISO19111::IO_IdentifiedObject
    {
  public:
    PositionElementSpecification *source, *target;
    };

  class PositionElementConcatenatedOperation
    : public PositionElementOperation
    {
  public:
    std::vector<PositionElementOperation*> childOperation;
    };

  class PositionElementSingleOperation
    : public PositionElementOperation
    {
  public:
    ISO19111::CC_CoordinateOperation *usesOperation;
    RoLoErrorTypeOperation *usesErrorTypeOperation;
    };

  class RoLoDataOperation
    : public ISO19111::IO_IdentifiedObject

```

```

{
public:
    RoLoArchitecture *source, *target;
};

class RoLoDataConcatenatedOperation
    : public RoLoDataOperation
{
public:
    std::vector<RoLoDataOperation*> childOperation;
};

class RoLoDataSingleOperation
    : public RoLoDataOperation
{
};

class RoLoDataTransformation
    : public RoLoDataSingleOperation
{
public:
    std::vector<PositionElementOperation*> usesOperation;
};

class RoLoDataMappingOperation
    : public RoLoDataSingleOperation
{
public:
    std::vector<std::string> sourceIndex, targetIndex;
};
}

// $Id: RoLoArchitecture.hpp,v 1.1 $

#pragma once
#include <ISO19107/CoordinateGeometry.hpp>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <RLS/Identity.hpp>

namespace RLS
{
    using namespace RLS;

    class RoLoPosition
        : public ISO19111::IO_IdentifiedObjectBase
    {

```

```

public:
    union {
        RoLoSymbolicPosition symbolic;
        ISO19107::GM_Position numeric;
    };
};

}
// $Id: Service.hpp,v 1.2 $

#pragma once
#include <string>
#include <vector>
#include <set>
#include <ISO19103/Primitive.hpp>
#include <ISO19111/IO_IdentifiedObject.hpp>
#include <RLS/Returncode_t.hpp>
#include <RLS/Ability.hpp>
#include <RLS/DataFormat.hpp>
#include <RLS/RoLoArchitecture.hpp>

namespace RLS
{
    enum StreamType {
        PUSH,
        PULL
    };

    class StreamParameterSet
    : public RLS::RoLoParameterSet
    {
public:
        RoLoArchitecture *rla;
        RoLoDataFormat *df;
        StreamType streamType;
        ISO19103::Measure frequency;
    };

    class StreamAbility
    : public RLS::RoLoAbility
    {
public:
        std::set<RoLoArchitecture*> rlaList;
        std::set<RoLoDataFormat*> dfList;
        std::set<StreamType> streamTypeList;
        std::set<::ISO19103::Measure> frequencyList;
    };
}

```

```

class RoLoService;

class RoLoStream
  : public ISO19111::IO_IdentifiedObject
{
public:
  StreamAbility ability;
  StreamParameterSet parameterSet;

public:
  Returncode_t getAbility(StreamAbility& ability);
  Returncode_t setParameter(const StreamParameterSet& parameter);
  Returncode_t getParameter(const StreamParameterSet& const parameter);
  Returncode_t getService(RoLoService*& service);
  Returncode_t getConnectedStream(RoLoStream*& stream);
  Returncode_t isConnected(bool &status);
  Returncode_t disconnect();
};

class InStream;

class OutStream
  : public RoLoStream
{
public:
  Returncode_t connect(const InStream *target);
  Returncode_t getResult(RoLoData& value);
};

class InStream
  : public RoLoStream
{
public:
  Returncode_t connect(const OutStream *target);
  Returncode_t setData(const RoLoData *value);
};

class ServiceParameterSet
  : public RoLoParameterSet
{
};

class ServiceAbility
  : public RoLoAbility
{
  ISO19103::Measure expectedLatency;
};

```

```

};

class RoLoService
  : public OutStream
{
public:
  std::vector<InStream*> inStream;
  ServiceParameterSet parameterSet;
  ServiceAbility ability;

public:
  Returncode_t getNumInStream(int &num);
  Returncode_t getInStream(int index, InStream*& inStream);
  Returncode_t adjust(const RoLoData* data);
  Returncode_t getChild(int index, RoLoService*& service);
  Returncode_t getAbility(ServiceAbility*& ability);
  Returncode_t setParameter(const ServiceParameterSet* parameter);
  Returncode_t getParameter(ServiceParameterSet*& parameter);
};
}

```

## Annex B Sample XMI

(normative)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <xmi:XML xmi:version="2.1" xmlns:uml="http://schema.omg.org/spec/UML/2.1"
xmlns:xmi="http://schema.omg.org/spec/XMI/2.1"
xmlns:thecustomprofile="http://www.sparxsystems.com/profiles/thecustomprofile/1.0">
  <xmi:Documentation exporter="Enterprise Architect" exporterVersion="6.5" />
- <uml:Model xmi:type="uml:Model" name="EA_Model" visibility="vis_public">
- <packagedElement xmi:type="uml:Profile"
xmi:id="EAPK_A0351711_2971_4024_9ECB_A15C58CF83EE" name="RLS"
visibility="vis_public">
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_304A773B_0A3F_4bd0_855C_7E6F2CC5BEC7" name="RLS"
visibility="vis_public">
- <ownedComment xmi:type="uml:Comment"
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combined RoLo Position">
  <annotatedElement xmi:idref="EAID_A1E70738_C83F_44d4_8C30_CD85F7C2464B" />
  <annotatedElement xmi:idref="EAID_D247A86B_94D7_4bda_B144_381D8AAF6234" />
  </ownedComment>
- <ownedComment xmi:type="uml:Comment"
xmi:id="EAID_99376F43_E4A7_406b_AFAC_AE54C14B9BBE" body="RoLo
Architecture.elements.size == RoLo Data.elements.size">
  <annotatedElement xmi:idref="EAID_1D9788D0_AE52_4031_819B_BCD8E41C5719" />
  <annotatedElement xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  </ownedComment>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_60459B3D_9CAC_4a38_BE36_941A62DCBC40" name="Common Data
Format" visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
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general="EAID_DBA6B7D9_FF39_4695_97D7_4D2ADA30FDDD" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_DCFD4DD1_9D5F_453b_AF76_57A215B5D60E" name="Covariance Matrix"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_5393637F_B93C_407b_9734_5F8C3C2ED170"
general="EAID_BD379441_81D1_483d_9F47_F1AA2451B396" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_59386451_BCFF_499e_BB35_8F20A9C6CC64" visibility="public">
  <memberEnd xmi:idref="EAID_dst386451_BCFF_499e_BB35_8F20A9C6CC64" />
  <memberEnd xmi:idref="EAID_src386451_BCFF_499e_BB35_8F20A9C6CC64" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src386451_BCFF_499e_BB35_8F20A9C6CC64" visibility="public"
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isDerived="false" isDerivedUnion="false" aggregation="none">
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- <ownedEnd xmi:type="uml:Property"
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</ownedEnd>
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- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" name="DirectSymbol"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_9A415158_B15E_408a_822C_1B14C588BFE3" name="coordinate"
visibility="vis_public" isDerived="false">
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<upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000002_B15E_408a_822C_1B14C588BFE3" value="-1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_DEBFE381_2E0F_4ef5_AA43_291AAB10922A" name="dimension"
visibility="vis_public" isDerived="false">
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xmi:id="EAID_LI000003_2E0F_4ef5_AA43_291AAB10922A" value="0" />
<upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000004_2E0F_4ef5_AA43_291AAB10922A" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_95D53A77_BB77_42ea_9F06_FADA4284749A"
name="coordinateReferenceSystem" visibility="vis_public" isDerived="false">
<type xmi:idref="EAID_34C6F116_A960_4b54_BA5B_7B5353745689" />
<lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000005_BB77_42ea_9F06_FADA4284749A" value="0" />
<upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000006_BB77_42ea_9F06_FADA4284749A" value="1" />
</ownedAttribute>
<generalization xmi:type="uml:Generalization"
xmi:id="EAID_6ACA9BB1_97BF_4a35_8312_325D9A87ABC7"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_65DBB0BA_4893_4ac9_9713_B10C54C82FB9" visibility="public">
<memberEnd xmi:idref="EAID_dstDBB0BA_4893_4ac9_9713_B10C54C82FB9" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstDBB0BA_4893_4ac9_9713_B10C54C82FB9" visibility="public"
association="EAID_65DBB0BA_4893_4ac9_9713_B10C54C82FB9" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
<type xmi:idref="EAID_34C6F116_A960_4b54_BA5B_7B5353745689" />
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<memberEnd xmi:idref="EAID_srcDBB0BA_4893_4ac9_9713_B10C54C82FB9" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcDBB0BA_4893_4ac9_9713_B10C54C82FB9" visibility="public"

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association="EAID_65DBB0BA_4893_4ac9_9713_B10C54C82FB9" isOrdered="false"
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  <type xmi:idref="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" />
  </ownedEnd>
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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_BFA133F2_321E_4472_BDA6_D848E655B54A" visibility="public">
  <memberEnd xmi:idref="EAID_dstA133F2_321E_4472_BDA6_D848E655B54A" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_BFA133F2_321E_4472_BDA6_D848E655B54A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_BF40ABF3_01DD_4978_A334_467637A8C49A" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_srcA133F2_321E_4472_BDA6_D848E655B54A" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_BFA133F2_321E_4472_BDA6_D848E655B54A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dst277B36_7D99_4518_8DB7_3709C73818D5" />
  <memberEnd xmi:idref="EAID_src277B36_7D99_4518_8DB7_3709C73818D5" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src277B36_7D99_4518_8DB7_3709C73818D5" visibility="public"
association="EAID_63277B36_7D99_4518_8DB7_3709C73818D5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_28E95778_2EFB_4a39_9231_D1F82036F7B4" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst277B36_7D99_4518_8DB7_3709C73818D5" visibility="public"
association="EAID_63277B36_7D99_4518_8DB7_3709C73818D5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_74D529E2_0CE6_4f15_9377_3C30C82745A9" name="ET_Gaussian"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_5F06C214_F36C_4df4_98F8_08A21327CD6E"
general="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst61DC44_97D6_41b2_A4CB_E8D0C6B849AD" visibility="public"
association="EAID_C561DC44_97D6_41b2_A4CB_E8D0C6B849AD" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_D247A86B_94D7_4bda_B144_381D8AAF6234" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_C561DC44_97D6_41b2_A4CB_E8D0C6B849AD" visibility="public">

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    <memberEnd xmi:idref="EAID_dst61DC44_97D6_41b2_A4CB_E8D0C6B849AD" />
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- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src61DC44_97D6_41b2_A4CB_E8D0C6B849AD" visibility="public"
association="EAID_C561DC44_97D6_41b2_A4CB_E8D0C6B849AD" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_74D529E2_0CE6_4f15_9377_3C30C82745A9" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_5563A217_87A1_4d08_9858_C2EBA6828F7B"
name="ET_LinearMixtureModel" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst109F18_33A0_4fc7_9A38_89A14D0D22DE" visibility="public"
association="EAID_26109F18_33A0_4fc7_9A38_89A14D0D22DE" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_E690D6DE_BD8E_4334_9772_3DFC4C721146" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_BD8AC9A9_04A5_4820_A1B1_41089893CF5B"
general="EAID_9D755F1B_BD11_40ba_AF66_34E10584A065" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_26109F18_33A0_4fc7_9A38_89A14D0D22DE" visibility="public">
  <memberEnd xmi:idref="EAID_dst109F18_33A0_4fc7_9A38_89A14D0D22DE" />
  <memberEnd xmi:idref="EAID_src109F18_33A0_4fc7_9A38_89A14D0D22DE" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_26109F18_33A0_4fc7_9A38_89A14D0D22DE" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_5563A217_87A1_4d08_9858_C2EBA6828F7B" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_9D755F1B_BD11_40ba_AF66_34E10584A065" name="ET_MixtureModel"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_FCEC3289_D753_463a_ACE2_4E2717E93E2D"
general="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_9D99D7E3_4727_47a8_B536_8C0F64FCC47B"
name="ET_MixtureOfGaussian" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstE8A379_2FEC_4b52_8C01_4ABFF8CEAC21" visibility="public"
association="EAID_42E8A379_2FEC_4b52_8C01_4ABFF8CEAC21" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_9464DE77_168F_4bbc_9978_39138617CA9B" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_804E4D7D_4401_4a5d_9F31_DEF3790B43DB"
general="EAID_5563A217_87A1_4d08_9858_C2EBA6828F7B" />
  </packagedElement>

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- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_srcE8A379_2FEC_4b52_8C01_4ABFF8CEAC21" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_42E8A379_2FEC_4b52_8C01_4ABFF8CEAC21" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_9D99D7E3_4727_47a8_B536_8C0F64FCC47B" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_98319490_2120_40bd_AE41_81A92319BE6F" name="ET_ParticleSet"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
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general="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst04955C_416D_4858_B0CB_158A2E16114A" visibility="public"
association="EAID_C304955C_416D_4858_B0CB_158A2E16114A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_2357F345_B3C6_430c_91D0_C2CD3547564A" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_C304955C_416D_4858_B0CB_158A2E16114A" visibility="public">
  <memberEnd xmi:idref="EAID_dst04955C_416D_4858_B0CB_158A2E16114A" />
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- <ownedEnd xmi:type="uml:Property"
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association="EAID_C304955C_416D_4858_B0CB_158A2E16114A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_98319490_2120_40bd_AE41_81A92319BE6F" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_A7C8D52C_7433_4c03_9787_32E7A45F78ED" name="ET_Reliability"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst50B93B_3480_4783_82B8_780A70720437" visibility="public"
association="EAID_E150B93B_3480_4783_82B8_780A70720437" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_D3017B9E_50F1_4ed9_875C_B4BD301A9995" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_ED4B20C0_ABB2_47dc_B2C5_97CA91EB065F"
general="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_E150B93B_3480_4783_82B8_780A70720437" visibility="public">
  <memberEnd xmi:idref="EAID_dst50B93B_3480_4783_82B8_780A70720437" />
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- <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
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  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_419EAE9A_7588_44e7_8606_2D43A3C7F92B" name="ET_UniformGaussian"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst18D4B1_5A5E_4816_8ABB_E2509365DA3A" visibility="public"
association="EAID_0018D4B1_5A5E_4816_8ABB_E2509365DA3A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_A1E70738_C83F_44d4_8C30_CD85F7C2464B" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
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general="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_0018D4B1_5A5E_4816_8ABB_E2509365DA3A" visibility="public">
  <memberEnd xmi:idref="EAID_dst18D4B1_5A5E_4816_8ABB_E2509365DA3A" />
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isDerived="false" isDerivedUnion="false" aggregation="none">
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</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_5F9AAA16_5472_4230_AC1E_AB3894E5182F" name="Encoding Rule"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
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general="EAID_6041306C_7C93_4ff2_B035_E1891D96FF04" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" name="Error Distribution"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_69F848D1_FAA1_4149_9567_2D83B36CDEEE"
general="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_23E2E20E_126B_46c8_9990_50DD74535374" name="Error Element"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_7FD3B84F_F0D4_4d7d_A40C_DFAB77E980BD" name="err"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
  <lowerValue xmi:type="uml:LiteralInteger"
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    <upperValue xmi:type="uml:LiteralInteger"
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general="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
    </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_F62A4930_9019_49b9_9E8E_EF27C81CD71A" visibility="public">
    <memberEnd xmi:idref="EAID_dst2A4930_9019_49b9_9E8E_EF27C81CD71A" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst2A4930_9019_49b9_9E8E_EF27C81CD71A" visibility="public"
association="EAID_F62A4930_9019_49b9_9E8E_EF27C81CD71A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
    </ownedEnd>
    <memberEnd xmi:idref="EAID_src2A4930_9019_49b9_9E8E_EF27C81CD71A" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src2A4930_9019_49b9_9E8E_EF27C81CD71A" visibility="public"
association="EAID_F62A4930_9019_49b9_9E8E_EF27C81CD71A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_23E2E20E_126B_46c8_9990_50DD74535374" />
    </ownedEnd>
    </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_336F0CBB_6ABB_4323_93E7_01FF74D3DF1E" visibility="public">
    <memberEnd xmi:idref="EAID_dst6F0CBB_6ABB_4323_93E7_01FF74D3DF1E" />
    <memberEnd xmi:idref="EAID_src6F0CBB_6ABB_4323_93E7_01FF74D3DF1E" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src6F0CBB_6ABB_4323_93E7_01FF74D3DF1E" visibility="public"
association="EAID_336F0CBB_6ABB_4323_93E7_01FF74D3DF1E" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_F9737BA8_F376_430c_8A4B_2415B9DA2C77" />
    </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst6F0CBB_6ABB_4323_93E7_01FF74D3DF1E" visibility="public"
association="EAID_336F0CBB_6ABB_4323_93E7_01FF74D3DF1E" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_23E2E20E_126B_46c8_9990_50DD74535374" />
    </ownedEnd>
    </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_F9737BA8_F376_430c_8A4B_2415B9DA2C77" name="Error Element
Specification" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_88137561_6996_436d_912A_8CCAFD2A4C28" name="posSpecRef"
visibility="vis_public" isDerived="false">
    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000009_6996_436d_912A_8CCAFD2A4C28" value="0" />
    <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000010_6996_436d_912A_8CCAFD2A4C28" value="-1" />
    </ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_5030D986_DE61_4b3d_8148_05B9CEEDBA87" name="errType"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000011_DE61_4b3d_8148_05B9CEEDBA87" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000012_DE61_4b3d_8148_05B9CEEDBA87" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6D06B3F5_F7A9_4247_97F6_259345E2D48B"
general="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
</packageElement>
+ <packageElement xmi:type="uml:Association"
xmi:id="EAID_0CF2551A_A20E_4f93_8399_B54DC3BCC08B" visibility="public">
  <memberEnd xmi:idref="EAID_dstF2551A_A20E_4f93_8399_B54DC3BCC08B" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstF2551A_A20E_4f93_8399_B54DC3BCC08B" visibility="public"
association="EAID_0CF2551A_A20E_4f93_8399_B54DC3BCC08B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
</ownedEnd>
  <memberEnd xmi:idref="EAID_srcF2551A_A20E_4f93_8399_B54DC3BCC08B" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcF2551A_A20E_4f93_8399_B54DC3BCC08B" visibility="public"
association="EAID_0CF2551A_A20E_4f93_8399_B54DC3BCC08B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_F9737BA8_F376_430c_8A4B_2415B9DA2C77" />
</ownedEnd>
</packageElement>
- <packageElement xmi:type="uml:Class"
xmi:id="EAID_2AF19507_22D1_40ba_8751_142256A5752F" name="FC_FilterOp"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst390A4B_528A_470a_BD48_81479A33A1E5" visibility="public"
association="EAID_09390A4B_528A_470a_BD48_81479A33A1E5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_CB2378FC_A9B6_42c3_8A4C_B5A4A5AE894A" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" visibility="public"
association="EAID_0FFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_661EF327_04F9_4eca_9568_D8337A8AB0C7" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_B6AF9498_ACD5_4ddf_B62F_0F79DB16673D"
general="EAID_C03839DF_4AC3_4342_97AF_FCD340292B8D" />
</packageElement>
- <packageElement xmi:type="uml:Association"
xmi:id="EAID_09390A4B_528A_470a_BD48_81479A33A1E5" visibility="public">
  <memberEnd xmi:idref="EAID_dst390A4B_528A_470a_BD48_81479A33A1E5" />
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- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src390A4B_528A_470a_BD48_81479A33A1E5" visibility="public"
association="EAID_09390A4B_528A_470a_BD48_81479A33A1E5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_OFFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" visibility="public">
  <memberEnd xmi:idref="EAID_dstFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" />
  <memberEnd xmi:idref="EAID_srcFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" visibility="public"
association="EAID_OFFBCD8F_12A5_4cc5_AEA9_BF7EA56962F8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_C03839DF_4AC3_4342_97AF_FCD340292B8D" name="FC_Node"
visibility="vis_public" isAbstract="true">
  <ownedOperation xmi:id="EAID_5B1B3460_F8C6_4616_802F_2D36483AF727"
name="serialize" visibility="vis_public" concurrency="□□" />
- <ownedOperation xmi:id="EAID_169718D7_C7D4_44d2_B91D_C548117A223D" name="is_a"
visibility="vis_public" concurrency="□□" isStatic="true">
  <ownedParameter xmi:id="EAID_42A72BC7_EB90_4ef1_BF97_9ECC386E0C5C"
name="node" type="EAID_C03839DF_4AC3_4342_97AF_FCD340292B8D" direction="pk_in" /
>
  </ownedOperation>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3C6B4870_9CDB_460c_B63C_4DA51E711701"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_D247A86B_94D7_4bda_B144_381D8AAF6234" name="Gaussian"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_9D833A63_AB61_44a0_AA25_C3F306205440" name="covariance"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_DCFD4DD1_9D5F_453b_AF76_57A215B5D60E" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000013_AB61_44a0_AA25_C3F306205440" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000014_AB61_44a0_AA25_C3F306205440" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9E266340_449D_4017_B8FC_2A5BB59A712B"
general="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_84943855_262B_4124_B0D4_D197B6F52929" name="IdentityCRS"
visibility="vis_public" isAbstract="true">

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C3385CC5_9135_406b_9D69_0D04633AE29D"
general="EAID_0E1DCD05_3954_4666_B1E5_37C6DED51047" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_19E8F096_522C_48ca_842C_D44716A177B5" visibility="public">
  <memberEnd xmi:idref="EAID_dstE8F096_522C_48ca_842C_D44716A177B5" />
  <memberEnd xmi:idref="EAID_srcE8F096_522C_48ca_842C_D44716A177B5" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcE8F096_522C_48ca_842C_D44716A177B5" visibility="public"
association="EAID_19E8F096_522C_48ca_842C_D44716A177B5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_8221F5C5_F942_4691_BD64_D6830F3BDCC6" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_2B80FDE0_4D53_433a_A3B2_DFAE683399B6" visibility="public">
  <memberEnd xmi:idref="EAID_dst80FDE0_4D53_433a_A3B2_DFAE683399B6" />
  <memberEnd xmi:idref="EAID_src80FDE0_4D53_433a_A3B2_DFAE683399B6" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src80FDE0_4D53_433a_A3B2_DFAE683399B6" visibility="public"
association="EAID_2B80FDE0_4D53_433a_A3B2_DFAE683399B6" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_AE828A09_19A7_41c1_8DDA_1813738FF9B2" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_2FC6D65D_60B8_445e_A7A1_8D46DD31AD14" visibility="public">
  <memberEnd xmi:idref="EAID_dstC6D65D_60B8_445e_A7A1_8D46DD31AD14" />
  <memberEnd xmi:idref="EAID_srcC6D65D_60B8_445e_A7A1_8D46DD31AD14" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcC6D65D_60B8_445e_A7A1_8D46DD31AD14" visibility="public"
association="EAID_2FC6D65D_60B8_445e_A7A1_8D46DD31AD14" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_36ED4B93_C269_4448_A495_7FC66D7494B6" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_4FFDD717_91AF_4379_BDB7_11ECBB678448" visibility="public">
  <memberEnd xmi:idref="EAID_dstFDD717_91AF_4379_BDB7_11ECBB678448" />
  <memberEnd xmi:idref="EAID_srcFDD717_91AF_4379_BDB7_11ECBB678448" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcFDD717_91AF_4379_BDB7_11ECBB678448" visibility="public"
association="EAID_4FFDD717_91AF_4379_BDB7_11ECBB678448" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_AE828A09_19A7_41c1_8DDA_1813738FF9B2" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_69A0A46E_9EF1_4d1c_8246_8F443C591580" visibility="public">
  <memberEnd xmi:idref="EAID_dstA0A46E_9EF1_4d1c_8246_8F443C591580" />
  <memberEnd xmi:idref="EAID_srcA0A46E_9EF1_4d1c_8246_8F443C591580" />

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- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcA0A46E_9EF1_4d1c_8246_8F443C591580" visibility="public"
association="EAID_69A0A46E_9EF1_4d1c_8246_8F443C591580" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_36ED4B93_C269_4448_A495_7FC66D7494B6" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E6AF3F7A_CA40_4dcd_8693_CEF5B88AE8" name="IdentityCS"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_59DA790D_46BA_4dd8_94FA_14031DB86523"
general="EAID_256A3CA7_A086_47cc_9F75_B3C080D21037" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8221F5C5_F942_4691_BD64_D6830F3BDCC6" name="IdentityDatum"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstE8F096_522C_48ca_842C_D44716A177B5" visibility="public"
association="EAID_19E8F096_522C_48ca_842C_D44716A177B5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_2BF0EF1B_7E54_4a3b_AC8A_82D1875255DF"
general="EAID_87AB7F8B_487B_48ea_A6CC_0608F78CF518" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" name="InStream"
visibility="vis_public">
- <ownedOperation xmi:id="EAID_F50D0767_A37F_4374_A5ED_39E8049DFF42"
name="connect" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_C9AB8E9D_F85C_44d2_871B_1B59BF2E0F79"
name="target" direction="pk_in" />
</ownedOperation>
- <ownedOperation xmi:id="EAID_0464F3E1_229B_417b_9FE0_62D26FACAFFE"
name="setData" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_6B0A99D6_949F_48ab_BE4D_55AE9BA500EC"
name="value" type="EAID_1D9788D0_AE52_4031_819B_BCD41C5719" direction="pk_in" />
>
</ownedOperation>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_61B27FDB_DC63_4d72_A038_87C763230726"
general="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst107C82_529A_4cad_A335_D64054C07B41" visibility="public"
association="EAID_96107C82_529A_4cad_A335_D64054C07B41" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_02C7966E_A0B7_416c_942E_0548A6923DC6" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_96107C82_529A_4cad_A335_D64054C07B41" visibility="public">
  <memberEnd xmi:idref="EAID_dst107C82_529A_4cad_A335_D64054C07B41" />

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    <memberEnd xmi:idref="EAID_src107C82_529A_4cad_A335_D64054C07B41" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src107C82_529A_4cad_A335_D64054C07B41" visibility="public"
association="EAID_96107C82_529A_4cad_A335_D64054C07B41" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_EFDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" visibility="public">
  <memberEnd xmi:idref="EAID_dstDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" visibility="public"
association="EAID_EFDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_277BB124_3B97_4ef0_9758_259A8790FE35" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_srcDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" visibility="public"
association="EAID_EFDC43F4_425C_4cd6_BD50_99FDBFDC2C9F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_6632F66C_35B4_406d_B4BC_C8C23AFB3336" visibility="public">
  <memberEnd xmi:idref="EAID_dst32F66C_35B4_406d_B4BC_C8C23AFB3336" />
  <memberEnd xmi:idref="EAID_src32F66C_35B4_406d_B4BC_C8C23AFB3336" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_6632F66C_35B4_406d_B4BC_C8C23AFB3336" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_C979FB58_C213_424c_A149_C93543F819FB" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E690D6DE_BD8E_4334_9772_3DFC4C721146" name="Linear Mixture Model"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_519CD6BD_CEFA_4701_A05C_B66D41BC513A" name="dists"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000015_CEFA_4701_A05C_B66D41BC513A" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000016_CEFA_4701_A05C_B66D41BC513A" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1367555F_071E_4e53_9282_AD769F297D95" name="numDists"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000017_071E_4e53_9282_AD769F297D95" value="1" />

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    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000018_071E_4e53_9282_AD769F297D95" value="1" />
    </ownedAttribute>
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_F9A0417B_9330_47a0_B726_6B533E0B43D3"
general="EAID_1A6267B8_743D_4a67_B65D_E6EE84D8505C" />
    </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_2FFF9617_91B4_42e6_8B86_6B529091A5E3" visibility="public">
    <memberEnd xmi:idref="EAID_dstFF9617_91B4_42e6_8B86_6B529091A5E3" />
    <memberEnd xmi:idref="EAID_srcFF9617_91B4_42e6_8B86_6B529091A5E3" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcFF9617_91B4_42e6_8B86_6B529091A5E3" visibility="public"
association="EAID_2FFF9617_91B4_42e6_8B86_6B529091A5E3" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_E1EB82B3_6783_4ad5_A507_487A385D94F4" />
    </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstFF9617_91B4_42e6_8B86_6B529091A5E3" visibility="public"
association="EAID_2FFF9617_91B4_42e6_8B86_6B529091A5E3" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_E690D6DE_BD8E_4334_9772_3DFC4C721146" />
    </ownedEnd>
    </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_BD379441_81D1_483d_9F47_F1AA2451B396" name="Matrix"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1FB6FF0B_76AE_402d_8E07_CF1DB014F747" name="numRow"
visibility="vis_public" isDerived="false">
    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000019_76AE_402d_8E07_CF1DB014F747" value="1" />
    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000020_76AE_402d_8E07_CF1DB014F747" value="1" />
    </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_455157CF_73E9_47c8_B443_8F8B530F9C83" name="numColumn"
visibility="vis_public" isDerived="false">
    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000021_73E9_47c8_B443_8F8B530F9C83" value="1" />
    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000022_73E9_47c8_B443_8F8B530F9C83" value="1" />
    </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C6D040C3_BFCD_4416_9C27_8E0DAE713EB1" name="values"
visibility="vis_public" isDerived="false">
    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000023_BFCD_4416_9C27_8E0DAE713EB1" value="0" />
    <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000024_BFCD_4416_9C27_8E0DAE713EB1" value="-1" />
    </ownedAttribute>
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0BCA9A90_2643_4a05_80B8_0980CFE6BB31"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />

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    </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_1A6267B8_743D_4a67_B65D_E6EE84D8505C" name="Mixture Model"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3C3011C1_FFB6_4106_8F80_55D891AEB6CA"
general="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_9464DE77_168F_4bbc_9978_39138617CA9B" name="Mixture of Gaussian"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A0394772_8885_4be0_A0F5_FA9B7E0DDF92"
general="EAID_E690D6DE_BD8E_4334_9772_3DFC4C721146" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_378BBD41_5E42_4961_87B5_8C8063259C9B" name="Mobile2Mobile
Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_F300A1D1_2640_45ec_B359_A2D5FBA22208" name="source"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000025_2640_45ec_B359_A2D5FBA22208" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000026_2640_45ec_B359_A2D5FBA22208" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_D9B4AE72_8C04_4ef3_BA63_2CDABBF615A" name="target"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000027_8C04_4ef3_BA63_2CDABBF615A" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000028_8C04_4ef3_BA63_2CDABBF615A" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_305F7271_661A_49ce_A802_34723BC461A4"
general="EAID_959AE1DE_664F_4691_80CB_FC6709384496" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst7863B1_F782_4c7d_8D92_286C880641D1" visibility="public"
association="EAID_727863B1_F782_4c7d_8D92_286C880641D1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  </ownedAttribute>
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_727863B1_F782_4c7d_8D92_286C880641D1" visibility="public">
  <memberEnd xmi:idref="EAID_dst7863B1_F782_4c7d_8D92_286C880641D1" />
  <memberEnd xmi:idref="EAID_src7863B1_F782_4c7d_8D92_286C880641D1" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src7863B1_F782_4c7d_8D92_286C880641D1" visibility="public"

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association="EAID_727863B1_F782_4c7d_8D92_286C880641D1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_378BBD41_5E42_4961_87B5_8C8063259C9B" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E26FA1B4_1582_467c_BC09_B2A27A8C9B38" name="Mobile2Static
Operation" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_30FE8042_4DF7_4739_A188_343F8ABC8EA4"
general="EAID_959AE1DE_664F_4691_80CB_FC6709384496" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstF3EA82_76EF_4a8b_9C0F_B8747D85F056" name="source"
visibility="public" association="EAID_85F3EA82_76EF_4a8b_9C0F_B8747D85F056"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstB02B92_D38C_4014_845E_FC5934C660C4" name="source"
visibility="public" association="EAID_D8B02B92_D38C_4014_845E_FC5934C660C4"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_EE20F927_4D6D_4c7b_A2AC_82A5C744209C" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_85F3EA82_76EF_4a8b_9C0F_B8747D85F056" visibility="public">
  <memberEnd xmi:idref="EAID_dstF3EA82_76EF_4a8b_9C0F_B8747D85F056" />
  <memberEnd xmi:idref="EAID_srcF3EA82_76EF_4a8b_9C0F_B8747D85F056" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcF3EA82_76EF_4a8b_9C0F_B8747D85F056" visibility="public"
association="EAID_85F3EA82_76EF_4a8b_9C0F_B8747D85F056" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E26FA1B4_1582_467c_BC09_B2A27A8C9B38" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_D8B02B92_D38C_4014_845E_FC5934C660C4" visibility="public">
  <memberEnd xmi:idref="EAID_dstB02B92_D38C_4014_845E_FC5934C660C4" />
  <memberEnd xmi:idref="EAID_srcB02B92_D38C_4014_845E_FC5934C660C4" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcB02B92_D38C_4014_845E_FC5934C660C4" visibility="public"
association="EAID_D8B02B92_D38C_4014_845E_FC5934C660C4" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E26FA1B4_1582_467c_BC09_B2A27A8C9B38" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" name="MobileCRS"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_512A6EBF_F7DA_45d4_8668_1E5CDEF7A99F"
general="EAID_9C4E3034_47BB_403a_A79E_7738507EBEF0" />
</packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_11B41D34_6B3C_40e9_A8B3_63E5B7FD11FC" visibility="public">
  <memberEnd xmi:idref="EAID_dstB41D34_6B3C_40e9_A8B3_63E5B7FD11FC" />
  <memberEnd xmi:idref="EAID_srcB41D34_6B3C_40e9_A8B3_63E5B7FD11FC" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcB41D34_6B3C_40e9_A8B3_63E5B7FD11FC" visibility="public"
association="EAID_11B41D34_6B3C_40e9_A8B3_63E5B7FD11FC" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_71C9F399_FA9B_47d6_8AA9_F5840E7601CC" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_BACF5B9E_1788_42f5_AB04_AB4E4BC25E54" visibility="public">
  <memberEnd xmi:idref="EAID_dstCF5B9E_1788_42f5_AB04_AB4E4BC25E54" />
  <memberEnd xmi:idref="EAID_srcCF5B9E_1788_42f5_AB04_AB4E4BC25E54" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcCF5B9E_1788_42f5_AB04_AB4E4BC25E54" visibility="public"
association="EAID_BACF5B9E_1788_42f5_AB04_AB4E4BC25E54" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_277BB124_3B97_4ef0_9758_259A8790FE35" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_015A55DF_E44D_45fb_BE56_7C12170AE834" name="MobileCartesianCRS"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_8A216682_3F45_45e3_99FB_B8E25394BC6C"
general="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_91EF942C_60D2_4a22_8315_38B3B632DF02" visibility="public">
  <memberEnd xmi:idref="EAID_dstEF942C_60D2_4a22_8315_38B3B632DF02" />
  <memberEnd xmi:idref="EAID_srcEF942C_60D2_4a22_8315_38B3B632DF02" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcEF942C_60D2_4a22_8315_38B3B632DF02" visibility="public"
association="EAID_91EF942C_60D2_4a22_8315_38B3B632DF02" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_60A414E8_F4F4_46cb_94AB_B4F2FE6FCDD2" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_277BB124_3B97_4ef0_9758_259A8790FE35" name="MobileDatum"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_CCA0460D_8E01_43f9_A7E9_1983ADB0946A" name="inStream"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000029_8E01_43f9_A7E9_1983ADB0946A" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000030_8E01_43f9_A7E9_1983ADB0946A" value="1" />
  </ownedAttribute>
- <ownedOperation xmi:id="EAID_A1FE8127_DA04_4db8_AB09_AC8DAE1985DA"
name="getInStream" visibility="vis_public" concurrency="□□">

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    <ownedParameter xmi:id="EAID_42383828_8EC0_41c1_8259_6C5D0EB002DA"
name="inStream" type="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D"
direction="pk_out" />
  </ownedOperation>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_7197A534_7588_47a1_A4C2_18CBB8D369E3"
general="EAID_70A09707_3FEF_4052_8E84_FE61CF93C09E" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstCF5B9E_1788_42f5_AB04_AB4E4BC25E54" visibility="public"
association="EAID_BACF5B9E_1788_42f5_AB04_AB4E4BC25E54" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_076AF213_9741_4ffb_823D_AB8BE5797198" name="MobilePolarCRS"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_7CFC96F4_C2B0_49ad_B6D0_9A3FF3927385"
general="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_B993D406_37E6_4234_ADF0_0EF6B0F79564" visibility="public">
  <memberEnd xmi:idref="EAID_dst93D406_37E6_4234_ADF0_0EF6B0F79564" />
  <memberEnd xmi:idref="EAID_src93D406_37E6_4234_ADF0_0EF6B0F79564" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src93D406_37E6_4234_ADF0_0EF6B0F79564" visibility="public"
association="EAID_B993D406_37E6_4234_ADF0_0EF6B0F79564" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E037F9A5_796E_4c22_B19E_469462A31ED5" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_03DADC83_F5C1_4b4c_855F_CE06FCD41763" name="NULL Element"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_FCDFB915_2AFA_4109_9E9E_584201DF5F86"
general="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_485D1A1E_57BB_40fa_965E_37ECCC0D892B" name="NumericIdentityCRS"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_59DC9F25_BD55_4c69_93A3_CC5550C2A90A"
general="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_17F8696C_28C2_407c_8BF0_1CC5DC996343" visibility="public">
  <memberEnd xmi:idref="EAID_dstF8696C_28C2_407c_8BF0_1CC5DC996343" />
  <memberEnd xmi:idref="EAID_srcF8696C_28C2_407c_8BF0_1CC5DC996343" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcF8696C_28C2_407c_8BF0_1CC5DC996343" visibility="public"
association="EAID_17F8696C_28C2_407c_8BF0_1CC5DC996343" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">

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<type xmi:idref="EAID_B23453CD_BED7_4824_AA3C_F02E16C27394" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_B23453CD_BED7_4824_AA3C_F02E16C27394" name="NumericIdentityCS"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstF8696C_28C2_407c_8BF0_1CC5DC996343" visibility="public"
association="EAID_17F8696C_28C2_407c_8BF0_1CC5DC996343" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
<type xmi:idref="EAID_485D1A1E_57BB_40fa_965E_37ECCC0D892B" />
</ownedAttribute>
<generalization xmi:type="uml:Generalization"
xmi:id="EAID_C3028EAE_5857_45c5_AD34_DCA99307E2F7"
general="EAID_E6AF3F7A_CA40_4dcd_8693_CEF5B88AE8" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_C979FB58_C213_424c_A149_C93543F819FB" name="OutputStream"
visibility="vis_public">
- <ownedOperation xmi:id="EAID_A5839132_B001_4065_9D6D_77004440E1DD"
name="connect" visibility="vis_public" concurrency="□□">
<ownedParameter xmi:id="EAID_1952E7E0_6FF8_40c3_B829_102525C112C5"
name="target" type="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" direction="pk_in" /
>
</ownedOperation>
- <ownedOperation xmi:id="EAID_4357A8F3_DBAD_4c71_98F2_4F3CB25331B0"
name="getResult" visibility="vis_public" concurrency="□□">
<ownedParameter xmi:id="EAID_E3B24A90_90AD_4e83_9082_0AB981E7C113"
name="value" type="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" direction="pk_out"
/>
</ownedOperation>
<generalization xmi:type="uml:Generalization"
xmi:id="EAID_5F123D97_6A92_48a0_92BA_B62439E05928"
general="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst32F66C_35B4_406d_B4BC_C8C23AFB3336" visibility="public"
association="EAID_6632F66C_35B4_406d_B4BC_C8C23AFB3336" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
<type xmi:idref="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_CD4958E0_79A5_4bc7_AE4F_496C3D2E21CB" name="Particle"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_788F2373_D511_47cb_ACFC_688932421B21" name="likelihood"
visibility="vis_public" isDerived="false">
<type xmi:idref="EAID_1D961FCB_72E6_4b04_B57D_E56513E45CAC" />
<lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000031_D511_47cb_ACFC_688932421B21" value="1" />
<upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000032_D511_47cb_ACFC_688932421B21" value="1" />
</ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_72DE5429_436F_4877_B0F7_6F8D20215EDB" name="pos"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000033_436F_4877_B0F7_6F8D20215EDB" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000034_436F_4877_B0F7_6F8D20215EDB" value="1" />
</ownedAttribute>
<generalization xmi:type="uml:Generalization"
xmi:id="EAID_FE305F34_BC58_4b8a_970E_B47463F1E55C"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dst6F6560_7699_42ba_B046_A3BF11B2B3F4" />
- <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2357F345_B3C6_430c_91D0_C2CD3547564A" />
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  <memberEnd xmi:idref="EAID_src6F6560_7699_42ba_B046_A3BF11B2B3F4" />
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association="EAID_876F6560_7699_42ba_B046_A3BF11B2B3F4" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_CD4958E0_79A5_4bc7_AE4F_496C3D2E21CB" />
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</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_D7584F02_EC2C_4bfa_A68E_784CBAFC6CB5" visibility="public">
  <memberEnd xmi:idref="EAID_dst584F02_EC2C_4bfa_A68E_784CBAFC6CB5" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_D7584F02_EC2C_4bfa_A68E_784CBAFC6CB5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_1D961FCB_72E6_4b04_B57D_E56513E45CAC" />
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  <memberEnd xmi:idref="EAID_src584F02_EC2C_4bfa_A68E_784CBAFC6CB5" />
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association="EAID_D7584F02_EC2C_4bfa_A68E_784CBAFC6CB5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_CD4958E0_79A5_4bc7_AE4F_496C3D2E21CB" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2357F345_B3C6_430c_91D0_C2CD3547564A" name="Particle Set"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_B70BCF19_E2A2_49a6_9B1C_0D3661FEA869" name="numParticles"
visibility="vis_public" isDerived="false">
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    <upperValue xmi:type="uml:LiteralInteger"
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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_24FC02F3_3F60_4b8d_B686_F2F28971DA8A" name="particles"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_CD4958E0_79A5_4bc7_AE4F_496C3D2E21CB" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000037_3F60_4b8d_B686_F2F28971DA8A" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000038_3F60_4b8d_B686_F2F28971DA8A" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0F8C97C3_D1B9_48f7_BD0F_CE0E70480D61"
general="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_FA1D2C7C_B033_4765_AFC7_57626BBF3738" name="Position Element"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A9BD4F9F_2EA6_4210_BB88_3F4A364495B9" name="pos"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000039_2EA6_4210_BB88_3F4A364495B9" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000040_2EA6_4210_BB88_3F4A364495B9" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A22DC654_C334_436f_BBF1_0E18144BBDF9" name="err"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000041_C334_436f_BBF1_0E18144BBDF9" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000042_C334_436f_BBF1_0E18144BBDF9" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A6CABE5D_D263_4f24_BBCD_E56874897A48"
general="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_8266B65A_970D_4753_BACE_5E910F2C4E78" visibility="public">
  <memberEnd xmi:idref="EAID_dst66B65A_970D_4753_BACE_5E910F2C4E78" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst66B65A_970D_4753_BACE_5E910F2C4E78" visibility="public"
association="EAID_8266B65A_970D_4753_BACE_5E910F2C4E78" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_src66B65A_970D_4753_BACE_5E910F2C4E78" />
- <ownedEnd xmi:type="uml:Property"
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  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dst6A1F73_EBE3_4b49_B206_4953831CA0DF" />
  <memberEnd xmi:idref="EAID_src6A1F73_EBE3_4b49_B206_4953831CA0DF" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_AA6A1F73_EBE3_4b49_B206_4953831CA0DF" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
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  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
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association="EAID_AA6A1F73_EBE3_4b49_B206_4953831CA0DF" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FA1D2C7C_B033_4765_AFC7_57626BBF3738" />
  </ownedEnd>
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- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dstFEAC18_1BBC_4b21_8B25_83AD2C95E2BB" />
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isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstFEAC18_1BBC_4b21_8B25_83AD2C95E2BB" visibility="public"
association="EAID_C3FEAC18_1BBC_4b21_8B25_83AD2C95E2BB" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FA1D2C7C_B033_4765_AFC7_57626BBF3738" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_D16324B4_746F_4116_A6FE_6C613A958B4E" name="Position Element
Concatenated Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_6C8756E5_E929_4484_AEC3_C09C928C1943" name="childOperation"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000043_E929_4484_AEC3_C09C928C1943" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000044_E929_4484_AEC3_C09C928C1943" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_112E0276_4094_44d1_8F33_F43271CB1D4E"
general="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />

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  <memberEnd xmi:idref="EAID_srcD910CE_5333_4ec1_94DF_28F1D5EFCAAD" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcD910CE_5333_4ec1_94DF_28F1D5EFCAAD" visibility="public"
association="EAID_73D910CE_5333_4ec1_94DF_28F1D5EFCAAD" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />
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xmi:id="EAID_SL000000_5333_4ec1_94DF_28F1D5EFCAAD" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_SU000000_5333_4ec1_94DF_28F1D5EFCAAD" value="-1" />
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</packagedElement>
- <packagedElement xmi:type="uml:Class"
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Operation" visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstB0243A_1B16_4836_83AA_923C47392FBD" visibility="public"
association="EAID_50B0243A_1B16_4836_83AA_923C47392FBD" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_1D204DCE_4A9D_41ce_B448_65EE34C10283" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstD910CE_5333_4ec1_94DF_28F1D5EFCAAD" visibility="public"
association="EAID_73D910CE_5333_4ec1_94DF_28F1D5EFCAAD" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_D16324B4_746F_4116_A6FE_6C613A958B4E" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_8884C9C5_780B_4872_8DDD_FC8E6BFF1185"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst0EC866_4FCF_4287_9A97_ABC29D43C7B2" name="source"
visibility="public" association="EAID_BB0EC866_4FCF_4287_9A97_ABC29D43C7B2"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
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association="EAID_DCDE7902_6119_4d4f_8DF8_B46612D18CC7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
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</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dstB0243A_1B16_4836_83AA_923C47392FBD" />
  <memberEnd xmi:idref="EAID_srcB0243A_1B16_4836_83AA_923C47392FBD" />
- <ownedEnd xmi:type="uml:Property"
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  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_BB0EC866_4FCF_4287_9A97_ABC29D43C7B2" visibility="public">
  <memberEnd xmi:idref="EAID_dst0EC866_4FCF_4287_9A97_ABC29D43C7B2" />
  <memberEnd xmi:idref="EAID_src0EC866_4FCF_4287_9A97_ABC29D43C7B2" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src0EC866_4FCF_4287_9A97_ABC29D43C7B2" visibility="public"
association="EAID_BB0EC866_4FCF_4287_9A97_ABC29D43C7B2" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
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- <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_F5575F0B_2F7B_40b1_96E7_AB6E8DCC8828" name="Position Element
Single Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C5EA1B61_02A2_487c_85BD_905EFA3038D8" name="usesOperation"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000045_02A2_487c_85BD_905EFA3038D8" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000046_02A2_487c_85BD_905EFA3038D8" value="1" />
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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_AA3087BA_DD8E_4e8f_99C9_0DE3070E8C4A"
name="usesErrorTypeOperation" visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_191B05C9_E4FC_466e_87A7_E9FBC120A464" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000047_DD8E_4e8f_99C9_0DE3070E8C4A" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000048_DD8E_4e8f_99C9_0DE3070E8C4A" value="1" />
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  <generalization xmi:type="uml:Generalization"
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general="EAID_A5957F77_3617_4cdd_9408_6A04A5231158" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_1ADE63ED_DEC6_4162_9673_39781D8357D2" visibility="public">
  <memberEnd xmi:idref="EAID_dstDE63ED_DEC6_4162_9673_39781D8357D2" />

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    <memberEnd xmi:idref="EAID_srcDE63ED_DEC6_4162_9673_39781D8357D2" />
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association="EAID_1ADE63ED_DEC6_4162_9673_39781D8357D2" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
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  - <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstDE63ED_DEC6_4162_9673_39781D8357D2" visibility="public"
association="EAID_1ADE63ED_DEC6_4162_9673_39781D8357D2" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_F5575F0B_2F7B_40b1_96E7_AB6E8DCC8828" />
  </ownedEnd>
  </packagedElement>
  - <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dst3BE44B_2766_42b4_85FC_C6419EB3D7AA" />
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  - <ownedEnd xmi:type="uml:Property"
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association="EAID_553BE44B_2766_42b4_85FC_C6419EB3D7AA" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_609EC4B8_B661_4547_9DFA_E0414AACACA6" />
  </ownedEnd>
  - <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
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  </packagedElement>
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Specification" visibility="vis_public">
  - <ownedAttribute xmi:type="uml:Property"
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visibility="vis_public" isDerived="true">
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xmi:id="EAID_LI000049_2EA8_4de1_AEC8_AEA57A7A21CD" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000050_2EA8_4de1_AEC8_AEA57A7A21CD" value="1" />
  </ownedAttribute>
  - <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_2373DA08_6331_42b6_ABC8_1777693191F5" name="cs" visibility="vis_public"
isDerived="true">
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xmi:id="EAID_LI000051_6331_42b6_ABC8_1777693191F5" value="0" />
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xmi:id="EAID_LI000052_6331_42b6_ABC8_1777693191F5" value="1" />
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- <ownedAttribute xmi:type="uml:Property"
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  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000054_6CE2_4062_82FE_4FA3041CA930" value="1" />
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general="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
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- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dstD11E12_7172_428d_B1E8_CC464FD8C6EB" />
  <memberEnd xmi:idref="EAID_srcD11E12_7172_428d_B1E8_CC464FD8C6EB" />
- <ownedEnd xmi:type="uml:Property"
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- <ownedEnd xmi:type="uml:Property"
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association="EAID_8DD11E12_7172_428d_B1E8_CC464FD8C6EB" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_D9B38651_0A0C_4c76_8FBE_049A7DACAD5E" />
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- <packagedElement xmi:type="uml:Association"
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- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dst1C0993_93A2_403b_B875_CEEFE6F2DF7E" />
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isDerived="false" isDerivedUnion="false" aggregation="none">
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</packagedElement>
- <packagedElement xmi:type="uml:Class"
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visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstCFB2FB_371F_4dd9_8A16_A6398AB30486" visibility="public"
association="EAID_06CFB2FB_371F_4dd9_8A16_A6398AB30486" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_F45533E9_DA11_4671_9259_1D068BABD391" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
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general="EAID_F09388C0_5FF3_4c2f_ABB4_156A4D07F2A2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_06CFB2FB_371F_4dd9_8A16_A6398AB30486" visibility="public">
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isDerived="false" isDerivedUnion="false" aggregation="none">
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- <packagedElement xmi:type="uml:Class"
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visibility="vis_public">
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general="EAID_9C4E3034_47BB_403a_A79E_7738507EBEF0" />
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- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dstA040B8_0E51_465b_A683_F42220664013" />
  <memberEnd xmi:idref="EAID_srcA040B8_0E51_465b_A683_F42220664013" />
- <ownedEnd xmi:type="uml:Property"
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association="EAID_40A040B8_0E51_465b_A683_F42220664013" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
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- <packagedElement xmi:type="uml:Class"
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isDerived="false">
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  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000055_6A44_4d78_8F86_E7B0430C8523" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000056_6A44_4d78_8F86_E7B0430C8523" value="1" />
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- <ownedAttribute xmi:type="uml:Property"
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visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000057_B7DF_4067_B057_51A54AE1455C" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000058_B7DF_4067_B057_51A54AE1455C" value="1" />
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  <generalization xmi:type="uml:Generalization"
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general="EAID_70A09707_3FEF_4052_8E84_FE61CF93C09E" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
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  <memberEnd xmi:idref="EAID_dstB1ACE2_DC70_4fdc_A258_F49B4ED92EF1" />
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- <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
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  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
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association="EAID_68B1ACE2_DC70_4fdc_A258_F49B4ED92EF1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_F45533E9_DA11_4671_9259_1D068BABD391" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
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isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" />
  </ownedEnd>
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- <packagedElement xmi:type="uml:Class"
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visibility="vis_public">
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general="EAID_9C4E3034_47BB_403a_A79E_7738507EBEF0" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
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- <packagedElement xmi:type="uml:Class"
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  <generalization xmi:type="uml:Generalization"
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general="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
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- <packagedElement xmi:type="uml:Class"
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visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
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- <ownedEnd xmi:type="uml:Property"
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- <packagedElement xmi:type="uml:Class"
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- <ownedEnd xmi:type="uml:Property"
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isDerived="false" isDerivedUnion="false" aggregation="none">
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  <memberEnd xmi:idref="EAID_srcDFEA46_DD56_4517_9D9C_7AB5D52E04C8" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcDFEA46_DD56_4517_9D9C_7AB5D52E04C8" visibility="public"
association="EAID_A2DFEA46_DD56_4517_9D9C_7AB5D52E04C8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_682E1751_9DBA_4213_AE4E_0AC30FBFA538" />
</ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstDFEA46_DD56_4517_9D9C_7AB5D52E04C8" visibility="public"

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association="EAID_A2DFEA46_DD56_4517_9D9C_7AB5D52E04C8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_247158D1_8A6B_43a4_9F65_FEA5714ADEF0" name="RoLo Attribute"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_BCA22339_2CCC_432f_83BF_275F078C28BA" name="def"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000065_2CCC_432f_83BF_275F078C28BA" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000066_2CCC_432f_83BF_275F078C28BA" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_770C350D_F6B1_423c_8BA0_0B4626A853A9" name="value"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000067_F6B1_423c_8BA0_0B4626A853A9" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000068_F6B1_423c_8BA0_0B4626A853A9" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_8161F4AD_3EBC_4558_95B3_183FC4A05B05"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_0843FF18_1BE6_4a1c_9A70_1302D0A0EE3B" visibility="public">
  <memberEnd xmi:idref="EAID_dst43FF18_1BE6_4a1c_9A70_1302D0A0EE3B" />
  <memberEnd xmi:idref="EAID_src43FF18_1BE6_4a1c_9A70_1302D0A0EE3B" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src43FF18_1BE6_4a1c_9A70_1302D0A0EE3B" visibility="public"
association="EAID_0843FF18_1BE6_4a1c_9A70_1302D0A0EE3B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_6BDA3CB9_3358_4738_9F46_951104E1F97D" />
</ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst43FF18_1BE6_4a1c_9A70_1302D0A0EE3B" visibility="public"
association="EAID_0843FF18_1BE6_4a1c_9A70_1302D0A0EE3B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_247158D1_8A6B_43a4_9F65_FEA5714ADEF0" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_577D89A2_7D84_46ca_96D6_EBF48C0BD6CB" visibility="public">
  <memberEnd xmi:idref="EAID_dst7D89A2_7D84_46ca_96D6_EBF48C0BD6CB" />
  <memberEnd xmi:idref="EAID_src7D89A2_7D84_46ca_96D6_EBF48C0BD6CB" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src7D89A2_7D84_46ca_96D6_EBF48C0BD6CB" visibility="public"
association="EAID_577D89A2_7D84_46ca_96D6_EBF48C0BD6CB" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />

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</ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst7D89A2_7D84_46ca_96D6_EBF48C0BD6CB" visibility="public"
association="EAID_577D89A2_7D84_46ca_96D6_EBF48C0BD6CB" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_247158D1_8A6B_43a4_9F65_FEA5714ADEF0" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_90B4C450_F722_4589_92FC_9D1B91AF396D" visibility="public">
  <memberEnd xmi:idref="EAID_dstB4C450_F722_4589_92FC_9D1B91AF396D" />
  <memberEnd xmi:idref="EAID_srcB4C450_F722_4589_92FC_9D1B91AF396D" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcB4C450_F722_4589_92FC_9D1B91AF396D" visibility="public"
association="EAID_90B4C450_F722_4589_92FC_9D1B91AF396D" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_8E5114FA_EC4D_4b71_AF7C_3341D7A4FD0D" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstB4C450_F722_4589_92FC_9D1B91AF396D" visibility="public"
association="EAID_90B4C450_F722_4589_92FC_9D1B91AF396D" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_247158D1_8A6B_43a4_9F65_FEA5714ADEF0" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8E5114FA_EC4D_4b71_AF7C_3341D7A4FD0D" name="RoLo Attribute
Definition" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_FE9A1982_8D0A_47af_BE68_3218145A0104" name="type"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000069_8D0A_47af_BE68_3218145A0104" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000070_8D0A_47af_BE68_3218145A0104" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_71A0C2B9_CE82_4b78_93AA_C287707C5C3C" name="choice"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000071_CE82_4b78_93AA_C287707C5C3C" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000072_CE82_4b78_93AA_C287707C5C3C" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C571FCFC_7A25_4d83_B5E6_1A12B5D2449E" name="minOccurence"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000073_7A25_4d83_B5E6_1A12B5D2449E" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000074_7A25_4d83_B5E6_1A12B5D2449E" value="1" />
  </ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3954C2D9_7B98_48dd_9129_701187F80DF4" name="maxOccurence"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000075_7B98_48dd_9129_701187F80DF4" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000076_7B98_48dd_9129_701187F80DF4" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_5D92E32C_05F0_428e_A7BA_890FF9C5D6B0"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_C29B6FEB_732E_4c28_9352_960A464AD74D" visibility="public">
  <memberEnd xmi:idref="EAID_dst9B6FEB_732E_4c28_9352_960A464AD74D" />
  <memberEnd xmi:idref="EAID_src9B6FEB_732E_4c28_9352_960A464AD74D" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src9B6FEB_732E_4c28_9352_960A464AD74D" visibility="public"
association="EAID_C29B6FEB_732E_4c28_9352_960A464AD74D" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7D8FDE10_5667_4a43_88E5_EA44FB4447C7" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst9B6FEB_732E_4c28_9352_960A464AD74D" visibility="public"
association="EAID_C29B6FEB_732E_4c28_9352_960A464AD74D" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_8E5114FA_EC4D_4b71_AF7C_3341D7A4FD0D" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" name="RoLo Attribute
Definition Set" visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_9BD4303F_13DC_47c8_887B_E443DD25BC3E" name="child"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000077_13DC_47c8_887B_E443DD25BC3E" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000078_13DC_47c8_887B_E443DD25BC3E" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A87BC29D_5380_496f_8926_533D921F6EE2" name="attribute"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000079_5380_496f_8926_533D921F6EE2" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000080_5380_496f_8926_533D921F6EE2" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6201C1A7_848B_4f4d_BA6B_24AA5789DCBB"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
  </packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_055EB2D7_1FDC_4237_91D6_DF8F26C3C774" visibility="public">
  <memberEnd xmi:idref="EAID_dst5EB2D7_1FDC_4237_91D6_DF8F26C3C774" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst5EB2D7_1FDC_4237_91D6_DF8F26C3C774" visibility="public"
association="EAID_055EB2D7_1FDC_4237_91D6_DF8F26C3C774" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_src5EB2D7_1FDC_4237_91D6_DF8F26C3C774" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src5EB2D7_1FDC_4237_91D6_DF8F26C3C774" visibility="public"
association="EAID_055EB2D7_1FDC_4237_91D6_DF8F26C3C774" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_8E0DB0FE_FA53_4062_93C1_B6BF2F478EC4" visibility="public">
  <memberEnd xmi:idref="EAID_dst0DB0FE_FA53_4062_93C1_B6BF2F478EC4" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst0DB0FE_FA53_4062_93C1_B6BF2F478EC4" visibility="public"
association="EAID_8E0DB0FE_FA53_4062_93C1_B6BF2F478EC4" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_src0DB0FE_FA53_4062_93C1_B6BF2F478EC4" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src0DB0FE_FA53_4062_93C1_B6BF2F478EC4" visibility="public"
association="EAID_8E0DB0FE_FA53_4062_93C1_B6BF2F478EC4" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" name="RoLo Attribute Set"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_EDE2A313_1AEF_4dd6_BA81_459E79B5D042" name="def"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000081_1AEF_4dd6_BA81_459E79B5D042" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000082_1AEF_4dd6_BA81_459E79B5D042" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_84A85533_3F00_47c6_974C_9720E46372DA" name="child"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000083_3F00_47c6_974C_9720E46372DA" value="0" />

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    <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000084_3F00_47c6_974C_9720E46372DA" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_7B2351CA_371B_42b4_AEA3_CF94B19F877F" name="attribute"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_247158D1_8A6B_43a4_9F65_FEA5714ADEF0" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000085_371B_42b4_AEA3_CF94B19F877F" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000086_371B_42b4_AEA3_CF94B19F877F" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_91597895_579A_4798_B666_1BFCDD45A6BF"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_C14C113A_0268_4c1c_8724_FA42E1716BC7" visibility="public">
  <memberEnd xmi:idref="EAID_dst4C113A_0268_4c1c_8724_FA42E1716BC7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst4C113A_0268_4c1c_8724_FA42E1716BC7" visibility="public"
association="EAID_C14C113A_0268_4c1c_8724_FA42E1716BC7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_src4C113A_0268_4c1c_8724_FA42E1716BC7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src4C113A_0268_4c1c_8724_FA42E1716BC7" visibility="public"
association="EAID_C14C113A_0268_4c1c_8724_FA42E1716BC7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2D7BD63F_DC08_4f41_AA8A_5162BE77CA07" name="RoLo Attribute
SingleValue" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_174806E3_7450_4065_8547_B28A32BB460B" name="measureValue"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000087_7450_4065_8547_B28A32BB460B" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000088_7450_4065_8547_B28A32BB460B" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_71F556E1_0E3C_4cd9_A51B_1978A9F646D4" name="stringValue"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000089_0E3C_4cd9_A51B_1978A9F646D4" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000090_0E3C_4cd9_A51B_1978A9F646D4" value="1" />
  </ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_24AF1143_DD27_4537_8D54_2CD8E79716A4" name="integerValue"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000091_DD27_4537_8D54_2CD8E79716A4" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000092_DD27_4537_8D54_2CD8E79716A4" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3E1EC51F_0F03_4834_B9F3_43A2288BEDA6" name="realValue"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000093_0F03_4834_B9F3_43A2288BEDA6" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000094_0F03_4834_B9F3_43A2288BEDA6" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_55D38A4B_E0E8_436e_8AFD_99F4BBA03696" name="probabilityValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_1D961FCB_72E6_4b04_B57D_E56513E45CAC" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000095_E0E8_436e_8AFD_99F4BBA03696" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000096_E0E8_436e_8AFD_99F4BBA03696" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_6ED343C4_5FEC_41b1_8DBA_FC70DF6775BC" name="booleanValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_1D961FCB_72E6_4b04_B57D_E56513E45CAC" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000097_5FEC_41b1_8DBA_FC70DF6775BC" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000098_5FEC_41b1_8DBA_FC70DF6775BC" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_B081CFFB_3DE6_4483_8E8D_0894CD74BB9F" name="ridValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000099_3DE6_4483_8E8D_0894CD74BB9F" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000100_3DE6_4483_8E8D_0894CD74BB9F" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A0B6EB1E_AE5E_406e_9FE2_E26C789F274B" name="rleValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000101_AE5E_406e_9FE2_E26C789F274B" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000102_AE5E_406e_9FE2_E26C789F274B" value="1" />
</ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_748A63E2_765D_46ed_889A_ABFF52577DE8" name="errorValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000103_765D_46ed_889A_ABFF52577DE8" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000104_765D_46ed_889A_ABFF52577DE8" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C6D6309E_005D_48c6_8049_BDCF3E47FE9C" name="positionValue"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000105_005D_48c6_8049_BDCF3E47FE9C" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000106_005D_48c6_8049_BDCF3E47FE9C" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_D923A49F_8EC4_4a05_8C47_11CA48F239A4"
general="EAID_6BDA3CB9_3358_4738_9F46_951104E1F97D" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_839AD5C8_0A76_411e_9F9B_B78FA41996FC" visibility="public">
  <memberEnd xmi:idref="EAID_dst9AD5C8_0A76_411e_9F9B_B78FA41996FC" />
  <memberEnd xmi:idref="EAID_src9AD5C8_0A76_411e_9F9B_B78FA41996FC" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src9AD5C8_0A76_411e_9F9B_B78FA41996FC" visibility="public"
association="EAID_839AD5C8_0A76_411e_9F9B_B78FA41996FC" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_20BA03F0_63F7_4d91_AF2A_4068A0E17FFD" />
</ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst9AD5C8_0A76_411e_9F9B_B78FA41996FC" visibility="public"
association="EAID_839AD5C8_0A76_411e_9F9B_B78FA41996FC" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2D7BD63F_DC08_4f41_AA8A_5162BE77CA07" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_7D8FDE10_5667_4a43_88E5_EA44FB4447C7" name="RoLo Attribute Type"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_FB89D440_ED73_4eb4_9352_C61155691217" name="name"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000107_ED73_4eb4_9352_C61155691217" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000108_ED73_4eb4_9352_C61155691217" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_6CBF0822_BBFF_41a6_BAC1_BB8BC8E88AEC" name="reference"
visibility="vis_public" isDerived="false">

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    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000109_BBFF_41a6_BAC1_BB8BC8E88AEC" value="1" />
    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000110_BBFF_41a6_BAC1_BB8BC8E88AEC" value="1" />
    </ownedAttribute>
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_1E7B99CA_EBD7_4ec6_80F1_541C7D1BDA4F"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
    </packagedElement>
    <packagedElement xmi:type="uml:Class"
xmi:id="EAID_6BDA3CB9_3358_4738_9F46_951104E1F97D" name="RoLo Attribute Value"
visibility="vis_public" isAbstract="true" />
    <packagedElement xmi:type="uml:Class"
xmi:id="EAID_20BA03F0_63F7_4d91_AF2A_4068A0E17FFD" name="RoLo Attribute
ValueList" visibility="vis_public">
    <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3F724CC8_E96A_41bc_8FE8_258CAE0D5F6E" name="value"
visibility="vis_public" isDerived="false">
        <type xmi:idref="EAID_2D7BD63F_DC08_4f41_AA8A_5162BE77CA07" />
        <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000111_E96A_41bc_8FE8_258CAE0D5F6E" value="1" />
        <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000112_E96A_41bc_8FE8_258CAE0D5F6E" value="-1" />
        </ownedAttribute>
        <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A43A2206_ACF5_460a_B270_A9520E0B2C55"
general="EAID_6BDA3CB9_3358_4738_9F46_951104E1F97D" />
        </packagedElement>
    <packagedElement xmi:type="uml:Class"
xmi:id="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" name="RoLo Data"
visibility="vis_public">
    <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A0F4DB75_ECD4_4864_8F63_6222DBF08A8A" name="rla"
visibility="vis_public" isDerived="true">
        <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
        <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000113_ECD4_4864_8F63_6222DBF08A8A" value="0" />
        <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000114_ECD4_4864_8F63_6222DBF08A8A" value="1" />
        </ownedAttribute>
    <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_AE216B20_5A46_4cbe_9B1A_7A9D178F8B26" name="elem"
visibility="vis_public" isDerived="false">
        <type xmi:idref="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
        <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000115_5A46_4cbe_9B1A_7A9D178F8B26" value="1" />
        <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000116_5A46_4cbe_9B1A_7A9D178F8B26" value="-1" />
        </ownedAttribute>
        <generalization xmi:type="uml:Generalization"
xmi:id="EAID_55D90673_476C_4ab5_917B_01A5371EEFE4"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
        </packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_65DEFD23_3763_434c_BE1D_23727E420700" visibility="public">
  <memberEnd xmi:idref="EAID_dstDEFD23_3763_434c_BE1D_23727E420700" />
  <memberEnd xmi:idref="EAID_srcDEFD23_3763_434c_BE1D_23727E420700" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcDEFD23_3763_434c_BE1D_23727E420700" visibility="public"
association="EAID_65DEFD23_3763_434c_BE1D_23727E420700" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstDEFD23_3763_434c_BE1D_23727E420700" visibility="public"
association="EAID_65DEFD23_3763_434c_BE1D_23727E420700" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2C62C9B2_54A4_4dea_8BAE_00DA910DB971" name="RoLo Data
Concatenated Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_2F874315_3398_47db_AFB5_1B5B0FDFBB48" name="childOperation"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_6A068542_8404_4e83_B051_298D260AA2B2" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000117_3398_47db_AFB5_1B5B0FDFBB48" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000118_3398_47db_AFB5_1B5B0FDFBB48" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A8A3012C_8528_4d8a_A840_B383B975EAFD"
general="EAID_6A068542_8404_4e83_B051_298D260AA2B2" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_DE265B17_3C4D_4b27_A2F0_C42187D9295F" visibility="public">
  <memberEnd xmi:idref="EAID_dst265B17_3C4D_4b27_A2F0_C42187D9295F" />
  <memberEnd xmi:idref="EAID_src265B17_3C4D_4b27_A2F0_C42187D9295F" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src265B17_3C4D_4b27_A2F0_C42187D9295F" visibility="public"
association="EAID_DE265B17_3C4D_4b27_A2F0_C42187D9295F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_6A068542_8404_4e83_B051_298D260AA2B2" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_SL000000_3C4D_4b27_A2F0_C42187D9295F" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_SU000000_3C4D_4b27_A2F0_C42187D9295F" value="-1" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_6041306C_7C93_4ff2_B035_E1891D96FF04" name="RoLo Data Format"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_991C2A21_EAC5_40a7_AAFD_89DD2D32319A"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />

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</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_5E763DEF_82F8_4271_AF78_BC29101CDFCA" name="RoLo Data Mapping
Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C8B41C22_A185_4db6_9C85_B44B453F82FE" name="sourceIndex"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000119_A185_4db6_9C85_B44B453F82FE" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000120_A185_4db6_9C85_B44B453F82FE" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3D05DD60_1108_4745_9FEE_DB614833701D" name="targetIndex"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000121_1108_4745_9FEE_DB614833701D" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000122_1108_4745_9FEE_DB614833701D" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_27B021E6_062C_4bb7_A949_BE84EFC6762"
general="EAID_DF0CA545_B37A_4d99_AC61_01DFCEFA3CEC" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_6A068542_8404_4e83_B051_298D260AA2B2" name="RoLo Data Operation"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst3532DF_ED75_4630_BE08_C212AD638215" name="source"
visibility="public" association="EAID_273532DF_ED75_4630_BE08_C212AD638215"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst9A7087_DE39_44cf_B4EA_EDF28BEB8CB6" name="target"
visibility="public" association="EAID_9D9A7087_DE39_44cf_B4EA_EDF28BEB8CB6"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C23D9701_BE60_4358_A03D_644A68840B13"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst265B17_3C4D_4b27_A2F0_C42187D9295F" visibility="public"
association="EAID_DE265B17_3C4D_4b27_A2F0_C42187D9295F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_2C62C9B2_54A4_4dea_8BAE_00DA910DB971" />
  </ownedAttribute>
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_DF0CA545_B37A_4d99_AC61_01DFCEFA3CEC" name="RoLo Data
SingleOperation" visibility="vis_public" isAbstract="true">

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_77E8E9E2_3E3F_403f_952B_0F83BDC88118"
general="EAID_6A068542_8404_4e83_B051_298D260AA2B2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_1D204DCE_4A9D_41ce_B448_65EE34C10283" name="RoLo Data
Transformation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_8C7664A7_035E_432f_B278_BBB4AD3B2576" name="usesOperation"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000123_035E_432f_B278_BBB4AD3B2576" value="1" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000124_035E_432f_B278_BBB4AD3B2576" value="-1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_1BAF47FD_1BD6_436f_ABCC_6EFAE35E9537"
general="EAID_DF0CA545_B37A_4d99_AC61_01DFCEFA3CEC" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_D33C6916_6351_4399_A2D6_6C433DCDD3A6" name="RoLo Element"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A6C803EA_F770_4465_B49C_C33A57EAAF1D" name="spec"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000125_F770_4465_B49C_C33A57EAAF1D" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000126_F770_4465_B49C_C33A57EAAF1D" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A7A39100_5080_4622_ABF9_E44C5C289731"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" name="RoLo Element
Specification" visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_07709F45_A79A_4d69_8612_0A3EF7975314" name="spec_ID"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000127_A79A_4d69_8612_0A3EF7975314" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000128_A79A_4d69_8612_0A3EF7975314" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_B68FCD41_9195_4165_B3A5_D95E79A9C604"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst5EF55F_8088_4209_8F43_ED5DEC1F0856" visibility="public"
association="EAID_EA5EF55F_8088_4209_8F43_ED5DEC1F0856" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FCECEE9" />

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</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_EA5EF55F_8088_4209_8F43_ED5DEC1F0856" visibility="public">
  <memberEnd xmi:idref="EAID_dst5EF55F_8088_4209_8F43_ED5DEC1F0856" />
  <memberEnd xmi:idref="EAID_src5EF55F_8088_4209_8F43_ED5DEC1F0856" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src5EF55F_8088_4209_8F43_ED5DEC1F0856" visibility="public"
association="EAID_EA5EF55F_8088_4209_8F43_ED5DEC1F0856" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_15C6AFF8_BDC7_42c8_81EE_37BF21C45025" name="RoLo Error"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_EEED2676_147E_4953_9ABF_BF3ECE93E9A9" name="/errorType"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000129_147E_4953_9ABF_BF3ECE93E9A9" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000130_147E_4953_9ABF_BF3ECE93E9A9" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6835C9BC_299C_47d8_B0D0_CD9F3DE839AE"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" name="RoLo Error Type"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9238E2FE_80BA_47e6_968D_E9480889BBE5"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_19DCDA55_131C_41d5_82CD_DE6D1200A1B1" visibility="public">
  <memberEnd xmi:idref="EAID_dstDCDA55_131C_41d5_82CD_DE6D1200A1B1" />
  <memberEnd xmi:idref="EAID_srcDCDA55_131C_41d5_82CD_DE6D1200A1B1" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcDCDA55_131C_41d5_82CD_DE6D1200A1B1" visibility="public"
association="EAID_19DCDA55_131C_41d5_82CD_DE6D1200A1B1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_191B05C9_E4FC_466e_87A7_E9FBC120A464" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_8D1A5E98_D366_49eb_9D0F_608FCD9C671A" visibility="public">
  <memberEnd xmi:idref="EAID_dst1A5E98_D366_49eb_9D0F_608FCD9C671A" />
  <memberEnd xmi:idref="EAID_src1A5E98_D366_49eb_9D0F_608FCD9C671A" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src1A5E98_D366_49eb_9D0F_608FCD9C671A" visibility="public"

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association="EAID_8D1A5E98_D366_49eb_9D0F_608FCD9C671A" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_191B05C9_E4FC_466e_87A7_E9FBC120A464" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_191B05C9_E4FC_466e_87A7_E9FBC120A464" name="RoLo Error Type
Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstDCDA55_131C_41d5_82CD_DE6D1200A1B1" name="target"
visibility="public" association="EAID_19DCDA55_131C_41d5_82CD_DE6D1200A1B1"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst1A5E98_D366_49eb_9D0F_608FCD9C671A" name="source"
visibility="public" association="EAID_8D1A5E98_D366_49eb_9D0F_608FCD9C671A"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FDA25C67_BCCE_490c_A9F5_6EBC09530467" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_D79B95AB_1319_45ed_ADCB_590A6570D606"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_36ED4B93_C269_4448_A495_7FC66D7494B6" name="RoLo Identity
Conversion" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstC6D65D_60B8_445e_A7A1_8D46DD31AD14" name="source"
visibility="public" association="EAID_2FC6D65D_60B8_445e_A7A1_8D46DD31AD14"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstA0A46E_9EF1_4d1c_8246_8F443C591580" name="target" visibility="public"
association="EAID_69A0A46E_9EF1_4d1c_8246_8F443C591580" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C0D28B84_A868_4e37_A69C_037ED79F6600"
general="EAID_3B6A6E17_9D8B_42d8_BAEF_F3814225A118" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_AE828A09_19A7_41c1_8DDA_1813738FF9B2" name="RoLo Identity
Transformation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst80FDE0_4D53_433a_A3B2_DFAE683399B6" name="target"
visibility="public" association="EAID_2B80FDE0_4D53_433a_A3B2_DFAE683399B6"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstFDD717_91AF_4379_BDB7_11ECBB678448" name="source"

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visibility="public" association="EAID_4FFDD717_91AF_4379_BDB7_11ECBB678448"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_764987AA_13AE_4595_91FE_5FA8945863F9"
general="EAID_55FB3B40_F527_4f1b_A741_4E5037545761" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_959AE1DE_664F_4691_80CB_FC6709384496" name="RoLo Mobile Operation"
visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_08C50154_E455_4992_8100_9065ECFD840E"
general="EAID_55FB3B40_F527_4f1b_A741_4E5037545761" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_FB84772F_EA9B_46f6_94D4_F421E606DD3B" name="RoLo Parameter
Definition" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_1E462348_5BD4_4f3a_874C_8207E729DB92"
general="EAID_2E80B8E1_4109_430a_BD79_BED00A344400" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst6DDE2D_0A9A_488b_A4C5_2D2F999948C8" visibility="public"
association="EAID_406DDE2D_0A9A_488b_A4C5_2D2F999948C8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_10883886_2327_4d8d_9327_BEDA2360D299" />
  </ownedAttribute>
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_406DDE2D_0A9A_488b_A4C5_2D2F999948C8" visibility="public">
  <memberEnd xmi:idref="EAID_dst6DDE2D_0A9A_488b_A4C5_2D2F999948C8" />
  <memberEnd xmi:idref="EAID_src6DDE2D_0A9A_488b_A4C5_2D2F999948C8" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src6DDE2D_0A9A_488b_A4C5_2D2F999948C8" visibility="public"
association="EAID_406DDE2D_0A9A_488b_A4C5_2D2F999948C8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_FB84772F_EA9B_46f6_94D4_F421E606DD3B" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_10883886_2327_4d8d_9327_BEDA2360D299" name="RoLo Parameter Set"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9C5F4A00_1909_4677_AE98_F0E665FD553A"
general="EAID_7AB9D5D1_3465_4f61_BAE8_0FC8790F1685" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" name="RoLo Position"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A9148929_B243_4aac_B4E0_64061B80C41E" name="symbolic"
visibility="vis_public" isDerived="false">

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    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000131_B243_4aac_B4E0_64061B80C41E" value="1" />
    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000132_B243_4aac_B4E0_64061B80C41E" value="1" />
    </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_4625D2AE_7548_46f4_A28F_CA304B32514D" name="numeric"
visibility="vis_public" isDerived="false">
    <type xmi:idref="EAID_5464DD5A_B751_4e3a_B01A_FDBBD35EAC8B" />
    <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000133_7548_46f4_A28F_CA304B32514D" value="1" />
    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000134_7548_46f4_A28F_CA304B32514D" value="1" />
    </ownedAttribute>
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_OD1E0949_004C_467b_8775_7609F8BEF2D2"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
    </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_517F2F5D_A119_40f5_ACBA_E1B40E9F9C64" visibility="public">
    <memberEnd xmi:idref="EAID_dst7F2F5D_A119_40f5_ACBA_E1B40E9F9C64" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst7F2F5D_A119_40f5_ACBA_E1B40E9F9C64" visibility="public"
association="EAID_517F2F5D_A119_40f5_ACBA_E1B40E9F9C64" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_5464DD5A_B751_4e3a_B01A_FDBBD35EAC8B" />
    </ownedEnd>
    <memberEnd xmi:idref="EAID_src7F2F5D_A119_40f5_ACBA_E1B40E9F9C64" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src7F2F5D_A119_40f5_ACBA_E1B40E9F9C64" visibility="public"
association="EAID_517F2F5D_A119_40f5_ACBA_E1B40E9F9C64" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" />
    </ownedEnd>
    </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_69D55F91_70F2_4838_A0AE_E130A3AFB686" visibility="public">
    <memberEnd xmi:idref="EAID_dstD55F91_70F2_4838_A0AE_E130A3AFB686" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstD55F91_70F2_4838_A0AE_E130A3AFB686" visibility="public"
association="EAID_69D55F91_70F2_4838_A0AE_E130A3AFB686" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_BF40ABF3_01DD_4978_A334_467637A8C49A" />
    </ownedEnd>
    <memberEnd xmi:idref="EAID_srcD55F91_70F2_4838_A0AE_E130A3AFB686" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcD55F91_70F2_4838_A0AE_E130A3AFB686" visibility="public"
association="EAID_69D55F91_70F2_4838_A0AE_E130A3AFB686" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" />
    </ownedEnd>
    </packagedElement>

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- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_02C7966E_A0B7_416c_942E_0548A6923DC6" name="RoLo Service"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_DBBC9826_A244_4979_9445_B86E91095776" name="inStream"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000135_A244_4979_9445_B86E91095776" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000136_A244_4979_9445_B86E91095776" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_8840BF6D_0C04_4c48_91CA_41FAF8F10819" name="parameterSet"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000137_0C04_4c48_91CA_41FAF8F10819" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000138_0C04_4c48_91CA_41FAF8F10819" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_4D329054_CC42_4b18_805F_4E424B9765A8" name="ability"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000139_CC42_4b18_805F_4E424B9765A8" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000140_CC42_4b18_805F_4E424B9765A8" value="1" />
  </ownedAttribute>
- <ownedOperation xmi:id="EAID_3D4687D1_F8B1_4e48_BDC0_9E13C645F851"
name="getNumInStream" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_C3896A2A_D67B_4523_B046_E3F8CF73B9F8"
name="num" direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_8FF8DA1D_9094_4339_B043_875BF266A54B"
name="getInStream" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_AAD67292_618B_4de9_AB63_A62E669AA3BF"
name="index" direction="pk_in" />
  <ownedParameter xmi:id="EAID_EF37216B_F799_4a8f_96E3_9B491D156D50"
name="stream" type="EAID_7F63A871_BD74_424e_BF3E_E55062F73C1D"
direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_BE753E8E_891F_407a_B62B_1F8EDCC6E542"
name="adjust" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_07D15CAC_0F7C_4af1_8EA7_8B13AAC28EA6"
name="data" type="EAID_1D9788D0_AE52_4031_819B_BCD41C5719" direction="pk_in" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_61B8D0E1_313F_43fa_9ED1_01053B789D83"
name="getChild" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_190A6EEC_AF96_4781_A75F_C362669697DD"
name="index" type="EAID_1D9788D0_AE52_4031_819B_BCD41C5719" direction="pk_in" /
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    <ownedParameter xmi:id="EAID_54AAC91F_DBAF_48c1_A128_51F4933A2922"
name="service" type="EAID_02C7966E_A0B7_416c_942E_0548A6923DC6"
direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_632E6CD2_729D_4953_9904_37BDD9E89737"
name="getAbility" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_6EC9512B_B5D1_4a2b_96DE_B4987305B782"
name="ability" type="EAID_1D9788D0_AE52_4031_819B_BCDBE41C5719"
direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_5B8DB679_6AF0_455f_8BF6_D46CE5F2297C"
name="setParameter" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_EC1781FC_66AE_49ee_B483_375AE5044F46"
name="parameter" type="EAID_B08EFCBF_D38C_48c5_9FF7_AF2DBA6A2DBA"
direction="pk_in" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_F56FCA0D_085C_43e5_AA3A_6CF69127B177"
name="getParameter" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_3760C79E_441F_4c79_A196_D9D8B0805C9A"
name="parameter" type="EAID_B08EFCBF_D38C_48c5_9FF7_AF2DBA6A2DBA"
direction="pk_out" />
  </ownedOperation>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_F64B1D40_1C7F_4648_8CF0_C82EA13EF044"
general="EAID_C979FB58_C213_424c_A149_C93543F819FB" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_07A1A45F_7238_4272_979C_F860B53460D1" visibility="public">
  <memberEnd xmi:idref="EAID_dstA1A45F_7238_4272_979C_F860B53460D1" />
  <memberEnd xmi:idref="EAID_srcA1A45F_7238_4272_979C_F860B53460D1" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcA1A45F_7238_4272_979C_F860B53460D1" visibility="public"
association="EAID_07A1A45F_7238_4272_979C_F860B53460D1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E18DC4D2_5412_422a_91A7_C9048DAFDC0A" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstA1A45F_7238_4272_979C_F860B53460D1" visibility="public"
association="EAID_07A1A45F_7238_4272_979C_F860B53460D1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_02C7966E_A0B7_416c_942E_0548A6923DC6" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_E42C65DB_1A19_48f3_98E4_55155646A49B" visibility="public">
  <memberEnd xmi:idref="EAID_dst2C65DB_1A19_48f3_98E4_55155646A49B" />
  <memberEnd xmi:idref="EAID_src2C65DB_1A19_48f3_98E4_55155646A49B" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src2C65DB_1A19_48f3_98E4_55155646A49B" visibility="public"
association="EAID_E42C65DB_1A19_48f3_98E4_55155646A49B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B08EFCBF_D38C_48c5_9FF7_AF2DBA6A2DBA" />
  </ownedEnd>
  </packagedElement>

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- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" name="RoLo Stream"
visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_OEE65978_1223_4268_B34C_D8BF07C44C2B" name="ability"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000141_1223_4268_B34C_D8BF07C44C2B" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000142_1223_4268_B34C_D8BF07C44C2B" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_DBEA2EEF_62CF_40d9_805E_A1E25D6128A4" name="parameterSet"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_35101E92_EA40_4826_8EA8_A1F5C0E4B227" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000143_62CF_40d9_805E_A1E25D6128A4" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000144_62CF_40d9_805E_A1E25D6128A4" value="1" />
  </ownedAttribute>
- <ownedOperation xmi:id="EAID_F8D376DC_D528_4dde_9D26_FD67218AD2F5"
name="getAbility" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_4AA83836_301A_43b4_A1E2_64E4B1137484"
name="ability" direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_1BC25C16_A13F_4773_B03B_FB8C945FBBDC"
name="getParameter" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_91E97C70_CEC5_4ae4_968B_35C80C0D3ECA"
name="param" direction="pk_out" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_1679E2A0_F77A_4a14_901E_DCF9B25624C1"
name="setParameter" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_11E0B62F_A91E_4208_89E3_8CBDF8EDA34"
name="parameter" direction="pk_in" />
  </ownedOperation>
- <ownedOperation xmi:id="EAID_541D8D8D_03C2_4f30_974C_E3393CF8B753"
name="getService" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_EC7D772A_1297_4f8b_9609_FDEB4F900738"
name="service" direction="pk_out" />
  </ownedOperation>
  <ownedOperation xmi:id="EAID_0C06F042_F044_4b92_93F2_A9D544806448"
name="disconnect" visibility="vis_public" concurrency="□□" />
- <ownedOperation xmi:id="EAID_CED17D7F_2CC4_41b5_AE31_F24E7F0B455D"
name="getConnectedStream" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_C3655CFA_1DFE_450a_BA5B_211B509EAE3C"
name="stream" type="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" direction="pk_out"
/>
  </ownedOperation>
- <ownedOperation xmi:id="EAID_7011C9CD_E0B4_49f5_A53D_F5300401B869"
name="isConnected" visibility="vis_public" concurrency="□□">
  <ownedParameter xmi:id="EAID_6BEB8978_561B_48d5_BA3F_F1288480046E"
name="status" direction="pk_out" />
  </ownedOperation>

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0905F34F_90FA_4753_9963_4B8A9252E428"
general="EAID_3CA9A2AD_83B1_43d5_B402_DE48B279B7E5" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_2CA4214E_8595_41a1_84A1_8198AD561357" visibility="public">
  <memberEnd xmi:idref="EAID_dstA4214E_8595_41a1_84A1_8198AD561357" />
  <memberEnd xmi:idref="EAID_srcA4214E_8595_41a1_84A1_8198AD561357" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcA4214E_8595_41a1_84A1_8198AD561357" visibility="public"
association="EAID_2CA4214E_8595_41a1_84A1_8198AD561357" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_097FF983_3CF0_4187_B02C_516B0E7B5A55" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstA4214E_8595_41a1_84A1_8198AD561357" visibility="public"
association="EAID_2CA4214E_8595_41a1_84A1_8198AD561357" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_496FB95D_455B_4866_B873_84929DB4735E" visibility="public">
  <memberEnd xmi:idref="EAID_dst6FB95D_455B_4866_B873_84929DB4735E" />
  <memberEnd xmi:idref="EAID_src6FB95D_455B_4866_B873_84929DB4735E" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src6FB95D_455B_4866_B873_84929DB4735E" visibility="public"
association="EAID_496FB95D_455B_4866_B873_84929DB4735E" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_35101E92_EA40_4826_8EA8_A1F5C0E4B227" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst6FB95D_455B_4866_B873_84929DB4735E" visibility="public"
association="EAID_496FB95D_455B_4866_B873_84929DB4735E" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_C12186F8_04E7_47c2_A124_167D19E9FC10" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_28E95778_2EFB_4a39_9231_D1F82036F7B4" name="RoLo SymbolRef"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_9055665C_2465_4635_931D_6C2641CD5998" name="point"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000145_2465_4635_931D_6C2641CD5998" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000146_2465_4635_931D_6C2641CD5998" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_4506F3B9_05CC_43ba_9F18_DB178B276BAA"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
  </packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_F407BC06_64F9_45ae_BE8E_AB51971BDBB1" visibility="public">
  <memberEnd xmi:idref="EAID_dst07BC06_64F9_45ae_BE8E_AB51971BDBB1" />
  <memberEnd xmi:idref="EAID_src07BC06_64F9_45ae_BE8E_AB51971BDBB1" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src07BC06_64F9_45ae_BE8E_AB51971BDBB1" visibility="public"
association="EAID_F407BC06_64F9_45ae_BE8E_AB51971BDBB1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_BF40ABF3_01DD_4978_A334_467637A8C49A" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst07BC06_64F9_45ae_BE8E_AB51971BDBB1" visibility="public"
association="EAID_F407BC06_64F9_45ae_BE8E_AB51971BDBB1" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_28E95778_2EFB_4a39_9231_D1F82036F7B4" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_BF40ABF3_01DD_4978_A334_467637A8C49A" name="RoLo Symbolic
Position" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1A80BAC0_652C_43e4_A0FB_262C1827EF9C" name="direct"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_4FE05249_0DED_4726_9F23_4B8B60A832AC" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000147_652C_43e4_A0FB_262C1827EF9C" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000148_652C_43e4_A0FB_262C1827EF9C" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_F8BB1504_BDBF_4742_87FF_27AE8DCFD012" name="indirect"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000149_BDBF_4742_87FF_27AE8DCFD012" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000150_BDBF_4742_87FF_27AE8DCFD012" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_4DC626D0_5D4F_41cf_8391_04C0E2989229"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E18DC4D2_5412_422a_91A7_C9048DAFDC0A" name="Service Ability"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_13F658F5_6C84_4dc4_AAB0_AC30290A25D9" name="expectedLatency"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_4F0B2FC4_CF1C_4822_8717_1677C455FA6D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000151_6C84_4dc4_AAB0_AC30290A25D9" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000152_6C84_4dc4_AAB0_AC30290A25D9" value="1" />
  </ownedAttribute>

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6D65906A_3B3D_4812_91A4_A24A21C34F79"
general="EAID_6889B576_796B_4558_AD20_139510D666FE" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_31F447B0_0715_4224_BE52_2D6D54581372" visibility="public">
  <memberEnd xmi:idref="EAID_dstF447B0_0715_4224_BE52_2D6D54581372" />
  <memberEnd xmi:idref="EAID_srcF447B0_0715_4224_BE52_2D6D54581372" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcF447B0_0715_4224_BE52_2D6D54581372" visibility="public"
association="EAID_31F447B0_0715_4224_BE52_2D6D54581372" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_4009302E_58B7_4e90_A993_F1457B74DC26" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstF447B0_0715_4224_BE52_2D6D54581372" visibility="public"
association="EAID_31F447B0_0715_4224_BE52_2D6D54581372" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E18DC4D2_5412_422a_91A7_C9048DAFDC0A" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_D3B44F25_22C0_4e43_8F52_2ECA26B67AF3" visibility="public">
  <memberEnd xmi:idref="EAID_dstB44F25_22C0_4e43_8F52_2ECA26B67AF3" />
  <memberEnd xmi:idref="EAID_srcB44F25_22C0_4e43_8F52_2ECA26B67AF3" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcB44F25_22C0_4e43_8F52_2ECA26B67AF3" visibility="public"
association="EAID_D3B44F25_22C0_4e43_8F52_2ECA26B67AF3" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_097FF983_3CF0_4187_B02C_516B0E7B5A55" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstB44F25_22C0_4e43_8F52_2ECA26B67AF3" visibility="public"
association="EAID_D3B44F25_22C0_4e43_8F52_2ECA26B67AF3" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E18DC4D2_5412_422a_91A7_C9048DAFDC0A" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_4009302E_58B7_4e90_A993_F1457B74DC26" name="Service Parameter
Definition" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_CE5906E0_EA33_4919_95BC_E303492BACA0"
general="EAID_FB84772F_EA9B_46f6_94D4_F421E606DD3B" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_14ADD17F_EB0A_4525_BCA0_C8C73B527CC7" visibility="public">
  <memberEnd xmi:idref="EAID_dstADD17F_EB0A_4525_BCA0_C8C73B527CC7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstADD17F_EB0A_4525_BCA0_C8C73B527CC7" visibility="public"
association="EAID_14ADD17F_EB0A_4525_BCA0_C8C73B527CC7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B08EFCBF_D38C_48c5_9FF7_AF2DBA6A2DBA" />
  </ownedEnd>

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    <memberEnd xmi:idref="EAID_srcADD17F_EB0A_4525_BCA0_C8C73B527CC7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcADD17F_EB0A_4525_BCA0_C8C73B527CC7" visibility="public"
association="EAID_14ADD17F_EB0A_4525_BCA0_C8C73B527CC7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_4009302E_58B7_4e90_A993_F1457B74DC26" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_B08EFCBF_D38C_48c5_9FF7_AF2DBA6A2DBA" name="Service Parameter
Set" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_966134C6_22C2_4e65_AF10_D01A18CE0E47"
general="EAID_10883886_2327_4d8d_9327_BEDA2360D299" />
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst2C65DB_1A19_48f3_98E4_55155646A49B" visibility="public"
association="EAID_E42C65DB_1A19_48f3_98E4_55155646A49B" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_02C7966E_A0B7_416c_942E_0548A6923DC6" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_DBA6B7D9_FF39_4695_97D7_4D2ADA30FDDD" name="Specific Data
Format" visibility="vis_public" isAbstract="true">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C68B1D86_7F1B_4940_9EAD_89B14EC98CCE" name="rla"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000153_7F1B_4940_9EAD_89B14EC98CCE" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000154_7F1B_4940_9EAD_89B14EC98CCE" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0091A0E0_FEBB_4820_8A1B_74408FBDB5E3"
general="EAID_6041306C_7C93_4ff2_B035_E1891D96FF04" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_71C9F399_FA9B_47d6_8AA9_F5840E7601CC" name="Static2Mobile
Operation" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstB41D34_6B3C_40e9_A8B3_63E5B7FD11FC" name="target"
visibility="public" association="EAID_11B41D34_6B3C_40e9_A8B3_63E5B7FD11FC"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_51E23024_5D91_45eb_82AA_BA6B9E318C11" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst774EFD_DD6D_45fe_B9F9_C088B2C31B62" name="target"
visibility="public" association="EAID_59774EFD_DD6D_45fe_B9F9_C088B2C31B62"
isOrdered="false" isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_EE20F927_4D6D_4c7b_A2AC_82A5C744209C" />
  </ownedAttribute>

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_800EA225_296C_4881_8A4D_0E40E8C21306"
general="EAID_959AE1DE_664F_4691_80CB_FC6709384496" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_59774EFD_DD6D_45fe_B9F9_C088B2C31B62" visibility="public">
  <memberEnd xmi:idref="EAID_dst774EFD_DD6D_45fe_B9F9_C088B2C31B62" />
  <memberEnd xmi:idref="EAID_src774EFD_DD6D_45fe_B9F9_C088B2C31B62" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src774EFD_DD6D_45fe_B9F9_C088B2C31B62" visibility="public"
association="EAID_59774EFD_DD6D_45fe_B9F9_C088B2C31B62" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_71C9F399_FA9B_47d6_8AA9_F5840E7601CC" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_097FF983_3CF0_4187_B02C_516B0E7B5A55" name="Stream Ability"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_B310DE07_B0AB_4c09_AC6A_CD68435BD979" name="rlaList"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000155_B0AB_4c09_AC6A_CD68435BD979" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000156_B0AB_4c09_AC6A_CD68435BD979" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_4A42353D_A8EA_4042_A110_C7F4798AE250" name="dfList"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000157_A8EA_4042_A110_C7F4798AE250" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000158_A8EA_4042_A110_C7F4798AE250" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C25E21FD_74D6_47fb_B365_9A68E64CDE3B" name="streamTypeList"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000159_74D6_47fb_B365_9A68E64CDE3B" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000160_74D6_47fb_B365_9A68E64CDE3B" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_62C20F9E_78EA_48cf_94D3_A6EADBBBD8A60" name="frequencyList"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000161_78EA_48cf_94D3_A6EADBBBD8A60" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000162_78EA_48cf_94D3_A6EADBBBD8A60" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_88088417_BE75_4798_9DE6_01C4992C67EE"
general="EAID_6889B576_796B_4558_AD20_139510D666FE" />

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</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_12F984CD_C5A6_48b0_B7C8_73A194224BB8" visibility="public">
  <memberEnd xmi:idref="EAID_dstF984CD_C5A6_48b0_B7C8_73A194224BB8" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstF984CD_C5A6_48b0_B7C8_73A194224BB8" visibility="public"
association="EAID_12F984CD_C5A6_48b0_B7C8_73A194224BB8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E253CB19_CA53_44c0_B6A6_D6C46AB6886B" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_srcF984CD_C5A6_48b0_B7C8_73A194224BB8" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcF984CD_C5A6_48b0_B7C8_73A194224BB8" visibility="public"
association="EAID_12F984CD_C5A6_48b0_B7C8_73A194224BB8" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_097FF983_3CF0_4187_B02C_516B0E7B5A55" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_BA2B4A19_AE02_4b3b_AD CD_80F78BF0267D" visibility="public">
  <memberEnd xmi:idref="EAID_dst2B4A19_AE02_4b3b_AD CD_80F78BF0267D" />
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- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src2B4A19_AE02_4b3b_AD CD_80F78BF0267D" visibility="public"
association="EAID_BA2B4A19_AE02_4b3b_AD CD_80F78BF0267D" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_206EC68B_834D_4e8d_BA74_3780927ECC8B" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst2B4A19_AE02_4b3b_AD CD_80F78BF0267D" visibility="public"
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isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_097FF983_3CF0_4187_B02C_516B0E7B5A55" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_206EC68B_834D_4e8d_BA74_3780927ECC8B" name="Stream Parameter
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  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_4F32A251_040A_4282_87A8_9CE9991DAD98"
general="EAID_FB84772F_EA9B_46f6_94D4_F421E606DD3B" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_D18ACB60_F9EE_4581_A7BB_8A553811426F" visibility="public">
  <memberEnd xmi:idref="EAID_dst8ACB60_F9EE_4581_A7BB_8A553811426F" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dst8ACB60_F9EE_4581_A7BB_8A553811426F" visibility="public"
association="EAID_D18ACB60_F9EE_4581_A7BB_8A553811426F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_35101E92_EA40_4826_8EA8_A1F5C0E4B227" />
  </ownedEnd>
  <memberEnd xmi:idref="EAID_src8ACB60_F9EE_4581_A7BB_8A553811426F" />

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- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src8ACB60_F9EE_4581_A7BB_8A553811426F" visibility="public"
association="EAID_D18ACB60_F9EE_4581_A7BB_8A553811426F" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_206EC68B_834D_4e8d_BA74_3780927ECC8B" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_35101E92_EA40_4826_8EA8_A1F5C0E4B227" name="Stream Parameter Set"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_016FB874_FFE8_4e81_839E_66DE491BE38F" name="rla"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_9F6F2265_1219_4f8a_8AFB_D14E5C4F6348" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000163_FFE8_4e81_839E_66DE491BE38F" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000164_FFE8_4e81_839E_66DE491BE38F" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_0D804AFA_3308_460e_8A93_FE7D61CF5D43" name="dataFormat"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000165_3308_460e_8A93_FE7D61CF5D43" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000166_3308_460e_8A93_FE7D61CF5D43" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_B85B149C_170A_43cd_9B58_9B35794CB936" name="streamType"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000167_170A_43cd_9B58_9B35794CB936" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000168_170A_43cd_9B58_9B35794CB936" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_C8480F6B_BE3C_4332_A0CF_0721C02034BA" name="frequency"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000169_BE3C_4332_A0CF_0721C02034BA" value="0" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000170_BE3C_4332_A0CF_0721C02034BA" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_8AA371EC_CADC_4c19_A270_27D4B39E709B"
general="EAID_10883886_2327_4d8d_9327_BEDA2360D299" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_DFC96D2D_90D5_4d72_A40C_56DEA91854E7" visibility="public">
  <memberEnd xmi:idref="EAID_dstC96D2D_90D5_4d72_A40C_56DEA91854E7" />
  <memberEnd xmi:idref="EAID_srcC96D2D_90D5_4d72_A40C_56DEA91854E7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcC96D2D_90D5_4d72_A40C_56DEA91854E7" visibility="public"

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association="EAID_DFC96D2D_90D5_4d72_A40C_56DEA91854E7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_E253CB19_CA53_44c0_B6A6_D6C46AB6886B" />
  </ownedEnd>
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_dstC96D2D_90D5_4d72_A40C_56DEA91854E7" visibility="public"
association="EAID_DFC96D2D_90D5_4d72_A40C_56DEA91854E7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_35101E92_EA40_4826_8EA8_A1F5C0E4B227" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Enumeration"
xmi:id="EAID_E253CB19_CA53_44c0_B6A6_D6C46AB6886B" name="StreamType"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_6F7617DB_E3EB_4691_BA11_4B8A99A51CB8" name="PUSH"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000171_E3EB_4691_BA11_4B8A99A51CB8" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000172_E3EB_4691_BA11_4B8A99A51CB8" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_00752D4A_3F1C_454d_97AC_7E3532607B70" name="PULL"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000173_3F1C_454d_97AC_7E3532607B70" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000174_3F1C_454d_97AC_7E3532607B70" value="1" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_34C6F116_A960_4b54_BA5B_7B5353745689" name="SymbolicCRS"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9AD54968_E97F_444f_A9B2_FB3950C473A2"
general="EAID_84943855_262B_4124_B0D4_D197B6F52929" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_197EA777_2A26_4bd3_82F7_8D7A64ED1059" visibility="public">
  <memberEnd xmi:idref="EAID_dst7EA777_2A26_4bd3_82F7_8D7A64ED1059" />
  <memberEnd xmi:idref="EAID_src7EA777_2A26_4bd3_82F7_8D7A64ED1059" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src7EA777_2A26_4bd3_82F7_8D7A64ED1059" visibility="public"
association="EAID_197EA777_2A26_4bd3_82F7_8D7A64ED1059" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_5AFCBEE1_BC44_4a28_97FC_4CD91DE26057" />
  </ownedEnd>
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_5AFCBEE1_BC44_4a28_97FC_4CD91DE26057" name="SymbolicCS"
visibility="vis_public">

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst7EA777_2A26_4bd3_82F7_8D7A64ED1059" visibility="public"
association="EAID_197EA777_2A26_4bd3_82F7_8D7A64ED1059" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_34C6F116_A960_4b54_BA5B_7B5353745689" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_94F1609A_64B2_4236_AD92_E5BA41D6EB1A"
general="EAID_E6AF3F7A_CA40_4dcd_8693_CEF5B88AE8" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_A1E70738_C83F_44d4_8C30_CD85F7C2464B" name="Uniform Gaussian"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_72D273C7_B9F5_4e00_8800_27E4B259C89C" name="stddev"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000175_B9F5_4e00_8800_27E4B259C89C" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000176_B9F5_4e00_8800_27E4B259C89C" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9E56D640_19C0_4fcb_AB9F_0205071B43F7"
general="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_682E1751_9DBA_4213_AE4E_0AC30FBFA538" name="User Defined Data
Format" visibility="vis_public" isAbstract="true">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_88F7C438_7C94_440a_BA4F_177468A6F569"
general="EAID_DBA6B7D9_FF39_4695_97D7_4D2ADA30FDDD" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E1EB82B3_6783_4ad5_A507_487A385D94F4" name="Weighted Distribution"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_EBB369E5_5D2E_41ab_9EE5_FA9CB12C131A" name="dist"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_0A9D7711_3A10_4081_8DDD_8769CC114309" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000177_5D2E_41ab_9EE5_FA9CB12C131A" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000178_5D2E_41ab_9EE5_FA9CB12C131A" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_EC258BFE_EDBE_4a6e_9091_704BA49D0B33" name="pos"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000179_EDBE_4a6e_9091_704BA49D0B33" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000180_EDBE_4a6e_9091_704BA49D0B33" value="1" />
</ownedAttribute>

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_A595634E_B8D8_4166_99F5_75FEFFDDFA88" name="weight"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_1D961FCB_72E6_4b04_B57D_E56513E45CAC" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000181_B8D8_4166_99F5_75FEFFDDFA88" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000182_B8D8_4166_99F5_75FEFFDDFA88" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C52B0824_C877_47af_8456_381B1E871F62"
general="EAID_E1875750_09AB_4a47_88FB_7E83F356E493" />
  </packagedElement>
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_0538A737_0C74_4acd_8B8C_D4D11F872356" visibility="vis_public"
supplier="EAPK_223E0E27_FC19_4e86_968B_AE0FE17F513C"
client="EAPK_304A773B_0A3F_4bd0_855C_7E6F2CC5BEC7" />
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_0835C9C2_17EF_4ce9_8AA5_22E0EDE32CAD" visibility="vis_public"
supplier="EAPK_6FE35E3C_8252_46ae_BF67_5600D6FFE891"
client="EAPK_304A773B_0A3F_4bd0_855C_7E6F2CC5BEC7" />
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_58FF1CEE_2296_4486_8423_7C5050B9E693" visibility="vis_public"
supplier="EAPK_1AA65375_63D9_4a03_9865_3ED1151CF657"
client="EAPK_304A773B_0A3F_4bd0_855C_7E6F2CC5BEC7" />
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_9EFFAE2E_787A_4b8e_84D5_9ACCCE276A6C" visibility="vis_public"
supplier="EAPK_675D5131_3E8D_4879_B71D_BB2BF5F0BE52"
client="EAPK_304A773B_0A3F_4bd0_855C_7E6F2CC5BEC7" />
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_51E34057_5D0F_4c0c_B357_0D0A9B167C06"
name="FC_ComparisonOperator" visibility="vis_public">
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721"
name="FC_BinaryComparisonOp" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_ED499C34_E346_4355_8D5D_8170E622883C" name="expression"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000183_E346_4355_8D5D_8170E622883C" value="2" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000184_E346_4355_8D5D_8170E622883C" value="2" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3CC17159_12A6_40c9_8BA0_5684CBAC9E2B"
general="EAID_4636C152_D883_48a8_8091_F15C8934F097" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_4636C152_D883_48a8_8091_F15C8934F097" name="FC_ComparisonOp"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9D2D6596_1E88_42ca_850E_C4E67261BD4A"
general="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />

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    </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_4327886D_8702_4941_9953_83BFAE395D06" name="FC_PropertyIsBetween"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_F30C0EEF_3442_47f5_944D_CFA6AF1B9148" name="propertyName"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FEC9999" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000185_3442_47f5_944D_CFA6AF1B9148" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000186_3442_47f5_944D_CFA6AF1B9148" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_10B97393_13C7_4b51_8523_B541ECA64548" name="lowerBoundary"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000187_13C7_4b51_8523_B541ECA64548" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000188_13C7_4b51_8523_B541ECA64548" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1386AFD3_F969_406e_9C25_DA57E65A8D74" name="upperBoundary"
visibility="vis_public" isDerived="false">
  <type xmi:idref="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000189_F969_406e_9C25_DA57E65A8D74" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000190_F969_406e_9C25_DA57E65A8D74" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_50ADE3A5_F647_497e_BF4A_C71300581EB7"
general="EAID_4636C152_D883_48a8_8091_F15C8934F097" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_015D75D5_E6C2_433d_81BD_7C20EB1BC916" visibility="public">
  <memberEnd xmi:idref="EAID_dst5D75D5_E6C2_433d_81BD_7C20EB1BC916" />
  <memberEnd xmi:idref="EAID_src5D75D5_E6C2_433d_81BD_7C20EB1BC916" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src5D75D5_E6C2_433d_81BD_7C20EB1BC916" visibility="public"
association="EAID_015D75D5_E6C2_433d_81BD_7C20EB1BC916" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FEC9999" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_A2DC92FF_B1D2_4b21_A405_FD3C5D981408"
name="FC_PropertyIsEqualTo" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_E93903EB_1497_4421_894B_D81584BC8D39"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
</packagedElement>

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- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2B0408B6_5D9C_45c1_ADAD_66DB7DBEC47A"
name="FC_PropertyIsGreaterThan" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_9EE1C9ED_1295_4b88_B807_774BFBF89B7E"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_91374852_2A2A_4a05_9408_C8B519FBE5C1"
name="FC_PropertyIsGreaterThanOrEqualTo" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_5A732104_56D3_406f_9CCC_C62E35F77474"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_486259E1_7138_4312_BBD8_0411F6611914" name="FC_PropertyIsLessThan"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_CEA4C4D5_625B_434a_8D2B_007070A2256D"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_A063E305_9E35_413a_A60D_84EDFC805777"
name="FC_PropertyIsLessThanOrEqualTo" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_E728CABB_F4A2_46b9_B199_95C16B30B06F"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_B5E6D1F9_FEFB_4edb_BFB4_00587A25A482" name="FC_PropertyIsLike"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_52C1FA5E_C436_4500_87B0_1D2545BCF2FC" name="propertyName"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FECEEE9" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000191_C436_4500_87B0_1D2545BCF2FC" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000192_C436_4500_87B0_1D2545BCF2FC" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1FC286D1_ADA2_41bc_9C23_EC33ADCA6D65" name="expression"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000193_ADA2_41bc_9C23_EC33ADCA6D65" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000194_ADA2_41bc_9C23_EC33ADCA6D65" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_D152BCD6_ACDE_4656_92B7_48EA9602C3F2"
general="EAID_4636C152_D883_48a8_8091_F15C8934F097" />
  </packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_DA9ECF92_83CD_46fb_B800_04FCEBAA8EF5" visibility="public">
  <memberEnd xmi:idref="EAID_dst9ECF92_83CD_46fb_B800_04FCEBAA8EF5" />
  <memberEnd xmi:idref="EAID_src9ECF92_83CD_46fb_B800_04FCEBAA8EF5" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src9ECF92_83CD_46fb_B800_04FCEBAA8EF5" visibility="public"
association="EAID_DA9ECF92_83CD_46fb_B800_04FCEBAA8EF5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FCEEEEE9" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_74D19A47_5852_4f70_B563_D05C2FC12952"
name="FC_PropertyIsNotEqualTo" visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_47E9240C_2DFB_42ac_A93E_B95B4EBD27F7"
general="EAID_BD74EF0B_1BB4_4bd4_B29E_A7A935016721" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_22B0E931_9F32_43dd_A984_0E85B22FB2A6" name="FC_PropertyIsNull"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_51E09E15_E133_4bed_9395_6F3D9ED171BC" name="propertyName"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FCEEEEE9" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000195_E133_4bed_9395_6F3D9ED171BC" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000196_E133_4bed_9395_6F3D9ED171BC" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0710FF82_8979_48ff_B3D2_1BF4B555D890"
general="EAID_4636C152_D883_48a8_8091_F15C8934F097" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_5171195D_500C_468e_902C_2E4943383137" visibility="public">
  <memberEnd xmi:idref="EAID_dst71195D_500C_468e_902C_2E4943383137" />
  <memberEnd xmi:idref="EAID_src71195D_500C_468e_902C_2E4943383137" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src71195D_500C_468e_902C_2E4943383137" visibility="public"
association="EAID_5171195D_500C_468e_902C_2E4943383137" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FCEEEEE9" />
</ownedEnd>
</packagedElement>
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_05A84267_36B6_486e_90F7_C236C18E16B8" visibility="vis_public"
supplier="EAPK_DCF962FF_5115_49f0_B1DA_AAFA270484F8"
client="EAPK_51E34057_5D0F_4c0c_B357_0D0A9B167C06" />
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_33C40128_29DD_4524_87BB_B849856E78A7" visibility="vis_public"
supplier="EAPK_B5AD4307_E74D_4b41_A857_7540ED6E28A2"
client="EAPK_51E34057_5D0F_4c0c_B357_0D0A9B167C06" />

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    <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_5924A872_F77D_4d96_96B7_5A51E92880E7" visibility="vis_public"
supplier="EAID_2AF19507_22D1_40ba_8751_142256A5752F"
client="EAPK_51E34057_5D0F_4c0c_B357_0D0A9B167C06" />
  </packagedElement>
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_B5AD4307_E74D_4b41_A857_7540ED6E28A2" name="FC_Expression"
visibility="vis_public">
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_0339A226_B8BD_4dd3_9BBE_F84E0A802A9A" name="FC_Add"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_A5CFEFC7_8B8E_4621_A83C_4052B94F3E91"
general="EAID_072C6D22_DBEB_4c4e_AD8D_A2DD6ED3E8F9" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_072C6D22_DBEB_4c4e_AD8D_A2DD6ED3E8F9" name="FC_BinaryOperator"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_CCFC7F3A_EF02_428e_97F9_361FAE8FB78D" name="expression"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000197_EF02_428e_97F9_361FAE8FB78D" value="2" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000198_EF02_428e_97F9_361FAE8FB78D" value="2" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6CC74797_B386_42b7_A05F_F1BD4DB2ECDE"
general="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8F578486_2924_476d_865E_498E5912977E" name="FC_Div"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_64B52D82_616B_4414_96A1_CC4DFF629484"
general="EAID_072C6D22_DBEB_4c4e_AD8D_A2DD6ED3E8F9" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" name="FC_Expression"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_34019C67_8DD3_4d17_844E_F0E5EBD9B458"
general="EAID_C03839DF_4AC3_4342_97AF_FCD340292B8D" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_7F65AECB_4ABB_4ee4_99A6_703BFEC73C23" name="FC_Function"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_620DBB2E_1516_4b4a_9EFE_6A12F6A282DD" name="name"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000199_1516_4b4a_9EFE_6A12F6A282DD" value="1" />

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    <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000200_1516_4b4a_9EFE_6A12F6A282DD" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_FEE879A8_2618_40e3_901A_57E9344F43DB" name="expression"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000201_2618_40e3_901A_57E9344F43DB" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000202_2618_40e3_901A_57E9344F43DB" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C55E2D38_6105_4f3d_A8CE_B315F35D96D6"
general="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2E3F7D30_F324_4da1_B043_CCE2689A2F0D" name="FC_Literal"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_EE4F95FE_7E36_4b87_9C26_A68C3D6618AF" name="value"
visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000203_7E36_4b87_9C26_A68C3D6618AF" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000204_7E36_4b87_9C26_A68C3D6618AF" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_CEA297EA_616A_4d52_B8C8_7AAF51E6DD38"
general="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E29216E8_C29A_4c86_8DFF_B885CAD67AC0" name="FC_Mul"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_89845D78_92A3_461e_AE21_B7D8B724C5C0"
general="EAID_072C6D22_DBEB_4c4e_AD8D_A2DD6ED3E8F9" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_5E8C5146_0901_4e35_83CB_D1BC3BB4614F" name="FC_PropertyName"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_628AEB8B_6E03_4a9f_8881_342FE70B692C" name="reference"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FCEEEEE9" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000205_6E03_4a9f_8881_342FE70B692C" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000206_6E03_4a9f_8881_342FE70B692C" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3AFEF8F7_D722_47fb_A6A1_1E968DB5C916"
general="EAID_6D82B70F_29AF_4145_B226_09D336A26F7D" />
</packagedElement>

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- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_E6ED226C_8A9D_40ae_B6C0_C99380F78625" visibility="public">
  <memberEnd xmi:idref="EAID_dstED226C_8A9D_40ae_B6C0_C99380F78625" />
  <memberEnd xmi:idref="EAID_srcED226C_8A9D_40ae_B6C0_C99380F78625" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcED226C_8A9D_40ae_B6C0_C99380F78625" visibility="public"
association="EAID_E6ED226C_8A9D_40ae_B6C0_C99380F78625" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FECEEE9" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8B0F6DC6_B0F7_46b0_A635_4846816A35AD" name="FC_Sub"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_B78F7B39_0E3D_48e4_AA4B_477DF4609AAC"
general="EAID_072C6D22_DBEB_4c4e_AD8D_A2DD6ED3E8F9" />
</packagedElement>
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_05F7F955_63D6_42a4_A84A_6D4E6C1402F0" visibility="vis_public"
supplier="EAID_C03839DF_4AC3_4342_97AF_FCD340292B8D"
client="EAPK_B5AD4307_E74D_4b41_A857_7540ED6E28A2" />
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_F6538A19_A8F3_448d_8BBB_C6D8EE7493A2" visibility="vis_public"
supplier="EAPK_DCF962FF_5115_49f0_B1DA_AAF270484F8"
client="EAPK_B5AD4307_E74D_4b41_A857_7540ED6E28A2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_BDA9601C_BCE6_4300_A2A3_8A886DBDFD22"
name="FC_LogicalOperator" visibility="vis_public">
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_FCC88024_BC42_44d3_978D_BDCEC0D200AB" name="FC_And"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_B50D754A_C90E_40cf_8375_B547B32D015F"
general="EAID_661EF327_04F9_4eca_9568_D8337A8AB0C7" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_3CE89B9D_DF84_4dae_9664_096895A4AC3A" name="FC_AtomicLogicOp"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3B100033_58E6_46fb_9CF0_FE29FF5AE932"
general="EAID_498D60F9_AB7C_42b3_8579_7B0888FDC459" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_661EF327_04F9_4eca_9568_D8337A8AB0C7" name="FC_BinaryLogicOp"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_1C2F962B_6269_4538_BE8D_83520211542D" name="operand"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000207_6269_4538_BE8D_83520211542D" value="2" />

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    <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000208_6269_4538_BE8D_83520211542D" value="-1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_73FBEF64_1812_4717_A214_AE0A72BE4AA1"
general="EAID_498D60F9_AB7C_42b3_8579_7B0888FDC459" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_43DC4343_CF99_4862_A735_01CD6F6E0745" name="FC_False"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_0084F603_1962_4d9a_ACAF_5314B294857A"
general="EAID_3CE89B9D_DF84_4dae_9664_096895A4AC3A" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_498D60F9_AB7C_42b3_8579_7B0888FDC459" name="FC_LogicOp"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_F6F103B9_08AE_4afd_8874_19EB2F2654AC"
general="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_FD7AB7E1_B507_4a5e_B27E_D0629C0C110A" name="FC_Not"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_CB592DEF_BA1D_4664_9173_6D7EC00E0A88"
general="EAID_CB2378FC_A9B6_42c3_8A4C_B5A4A5AE894A" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_A70919DD_2B80_4bce_B273_8E01095028B2" name="FC_Or"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_AF41B784_352E_484f_8540_6FC4D5334513"
general="EAID_661EF327_04F9_4eca_9568_D8337A8AB0C7" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8542E896_6D12_428d_8C33_B7F58CDD8507" name="FC_True"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_71EA5E7B_D644_406f_A0C9_2148EFEDA06D"
general="EAID_3CE89B9D_DF84_4dae_9664_096895A4AC3A" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_CB2378FC_A9B6_42c3_8A4C_B5A4A5AE894A" name="FC_UnaryLogicOp"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_D9941151_F443_4db3_9916_D30FC39B6CFA" name="operand"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000209_F443_4db3_9916_D30FC39B6CFA" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000210_F443_4db3_9916_D30FC39B6CFA" value="1" />
  </ownedAttribute>

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    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_59E5B5F1_5213_4cd1_99B1_48291B4A0504"
general="EAID_498D60F9_AB7C_42b3_8579_7B0888FDC459" />
  </packagedElement>
  <packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_C4FACCD A_F1DF_4b95_B176_E2FF2B203C75" visibility="vis_public"
supplier="EAID_2AF19507_22D1_40ba_8751_142256A5752F"
client="EAPK_BDA9601C_BCE6_4300_A2A3_8A886DBDFD22" />
  </packagedElement>
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_DCF962FF_5115_49f0_B1DA_AAFA270484F8"
name="FC_PropertyReference" visibility="vis_public">
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FECEEE9"
name="FC_PropertyReference" visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_0E739503_822E_4a02_BCF2_8E2D5561725A" name="elementSpec"
visibility="vis_public" isDerived="true">
  <type xmi:idref="EAID_64B0F34B_A80E_46fd_907D_AE89B06EEC2D" />
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000211_822E_4a02_BCF2_8E2D5561725A" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000212_822E_4a02_BCF2_8E2D5561725A" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_8BDB6DBE_50C1_47b4_81DC_23460ED2F4E9"
name="elementComponentName" visibility="vis_public" isDerived="false">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000213_50C1_47b4_81DC_23460ED2F4E9" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000214_50C1_47b4_81DC_23460ED2F4E9" value="1" />
  <defaultValue xmi:id="EAID_LI000215_50C1_47b4_81DC_23460ED2F4E9" value=""pos" ||
"err" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_13D5BF58_7E31_4901_A217_3113E314F8A4" name="componentAxis"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000215_7E31_4901_A217_3113E314F8A4" value="0" />
  <upperValue xmi:type="uml:LiteralUnlimitedNatural"
xmi:id="EAID_LI000216_7E31_4901_A217_3113E314F8A4" value="-1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst5D75D5_E6C2_433d_81BD_7C20EB1BC916" visibility="public"
association="EAID_015D75D5_E6C2_433d_81BD_7C20EB1BC916" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_4327886D_8702_4941_9953_83BFAE395D06" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst510A2E_43E6_4ed4_B05F_151A08623B59" visibility="public"
association="EAID_14510A2E_43E6_4ed4_B05F_151A08623B59" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />

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</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst71195D_500C_468e_902C_2E4943383137" visibility="public"
association="EAID_5171195D_500C_468e_902C_2E4943383137" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_22B0E931_9F32_43dd_A984_0E85B22FB2A6" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst897F15_356C_42be_9DE6_A159C1D39968" visibility="public"
association="EAID_6F897F15_356C_42be_9DE6_A159C1D39968" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_3E829BDE_041B_4aa4_B332_72D177E08777" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst9ECF92_83CD_46fb_B800_04FCEBAA8EF5" visibility="public"
association="EAID_DA9ECF92_83CD_46fb_B800_04FCEBAA8EF5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_B5E6D1F9_FEFB_4edb_BFB4_00587A25A482" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dstED226C_8A9D_40ae_B6C0_C99380F78625" visibility="public"
association="EAID_E6ED226C_8A9D_40ae_B6C0_C99380F78625" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_5E8C5146_0901_4e35_83CB_D1BC3BB4614F" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_14510A2E_43E6_4ed4_B05F_151A08623B59" visibility="public">
  <memberEnd xmi:idref="EAID_dst510A2E_43E6_4ed4_B05F_151A08623B59" />
  <memberEnd xmi:idref="EAID_src510A2E_43E6_4ed4_B05F_151A08623B59" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src510A2E_43E6_4ed4_B05F_151A08623B59" visibility="public"
association="EAID_14510A2E_43E6_4ed4_B05F_151A08623B59" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FEC9999" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_6F897F15_356C_42be_9DE6_A159C1D39968" visibility="public">
  <memberEnd xmi:idref="EAID_dst897F15_356C_42be_9DE6_A159C1D39968" />
  <memberEnd xmi:idref="EAID_src897F15_356C_42be_9DE6_A159C1D39968" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src897F15_356C_42be_9DE6_A159C1D39968" visibility="public"
association="EAID_6F897F15_356C_42be_9DE6_A159C1D39968" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_B7444F08_2EB6_4db2_A0D0_A8FB3FEC9999" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_EAEA560F_538E_4028_B554_3809FAD82BE5" visibility="public">
  <memberEnd xmi:idref="EAID_dstEA560F_538E_4028_B554_3809FAD82BE5" />
  <memberEnd xmi:idref="EAID_srcEA560F_538E_4028_B554_3809FAD82BE5" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_srcEA560F_538E_4028_B554_3809FAD82BE5" visibility="public"

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association="EAID_EAEA560F_538E_4028_B554_3809FAD82BE5" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_87E91E7E_D956_4361_807D_858ECBC8EAFF" />
  </ownedEnd>
</packagedElement>
</packagedElement>
- <packagedElement xmi:type="uml:Package"
xmi:id="EAPK_8DEC402A_8F63_4897_AABA_F34FEB9F2D17" name="FC_SpatialOperator"
visibility="vis_public">
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_3E829BDE_041B_4aa4_B332_72D177E08777" name="FC_BBox"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_07ED191A_76F5_4e51_9EFA_2F288EA1D9CF" name="propertyName"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000217_76F5_4e51_9EFA_2F288EA1D9CF" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000218_76F5_4e51_9EFA_2F288EA1D9CF" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3E7ADAC0_C3FB_4722_B5C2_A409CF717B0A" name="envelope"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000219_C3FB_4722_B5C2_A409CF717B0A" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000220_C3FB_4722_B5C2_A409CF717B0A" value="1" />
  </ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_B35C8F21_8F89_4098_9C48_90A3784382E9"
general="EAID_80DBAABA_4EC3_4668_A74F_C568AECD12FB" />
  </packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_B765B19A_848E_447f_B8D4_5D9122ED52B7" visibility="public">
  <memberEnd xmi:idref="EAID_dst65B19A_848E_447f_B8D4_5D9122ED52B7" />
  <memberEnd xmi:idref="EAID_src65B19A_848E_447f_B8D4_5D9122ED52B7" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src65B19A_848E_447f_B8D4_5D9122ED52B7" visibility="public"
association="EAID_B765B19A_848E_447f_B8D4_5D9122ED52B7" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_5F4E310D_1C1B_47e1_B76A_B4338E9DE9C3" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_1682938F_1E1B_4846_805E_E3D76268D39D" name="FC_Beyond"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3A7DA4B1_EA81_455a_AB27_261D4286B7E2"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" name="FC_BinarySpatialOp"
visibility="vis_public">

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- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_3DF61070_4BC0_4615_9F81_1EC307CCD449" name="propertyName"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000221_4BC0_4615_9F81_1EC307CCD449" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000222_4BC0_4615_9F81_1EC307CCD449" value="1" />
</ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_ECC5BFF1_AE97_474f_BF94_7F39FACAD7E3" name="value"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000223_AE97_474f_BF94_7F39FACAD7E3" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000224_AE97_474f_BF94_7F39FACAD7E3" value="1" />
</ownedAttribute>
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_F1F837D0_3473_4046_985B_B473581933F6"
general="EAID_80DBAABA_4EC3_4668_A74F_C568AECD12FB" />
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_7A0CE611_0065_4c7c_8974_B0D141171181" visibility="public">
  <memberEnd xmi:idref="EAID_dst0CE611_0065_4c7c_8974_B0D141171181" />
  <memberEnd xmi:idref="EAID_src0CE611_0065_4c7c_8974_B0D141171181" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src0CE611_0065_4c7c_8974_B0D141171181" visibility="public"
association="EAID_7A0CE611_0065_4c7c_8974_B0D141171181" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2FCD8672_969A_4c8f_BA9A_F51B23342281" />
</ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_29124636_8E44_4101_BCDC_78F5A1104C97" name="FC_Contains"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_2B5FFE81_6783_4294_BD9D_65F50BBFEE90"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8E55A401_9E7B_4b08_8D9C_B799D45D39B8" name="FC_Crosses"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_3FAB0A83_3FC9_467f_A08E_B9A8A1F9343C"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
</packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_57F0F1EE_0F1C_4978_A933_38A61521D8E5" name="FC_DWithin"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_F1EFE5DA_83D2_4e27_BEFD_587D18E29A3A"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
</packagedElement>

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- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_C0A190B9_9122_41e7_9B29_7FC764746D7E" name="FC_Disjoint"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_96CD56D4_C2D1_4bf1_8153_4261980AA4F3"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_74E2FF6F_6DAE_425d_AF91_885E60EB7E38" name="FC_Equals"
visibility="vis_public">
  <generalization xmi:type="uml:Generalization"
xmi:id="EAID_68AE70EC_58EA_441c_B64E_106D06CEB55A"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
  </packagedElement>
- <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2FCD8672_969A_4c8f_BA9A_F51B23342281" name="FC_GeometryLiteral"
visibility="vis_public">
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_CE012AF5_C988_46b7_B376_05A8AE2AD705" name="envelope"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000225_C988_46b7_B376_05A8AE2AD705" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000226_C988_46b7_B376_05A8AE2AD705" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_5D3B4857_E12F_4e2a_A506_A3D9E262A700" name="geometry"
visibility="vis_public" isDerived="true">
  <lowerValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000227_E12F_4e2a_A506_A3D9E262A700" value="1" />
  <upperValue xmi:type="uml:LiteralInteger"
xmi:id="EAID_LI000228_E12F_4e2a_A506_A3D9E262A700" value="1" />
  </ownedAttribute>
- <ownedAttribute xmi:type="uml:Property"
xmi:id="EAID_dst0CE611_0065_4c7c_8974_B0D141171181" visibility="public"
association="EAID_7A0CE611_0065_4c7c_8974_B0D141171181" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="shared">
  <type xmi:idref="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_0B5036B6_1F89_498d_A4E5_B8E15E9FCED4" visibility="public">
  <memberEnd xmi:idref="EAID_dst5036B6_1F89_498d_A4E5_B8E15E9FCED4" />
  <memberEnd xmi:idref="EAID_src5036B6_1F89_498d_A4E5_B8E15E9FCED4" />
- <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src5036B6_1F89_498d_A4E5_B8E15E9FCED4" visibility="public"
association="EAID_0B5036B6_1F89_498d_A4E5_B8E15E9FCED4" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
  <type xmi:idref="EAID_2E5AC335_02D1_42b1_8EC3_D2A0662F6CCB" />
  </ownedEnd>
</packagedElement>
- <packagedElement xmi:type="uml:Association"
xmi:id="EAID_619DF05C_1B02_4041_8D21_661F42598C09" visibility="public">

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    <memberEnd xmi:idref="EAID_dst9DF05C_1B02_4041_8D21_661F42598C09" />
    <memberEnd xmi:idref="EAID_src9DF05C_1B02_4041_8D21_661F42598C09" />
-   <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src9DF05C_1B02_4041_8D21_661F42598C09" visibility="public"
association="EAID_619DF05C_1B02_4041_8D21_661F42598C09" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_2E5AC335_02D1_42b1_8EC3_D2A0662F6CCB" />
    </ownedEnd>
</packagedElement>
-   <packagedElement xmi:type="uml:Association"
xmi:id="EAID_6D4C2092_B37F_4257_B7DC_EDDEB4EB40B0" visibility="public">
    <memberEnd xmi:idref="EAID_dst4C2092_B37F_4257_B7DC_EDDEB4EB40B0" />
    <memberEnd xmi:idref="EAID_src4C2092_B37F_4257_B7DC_EDDEB4EB40B0" />
-   <ownedEnd xmi:type="uml:Property"
xmi:id="EAID_src4C2092_B37F_4257_B7DC_EDDEB4EB40B0" visibility="public"
association="EAID_6D4C2092_B37F_4257_B7DC_EDDEB4EB40B0" isOrdered="false"
isDerived="false" isDerivedUnion="false" aggregation="none">
    <type xmi:idref="EAID_5F4E310D_1C1B_47e1_B76A_B4338E9DE9C3" />
    </ownedEnd>
</packagedElement>
-   <packagedElement xmi:type="uml:Class"
xmi:id="EAID_8E68C7A9_13DF_482b_9CA4_5ECE591B3A11" name="FC_Intersects"
visibility="vis_public">
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_1850972D_E623_4d34_B538_7ABF90837550"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
    </packagedElement>
-   <packagedElement xmi:type="uml:Class"
xmi:id="EAID_0B7F64E7_3DCF_4a37_A49D_E754F4FE9584" name="FC_Overlaps"
visibility="vis_public">
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C0DF132C_C435_45d2_A8BD_C6B73C0C98C8"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
    </packagedElement>
-   <packagedElement xmi:type="uml:Class"
xmi:id="EAID_80DBAABA_4EC3_4668_A74F_C568AEC12FB" name="FC_SpatialOp"
visibility="vis_public">
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_C4C1847D_3C0F_4634_BE8F_AFD2518E33C8"
general="EAID_2AF19507_22D1_40ba_8751_142256A5752F" />
    </packagedElement>
-   <packagedElement xmi:type="uml:Class"
xmi:id="EAID_91F4E9DF_7B9E_4b2d_81BF_AA9CB1AA726C" name="FC_Touches"
visibility="vis_public">
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_6A188790_D707_42c6_9F83_F225544B8765"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />
    </packagedElement>
-   <packagedElement xmi:type="uml:Class"
xmi:id="EAID_2E1D1527_6B3B_44f3_AD6C_CF2D98B94B3A" name="FC_Within"
visibility="vis_public">
    <generalization xmi:type="uml:Generalization"
xmi:id="EAID_1E97A589_654F_4783_9651_D03C9AFE1FB0"
general="EAID_E5AC7649_47E8_4315_A84A_42E344D7BFF2" />

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</packagedElement>
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supplier="EAPK_DCF962FF_5115_49f0_B1DA_AAFA270484F8"
client="EAPK_8DEC402A_8F63_4897_AABA_F34FEB9F2D17" />
<packagedElement xmi:type="uml:Dependency"
xmi:id="EAID_D36C4B6C_ED3E_41aa_9A1F_1470D5D5C403" visibility="vis_public"
supplier="EAID_2AF19507_22D1_40ba_8751_142256A5752F"
client="EAPK_8DEC402A_8F63_4897_AABA_F34FEB9F2D17" />
</packagedElement>
</packagedElement>
</packagedElement>
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base_Class="EAID_BD379441_81D1_483d_9F47_F1AA2451B396" />
<thecustomprofile:Union
base_Class="EAID_2D7BD63F_DC08_4f41_AA8A_5162BE77CA07" />
<thecustomprofile:Union base_Class="EAID_7D8FDE10_5667_4a43_88E5_EA44FB4447C7" /
>
<thecustomprofile:Union base_Class="EAID_F0412D77_D4F9_4a78_A281_FFD593437FBD" /
>
<thecustomprofile:Union base_Class="EAID_BF40ABF3_01DD_4978_A334_467637A8C49A" /
>
<thecustomprofile:enumeration
base_Class="EAID_E253CB19_CA53_44c0_B6A6_D6C46AB6886B" />
<thecustomprofile:enum
base_Attribute="EAID_6F7617DB_E3EB_4691_BA11_4B8A99A51CB8" />
<thecustomprofile:enum
base_Attribute="EAID_00752D4A_3F1C_454d_97AC_7E3532607B70" />
<thecustomprofile:Union base_Class="EAID_2FCD8672_969A_4c8f_BA9A_F51B23342281" /
>
- <uml:Profile xmi:version="2.1" xmlns:uml="http://schema.omg.org/spec/UML/2.1/uml.xml"
xmlns:xmi="http://schema.omg.org/spec/XMI/2.1" xmi:id="thecustomprofile"
nsPrefix="thecustomprofile" name="thecustomprofile" metamodelReference="mmref01">
- <ownedComment xmi:type="uml:Comment" xmi:id="comment01"
annotatedElement="thecustomprofile">
<body>Version:1.0</body>
</ownedComment>
- <packageImport xmi:id="mmref01">
<importedPackage href="http://schema.omg.org/spec/UML/2.1/uml.xml" />
</packageImport>
- <packagedElement xmi:type="uml:Stereotype" xmi:id="enum" name="enum">
- <ownedAttribute xmi:type="uml:Property" xmi:id="enum-base_Attribute"
name="base_Attribute" association="Attribute_enum">
<type href="http://schema.omg.org/spec/UML/2.1/uml.xml#Attribute" />
</ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Extension" xmi:id="Attribute_enum"
name="A_Attribute_enum" memberEnd="extension_enum enum-base_Attribute">
<ownedEnd xmi:id="extension_enum" name="extension_enum" type="enum"
isComposite="true" lower="0" upper="1" memberEnd="extension_enum enum-base_Attribute"
/>
</packagedElement>
- <packagedElement xmi:type="uml:Stereotype" xmi:id="enumeration" name="enumeration">

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- <ownedAttribute xmi:type="uml:Property" xmi:id="enumeration-base_Class"
name="base_Class" association="Class_enumeration">
  <type href="http://schema.omg.org/spec/UML/2.1/uml.xml#Class" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Extension" xmi:id="Class_enumeration"
name="A_Class_enumeration" memberEnd="extension_enumeration enumeration-
base_Class">
  <ownedEnd xmi:id="extension_enumeration" name="extension_enumeration"
type="enumeration" isComposite="true" lower="0" upper="1"
memberEnd="extension_enumeration enumeration-base_Class" />
</packagedElement>
- <packagedElement xmi:type="uml:Stereotype" xmi:id="Union" name="Union">
- <ownedAttribute xmi:type="uml:Property" xmi:id="Union-base_Class" name="base_Class"
association="Class_Union">
  <type href="http://schema.omg.org/spec/UML/2.1/uml.xml#Class" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Extension" xmi:id="Class_Union" name="A_Class_Union"
memberEnd="extension_Union Union-base_Class">
  <ownedEnd xmi:id="extension_Union" name="extension_Union" type="Union"
isComposite="true" lower="0" upper="1" memberEnd="extension_Union Union-base_Class" />
</packagedElement>
- <packagedElement xmi:type="uml:Stereotype" xmi:id="DataType" name="DataType">
- <ownedAttribute xmi:type="uml:Property" xmi:id="DataType-base_Class"
name="base_Class" association="Class_DataType">
  <type href="http://schema.omg.org/spec/UML/2.1/uml.xml#Class" />
  </ownedAttribute>
</packagedElement>
- <packagedElement xmi:type="uml:Extension" xmi:id="Class_DataType"
name="A_Class_DataType" memberEnd="extension_DataType DataType-base_Class">
  <ownedEnd xmi:id="extension_DataType" name="extension_DataType" type="DataType"
isComposite="true" lower="0" upper="1" memberEnd="extension_DataType DataType-
base_Class" />
</packagedElement>
</uml:Profile>
</uml:Model>
- <xmi:Extension extender="Enterprise Architect" extenderID="6.5">
- <diagrams>
- <diagram xmi:id="EAID_952A3B68_73F6_4af2_B5DB_660221E51DAE">
  <model package="EAPK_A0351711_2971_4024_9ECB_A15C58CF83EE" localID="62"
owner="EAPK_A0351711_2971_4024_9ECB_A15C58CF83EE" />
  <properties name="RLS Packages" type="Package" />
  <project version="1.0" created="2008-05-19 10:32:56" modified="2008-05-27 10:49:24" />
  <style1
value="ShowPrivate=1;ShowProtected=1;ShowPublic=1;HideRelationships=0;Locked=0;Bo
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s.cx=0;PPgs.cy=0;DocSize.cx=787;DocSize.cy=1130;ShowDetails=0;Orientation=P;Zoom=
100;ShowTags=0;OpParams=1;ShowIcons=1;CollabNums=0;HideProps=0;ShowReqs=0;S
howCons=0;PaperSize=9;HideParents=0;UseAlias=0;HideAtts=0;HideOps=0;HideStereo=0;
HideElemStereo=0;ShowTests=0;ShowMaint=0;ConnectorNotation=;ExplicitNavigability=0
;AdvancedElementProps=1;AdvancedFeatureProps=1;AdvancedConnectorProps=1;" />
  <style2
value="ExcludeRTF=0;DocAll=0;HideQuals=0;AttPkg=1;ShowTests=0;ShowMaint=0;Suppr

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essFOC=1;TDurLow=0;TDurHigh=100;TDurUnit=;TDurHide=0;TConnectorNotation=;TExplicitNavigability=0;AdvancedElementProps=1;AdvancedFeatureProps=1;AdvancedConnectorProps=1;ProfileData=;MDGDgm=; />
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value="locked=false;orientation=0;width=0;inbar=false;names=false;color=0;bold=false;fcol=0;;cls=0;" />
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subject="EAID_675D5131_3E8D_4879_B71D_BB2BF5F0BE52" seqno="1"
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style="Mode=3;EOID=5E61C560;SOID=DAB6CD41;Hidden=0;" />
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geometry="SX=0;SY=0;EX=0;EY=0;EDGE=2;$LLB=;LLT=;LMT=;LMB=;LRT=;LRB=;IRHS=;ILHS=;Path=;" subject="EAID_58FF1CEE_2296_4486_8423_7C5050B9E693"
style="Mode=3;EOID=9AC286A7;SOID=DAB6CD41;Hidden=0;" />
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style="Mode=3;EOID=E7404CFA;SOID=DAB6CD41;Hidden=0;" />
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</diagram>
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</xmi:XML>

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