OntoDiff: rsm12 vs rsm12beta

==== === === [ OntoRail Diff ] === === ====
 • target: rsm12 (http://ontorail.org/src/RSM/rsm12/)
 • versus: rsm12beta (http://ontorail.org/src/RSM/rsm12beta/)
 • entity types considered: ['Package', 'Object', 'Property', 'Enumeration']
 • performed: 2023-02-17 13:51:56 +0000
 • duration: 11.8 sec
 • OntoDiff version date: 2023-02-17 12:04:28
 • Ignored predicates: xmi:ea\_localid, xmi:lowerValue\_\_id, xmi:upperValue\_\_id, xmi:source\_\_isNavigable, xmi:coords\_\_ordered, xmi:coords\_\_scale, xmi:containment\_\_position, xmi:virtualInheritance, xmi:target\_\_isNavigable, xmi:source\_\_idref, xmi:target\_\_idref, xmi:type\_\_idref, xmi:labels\_\_rb, xmi:type, xmi:visibility, xmi:isUnique, xmi:upperValue\_\_type, xmi:isDerived, xmi:isDerivedUnion, xmi:isOrdered, xmi:isReadOnly, xmi:isStatic
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# Summary

## Package entities

### 28 Package in rsm12:

Base, Common, EA\_C#\_Types\_Package, EA\_Java\_Types\_Package, EA\_PrimitiveTypes\_Package, EA\_Python\_Types\_Package, Energy, Energy\_SCADA, Energy\_distribution, Environment, "General documentation", Geometry, Infrastructure, LegalEntities, Location, NetEntity, NetProperty, Network, ObservationAndMeasure, Positioning, RSM\_1.2, RSM\_1.2, RootPackage, Signalling, TimeAxis, Topology, Track, Weather

### 1 Package NEW from rsm12beta:

RSM\_1.2

### 0 Package REMOVED from rsm12beta:

### 21 Package MODIFIED from rsm12beta:

Base, Common, Energy\_SCADA, Energy\_distribution, Environment, "General documentation", Geometry, Infrastructure, LegalEntities, Location, NetEntity, NetProperty, Network, ObservationAndMeasure, Positioning, RSM\_1.2, Signalling, TimeAxis, Topology, Track, Weather

## Object entities

### 181 Object in rsm12:

$inet://https://www.w3.org/TR/vocab-ssn/#Observations, Air, AirTemperature, AlignmentCantSegment, AlignmentCurve, AnchorPoint, Angle, Anywhere, ApplicationRange, AreaLocation, AssociatedNetElement, AssociatedPositioning, BaseLocation, BaseObject, BaseProperty, Cant, Canvas, CartesianCoordinate, CircularTurnout, Circumstance, CompositeSource, CompositeTimeInterval, CompositionNetElement, Connection, Context, ControlAssignment, Country, Crossing, Date, DateTimeDescription, DilatationPanel, Dimensionless, DiscretisedPoint, DiscretisedPointSet, DistributionFunctionalEntity, DoubleSlipCrossing, Duration, DurationOfSunshine, ElementLength, ElementPartCollection, ElementarySection, ElementarySource, Elevation, ElevationAndInclination, EmptyPeriod, EnergyEntity, Entity, GeneralDateTimeDescription, GeodeticReferenceSystem, GeographicCoordinate, GeographicCoordinateSystem, GeometricCoordinate, GeopoliticalEntity, Gradient, GridReferenceSystem, Ground, HorizontalAlignment, HorizontalAlignmentSegment, HorizontalSegmentArc, HorizontalSegmentLine, HorizontalSegmentTransition, HumidityMixingRatio, Inertia, InformationSource, Infrastructure, Instant, Interval, IntrinsicCoordinate, JunctionEntity, LateralInclination, LegalPerson, Length, LinearCoordinate, LinearElement, LinearElementWithLength, LinearLocation, LinearPositioningSystem, LocatedNetEntity, LocationsSet, Mass, MeasurementAuthor, MeasurementEquipment, MeasurementMethod, Medium, NamedResource, NetElement, NetEntity, NetProperty, Network, NetworkLevel, NetworkResource, NeutralSection, NonLinearElement, Nowhere, NumericQuantity, ObservableProperty, Observation, OnTrackSignallingDevice, OrderedCollection, PhenomenonTime, PhysicalAddress, PolyLine, Polygon, PositionedRelation, PositioningNetElement, PositioningSystem, PositioningSystemCoordinate, PowerSupplyFacilitySpatialStructure, Precipitation, Prediction, PropertySet, Quantity, QuantityKind, RailwayAlignmentCant, RailwayDiscretisedPoint, Rainfall, Relation, RelativeHumidity, RemoteInstant, Requirement, RootObject, RouteBody, SCADA\_center, SCADA\_configuration, Scale, ScaleValueDefinition, SecantTurnout, SectioningPost, Sector, SegmentCantLine, SegmentCantTransition, Sensor, Signal, SimpleCrossing, SimpleTimeInterval, SingleSlipCrossing, Snowfall, SpecialTurnout, Speed, SpotLocation, SubSector, Substation, SubstationOutput, Surface, SwitchingPost, TangentTurnout, Temperature, TemporalEntity, TemporalPosition, ThicknessOfRainfallAmount, ThicknessOfSnowfallAmount, ThreeDAlignmentCurve, TimePosition, TimeReferenceSystem, TimedLocation, TpsDevice, TrackPanel, TractionPost, TransitionShape, TrapPoint, Turnout, UndefinedInstant, Unit, UnorderedCollection, ValidityPeriod, VehiclePassageDetector, VehicleStop, VerticalAlignment, VerticalAlignmentSegment, VerticalSegmentArc, VerticalSegmentLine, VerticalSegmentTransition, WeatherFeature, WeatherProperty, Wind, WindFromDirection, WindSpeed, https://en.wikipedia.org/wiki/Line\_graph, https://gssc.esa.int/navipedia/index.php/Time\_References\_in\_GNSS, sysml\_qudv:annex\_c.5\_2009-08-26.pdf, tID

### 2 Object NEW from rsm12beta:

Elevation, ElevationAndInclination

### 1 Object REMOVED from rsm12beta:

"List of Elements in Package ObservationAndMeasure"

### 2 Object with a changed IRI from rsm12beta:

Label:"ObservationAndMeasure" : IRI changed from rsm12beta:EAID\_52896599\_2872\_4ba1\_B116\_EF543596D48E to rsm12:EAPK\_B2A724A9\_ABD7\_42d7\_94E9\_AFB9BDC703D4, Label:"ObservationAndMeasure" : IRI changed from rsm12beta:EAID\_3895E270\_D044\_4e26\_A14B\_902015D05DEF to rsm12:EAPK\_B2A724A9\_ABD7\_42d7\_94E9\_AFB9BDC703D4

### 11 Object MODIFIED from rsm12beta:

AlignmentCantSegment, AnchorPoint, Canvas, CartesianCoordinate, DateTimeDescription, Gradient, IntrinsicCoordinate, LinearCoordinate, LinearPositioningSystem, Network, TimePosition

## Property entities

### 192 Property in rsm12:

Alpha2code, appliesInDirection, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, appliesTo, assignments, associatedNetElements, associatedNetElements, associatedNetElements, associatedPositioning, atTime, belongsToSector, bounds, considers, controlCenter, controlsPosts, controlsSubstations, coordinates, coordinates, coordinates, crossingArea, crossingCentre, definition, definitionURI, definitionURI, description, description, elementA, elementB, elementCollections, elementLength, elementParts, elementParts, elevation, end, endAzimuth, endIncluded, endMeasure, ends, epsgCode, featureOfInterest, finalElevation, finalRadius, finalRadius, handles, hasAddress, hasCircumstances, hasCoordinateReferenceSystem, hasCountry, hasDescriptionLevel, hasDuration, hasFinalCant, hasForecasts, hasHorizontalAlignment, hasInitialCant, hasLateralInclination, hasLinearLocation, hasLinearLocation, hasLinearLocation, hasLinearLocation, hasLinearReferencingMethod, hasOutputs, hasResults, hasSections, hasSource, hasSources, hasSpotLocation, hasTRS, hasTransitionCurve, hasValues, hasVerticalAlignment, has\_name, height, id, id, inclination, inclination, includesTurnouts, includesTurnouts, initialAzimuth, initialElevation, initialRadius, initialRadius, intervalComponents, intrinsicCoordinates, isCurved, isDescribedWithPoints, isLocatedAt, isLocatedAt, isLocatedAt, isLocatedAt, isLocatedToSide, isOfTransitionType, isPartOf, isSmoothed, isStructuredIn, isStructuredIn, isStructuredIn, isSubsetOf, lateralOffset, latitude, leadsTowards, length, length, levels, locations, locations, longitude, longname, madeBySensor, manages, measure, measureFromPrevious, name, navigability, netElement, networkResources, networkResources, observedProperty, observes, orientation, origin, overInterval, perimeters, permittedSpeed, plliesTo, pointsAt, polyLines, positionOnA, positionOnB, positioningSystem, positioningSystem, quantifies, quantity, quantity, quantity, quantity, quantity, quantity, quantityKind, quantiy, radius, radius, radius, reference, refersToPrevious, scale, secantAngle, sequence, setsQuantity, simpleResult, start, startIncluded, startMeasure, superelevation, symbol, symbol, temporalPosition, transitionShape, turningAngle, turnoutArea, type, type, unit, unit, usesAnchorPoint, validIn, validityPeriod, validityPeriod, validityPeriod, validityPeriod, value, value, value, value, value, value, value, valueDefinition, verticalOffset, width, x, y, z

### 20 Property NEW from rsm12beta:

appliesTo, bounds, finalElevation, hasValues, inclination, initialElevation, intrinsicCoordinates, isLocatedAt, isLocatedAt, isLocatedAt, isPartOf, leadsTowards, longname, measure, measureFromPrevious, name, quantiy, refersToPrevious, usesAnchorPoint, value

### 5 Property REMOVED from rsm12beta:

anchors, endElevation, hasConstantCant, measureToNext, relation

### 11 Property with a changed IRI from rsm12beta:

Label:"appliesTo" : IRI changed from rsm12beta:EAID\_A20EEA06\_D815\_4a60\_9F1D\_4846B3CB29EC to rsm12:EAID\_FB5E4E97\_78E7\_4618\_A4A0\_761F5E26B6A4, Label:"bounds" : IRI changed from rsm12beta:EAID\_D651DCEB\_9EEC\_45b6\_B4B0\_530C0E5CCF6C to rsm12:EAID\_31CCF7FE\_27EE\_49c5\_BBD7\_CECF7C43E03A, Label:"isPartOf" : IRI changed from rsm12beta:EAID\_0E63DE25\_ADA5\_4a66\_809F\_4CBE750AB8BB to rsm12:EAID\_DFF0B1C9\_6412\_400e\_8AD1\_6E4D22123C4B, Label:"hasValues" : IRI changed from rsm12beta:EAID\_71066653\_115B\_4b01\_9550\_7CD209901477 to rsm12:EAID\_D7D22140\_3C10\_4df5\_9598\_334DFDA8336C, Label:"initialElevation" : IRI changed from rsm12beta:EAID\_F38BFC03\_1766\_4776\_A875\_A531AD3EB701 to rsm12:EAID\_891B991C\_268F\_4612\_94B9\_E4293BBDC094, Label:"intrinsicCoordinates" : IRI changed from rsm12beta:EAID\_6F099F3F\_5949\_4d00\_8CA6\_E3A8879D437B to rsm12:EAID\_4BDCEEBD\_87FB\_4e01\_A42B\_4F6E4CF83259, Label:"longname" : IRI changed from rsm12beta:EAID\_C3FFAB75\_09A4\_4197\_A7C6\_D6810D0FD1B4 to rsm12:EAID\_EF76D88A\_8B8D\_4152\_BBD7\_D08E0683104C, Label:"measure" : IRI changed from rsm12beta:EAID\_35BCF85D\_32B4\_48d0\_AE55\_3237FF53B161 to rsm12:EAID\_9006CC92\_63FA\_4e72\_B27D\_82B7C4F1E8DD, Label:"measure" : IRI changed from rsm12beta:EAID\_67B3BA39\_4C78\_465f\_A7D1\_2DE0AEF068FD to rsm12:EAID\_9006CC92\_63FA\_4e72\_B27D\_82B7C4F1E8DD, Label:"name" : IRI changed from rsm12beta:EAID\_F0228825\_C595\_4cd2\_8CFC\_85687EBC01F4 to rsm12:EAID\_080C70AE\_7680\_4515\_B580\_0B30E8066364, Label:"quantity" : IRI changed from rsm12beta:EAID\_EAA61E83\_8F00\_4aa1\_B914\_109439C21346 to rsm12:EAID\_D579D242\_16F2\_4c90\_AA37\_892E88A3CBA4

### 42 Property MODIFIED from rsm12beta:

Alpha2code, definition, definitionURI, definitionURI, description, description, elevation, endIncluded, endMeasure, epsgCode, handles, hasFinalCant, hasHorizontalAlignment, hasInitialCant, hasLinearLocation, hasLinearLocation, hasTransitionCurve, has\_name, id, isCurved, isLocatedAt, latitude, longitude, reference, sequence, simpleResult, startIncluded, startMeasure, symbol, symbol, transitionShape, type, type, value, value, value, value, value, value, x, y, z

## Enumeration entities

### 10 Enumeration in rsm12:

ApplicationDirection, DescriptionLevel, LateralSide, LeftRight, LrMethod, Navigability, Orientation, TransitionTypes, TurnoutOrientation, Usage

### 1 Enumeration NEW from rsm12beta:

LeftRight

### 0 Enumeration REMOVED from rsm12beta:

### 3 Enumeration MODIFIED from rsm12beta:

DescriptionLevel, LrMethod, TransitionTypes

# Modified Entities

## Package entities

### ontorail:Package rsm12:Base modifications from rsm12beta:

 == ontorail:hasAssociation => :"Anonymous Aggreg.", :"Anonymous Asso.", :"appliesTo", :"elementLength", :"endAzimuth", :"endMeasure", :"featureOfInterest", :"finalRadius", :"hasDuration", :"hasForecasts", ++ :"hasResults", :"hasValues", :"height", :"id", :"inclination", :"initialAzimuth", :"initialRadius", :"isPartOf", :"lateralOffset", :"length", :"measure", ++ :"measureFromPrevious", :"observedProperty", :"observes", :"permittedSpeed", :"quantifies", :"quantity", :"quantityKind", ++ :"quantiy", :"radius", :"scale", :"secantAngle", :"setByRequirement", :"startMeasure", :"superelevation", :"turningAngle", :"unit", :"valueDefinition", :"verticalOffset", :"width", -- :"endElevation", -- :"fromObservation", -- :"initialElevation", -- :"measureToNext"

 == rdfs:comment => ++ "Associates a context-free quantity to an observable property. While possible, we advise users to use quantifications associated with a context and validity: see Observation package.", "Object identity, properties, quantity, value and units"

### ontorail:Package rsm12:Common modifications from rsm12beta:

 == ontorail:subPackageOf => ++ :"RSM\_1.2", -- :"RSM\_1.2\_beta"

 ++ xmi:tag\_\_namespacePrefix => "rsmCommon"

 == xmi:tag\_\_targetnamespaceURL => ++ "http://www.railsystemmodel.org/schemas/Common", -- "http://www.railsystemmodel.org/schemas/RSM1.2beta/Common"

 ++ xmi:tag\_\_xsdFileName => "RsmCommon"

 -- xmi:tag\_\_targetnamespace => "rsmCommon"

### ontorail:Package rsm12:Energy\_SCADA modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA3/EA4/EA2/EA941.htm"

 == ontorail:hasAssociation => :"assignments", :"controlCenter", ++ :"controlsPosts", ++ :"controlsSubstations"

### ontorail:Package rsm12:Energy\_distribution modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA3/EA4/EA1/EA913.htm"

 == ontorail:hasAssociation => :"belongsToSector", ++ :"connects", :"hasOutputs", :"hasSections", :"manages", -- :"controlsPosts", -- :"controlsSubstations", -- :"ends"

### ontorail:Package rsm12:Environment modifications from rsm12beta:

 == ontorail:subPackageOf => ++ :"RSM\_1.2", -- :"RSM\_1.2\_beta"

### ontorail:Package rsm12:"General documentation" modifications from rsm12beta:

 == ontorail:subPackageOf => ++ :"RSM\_1.2", -- :"RSM\_1.2\_beta"

### ontorail:Package rsm12:Geometry modifications from rsm12beta:

 == ontorail:hasAssociation => ++ :"Anonymous Aggreg.", ++ :"Anonymous Asso.", ++ :"finalElevation", :"hasFinalCant", :"hasHorizontalAlignment", :"hasInitialCant", :"hasLateralInclination", :"hasVerticalAlignment", ++ :"initialElevation", :"isDescribedWithPoints", :"isOfTransitionType", :"isSmoothed", :"isStructuredIn", :"isSubsetOf", :"transitionShape", -- :"hasConstantCant"

### ontorail:Package rsm12:Infrastructure modifications from rsm12beta:

 == ontorail:subPackageOf => ++ :"RSM\_1.2", -- :"RSM\_1.2\_beta"

### ontorail:Package rsm12:LegalEntities modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA4/EA1/EA954.htm"

### ontorail:Package rsm12:Location modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA5/EA410.htm"

 == ontorail:hasAssociation => :"Anonymous Aggreg.", ++ :"Anonymous Asso.", :"appliesInDirection", :"associatedNetElements", :"atTime", :"crossingArea", :"crossingCentre", :"hasLinearLocation", :"hasSpotLocation", :"isLocatedAt", :"isLocatedToSide", :"locations", :"origin", :"pointsAt", :"turnoutArea", -- :"appliesTo"

### ontorail:Package rsm12:NetEntity modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA3/EA1/EA759.htm"

 ++ xmi:tag\_\_namespacePrefix => "rsmNE"

 == xmi:tag\_\_targetnamespaceURL => ++ "http://www.railsystemmodel.org/schemas/NetEntity", -- "http://www.railsystemmodel.org/schemas/RSM1.2beta/NetEntity"

 ++ xmi:tag\_\_xsdFileName => "RsmNetEntity"

 -- ontorail:hasAssociation => :"Anonymous Asso."

 -- xmi:tag\_\_targetnamespace => "rsmNE"

### ontorail:Package rsm12:NetProperty modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA8/EA673.htm"

### ontorail:Package rsm12:Network modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA3/EA289.htm"

 == ontorail:hasAssociation => :"considers", :"hasDescriptionLevel", :"levels", :"networkResources", :"validityPeriod", -- :"Anonymous Asso."

### ontorail:Package rsm12:ObservationAndMeasure modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA7/EA609.htm"

 == rdfs:comment => "Provides observations, measurements, sensors", ++ "inherited, but not used"

### ontorail:Package rsm12:Positioning modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA4/EA323.htm"

 == ontorail:hasAssociation => ++ :"Anonymous Aggreg.", ++ :"Anonymous Asso.", ++ :"appliesTo", :"bounds", :"coordinates", :"hasCoordinateReferenceSystem", :"hasLinearReferencingMethod", :"intrinsicCoordinates", ++ :"isLocatedAt", :"perimeters", :"polyLines", :"positioningSystem", ++ :"refersToPrevious", ++ :"usesAnchorPoint", :"validityPeriod", -- :"anchors"

### ontorail:Package rsm12:RSM\_1.2 modifications from rsm12beta:

 ++ ontorail:subPackageOf => :"RSM\_1.2"

 ++ rdfs:comment => "Baselines of the RSM 1.2 version released on internet in Decembre 2021."

 == rdfs:label => ++ "RSM\_1.2", -- "RSM\_1.2\_beta"

 == xmi:package => ++ "EAPK\_54BC8251\_EF8C\_4733\_A536\_B0CA519A7292", -- "EAPK\_651A1F86\_4D98\_4ba2\_8DD3\_F753F7C24BD6"

 == xmi:tpos => ++ "3", -- "1"

### ontorail:Package rsm12:Signalling modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA3/EA3/EA890.htm"

 ++ ontorail:hasAssociation => :"Anonymous Aggreg.", :"Anonymous Asso."

 ++ xmi:tag\_\_namespacePrefix => "rsmSig"

 == xmi:tag\_\_targetnamespaceURL => ++ "http://www.railsystemmodel.org/schemas/Signalling", -- "http://www.railsystemmodel.org/schemas/RSM1.2beta/Signalling"

 ++ xmi:tag\_\_xsdFileName => "RsmSignalling"

 -- xmi:tag\_\_targetnamespace => "rsmSig"

### ontorail:Package rsm12:TimeAxis modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA2/EA9/EA699.htm"

 == ontorail:hasAssociation => ++ :"Anonymous Aggreg.", :"Anonymous Asso.", :"end", :"hasTRS", :"intervalComponents", :"overInterval", :"start", :"temporalPosition", :"validityPeriod"

### ontorail:Package rsm12:Topology modifications from rsm12beta:

 == ontorail:hasAssociation => ++ :"Anonymous Aggreg.", :"Anonymous Asso.", :"associatedPositioning", :"elementA", :"elementB", :"elementCollections", :"elementParts", :"handles", ++ :"leadsTowards", :"navigability", :"netElement", :"positionOnA", :"positionOnB", -- :"relation"

 == ontorail:hasEnumeration => ++ :"LeftRight", :"Navigability", :"Orientation", :"Usage"

### ontorail:Package rsm12:Track modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA3/EA2/EA774.htm"

 == ontorail:hasAssociation => ++ :"Anonymous Aggreg.", ++ :"Anonymous Asso.", :"includesTurnouts", :"orientation"

 ++ xmi:tag\_\_namespacePrefix => "rsmTrack"

 == xmi:tag\_\_targetnamespaceURL => ++ "http://www.railsystemmodel.org/schemas/Track", -- "http://www.railsystemmodel.org/schemas/RSM1.2beta/Track"

 ++ xmi:tag\_\_xsdFileName => "RsmTrack"

 -- xmi:tag\_\_targetnamespace => "rsmTrack"

### ontorail:Package rsm12:Weather modifications from rsm12beta:

 ++ onto:infoURL => "EA1/EA4/EA2/EA972.htm"

## Object entities

### ontorail:Object rsm12:AlignmentCantSegment modifications from rsm12beta:

 == xmi:isAbstract => ++ "false", -- "true"

### ontorail:Object rsm12:AnchorPoint modifications from rsm12beta:

 == rdfs:comment => ++ "ISO19148:2012 : LR\_AlongReferent.\n\nattributes (or references to) measure, and measure from previous (or: to next), are not needed, because anchor points, being spot locations, are expected to be provided with coordinates.", -- "Reference point for linear referencing, corresponding to a kilometric post or milepost. Typically associated with a chainage discontinuity."

### ontorail:Object rsm12:Canvas modifications from rsm12beta:

 == rdfs:comment => ++ "A 2-D or 3-D physical or virtual bounded space, such as a screen or a sheet of paper on which the positioning takes place.\nThe name can imply size and unit information, e.g. A3 landscape for 420 mm wide x 297 mm high.", "description\nInformation about the canvas that is not implied by the name. Typically describing the place of the origin and orientation of the axes.", -- "A 2-D or 3-D physical or virtual bounded space, such as a screen or a sheet of paper on which the positioning takes place.\nThe name can imply size and unit information, e.g. A3 landscape for 420 mm wide x 297 mm heigh."

### ontorail:Object rsm12:CartesianCoordinate modifications from rsm12beta:

 == rdfs:comment => ++ "Cartesian coordinates. The x,y, z units are defined by the associated positioning system. The user may retain only elevation (z) if needed, e.g. in conjunction with linear coordinates (distance along).", -- "Cartesian coordinates. The x,y, z units are defined by the associated positioning system. ", -- "Cartesian coordinates. The x,y, z units are defined by the associated positioning system."

### ontorail:Object rsm12:DateTimeDescription modifications from rsm12beta:

 == rdfs:comment => ++ "From W3C: Description of date and time structured with separate values for the various elements of a calendar-clock system. The temporal reference system is fixed to Gregorian Calendar.\nThe reference to TRS may be left out if obvious from the context.", -- """ From W3C: Description of date and time structured with separate values for the various elements of a calendar-clock system. The temporal reference system is fixed to Gregorian Calendar.\nThe reference to TRS may be left out if obvious from the context. E.g. "Document released 2021-06-28". """

### ontorail:Object rsm12:Gradient modifications from rsm12beta:

 == rdfs:comment => ++ "Quantity of type gradient, slope, ramp, inclination expressed as the tangent of rise/fall over distance. \nUphill is positive, downhill is negative.", -- "Quantity of type gradient, slope, ramp, etc. \nUphill is positive, downhill is negative."

### ontorail:Object rsm12:IntrinsicCoordinate modifications from rsm12beta:

 ++ rdfs:subClassOf => :"BaseObject"

### ontorail:Object rsm12:LinearCoordinate modifications from rsm12beta:

 == rdfs:comment => ++ """ A curvilinear abscissa ("distance along"), optionally with vertical and lateral offset.\nThe units are defined by the associated positioning system.\n\nISO19148:2012: LR\_PositionExpression.\nPlease note that the concepts match: in ISO19148, LR\_PositionExpression refers to exactly 1 distance expression (here: instance of Length), one linear element (here: one reference line, via the reference to positioning system), and one linear referencing method (here: referred to via the linear positioning system). """, -- """ A curvilinear abscissa ("distance along"), optionally with vertical and lateral offset.\nThe units are defined by the associated positioning system. """

### ontorail:Object rsm12:LinearPositioningSystem modifications from rsm12beta:

 == rdfs:comment => ++ """ A referencing system for locations relative to a one-dimensional object (reference line) as measurement along (and optionally offset from) that object. For reference, see EN 19148:2021.\n\nA linear positioning system combines a line of reference (here: a collection of PositioningNetElements) with a single number (linear abscissa, i.e. an instance of class LinearCoordinate) allowing positioning within a railway network, at the chosen level (MACRO, MICRO...).\n\nOften called chainage (when yielding the actual "distance along"), or mileage system (when reflecting a conventional kilometric post or mile post system).\n\nThe start- and end-measures (optional) provide the valid range of linear coordinates within the chosen linear positioning system. The difference between two coordinates is not necessarily the "true distance along" because of possible deviations (jumps or systematic errors), that are taken care of by anchor points and linear referencing methods. \nThe units of linear abscissa are the same as the start and end-measure. """, ++ """ A referencing system for locations relative to a one-dimensional object (reference line) as measurement along (and optionally offset from) that object. For reference, see EN 19148:2021.\n\nA linear positioning system combines a line of reference (here: a collection of PositioningNetElements) with a single number (linear abscissa, i.e. an instance of class LinearCoordinate) allowing positioning within a railway network, at the chosen level (MACRO, MICRO...).\n\nOften called chainage (when yielding the actual "distance along"), or mileage system (when reflecting a conventional kilometric post or mile post system).\n\nThe start- and end-measures (optional) provide the valid range of linear coordinates within the chosen linear positioning system. The difference between two coordinates is not necessarily the "true distance along" because of possible deviations (jumps or systematic errors), that are taken care of by anchor points and linear referencing methods. \nThe units of linear abscissa are the same as the start and end-measure. """, -- "A line of reference combined with a single number (linear abscissa) allows positioning within a railway network.\nOften called chainage.\nThe start- and end-measures represent the length of this line. The units of linear abscissa are the same as the start and end-measure. ", -- "A line of reference combined with a single number (linear abscissa) allows positioning within a railway network.\nOften called chainage.\nThe start- and end-measures represent the length of this line. The units of linear abscissa are the same as the start and end-measure."

### ontorail:Object rsm12:Network modifications from rsm12beta:

 == rdfs:subClassOf => :"NamedResource", -- :EAID\_DD3BCA2D\_477D\_4994\_9DFF\_A2933267AF1F

### ontorail:Object rsm12:TimePosition modifications from rsm12beta:

 == ontorail:ofPackage => ++ :"TimeAxis", -- :"EmptyPeriod"

 -- xmi:owner => :"EmptyPeriod"

## Property entities

### ontorail:Property rsm12:Alpha2code modifications from rsm12beta:

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:definition modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:definitionURI modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:definitionURI modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:description modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:description modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:elevation modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:endIncluded modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:endMeasure modifications from rsm12beta:

 == owl:minCardinality => ++ "0", -- "1"

 == xmi:labels\_\_lb => ++ "0..1", -- "1"

 == xmi:lowerValue\_\_value => ++ "0", -- "1"

 == xmi:source\_\_type\_\_multiplicity => ++ "0..1", -- "1"

### ontorail:Property rsm12:epsgCode modifications from rsm12beta:

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:handles modifications from rsm12beta:

 == owl:minCardinality => ++ "0", -- "1"

 == xmi:lowerValue\_\_value => ++ "0", -- "1"

 == xmi:target\_\_type\_\_multiplicity => ++ "0..\*", -- "1..\*"

### ontorail:Property rsm12:hasFinalCant modifications from rsm12beta:

 == rdf:type => :Association, :Property, ++ uml:EA\_Association, xmi:OwnedAttribute, -- uml:EA\_Aggregation

 == xmi:direction => ++ "Source -> Destination", -- "Destination -> Source"

 == xmi:id => ++ "EAID\_dstE3D36A\_3525\_4dca\_87E2\_94F9418D0A62", -- "EAID\_srcE3D36A\_3525\_4dca\_87E2\_94F9418D0A62"

 ++ xmi:labels\_\_rt => "+hasFinalCant"

 == xmi:ownedEnd\_\_id => ++ :EAID\_srcE3D36A\_3525\_4dca\_87E2\_94F9418D0A62, -- :EAID\_dstE3D36A\_3525\_4dca\_87E2\_94F9418D0A62

 == xmi:source\_\_style\_\_value => ++ "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Non-Navigable;", -- "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Navigable;"

 == xmi:target\_\_style\_\_value => ++ "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Navigable;", -- "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Unspecified;"

 == xmi:target\_\_type\_\_aggregation => ++ "none", -- "composite"

 ++ xmi:target\_\_type\_\_multiplicity => "0..1"

 -- xmi:aggregation => "composite"

 -- xmi:labels\_\_lb => "0..1"

 -- xmi:labels\_\_lt => "+hasFinalCant"

 -- xmi:source\_\_type\_\_multiplicity => "0..1"

 -- xmi:subtype => "Strong"

### ontorail:Property rsm12:hasHorizontalAlignment modifications from rsm12beta:

 == owl:minCardinality => ++ "0", -- "1"

 == xmi:labels\_\_lb => ++ "0..1", -- "1"

 == xmi:lowerValue\_\_value => ++ "0", -- "1"

 == xmi:source\_\_type\_\_multiplicity => ++ "0..1", -- "1"

### ontorail:Property rsm12:hasInitialCant modifications from rsm12beta:

 == rdf:type => :Association, :Property, ++ uml:EA\_Association, xmi:OwnedAttribute, -- uml:EA\_Aggregation

 == xmi:direction => ++ "Source -> Destination", -- "Destination -> Source"

 == xmi:id => ++ "EAID\_dstC8374C\_1557\_4b2f\_AA39\_08C66472FFE3", -- "EAID\_srcC8374C\_1557\_4b2f\_AA39\_08C66472FFE3"

 ++ xmi:labels\_\_rt => "+hasInitialCant"

 == xmi:ownedEnd\_\_id => ++ :EAID\_srcC8374C\_1557\_4b2f\_AA39\_08C66472FFE3, -- :EAID\_dstC8374C\_1557\_4b2f\_AA39\_08C66472FFE3

 == xmi:source\_\_style\_\_value => ++ "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Non-Navigable;", -- "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Navigable;"

 == xmi:subtype => ++ "Weak", -- "Strong"

 == xmi:target\_\_style\_\_value => ++ "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Navigable;", -- "Union=0;Derived=0;AllowDuplicates=0;Owned=0;Navigable=Unspecified;"

 == xmi:target\_\_type\_\_aggregation => ++ "none", -- "composite"

 ++ xmi:target\_\_type\_\_multiplicity => "0..1"

 -- xmi:aggregation => "composite"

 -- xmi:labels\_\_lb => "0..1"

 -- xmi:labels\_\_lt => "+hasInitialCant"

 -- xmi:source\_\_type\_\_multiplicity => "0..1"

### ontorail:Property rsm12:hasLinearLocation modifications from rsm12beta:

 == owl:minCardinality => ++ "0", -- "1"

 == rdfs:comment => ++ "Mapping to a linear location on the topology. The linear location can be associated with position in one or more coordinate systems, including elevation.", -- "Mapping to a linear location on the topology. the linear location can be associated with position in one or more coordinate systems."

 == xmi:labels\_\_lb => ++ "0..1", -- "1"

 == xmi:lowerValue\_\_value => ++ "0", -- "1"

 == xmi:source\_\_type\_\_multiplicity => ++ "0..1", -- "1"

### ontorail:Property rsm12:hasLinearLocation modifications from rsm12beta:

 == rdfs:comment => ++ "Mapping to a linear location on the topology. The linear location can be associated with position in one or more coordinate systems.", -- "Mapping to a linear location on the topology. the linear location can be associated with position in one or more coordinate systems."

### ontorail:Property rsm12:hasTransitionCurve modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:has\_name modifications from rsm12beta:

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:id modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:isCurved modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:isLocatedAt modifications from rsm12beta:

 == rdfs:comment => ++ "A spot location where the cant applies.", -- "The spot location where the cant applies."

### ontorail:Property rsm12:latitude modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:longitude modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:reference modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:sequence modifications from rsm12beta:

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:simpleResult modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:startIncluded modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:startMeasure modifications from rsm12beta:

 == owl:minCardinality => ++ "0", -- "1"

 == xmi:labels\_\_lb => ++ "0..1", -- "1"

 == xmi:lowerValue\_\_value => ++ "0", -- "1"

 == xmi:source\_\_type\_\_multiplicity => ++ "0..1", -- "1"

### ontorail:Property rsm12:symbol modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:symbol modifications from rsm12beta:

 == rdfs:range => ++ :"string", -- :"String"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:transitionShape modifications from rsm12beta:

 == rdfs:domain => ++ :"SegmentCantTransition", -- :"AlignmentCantSegment"

### ontorail:Property rsm12:type modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:type modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:value modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:value modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:value modifications from rsm12beta:

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:value modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

### ontorail:Property rsm12:value modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:value modifications from rsm12beta:

 ++ rdfs:comment => "The user is highly recommended to use a standard notation such as XML Schema xs:date, xs:dateTime or xs:dateTimeStamp"

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:styleex\_\_value => ++ "volatile=0;union=0;", -- "volatile=0;"

 ++ xmi:tag\_\_attribute => "false"

### ontorail:Property rsm12:x modifications from rsm12beta:

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:y modifications from rsm12beta:

 == xmi:tag\_\_attribute => ++ "false", -- "true"

### ontorail:Property rsm12:z modifications from rsm12beta:

 ++ xmi:derived => "0"

 ++ xmi:length => "0"

 ++ xmi:precision => "0"

 == xmi:tag\_\_attribute => ++ "false", -- "true"

## Enumeration entities

### ontorail:Enumeration rsm12:DescriptionLevel modifications from rsm12beta:

 == rdfs:comment => "A closed set of description levels.", "Macro\nTo describe the network at regional, national or international level. The non-linear elements are boundaries and major operational points (OPs); the linear elements are sections of lines connecting those points.", "Meso\nTo describe the tracks between the operational points (OPs, e.g. stations, yards, junctions, boundaries) of the network.\nThe non-linear elements are the OPs, and the linear elements are the tracks connecting OPs.", "Micro\nMicro level (for railways) is associated with tracks. It is the level where vehicle paths are unambiguous.\nAt micro level, the smallest details aggregate into a single item. E.g. individual point components and point blades and tips coalesce into a single turnout.", ++ "Nano\nThe nano level (for railway) is the level where track geometry and, in particular, curvilinear abscissas would be in agreement with on-board odometry. It is used for detailing crossing geometry, for instance.\nThe nano level could be described as a properly attributed surveyor's map, including topological properties of the rail network in the finest possible granularity. \nUse cases for the Nano level would include interlocking and asset management.", -- "Nano\nThe nano level (for railway) is the level where track geometry and, in particular, curvilinear abscissas would be in agreement with on-board odometry. It is used for detailing crossing geometry, for instance.\nThe nano level could be described as a properly attributed surveyorXXXXXXXXs map, including topological properties of the rail network in the finest possible granularity. \nUse cases for the Nano level would include interlocking and asset management."

### ontorail:Enumeration rsm12:LrMethod modifications from rsm12beta:

 == rdfs:comment => ++ "Linear Referencing Method values according to ISO 19148 definitions.", -- "Linear Referencing Method values refer to ISO 19148 definitions."

### ontorail:Enumeration rsm12:TransitionTypes modifications from rsm12beta:

 == rdfs:comment => "Initial list of cant transition types.", ++ "linear\_scissors\nDE: Schere (lineare-)", ++ "s\_slope\nFR : doucines; DE: S-Rampe"

 == rdfs:member => ++ :"bloss\_scissors", ++ :"bloss\_slope", ++ :"linear\_scissors", ++ :"linear\_slope", :"other", ++ :"s\_scissors", ++ :"s\_slope", :"undefined", :"unknown", -- :"blossrampe", -- :"constant", -- :"doucine", -- :"linear"