Model Report

S121 Feature Model

Version 1 • Proposed

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1 S121 Feature Model

Package in package 'S-121 Maritime Limits and Boundaries'

This is the model of the feature objects that will be put in the Feature Concept Dictionary supporting the Marine Administrative Domain Model and subsequent product specifications such as the S-121 MLB Product Specification.

S121 Feature Model
Version 1 Phase 1 Proposed
CHS created on 18/08/2015. Last modified 23/02/2016

1.1 S121 Generic Feature Types diagram

Class diagram in package 'S121 Feature Model'

S121 Generic Feature Types
Version
CHS created on 09/07/2015. Last modified 27/11/2016

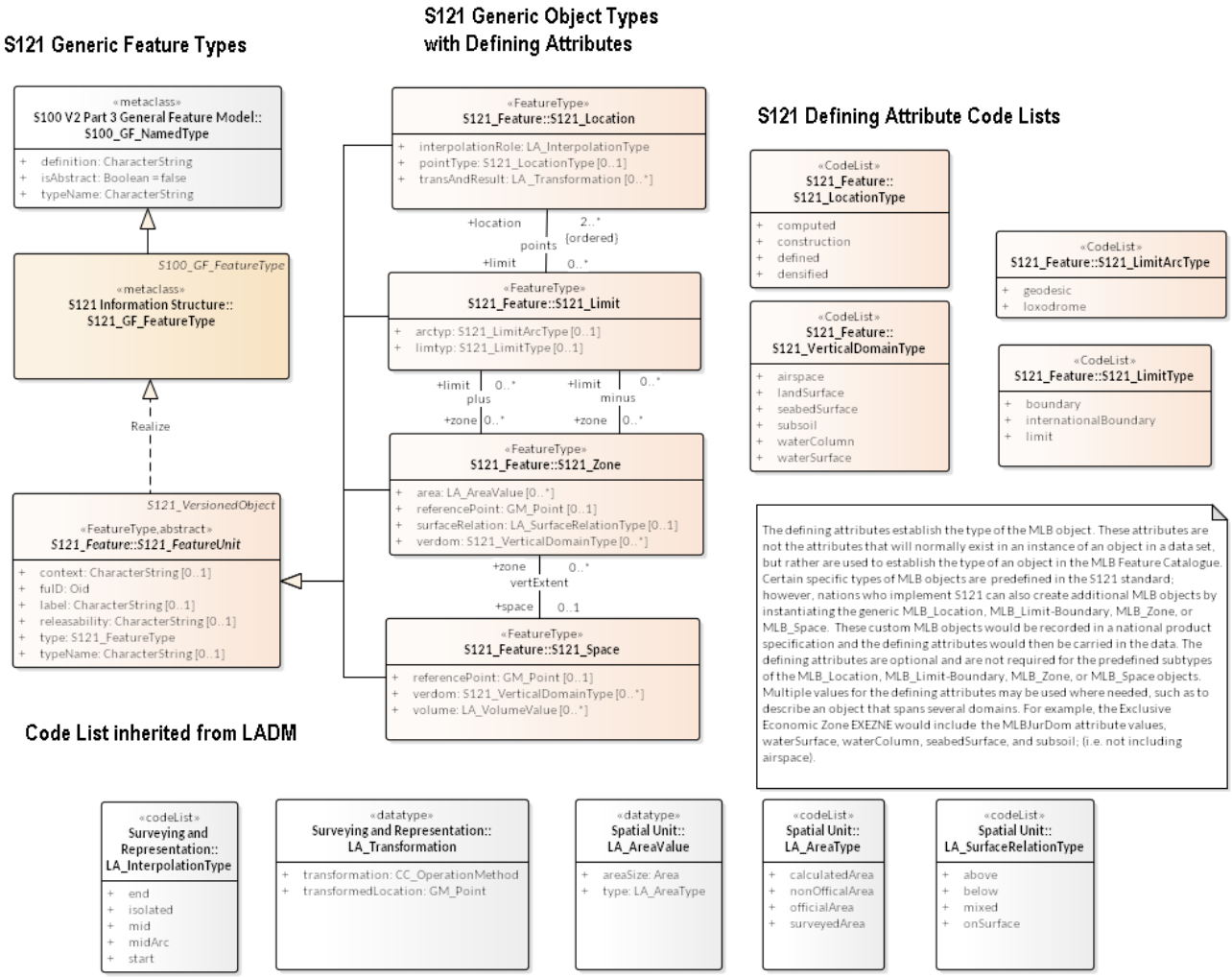

Figure 1: S121 Generic Feature Types

1.2 S100_GF_NamedType

Metaclass «metaclass» in package 'S100 V2 Part 3 General Feature Model'

The class S100_GF_NamedType is not realised from ISO 19109 but is introduced specifically for the S-100 GFM. It is an abstract super-class of the classes S100_GF_FeatureType and S100_GF_InformationType. The intention in introducing this class is to show the commonality between the concept of the feature type and the information type within S-100. Both types are core identifiable objects of S-100 data schemas.

S100_GF_NamedType
Version 2.0 Phase 2.0 Proposed
IHO TSMAD created on 22/12/2014. Last modified 27/11/2016

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «metaclass» S100_GF_FeatureType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

Generalization from «metaclass» S100_GF_ObjectType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

Generalization from «metaclass» S100_GF_AssociationType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

Generalization from «metaclass» S100_GF_InformationType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

CONNECTORS

Dependency «trace» Source -> Destination
From: S100_GF_NamedType : Metaclass, Public
To: S100_GF_NamedType : Metaclass, Public

ATTRIBUTES

definition : CharacterString Public

Definition that describes the named type.
[Is static False. Containment is Not Specified.]

isAbstract : Boolean Public = false

Boolean attribute. If true, the named type acts as an abstract supertype. It is not possible to create an instance of an abstract type.
[Is static False. Containment is Not Specified.]

typeName : CharacterString Public

Name of the named type. The name shall be unique within a namespace.

ATTRIBUTES

[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified)

Source: Public informationClient (Metaclass) S100_GF_NamedType «metaclass»
Cardinality: [1..*]

Target: Public informationLink (Metaclass) S100_GF_InformationAssociationType «metaclass»
Cardinality: [0..*]

The object types that act as client in the information association

Association (direction: Source -> Destination)

The role "constrainedBy" specifies that a constraint is made on the named type.

Source: Public (Metaclass) S100_GF_NamedType «metaclass»

Target: Public constrainedBy (Metaclass) S100_GF_Constraint «metaclass»
Cardinality: [0..*]

Association (direction: Source -> Destination)

Source: Public informationClient (Class) GM_Object «type»
Cardinality: [1..*]

Target: Public additionalInformation (Metaclass) S100_GF_NamedType «metaclass»
Cardinality: [0..*]

1.3 S121_GF_FeatureType

Metaclass «metaclass» in package 'S121 Information Structure'

The class S121_GF_FeatureType is a specialization of S100_GF_FeatureType.

The class S100_GF_FeatureType is a realisation of the ISO 19109 class GF_FeatureType. It differs from the ISO class in the following ways:
1. It is a sub-type of the class S100_GF_NamedType;
2. It does not realise the Generalization and Specialization associations with the class GF_InheritanceRelation. Instead, the class has an association with itself with the roles subType and superType. GF_InheritanceRelation is not realised in the S-100 GFM;
3. The multiplicity of the superType is 0..1 to represent the concept that a feature may have a maximum of one superType. This is in order to prevent multiple-inheritance in S-100;
4. The multiplicity of the role carrierOfCharacteristics with S100_GF_PropertyType (the S-100 realisation of GF_PropertyType) is changed from 0..* to 1..*. An S-100 feature must have properties.

S121_GF_FeatureType
Version Phase Proposed
CHS created on 30/06/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_FeatureType

[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from FeatureType Instance to «metaclass» S121_GF_FeatureType
[Name is Instance. Direction is 'Source -> Destination'.]

Aggregation from «metaclass» S121_GF_SpatialAttributeType to «metaclass» S121_GF_FeatureType
[Direction is 'Unspecified'.]

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

Aggregation from «metaclass» S121_GF_ThematicAttributeType to «metaclass» S121_GF_FeatureType
[Direction is 'Source -> Destination'.]

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

ASSOCIATIONS

Association (direction: Source -> Destination) Usage of registered definityon etc

Source: Public (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [1]

Target: Public (Class) S121_FC_FeatureType
Cardinality: [0..*]

Association (direction: Unspecified) inheritance

Role: superType - The more generic feature type from which this feature type is derived.
Role: subType - The more specific feature types which are derived from this feature type.

Source: Public subType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..*]

Target: Public superType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..1]

Association (direction: Unspecified) inheritance

Role: superType - The more generic feature type from which this feature type is derived.
Role: subType - The more specific feature types which are derived from this feature type.

Source: Public subType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..*]

Target: Public superType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..1]

1.4 S121_Limit

Class «FeatureType» in package 'S121_Feature'

Name: Limit
AlphaCode: MLBLIM
camelCaseCode: Limit
NumericCode:
Use Type: theme
Definition: The MLB_Limit object is an object that defines any limits or boundaries either relating to terrestrial, marine or both environments.
Permitted Primitives: P, L
References:
Remarks:

S121_Limit
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «FeatureType» S121_Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «HYDRO» Straight Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Inland Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Aggregation from «Geometry» S121_Curve to «FeatureType» S121_Limit
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

Realization from «MLB» Continental Shelf Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Normal Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Territorial Sea Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» International Boundary to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Contiguous Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) minus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) points

Source: Public location (Class) S121_Location «FeatureType»
Cardinality: [2..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) plus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

1.5 S121_Location

Class «FeatureType» in package 'S121_Feature'

Name: Location
AlphaCode: MLOCTN
camelCaseCode: Limit
NumericCode:
Use Type: theme
Definition: The Location object is an object that defines the underlying structure of location.
Permitted Primitives: P
Remarks: To portray a geodesic or loxodrome curve correctly, additional vertices may be included in the dataset. These are densified locations. These vertices would not have formed part of the original source information. The loctyp attribute can be used to differentiate between a defined vertex (e.g. declared in a treaty) with a vertex densified to ensure correct GIS depiction. A computed location is also not part of the original source information, but is calculated as the result of the original source guidance, such as the intersection between arcs, geodesics, or loxodromes. A construction vertex is any arbitrary position established to support computation.
References:

Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_Location to «featureType» LA_Point
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Location to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Limit Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

Aggregation from «Geometry» S121_Point to «FeatureType» S121_Location
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

Realization from «MLB» Baseline Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

Realization from «MLB» Boundary Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

ATTRIBUTES

interpolationRole : LA_InterpolationType Public

the role of point in the structure of a straight line or curve
[Is static False. Containment is Not Specified.]

pointType : S121_LocationType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Computational origin of the element (defined, densified, computed or construction)
[Is static False. Containment is Not Specified.]

transAndResult : LA _Transformation Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

transformation and transformed location
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) points

Source: Public location (Class) S121_Location «FeatureType»
Cardinality: [2..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

1.6 S121_Zone

Class «FeatureType» in package 'S121_Feature'

Name: Zone
AlphaCode: MZONE
camelCaseCode: Zone
NumericCode:
Use Type: theme
Definition: The Zone object is an object that defines an area which is logically delimited by instances of delineation (limit_boundary) objects.
Permitted Primitives: P,L,A
Remarks: Maritime, terrestrial or inter-tidal zone objects are the three real objects that inherit from this object.
References:

S121_Zone
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_Zone to «featureType» LA_SpatialUnit
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «MLB» The Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «MLB» Internal Waters to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «MLB» Disputed Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «HYDRO» Contiguous Zone to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «HYDRO» Continental Shelf Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Realization from «HYDRO» Territorial Sea Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Inland Waters to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Aggregation from «Geometry» S121_Surface to «FeatureType» S121_Zone
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

Realization from «MLB» High sea to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

area : LA_AreaValue Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

the area value
[Is static False. Containment is Not Specified.]

referencePoint : GM_Point Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

the coordinates of a point inside the spatial unit
[Is static False. Containment is Not Specified.]

surfaceRelation : LA_SurfaceRelationType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
[Is static False. Containment is Not Specified.]

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) minus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) plus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Class) S121_BAUnit

Target: Public (Class) S121_Zone «FeatureType»

ASSOCIATIONS

Association (direction: Unspecified) vertExtent

Source: Public space (Class) S121_Space «FeatureType»
Cardinality: [0..1]

Target: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

OPERATIONS

areaClosed () : Boolean Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

computeArea () : Area Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

createArea () : GM_MultiSurface Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.7 S121_Space

Class «FeatureType» in package 'S121_Feature'

Name: Space
AlphaCode: MSPACE
camelCaseCode: Space
NumericCode:
Use Type: theme
Definition: The Space object is an object that defines an volume which is logically delimited by instances of zone objects.
Permitted Primitives: P,L,A
Remarks: A Space is an objects of 2 dimensions with a height description located in 2 or 3 dimensional space. This is sometimes called 2 1/2 dimensions. A Space has the same geometry as a Zone with the attributes of vertical position. The vertical position may be explicit numerical attributes of height above a reference or a textual description.
References:

S121_Space
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_Space to «featureType» LA_SpatialUnit
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Space to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS

Aggregation from «Geometry» S121_Volume to «FeatureType» S121_Space
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

ATTRIBUTES

referencePoint : GM_Point Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

the coordinates of a point inside the spatial unit
[Is static False. Containment is Not Specified.]

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

volume : LA_VolumeValue Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

the volume value (in case of bounded 3D description)
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) vertExtent

Source: Public space (Class) S121_Space «FeatureType»
Cardinality: [0..1]

Target: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Class) S121_BAUnit

Target: Public (Class) S121_Space «FeatureType»

OPERATIONS

computeVolume () : Volume Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

createVolume () : GM_MultiSolid Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

volumeClosed () : Boolean Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.8 S121_FeatureUnit

Abstract «FeatureType» in package 'S121_Feature'

The Feature Unit is a feature type which derives from the S100 General Feture Model. The S121_FeatureUnit takes on spatial attributes through a relation to the S121_SpatialAttributeType. This is an abstract class. It is implemented through its subtypes S121_Location, S121_Limit, S121_Zone, S121_Space.

S121_FeatureUnit
Version Phase Proposed
CHS created on 03/11/2016. Last modified 27/11/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_FeatureUnit to S121_VersionedObject
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Internal Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Contiguous Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Baseline Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Inland Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Location to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Contiguous Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Territorial Sea Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Normal Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Straight Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Disputed Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Territorial Sea Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Aggregation from «FeatureAttribute» S121_SpatialAttributeType to «FeatureType» S121_FeatureUnit
[Direction is 'Unspecified'.]

Generalization from «MLB» Boundary Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» The Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Continental Shelf Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Inland Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» High sea to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Continental Shelf Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Space to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Limit Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» International Boundary to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

context : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
[Is static False. Containment is Not Specified.]

fuID : Oid Public

the spatial unit identifier
[Is static False. Containment is Not Specified.]

label : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
[Is static False. Containment is Not Specified.]

releasability : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

This attribute may be used to differentiate between "official", "development", "internal use" or "in construction" status for particular features. This may be a code list in the future.
[Is static False. Containment is Not Specified.]

type : S121_FeatureType Public
[Is static False. Containment is Not Specified.]

typeName : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

short textual description of the spatial unit
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) fuSource

Source: Public fu (Abstract) S121_FeatureUnit «FeatureType»
Cardinality: [0..*]

Target: Public source (Class) S121_Source
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Abstract) S121_FeatureUnit «FeatureType»
Cardinality: [0..*]

Target: Public (Class) S121_BAUnit
Cardinality: [1..*]

1.9 S121_LimitArcType

Class «CodeList» in package 'S121_Feature'

Definition: Category of computation used to define an arc (line). (Geodesic or Loxodrome).

S121_LimitArcType
Version 1 Phase Proposed
CHS created on 10/07/2015. Last modified 27/11/2016

ATTRIBUTES

geodesic : Public

A path of shortest distance along the surface of an ellipsoid, namely a segment of a great circle.
[Is static False. Containment is Not Specified.]

loxodrome : Public

An arc crossing all meridians of longitude at the same angle; a path with constant bearing.
[Is static False. Containment is Not Specified.]

1.10 S121_LocationType

Class «CodeList» in package 'S121_Feature'

Definition: Category of location types (defined, densified, computed or construction)

S121_LocationType
Version Phase Proposed
CHS created on 08/07/2015. Last modified 27/11/2016
Alias pointType

ATTRIBUTES

computed : Public

a point is computed in accordance with the definition described in the source through proper geodetic calculations; for example, the intersection of two arcs over an ellipsoidal surface. A point may be established to support construction computations.
[Is static False. Containment is Not Specified.]

construction : Public

point established to support construction computations.
[Is static False. Containment is Not Specified.]

defined : Public

a point is derived from a legislative document or other definitive source.
[Is static False. Containment is Not Specified.]

densified : Public

a point is part of a densification of the vertices in a line to ensure the geometry of a feature is correctly represented.
[Is static False. Containment is Not Specified.]

1.11 S121_VerticalDomainType

Class «CodeList» in package 'S121_Feature'

Definition: Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). The code list may be extended. Any particular object may span more than one jurisdiction domain, for example, an **inter-tidal space** may span the airspace and water column. The **Territorial Sea** spans all of the vertical domains; however, the **EEZ** is the water surface, water column, seabed surface and subsoil.

S121_VerticalDomainType
Version Phase Proposed
IHO S121 PT created on 17/03/2014. Last modified 27/11/2016

ATTRIBUTES

airspace : Public

The airspace is a space composed of air .

[Is static False. Containment is Not Specified.]

landSurface : Public

landSurface is the interface between earth and air.

[Is static False. Containment is Not Specified.]

seabedSurface : Public

seabedSurface is the interface between the submerged land and the ocean.
IHO S-32 defines the Sea Floor as " The BOTTOM of the OCEAN where there is a smooth and gentle GRADIENT... " The sea bed is inclusive of the sea floor and all submerged lands.

[Is static False. Containment is Not Specified.]

subsoil : Public

The subsoil is an area composed of earth (soil).

[Is static False. Containment is Not Specified.]

waterColumn : Public

The waterColumn is a space (volume) from the seabedSurface up to the waterSurface.

[Is static False. Containment is Not Specified.]

waterSurface : Public

The waterSurface is the interface between the airspace and waterColumn.

[Is static False. Containment is Not Specified.]

1.12 S121_LimitType

Class «CodeList» in package 'S121_Feature'

Definition: Category of limit types (boundary, limit or construction)

S121_LimitType
Version Phase Proposed
CHS created on 17/03/2014. Last modified 27/11/2016

ATTRIBUTES

boundary : Public

element delimiting an object administered by a more than one owner; typically two sovereign states (countries). If there are two political entities involved, the delineated is a boundary, and if there is only one the delineation is a limit.

[Is static False. Containment is Not Specified.]

internationalBoundary : Public

A type of boundary administered by two sovereign states (countries). This is a special case of boundary whose purpose is to allow the clear definition of critical sovereignty related elements.

[Is static False. Containment is Not Specified.]

limit : Public

element delimiting an object administered by a single owner; e.g. boundary of a management zone, that pertains to only one political entity, such as oil lease areas within a management zone for oil exploration. If there are two political entities involved, the delineation is a boundary, and if there is only one the delineation is a limit.

[Is static False. Containment is Not Specified.]

1.13S121 Feature Unit Attributes diagram

Class diagram in package 'S121 Feature Model'

S121 Feature Unit Attributes
Version
CHS created on 24/02/2016. Last modified 27/11/2016

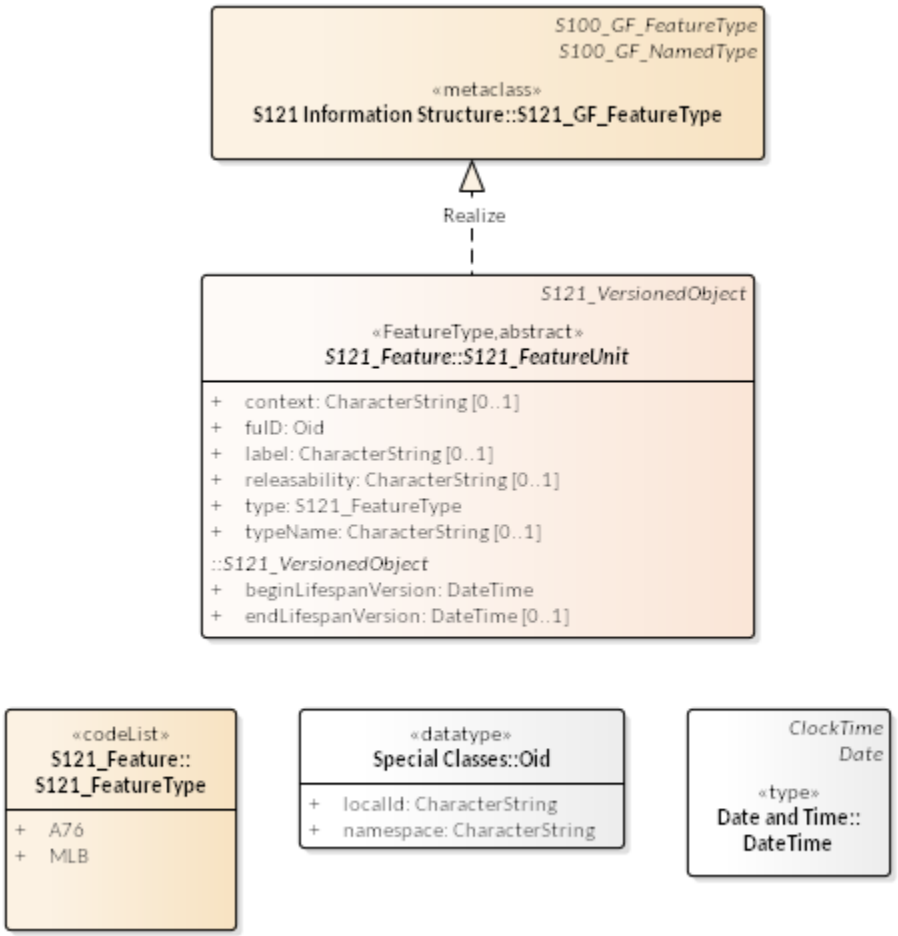

Figure 2: S121 Feature Unit Attributes

1.14S121_GF_FeatureType

Metaclass «metaclass» in package 'S121 Information Structure'

The class S121_GF_FeatureType is a specialization of S100_GF_FeatureType.

The class S100_GF_FeatureType is a realisation of the ISO 19109 class GF_FeatureType. It differs from the ISO class in the following ways:
1. It is a sub-type of the class S100_GF_NamedType;
2. It does not realise the Generalization and Specialization associations with the class GF_InheritanceRelation. Instead, the class has an association with itself with the roles subType and superType. GF_InheritanceRelation is not realised in the S-100 GFM;
3. The multiplicity of the superType is 0..1 to represent the concept that a feature may have a maximum of one superType. This is in order to prevent multiple-inheritance in S-100;
4. The multiplicity of the role carrierOfCharacteristics with S100_GF_PropertyType (the S-100 realisation of GF_PropertyType) is changed from 0..* to 1..*. An S-100 feature must have properties.

S121_GF_FeatureType
Version Phase Proposed
CHS created on 30/06/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

⇐ Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_FeatureType
[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «metaclass» S121_GF_FeatureType to «metaclass» S100_GF_NamedType
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from FeatureType Instance to «metaclass» S121_GF_FeatureType
[Name is Instance. Direction is 'Source -> Destination'.]

Aggregation from «metaclass» S121_GF_SpatialAttributeType to «metaclass» S121_GF_FeatureType
[Direction is 'Unspecified'.]

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

Aggregation from «metaclass» S121_GF_ThematicAttributeType to «metaclass» S121_GF_FeatureType
[Direction is 'Source -> Destination'.]

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

ASSOCIATIONS

Association (direction: Source -> Destination) Usage of registered definityon etc

Source: Public (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [1]

Target: Public (Class) S121_FC_FeatureType
Cardinality: [0..*]

Association (direction: Unspecified) inheritance

Role: superType - The more generic feature type from which this feature type is derived.
Role: subType - The more specific feature types which are derived from this feature type.

Source: Public subType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..*]

Target: Public superType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..1]

Association (direction: Unspecified) inheritance

Role: superType - The more generic feature type from which this feature type is derived.
Role: subType - The more specific feature types which are derived from this feature type.

Source: Public subType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..*]

Target: Public superType (Metaclass) S121_GF_FeatureType «metaclass»
Cardinality: [0..1]

1.15S121_FeatureUnit

Abstract «FeatureType» in package 'S121_Feature'

The Feature Unit is a feature type which derives from the S100 General Feture Model. The S121_FeatureUnit takes on spatial attributes through a relation to the S121_SpatialAttributeType. This is an abstract class. It is implemented through its subtypes S121_Location, S121_Limit, S121_Zone, S121_Space.

S121_FeatureUnit
Version Phase Proposed
CHS created on 03/11/2016. Last modified 27/11/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_FeatureUnit to «metaclass» S121_GF_FeatureType
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_FeatureUnit to S121_VersionedObject
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Internal Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Contiguous Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Baseline Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Inland Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Location to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Contiguous Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Territorial Sea Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Normal Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Generalization from «HYDRO» Straight Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Disputed Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Territorial Sea Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Aggregation from «FeatureAttribute» S121_SpatialAttributeType to «FeatureType» S121_FeatureUnit
[Direction is 'Unspecified'.]

Generalization from «MLB» Boundary Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» The Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Continental Shelf Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Inland Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» High sea to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Continental Shelf Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Space to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Limit Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» International Boundary to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

ATTRIBUTES

context : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
[Is static False. Containment is Not Specified.]

fuID : Oid Public

the spatial unit identifier
[Is static False. Containment is Not Specified.]

label : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
[Is static False. Containment is Not Specified.]

releasability : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

This attribute may be used to differentiate between "official", "development", "internal use" or "in construction" status for particular features. This may be a code list in the future.
[Is static False. Containment is Not Specified.]

type : S121_FeatureType Public
[Is static False. Containment is Not Specified.]

typeName : CharacterString Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

short textual description of the spatial unit
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) fuSource

Source: Public fu (Abstract) S121_FeatureUnit «FeatureType»
Cardinality: [0..*]
Target: Public source (Class) S121_Source
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Abstract) S121_FeatureUnit «FeatureType»
Cardinality: [0..*]
Target: Public (Class) S121_BAUnit
Cardinality: [1..*]

1.16 S121_FeatureType

Class «codeList» in package 'S121_Feature'

This code list includes types that have a common characteristic related to the marine environment. The code list is registered in the Feature Concept Dictionary as listed values and as such can be expanded to include all aspects of the legal context. The initial contents are: **MLB** (Marine Limits and Boundaries), and **A76** (UNCLOS article 76). This code list can be extended.

S121_FeatureType

Version 1.0 Phase 1.0 Proposed
created on 21/02/2016. Last modified 27/11/2016

ATTRIBUTES
A76 : Public UNCLOS article 76 [Is static False. Containment is Not Specified.]
MLB : Public Marine Limits and Boundaries [Is static False. Containment is Not Specified.]

1.17 MLB_Objects

Package in package 'S121 Feature Model'

MLB_Objects
Version 1 Phase Proposed
CHS created on 11/03/2014. Last modified 19/08/2015

1.17.1 S121 MLB Features diagram

Class diagram in package 'MLB_Objects'

A set of predefined objects have been established that include the normal objects required for Marine Limits and Boundaries. The stereotype <FeatureType> is used to identify the defining objects. The stereotype <MLB> (Maritime Limits and Boundaries) is used to identify the MLB Feature Types.
Figure F2 illustrates the relationship of the feature types to the defining objects. The realize relation is used because the feature types do not directly carry the defining attributes. The information contained in the defining attributes is included in the Feature Catalogue for each feature as applicable.

S121 MLB Features
Version
S121 PT created on 10/07/2015. Last modified 27/11/2016

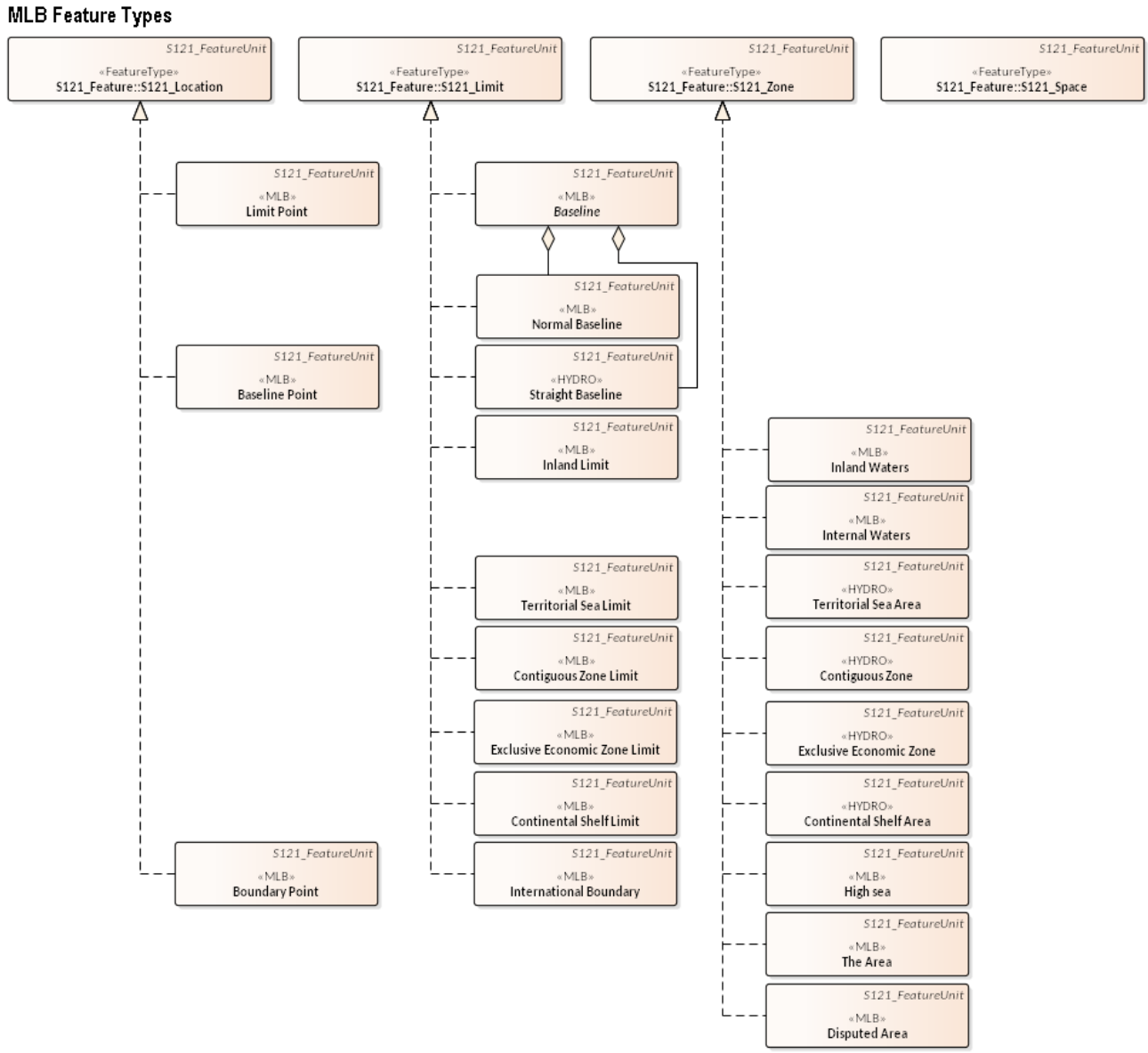

Figure 3: S121 MLB Features

1.17.2 S121_Limit

Class «FeatureType» in package 'S121_Feature'

Name: Limit
AlphaCode: MLBLIM
camelCaseCode: Limit
NumericCode:
Use Type: theme
Definition: The MLB_Limit object is an object that defines any limits or boundaries either relating to terrestrial, marine or both environments.
Permitted Primitives: P, L
References:
Remarks:

S121_Limit
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «FeatureType» S121_Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «HYDRO» Straight Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Inland Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Aggregation from «Geometry» S121_Curve to «FeatureType» S121_Limit
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

Realization from «MLB» Continental Shelf Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Normal Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Territorial Sea Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» International Boundary to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Contiguous Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) minus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) points

Source: Public location (Class) S121_Location «FeatureType»
Cardinality: [2..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) plus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

1.17.3 S121_Location

Class «FeatureType» in package 'S121_Feature'

Name: Location
AlphaCode: MLOCTN
camelCaseCode: Limit
NumericCode:
Use Type: theme
Definition: The Location object is an object that defines the underlying structure of location.
Permitted Primitives: P
Remarks: To portray a geodesic or loxodrome curve correctly, additional vertices may be included in the dataset. These are densified locations. These vertices would not have formed part of the original source information. The loctyp attribute can be used to differentiate between a defined vertex (e.g. declared in a treaty) with a vertex densified to ensure correct GIS depiction. A computed location is also not part of the original source information, but is calculated as the result of the original source guidance, such as the intersection between arcs, geodesics, or loxodromes. A construction vertex is any arbitrary position established to support computation.
References:

S121_Location
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «FeatureType» S121_Location to «featureType» LA_Point
[Name is Realize. Direction is 'Source -> Destination'.]

Generalization from «FeatureType» S121_Location to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Limit Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

Aggregation from «Geometry» S121_Point to «FeatureType» S121_Location
[Name is SpatialAttribute. Direction is 'Source -> Destination'.]

Realization from «MLB» Baseline Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

Realization from «MLB» Boundary Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

ATTRIBUTES

interpolationRole : LA_InterpolationType Public

the role of point in the structure of a straight line or curve
[Is static False. Containment is Not Specified.]

pointType : S121_LocationType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Computational origin of the element (defined, densified, computed or construction)
[Is static False. Containment is Not Specified.]

transAndResult : LA _Transformation Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

transformation and transformed location
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) points

Source: Public location (Class) S121_Location «FeatureType»
Cardinality: [2..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

1.17.4 S121_Zone

Class «FeatureType» in package 'S121_Feature'

Name: Zone
AlphaCode: MZONE
camelCaseCode: Zone
NumericCode:
Use Type: theme
Definition: The Zone object is an object that defines an area which is logically delimited by instances of delineation (limit_boundary) objects.

Permitted Primitives: P,L,A
Remarks: Maritime, terrestrial or inter-tidal zone objects are the three real objects that inherit from this object.
References:

S121_Zone
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS

- Realization from «FeatureType» S121_Zone to «featureType» LA_SpatialUnit
  [Name is Realize. Direction is 'Source -> Destination'.]
- Generalization from «FeatureType» S121_Zone to «FeatureType» S121_FeatureUnit
  [Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

- Realization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «MLB» The Area to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «MLB» Internal Waters to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «MLB» Disputed Area to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «HYDRO» Contiguous Zone to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «HYDRO» Continental Shelf Area to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «HYDRO» Territorial Sea Area to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Realization from «MLB» Inland Waters to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]
- Aggregation from «Geometry» S121_Surface to «FeatureType» S121_Zone
  [Name is SpatialAttribute. Direction is 'Source -> Destination'.]
- Realization from «MLB» High sea to «FeatureType» S121_Zone
  [Direction is 'Source -> Destination'.]

ATTRIBUTES

ATTRIBUTES

area : LA_AreaValue Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

the area value

[Is static False. Containment is Not Specified.]

referencePoint : GM_Point Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

the coordinates of a point inside the spatial unit

[Is static False. Containment is Not Specified.]

surfaceRelation : LA_SurfaceRelationType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static False. Containment is Not Specified.]

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.

[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) minus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified) plus

Source: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Target: Public limit (Class) S121_Limit «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Class) S121_BAUnit

Target: Public (Class) S121_Zone «FeatureType»

Association (direction: Unspecified) vertExtent

Source: Public space (Class) S121_Space «FeatureType»
Cardinality: [0..1]

Target: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

OPERATIONS

areaClosed () : Boolean Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

computeArea () : Area Public

OPERATIONS
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
createArea () : GM_MultiSurface Public [Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.17.5 S121_Space

Class «FeatureType» in package 'S121_Feature'

Name: Space
AlphaCode: MSPACE
camelCaseCode: Space
NumericCode:
Use Type: theme
Definition: The Space object is an object that defines an volume which is logically delimited by instances of zone objects.
Permitted Primitives: P,L,A
Remarks: A Space is an objects of 2 dimensions with a height description located in 2 or 3 dimensional space. This is sometimes called 2 1/2 dimensions. A Space has the same geometry as a Zone with the attributes of vertical position. The vertical position may be explicit numerical attributes of height above a reference or a textual description.
References:

S121_Space
Version Phase Proposed
S-121 PT created on 26/03/2015. Last modified 01/12/2016

OUTGOING STRUCTURAL RELATIONSHIPS
Realization from «FeatureType» S121_Space to «featureType» LA_SpatialUnit [Name is Realize. Direction is 'Source -> Destination'.]
Generalization from «FeatureType» S121_Space to «FeatureType» S121_FeatureUnit [Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS
Aggregation from «Geometry» S121_Volume to «FeatureType» S121_Space [Name is SpatialAttribute. Direction is 'Source -> Destination'.]

ATTRIBUTES
referencePoint : GM_Point Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) the coordinates of a point inside the spatial unit [Is static False. Containment is Not Specified.]
verdom : S121_VerticalDomainType Public Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False) **Definition**: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface,

ATTRIBUTES

water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

volume : LA_VolumeValue Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

the volume value (in case of bounded 3D description)
[Is static False. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Unspecified) vertExtent

Source: Public space (Class) S121_Space «FeatureType»
Cardinality: [0..1]

Target: Public zone (Class) S121_Zone «FeatureType»
Cardinality: [0..*]

Association (direction: Unspecified)

Source: Public (Class) S121_BAUnit

Target: Public (Class) S121_Space «FeatureType»

OPERATIONS

computeVolume () : Volume Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

createVolume () : GM_MultiSolid Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

volumeClosed () : Boolean Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.17.6 S121 MLB Location Objects and Attributes diagram

Class diagram in package 'MLB_Objects'

S121 MLB Location Objects and Attributes
Version
CHS created on 27/07/2015. Last modified 27/11/2016

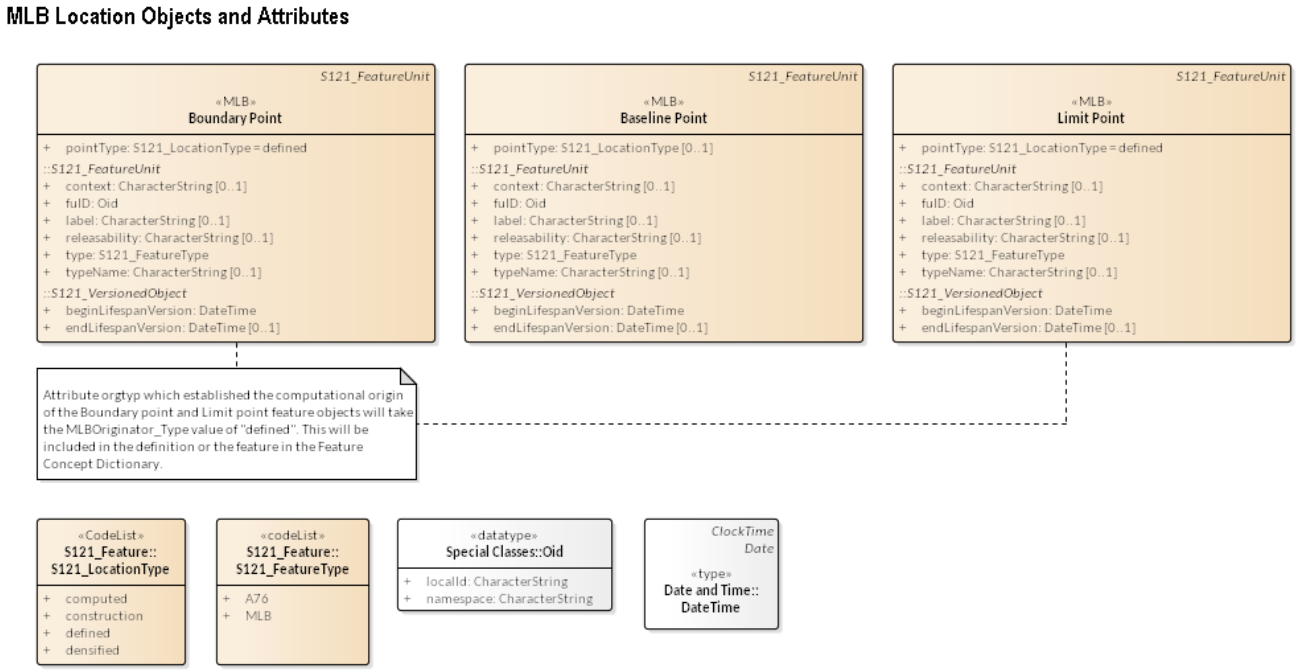

Figure 4: S121 MLB Location Objects and Attributes

1.17.7 S121_FeatureType

Class «codeList» in package 'S121_Feature'

This code list includes types that have a common characteristic related to the marine environment. The code list is registered in the Feature Concept Dictionary as listed values and as such can be expanded to include all aspects of the legal context. The initial contents are: **MLB** (Marine Limits and Boundaries), and **A76** (UNCLOS article 76). This code list can be extended.

S121_FeatureType
Version 1.0 Phase 1.0 Proposed
created on 21/02/2016. Last modified 27/11/2016

ATTRIBUTES
A76 : Public UNCLOS article 76 [Is static False. Containment is Not Specified.]
MLB : Public Marine Limits and Boundaries [Is static False. Containment is Not Specified.]

1.17.8 S121_LocationType

Class «CodeList» in package 'S121_Feature'

Definition: Category of location types (defined, densified, computed or construction)

S121_LocationType

Version Phase Proposed
CHS created on 08/07/2015. Last modified 27/11/2016
Alias pointType

ATTRIBUTES
computed : Public a point is computed in accordance with the definition described in the source through proper geodetic calculations; for example, the intersection of two arcs over an ellipsoidal surface. A point may be established to support construction computations. [Is static False. Containment is Not Specified.]
construction : Public point established to support construction computations. [Is static False. Containment is Not Specified.]
defined : Public a point is derived from a legislative document or other definitive source. [Is static False. Containment is Not Specified.]
densified : Public a point is part of a densification of the vertices in a line to ensure the geometry of a feature is correctly represented. [Is static False. Containment is Not Specified.]

1.17.9 S121 MLB Limit Objects and Attributes diagram

Class diagram in package 'MLB_Objects'

S121 MLB Limit Objects and Attributes
Version
CHS created on 27/07/2015. Last modified 27/11/2016

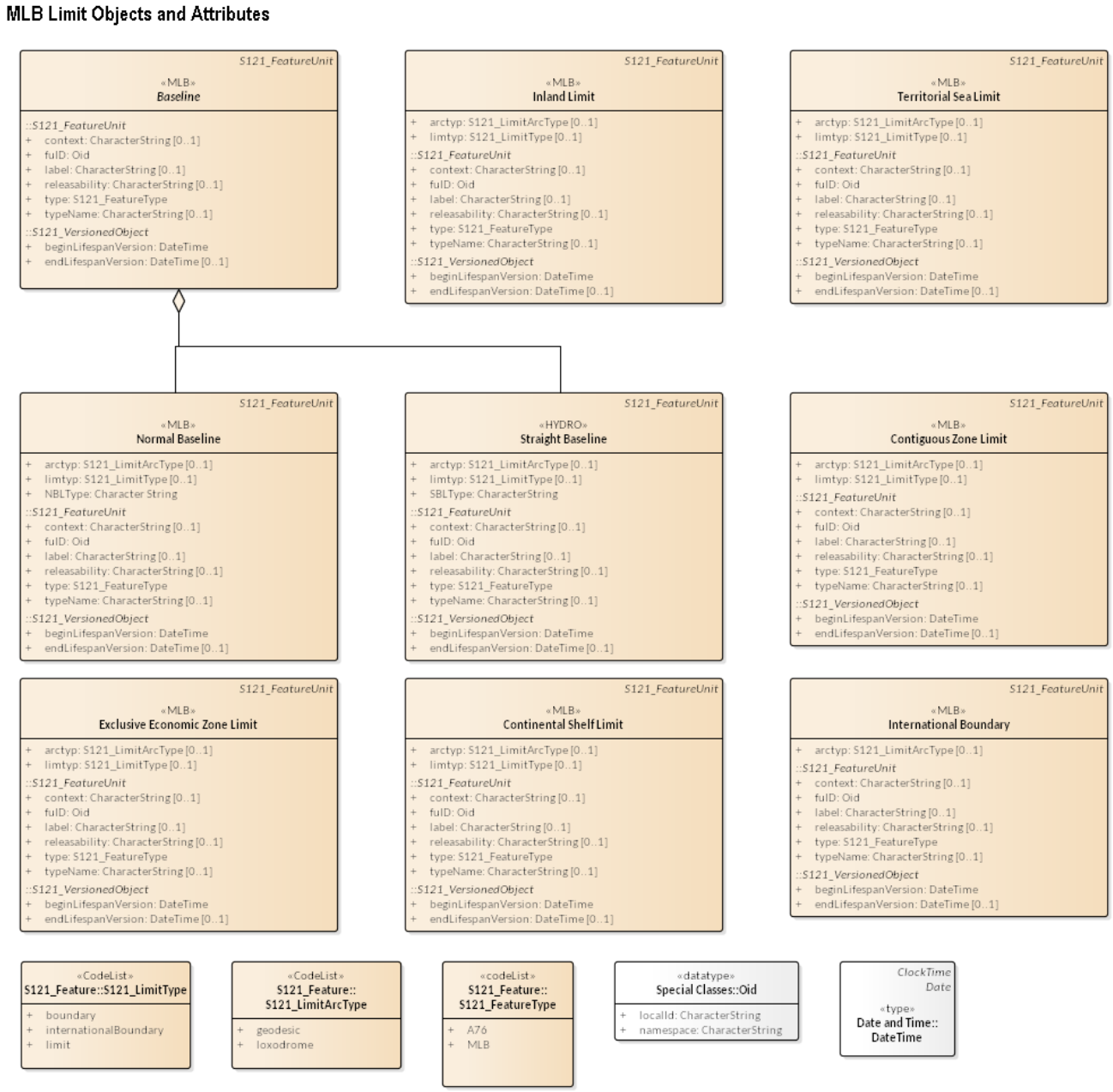

Figure 5: S121 MLB Limit Objects and Attributes

1.17.10 S121_FeatureType

Class «codeList» in package 'S121_Feature'

This code list includes types that have a common characteristic related to the marine environment. The code list is registered in the Feature Concept Dictionary as listed values and as such can be expanded to include all aspects of the legal context. The initial contents are: **MLB** (Marine Limits and Boundaries), and **A76** (UNCLOS article 76). This code list can be extended.

S121_FeatureType
Version 1.0 Phase 1.0 Proposed
created on 21/02/2016. Last modified 27/11/2016

ATTRIBUTES
A76 : Public

ATTRIBUTES

UNCLOS article 76

[Is static False. Containment is Not Specified.]

MLB : Public

Marine Limits and Boundaries

[Is static False. Containment is Not Specified.]

1.17.11 S121_LimitArcType

Class «CodeList» in package 'S121_Feature'

Definition: Category of computation used to define an arc (line). (Geodesic or Loxodrome).

S121_LimitArcType
Version 1 Phase Proposed
CHS created on 10/07/2015. Last modified 27/11/2016

ATTRIBUTES

geodesic : Public

A path of shortest distance along the surface of an ellipsoid, namely a segment of a great circle.

[Is static False. Containment is Not Specified.]

loxodrome : Public

An arc crossing all meridians of longitude at the same angle; a path with constant bearing.

[Is static False. Containment is Not Specified.]

1.17.12 S121_LimitType

Class «CodeList» in package 'S121_Feature'

Definition: Category of limit types (boundary, limit or construction)

S121_LimitType
Version Phase Proposed
CHS created on 17/03/2014. Last modified 27/11/2016

ATTRIBUTES

boundary : Public

element delimiting an object administered by a more than one owner; typically two sovereign states (countries). If there are two political entities involved, the delineated is a boundary, and if there is only one the delineation is a limit.

[Is static False. Containment is Not Specified.]

internationalBoundary : Public

ATTRIBUTES

A type of boundary administered by two sovereign states (countries). This is a special case of boundary whose purpose is to allow the clear definition of critical sovereignty related elements.

[Is static False. Containment is Not Specified.]

limit : Public

element delimiting an object administered by a single owner; e.g. boundary of a management zone, that pertains to only one political entity, such as oil lease areas within a management zone for oil exploration. If there are two political entities involved, the delineation is a boundary, and if there is only one the delineation is a limit.

[Is static False. Containment is Not Specified.]

1.17.13 S121 MLB Zone Objects and Attributes diagram

Class diagram in package 'MLB_Objects'

S121 MLB Zone Objects and Attributes
Version
CHS created on 27/07/2015. Last modified 27/11/2016

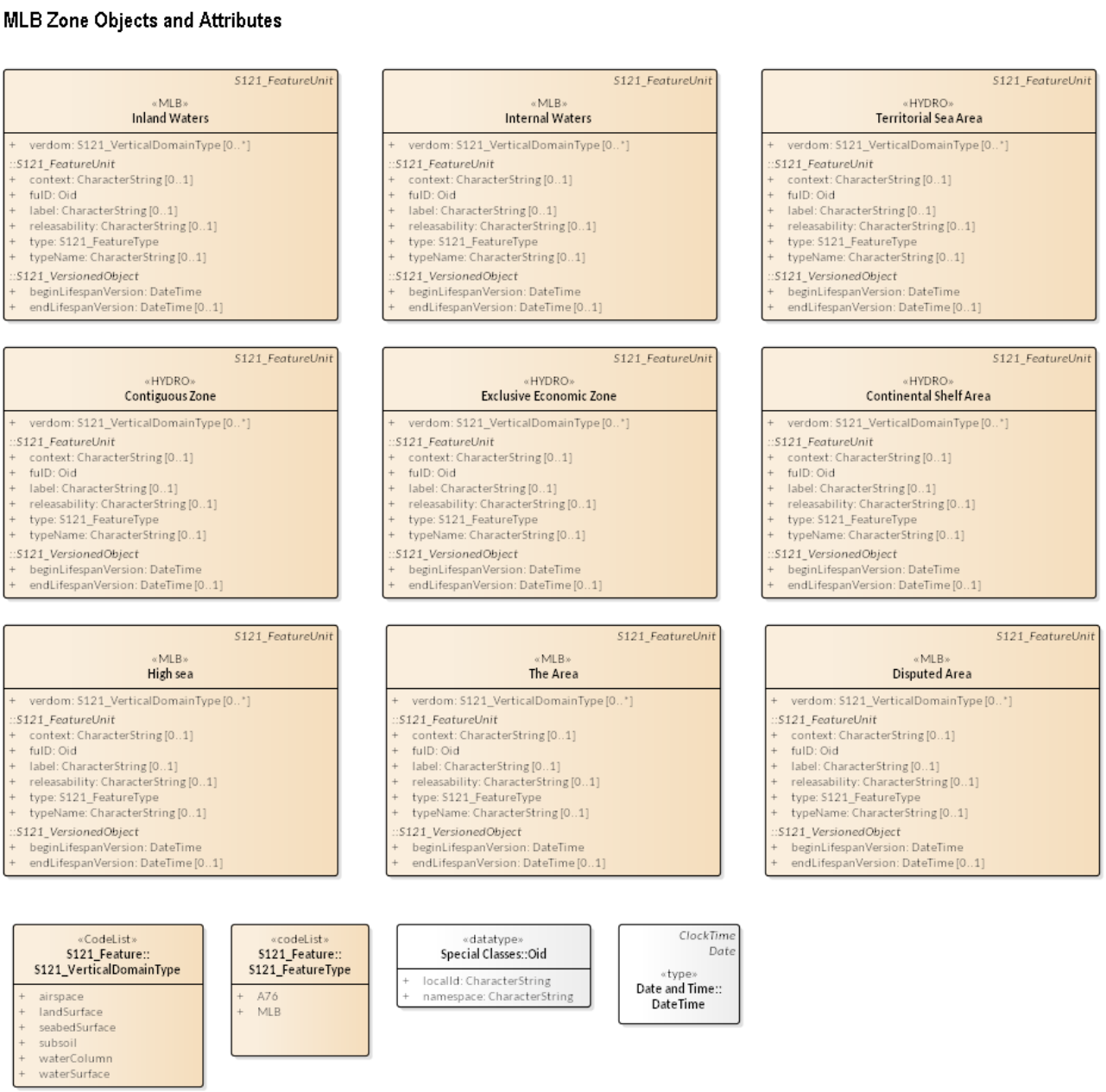

Figure 6: S121 MLB Zone Objects and Attributes

1.17.14 S121_FeatureType

Class «codeList» in package 'S121_Feature'

This code list includes types that have a common characteristic related to the marine environment. The code list is registered in the Feature Concept Dictionary as listed values and as such can be expanded to include all aspects of the legal context. The initial contents are: **MLB** (Marine Limits and Boundaries), and **A76** (UNCLOS article 76). This code list can be extended.

S121_FeatureType
Version 1.0 Phase 1.0 Proposed
created on 21/02/2016. Last modified 27/11/2016

ATTRIBUTES
A76 : Public

ATTRIBUTES
UNCLOS article 76 [Is static False. Containment is Not Specified.]
MLB : Public Marine Limits and Boundaries [Is static False. Containment is Not Specified.]

1.17.15 S121_VerticalDomainType

Class «CodeList» in package 'S121_Feature'

Definition: Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). The code list may be extended. Any particular object may span more than one jurisdiction domain, for example, an **inter-tidal space** may span the airspace and water column. The **Territorial Sea** spans all of the vertical domains; however, the **EEZ** is the water surface, water column, seabed surface and subsoil.

S121_VerticalDomainType
Version Phase Proposed
IHO S121 PT created on 17/03/2014. Last modified 27/11/2016

ATTRIBUTES
airspace : Public The airspace is a space composed of air . [Is static False. Containment is Not Specified.]
landSurface : Public landSurface is the interface between earth and air. [Is static False. Containment is Not Specified.]
seabedSurface : Public seabedSurface is the interface between the submerged land and the ocean. IHO S-32 defines the Sea Floor as " The BOTTOM of the OCEAN where there is a smooth and gentle GRADIENT... " The sea bed is inclusive of the sea floor and all submerged lands. [Is static False. Containment is Not Specified.]
subsoil : Public The subsoil is an area composed of earth (soil). [Is static False. Containment is Not Specified.]
waterColumn : Public The waterColumn is a space (volume) from the seabedSurface up to the waterSurface. [Is static False. Containment is Not Specified.]
waterSurface : Public The waterSurface is the interface between the airspace and waterColumn.

ATTRIBUTES

[Is static False. Containment is Not Specified.]

1.17.16 Disputed Area

Class «MLB» in package 'MLB_Objects'

Name: Disputed Area
AlphaCode: DISARE
camelCaseCode: DisputedArea
Numeric Code:
Use Type: theme
Definition: An area of disputed jurisdiction.
Permitted Primitives: A
Remarks: A disputed area can be any type of zone. The limit of the zone would correspond to the type of limit that would apply if the zone was not disputed.
Distinction:
References:

Disputed Area
Version Phase Proposed
S-121 PT created on 10/07/2015. Last modified 01/12/2016
Alias DISARE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Disputed Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Disputed Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.17 Baseline Point

Class «MLB» in package 'MLB_Objects'

Name: Baseline Point
AlphaCode: BASEPT
camelCaseCode: BaselinePoint

Numeric Code:
Use Type: theme
Definition: A Baseline Point is part of the territorial sea baseline model or of an archipelagic baseline. It can be used in a normal baseline, straight baseline, archipelagic, bay closing, river mouth closing, historic bay closing or delta or dynamic coastal environment baseline.
Permitted Primitives: P
Remarks: This can be any point that makes up a baseline.
References:

Baseline Point
Version Phase Proposed
S-121 PT created on 10/07/2015. Last modified 01/12/2016
Alias BASEPT
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Baseline Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Baseline Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

ATTRIBUTES

pointType : S121_LocationType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Computational origin of the element (defined, densified, computed or construction)
[Is static False. Containment is Not Specified.]

1.17.18 Contiguous Zone

Class «HYDRO» in package 'MLB_Objects'

Name: Contiguous Zone
AlphaCode: CONZNE
camelCaseCode: ContiguousZone
NumericCode: 31
Use Type: geo, theme
Definition: A zone contiguous to a coastal State's territorial sea, which may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured. (IHO Dictionary, S-32, 5th Edition, 993)
Permitted Primitives: A
Remarks: The coastal state may exercise certain control in this zone subject to the provisions of International Law. A contiguous zone is a zone that is bounded by the TESLIM (Territorial Sea limit), the CONLIM and or other limit objects such as an international boundary.
Distinction: ADMARE, COSARE, EXEZNE, FSHZNE, TESARE
References:
INT 1: IN 44;
M-4: 440.6;

Contiguous Zone
Version Phase Proposed
TSMAD created on 09/07/2015. Last modified 01/12/2016

Alias CONZNE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «HYDRO» Contiguous Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «HYDRO» Contiguous Zone to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.19 Contiguous Zone Limit

Class «MLB» in package 'MLB_Objects'

Name: Contiguous Zone Limit
AlphaCode: CONLIM
camelCaseCode: ContiguousZoneLimit
NumericCode:
Use Type: theme
Definition: This object is used to express the outer limit of the State's Contiguous Zone.
Permitted Primitives: L
Remarks:
Distinction:
References:

Contiguous Zone Limit
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias CONLIM
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Contiguous Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Contiguous Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

ATTRIBUTES

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

1.17.20 Continental Shelf Limit

Class «MLB» in package 'MLB_Objects'

Name: Continental Shelf Limit
Alias: Extended Continental Shelf Limit
AlphaCode: COSLIM
camelCaseCode: ContinentalShelfLimit
NumericCode:
Use Type: theme
Definition: The outer limit of the State's Continental Shelf.
Permitted Primitives: L
Remarks:
Distinction:
References:

Continental Shelf Limit
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias Extended Continental Shelf Limit
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Continental Shelf Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Continental Shelf Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

ATTRIBUTES

1.17.21 Continental Shelf Area

Class «HYDRO» in package 'MLB_Objects'

Name: Continental Shelf Area
AlphaCode: COSARE
camelCaseCode: ContinentalShelfArea
NumericCode: 32
Use Type: geo, theme
Definition:The continental shelf of a coastal State comprises the sea bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend out to that distance.
Permitted Primitives: A
Remarks: The Continental Shelf Area is a zone that is bounded by the EEZ and the COSLIM and / or other limit objects such as an international boundary.
Distinction: ADMARE, CONZNE, EXEZNE, FSHZNE, TESARE
References:
INT 1: N 46;
S-4: 440.8;

Continental Shelf Area
Version Phase Proposed
TSMAD created on 02/12/2015. Last modified 01/12/2016
Alias COSARE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS
Realization from «HYDRO» Continental Shelf Area to «FeatureType» S121_Zone [Direction is 'Source -> Destination'.]
Generalization from «HYDRO» Continental Shelf Area to «FeatureType» S121_FeatureUnit [Direction is 'Source -> Destination'.]

ATTRIBUTES
verdom : S121_VerticalDomainType Public Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False) **Definition**: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain. [Is static False. Containment is Not Specified.]

1.17.22 Exclusive Economic Zone

Class «HYDRO» in package 'MLB_Objects'

Name: Exclusive Economic Zone
AlphaCode: EXEZNE

camelCaseCode: ExclusiveEconomicZone
NumericCode: 50
Use Type: geo, theme
Definition:An area, not exceeding 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, subject to a specific legal regime established in the United Nations Convention on the Law of the Sea under which the coastal state has certain rights and jurisdiction. (IHO Dictionary, S-32, 5th Edition, 1723)
Permitted Primitives: A
Remarks: The Exclusive Economic Zone is a zone that is bounded by the TESLIM (Territorial Sea limit), EEZLIM or other limit objects such as an international boundary.
Distinction: ADMARE, CONZNE, COSARE, FSHZNE, TESARE
References:
INT 1: IN 47;
M-4: 440.9;

Exclusive Economic Zone
Version Phase Proposed
TSMAD created on 09/07/2015. Last modified 01/12/2016
Alias EXEZNE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Exclusive Economic Zone to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.23 Exclusive Economic Zone Limit

Class «MLB» in package 'MLB_Objects'

Name: Exclusive Economic Zone Limit
AlphaCode: EEZLIM
camelCaseCode: ExclusiveEconomicZoneLimit
NumericCode:
Use Type: theme
Definition: The outer limit of the State's exclusive economic zone.
Permitted Primitives: L
Remarks:
Distinction:
References:

Exclusive Economic Zone Limit
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016

Alias EEZLIM
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Exclusive Economic Zone Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

1.17.24 High sea

Class «MLB» in package 'MLB_Objects'

Name: High Sea
AlphaCode: HIGHSE
camelCaseCode: HighSea
NumericCode:
Use Type: theme
Definition: A zone that consists of the open ocean, not part of the exclusive economic zone, territorial sea or internal waters of any state. A term of international and maritime law per UNCLOS article 86.
Permitted Primitives: A
Remarks:
Distinction: ADMARE, CONZNE, COSARE, FSHZNE, TESARE, EXEZNE, SBAREA, ECSZNE
References: UNCLOS Part 7

High sea
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias HIGHSE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» High sea to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» High sea to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.25 Inland Limit

Class «MLB» in package 'MLB_Objects'

Name: Inland Limit
Geometry: L
AlphaCode: INLLIM
camelCaseCode: InlandLimit
NumericCode:
Use Type: theme
Definition: Inland limit is a segment of line used to delineate the outer limit of inland waters. It is a boundary between internal waters and inland waters.
Permitted Primitives: L
Remarks: .
Distinction:
References:

Inland Limit
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias INLLIM
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Inland Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» Inland Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

ATTRIBUTES

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

1.17.26 Inland Waters

Class «MLB» in package 'MLB_Objects'

Name: Inland Waters
AlphaCode: INLWTR
camelCaseCode: InlandlWaters
NumericCode:
Use Type: theme
Definition: An area describing waters found on the landward side of the Inland Waters limits
Permitted Primitives: A
Remarks: Synonymous with the EU Inspire Administrative Hierarchy Level
Distinction: INTWTR
References:

Inland Waters
Version Phase Proposed
S121 PT created on 09/07/2015. Last modified 01/12/2016
Alias INLWTR
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Inland Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Inland Waters to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.27 Internal Waters

Class «MLB» in package 'MLB_Objects'

Name: Internal Waters
AlphaCode: INTWTR
camelCaseCode: InternalWaters

NumericCode:
Use Type: theme
Definition:Waters on the landward side of the baseline of the territorial sea and landlocked waters within the State (IHO Dictionary, S-32, 5th Edition, 2484) (For legal definition see UNCLOS Article 8)
Permitted Primitives: L, A
Remarks: A zone that is bounded by the inland water, the land area and the territorial sea. (For legal definition see UNCLOS Article 8).
Distinction: INLWTR
References:

Internal Waters
Version Phase Proposed
S121 PT created on 09/07/2015. Last modified 01/12/2016
Alias INTWTR
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Internal Waters to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Internal Waters to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.28 International Boundary

Class «MLB» in package 'MLB_Objects'

Name: International Boundary
Geometry: L
AlphaCode: INTBND
camelCaseCode: InternationalBoundary
NumericCode:
Use Type: theme
Definition: International Boundary is a boundary object between sovereign states. This object can be either unilaterally defined or be the result of an international treaty or other agreement. Specific attributes can be assigned to this object to describe its role.
Permitted Primitives: L
Remarks: Specific vertical domains can be assigned to this object to describe its role.
References:

International Boundary
Version Phase Proposed
S-121 PT created on 10/07/2015. Last modified 01/12/2016

Alias INTBDY
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» International Boundary to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Generalization from «MLB» International Boundary to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

1.17.29 Normal Baseline

Class «MLB» in package 'MLB_Objects'

Name: Normal Baseline
AlphaCode: NORBLN
camelCaseCode: NormalBaseline
NumericCode:
Use Type: theme
Definition: A normal baseline is part of the territorial sea baseline model.
Permitted Primitives: L
Remarks: It is formed of the normal baseline points collected on low water elevations, drying rocks or on the coastline.
Distinction:
References:

Normal Baseline
Version Phase Proposed
S121 PT created on 09/07/2015. Last modified 01/12/2016
Alias NORBLN
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Normal Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Normal Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Aggregation from «MLB» Normal Baseline to «MLB» Baseline
[Direction is 'Source -> Destination'.]

ATTRIBUTES

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

NBLType : Character String Public

NBLType code list:
-Normal
-Low Tide Elevation
[Is static False. Containment is Not Specified.]

1.17.30 Straight Baseline

Class «HYDRO» in package 'MLB_Objects'

Name: Straight Baseline
AlphaCode: STSLNE
camelCaseCode: StraightBaseline
Use Type: geo, theme
NumericCode: 132
Definition:A baseline is the line from which the outer limits of the territorial sea and certain other outer limits are measured. (IHO Dictionary, S-32, 5th Edition, 390)
Straight baselines are a system of straight lines joining specified or discrete points on the low-water line, usually known as straight baseline turning points. (IHO Dictionary, S-32, 5th Edition, 393)
Permitted Primitives: L
Remarks: A straight line used in place of the normal baseline. Types of straight baseline are: straight, archipelagic, bay closing, river mouth closing, historic bay closing.
Distinction:
References:
INT 1: IN 42;
M-4: 440.4;

Straight Baseline
Version Phase Proposed
TSMAD created on 09/07/2015. Last modified 01/12/2016
Alias STSLNE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Aggregation from «HYDRO» Straight Baseline to «MLB» Baseline
[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «HYDRO» Straight Baseline to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

Generalization from «HYDRO» Straight Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

SBLType : CharacterString Public

Straight Baseline Type from the code list:
-Straight Baseline
-Archipelagic Baseline
-Delta Baseline
-Unstable coast Baseline
-Historic Bay Closing
-River Closing
-Historic Waters (CA)
[Is static False. Containment is Not Specified.]

1.17.31 Territorial Sea Area

Class «HYDRO» in package 'MLB_Objects'

Name: Territorial Sea Area
AlphaCode: TESARE
camelCaseCode: TerritorialSeaArea
NumericCode: 135
Use Type: geo, theme
Definition:The territorial sea is a belt of water of a defined breadth but not exceeding 12 nautical miles measured seaward from the territorial sea baseline. (IHO Dictionary, S-32, 5th Edition, 5360)
Permitted Primitives: A
Remarks: TESARE is a zone that is bounded by the TESLIM (Territorial Sea outer limit), the baseline BASELN and or other limit objects such as an international boundary.
Distinction: ADMARE, CONZNE, COSARE, EXEZNE, FSHZNE, RESARE
References:
INT 1: IN 43;
M-4: 440.5;

Version Phase Proposed
TSMAD created on 09/07/2015. Last modified 01/12/2016
Alias TESARE
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «HYDRO» Territorial Sea Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «HYDRO» Territorial Sea Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

1.17.32 Territorial Sea Limit

Class «MLB» in package 'MLB_Objects'

Name: Territorial Sea Limit
AlphaCode: TESLIM
camelCaseCode: TerritorialSeaLimit
NumericCode:
Use Type: theme
Definition: This object is used to express the outer limit of the State's territorial sea.
Permitted Primitives: L
Remarks: TESLIM is used to express the outer extent of TESARE. TESARE is a zone that is bounded by the TESLIM (Territorial Sea limit), the baseline BASELN and or other limit objects such as an international boundary.
Distinction:
References:

Territorial Sea Limit
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias TESLIM
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Territorial Sea Limit to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Territorial Sea Limit to «FeatureType» S121_Limit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

arctyp : S121_LimitArcType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of computation used to define an arc (line). (Geodesic or loxodrome).
[Is static False. Containment is Not Specified.]

limtyp : S121_LimitType Public
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

Definition: Type of delineation (Boundary, Limit or Construction).
[Is static False. Containment is Not Specified.]

1.17.33 The Area

Class «MLB» in package 'MLB_Objects'

Name: The Area
AlphaCode: ISAREA
camelCaseCode: TheArea
NumericCode:
Use Type: theme
Definition: The area of the seabed not under the jurisdiction of any state. This area lies beyond the extension of the continental shelf awarded to coastal States under Article 76 of UNCLOS.
Permitted Primitives: A
Remarks: In the United Nations Law of the Sea terminology, the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction. (IHO Hydrographic Dictionary, S-32, 5th Edition, 227) (For legal definition see UNCLOS Part XI). The Area is a zone that is bounded by the states sovereign extent which may be the extended continental shelf or the Exclusive Economic Zone.
Distinction: ADMARE, CONZNE, COSARE, FSHZNE, TESARE, EXEZNE, HIGHSE
References:

The Area
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias SBAREA
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» The Area to «FeatureType» S121_Zone
[Direction is 'Source -> Destination'.]

Generalization from «MLB» The Area to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

ATTRIBUTES

verdom : S121_VerticalDomainType Public
Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

Definition: verdom - Category of vertical domain of the object delimited. (e.g. airspace, land_surface, water_surface, water_column, seabed_surface, subsoil). Any particular object may span more than one vertical domain.
[Is static False. Containment is Not Specified.]

ATTRIBUTES

1.17.34 Limit Point

Class «MLB» in package 'MLB_Objects'

Name: LimitPoint
AlphaCode: LIMPNT
camelCaseCode: LimitPoint
NumericCode:
Use Type: theme
Definition: A Limit Point is a point on a limit.
Permitted Primitives: P
Remarks: A point associated with one party.
Distinction: BDNPNT
References:

Limit Point
Version Phase Proposed
S-121 PT created on 03/12/2015. Last modified 01/12/2016
Alias LIMPNT
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS
Realization from «MLB» Limit Point to «FeatureType» S121_Location [Direction is 'Source -> Destination'.]
Generalization from «MLB» Limit Point to «FeatureType» S121_FeatureUnit [Direction is 'Source -> Destination'.]

ATTRIBUTES
pointType : S121_LocationType Public = defined **Definition**: Computational origin of the element (defined, densified, computed or construction) [Is static False. Containment is Not Specified.]

1.17.35 Boundary Point

Class «MLB» in package 'MLB_Objects'

Name: Boundary Point
AlphaCode: BDNPNT
camelCaseCode: BoundaryPoint
NumericCode:
Use Type: theme
Definition: A Boundary Point is a point on a boundary.

Permitted Primitives: P
Remarks: A point associated with more than one party.
Distinction: LIMPNT
References:

Boundary Point
Version Phase Proposed
S-121 PT created on 10/07/2015. Last modified 01/12/2016
Alias BDNPNT
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Boundary Point to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

Realization from «MLB» Boundary Point to «FeatureType» S121_Location
[Direction is 'Source -> Destination'.]

ATTRIBUTES

pointType : S121_LocationType Public = defined

Definition: Computational origin of the element (defined, densified, computed or construction)
[Is static False. Containment is Not Specified.]

1.17.36 Baseline

Class «MLB» in package 'MLB_Objects'

Name: Baseline
AlphaCode: BASELN
camelCaseCode: Baseline
NumericCode:
Use Type: theme
Definition: A baseline is the line from which the outer limits of the territorial sea and certain other outer limits are measured. (IHO Dictionary, S-32, 5th Edition, 390).
Permitted Primitives: L
Remarks: A baseline is generally composed of two components, a normal baseline and a straight baseline.
References:

Baseline
Version Phase Proposed
S-121 PT created on 09/07/2015. Last modified 01/12/2016
Alias BASELN
Extends S121_FeatureUnit

OUTGOING STRUCTURAL RELATIONSHIPS

Generalization from «MLB» Baseline to «FeatureType» S121_FeatureUnit
[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS

Realization from «MLB» Baseline to «FeatureType» S121_Limit

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

Aggregation from «HYDRO» Straight Baseline to «MLB» Baseline

[Direction is 'Source -> Destination'.]

Aggregation from «MLB» Normal Baseline to «MLB» Baseline

[Direction is 'Source -> Destination'.]