# S-124 Domain Model

Package in package 'S-124 V0.2.1'

Container for the features information types, attributes, complex attributes, code lists, and enumerations in the S-124 application schema (UML model).

S-124 Domain Model

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 14/02/2018

| LINKS TO OTHER PACKAGES | |
| --- | --- |
| Dependency from 'S-124 Domain Model' Package to 'S 124\_Geometry' Package | Direction: Source -> Destination |
| Dependency from 'S-124 Domain Model' Package to 'S-124 Abstract Types' Package | Direction: Source -> Destination |

## S-124 Features and Info Types diagram

Class diagram in package 'S-124 Domain Model'

S-124 feature and information types and their complex attributes, from the main domain model. Meta-features and data quality features (if any will be in different diagrams).

*Tracking notes:*

20 Mar 2018 Added Country attribute to S124\_messageSeriesIdentifier.

18 Feb 2018 Implemented all changes from last round of model review by CG. Discussion is in document.

06 Nov 2015 (R): Removed sequence Number from Information Notice and replaced with association as for Abstract Notice for consistency. Added modelling for including any S-101 feature(s) in a warning or notice to mariners. Renamed time??? attributes in fixed Date Range and tm Intervals ByDoW to remove "Work" and avoid clash with S-101 "time start" and "time end" attributes. Renamed MSI Preface to MSI Preamble for consistency with IHO/IMO/WMO manual on MSI and moved charts Affected to it from Abstract Notice.

05 Nov 2015: Removed Abstract Notice attributes that were duplicated with MSI Preface. Added an ordered association between MSI Preface and Abstract Notice. Added notes to affected Chart to specify the attribute is used to identify paper chart and ENC that affect a notice. Renamed Port Marine Notice to Local Notice.

05 NOV 2015 (2): moved notice Identifier from Abstract Notice and Abstract Information Notice to MSI Preface and removed duplicated attributes; made MSI Preface mandatory. Renamed Abstract Information Notice to Information Notice. New generalized model of time schedule and schedule attribute moved to Abstract Notice and Information Notice.

05 Nov 2015: removed publication Reference and added definition (amended) to Reference info type. Merged abstract notice information type and notice information type. Removed attributes that were duplicated in MSI Preface.

S-124 NOV 2015

Added localization of some text attributes and more flexible time representation. Integrated with S-100 Edition 2.0.0 model and EA project file.

Added MSI Preface info type, publication Reference attribute

MSI Korean testbed - change log

Version 0.6 added ENC feature instance reference to allow for automated linking of MSI information to feature instances in ECDIS/e-NAV system. Modified general Category to be compliant with S-100 v2. Added types for EPSG and ISO639-3. Added time attributes to fixed Date Range since it was limited to date only.

Version 0.5 model updated as per comments to version 0.4 and to comply with latest IHO model elements with the exception of bearing information in graphic due to concern over how useful this attribute would be for an MSI.

S-124 Features and Info Types

Version 1.0

raphaelm created on 14/02/2018. Last modified 23/03/2018



1. S-124 Features and Info Types

## S-124 Domain Objects diagram

Class diagram in package 'S-124 Domain Model'

All the features, information types, complex attributes, and enumerations in the main part of the domain model.

Meta-features and quality features (if any) will be shown in other diagrams.

S-124 Domain Objects

Version 1.0

raphaelm created on 14/02/2018. Last modified 23/03/2018



1. S-124 Domain Objects

## S-124 Enums and Codelists diagram

Class diagram in package 'S-124 Domain Model'

Enumerations and code lists for the main domain model.

S-124 Enums and Codelists

Version 1.0

raphaelm created on 14/02/2018. Last modified 22/03/2018



1. S-124 Enums and Codelists

## Geometry labelling proposal diagram

Class diagram in package 'S-124 Domain Model'

Extract of model to show how geometry labelling can be done. Intent is to include guidance in a DCEG or equivalent to state that geometry labelling should not duplicate other geometry associated with a navigational warning.

Geometry labelling proposal

Version 1.0

monge created on 14/02/2018. Last modified 23/03/2018



1. Geometry labelling proposal

## S124\_FeatureType

Class «FeatureType» in package 'S-124 Domain Model'

Abstract super-type for MSI information that is linked to a specific geographic feature in the NAVAREA.

S124\_FeatureType

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 23/02/2018

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Realization from «FeatureType» S124\_FeatureType to «metaclass» S100\_GF\_FeatureType  [Direction is 'Source -> Destination'.] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «FeatureType» S124\_NoticeToMarinersFeaturePart to «FeatureType» S124\_FeatureType  [Direction is 'Source -> Destination'.] |
| Generalization from «FeatureType» S124\_NavigationalWarningFeaturePart to «FeatureType» S124\_FeatureType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| areaAffected : PointCurveOrSurface Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  An area affected by some event  [Stereotype is «SpatialAttribute». Is static False. Containment is Not Specified.] |
| featureReference : S124\_featureReference Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Reference to an object or feature that is external to the dataset.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| fixedDateRange : S124\_fixedDateRange Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  Range of dates/times when the warning or notice is active.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| geometry : PointCurveOrSurface Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: False)  geographical location of a feature  [Stereotype is «SpatialAttribute». Is static False. Containment is Not Specified.] |
| ID : URN Public  Object identifier following the URN concept.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| restriction : restriction Public  Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)  The official legal status of each kind of restricted area. (GI Registry)  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| S124\_featureName : S124\_featureName Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  The complex attribute provides the name of an entity, defines the national language of the name, and provides the option to display the name at various system display settings.  Origin: S-101  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) inheritance | |
| Source: Public subType (Class) S124\_FeatureType «FeatureType»  Cardinality: [0..\*] | Target: Public superType (Class) S124\_FeatureType «FeatureType»  Cardinality: [0..1] |
| Association (direction: Unspecified) inheritance | |
| Source: Public subType (Class) S124\_FeatureType «FeatureType»  Cardinality: [0..\*] | Target: Public superType (Class) S124\_FeatureType «FeatureType»  Cardinality: [0..1] |

## S124\_NavigationalWarningFeaturePart

Class «FeatureType» in package 'S-124 Domain Model'

The geographically located information part of a Navigation Warning.

S124\_NavigationalWarningFeaturePart

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 23/02/2018

Extends S124\_FeatureType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «FeatureType» S124\_NavigationalWarningFeaturePart to «FeatureType» S124\_FeatureType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| warningInformation : S124\_warningInformation Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: False)  [Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) Preamble Content | |
| Source: Public header (Class) S124\_NWPreamble «InformationType» | Target: Public the Warning Part (Class) S124\_NavigationalWarningFeaturePart «FeatureType»  Cardinality: [0..\*] |

## S124\_NoticeToMarinersFeaturePart

Class «FeatureType» in package 'S-124 Domain Model'

The geographically located information part of a Notice to Mariners.

S124\_NoticeToMarinersFeaturePart

Version 1.0 Phase 1.0 Proposed

eivind.mong created on 14/02/2018. Last modified 23/02/2018

Extends S124\_FeatureType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «FeatureType» S124\_NoticeToMarinersFeaturePart to «FeatureType» S124\_FeatureType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| graphic : graphic Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| information : information Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: False)  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public header (Class) S124\_NMPreamble «InformationType» | Target: Public the Notice Part (Class) S124\_NoticeToMarinersFeaturePart «FeatureType»  Cardinality: [0..\*] |

## S124\_NavigationalWarningInformationPart

Class «InformationType» in package 'S-124 Domain Model'

MSI information not linked to a specific geographic feature in the NAVAREA. It may apply to the NAVAREA as a whole or to a general area or locality.

S124\_NavigationalWarningInformationPart

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 23/02/2018

Extends S124\_InformationType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_NavigationalWarningInformationPart to «InformationType» S124\_InformationType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| featureReference : S124\_featureReference Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Reference to an object or feature that is external to the dataset.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| fixedDateRange : S124\_fixedDateRange Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  Range of dates/times when the warning or notice is active.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| S124\_warningInformation : S124\_warningInformation Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: False)  Text of warning or notice.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) Preamble Content | |
| Source: Public header (Class) S124\_NWPreamble «InformationType» | Target: Public the Warning Part (Class) S124\_NavigationalWarningInformationPart «InformationType»  Cardinality: [0..\*] |

## S124\_NoticeToMarinerInformationPart

Class «InformationType» in package 'S-124 Domain Model'

Notice to Mariners information not linked to a specific geographic feature in the NAVAREA. It may apply to the NAVAREA as a whole or to a general area or locality.

S124\_NoticeToMarinerInformationPart

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 23/02/2018

Extends S124\_InformationType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_NoticeToMarinerInformationPart to «InformationType» S124\_InformationType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| featureReference : S124\_featureReference Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Reference to an object or feature that is external to the dataset.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| fixedDateRange : S124\_fixedDateRange Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  Range of dates/times when the warning or notice is active.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| graphic : graphic Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Any accompanying graphics.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| information : information Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: False)  Text of warning or notice.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public header (Class) S124\_NMPreamble «InformationType» | Target: Public the Notice Part (Class) S124\_NoticeToMarinerInformationPart «InformationType»  Cardinality: [0..\*] |

## S124\_NMPreamble

Class «InformationType» in package 'S-124 Domain Model'

Preamble information for Notice to Mariners

S124\_NMPreamble

Version 1.0 Phase 1.0 Proposed

raphael.malyankar created on 14/02/2018. Last modified 23/02/2018

Extends S124\_Preamble

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_NMPreamble to «InformationType» S124\_Preamble  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| generalArea : S124\_areaLocation Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  The general area used to identify which broad geographic region the message affects. The geographical name which is selected for the general area should be one that can be found on charts and in nautical publications. (S-53, 6).  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| originalInformation : Boolean Public  Indication that the Notice to Mariners is from an original source (that is: not previously published by another national hydrographic office). S-4 B-631.6  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| S124\_warningHazardType : S124\_warningType Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  Type of warning or hazard message.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| sourceAuthority : S124\_LocalizedText Public  publication, organization, person or other entity that is the source of information.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public header (Class) S124\_NMPreamble «InformationType» | Target: Public theNoticePart (Class) S124\_NoticeToMarinersFeaturePart «FeatureType»  Cardinality: [0..\*] |
| Association (direction: Unspecified) | |
| Source: Public theNotice (Class) S124\_NMPreamble «InformationType» | Target: Public theReferences (Class) S-124\_References «InformationType»  Cardinality: [0..\*] |
| Association (direction: Unspecified) | |
| Source: Public header (Class) S124\_NMPreamble «InformationType» | Target: Public theNoticePart (Class) S124\_NoticeToMarinerInformationPart «InformationType»  Cardinality: [0..\*] |

## S124\_NWPreamble

Class «InformationType» in package 'S-124 Domain Model'

Preamble information for Navigational Warnings.

S124\_NWPreamble

Version 1.0 Phase 1.0 Proposed

monge created on 14/02/2018. Last modified 23/02/2018

Extends S124\_Preamble

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_NWPreamble to «InformationType» S124\_Preamble  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| generalArea : S124\_areaLocation Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: True)  The general area used to identify which broad geographic region the message affects. The geographical name which is selected for the general area should be one that can be found on charts and in nautical publications. (S-53, 6).  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| S124\_warningHazardType : S124\_warningHazardType Public  Multiplicity: ([1..\*], Allow duplicates: 0, Is ordered: True)  Type of warning or hazard message.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified) Preamble Content | |
| Source: Public header (Class) S124\_NWPreamble «InformationType» | Target: Public the Warning Part (Class) S124\_NavigationalWarningInformationPart «InformationType»  Cardinality: [0..\*] |
| Association (direction: Unspecified) Preamble Content | |
| Source: Public header (Class) S124\_NWPreamble «InformationType» | Target: Public the Warning Part (Class) S124\_NavigationalWarningFeaturePart «FeatureType»  Cardinality: [0..\*] |
| Association (direction: Unspecified) the References | |
| Source: Public the References (Class) S-124\_References «InformationType»  Cardinality: [0..\*] | Target: Public the Warning (Class) S124\_NWPreamble «InformationType» |

## S124\_Preamble

Class «InformationType» in package 'S-124 Domain Model'

Abstract preamble information for warnings, notices and other types of messages.

S124\_Preamble

Version 1.0 Phase 1.0 Proposed

raphael.malyankar created on 14/02/2018. Last modified 23/02/2018

Extends S124\_InformationType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_Preamble to «InformationType» S124\_InformationType  [Direction is 'Source -> Destination'.] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S124\_NWPreamble to «InformationType» S124\_Preamble  [Direction is 'Source -> Destination'.] |
| Generalization from «InformationType» S124\_NMPreamble to «InformationType» S124\_Preamble  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| locality : S124\_areaLocation Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: True)  Name and/or identifier of an area locality.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| messageSeriesIdentifier : S124\_messageSeriesIdentifier Public  Message series identification of the warning or notice.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| S124\_affectedChartPublications : S124\_affectedChartPublications Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: Fals )  Identifies paper charts, ENCs or publications that are affected by the information.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| S124\_cancellationDate : dateTime Public  Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)  Date and time of cancelling a warning or notice.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| S124\_publicationDate : dateTime Public  Date and time of publication the notice or warning.  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |
| title : S124\_LocalizedText Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Title of the MSI collection. Allows for multiple languages.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |

## S-124\_References

Class «InformationType» in package 'S-124 Domain Model'

A reference to for example a navigational warning, nautical publication or chart.

(Adopted from S-57 Edition 3.1, Appendix A – Chapter 2, Page 2.168, November 2000).

S-124\_References

Version 1.0 Phase 1.0 Proposed

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Extends S124\_InformationType

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
| Generalization from «InformationType» S-124\_References to «InformationType» S124\_InformationType  [Direction is 'Source -> Destination'.] |

| ATTRIBUTES |
| --- |
| messageReference : S124\_messageSeriesIdentifier Public  Multiplicity: ([0..\*], Allow duplicates: 0, Is ordered: False)  Message series identification of the warning.  [Stereotype is «ComplexAttribute». Is static False. Containment is Not Specified.] |
| referenceType : S124\_referenceType Public  Type of reference  [Stereotype is «SimpleAttribute». Is static False. Containment is Not Specified.] |

| ASSOCIATIONS | |
| --- | --- |
| Association (direction: Unspecified)  the References | |
| Source: Public theReferences (Class) S-124\_References «InformationType»  Cardinality: [0..\*] | Target: Public theWarning (Class) S124\_NWPreamble «InformationType» |
| Association (direction: Unspecified) | |
| Source: Public theNotice (Class) S124\_NMPreamble «InformationType» | Target: Public theReferences (Class) S-124\_References «InformationType»  Cardinality: [0..\*] |