IPTC Standards DRAFT

NewsML 2 Architecture

Version 1.0

Core Model

Document Revision 4

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1 Introduction

1.1 Abstract

This document describes the **IPTC NewsML 2 Architecture Core Model**, i.e. the conceptual and processing models which make freely available the IPTC knowledge of the most effective ways to structure, describe, manage and exchange newsworthy information.

The document describes the data types, properties and constructs shared by all new IPTC standards, the way metadata are expressed, the way items of news-related information are structured, managed and referenced.

This model is independent from an XML implementation. It may be as easily implemented via object oriented software, in Java or C#.

The IPTC NewsML 2 Architecture Model builds on:

- The **NewsML 2 Business Requirements** [NML-BR] edited by the NewsML WG,
- The **EventsML Business Requirements** [EVT-BR] edited by the EventsML WG.
- The **News Metadata Framework Business Requirements** [NMDF-BR] edited by the NMDF WG.
- The **Implementation Guidelines for the IPTC Standards Architecture using W3C XML Schema** [NAR-IG] edited by Jay Cousins (RivCom) and Ulf Wingstedt (CNet) for the NAR WP.
- The current generation of IPTC standards, namely **NewsML 1.x**, **SportsML 1.x**, **NITF 3.x**.
- The work of other standards bodies, which have taken a similar modelling approach.

Different Conformance Levels are defined in the model, each of them related to a level of complexity (at the conceptual and processing level) of the related Items. Users of the Power Conformance Level of the NAR need to read the **IPTC NewsML 2 Power Model Extensions** [NAR-PM], which exposes the applicable extensions of the Core Model.

This document is complemented by the **IPTC NewsML 2 Technical Specification** [NAR-TS], which details the XML implementation of the NAR, element by element, attribute by attribute. After reading the model document, implementers of the NAR shall use the Technical Specification as a reference for the development of NewsML 2 processors.

All IPTC NewsML2 specifications are complemented by the **IPTC NewsML 2 Architecture Glossary** [NAR-GL] which provides an extensive set of terms and definitions.

1.2 Status of this document

This document is under development by the IPTC News Architecture Working Party (NAR WP).

This is a Draft document and may be updated, replaced or obsoleted by other documents at any time. Publication as a Draft does not imply endorsement by the IPTC Membership.

Comments from IPTC members which are intended to be visible to IPTC members only should be sent to the mailing list described at:

http://groups.yahoo.com/group/iptc-news-architecture-dev/

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Public versions of this document and of related IPTC documents are available at:

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1.3 Terminology

The document uses the following expressions:

Contains means **composition**; it means that an element of the model aggregates other elements or that an element has a particular attribute (e.g. an Any Item *Contains* a Management component).

Extends means **specialization**; it means that an element of the model acquires properties from another element of the model (e.g. a News Item *extends* Any Item). The IS concept usually doesn't appear in DTD oriented XML, but rather in W3C XML Schema work, where generalization and restriction of structures are supported.

1.4 Notation

a/ The definition of properties is expressed in tables.

Card. means cardinality, i.e. the cardinality of the property in its container class.
Property names are expressed in bold & italic: theses are the names found in the xml inmplementation.
Property titles are expressed in bold: these are the names usually used when properties are described.
Property definitions are followed by a datatype in italic.

Ex:

card.	*name*	*title*	*definition*
0.. 1	*code*	**Code**	A controlled value. *datatype: CURIE*

c/ Temporary notes are in italics and coloured **blue**:

e.g. *To be defined*

d/ Currently open questions are coloured **orange**:

e.g. **@@ Isn't urn:newsml:xxx an improper term for this global class?**

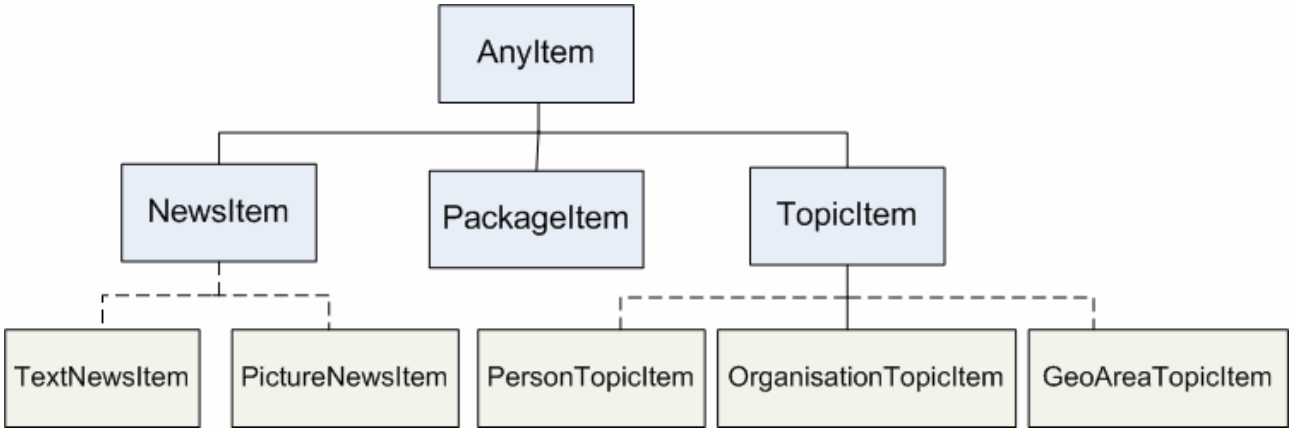
e/ Some properties support sub-properties. These are shown using an indented list item.

1.5 Class diagram

The following diagram represents a partial class diagram of the NewsML 2 Architecture. The abstract Any Item class is at the top of the hierarchy. Three derived classes are defined in the core architecture: News Item, Topic Item and Package Item. Other classes will be defined by individual IPTC standard Working Groups.

Further specialization of the main classes allows for more detailed structures and processing.

Important note: The XML implementation of the specialized classes is different from what could be implied from this class diagram: a News Item is implemented as an XML element called <newsItem/>, but a Text News Item is eventually implemented as a specialized <newsItem/> via a *class* attribute, rather than as <textNewsItem/>. Same for subclasses of TopicItems.



2 Building Blocks

2.1 Introduction to the Common Components

The IPTC Common Components are the building blocks of the IPTC NewsML 2 Architecture.

A common component represents a piece of information that has a precise meaning but is in essence context-free. Context free means that it can be reused to construct business messages in different business contexts. A common component can be used and combined with other common components to create larger context-free structures available for reuse. When used in a business-specific context, common components take on the business-specific semantics of their usage context.

Reuse enables the development of libraries of schema components ('architectural schema') that can be created for use in modular architectures in order to promote consistency of design and content structure.

2.2 Levels of granularity of the Common Components

The common components come in three levels:

1. Fine grained, called **datatype**. A datatype has no specific business meaning or semantics of its own and only takes on business meaning when used as the data type of a property. Datatypes fall in two groups:
   - Simple data types are primitive data types, as found in software languages or XML schema definitions (eg. integer, string). Some restriction may be imposed, such as Integer100Type where an integer has been restricted to a value range of 1 to 100.
   - Complex data types are simple data types extended to add further information in order to correctly represent the value. Such ancillary information takes the form of attributes. For example a LabelType supports mixed content and is extended with language and role attributes.
2. Medium grained, called **basic component** or **property**. A property represents a single piece of business information and uses an existing data type to provide its content model. It is capable of being used independently or as part of a group. Like a complex data type, a basic component can be qualified by ancillary data if required to complete it's meaning. For example, a slugline element of data type string supports an additional separator attribute.

   In this model basic component names end with a "Type" (eg CodeType) suffix.
3. Coarse grained, called **aggregate component**. It is a collection of properties that together is more than the sum of its constituent parts. The properties composing the whole can be properties or aggregate components. An aggregate component may be designed so it supports an *extension point* where news providers can extend its usage. For example, a descriptive component is defined as a group of properties like title and subject, and a person component is defined as a group of properties like name and date of birth.

   In this model aggregate component names end with a "Component" (eg ContactInfoGroup), "Metadata" (eg AdministrativeMetadata) or "Definition" (eg PersonDefinition) suffix.

Both properties and aggregate components can be used directly in an Item.

2.3 News Metadata

The NAR defines several aggregate components consisting of metadata properties, and these properties follow a consistent model based on clearly defined datatypes.

Such metadata may be associated with an Item as a whole (called item metadata), with the global content of an Item (e.g. administrative and descriptive metadata), or with specific content renditions (e.g. physical characteristics).

The agreed perception is that news content is a representation of real life facts and metadata is supplemental information about such content, but one has to be aware that the same kind of information may act as content and as metadata. An example: structured information about a person may be metadata in a News Item (e.g. information about the creator on the content), but may also constitute the content of a Topic Item describing this person.

As the NAR aims to be compatible with the Semantic Web of the W3C it is also compatible with their underlying technology, the Resource Description Framework (RDF). But the IPTC model and syntax implementation of metadata do not require any knowledge about RDF, any transformation from the IPTC metadata model to RDF will be done by means beyond the NAR. More information on this subject is given in the Power Model Extensions document [NAR-PM].

Metadata fall in three groups:

- Properties with simple values
- Properties with controlled values
- Labels and Blocks

2.3.1 Properties with simple values

Some properties are directly defined by simple datatypes like:

- **DateTime**: a calendar date and time (year, month and day, hour, minute, second, optional decimal fraction of a second, plus a mandatory time zone indicator). The time may be expressed in UTC (Universal Time Coordinates), or in local time together with a time zone offset in hours and minutes.
- **PartialDateTime**: a calendar date (or date and time) optionally missing one or more less significant components. Any components may be omitted, starting from the least significant end (ie. seconds). The time may be expressed in UTC (Universal Time Coordinates), or in local time, together with a time zone offset in hours and minutes.

  @@ Should it support uncertain dates using intervals (ex. 2006-04-01/2006-05-01)?
  We postpone this discussion until after EP2.

  And should it support truncated dates using left-side hyphens (ex - -04-01)?
  We will wait for the feedback of the EventsML WG.
- **String**: a set of Unicode characters.
- **Integer**: an integer.
- **IRI**: an Internationalized Resource Identifier Reference, as defined in [RFC3987].
- **CURIE**: a controlled value (see below).

2.3.2 Introduction to {scheme, code} pairs

Some properties usually have their value taken from a well defined scheme, i.e. a controlled vocabulary (a classification system, taxonomy, thesaurus ...). A scheme is in practice a list of codes managed by a specific body, which may be the IPTC or any other well known standardisation body, or an individual news provider.

These values are represented by a formal combination called a {scheme, code} pair and primarily intended to be consumed by processing software.

A {scheme, code} pair – aka controlled value - fully identifies a term from a controlled vocabulary (i.e. a scheme).

For compliance with the Semantic Web, a scheme takes the form of a URI, and the simple concatenation of the scheme URI and a code is therefore a valid URI named concept URI, which therefore unambiguously identifies a concept.

As an example, in the IPTC scheme defined for news categories, which could be identified by the URI "http://iptc.org/schemes/theme#", the code "15000000" is associated with the concept of "Sport".

Another example, in the NASDAQ scheme, which could be unambiguously identified by the URI "http://quotes.nasdaq.com/asp/SummaryQuote.asp?symbol=", the code "ADBE" is associated with the company known as "Adobe Systems Incorporated".

It is not mandatory that one maintains as an XML file a complete list of codes defined in a given scheme. In the NASDAQ example, this would be an impossible task. It is sufficient that an unambiguous identifier is defined for each scheme a provider decides to use, and that this identifier is known from the customers of the news feed this provider offers.

It is recommended that scheme URIs have the form of an HTTP URL, and that the activation of the hyperlink returns human-readable information about the scheme. If possible, a variant of the activation of the hyperlink should return the list of terms of the controlled vocabulary in a standard format.

2.3.3 Compact URI Type (CURIE)

In order to manipulate {scheme, code} pairs is an efficient manner, a compact syntax is needed.

We used as the value of a property, the scheme URI is replaced by a compact scheme alias (a prefix), and the code is appended after a colon (":") character. Such syntax allows the use of a "prefix:code" pair as a single XML attribute value.

Such a datatype is currently defined in an internal draft produced by the W3C RDF-in-HTML task force [CURIE]. The value space of the CURIE datatype is a set of {scheme, code} pairs which identify concepts. This is similar to the value space of the QName datatype, i.e a set of {namespace, local part} pairs which identify element or attribute names [1].

CURIEs are the mandatory way to express some controlled values, like **Content Class** or **Publication Status**.

Note that:

[1] QNames cannot be used for this purpose, because the local part of QNames cannot be a numeric, but the News industry and the Financial industry are full of taxonomies making use of numeric codes. They aren't alone in this aspect (consider ISBN and ISSN).

- CURIEs allow any sequence of legal URI characters in the local part, including, for example, digits only, dashes, slashes, etc...
- In the NAR implementation, CURIEs MUST have a non-empty prefix.

CURIEs can be viewed to a certain extend as short, lexical representations of URIs. Be careful: the mapping from a {scheme alias, code} pair to a URI is not bijective: a URI cannot be mapped back to a {scheme alias, code} pair, as the tuple is lost in the concatenation.

2.3.4 Property with a mandatory controlled value

Some properties only support controlled values in the form of CURIEs.

Controlled values may be complemented by one or more *titles*, i.e. short human-readable names. Titles can be expressed in different languages.

The capability to handle such a title may be invalidated by the XML implementation of the property: an XML attribute will not be able to support anything but a controlled value, but an XML element will be able to support supplemental titles .

2.3.5 Property with a controlled or literal value

It is not always possible to use a {scheme, code} pair as metadata value. As an example, few news organisations maintain a formal listing of their editors, and therefore using a controlled value for the "creator" property is not always possible.

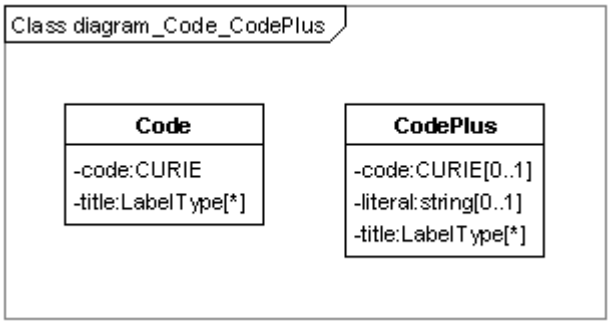
In order to fulfil this need, a large number of properties allow for "literal" values to be expressed instead of controlled values.

Therefore *extended* properties support controlled values in the form of CURIEs or (this is an exclusive or) literal (ie free-text) values.

A controlled value (ie a {scheme,code} pair) may be complemented by one or more titles associated with the concept. Literal values should not be complemented with such a title.

2.3.6 Diagrams and definitions

News metadata properties are modelled after:



2.3.6.1 CodeType

CodeType is defined as:

card.	*name*	*title*	*definition*

1	***code***	**Code**	A controlled value. *datatype: CURIE*
0..∞	***title***	**Title**	A short human-readable name associated with a controlled value. *datatype: LabelType*

2.3.6.2 CodePlusType

CodePlusType is defined as:

card.	*name*	*title*	*definition*
0.. 1	***code***	**Code**	A controlled value. *datatype: CURIE*
0.. 1	***literal***	**Literal**	A free-text value. *datatype: String*
0..∞	***title***	**Title**	A short human-readable name associated with a controlled value. *datatype: LabelType*

2.4 Labels and Blocks

2.4.1 Internationalized Strings

All natural language strings can be written in different languages. This mandates the definition of two attributes well known from HTML users, *lang* and *dir*, which are known as ***I18N*** attributes.

The *lang* attribute specifies the language of text, and MUST follow the ISO 3066 standard or its successor.

The *dir* attribute specifies the directionality of text --left-to-right ("ltr", the default) or right-to-left ("rtl"). Characters in Unicode are assigned a directionality, left-to-right or right-to-left, to allow the text to be rendered properly. For example, while English characters are presented left-to-right, Hebrew characters are presented right-to-left.

Unicode defines a bidirectional algorithm that must be applied whenever a document contains right-to-left characters. While this algorithm usually gives the proper presentation, some situations leave directionally neutral text and require the *dir* attribute to specify the base directionality.

2.4.2 Label

Labels expose aspects of news as natural language strings. They are assertions expressed as natural language strings intended to be consumed by human beings. They are typically displayed alongside the content of an Item or in place of Items in a list, providing a means of selection among them.

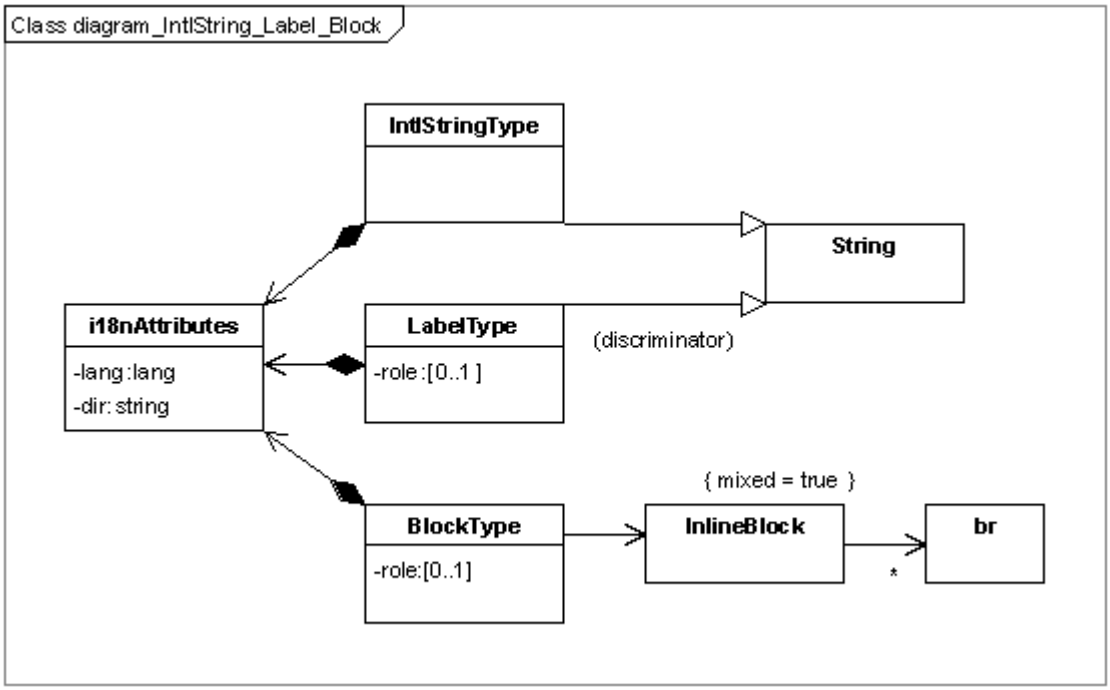
2.4.3 Block

Blocks they are those notes, comments or instructions created by a news provider for use by recipient editorial teams.

The plain string content of a label is replaced by text interspersed with line breaks.

2.4.4 Diagrams and definitions

Labels and blocks are modelled after:



i18nAttributes are defined as:

card.	*name*	*title*	*definition*
0..1	*lang*	**Language Indicator**	The language of textual content. *datatype: Lang*
0..1	*dir*	**Direction**	The directionality of textual content. *datatype: String*

IntlStringType supports ***i18nAttributes*** plus:

card.	*name*	*title*	*definition*
1	*-*	**Text**	The content of the string. *datatype: String*

LabelType supports ***i18nAttributes*** plus:

card.	*name*	*title*	*definition*
0..1	***role***	**Role**	A refinement of the semantics of the label. *datatype: CURIE*
0..1	**-**	**Text**	The content of the label. *datatype: String*

BlockType supports ***i18nAttributes*** plus:

card.	*name*	*title*	*definition*
0..1	***role***	**Role**	A refinement of the semantics of the block. *datatype: CURIE*
0..1	**-**	**Text**	The content of the block. *datatype: InlineBlock*

InlineBlock is defined as mixed content, ie XML text interspersed with:

card.	*name*	*title*	*definition*
0..∞	***br***	**Line break**	A line break. *datatype: br*

3 Information about a concept

3.1 Concept Definition component

The ***ConceptDefinition*** component expresses the properties shared by all concepts.

As seen above, concepts are fully identified by controlled values. A concept can be identified in different schemes with different controlled values, this is why a concept identifier must be unambiguous, but cannot be unique: for example, an organisation is commonly identified by different tickers symbols.

Concepts can be linked together with named relationships. This allow for the creation of taxonomies (hierarchies of concepts) and thesauri (networks of concepts). The most obvious relationships are the traditional *broader term* and *narrower term*.

Concepts are named, and names can be specified in multiple languages.

Concepts can be further defined in natural-language by a definition and some notes (eg for Serbia & Montenegro: "Until yyyy-mm-dd, known as Yugoslavia."), also specified in multiple languages.

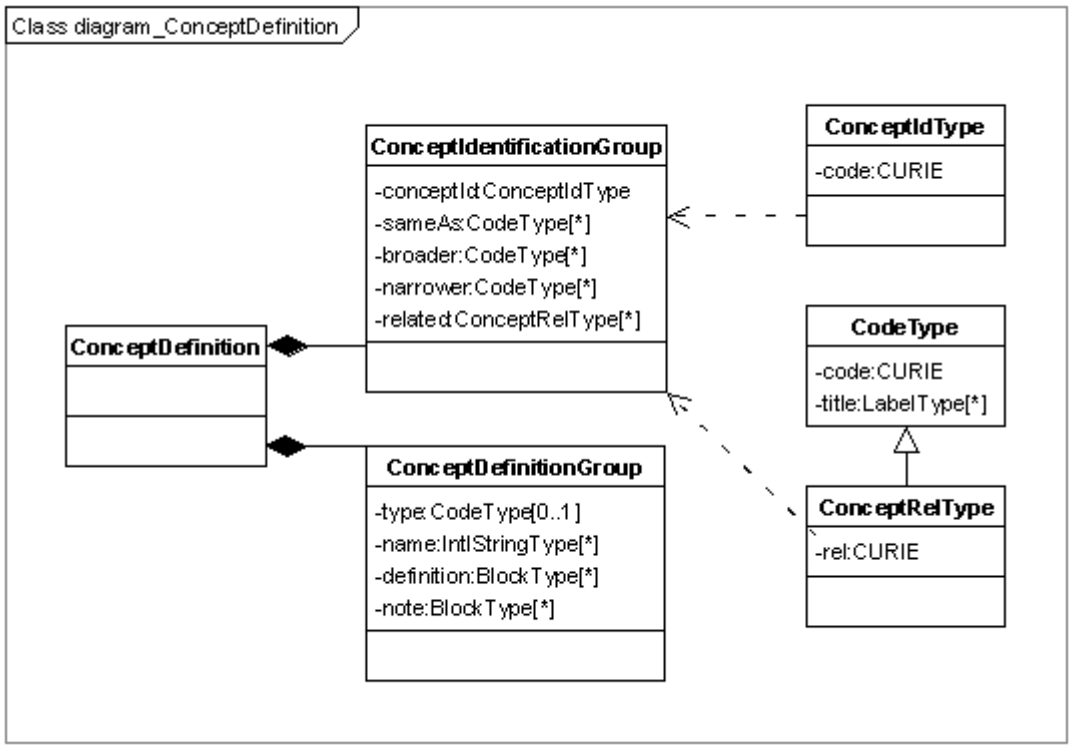
Concepts fall in two broad categories: named entities and generic (or abstract) concepts. Generic concepts range from themes (eg *soccer*) to emotions *(*eg *smiling, love)*; they have no specific property defined. Named entities are these people, organisations, geographical areas and points of interest for which a specific set of properties is defined for the purpose of search and processing.

Concepts are given an optional type. The default type of a named entity is the class of the entity component (eg *person*, *organisation etc…)*. The type of a generic concept can be e.g. *theme* or *emotion*. Providers are free to create their own concept types (eg *artist* as a specialized type of *person*) and add related custom properties for specific purposes.

The NAR defines a generic aggregate component called *ConceptDefinition*, which expresses the properties shared by all concepts. It also defines several aggregate components – *Person*, *Organisation* etc. - tailored for the description of named entities which belong to what can be called *core news ontology*.

3.1.1 Diagrams and definitions

ConceptDefinition is modelled after:



ConceptDefinition is defined as:

card.	*name*	*title*	*definition*
1	-	**Concept Identification Group**	The group of all codes required to identify a concept and to indicate its relations to other concepts in a taxonomy. *datatype: ConceptIdentificationGroup, see below*
1	-	**Concept Definition Group**	The group of properties shared by all types of concepts. *datatype: ConceptDefinitionGroup, see below*
-	-	**Extension Point**	Any set of provider-defined properties.

ConceptIdentificationGroup is defined as:

card.	*name*	*title*	*definition*
1	*conceptId*	**Concept identifier**	The preferred unambiguous identifier for the concept. *datatype: ConceptIdType, see below*
0.. ∞	*sameAs*	**Same As**	An indication of an equivalent concept. *datatype: CodeType*
0.. ∞	*broader*	**Broader**	An indication of a more generic concept. *datatype: CodeType*
0.. ∞	*narrower*	**Narrower**	An indication of a more specific concept. *datatype: CodeType*

0.. ∞	*related*	**Related Concept**	An expression of a named relationhip between this concept and another concept. *datatype: ConceptRelType, see below*

ConceptIdType is defined as:

card.	*name*	*title*	*definition*
1	*code*	**Code**	A controlled value. *datatype: CURIE*

ConceptRelType ***extends*** ***CodeType***. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*rel*	**Relation Indicator**	A name for the relationship. *datatype: CURIE*

ConceptDefinitionGroup is defined as:

card.	*name*	*title*	*definition*
0..1	*type*	**Concept Type**	The type of the concept. *datatype: CodeType*
0.. ∞	*name*	**Concept Name**	A name for the concept. *datatype: IntlStringType*
0..∞	*definition*	**Concept Definition**	A natural-language definition of the concept. *datatype: BlockType*
0..∞	*note*	**Note**	Additional information about the concept. *datatype: BlockType*

3.2 Entity components

Entity components are groups of properties specific to a certain type of concept. These properties have been chosen for their generic scope and potential usefulness in the news industry.

3.2.1 Person

The definition of a person includes its date of birth and date of death, which helps scoping this person in time; its gender (used in particular for the selection of athletes), affiliations with organisations (the role qualifier may be "manager" for a company or "member" of a sports team), occupations or professions (which detail the activities of a person, eg "song writer" or "software architect"), specific skills (useful for the categorisation of experts in different fields, independently of their current occupation, so that then can be interviewed in case of specific events) and contact information.

3.2.2 Organisation

The definition of an organisation includes its date of foundation and date of dissolution, business or industry sectors the organisation operates in, locations the organisation operates in (or where its offices are located), and contact information. The registered address of an organisation is indicated as part of its contact information; in such a case this address may not be used for making contact with this company.

3.2.3 Geopolitical Area

The definition of a geopolitical area includes the GPS coordinates of the location (latitude, longitude and datum), the altitude of the location above the sea and zero or more types associated with this zone.

3.2.4 Point of Interest

The definition of a Point of Interest (POI) includes all information of a geopolitical area, plus practical information like opening hours, capacity (especially useful for stadiums), available facilities (ranging from swimming pool to wheelchair ramp.), access and directions, details on the location (eg room number, stair number etc.) and contact information.

3.2.5 Sub-components of entity definitions

3.2.5.1 Contact Information

Contact information include email addresses, instant messaging addresses, international phone numbers, international fax numbers, web addresses and postal addresses.

E-mail and instant messaging addresses, phone and fax number are all electronic addresses. These are qualified by a role which specifies the nature of the address, eg *home* or *work*.

3.2.5.2 Postal Address

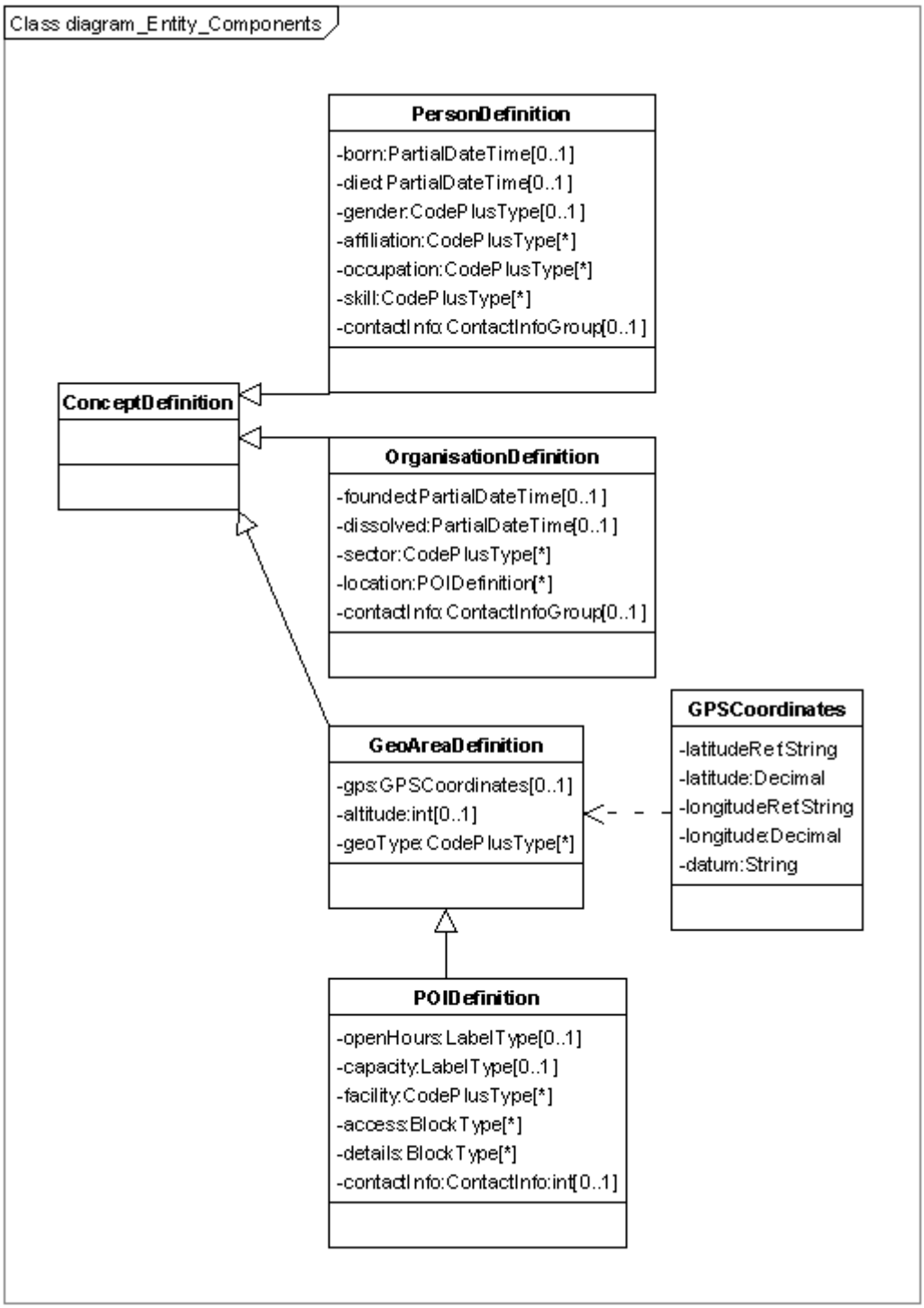
The definition of a Postal Address includes free-text lines (in the format expected by a recipient postal service), the indication of a city/town/village, a subdivision of a country, a country and a postal code.

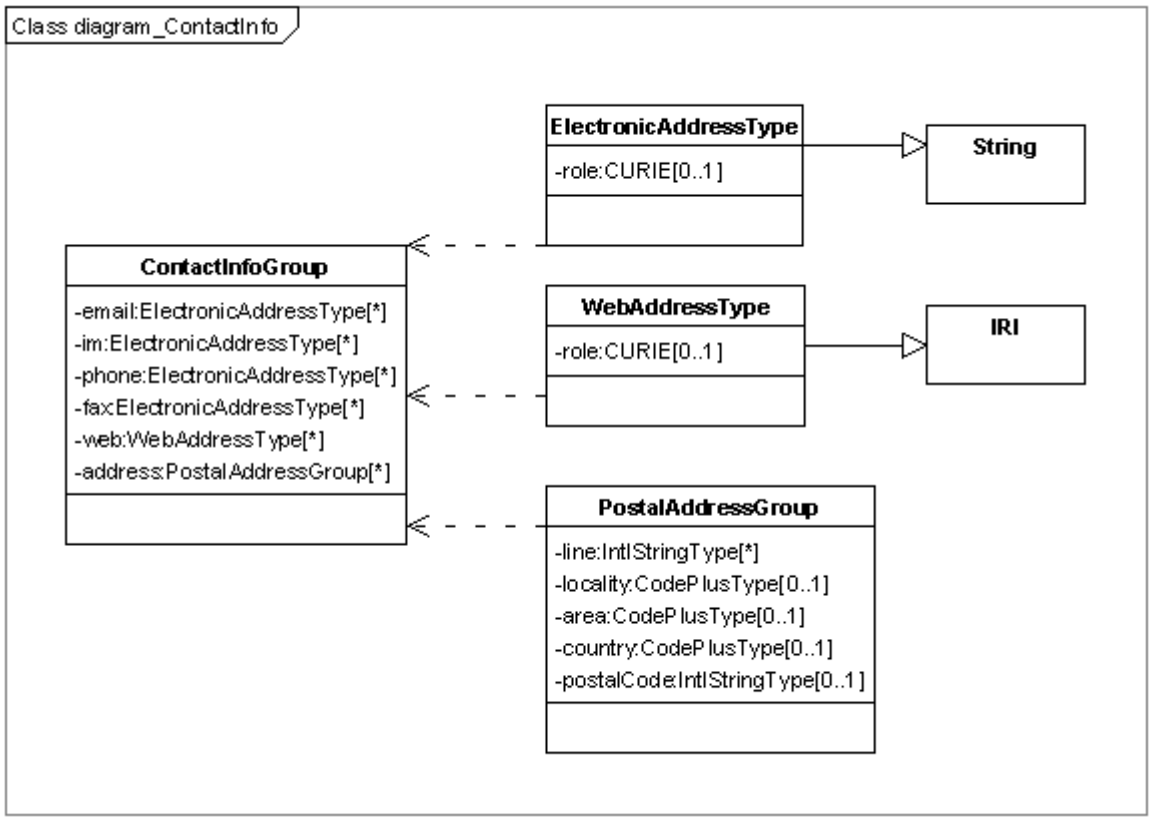
A postal address is structured as a set of properties likely edited and displayed as a form. The relative order of its properties is not universal, and if used for traditional postal mail, presentation algorithms are to be developed which depend on the source and recipient countries.

The city, country area and country may be indicated as a name or as a controlled value. The use of an ISO compliant country code is particularly recommended.

3.2.6 Diagrams and definitions

Entity components are modelled after:





3.2.6.1 Person Definition

***PersonDefinition** extends **ConceptDefinition**.* Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	***born***	**Date of Birth**	The date of birth of the person *datatype: PartialDateTime*
0..1	***died***	**Date of Death**	The date of death of the person. *datatype: PartialDateTime*
0..1	***gender***	**Gender**	The gender of the person. *datatype: CodePlusType*
0..∞	***affiliation***	**Affiliation**	An affiliation of the person with an organisation. *datatype: CodePlusType*
0..∞	***occupation***	**Occupation**	An occupation or profession of the person. *datatype: CodePlusType*
0..∞	***skill***	**Skill**	A specific skill of the person. *datatype: CodePlusType*
0..1	***contactInfo***	**Contact Information**	Contact information associated with the person. *datatype: ContactInfoGroup, see section below*
-	-	**Extension Point**	Any set of provider-defined properties.

3.2.6.2 Organisation Definition

OrganisationDefinition** extends **ConceptDefinition. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*founded*	**Date of Foundation**	The date of foundation / establishment of the organisation. *datatype: PartialDateTime*
0..1	*dissolved*	**Date of Dissolution**	The date of dissolution of the organisation. *datatype: PartialDateTime*
0..∞	*sector*	**Business Sector**	A business or industry sector the organisation operates in. *datatype: CodePlusType*
0..∞	*location*	**Business location**	A location (geographical area or point of interest) the organisation operates in. *datatype: POIDefinition, see section below*
0..1	*contactInfo*	**Contact Information**	Contact information associated with the organisation. *datatype: ContactInfoGroup, see section below*
-	-	**Extension Point**	Any set of provider-defined properties.

3.2.6.3 Geopolitical Area Definition

GeoAreaDefinition** extends **ConceptDefinition. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*gps*	**GPS Coordinates**	The GPS coordinates of the location. *datatype: GPSCoordinates*
0..1	*altitude*	**Altitude**	The altitude of the location above the sea. *datatype: Integer*
0.. ∞	*geoType*	**Geopolitical type**	A type of geopolitical area. *datatype: CodePlusType*
-	-	**Extension Point**	Any set of provider-defined properties.

GPSCoordinates is modelled after:

card.	*name*	*title*	*definition*
1	*latitudeRef*	**Latitude Reference**	The reference for the latitude position. *datatype: String, enumeration, 'N' for North, 'S' for South*
1	*latitude*	**Latitude**	The latitude in decimal degrees. *datatype: Decimal*
1	*longitudeRef*	**Longitude Reference**	The reference for the longitude position. *datatype: String, enumeration, 'E' for East, 'W' for West*

1	*longitude*	**Longitude**	The longitude in decimal degrees. *datatype: Decimal*
0..1	*datum*	**GPS Datum**	The GPS datum associated with the measure. *datatype: String*

3.2.6.3.1 Usage Notes

GPSCoordinates:

- *gps* **(GPS coordinates)** follow the EXIF model.
- *Altitude* **(Altitude)** is given in meters. Positive integer mean a position above the sea, negative integers mean a position below the sea.
- *geoType* **(Geopolitical type)** takes values like city, country, village, town, county, department, state, country grouping, federal union etc.

3.2.6.4 Point Of Interest Definition

POIDefinition** extends **GeoAreaDefinition. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*openHours*	**Opening Hours**	Opening hours of the place in natural language. *datatype: LabelType*
0..1	*capacity*	**Capacity**	Total Capacity of the place in natural language. *datatype: LabelType*
0..∞	*facility*	**Facility**	Facility available at the place. *datatype: CodePlusType*
0..∞	*access*	**Access**	Ways to access the place, including directions. *datatype: BlockType*
0.. ∞	*details*	**Location Details**	Detailed information about the precise location of the point of interest. *datatype: BlockType*
0..1	*contactInfo*	**Contact Information**	Contact information associated with the place. *datatype: ContactInfoGroup, see section below*
-	-	**Extension Point**	Any set of provider-defined properties.

3.2.6.5 Contact Information Group

ContactInfoGroup is defined as:

card.	*name*	*title*	*definition*
0..∞	*email*	**Email Address**	An email address. *datatype: ElectronicAddressType*
0..∞	*im*	**Instant Messaging**	An instant messaging address. *datatype: ElectronicAddressType*

		Address	
0..∞	***phone***	**Phone Number**	An international phone number. *datatype: ElectronicAddressType*
0..∞	***fax***	**Fax Number**	An international fax number. *datatype: ElectronicAddressType*
0..∞	***web***	**Web Address**	A Web address. *datatype: WebAddressType*
0..∞	***address***	**Postal Address**	A postal address *datatype: PostalAddressGroup, see below*

ElectronicAddressType ***extends*** ***String***. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	***role***	**Role**	A refinement of the semantics of the electronic address. *datatype: CURIE*

WebAddressType ***extends*** ***IRI***. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	***role***	**Role**	A refinement of the semantics of the web address. *datatype: CURIE*

3.2.6.6 Postal Address Group

PostalAddressGroup is defined as:

card.	*name*	*title*	*definition*
0..∞	***line***	**Address Line**	A line of address information, in the format expected by a recipient postal service. City, country area, country and postal code are expressed separately. *datatype: IntlStringType*
0..1	***locality***	**Locality**	A city/town/village etc. part of the address. *datatype: CodePlusType*
0..1	***area***	**Country Area**	A subdivision of a country, part of the address. *datatype: CodePlusType*
0..1	***country***	**Country**	A country, part of the address. *datatype: CodePlusType*
0..1	***postalCode***	**Postal Code**	A postal code, part of the address. *datatype:IntlStringType*

4 Any Item – The model shared by all Items

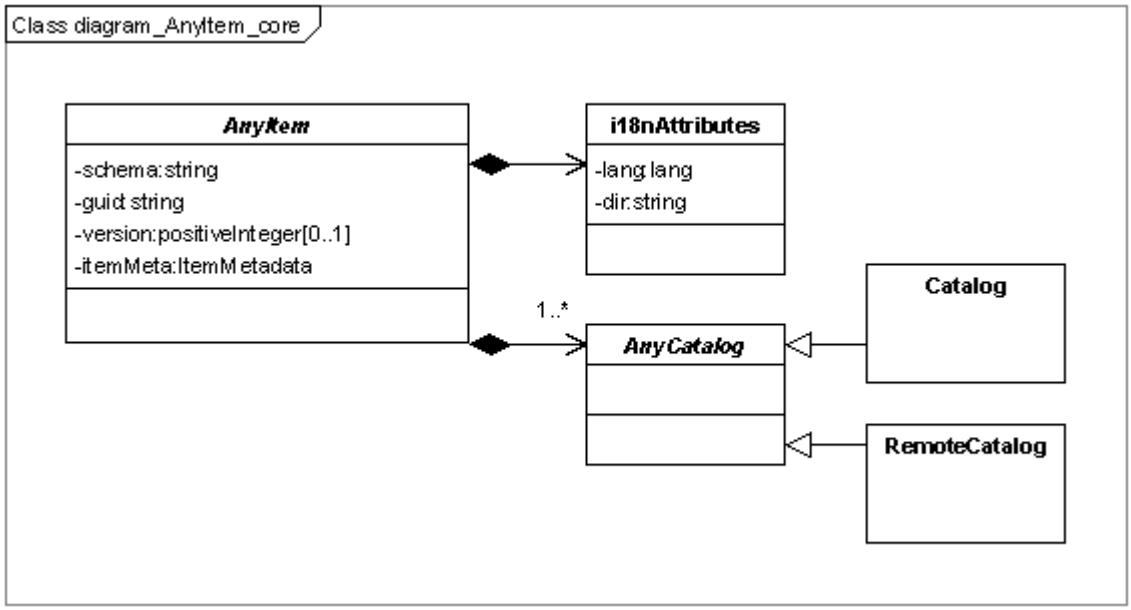
4.1 Global model of an Item

AnyItem is an ***abstract class*** defined as a template for all Items standardized by the IPTC. Different IPTC standards use this class as a *blueprint* for the definition of specific Items.

An Item is the atom of management in the NAR. This object gets a persistent, universally unique identifier, and a version which is incremented when the content of the Item is updated. It conveys news-related content, and allows for its proper management along a chain of syndication, from its initial creation down to its final consumption.

4.1.1 Diagrams and definitions

AnyItem is modelled after:



AnyItem supports ***i18nAttributes*** plus:

card.	*name*	*title*	*definition*
1	*schema*	**Schema Version**	The major-minor version of the XML schema specifying the Item. *datatype: String, restricted to integer.integer*
1	*guid*	**Item Identifier**	The persistent, universally unique identifier for the Item. *datatype: String*
0..1	*version*	**Item Version**	The version of the Item. *datatype: Positive Integer, non null; 1 by default*
1.. ∞	*catalog* | *catalogRef*	**Catalog**	A local or remote catalog. *datatype: AnyCatalog, see section below*
1	*itemMeta*	**Item Metadata**	A set of properties directly associated with the Item.

			datatype: ItemMetadata, see section below

4.2 Catalog

As described in a previous section, the NAR recommends the use of {scheme alias, code} pairs as property values. Each news provider is free to use their own taxonomies of subjects, genres, geographical areas, organisations or people etc, and to use any scheme alias he decides in the Items he provides. The NAR does not define hardwired scheme aliases, even if the IPTC proposes recommended scheme aliases for the schemes it provides.

Therefore it is mandatory to find in each Item a declaration of all scheme aliases-to-URI mappings, for scheme aliases in use inside the Item as property values. This is the only way for a consumer to be able to reconstruct a concept identifier out of a {scheme alias, code} pair.

A ***Catalog*** is defined as a set of scheme declarations in use by a news provider for a given Item. This cataloguing information is included at the top of each Item. It can be labelled by one or more titles.

Each Item defines its own set of Catalogs, and there is no interaction between Catalogs in different Items. Scheme alias declarations are global to the Item in which they appear and cannot be overridden in a given Item.

It is important to note that a News Message does not define any Catalog that would be common to the Items it contains.

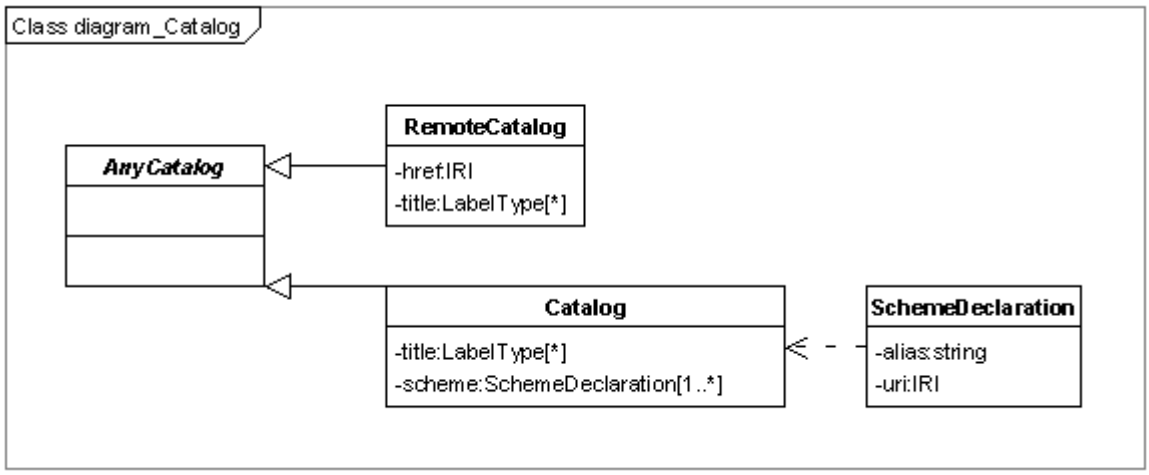
Due to the large number of schemes potentially used in a single Item, and knowing that bandwidth is very important to the News industry, the Catalog may be stored remotely and hyperlinked from the Items which use it via a ***CatalogRef*** property[2].

AnyCatalog is an ***abstract class*** which hides the choice of a local or remote catalog. It has no specific attribute.

In general, a given provider defines a unique Catalog of all schemes he uses, stores it in a central repository and references it for all Items he provides. A Catalog may evolve over time as its provider adds schemes or modifies the scheme aliases he declares. A provider may declare several Catalogs in the same Item: this may be especially useful for an aggregator which uses property values from different sources, but requires a way to avoid scheme alias clashes.

[2] A natural solution would have been to only use xmlns declarations to declare scheme URIs; but xmlns declarations must be inline, therefore this solution is rejected.

4.2.1 Diagrams and definitions



4.2.1.1 Remote Catalog

CatalogRef ***extends*** ***AnyCatalog***. Base information is complemented by:

card.	*name*	*title*	*definition*
1	*href*	**Catalog reference**	An hyperlink to a remote Catalog. *datatype: IRI (URI Reference)*
0.. ∞	*title*	**Title**	A short human-readable name for the Catalog. *datatype: LabelType*

As some required properties take a CURIE as a value, at least one Catalog or RemoteCatalog must be present in the CatalogSet.

Important notice: The remote resource is a plain Catalog structure as defined below. Its root name is ***catalog***, and this is not a managed Item.

4.2.1.2 Local Catalog

Catalog ***extends*** ***AnyCatalog***. Base information is complemented by:

card.	*name*	*title*	*definition*
0.. ∞	*title*	**Title**	A short human-readable name for the Catalog. *datatype: LabelType*
1.. ∞	*scheme*	**Scheme Declaration**	A scheme alias-to-URI mapping. *datatype: SchemeDeclaration, see below*

SchemeDeclaration is defined as:

card.	*name*	*title*	*definition*
1	*alias*	**Scheme Alias**	A short string used by the provider as a replacement for

			a scheme URI. *datatype: String*
1	***uri***	**Scheme URI**	The URI which identifies the scheme. *datatype: IRI*

4.3 Item Metadata

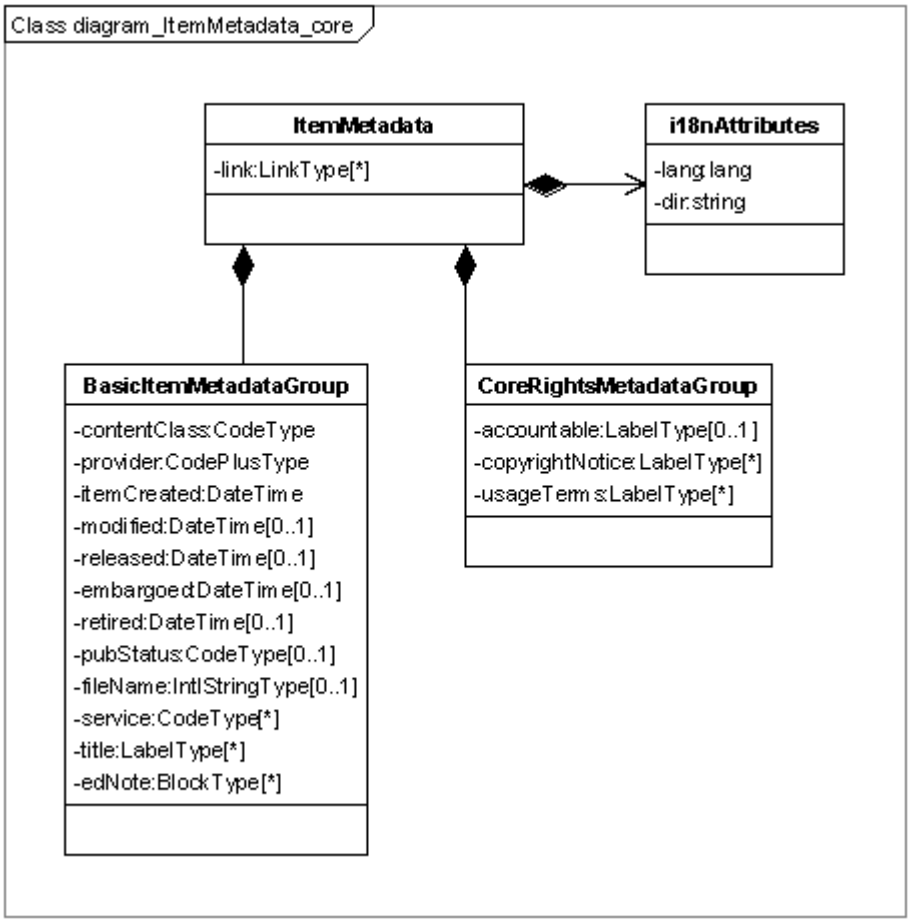
An Item is the unit of management in the NAR, and the Item Metadata component acts as a wrapper for all metadata related to this aspect. Such properties are totally independent of the content conveyed by the item; they reflect the use of this content is a professional workflow.

The **Basic Item Metadata Group** specifies the properties used for the management of the Item.

The **Core Rights Metadata Group** offers a basic expression of the copyright and usage rights associated with an Item. If no Usage Terms are specified, then no specific restrictions on use of the content beyond contractual ones are being asserted.

4.3.1 Diagrams and definitions

ItemMetadata is modelled after:



4.3.1.1 Item Metadata

ItemMetadata supports ***i18nAttributes*** plus:

card.	*name*	*title*	*definition*
1	-	**Basic Item Metadata Group**	A set of metadata relative to the Item and its management. *datatype: BasicItemMetadataGroup, see below*
0.. 1	-	**Core Rights Metadata Group**	A basic expression of the copyright and usage rights associated with an Item. *datatype: CoreRightsMetadataGroup, see below*
0.. ∞	*link*	**Item Link**	A link from the current Item to a target Item or Web resource. *datatype: LinkType, see below*
-	-	**Extension Point**	Any set of provider-defined properties.

4.3.1.2 Basic Item Metadata Group

BasicItemMetadataGroup is defined as:

card.	*name*	*title*	*definition*
1	*contentClass*	**Content Class**	The nature of the Item, set in accordance with the structure of its content. *datatype: CodeType*
1	*provider*	**Content Provider**	The entity responsible for the management of the Item. *datatype: CodePlusType*
1	*itemCreated*	**Date Item Created**	The date and time on which the first version of the Item was created. *datatype: DateTime*
0..1	*modified*	**Date Item Modified**	The date and time on which the current version of the Item was modified (i.e. revised). *datatype: DateTime*
0..1	*released*	**Date Item Released**	The date and time on which the provider's system intends to transmit the current version of the Item to the target audience. *datatype: DateTime*
0..1	*embargoed*	**Date Item Embargo Ends**	The date and time before which all versions of the Item are embargoed. If absent, the Item is not embargoed. *datatype: DateTime*
0..1	*retired*	**Date Item Retired**	The date and time after which all versions of the Item are retired. If absent, the Item is not retired. *datatype: DateTime*
0..1	*pubStatus*	**Publish Status**	The publishing status of the Item, "usable" by default. *datatype: CodeType*
0..1	*fileName*	**File Name**	The recommended file name for this Item.

			datatype: IntlStringType
0..∞	***service***	**Service**	An editorial service to which an Item is assigned to by its provider. *datatype: CodeType*
0..∞	***title***	**Title**	A short human-readable name for the Item. *datatype: LabelType*
0..∞	***edNote***	**Editorial Note**	A note addressed to the editorial people processing the Item. *datatype: BlockType*

4.3.1.2.1 Usage Notes

- ***contentClass*** **(Content Class)** gives a hint on the nature of the Item. IPTC values for News Items correspond to 'text', 'photo', 'video', etc.; values for Topic Items correspond to 'generic', 'person', 'organisation", etc. A recipient system may use this information to make a coarse selection of Items, depending on their structure. Therefore a recipient system can filter any Item he is unable to process, without relying on the introspection of the structure.
- ***provider*** **(Provider)** corresponds to the publisher of the Item.
- ***service*** **(Service)** values are defined by each provider, and are often associated with the notion of a desk or a feed. Some examples are a "french wire" service, an "international picture" service or a "mobile news" service.
- ***title*** **(Title)** is usually displayed in user interfaces listing a selection of Items and may be provided in different languages. In the case of News Item, this may be seen as a short headline; in the case of a Topic Item it is the most usual name the concept is given.

4.3.1.2.2 XML implementation notes

The order of the properties in this set is imposed.by the XML schema.

4.3.1.3 Core Rights Metadata Group

CoreRightsMetadataGroup is defined as:

card.	*name*	*title*	*definition*
0..1	***accountable***	**Accountable Person**	An individual accountable for the content in legal terms. *datatype: LabelType*
0.. ∞	***copyrightNotice***	**Copyright Notice**	Any necessary copyright notice for claiming the intellectual property for the content. *datatype: LabelType*
0.. ∞	***usageTerms***	**Usage Terms**	A natural-language statement about the usage terms pertaining to the content. *datatype: LabelType*

4.3.1.3.1 Usage Notes

- ***accountable*** **(Accountable person)** answers to a legal issue. In some countries (eg Germany, Sweden) it is needed to designate a person accountable for any legal issue related to the published content. The full translation from the German term is: accountable person in terms of the press law - (For reference in German: Verantwortlich im Sinne des Presserechts -acronym = ViSdP), in Swedish it is called "Ansvarig utgivare". In practice today, a news provider may send out a message each day which indicates the "accountable person". This may work for traditional feed services, but fails with profiled services (content selections) which filter such messages. The solution is to include this information in the Items themselves.
- ***usageTerms*** **(Usage terms)** include the type of usage to which the rights apply, the geographical area or areas to which specified usage rights pertain, the indication of the rights holder, restrictions on the use of the content and the time period over which the stated rights apply.

4.3.1.3.2 XML implementation notes

The order of the properties in this set is flexible: The required property must come first, then the repeatable properties may be inserted in any order.

4.4 Item Links

A powerful feature of the NAR is the capability to associate Items via Links. It is therefore possible to create a network of news resources, for management and navigation purposes. The Link component offers a generic mechanism for linking Items within the NAR framework as well as creating links from Items to other Web resources.

Links have several usages:

- **Navigation links** allow for navigation from an Item to another related Item or a Web resource. Example: a News Item representing a section of a transcript (a “take” in the news language) may be linked to the previous and next take; an article about a person may be linked to the biography of this person.
- **Derivation links** allow for the expression of a parent/child relationship. Example: a News Item representing an article may be linked to the article it is a translation of; a wrap-up may be linked to the previous stories used as source material for the article; a cropped picture may be linked to its source picture.
- **Dependency links** are used for indicating dependencies on external Items which are required in order to fully present the composite content of the Item. If some target Items are not retrievable, then the recipient processor should fail gracefully. Their use is limited to News Items of class "layout".
  The most obvious example is a News Item representing an illustrated article. The textual content of the News Item (usually formatted as XHTML or NITF) includes a reference to a photo which is represented by a picture News Item. As the NAR recipient processor is content agnostic, it cannot infer this dependency from processing the content. A dependency link from the text News Item to the picture News Item indicates that the recipient processor must retrieve the picture News Item before the article can be processed (and displayed).

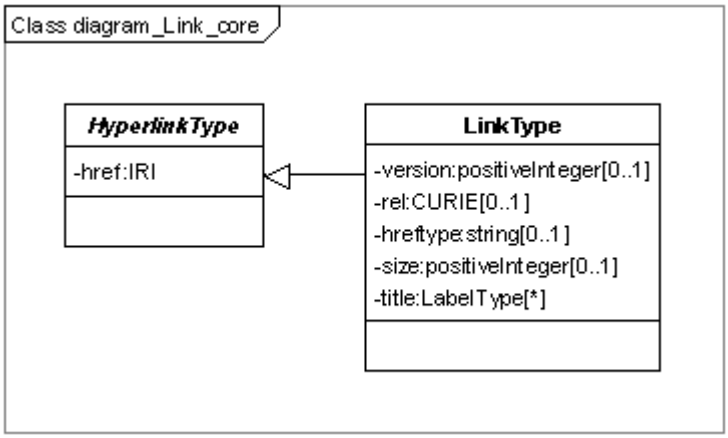
- **Composition links** are used in a Package Item to aggregate the Items included in the package.

All types of links share the same technical structure, and their semantic is refined via a relationship indicator.

In order to ease the processing of a link, the target content class and the size of the target resource may be added to the linking information. Such feature is especially useful if the target on the link is a Web resource, and corresponds to the information associated with an RSS enclosure. Note that if the target resource is an Item, the size which is given here is the size of the XML representation of the Item, and therefore this information is of low interest.

4.4.1 Diagrams and definitions

LinkType is modelled after:



4.4.1.1 Hyperlink Type

HyperlinkType is defined as:

card.	*name*	*title*	*definition*
1	*href*	**Target Resource Identifier**	The unique Identifier of the target Item, or the locator of the target Web resource. *datatype: IRI (URI Reference)*

4.4.1.2 Link Type

LinkType ***extends*** ***HyperlinkType***. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*version*	**Target Item Version**	The version of the target Item identified by a Target Item Identifier. By default, the latest revision is retrieved when the link is activated. Absent if the target is a Web resource. *datatype: Positive Integer, non null*
0..1	*rel*	**Relationship**	The identifier of the relationship between the current

		Indicator	Item and the target resource. In the absence of this indication, the relation is a simple association. *datatype: CURIE*
0...1	***hreftype***	**Target Content Type**	Contains the IANA (Internet Assigned Numbers Authority) MIME type of the target of the link. *datatype: String*
0..1	***size***	**Size**	The size in bytes of the target resource. *datatype: Positive integer*
0.. ∞	***title***	**Link Title**	A short human-readable name representing the link and displayed to the users. *datatype: LabelType*

4.4.1.3 Usage Notes

- ***hreftype* (Target Content Type)** can also be used if the target is an Item. For this purpose, each kind of Item gets its own MIME type.

4.5 Content Metadata

All Items share a basic set of properties, directly associated with the content of the Item. Such properties are wrapped in a **Content Metadata** component, which contains at least a set of administrative metadata.

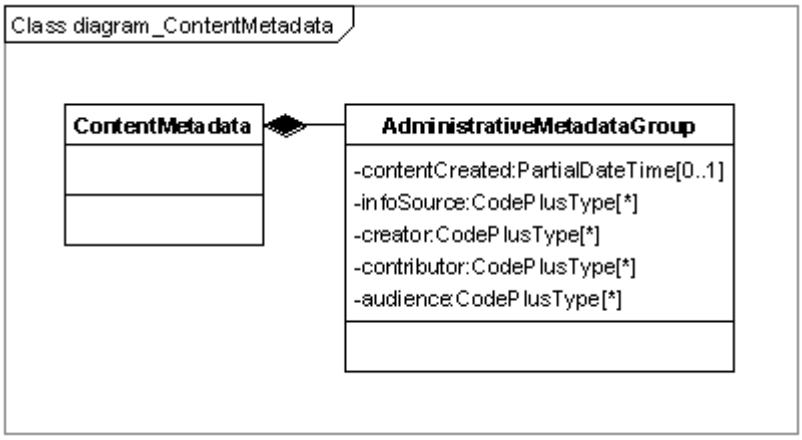
The **Administrative Metadata Group** is a set of properties associated with the administrative facet of content, i.e. data that cannot be inferred from "consuming" (reading, listening to, watching) the content. This includes the date of content creation, the sources of the information, content creators and contributors and the intended audience.

Note that News Items extend this set with descriptive metadata which describe the news content. Other Specialized Items may extend this set with other kind of metadata.

Each particular provider is equally able to add to this set metadata of its own by mutual agreement with the recipients of the Item.

4.5.1 Diagrams and definitions

ContentMetadata is modelled after:



4.5.2 Content Metadata

ContentMetadata is defined as:

card.	*name*	*title*	*definition*
1	-	**Administrative Metadata Group**	A set of properties associated with the administrative facet of content. *datatype: AdministrativeMetadata, see below*
-	-	**Extension Point**	Any set of provider-defined properties.

4.5.2.1 Administrative Metadata Group

AdministrativeMetadataGroup is defined as:

card.	*name*	*title*	*definition*
0..1	*contentCreated*	**Date Content Created**	The date on which the content was created. *datatype: PartialDateTime*
0.. ∞	*infoSource*	**Source of Information**	A party (person or organisation) which originated some information used to create or enhance the content. *datatype: CodePlusType*
0.. ∞	*creator*	**Creator**	A party (person or organisation) which created the content, preferably the name of a person (e.g. a photographer for photos, a graphic artist for graphics, or a writer for textual news). *datatype: CodePlusType*
0.. ∞	*contributor*	**Contributor**	A party (person or organisation) which modified or enhanced the content, preferably the name of a person. *datatype: CodePlusType*
0.. ∞	*audience*	**Audience**	An intended audience for the content. *datatype: CodePlusType*

4.5.2.2 Usage Notes

- ***contentCreated*** **(Date Content Created)** is, in the case of an old picture, the date at which the picture was shot, long before it was digitalized.

4.5.2.3 XML implementation notes

The order of the properties in this set is flexible: The non-repeatable property must come first, then the repeatable properties may be inserted in any order.

5 News Item

5.1 Description

A **News Item** aims to convey news with the sense of the reporting of a news event. Its content is gathered by journalists, presented with a journalistic style, and updated according to the progression of the story.

A News Item may convey this information in any media type or format, eg the thumbnail, preview and high definition renditions of a picture.

It can also convey more structured news information, e.g. information about companies, sports events and general events, in instances when this information is related to an event or fact.

Typical characteristics of a News Item are:

- Short term interest for its content: news items are volatile, and people's interest in them fades as time passes ("nothing is older than yesterday's news").
- It is expressed via a set of alternative renditions of some media content.
- It will usually be updated only for a short period of time, as long as the covered event evolves, and then may be archived.
- It refers to an arbitrary set of concepts and entities.
- It may be associated with other News Items or web resources via typed links.

Examples of News Items are a news report, a picture, the graphical illustration of some event, a video clip or an illustrated biography.

A News Item supports management properties, and it may be associated with News Items or web resources via typed links.

Content metadata is extended by descriptive metadata, and is therefore supported by a **News Content Metadata** component.

The **Descriptive Metadata Group** is a set of properties associated with the descriptive facet of news content, i.e. data that can be inferred from "consuming" (reading, listening to, watching) the news.

Providers may extend the information a News Item handles by implementing custom properties.

The **Content Set** component wraps *alternative renditions* of the news content. Alternative renditions are different technical representation of the same logical content. All alternative renditions can be derived from an "original rendition" by a software processor. For example: images in different

resolutions, graphics as vector format or bitmap, text with different kinds of markup (eg. NITF or PDF).

Content may be included by value or by reference, and useful characteristics are represented along with such content, in order to facilitate its processing.

The presence of news content is optional in the News Item. This allows for a lightweight and progressive representation of information, suitable in the case of linkblogs for example.

The **News Content Component** is an ***abstract class*** defined as a model for all types of content components. Such content may belong to any XML language capable of expressing generic or specialized news information, e.g .NITF, XHTML, SportsML or XBRL.

Inline XML holds XML content which is directly embedded in the component. The XML vocabulary is identified by its Content Type. The root element of this structure must be the root element of the language.

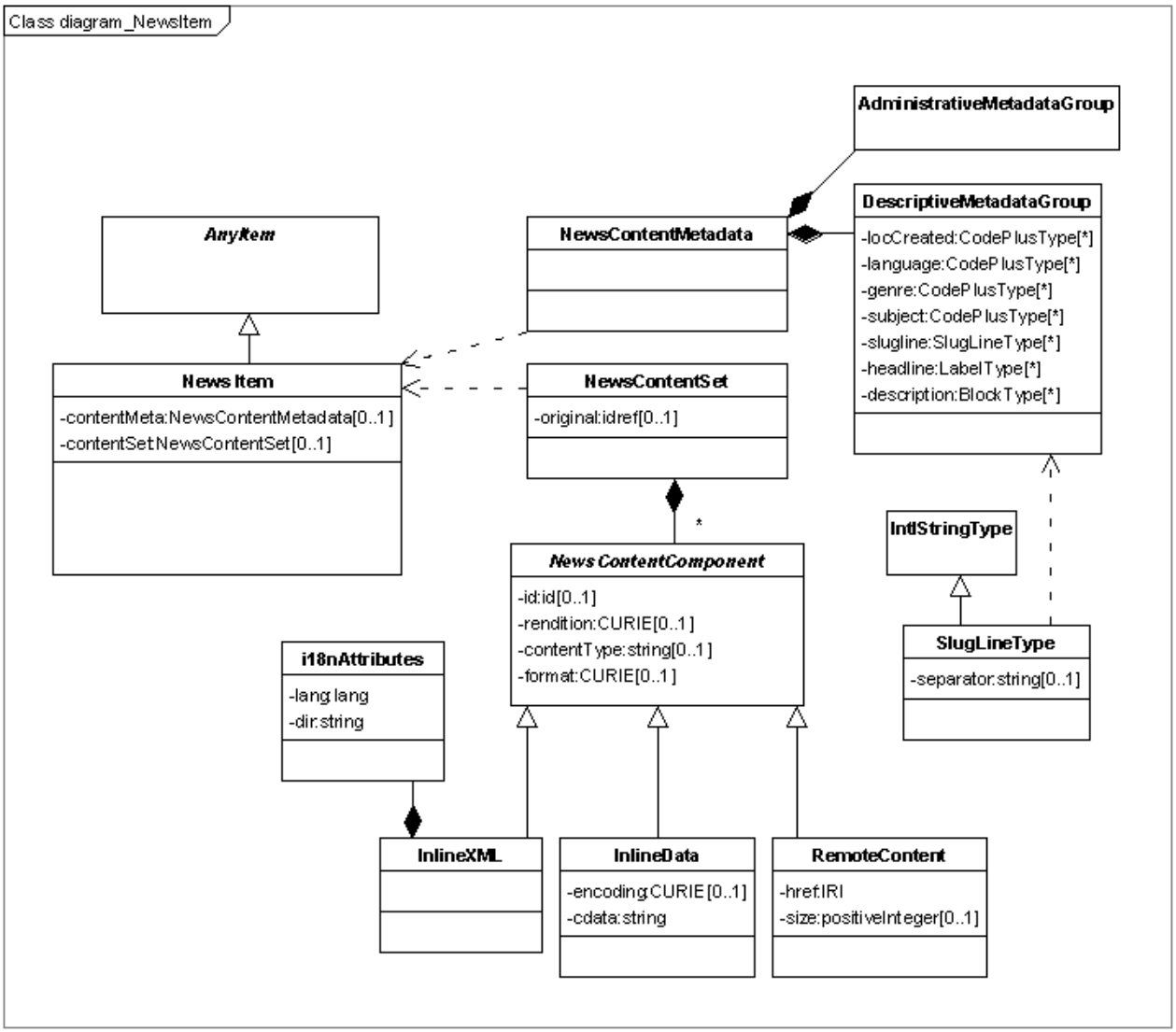
Inline Data holds plain-text or encoded content. Plain text or CDATA content MUST be identified by the "text/plain" Content Type. Binary content, like images, audio clips or even pdf or Word documents may be exchanged after proper encoding, but it is strongly recommended to use this structure for small assets only. The encoding is constrained to "base64" at the core conformance level.

Remote Content may be used for representing any kind of media and data format. The data is stored independently of the News Item and is referenced via an hyperlink.

The News Content component may contain any provider defined characteristics, like the Height and Width associated with a picture, the Word Count associated with a news story, or the Duration of an audio clip.

5.2 Diagrams and definitions

NewsItem is modelled after:



NewsItem** extends **AnyItem. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	*contentMeta*	**Content Metadata**	A set of properties associated with the content of the Item. *datatype: NewsContentMetadata, see below*
0..1	*contentSet*	**News Content Set**	A set of alternate renditions of the Item content. *datatype: NewsContentSet, see below*

5.2.1 News Content Metadata

NewsContentMetadata** extends **ContentMetadata. It is defined as:

card.	*name*	*title*	*definition*
1	-	**Administrative**	A set of properties associated with the administrative

		Metadata Group	facet of content. *datatype: AdministrativeMetadata, see below*
0.. 1	-	**Descriptive Metadata Group**	A set of properties associated with the descriptive facet of content. *datatype: DescriptiveMetadata, see below*
-	-	**Extension Point**	Any set of provider-defined properties.

5.2.2 Descriptive Metadata Group

DescriptiveMetadataGroup is defined as:

card.	*name*	*title*	*definition*
0.. ∞	***locCreated***	**Location Content Created**	A location at which the content was created. *datatype: CodePlusType*
0.. ∞	***language***	**Language**	A language used along the content. *datatype: CodePlusType*
0.. ∞	***genre***	**Genre**	A nature, intellectual or journalistic characteristics of the content. *datatype: CodePlusType*
0.. ∞	***subject***	**Subject**	What the content is about. *datatype: CodePlusType*
0.. ∞	***slugline***	**Slugline**	A sequence of tokens describing the content, which get increasingly specific towards the end of the sequence. *datatype: SluglineType*
0.. ∞	***headline***	**Headline**	A narrative introduction to the content. *datatype: LabelType*
0.. ∞	***description***	**Description**	A free-form textual description of the content. *datatype: BlockType*

5.2.2.1.1 XML implementation notes

The order of the properties in this set is flexible: all properties are repeatable and may be inserted in any order.

5.2.2.2 Slugline

SluglineType extends IntlStringType. The sequence of tokens is qualified by:

card.	*name*	*title*	*definition*
0.. 1	***separator***	**Separator**	A single character acting as a separator between the term of a slug. *datatype: String, constrained to one character*

5.2.3 News Content Set

NewsContentSet is defined as:

card.	*name*	*title*	*definition*
0.. 1	*original*	**Original Rendition Reference**	A local reference to the original piece of content, from which all renditions have been derived. *datatype: idref*
0.. ∞	*inlineXML* | *inlineData* | *remoteContent*	**News Content Component**	A rendition of news content. *datatype: NewsContentComponent, see below*

5.2.3.1 Usage Notes

- ***Original Rendition Reference*** may reference the high-definition rendition of a picture from which a thumbnail has been processed, and offered as an alternative rendition.
- Each ***News Content*** component wraps one specific rendition of the content.

5.2.4 News Content Component

NewsContentComponent is defined as:

card.	*name*	*title*	*definition*
0.. 1	*id*	**Local Identifier**	The local identifier of the content component. *datatype: id*
0.. 1	*rendition*	**Rendition**	The specific rendition of content this component supports. *datatype: CURIE*
0..1	*contentType*	**Content Type**	An IANA (Internet Assigned Numbers Authority) MIME type. *datatype: String*
0..1	*format*	**Format**	A refinement of a generic Content Type. *datatype: CURIE*
-	-	**Extension Point**	Any set of provider-defined content characteristics.

5.2.4.1 Usage Notes

- ***Local Identifier*** is used especially in association with the Original Rendition Reference.
- ***Rendition*** helps the processor choosing between alternative content components. Thus a picture may have pieces of content rendered as "thumbnail" or "preview", a text Item may contain an "sms", a "web" and a "print" rendition; values may be extended by individual providers.
- ***Content Type*** applies to the content before any technical encoding needed to make the data xml-compliant (e.g. base64).

Note that Content Type and Content Class (from the Item Metadata component) are complementary. Content Class indicates the nature of the Item's content, but not the format of the components it contains: an Item can be a 'photo' with a gif thumbnail and a jpeg preview; a 'graphic' Item may contain a gif (bitmap) component and an eps (vector) component.

- ***Format*** is expressed when no precise Content Type exists (e.g. 'application/xml' or 'text/plain' are the only mime types available for a given format).

5.2.4.2 Inline XML

InlineXML *extends* ***NewsContentComponent*** and supports ***i18nAttributes*** plus any XML content from a non-newsml namespace.

5.2.4.3 Inline Data

InlineData *extends* ***NewsContentComponent*** and supports **plain textual content** plus:

card.	*name*	*title*	*definition*
0..1	*encoding*	**Encoding**	Specifies the encoding applied to the content before inclusion in the content. *datatype: CURIE*

5.2.4.4 Remote content

RemoteContent *extends* ***NewsContentComponent***. Base information is extended by:

card.	*name*	*title*	*definition*
1	*href*	**Resource Hyperlink**	The URI reference of the asset representing the content. *datatype: IRI*
0..1	*size*	**Size**	The size in bytes of the remote content. *datatype: Positive or null Integer*

6 Topic Item

6.1 Description

A **Topic Item** aims to convey knowledge about concepts (named entities such as organisations or abstract notions such as news subjects). Typically a Topic Item itself holds only rather short and structured information about the concept and about its relationships with other concepts.

The content of a Topic Item is a **Concept Definition** component or an extension of this component, as defined in section 3. Such content can be seen as a "hub" of information about a given concept.

Typical Topic Items convey information about a person, a location, an organisation, a geopolitical area or a point if interest; but it may also convey information about a business sector, any object or animal etc...

Each Topic Item is uniquely identified and versioned by its provider: this provider-dependent Item Identifier must not be confused with the unambiguous Concept Identifier defined by an authority and conveyed as part of the content of the Item.

By using a Topic Item, core information about a concept can be properly managed, versioned and exchanged in a news workflow, using the mechanisms generic to all Items defined by the NAR.

Typical characteristics of a Topic Item are:

- Long term interest for its content.
- It will usually be updated infrequently but over a long period of time, as long as the covered topic evolves.
- It focuses on a single concept or entity.
- It offers a way to dereference a concept identifier: a Topic Item is returned by a NewsML2 server when queried information about a concept.

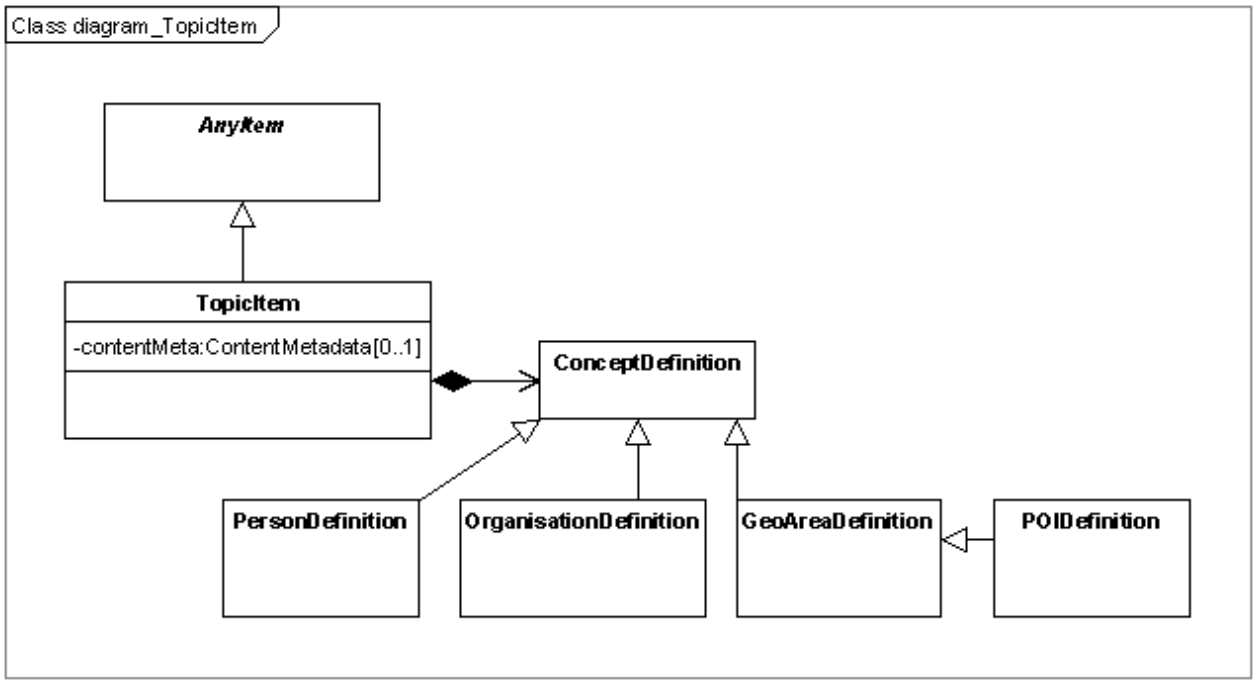
Different Topic Items, created by different providers, may contain structured information about the same concept. It is expected that a market of knowledge information can arise from the availability of this feature.

A Topic Item supports management properties, administrative metadata, and it may be associated with other Topic Items, News Items or web resources via named links, eg the biography of a person expressed as a News Item.

The Content Class (from the Item Metadata component) identifies the structure of the content handled by the Topic Item: its value is "generic" if the content of the Topic Definition component is a basic Concept Definition component , or "person", "organisation", "geographical area" or "point of interest" if the content is an extension of this basic component.

6.2 Diagrams and definitions

TopicItem is modelled after:



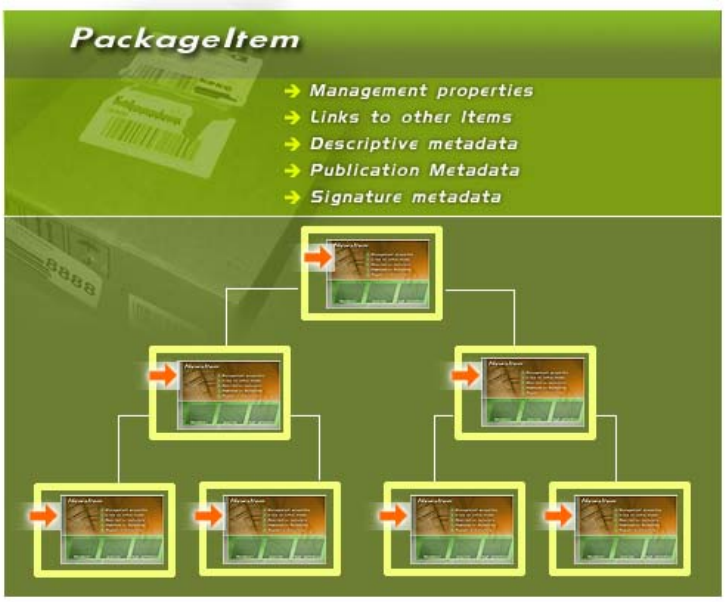
TopicItem extends AnyItem. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	***contentMeta***	**Content Metadata**	A set of properties associated with the content of the Item. *datatype: ContentMetadata*
0..1	***conceptDefinition*** ***|personDefinition*** ***|organisationDefinition*** ***| geoAreaDefinition*** ***| POIDefinition etc.***	**Concept Definition**	A set of properties defining a concept. *datatype: ConceptDefinition*

7 Package Item

7.1 Description

A ***Package Item*** facilitates the packaging of all kinds of items, from really simple constructs to the highly hierarchical structures created by some news providers.



Examples of Package Items are a collection of pictures, the "top ten" list of news items, an unordered set of news items relative to the same event, the representation of a news paper section of page.

Typical characteristics of a Package Item are:

- It provides some structure to news related information, and is expressed via a hierarchy of items.
- The items found in a Package Item stay independent from the package: they can be managed individually, and the package keeps only references to them.
- Its content is of medium term interest

A Package Item supports management properties, administrative metadata, and it may be associated with other Package Items, News Items or web resources via named links.

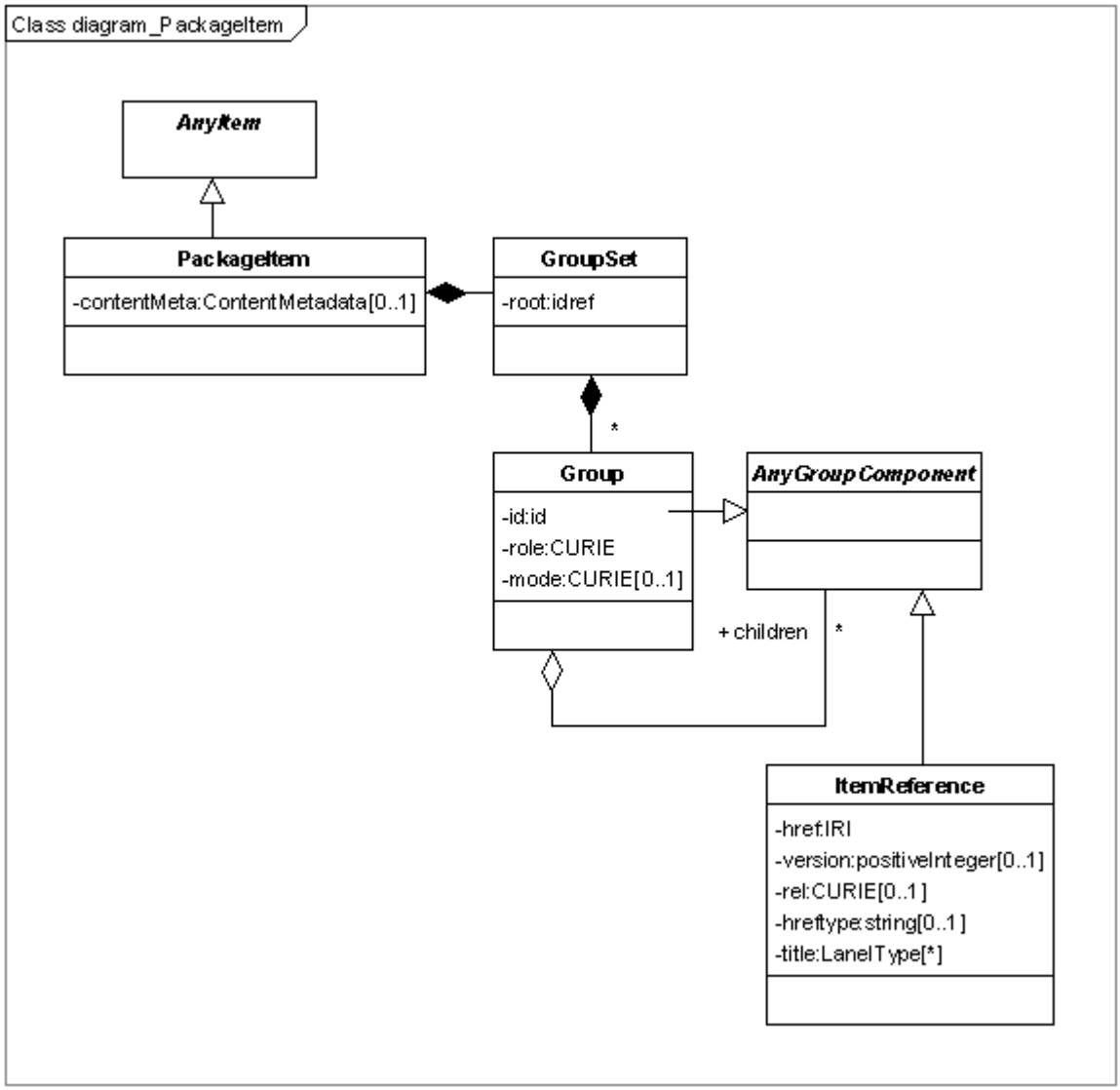
The content of a Package Item is a **Group Set**, which represents a tree of Items. A specific **Group** component acts as the root of the tree. It contains other Group components and Items, in any order. The model follows a composite pattern, ie a template used to compose part-whole hierarchies, which lets clients treat individual objects and compositions of objects uniformly.

All Items of a package are included by reference, as physical inclusion would break the capability to manage inner Items independently of the outer Package Item.

The Group Set is optional. This allows for a lightweight and progressive representation of information.

7.2 Diagrams and definitions

PackageItem is modelled after:



PackageItem** extends **AnyItem. Base information is complemented by:

card.	*name*	*title*	*definition*
0..1	***contentMeta***	**Content Metadata**	A set of properties associated with the content of the Item. *datatype: ContentMetadata*
0..1	***groupSet***	**Group Set**	A hierarchical set of groups. *datatype: GroupSet, see below*

7.2.1 Group Set

GroupSet is defined as:

card.	*name*	*title*	*definition*

1	*root*	**Root Group**	A local reference to the group acting as the root of the hierarchy. *datatype: idref*
1..∞	*group*	**Group**	A mixed set of group references and links. *datatype: Group, see below*

7.2.2 Group

Group is defined as:

card.	*name*	*title*	*definition*
1	*id*	**Local identifier**	The local identifier of the group. *datatype: id*
1	*role*	**Group Role**	The part this group plays within its container. *datatype: CURIE*
0..1	*mode*	**Group Mode**	An indication whether the elements in the group are complementary or alternative and whether their order is relevant. *datatype: CURIE*
0..∞	*groupRef*	**Group Reference**	A reference to a group local to the package. *datatype: idref*
0..∞	*link*	**Item Reference**	A link from the current Item to a target Item or Web resource. *datatype: LinkType*

7.2.3 Usage Notes

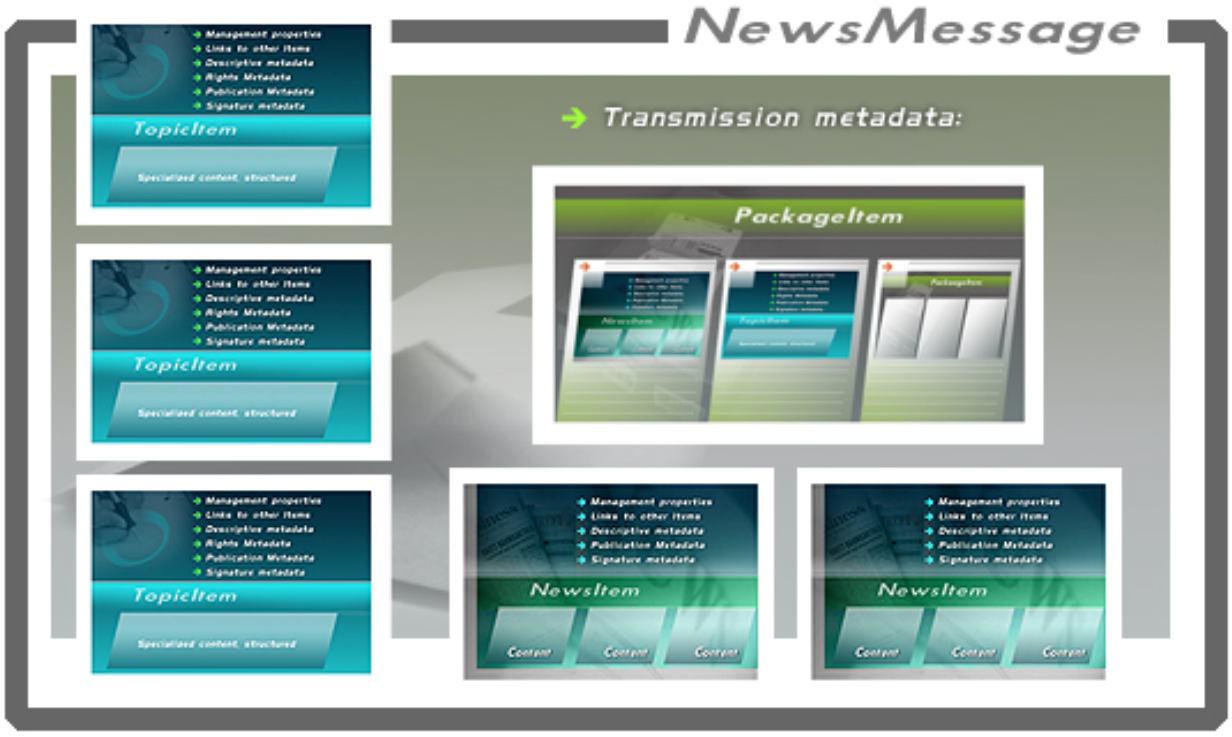
- **Group Role*:*** the Group acting as root has role "root".
- **Group Mode**: By default the group is "complementary and unordered".
  - Complementary and Unordered: To be used for any kind of supporting content that does not require a sequence to be specified.
  - Complementary and Ordered: To be used for any kind of content which must be displayed or consumed in a particular sequence, expressed by the order of the child elements of the group. The sequence could be a ranking. The semantics of the role attribute value determine the required processing.
  - Alternatives: To be used if a group contains equivalent pieces of content (eg translations of the same news story into different languages). The recipient may pick one or more of these.
- **Group References** and **Item References** can be included in any order, and this order may be relevant. Each link aggregates an external Item (or a web resource) to the package, and optionally indicates the relationship between the group and the target resource, plus a title for this resource.

- Implementers shall have a clear understanding of the difference between the aggregation (aka composition) links expressed as content of the package, and the navigation links a Package Item may contain in its header.

8 News Message

8.1 Description

A ***News Message*** facilitates the exchange of all kinds of items by any kind of IT transmission, especially in a broadcast or multicast network.



An ***Item Set*** contains a set of Items, and is restricted to objects defined in the newsml namespace.

The XML representation of an Item is directly included in the Item set.

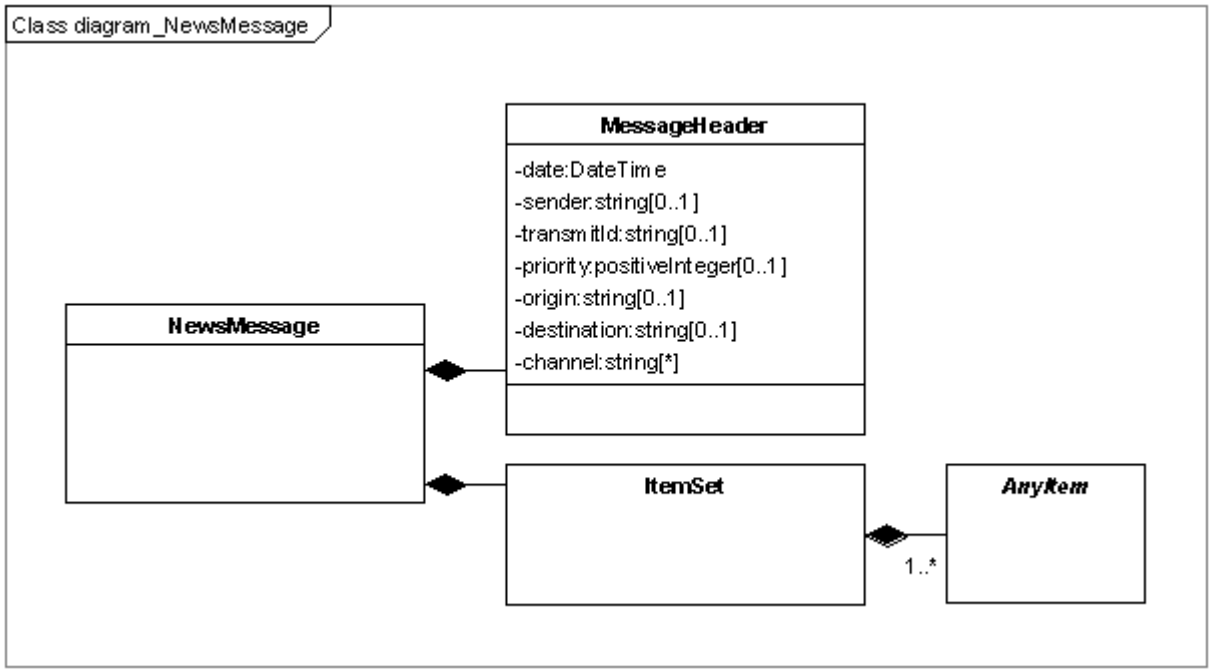
The model assigns no significance to the order of Items within the News Message.

The use of a News Message is totally optional in a news workflow. Alternatively, Items may be exchanged using SOAP, WebDAV, ICE, the Atom Publication Protocol (using Atom feeds, and items as payload of an Atom entry) or any other possible syndication protocol.

It may be useful for a recipient to store the information conveyed by a message, but this is not mandatory. Usually the messaging information will be maintained separately from the information relative to the contained items.

8.2 Diagrams and definitions

NewsMessage is modelled after:



8.2.1 News Message

NewsMessage is defined as:

card.	*name*	*title*	*definition*
1	*header*	**Message Header**	A set of properties facilitating the exchange of Items. *datatype: MessageHeader, see below*
1	*itemSet*	**Item Set**	A set of Items. *datatype: ItemSet*

8.2.2 Message Header

MessageHeader is defined as:

card.	*name*	*title*	*definition*
1	*date*	**Date of Transmission**	The date and time of transmission of the message. *datatype: DateTime*
0..1	*sender*	**Sender**	The sender of the items, which may be an organisation or a person. *datatype: String*
0..1	*transmitId*	**Transmission Identifier**	The transmission identifier associated with the message. *datatype: String*
0..1	*priority*	**Priority**	The priority of transmission. *datatype: positive Integer, 1 to 8*
0..1	*origin*	**Origin**	The point of origin of the transmission of the

			message. *datatype: String*
0..1	***destination***	**Destination**	The point(s) of destination of the message. *datatype: String*
0..∞	***channel***	**Channel**	A transmission channel used by the message. *datatype: String*
-	**-**	**Extension Point**	Any set of provider-defined properties.

8.2.2.1 Usage Notes

- **Date of Transmission** may not be updated in case of retransmission of the message.
- **Sender***:* the structure of this string is not specified by the IPTC. Best practice is to identify a sender by its domain name.
- **Transmission Identifier**: no two News Messages sent by the same sender on the same date can have the same identifier. In case of retransmission it is not required to update this identifier. The structure of this string is not specified by the IPTC.
- **Origin**: the structure of this string is not specified by the IPTC.
- **Destination**: the structure of this string is not specified by the IPTC.
- **Channel**: a channel identifier is used to provide recipients with information on which select, route, or otherwise handle the content of the message. The structure of this string is not specified by the IPTC.

8.2.3 Item Set

ItemSet is defined as:

card.	*name*	*title*	*definition*
1..∞	***newsItem* | *topicItem* | *packageItem* ...**	**Item**	An Item included by value. *datatype: AnyItem*

9 Processing model

9.1 Processing a Catalog

The URI of a remote catalog MUST NOT be relative.

It is OK for one URI to have two aliases. It is an error if one alias is defined as equivalent to two URIs. Note that this error may arise within a catalog, as well as across catalogs.

If an aggregator finds an alias collision (ie the same alias associated with two URIs) while creating a package item which aggregates content from various providers, the aggregator MUST change one or both of the aliases before publishing the package item. This can be done by creating and publishing one or more non-clashing external catalogs (which replace original external catalogs) and/or by replacing one or more external catalogs with non-clashing in-line scheme declarations.

If an alias collision is found during the processing of an item, the recipient processor MUST reject the item as it can lead to misinterpretation of the information.

It is OK to cache a remote catalog indefinitely. If a remote catalog is functionally changed, the URI used to access it must be changed. Functional changes are:

- the addition or removal of a "scheme" element
- a change to a scheme alias
- a change to a scheme URI

9.2 Processing the status of an Item

9.2.1 Definition of the different status values

In this section, Item should be taken as Item and/or its content.

9.2.1.1 Publishing Status

The IPTC makes these values normative for the exchange of Items between a provider and its customers.

Usable: The Item MAY be published without restriction.

Withheld: Until further notice, the Item MUST NOT be published or used under any circumstances. If the Item has been published the publisher MUST take immediate action to withdraw or retract it.

Canceled: The Item MUST NOT be published or used under any circumstances. If the Item has been published the publisher MUST take immediate action to withdraw or retract it.

9.2.1.2 Status qualifiers

Embargoed: The Item MUST NOT be published until the date and time specified by the provider.

Retired: The Item MAY be published and accessed, but new references to this Item SHOULD NOT be created after the date and time specified by the provider.

Note: A Topic Item which is retired should include an additional Editorial Note, with the following content: "Retired – shall not be assigned after yyyy-mm-dd".

9.2.1.3 Publication property

Expired: The Item SHOULD NOT be published, and new references to this Item SHOULD NOT be created after the date and time specified by the provider. Depending on contractual conditions access to this Item may be forbidden.

9.2.2 Use cases

9.2.2.1 Use cases associated with a status of Withheld

Use case 1: a provider distributes a story as a news Item (version1). At a later stage he learns that there may be a problem with the information included in the Item. He sends a new version of the news Item (version 2) with a status equal to Withheld. All recipients systems must display a warning on this news Item, and recipient publishers must postpone the publication of the information contained in the news Item until further notice. The news provider can then choose between two solutions: one is to bring the news Item back to the Usable status, the other is to set the status to Canceled (both end-up with version 3).

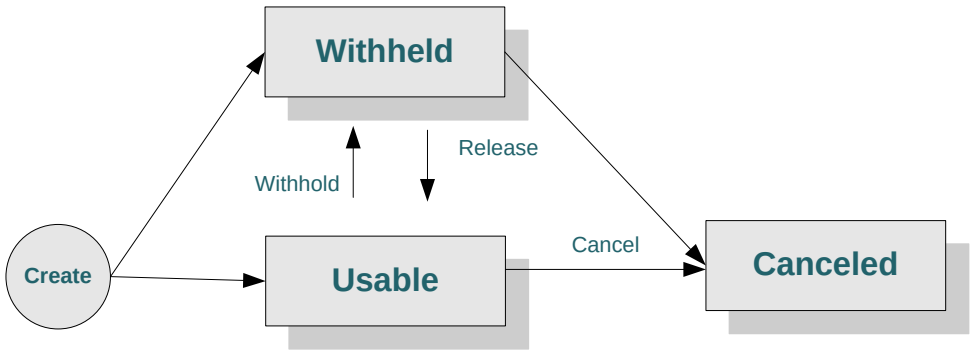
Use case 2: an eCommerce system proposes a large collection of illustrated articles managed as news items. The publisher managing the system sees that the information included in a news Item (version 1) is not up to date anymore, and decides to hide this Item from its customers until it is properly revised. He set then its status to Withheld (version 2), edits the news Item and set its status back to Usable (version 3).

9.2.2.2 Use cases associated with a status of Expired

Use case: an eCommerce system proposes a large collection of illustrated articles managed as news items. The publisher managing the system sets up an expiration date for each news Item entering the system (version 1); when this date comes, the news Item is automatically hidden from the customers of the platform. The publisher is warned that a news Item expired. He is able to edit the news Item and move the expiration date to a future date, so that the customers of the platform can get access to it again.

9.2.3 Diagram

This depicts the state transition diagram reflecting the ways in which the ***status*** values are intended to be used. Thus, upon creation of an Item, allowed statuses are "Usable" and "Withheld". It is possible to withhold a "Usable" document; it is possible to release a 'Withheld" document; it is possible to cancel a "Usable" or 'Withheld" document. Once an Item has had its status set to "Canceled", it has reached a final state.



Embargoes are managed via the ***dateEmbargoEnds*** property. This property is optional; if present, the date and time it contains must be compared with the current date and time before the Item is used. The Item must not be published before this time. The embargo overrides the usability of the Item, inferred from its status.

Retirement is managed via the ***dateRetired*** property. This property is optional; if present, the date and time it contains must be compared with the current date and time before the Item is used. The Item must not be referenced after this time. The retirement overrides the usability of the Item, inferred from its status.

9.2.4 Processing model on the recipient side

Here is the processing model on the recipient side:

Test status = "Canceled":
The Item must not be used, ever. Any usage of the Item must be prohibited, if needed by the way of alerts.
Else: next
Test status = "Withhold":
The Item must not be used until further notice. Any usage of the Item must be prohibited, if needed by the way of alerts.
Else: next
Test status = "Usable":
Test dateEmbargoEnds is not past => live status = Embargoed
Else: The Item is usable and may be safely published

9.3 Processing Links

9.3.1 Retrieving the linked resource

In order to retrieve the linked resource, a recipient should:

1. Check whether the target resource (either Item or Web resource) is available in a local repository (most NAR objects are stored in the recipient cache, so they are usually retrieved directly using the ***Target Resource Identifier***, and not from the provider's site via a URL).
2. Check whether the scheme of the ***Target Resource Identifier*** allows some direct retrieval of the target resource via the Web (e.g. if the scheme is http: or ftp:)

Then, at power conformance level:

3. Check whether ***Target Resource Identifier*** contains an implicit resolution mechanism (e.g. DOI, PURL etc).
4. Check whether there is the ***Alternative Location*** exposed from the ***Item Header.*** This information may complement the Target Item Identifier and provide an immediate URN resolution mechanism. Multiple locations may be given, as allowed in the Management component. In such case the processor will use the role qualifier and URL scheme for choosing the most appropriate resource.
5. Signal an error or ignore the link.

9.3.2 Processing the link instance

When used in the Item header, the processing model of a link instance depends on its Relationship Indicator.

The processor must discard without warning the information it is unable to process (i.e. follow a "must ignore" rule).

In the case of Navigation links the processor should display the link title as supplemental information to the final user and enable easy navigation to the target resource.

In the case of Derivation links the processor should enable a user to navigate to the original resource and could also undertake more specific actions such as such as stopping the distribution of all Items derived from a Cancelled Item.

In the case of Attachment links the processor may pre-fetch the target resource, because the Item content will need the resource to display correctly. A usual use-case is of an illustrated article represented as a News Item, where the illustrations are also represented as News Items.

In the case of Instance links the processor should be able to dynamically find all the Items that point to the same resource.

When used in the scope of Package Item, link is always a Composition link and the Relationship Indicator property defines the role of the target Item within the group.

Composition links are used in Package Items as a mechanism for grouping various Items without embedding their content. Such links may contain some information about the target Items, therefore allowing a user to decide whether to follow the link. It is up to the processor to decide how to present the package to the final user and when to retrieve the actual content.

9.3.3 Checking metadata associated with the content of an Item

A link does not enable direct access to the content of an Item, only to the Item as a whole.

But in some occasions, it is useful to get some properties of the content of an Item, in order to check if this content is usable or not. Therefore, content metadata may be added to the linking information.

For example, a mobile user will follow links leading to Items containing small resources only (because of cost or time constraints). On the other hand, a picture magazine user will follow links leading to Items containing high quality pictures only.

In the case of a News Item, as a provider may not know which content component might be useful for a given recipient, the main properties of all content components should be exposed. The amount of included information is a trade off between usability and the size of the Item.

Pointing at the latest version of an Item while exposing content metadata may lead to unwanted display or selection criteria if these metadata were subsequently modified; therefore only the stable content properties should be exposed in a link.

10 References

10.1 IPTC documents

NML-BR	*IPTC NewsML 2 Business Requirements* *http://newsml.org/dl.php?fn=NewsML_2.0-spec-BusinessRequirements_1.pdf*
EVT-BR	*IPTC EventsML Business Requirements* *http://www.iptc.org/download/dliptc.php?fn=EventsML/1.0-draft/specification/EventsML_1.0_spec_BusinessRequirements_4.pdf*
NMDF-BR	*IPTC News Metadata Framework Business Requirements* *http://www.iptc.org/NAR/*
NAR-TS	*IPTC NewsML 2 Architecture Technical Specification* *http://www.iptc.org/NAR/*
NAR-GL	*IPTC NewsML 2 Architecture Glossary* *http://www.iptc.org/NAR/*
NAR-IG	*Implementation Guidelines for the IPTC Standards Architecture using W3C XML Schema* *NAR_1.0-doc-ArchitectureImplementationGuidelines_2,* not public
NAR-PM	*IPTC NewsML 2 Power Extensions Model* *http://www.iptc.org/NAR/*

10.2 Other references

XSD	*W3C XML schema* *http://www.w3.org/XML/Schema*
RDF	*Resource Description Framework (RDF)* *http://www.w3.org/RDF/*
Wikipedia	*"the free encyclopedia that anyone can edit".* *http://en.wikipedia.org/wiki*

11 Change Log

Draft 2 to Draft 4: Several properties previously defined with a CodePlusType value now defined with a CURIE value. UML graphs updated. More information about the Topic Item.

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