elements

Locations Package

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Package Description

The Locations package allows the handling of geographical data.

Most parties to business transactions will be located in some area and subject to the legal, language and holiday conventions of the area. This package can be used to place parties and manage the associated geographical data.

1 Interfaces

1.1 Location

Locations form a hierarchy, with most locations having a parent location that encompasses it. For example, the parent location of Cádiz is Andalucía, the parent location of Andalucía is Spain, the parent location of Spain is the European Union.

The main use of locations is to handle geographically related data, for example: holidays, weekends, languages, legal systems.

1.1.1 Relationships

	Class	Description	Notes
⇑	Identifiable		
↑	Validatable		
↓	LocationModel §2.1		
↓	LocationReferenceDataModel §2.2		
↔	LocationModel §2.1	parent 0..n	
↔	LocationReferenceDataModel §2.2	model 0..1	

⇑:Inherits ↑:Realizes ↓:Realized by ↔:Association →:Navigable ◊:Aggregate ⧫:Composite

1.1.2 Operations

Location parent() parent

The parent location to this location. Returns the location that encompasses this location. If this location has no parent, return nil.

StandardizedIdentifier code() code

The location code. Returns the standardized identifier for this location. This identifier will usually follow the ISO 3166 conventions for countries and subdivisions.[1] Conventions for smaller units are likely to be system-specific.

String name() name

The name of the location in the standard language for this system. Returns the name of this location in the standard language that this system uses.

String localName() localName

The name of this location in the business language of the location. Returns the name of this location in the business language of that location. For example, Sweden is Sverige in Swedish.

LocationTypeEnum type() type

The location type. Returns an instance of LocationTypeEnum §3.1 that gives an approximate measure of the size and legal status of the location.

DateClassifier classifier() classifier

This location's date classifier for holidays and weekends. Returns the date classifier for this location's holiday dates and weekends. Generally, the date classifier for this location consists of the date classifier for the parent location composed with the date classifier for any local holidays.

DateClassifier weekends() weekends

The weekend classifier for this location. Returns the portion of this location's date classifier that deals with weekends.

DateClassifier holidays() holidays

The location's holidays. Returns the portion of this location's date classifier that deals with holidays.

Location country() country

The country of this location. If this location has a "type" of country, then return this location. If there is a parent location, return the country of the parent location. Otherwise, if there is no parent location, return nil.

2 Classes

2.1 LocationModel

A concrete implementation of the Location interface. The exact inheritance behavior for the associated holidays, weekends and languages is controlled by a set of Boolean flags.

2.1.1 Relationships

	Class	Description	Notes
↑	Location §1.1		
↔	Location §1.1	parent 0..1	→
↔	DateClassifier	weekends 0..1	→
↔	DateClassifier	holidays 0..1	→

↑:Realizes ↔:Association →:Navigable ◊:Aggregate ⧫:Composite

2.1.2 Attributes

code: StandardizedIdentifier The identification code for this location.

name: String The name of this location in the standard system language.

localName: String The name of this location in the business language of the location.

type: LocationTypeEnum The type of location.

inheritHolidays: Boolean = true Inherit holidays from the parent location?

inheritWeekends: Boolean = true Inherit weekends from the parent location?

identifier: String The unique identifier for this location.

2.1.3 Operations

Reportable validate() validate

This method returns an object of type Reportable which will contain all the errors and warnings generated from this method. Below is a list of the axioms that must hold for an instance of this class to be valid. Each statement is followed by the error or warning message that will be issued if the axiom is violated.

- If there is no parent location, add a warning to that effect.
- The name must exist and be unique.
- If inheritWeekends or inheritHolidays are set to true, then there must be a parent location.
- If there is no associated weekend date classifier, then there must be a parent location and that parent must return a weekend classifier (even if it is null).

- If there is no associated holiday date classifier, then there must be a parent location and that parent must return a holiday classifier (even if it is null).
- Generally, regions enclose countries, countries enclose subdivisions, subdivisions enclose cities and cities enclose towns, with the potential for one or more layers to be skipped. If there is a parent relationship that does not follow this pattern, then add a warning.
- None of this location's ancestors or descendants can be itself. That is, locations must form a hierarchy, and cannot form a loop.

«Static Method» Location local() local

The current location. Returns the location that corresponds to "here." The location will be defined in an "ini" file that is loaded at system start. This method will return the LocationModel whose code matches that defined in the "ini" file.

weekends() weekends

The weekend classifier of this location. If inheritWeekends is true, then return the compostition of any associated weekends date classifier with the result of the weekends() operation from the parent location. If inheritWeekends is false, return the associated weekends date classifier.

holidays() holidays

The locations's holidays. If inheritHolidays is true, then return the composition of any associated holidays date classifier with the result of the holidays() operation from the parent location. If inheritHolidays is false, return the associated holidays date classifier.

2.2 LocationReferenceDataModel

A wrapper for the LocationModel class which can be used to manage locations as part of reference data. This class implements the Location interface by delegating to the associated model.

2.2.1 Relationships

	Class	Description	Notes
⇑	ReferenceDataModel		
↑	Location §1.1		
↔	Location §1.1	model 1	→

⇑:Inherits ↑:Realizes ↔:Association →:Navigable ◊:Aggregate ⧫:Composite

2.2.2 Operations

String defaultDescription()

defaultDescription

The default long description of the location.
Returns the name from the associated model.

validate()

validate

This method returns an object of type Reportable which will contain all the errors and warnings generated from this method. Below is a list of the axioms that must hold for an instance of this class to be valid. Each statement is followed by the error or warning message that will be issued if the axiom is violated

- Returns the validation results for the superclass, composed with the validation results from the associated model.

3 Enumerations

3.1 LocationTypeEnum

An enumeration giving the various types of location.

3.1.1 Relationships

	Class	Description	Notes
⇑	OrderedEnum		

⇑:Inherits

3.1.2 Operations

«Static Method» LocationTypeEnum region() region

Returns an instance of this class, with identifier “region” and order 6. Region refers to a continent or other large, geographical or business grouping.

«Static Method» LocationTypeEnum supranational() supranational

Returns an instance of this class, with identifier “supranational” and order 5. A supranational entity encompasses several countries, for example, the European Union or the United Nations.

«Static Method» LocationTypeEnum country() country

Returns an instance of this class, with identifier “country” and order 4. A country represents a nation state, or other location of similar size and legal significance.

«Static Method» LocationTypeEnum subdivision() subdivision

Returns an instance of this class, with identifier “subdivision” and order 3. A subdivision represents a state or province within a country.

«Static Method» LocationTypeEnum city() city

Returns an instance of this class, with identifier “city” and order 2.

«Static Method» LocationTypeEnum town() town

Returns an instance of this class, with identifier “town” and order 1.

«Static Method» LocationTypeEnum other() other

Returns an instance of this class, with identifier “other” and order 0.

«Static Method» Collection<Enum> elements() elements

Returns the elements of the enumeration. Returns an ordered collection of the results of other(), town(), city(), subdivision(), country(), supranational() and region().

4 Associations

Table 1: Locations— Associations

Association				
	Role	Class	Card.	Notes
parent				
	parent	Location §1.1	0..1	→
	sub region	LocationModel §2.1	0..n	
weekends				
	weekends	DateClassifier	0..1	→
	location	LocationModel §2.1	0..n	
holidays				
	holidays	DateClassifier	0..1	→
	location	LocationModel §2.1	0..n	
model				
	model	Location §1.1	1	→
	reference data	LocationReferenceDataModel §2.2	0..1	

→:Navigable ◊:Aggregate ⧫:Composite

4.1 parent

Role: parent *Navigable* Location, 0..1.
Role: sub region LocationModel, 0..n.
The parent location for this location.

4.2 weekends

Role: weekends *Navigable* DateClassifier, 0..1.
Role: location LocationModel, 0..n.
The weekend date classifier for this location.

4.3 holidays

Role: holidays *Navigable* DateClassifier, 0..1.
Role: location LocationModel, 0..n.
The holidays associated with this location.

4.4 model

Role: model *Navigable* Location, 1.

Role: reference data LocationReferenceDataModel, 0..1.
The model held as a piece of reference data.

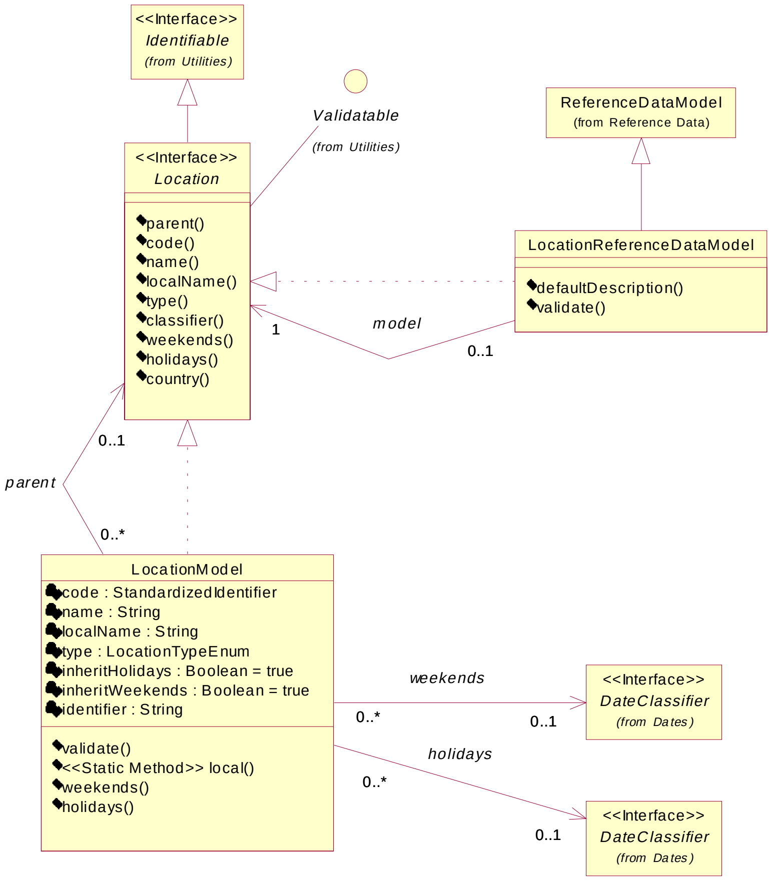

Figure 1: Class Diagram— Locations

References

[1] International Organization for Standardization (ISO). *Codes for the Representation of Names of Countries and Their Subdivisions*, number ISO 3166, 1997–9.
http://www.din.de/gremien/nas/nabd/iso3166ma/index.html.