Federal Health Architecture Program

Federal Health Information Model (FHIM)

Datatypes Model

Publishing Facilitator: Ioana Singureanu, Eversolve/SAMHSA

October 8th, 2010

TABLE OF CONTENTS:

LIST OF FIGURES:

Datatypes

Common Datatypes

_Datatypes

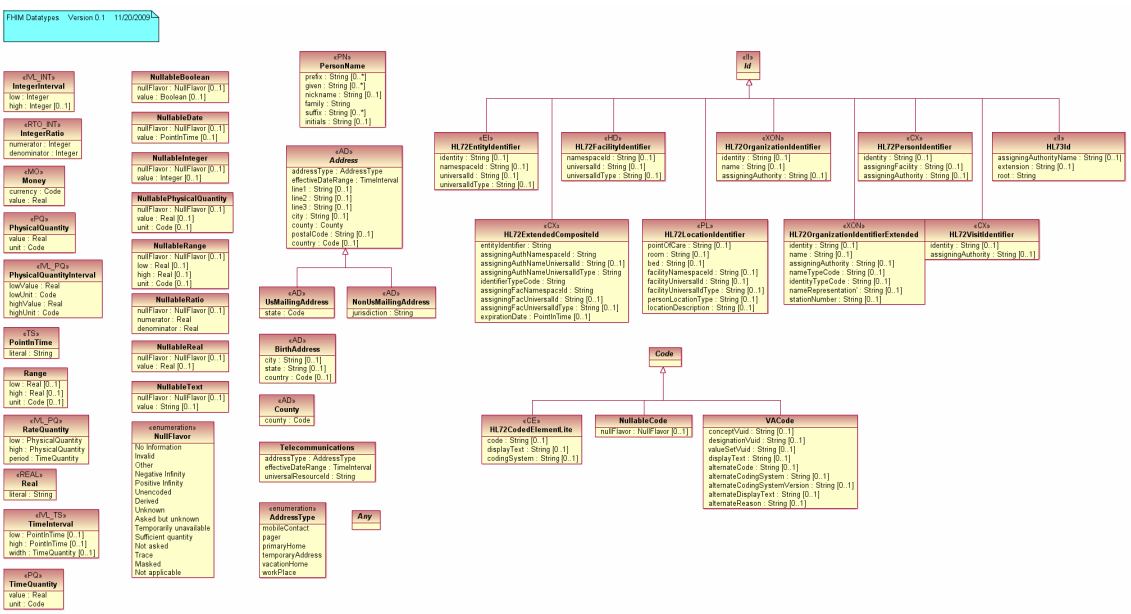

Figure _Datatypes

«AD» Class: Address (Abstract)

A physical address at which the person resides or may be contacted. 7/8/10: Renamed from MailingAddress to Address. Moved county from Person to here.

Attribute 'Address.addressType' of type ' AddressType' with cardinality of [1]

Indicates the kind of address that is contained within this class. Examples include primaryHome, Work, etc. Note that in HL7 V3, this concept is part of the Address datatype (the 'use code'). This concept is made explicit in this Address class, because this is a platform-independent model - non V3 implementations will need other mechanisms to deal with the type.

Attribute 'Address.city' of type ' String' with cardinality of [0..1]

An Address Part (ADXP) that contains the name of the city, town, village, or other community or delivery center.

Attribute 'Address.country' of type ' Code' with cardinality of [0..1]

An Address Part (ADXP) that contains the Country of the address.

Attribute 'Address.county' of type ' County' with cardinality of [1]

A region created by territorial division for the purpose of local government. In the United States, a county (or parish in Louisiana) is the largest administrative district within a state. This property is used primarily for statistical and pricing information (i.e., the same service may be more expensive in an affluent section of the country than in a less-affluent portion).

Attribute 'Address.effectiveDateRange' of type ' TimeInterval' with cardinality of [1]

The time period for which the address is a valid location for the person or organization. The datatype is a TimeInterval, which includes both a start date and end date, either of which may be empty.

Attribute 'Address.line1' of type ' String' with cardinality of [0..1]

The first line of a mailing address. Unlike HL7, we have chosen not to break up the parts of each line.

Attribute 'Address.line2' of type ' String' with cardinality of [0..1]

The second line of a mailing address. Unlike HL7, we have chosen not to break up the parts of each line.

Attribute 'Address.line3' of type ' String' with cardinality of [0..1]

The third line of a mailing address. Unlike HL7, we have chosen not to break up the parts of each line.

Attribute 'Address.postalCode' of type ' String' with cardinality of [0..1]

An Address Part (ADXP) that contains a postal code designating a region defined by the postal service.

AddressType

This enumeration describes types of Addresses at which a person or organization exists or can be reached.

AddressType: values

- mobileContact

A telecommunication device that moves and stays with its owner. May have characteristics of all other use codes, suitable for urgent matters, not the first choice for routine business.

- pager

A paging device suitable to solicit a callback or to leave a very short message.

- primaryHome

The primary home, to reach a person after business hours.

- temporaryAddress

The temporary address where a person resides. An address that is different from the permanent address, but at which the person is residing for a limited, defined period of time. Note that for military personnel, this address may represent a location at which the person is temporarily assigned or deployed.

- vacationHome

A vacation home, to reach a person while on vacation

- workPlace

An office address. First choice for business related contacts during business hours.

Class: Any (Abstract)

This abstract class is used to represent a datatype that is not known at the logical model level, but rather will be substituted with a (set of) real data type(s) when transformed to a given platform.

«AD» Class: BirthAddress

A refinement of AD that contains only a city, state, and country, all of which are optional.

Attribute 'BirthAddress.city' of type ' String' with cardinality of [0..1]

An Address Part (ADXP) that contains the name of the city, town, village, or other community or delivery center.

Attribute 'BirthAddress.country' of type ' Code' with cardinality of [0..1]

An Address Part (ADXP) that contains the Country of the address.

Attribute 'BirthAddress.state' of type ' String' with cardinality of [0..1]

An Address Part (ADXP) that contains a sub-unit of a state or province. A sub-unit of a country with limited sovereignty in a federally organized country.

Class: Code (Abstract)

Code class was created to support the VUID outside of VA

«AD» Class: County

Indicates a county or parish within a State of the United States of America. This class is not to be used for non-US locations.

Attribute 'County.county' of type ' Code' with cardinality of [1]

Indicates a county or parish within a State of the United States of America.

«IVL_INT» Class: IntegerInterval

An interval of integer numbers stating the minimal and maximal number of repetitions of the Act.

Attribute 'IntegerInterval.high' of type ' Integer' with cardinality of [0..1]

The maximal number of repetitions of the Act.

Attribute 'IntegerInterval.low' of type ' Integer' with cardinality of [1]

The minimal number of repetitions of the Act.

«RTO_INT» Class: IntegerRatio

A ratio (numerator : denominator) specifying the relative quantities of the Entity playing the Role in the Entity scoping the Role, used for Roles that represent composition relationships between the scoping and playing Entities.

Attribute 'IntegerRatio.denominator' of type ' Integer' with cardinality of [1]

The quantity that divides the numerator in the ratio. The default is the integer number 1 (one.) The denominator must not be zero.

Attribute 'IntegerRatio.numerator' of type ' Integer' with cardinality of [1]

The quantity that is being divided in the ratio. The default is the integer number 1

«MO» Class: Money

Indicates the monetary amount to be transferred from the debit to the credit account.

Attribute 'Money.currency' of type ' Code' with cardinality of [1]

Currencies are the units in which monetary amounts are denominated in different economic regions.

Attribute 'Money.value' of type ' Real' with cardinality of [1]

The amount of money in some currency.

«PN» Class: PersonName

The name of the person. Uses the VHIM-constrained Person Name data type.

Attribute 'PersonName.family' of type ' String' with cardinality of [1]

'Family name, this is the name that links to the genealogy' (HL7)

The portion of a person's name that reflects the genealogy of the person. In western cultures, this is the 'last' name. In eastern cultures, the family name appears before the person's given name(s). In some cultures (e.g. Eritrea) the family name of a son is the first name of his father.

Attribute 'PersonName.given' of type ' String' with cardinality of [*]

'Given name (don't call it 'first name' since this given names do not always come first)' (HL7)

A set of names given to a person at birth, but not including the family name. In western cultures, this property would contain the 'first' and 'middle' names. Note that in some cultures, the given name is placed after the family name. Note also that this property contains multiple elements, so it can handle those situations where a person has more than one 'middle' name.

Attribute 'PersonName.nickname' of type ' String' with cardinality of [0..1]

'A callme name is (usually a given name) that is preferred when a person is directly addressed.' (HL7)

Attribute 'PersonName.prefix' of type ' String' with cardinality of [*]

'A prefix has a strong association to the immediately following name part. A prefix has no implicit trailing white space (it has implicit leading white space though). Note that prefixes can be inverted' (HL7) A Person Name Prefix is usually an academic or nobility title. An Academic title includes a prefix like 'Dr.' There are still people with nobility titles (aristocrats). German 'von' is generally a nobility title, not a mere voorvoegsel. Others are 'Earl of' or 'His Majesty King of...' etc. Rarely used nowadays, but some systems do keep track of this.

Contains a set of honorific terms that typically appear before a person's name, for example Mr., Mrs., Dr., etc. Prefixes have a strong association to the immediately following name part.

Attribute 'PersonName.suffix' of type ' String' with cardinality of [*]

'A suffix has a strong association to the immediately preceding name part. A prefix has no implicit leading white space (it has implicit trailing white space though). Suffices can not be inverted' (HL7)

Contains a list of honorific terms that typically appear after a person's name, for example Jr., Sr., MD, RN, etc. Prefixes have a strong association to the immediately following name part.

«PQ» Class: PhysicalQuantity

The amount that was or is to be supplied

Attribute 'PhysicalQuantity.unit' of type ' Code' with cardinality of [1]

The unit of measure specified in the Unified Code for Units of Measure (UCUM) [].

Attribute 'PhysicalQuantity.value' of type ' Real' with cardinality of [1]

The magnitude of the quantity measured in terms of the unit.

«IVL_PQ» Class: PhysicalQuantityInterval

The amount of the therapeutic agent or other substance given at one administration event.

Attribute 'PhysicalQuantityInterval.highUnit' of type ' Code' with cardinality of [1]

The unit of measure specified in the Unified Code for Units of Measure (UCUM) [].

Attribute 'PhysicalQuantityInterval.highValue' of type ' Real' with cardinality of [1]

The magnitude of the quantity measured in terms of the unit.

Attribute 'PhysicalQuantityInterval.lowUnit' of type ' Code' with cardinality of [1]

The unit of measure specified in the Unified Code for Units of Measure (UCUM) [].

Attribute 'PhysicalQuantityInterval.lowValue' of type ' Real' with cardinality of [1]

The magnitude of the quantity measured in terms of the unit.

«TS» Class: PointInTime

A quantity specifying a point on the axis of natural time. A point in time is most often represented as a calendar expression. Semantically, however, time is independent from calendars and best described by its relationship to elapsed time (measured as a physical quantity in the dimension of time.) A point in time plus an elapsed time yields another point in time. Inversely, a point in time minus another point in time yields an elapsed time. As nobody knows when time began, a point in time is conceptualized as the amount of time that has elapsed from some arbitrary zero-point, called an epoch. Because there is no absolute zero-point on the time axis natural time is a difference-scale quantity, where only differences are defined but no ratios. (For example, no point in time is - absolutely speaking - 'twice as late' as another point in time.) Given some arbitrary zero-point, one can express any point in time as an elapsed time measured from that offset. Such an arbitrary zero-point is called an epoch. This epoch-offset form is used as a semantic representation here, without implying that any system would have to implement the TS data type in that way. Systems that do not need to compute distances between points in time will not need any other representation than a calendar expression literal

A datatype containing date/time information. This datatype is a placeholder, as various platforms have differing built-in date/time datatypes. It is anticipated that this datatype will be replaced by a different datatype when transforming to a particular implementation platform.

Attribute 'PointInTime.literal' of type ' String' with cardinality of [1]

For the default Gregorian calendar the calendar expression literals of this specification conform to the constrained ISO 8601 that is defined in ISO 8824 (ASN.1) under clause 32 (generalized time) and to the HL7 version 2 TS data format.

'TS literals are simple calendar expressions, as defined by the calendar definition table. By default, the western (Gregorian) calendar shall be used. For the default Gregorian calendar the calendar expression literals of this specification conform to the constrained ISO 8601 that is defined in ISO 8824 (ASN.1) under clause 32 (generalized time) and to the HL7 Version 2 TS data type. Thus, ... western calendar expressions begin with the 4-digit year (beginning counting at zero); followed by the 2-digit month of the year (beginning counting at one); followed by the 2-digit day of the month (beginning with one); followed by the 2-digit hour of the day (beginning with zero); and so forth. For example, '200004010315' is a valid expression for April 1, 2000, 3:15 am. A calendar expression can be of variable precision, omitting parts from the right. For example, '20000401' is precise only to the day of the month. The least defined calendar period (i.e. the second) may be written as a REAL, with the number of integer digits specified, followed by the decimal point and any number of fractional digits. For example, '20000401031520.34' means April 1, 2000, 3:15 and 20.34 seconds. When other calendars are used in the future, a prefix 'GREG:' can be placed before the western (Gregorian) calendar expression to disambiguate from other calendars. Each calendar shall have its own prefix. However, the western calendar is the default if no prefix is present. In the modern Gregorian calendar (and all calendars where time of day is based on UTC), the calendar expression may contain a time zone suffix. The time zone suffix begins with a plus (+) or minus (-) followed by digits for the hour and, for non UTC times, minute cycles. UTC is designated as offset '+00' or '-00'; the ISO 8601 and ISO 8824 suffix 'Z' for UTC is not permitted.' (HL7 v3 Datatypes).

«IVL_PQ» Class: RateQuantity

Identifies the speed with which the substance is introduced into the subject. Expressed as a physical (extensive) quantity over elapsed time (e.g., examples are 100 mL/h, 1 g/d, 40 mmol/h, etc.)

Attribute 'RateQuantity.high' of type ' PhysicalQuantity' with cardinality of [1]

This is the high limit of the interval.

Attribute 'RateQuantity.low' of type ' PhysicalQuantity' with cardinality of [1]

This is the low limit of the interval.

Attribute 'RateQuantity.period' of type ' TimeQuantity' with cardinality of [1]

A time duration specifying as a reciprocal measure of the frequency at which the periodic interval repeats.

«REAL» Class: Real

A datatype containing non-whole numbers. This datatype is a placeholder, as various platforms have differing built-in floating-point datatypes. It is anticipated that this datatype will be replaced by a different datatype when transforming to a particular implementation platform.

Attribute 'Real.literal' of type ' String' with cardinality of [1]

This is a placeholder for an actual datatype that will be substituted via transformation to a platform-specific datatype.

Class: Telecommunications

A collection of electronic addresses at which the person may be reached. This includes telephones, email addresses, etc.

Attribute 'Telecommunications.addressType' of type ' AddressType' with cardinality of [1]

Indicates the kind of communications address that is contained within this class. Examples include primaryHome, Work, etc. Note that in HL7 V3, this concept is part of the Telecom datatype (the 'use code'). This concept is made explicit in this Telecommunications class, because this is a platform-independent model - non V3 implementations will need other mechanisms to deal with the type.

Attribute 'Telecommunications.effectiveDateRange' of type ' TimeInterval' with cardinality of [1]

The time period for which the phone number or communications address is valid for the person or organization. The datatype is a TimeInterval, which includes both a start date and end date, either of which may be empty.

Attribute 'Telecommunications.universalResourceId' of type ' String' with cardinality of [1]

Represents a telecommunications address at which the person or organization may be reached. Note that this property is a simply a string, the formatting of which will depend on the type of communications address employed.

«IVL_TS» Class: TimeInterval

An interval of time specified as an interval of points in time - TS.

Attribute 'TimeInterval.high' of type ' PointInTime' with cardinality of [0..1]

This is the high limit of the interval.

Attribute 'TimeInterval.low' of type ' PointInTime' with cardinality of [0..1]

This is the low limit of the interval.

Attribute 'TimeInterval.width' of type ' TimeQuantity' with cardinality of [0..1]

The difference between high and low boundary. The purpose of distinguishing a width property is to handle all cases of incomplete information symmetrically. In any interval representation only two of the three properties high, low, and width need to be stated and the third can be derived.

«PQ» Class: TimeQuantity

A length of time specified as a Physical Quantity, e.g., 5 minutes, 2.5 hours.

Attribute 'TimeQuantity.unit' of type ' Code' with cardinality of [1]

The unit of measure specified in the Unified Code for Units of Measure (UCUM).

Attribute 'TimeQuantity.value' of type ' Real' with cardinality of [1]

Value of the number of time units

«AD» Class: UsMailingAddress

A specialization of MailingAddress that is used for U.S. addresses. Note that the state attribute may only contain a code for a U.S. State, territory, or APO.

Attribute 'UsMailingAddress.state' of type ' Code' with cardinality of [1]

An Address Part (ADXP) that contains a sub-unit of a state or province. A sub-unit of a country with limited sovereignty in a federally organized country.

Class: VACode

VA code class was created to support the VUID within the VA