# HL7 FHIR Standard

## http://hl7.org/fhir/StructureDefinition/Address

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| **Address** | Address |
| Short name | A postal address |
| Definition | There is a variety of postal address formats defined around the world. This format defines a superset that is the basis for all addresses around the world. |
| Comments | Note: address is for postal addresses, not physical locations. |
| **Address.use** |  |
| Definition | The purpose of this address. |
| Comments | This is labeled as "Is Modifier" because applications should not mistake a temporary or old address etc for a current/permanent one. Applications can assume that an address is current unless it explicitly says that it is temporary or old. |
| Requirements | Allows an appropriate address to be chosen from a list of many. |
| Binding Description | The use of an address |
| **Address.type** |  |
| Definition | Distinguishes between physical addresses (those you can visit) and mailing addresses (e.g. PO Boxes and care-of addresses). Most addresses are both. |
| Binding Description | The type of an address (physical / postal) |
| **Address.text** |  |
| Short name | Text representation of the address |
| Definition | A full text representation of the address. |
| Comments | Can provide both a text representation and parts. |
| Requirements | A renderable, unencoded form. |
| **Address.line** |  |
| Short name | Street name, number, direction & P.O. Box etc |
| Definition | This component contains the house number, apartment number, street name, street direction, P.O. Box number, delivery hints, and similar address information. |
| Requirements | home | work | temp | old - purpose of this address. |
| **Address.city** |  |
| Short name | Name of city, town etc. |
| Definition | The name of the city, town, village or other community or delivery center. |
| Synonym | Municipality |
| **Address.district** |  |
| Short name | District name (aka county) |
| Definition | The name of the administrative area (county). |
| Comments | District is sometimes known as county, but in some regions 'county' in used in place of city (municipality), so county name should be conveyed in city instead. |
| Synonym | County |
| **Address.state** |  |
| Short name | Sub-unit of country (abbreviations ok) |
| Definition | Sub-unit of a country with limited sovereignty in a federally organized country. A code may be used if codes are in common use (i.e. US 2 letter state codes). |
| Synonym | Province |
| Synonym | Territory |
| **Address.postalCode** |  |
| Short name | Postal code for area |
| Definition | A postal code designating a region defined by the postal service. |
| Synonym | Zip |
| **Address.country** |  |
| Short name | Country (can be ISO 3166 3 letter code) |
| Definition | Country - a nation as commonly understood or generally accepted. |
| Comments | ISO 3166 3 letter codes can be used in place of a full country name. |
| **Address.period** |  |
| Short name | Time period when address was/is in use |
| Definition | Time period when address was/is in use. |
| Requirements | Allows addresses to be placed in historical context. |

## http://hl7.org/fhir/StructureDefinition/Age

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| **Quantity** | Quantity |
| Short name | A duration (length of time) with a UCUM code |
| Definition | There SHALL be a code if there is a value and it SHALL be an expression of time. If system is present, it SHALL be UCUM. If value is present, it SHALL be positive. |
| Constraint Text | There SHALL be a code if there is a value and it SHALL be an expression of time. If system is present, it SHALL be UCUM. If value is present, it SHALL be positive. |

## http://hl7.org/fhir/StructureDefinition/Annotation

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| **Annotation** | Annotation |
| Short name | Text node with attribution |
| Definition | A text note which also contains information about who made the statement and when. |
| Comments | For systems that do not have structured annotations, they can simply communicate a single annotation with no author or time. This element may need to be included in narrative because of the potential for modifying information. \*Annotations SHOULD NOT\* be used to communicate "modifying" information that could be computable. (This is a SHOULD because enforcing user behavior is nearly impossible). |
| **Annotation.author[x]** |  |
| Short name | Individual responsible for the annotation |
| Definition | The individual responsible for making the annotation. |
| **Annotation.time** |  |
| Short name | When the annotation was made |
| Definition | Indicates when this particular annotation was made. |
| **Annotation.text** |  |
| Short name | The annotation - text content |
| Definition | The text of the annotation. |

## http://hl7.org/fhir/StructureDefinition/Attachment

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| **Attachment** | Attachment |
| Short name | Content in a format defined elsewhere |
| Definition | For referring to data content defined in other formats. |
| Comments | When providing a summary view (for example with Observation.value[x]) Attachment should be represented with a brief display text such as "Attachment". |
| Constraint Text | It the Attachment has data, it SHALL have a contentType |
| **Attachment.contentType** |  |
| Short name | Mime type of the content, with charset etc. |
| Definition | Identifies the type of the data in the attachment and allows a method to be chosen to interpret or render the data. Includes mime type parameters such as charset where appropriate. |
| Requirements | Processors of the data need to be able to know how to interpret the data. |
| Binding Description | The mime type of an attachment. Any valid mime type is allowed |
| **Attachment.language** |  |
| Short name | Human language of the content (BCP-47) |
| Definition | The human language of the content. The value can be any valid value according to BCP 47. |
| Requirements | Users need to be able to choose between the languages in a set of attachments. |
| Binding Description | A human language |
| **Attachment.data** |  |
| Short name | Data inline, base64ed |
| Definition | The actual data of the attachment - a sequence of bytes. In XML, represented using base64. |
| Comments | The base64-encoded data SHALL be expressed in the same character set as the base resource XML or JSON. |
| Requirements | The data needs to able to be transmitted inline. |
| **Attachment.url** |  |
| Short name | Uri where the data can be found |
| Definition | An alternative location where the data can be accessed. |
| Comments | If both data and url are provided, the url SHALL point to the same content as the data contains. Urls may be relative references or may reference transient locations such as a wrapping envelope using cid: though this has ramifications for using signatures. Relative URLs are interpreted relative to the service url, like a resource reference, rather than relative to the resource itself. If a URL is provided, it SHALL resolve to actual data. |
| Requirements | The data needs to be transmitted by reference. |
| **Attachment.size** |  |
| Short name | Number of bytes of content (if url provided) |
| Definition | The number of bytes of data that make up this attachment. |
| Comments | The number of bytes is redundant if the data is provided as a base64binary, but is useful if the data is provided as a url reference. |
| Requirements | Representing the size allows applications to determine whether they should fetch the content automatically in advance, or refuse to fetch it at all. |
| **Attachment.hash** |  |
| Short name | Hash of the data (sha-1, base64ed ) |
| Definition | The calculated hash of the data using SHA-1. Represented using base64. |
| Requirements | Included so that applications can verify that the contents of a location have not changed and so that a signature of the content can implicitly sign the content of an image without having to include the data in the instance or reference the url in the signature. |
| **Attachment.title** |  |
| Short name | Label to display in place of the data |
| Definition | A label or set of text to display in place of the data. |
| Requirements | Applications need a label to display to a human user in place of the actual data if the data cannot be rendered or perceived by the viewer. |
| **Attachment.creation** |  |
| Short name | Date attachment was first created |
| Definition | The date that the attachment was first created. |
| Requirements | This is often tracked as an integrity issue for use of the attachment. |

## http://hl7.org/fhir/StructureDefinition/BackboneElement

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| --- | --- |
| **BackboneElement** | Backbone Element |
| Short name | Base for elements defined inside a resource |
| Definition | Base definition for all elements that are defined inside a resource - but not those in a data type. |
| **BackboneElement.modifierExtension** |  |
| Short name | Extensions that cannot be ignored |
| Definition | May be used to represent additional information that is not part of the basic definition of the element, and that modifies the understanding of the element that contains it. Usually modifier elements provide negation or qualification. In order to make the use of extensions safe and manageable, there is a strict set of governance applied to the definition and use of extensions. Though any implementer is allowed to define an extension, there is a set of requirements that SHALL be met as part of the definition of the extension. Applications processing a resource are required to check for modifier extensions. |
| Comments | There can be no stigma associated with the use of extensions by any application, project, or standard - regardless of the institution or jurisdiction that uses or defines the extensions. The use of extensions is what allows the FHIR specification to retain a core level of simplicity for everyone. |
| Synonym | Extensions |
| Synonym | user content |
| Synonym | Modifiers |

## http://hl7.org/fhir/StructureDefinition/CodeableConcept

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| **CodeableConcept** | Codeable Concept |
| Short name | Concept - reference to a terminology or just text |
| Definition | A concept that may be defined by a formal reference to a terminology or ontology or may be provided by text. |
| Comments | Not all terminology uses fit this general pattern. In some cases, models should not use CodeableConcept and use Coding directly and provide their own structure for managing text, codings, translations and the relationship between elements and pre- and post-coordination. |
| **CodeableConcept.coding** |  |
| Short name | Code defined by a terminology system |
| Definition | A reference to a code defined by a terminology system. |
| Comments | Codes may be defined very casually in enumerations, or code lists, up to very formal definitions such as SNOMED CT - see the V3 Core Principles for more information. Ordering of codings is undefined and SHALL NOT be used to infer meaning. Generally, at most only one of the coding values will be labelled as UserSelected = true. |
| Requirements | Allows for translations and alternate encodings within a code system. Also supports communication of the same instance to systems requiring different encodings. |
| **CodeableConcept.text** |  |
| Short name | Plain text representation of the concept |
| Definition | A human language representation of the concept as seen/selected/uttered by the user who entered the data and/or which represents the intended meaning of the user. |
| Comments | Very often the text is the same as a displayName of one of the codings. |
| Requirements | The codes from the terminologies do not always capture the correct meaning with all the nuances of the human using them, or sometimes there is no appropriate code at all. In these cases, the text is used to capture the full meaning of the source. |

## http://hl7.org/fhir/StructureDefinition/Coding

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| **Coding** | Coding |
| Short name | A reference to a code defined by a terminology system |
| Definition | A reference to a code defined by a terminology system. |
| Comments | Codes may be defined very casually in enumerations or code lists, up to very formal definitions such as SNOMED CT - see the V3 Core Principles for more information. |
| **Coding.system** |  |
| Short name | Identity of the terminology system |
| Definition | The identification of the code system that defines the meaning of the symbol in the code. |
| Comments | The URI may be an OID (urn:oid:...) or a UUID (urn:uuid:...). OIDs and UUIDs SHALL be references to the HL7 OID registry. Otherwise, the URI should come from HL7's list of FHIR defined special URIs or it should de-reference to some definition that establish the system clearly and unambiguously. |
| Requirements | Need to be unambiguous about the source of the definition of the symbol. |
| **Coding.version** |  |
| Short name | Version of the system - if relevant |
| Definition | The version of the code system which was used when choosing this code. Note that a well-maintained code system does not need the version reported, because the meaning of codes is consistent across versions. However this cannot consistently be assured. and when the meaning is not guaranteed to be consistent, the version SHOULD be exchanged. |
| Comments | Where the terminology does not clearly define what string should be used to identify code system versions, the recommendation is to use the date (expressed in FHIR date format) on which that version was officially published as the version date. |
| **Coding.code** |  |
| Short name | Symbol in syntax defined by the system |
| Definition | A symbol in syntax defined by the system. The symbol may be a predefined code or an expression in a syntax defined by the coding system (e.g. post-coordination). |
| Requirements | Need to refer to a particular code in the system. |
| **Coding.display** |  |
| Short name | Representation defined by the system |
| Definition | A representation of the meaning of the code in the system, following the rules of the system. |
| Requirements | Need to be able to carry a human-readable meaning of the code for readers that do not know the system. |
| **Coding.userSelected** |  |
| Short name | If this coding was chosen directly by the user |
| Definition | Indicates that this coding was chosen by a user directly - i.e. off a pick list of available items (codes or displays). |
| Comments | Amongst a set of alternatives, a directly chosen code is the most appropriate starting point for new translations. There is some ambiguity about what exactly 'directly chosen' implies, and trading partner agreement may be needed to clarify the use of this element and its consequences more completely. |
| Requirements | This has been identified as a clinical safety criterium - that this exact system/code pair was chosen explicitly, rather than inferred by the system based on some rules or language processing. |

## http://hl7.org/fhir/StructureDefinition/ContactPoint

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| **ContactPoint** | Contact Point |
| Short name | Details of a Technology mediated contact point (phone, fax, email, etc) |
| Definition | Details for All kinds of technology mediated contact points for a person or organization, including telephone, email, etc. |
| Constraint Text | A system is required if a value is provided. |
| **ContactPoint.system** |  |
| Definition | Telecommunications form for contact point - what communications system is required to make use of the contact. |
| Binding Description | Telecommunications form for contact point |
| **ContactPoint.value** |  |
| Short name | The actual contact point details |
| Definition | The actual contact point details, in a form that is meaningful to the designated communication system (i.e. phone number or email address). |
| Comments | Additional text data such as phone extension numbers, or notes about use of the contact are sometimes included in the value. |
| Requirements | Need to support legacy numbers that are not in a tightly controlled format. |
| **ContactPoint.use** |  |
| Definition | Identifies the purpose for the contact point. |
| Comments | This is labeled as "Is Modifier" because applications should not mistake a temporary or old contact etc for a current/permanent one. Applications can assume that a contact is current unless it explicitly says that it is temporary or old. |
| Requirements | Need to track the way a person uses this contact, so a user can choose which is appropriate for their purpose. |
| Binding Description | Use of contact point |
| **ContactPoint.rank** |  |
| Short name | Specify preferred order of use (1 = highest) |
| Definition | Specifies a preferred order in which to use a set of contacts. Contacts are ranked with lower values coming before higher values. |
| Comments | Note that rank does not necessarily follow the order in which the contacts are represented in the instance. |
| **ContactPoint.period** |  |
| Short name | Time period when the contact point was/is in use |
| Definition | Time period when the contact point was/is in use. |

## http://hl7.org/fhir/StructureDefinition/Count

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| **Quantity** | Quantity |
| Short name | A count of a discrete element (no unit) |
| Definition | There SHALL be a code with a value of "1" if there is a value and it SHALL be an expression of length. If system is present, it SHALL be UCUM. If present, the value SHALL a whole number. |
| Constraint Text | There SHALL be a code with a value of "1" if there is a value and it SHALL be an expression of length. If system is present, it SHALL be UCUM. If present, the value SHALL a whole number. |

## http://hl7.org/fhir/StructureDefinition/Distance

|  |  |
| --- | --- |
| **Quantity** | Quantity |
| Short name | A measure of distance |
| Definition | There SHALL be a code if there is a value and it SHALL be an expression of length. If system is present, it SHALL be UCUM. |
| Constraint Text | There SHALL be a code if there is a value and it SHALL be an expression of length. If system is present, it SHALL be UCUM. |

## http://hl7.org/fhir/StructureDefinition/Duration

|  |  |
| --- | --- |
| **Quantity** | Quantity |
| Short name | A length of time |
| Definition | There SHALL be a code if there is a value and it SHALL be an expression of time. If system is present, it SHALL be UCUM. |
| Constraint Text | There SHALL be a code if there is a value and it SHALL be an expression of time. If system is present, it SHALL be UCUM. |

## http://hl7.org/fhir/StructureDefinition/Element

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| --- | --- |
| **Element** | Element |
| Short name | Base for all elements |
| Definition | Base definition for all elements in a resource. |
| Constraint Text | All FHIR elements must have a @value or children |
| **Element.id** |  |
| Short name | xml:id (or equivalent in JSON) |
| Definition | unique id for the element within a resource (for internal references). |
| **Element.extension** |  |
| Short name | Additional Content defined by implementations |
| Definition | May be used to represent additional information that is not part of the basic definition of the element. In order to make the use of extensions safe and manageable, there is a strict set of governance applied to the definition and use of extensions. Though any implementer is allowed to define an extension, there is a set of requirements that SHALL be met as part of the definition of the extension. |
| Comments | There can be no stigma associated with the use of extensions by any application, project, or standard - regardless of the institution or jurisdiction that uses or defines the extensions. The use of extensions is what allows the FHIR specification to retain a core level of simplicity for everyone. |
| Synonym | Extensions |
| Synonym | user content |

## http://hl7.org/fhir/StructureDefinition/ElementDefinition

|  |  |
| --- | --- |
| **ElementDefinition** | Element Definition |
| Short name | Definition of an element in a resource or extension |
| Definition | Captures constraints on each element within the resource, profile, or extension. |
| Constraint Text | Min <= Max |
| Constraint Text | Either a namereference or a fixed value (but not both) is permitted |
| Constraint Text | Pattern may only be specified if there is one type |
| Constraint Text | Fixed value may only be specified if there is one type |
| Constraint Text | Binding can only be present for coded elements, string, and uri |
| Constraint Text | Pattern and value are mutually exclusive |
| Constraint Text | Constraints must be unique by key |
| Constraint Text | Types must be unique by the combination of code and profile |
| Constraint Text | default value and meaningWhenMissing are mutually exclusive |
| **ElementDefinition.path** |  |
| Short name | The path of the element (see the Detailed Descriptions) |
| Definition | The path identifies the element and is expressed as a "."-separated list of ancestor elements, beginning with the name of the resource or extension. |
| **ElementDefinition.representation** |  |
| Short name | How this element is represented in instances |
| Definition | Codes that define how this element is represented in instances, when the deviation varies from the normal case. |
| Comments | This is rarely used except for special cases where the representation deviates from the normal, which is done only very reluctantly, and can only be done in the base standard (and profiles must reproduce what the base standard does). |
| Binding Description | How a property is represented on the wire |
| **ElementDefinition.name** |  |
| Short name | Name for this particular element definition (reference target) |
| Definition | The name of this element definition (to refer to it from other element definitions using ElementDefinition.nameReference). This is a unique name referring to a specific set of constraints applied to this element. One use of this is to provide a name to different slices of the same element. |
| Comments | The name SHALL be unique within the structure within the context of the constrained resource element. (Though to avoid confusion, uniqueness across all elements is recommended.). |
| Requirements | Allows referencing a defined element. May also be used for code generation purposes. |
| **ElementDefinition.label** |  |
| Short name | Name for element to display with or prompt for element |
| Definition | The text to display beside the element indicating its meaning or to use to prompt for the element in a user display or form. |
| Comments | Question and label serve similar purposes in they both can be used to prompt for capturing a data element. Whether the question form or label form should be used will depend on the type of instrument being used to capture the information. |
| **ElementDefinition.code** |  |
| Short name | Defining code |
| Definition | A code that provides the meaning for the element according to a particular terminology. |
| Comments | The data element definition and other constraints SHALL be a proper constraint on the meaning (as defined in the code system, including relationships) of any code listed here. Where multiple codes exist in a terminology that could correspond to the data element, the most granular code(s) should be selected, so long as they are not more restrictive than the data element itself. |
| Requirements | Links the meaning of an element to an external terminology. |
| **ElementDefinition.slicing** |  |
| Short name | This element is sliced - slices follow |
| Definition | Indicates that the element is sliced into a set of alternative definitions (i.e. in a structure definition, there are multiple different constraints on a single element in the base resource). Slicing can be used in any resource that has cardinality ..\* on the base resource, or any resource with a choice of types. The set of slices is any elements that come after this in the element sequence that have the same path, until a shorter path occurs (the shorter path terminates the set). |
| Comments | The first element in the sequence, the one that carries the slicing, is the unconstrained element, for reference purposes. This may include the unconstrained children. |
| Constraint Text | If there are no discriminators, there must be a definition |
| **ElementDefinition.slicing.discriminator** |  |
| Short name | Element values that used to distinguish the slices |
| Definition | Designates which child elements are used to discriminate between the slices when processing an instance. If one or more discriminators are provided, the value of the child elements in the instance data SHALL completely distinguish which slice the element in the resource matches based on the allowed values for those elements in each of the slices. |
| Comments | If there is no discriminator, the content is hard to process, so this should be avoided. If the base element has a cardinality of ..1, and there is a choice of types, the discriminator most be "@type". |
| **ElementDefinition.slicing.description** |  |
| Short name | Text description of how slicing works (or not) |
| Definition | A human-readable text description of how the slicing works. If there is no discriminator, this is required to be present to provide whatever information is possible about how the slices can be differentiated. |
| Comments | If it's really not possible to differentiate them, the design should be re-evaluated to make the content usable. |
| **ElementDefinition.slicing.ordered** |  |
| Short name | If elements must be in same order as slices |
| Definition | If the matching elements have to occur in the same order as defined in the profile. |
| Comments | Order should only be required when it is a pressing concern for presentation. Profile authors should consider making the order a feature of the rules about the narrative, not the rules about the data - requiring ordered data makes the profile much less re-usable. |
| **ElementDefinition.slicing.rules** |  |
| Definition | Whether additional slices are allowed or not. When the slices are ordered, profile authors can also say that additional slices are only allowed at the end. |
| Comments | Allowing additional elements makes for a much for flexible template - it's open for use in wider contexts, but also means that the content of the resource is not closed, and applications have to decide how to handle content not described by the profile. |
| Binding Description | How slices are interpreted when evaluating an instance |
| **ElementDefinition.short** |  |
| Short name | Concise definition for xml presentation |
| Definition | A concise description of what this element means (e.g. for use in auto-generated summaries). |
| Comments | May change the term to provide language more appropriate to the context of the profile or to reflect slicing. |
| **ElementDefinition.definition** |  |
| Short name | Full formal definition as narrative text |
| Definition | Provides a complete explanation of the meaning of the data element for human readability. For the case of elements derived from existing elements (e.g. constraints), the definition SHALL be consistent with the base definition, but convey the meaning of the element in the particular context of use of the resource. |
| Comments | It is easy for a different definition to change the meaning of an element and this can have nasty downstream consequences. Please be careful when providing definitions. |
| Requirements | To allow a user to state the usage of an element in a particular context. |
| Synonym | Description |
| **ElementDefinition.comments** |  |
| Short name | Comments about the use of this element |
| Definition | Explanatory notes and implementation guidance about the data element, including notes about how to use the data properly, exceptions to proper use, etc. |
| Comments | If it is possible to capture usage rules using constraints, that mechanism should be used in preference to this element. |
| **ElementDefinition.requirements** |  |
| Short name | Why is this needed? |
| Definition | This element is for traceability of why the element was created and why the constraints exist as they do. This may be used to point to source materials or specifications that drove the structure of this element. |
| Comments | This element does not describe the usage of the element (that's done in comments), rather it's for traceability of \*why\* the element is either needed or why the constraints exist as they do. This may be used to point to source materials or specifications that drove the structure of this data element. |
| **ElementDefinition.alias** |  |
| Short name | Other names |
| Definition | Identifies additional names by which this element might also be known. |
| Requirements | Allows for better easier recognition of the element by multiple communities, including international communities. |
| Synonym | synonym |
| Synonym | other name |
| **ElementDefinition.min** |  |
| Short name | Minimum Cardinality |
| Definition | The minimum number of times this element SHALL appear in the instance. |
| **ElementDefinition.max** |  |
| Short name | Maximum Cardinality (a number or \*) |
| Definition | The maximum number of times this element is permitted to appear in the instance. |
| Constraint Text | Max SHALL be a number or "\*" |
| **ElementDefinition.base** |  |
| Short name | Base definition information for tools |
| Definition | Information about the base definition of the element, provided to make it unnecessary for tools to trace the deviation of the element through the derived and related profiles. This information is only provided where the element definition represents a constraint on another element definition, and must be present if there is a base element definition. |
| Comments | The base information does not carry any information that could not be determined from the path and related profiles, but making this determination requires both that the related profiles are available, and that the algorithm to determine them be available. So they are deformalized into this location for tooling convenience, and to ensure that the base information is available without dependencies. |
| **ElementDefinition.base.path** |  |
| Short name | Path that identifies the base element |
| Definition | The Path that identifies the base element - this matches the ElementDefinition.path for that element. Across FHIR, there is only one base definition of any element - that is, an element definition on a [[[StructureDefinition]]] without a StructureDefinition.base. |
| **ElementDefinition.base.min** |  |
| Short name | Min cardinality of the base element |
| Definition | Minimum cardinality of the base element identified by the path. |
| Comments | This is provided for consistency with max, and may affect code generation of mandatory elements of the base resource are generated differently (some reference implementations have done this). |
| **ElementDefinition.base.max** |  |
| Short name | Max cardinality of the base element |
| Definition | Maximum cardinality of the base element identified by the path. |
| Comments | This is provided to code generation, since the wire representation in JSON differs depending on whether the base element has max > 1. Also, some forms of code generation may differ. |
| **ElementDefinition.type** |  |
| Short name | Data type and Profile for this element |
| Definition | The data type or resource that the value of this element is permitted to be. |
| Comments | The Type of the element can be left blank, in which case the type is inherited from the resource. The type can only be listed in this field if it is an allowed option in the base resource. |
| Constraint Text | Aggregation may only be specified if one of the allowed types for the element is a resource |
| **ElementDefinition.type.code** |  |
| Short name | Name of Data type or Resource |
| Definition | Name of Data type or Resource that is a(or the) type used for this element. |
| Comments | If the element is a reference to another resource, this element contains "Reference", and the profile element refers to the profile of the allowed target of the resource, which may be a reference to the general definition of a resource (e.g. http://hl7.org/fhir/StructureDefinition/Patient). There would be one pair of type/code for each allowed target resource type. |
| Binding Description | Either a resource or a data type |
| **ElementDefinition.type.profile** |  |
| Short name | Profile (StructureDefinition) to apply (or IG) |
| Definition | Identifies a profile structure or implementation Guide that SHALL hold for resources or datatypes referenced as the type of this element. Can be a local reference - to another structure in this profile, or a reference to a structure in another profile. When more than one profile is specified, the content must conform to all of them. When an implementation guide is specified, the resource SHALL conform to at least one profile defined in the implementation guide. |
| **ElementDefinition.type.aggregation** |  |
| Definition | If the type is a reference to another resource, how the resource is or can be aggregated - is it a contained resource, or a reference, and if the context is a bundle, is it included in the bundle. |
| Binding Description | How resource references can be aggregated |
| **ElementDefinition.nameReference** |  |
| Short name | To another element constraint (by element.name) |
| Definition | Identifies the name of a slice defined elsewhere in the profile whose constraints should be applied to the current element. |
| Comments | If child components of this element are defined, they act as constraints on the referenced slice. |
| **ElementDefinition.defaultValue[x]** |  |
| Short name | Specified value it missing from instance |
| Definition | The value that should be used if there is no value stated in the instance (e.g. 'if not otherwise specified, the abstract is false'). |
| Comments | Default values can only be specified on a resource, data type, or extension definition, and never in a profile that applies to one of these. Specifying a default value means that the property can never been unknown - it must always has a value. Further, the default value can never be changed. For these reasons, default values are (and should be) used extremely sparingly. |
| **ElementDefinition.meaningWhenMissing** |  |
| Short name | Implicit meaning when this element is missing |
| Definition | The Implicit meaning that is to be understood when this element is missing (e.g. 'when this element is missing, the period is ongoing'. |
| Comments | Implicit meanings for missing values can only be specified on a resource, data type, or extension definition, and never in a profile that applies to one of these. An implicit meaning for a missing value can never be changed, and specifying one has the consequence that constraining its use in profiles eliminates use cases as possibilities, not merely moving them out of scope. |
| **ElementDefinition.fixed[x]** |  |
| Short name | Value must be exactly this |
| Definition | Specifies a value that SHALL be exactly the value for this element in the instance. For purposes of comparison, non-significant whitespace is ignored, and all values must be an exact match (case and accent sensitive). Missing elements/attributes must also be missing. |
| Comments | This is not recommended for Coding and CodeableConcept since these often have highly contextual properties such as version or display. |
| **ElementDefinition.pattern[x]** |  |
| Short name | Value must have at least these property values |
| Definition | Specifies a value that the value in the instance SHALL follow - that is, any value in the pattern must be found in the instance. Other additional values may be found too. This is effectively constraint by example. The values of elements present in the pattern must match exactly (case-sensitive, accent-sensitive, etc.). |
| Comments | Mostly used for fixing values of CodeableConcept. At present, pattern[x] is not recommended as a basis for slicing while issues related to this are investigated during the DSTU period. |
| **ElementDefinition.example[x]** |  |
| Short name | Example value: [as defined for type] |
| Definition | A sample value for this element demonstrating the type of information that would typically be captured. |
| Comments | This will most commonly be present for data where it's not implicitly obvious from either the data type or value set what the values might be. (I.e. Example values for dates or quantities would generally be unnecessary.) If the example value is fully populated, the publication tool can generate an instance automatically. |
| **ElementDefinition.minValue[x]** |  |
| Short name | Minimum Allowed Value (for some types) |
| Definition | The minimum allowed value for the element. The value is inclusive. This is allowed for the types date, dateTime, instant, time, decimal, integer, and Quantity. |
| Comments | Except for date/date/instant, the type of the minValue[x] SHALL be the same as the specified type of the element. For the date/dateTime/instant values, the type of minValue[x] SHALL be either the same, or a [Duration](datatypes.html#duration) which specifies a relative time limit to the current time. The duration value is positive, and is subtracted from the current clock to determine the minimum allowable value. A minimum value for a Quantity is interpreted as a canonical minimum - e.g. you cannot provide 100mg if the minimum value is 10g. |
| **ElementDefinition.maxValue[x]** |  |
| Short name | Maximum Allowed Value (for some types) |
| Definition | The maximum allowed value for the element. The value is inclusive. This is allowed for the types date, dateTime, instant, time, decimal, integer, and Quantity. |
| Comments | Except for date/date/instant, the type of the maxValue[x] SHALL be the same as the specified type of the element. For the date/dateTime/instant values, the type of maxValue[x] SHALL be either the same, or a a [Duration](datatypes.html#duration) which specifies a relative time limit to the current time. The duration value is positive, and is added to the current clock to determine the maximum allowable value. A maximum value for a Quantity is interpreted as an canonical maximum - e.g. you cannot provide 10g if the maximum value is 50mg. |
| **ElementDefinition.maxLength** |  |
| Short name | Max length for strings |
| Definition | Indicates the maximum length in characters that is permitted to be present in conformant instances and which is expected to be supported by conformant consumers that support the element. |
| Comments | Receivers are not required to reject instances that exceed the maximum length. The full length could be stored. In some cases, data might be truncated, though truncation should be undertaken with care and an understanding of the consequences of doing so. If not specified, there is no conformance expectation for length support. |
| **ElementDefinition.condition** |  |
| Short name | Reference to invariant about presence |
| Definition | A reference to an invariant that may make additional statements about the cardinality or value in the instance. |
| **ElementDefinition.constraint** |  |
| Short name | Condition that must evaluate to true |
| Definition | Formal constraints such as co-occurrence and other constraints that can be computationally evaluated within the context of the instance. |
| Comments | Constraints should be declared on the "context" element - the lowest element in the hierarchy that is common to all nodes referenced by the constraint. |
| **ElementDefinition.constraint.key** |  |
| Short name | Target of 'condition' reference above |
| Definition | Allows identification of which elements have their cardinalities impacted by the constraint. Will not be referenced for constraints that do not affect cardinality. |
| **ElementDefinition.constraint.requirements** |  |
| Short name | Why this constraint necessary or appropriate |
| Definition | Description of why this constraint is necessary or appropriate. |
| Comments | To be used if the reason for the constraint may not be intuitive to all implementers. |
| **ElementDefinition.constraint.severity** |  |
| Definition | Identifies the impact constraint violation has on the conformance of the instance. |
| Comments | This allows constraints to be asserted as "shall" (error) and "should" (warning). |
| Binding Description | SHALL applications comply with this constraint? |
| **ElementDefinition.constraint.human** |  |
| Short name | Human description of constraint |
| Definition | Text that can be used to describe the constraint in messages identifying that the constraint has been violated. |
| Comments | Should be expressed in business terms as much as possible. |
| **ElementDefinition.constraint.xpath** |  |
| Short name | XPath expression of constraint |
| Definition | An XPath expression of constraint that can be executed to see if this constraint is met. |
| Comments | Elements SHALL use "f" as the namespace prefix for the FHIR namespace, and "x" for the xhtml namespace, and SHALL NOT use any other prefixes. |
| Requirements | Used in Schematron tests of the validity of the resource. |
| **ElementDefinition.mustSupport** |  |
| Short name | If the element must supported |
| Definition | If true, implementations that produce or consume resources SHALL provide "support" for the element in some meaningful way. If false, the element may be ignored and not supported. |
| Comments | "Something useful" is context dependent and impossible to describe in the base FHIR specification. For this reason, tue mustSupport flag is never set to true by the FHIR specification itself - it is only set to true in profiles. This is done in [Resource Profiles](profiling.html#mustsupport), where the profile labels an element as mustSupport=true. When a profile does this, it SHALL also make clear exactly what kind of "support" is required, as this can mean many things. Note that an element that has the property IsModifier is not necessarily a "key" element (e.g. one of the important elements to make use of the resource), nor is it automatically mustSupport - however both of these things are more likely to be true for IsModifier elements than for other elements. |
| Requirements | Allows a profile to set expectations for system capabilities beyond merely respecting cardinality constraints. |
| **ElementDefinition.isModifier** |  |
| Short name | If this modifies the meaning of other elements |
| Definition | If true, the value of this element affects the interpretation of the element or resource that contains it, and the value of the element cannot be ignored. Typically, this is used for status, negation and qualification codes. The effect of this is that the element cannot be ignored by systems: they SHALL either recognize the element and process it, and/or a pre-determination has been made that it is not relevant to their particular system. |
| Comments | Only the definition of an element can set IsModifier true - either the specification itself or where an extension is originally defined. Once set to false, it cannot be set to true in derived profiles. An element/extension that has isModifier=true SHOULD also have a minimum cardinality of 1, so that there is no lack of clarity about what to do if it is missing. If it can be missing, the definition SHALL make the meaning of a missing element clear. |
| Requirements | Allows elements to be introduced into a specification that can't safely be ignored by applications that don't recognize them. |
| **ElementDefinition.isSummary** |  |
| Short name | Include when \_summary = true? |
| Definition | Whether the element should be included if a client requests a search with the parameter \_summary=true. |
| Comments | Some resources include a set of simple metadata, and some very large data. This element is used to reduce the quantity of data returned in searches. Note that servers may pre-cache summarized resources for optimal performance, so servers may not support per-profile use of the isSummary flag. |
| Requirements | Allow clients to search through large resources quickly. |
| **ElementDefinition.binding** |  |
| Short name | ValueSet details if this is coded |
| Definition | Binds to a value set if this element is coded (code, Coding, CodeableConcept). |
| Constraint Text | provide either a reference or a description (or both) |
| Constraint Text | Example value sets are always extensible |
| **ElementDefinition.binding.strength** |  |
| Definition | Indicates the degree of conformance expectations associated with this binding - that is, the degree to which the provided value set must be adhered to in the instances. |
| Comments | For further discussion, see [[[Using Terminologies]]]. |
| Synonym | conformance |
| Synonym | extensibility |
| Binding Description | Indication of the degree of conformance expectations associated with a binding |
| **ElementDefinition.binding.description** |  |
| Short name | Human explanation of the value set |
| Definition | Describes the intended use of this particular set of codes. |
| **ElementDefinition.binding.valueSet[x]** |  |
| Short name | Source of value set |
| Definition | Points to the value set or external definition (e.g. implicit value set) that identifies the set of codes to be used. |
| Comments | For value sets,the referenceResource, the display can contain the value set description. The reference may be version-specific or not. |
| Constraint Text | ~~uri~~ URI SHALL start with http:// or https:// |
| **ElementDefinition.mapping** |  |
| Short name | Map element to another set of definitions |
| Definition | Identifies a concept from an external specification that roughly corresponds to this element. |
| Comments | Mappings are not necessarily specific enough for safe translation. |
| Requirements | Provides guidance to implementers familiar with or converting content from other specifications. |
| **ElementDefinition.mapping.identity** |  |
| Short name | Reference to mapping declaration |
| Definition | An internal reference to the definition of a mapping. |
| **ElementDefinition.mapping.language** |  |
| Short name | Computable language of mapping |
| Definition | Identifies the computable language in which mapping.map is expressed. |
| Comments | If omitted, then there can be no expectation of computational interpretation of the mapping. |
| Binding Description | The mime type of an attachment. Any valid mime type is allowed |
| **ElementDefinition.mapping.map** |  |
| Short name | Details of the mapping |
| Definition | Expresses what part of the target specification corresponds to this element. |
| Comments | For most mappings, the syntax is undefined. Syntax will be provided for mappings to the RIM. Multiple mappings may be possible and may include constraints on other resource elements that identify when a particular mapping applies. |

## http://hl7.org/fhir/StructureDefinition/Extension

|  |  |
| --- | --- |
| **Extension** | Extension |
| Definition | Optional Extensions Element - found in all resources. |
| **Extension.url** |  |
| Short name | identifies the meaning of the extension |
| Definition | Source of the definition for the extension code - a logical name or a URL. |
| Comments | The definition may point directly to a computable or human-readable definition of the extensibility codes, or it may be a logical URI as declared in some other specification. The definition should be version specific. This will ideally be the URI for the Resource Profile defining the extension, with the code for the extension after a #. |
| **Extension.value[x]** |  |
| Short name | Value of extension |
| Definition | Value of extension - may be a resource or one of a constrained set of the data types (see Extensibility in the spec for list). |

## http://hl7.org/fhir/StructureDefinition/HumanName

|  |  |
| --- | --- |
| **HumanName** | Human Name |
| Short name | Name of a human - parts and usage |
| Definition | A human's name with the ability to identify parts and usage. |
| Comments | Names may be changed, or repudiated, or people may have different names in different contexts. Names may be divided into parts of different type that have variable significance depending on context, though the division into parts does not always matter. With personal names, the different parts may or may not be imbued with some implicit meaning; various cultures associate different importance with the name parts and the degree to which systems must care about name parts around the world varies widely. |
| **HumanName.use** |  |
| Definition | Identifies the purpose for this name. |
| Comments | This is labeled as "Is Modifier" because applications should not mistake a temporary or old name etc for a current/permanent one. Applications can assume that a name is current unless it explicitly says that it is temporary or old. |
| Requirements | Allows the appropriate name for a particular context of use to be selected from among a set of names. |
| Binding Description | The use of a human name |
| **HumanName.text** |  |
| Short name | Text representation of the full name |
| Definition | A full text representation of the name. |
| Comments | Can provide both a text representation and structured parts. |
| Requirements | A renderable, unencoded form. |
| **HumanName.family** |  |
| Short name | Family name (often called 'Surname') |
| Definition | The part of a name that links to the genealogy. In some cultures (e.g. Eritrea) the family name of a son is the first name of his father. |
| Comments | For family name, hyphenated names such as "Smith-Jones" are a single name, but names with spaces such as "Smith Jones" are broken into multiple parts. |
| Synonym | surname |
| **HumanName.given** |  |
| Short name | Given names (not always 'first'). Includes middle names |
| Definition | Given name. |
| Comments | If only initials are recorded, they may be used in place of the full name. Not called "first name" since given names do not always come first. |
| Synonym | first name |
| Synonym | middle name |
| **HumanName.prefix** |  |
| Short name | Parts that come before the name |
| Definition | Part of the name that is acquired as a title due to academic, legal, employment or nobility status, etc. and that appears at the start of the name. |
| **HumanName.suffix** |  |
| Short name | Parts that come after the name |
| Definition | Part of the name that is acquired as a title due to academic, legal, employment or nobility status, etc. and that appears at the end of the name. |
| **HumanName.period** |  |
| Short name | Time period when name was/is in use |
| Definition | Indicates the period of time when this name was valid for the named person. |
| Requirements | Allows names to be placed in historical context. |

## http://hl7.org/fhir/StructureDefinition/Identifier

|  |  |
| --- | --- |
| **Identifier** | Identifier |
| Short name | An identifier intended for computation |
| Definition | A technical identifier - identifies some entity uniquely and unambiguously. |
| **Identifier.use** |  |
| Definition | The purpose of this identifier. |
| Comments | This is labeled as "Is Modifier" because applications should not mistake a temporary id for a permanent one. Applications can assume that an identifier is permanent unless it explicitly says that it is temporary. |
| Requirements | Allows the appropriate identifier for a particular context of use to be selected from among a set of identifiers. |
| Binding Description | Identifies the purpose for this identifier, if known |
| **Identifier.type** |  |
| Short name | Description of identifier |
| Definition | A coded type for the identifier that can be used to determine which identifier to use for a specific purpose. |
| Comments | This element deals only with general categories of identifiers. It SHOULD not be used for codes that correspond 1..1 with the Identifier.system. Some identifiers may fall into multiple categories due to common usage. Where the system is known, a type is unnecessary because the type is always part of the system definition. However systems often need to handle identifiers where the system is not known. There is not a 1:1 relationship between type and system, since many different systems have the same type. |
| Requirements | Allows users to make use of identifiers when the identifier system is not known. |
| Binding Description | A coded type for an identifier that can be used to determine which identifier to use for a specific purpose |
| **Identifier.system** |  |
| Short name | The namespace for the identifier |
| Definition | Establishes the namespace in which set of possible id values is unique. |
| Requirements | There are many sequences of identifiers. To perform matching, we need to know what sequence we're dealing with. The system identifies a particular sequence or set of unique identifiers. |
| **Identifier.value** |  |
| Short name | The value that is unique |
| Definition | The portion of the identifier typically displayed to the user and which is unique within the context of the system. |
| Comments | If the value is a full URI, then the system SHALL be urn:ietf:rfc:3986. |
| **Identifier.period** |  |
| Short name | Time period when id is/was valid for use |
| Definition | Time period during which identifier is/was valid for use. |
| **Identifier.assigner** |  |
| Short name | Organization that issued id (may be just text) |
| Definition | Organization that issued/manages the identifier. |
| Comments | The reference may be just a text description of the assigner. |

## http://hl7.org/fhir/StructureDefinition/Meta

|  |  |
| --- | --- |
| **Meta** | Meta |
| Short name | Metadata about a resource |
| Definition | The metadata about a resource. This is content in the resource that is maintained by the infrastructure. Changes to the content may not always be associated with version changes to the resource. |
| **Meta.versionId** |  |
| Short name | Version specific identifier |
| Definition | The version specific identifier, as it appears in the version portion of the URL. This values changes when the resource is created, updated, or deleted. |
| Comments | The server assigns this value, and ignores what the client specifies, except in the case that the server is imposing version integrity on updates/deletes. |
| **Meta.lastUpdated** |  |
| Short name | When the resource version last changed |
| Definition | When the resource last changed - e.g. when the version changed. |
| Comments | This value is always populated except when the resource is first being created. The server / resource manager sets this value; what a client provides is irrelevant. |
| **Meta.profile** |  |
| Short name | Profiles this resource claims to conform to |
| Definition | A list of profiles [[[StructureDefinition]]]s that this resource claims to conform to. The URL is a reference to [[[StructureDefinition.url]]]. |
| Comments | It is up to the server and/or other infrastructure of policy to determine whether/how these claims are verified and/or updated over time. The list of profile URLs is a set. |
| **Meta.security** |  |
| Short name | Security Labels applied to this resource |
| Definition | Security labels applied to this resource. These tags connect specific resources to the overall security policy and infrastructure. |
| Comments | The security labels can be updated without changing the stated version of the resource The list of security labels is a set. Uniqueness is based the system/code, and version and display are ignored. |
| Binding Description | Security Labels from the Healthcare Privacy and Security Classification System |
| **Meta.tag** |  |
| Short name | Tags applied |
| Definition | Tags applied to this resource. Tags are intended to be used to identify and relate resources to process and workflow, and applications are not required to consider the tags when interpreting the meaning of a resource. |
| Comments | The tags can be updated without changing the stated version of the resource. The list of tags is a set. Uniqueness is based the system/code, and version and display are ignored. |

## http://hl7.org/fhir/StructureDefinition/Money

|  |  |
| --- | --- |
| **Quantity** | Quantity |
| Short name | An amount of money. With regard to precision, see [Decimal Precision](datatypes.html#precision) |
| Definition | There SHALL be a code if there is a value and it SHALL be an expression of currency. If system is present, it SHALL be ISO 4217 (system = "urn:iso:std:iso:4217" - currency). |
| Constraint Text | There SHALL be a code if there is a value and it SHALL be an expression of currency. If system is present, it SHALL be ISO 4217 (system = "urn:iso:std:iso:4217" - currency). |

## http://hl7.org/fhir/StructureDefinition/Narrative

|  |  |
| --- | --- |
| **Narrative** | Narrative |
| Short name | A human-readable formatted text, including images |
| Definition | A human-readable formatted text, including images. |
| **Narrative.status** |  |
| Definition | The status of the narrative - whether it's entirely generated (from just the defined data or the extensions too), or whether a human authored it and it may contain additional data. |
| Binding Description | The status of a resource narrative |
| **Narrative.div** |  |
| Short name | Limited xhtml content |
| Definition | The actual narrative content, a stripped down version of XHTML. |
| Comments | The contents of the html element are an XHTML fragment containing only the basic html formatting elements described in chapters 7-11 and 15 of the HTML 4.0 standard, <a> elements (either name or href), images and internally contained stylesheets. The XHTML content may not contain a head, a body, external stylesheet references, scripts, forms, base/link/xlink, frames, iframes and objects. |
| Constraint Text | The narrative SHALL contain only the basic html formatting attributes described in chapters 7-11 (except section 4 of chapter 9) and 15 of the HTML 4.0 standard, <a> elements (either name or href), images and internally contained style attributes |
| Constraint Text | The narrative SHALL contain only the basic html formatting elements described in chapters 7-11 (except section 4 of chapter 9) and 15 of the HTML 4.0 standard, <a> elements (either name or href), images and internally contained style attributes |
| Constraint Text | The narrative SHALL have some non-whitespace content |

## http://hl7.org/fhir/StructureDefinition/Period

|  |  |
| --- | --- |
| **Period** | Period |
| Short name | Time range defined by start and end date/time |
| Definition | A time period defined by a start and end date and optionally time. |
| Comments | This is not a duration - that's a measure of time (a separate type), but a duration that occurs at a fixed value of time. A Period specifies a range of time; the context of use will specify whether the entire range applies (e.g. "the patient was an inpatient of the hospital for this time range") or one value from the range applies (e.g. "give to the patient between these two times"). If duration required, specify the type as Interval|Duration. |
| Constraint Text | If present, start SHALL have a lower value than end |
| **Period.start** |  |
| Short name | Starting time with inclusive boundary |
| Definition | The start of the period. The boundary is inclusive. |
| Comments | If the low element is missing, the meaning is that the low boundary is not known. |
| **Period.end** |  |
| Short name | End time with inclusive boundary, if not ongoing |
| Definition | The end of the period. If the end of the period is missing, it means that the period is ongoing. The start may be in the past, and the end date in the future, which means that period is expected/planned to end at that time. |
| Comments | The high value includes any matching date/time. i.e. 2012-02-03T10:00:00 is in a period that has a end value of 2012-02-03. |
| Meaning when missing | If the end of the period is missing, it means that the period is ongoing |

## http://hl7.org/fhir/StructureDefinition/Quantity

|  |  |
| --- | --- |
| **Quantity** | Quantity |
| Short name | A measured or measurable amount |
| Definition | A measured amount (or an amount that can potentially be measured). Note that measured amounts include amounts that are not precisely quantified, including amounts involving arbitrary units and floating currencies. |
| Comments | The context of use may frequently define what kind of quantity this is and therefore what kind of units can be used. The context of use may also restrict the values for the comparator. |
| Constraint Text | If a code for the units is present, the system SHALL also be present |
| **Quantity.value** |  |
| Short name | Numerical value (with implicit precision) |
| Definition | The value of the measured amount. The value includes an implicit precision in the presentation of the value. |
| Comments | The implicit precision in the value should always be honored. Monetary values have their own rules for handling precision (refer to standard accounting text books). |
| Requirements | Precision is handled implicitly in almost all cases of measurement. |
| **Quantity.comparator** |  |
| Definition | How the value should be understood and represented - whether the actual value is greater or less than the stated value due to measurement issues. E.g. if the comparator is "<" , then the real value is < stated value. |
| Comments | This is labeled as "Is Modifier" because the comparator modifies the interpretation of the value significantly. If there is no comparator, then there is no modification of the value. |
| Requirements | Need a framework for handling measures where the value is <5ug/L or >400mg/L due to the limitations of measuring methodology. |
| Meaning when missing | If there is no comparator, then there is no modification of the value |
| Binding Description | How the Quantity should be understood and represented |
| **Quantity.unit** |  |
| Short name | Unit representation |
| Definition | A human-readable form of the units. |
| Requirements | There are many representations for units and in many contexts, particular representations are fixed and required. I.e. mcg for micrograms. |
| **Quantity.system** |  |
| Short name | System that defines coded unit form |
| Definition | The identification of the system that provides the coded form of the unit. |
| Requirements | Need to know the system that defines the coded form of the unit. |
| **Quantity.code** |  |
| Short name | Coded form of the unit |
| Definition | A computer processable form of the units in some unit representation system. |
| Comments | The preferred system is UCUM, but SNOMED CT can also be used (for customary units) or ISO 4217 for currency. The context of use may additionally require a code from a particular system. |
| Requirements | Need a computable form of the units that is fixed across all forms. UCUM provides this for quantities, but SNOMED CT provides many units of interest. |

## http://hl7.org/fhir/StructureDefinition/Range

|  |  |
| --- | --- |
| **Range** | Range |
| Short name | Set of values bounded by low and high |
| Definition | A set of ordered Quantities defined by a low and high limit. |
| Comments | The stated low and high value are assumed to have arbitrarily high precision when it comes to determining which values are in the range. I.e. 1.99 is not in the range 2 -> 3. |
| Constraint Text | If present, low SHALL have a lower value than high |
| **Range.low** |  |
| Short name | Low limit |
| Definition | The low limit. The boundary is inclusive. |
| Comments | If the low element is missing, the low boundary is not known. |
| **Range.high** |  |
| Short name | High limit |
| Definition | The high limit. The boundary is inclusive. |
| Comments | If the high element is missing, the high boundary is not known. |

## http://hl7.org/fhir/StructureDefinition/Ratio

|  |  |
| --- | --- |
| **Ratio** | Ratio |
| Short name | A ratio of two Quantity values - a numerator and a denominator |
| Definition | A relationship of two Quantity values - expressed as a numerator and a denominator. |
| Constraint Text | Numerator and denominator SHALL both be present, or both are absent. If both are absent, there SHALL be some extension present |
| **Ratio.numerator** |  |
| Short name | Numerator value |
| Definition | The value of the numerator. |
| **Ratio.denominator** |  |
| Short name | Denominator value |
| Definition | The value of the denominator. |

## http://hl7.org/fhir/StructureDefinition/Reference

|  |  |
| --- | --- |
| **Reference** | Reference |
| Short name | A reference from one resource to another |
| Definition | A reference from one resource to another. |
| Constraint Text | SHALL have a local reference if the resource is provided inline |
| **Reference.reference** |  |
| Short name | Relative, internal or absolute URL reference |
| Definition | A reference to a location at which the other resource is found. The reference may be a relative reference, in which case it is relative to the service base URL, or an absolute URL that resolves to the location where the resource is found. The reference may be version specific or not. If the reference is not to a FHIR RESTful server, then it should be assumed to be version specific. Internal fragment references (start with '#') refer to contained resources. |
| Comments | Using absolute URLs provides a stable scalable approach suitable for a cloud/web context, while using relative/logical references provides a flexible approach suitable for use when trading across closed eco-system boundaries. Absolute URLs do not need to point to a FHIR RESTful server, though this is the preferred approach. If the URL conforms to the structure "/[type]/[id]" then it should be assumed that the reference is to a FHIR RESTful server. |
| **Reference.display** |  |
| Short name | Text alternative for the resource |
| Definition | Plain text narrative that identifies the resource in addition to the resource reference. |
| Comments | This is generally not the same as the Resource.text of the referenced resource. The purpose is to identify what's being referenced, not to fully describe it. |

## http://hl7.org/fhir/StructureDefinition/SampledData

|  |  |
| --- | --- |
| **SampledData** | Sampled Data |
| Short name | A series of measurements taken by a device |
| Definition | A series of measurements taken by a device, with upper and lower limits. There may be more than one dimension in the data. |
| Comments | The data is not interpretable without at least origin, period, and dimensions, but these are optional to allow a separation between the template of measurement and the actual measurement, such as between DeviceCapabilities and DeviceLog. When providing a summary view (for example with Observation.value[x]) SampledData should be represented with a brief display text such as "Sampled Data". |
| **SampledData.origin** |  |
| Short name | Zero value and units |
| Definition | The base quantity that a measured value of zero represents. In addition, this provides the units of the entire measurement series. |
| **SampledData.period** |  |
| Short name | Number of milliseconds between samples |
| Definition | The length of time between sampling times, measured in milliseconds. |
| Comments | This is usually a whole number. |
| **SampledData.factor** |  |
| Short name | Multiply data by this before adding to origin |
| Definition | A correction factor that is applied to the sampled data points before they are added to the origin. |
| **SampledData.lowerLimit** |  |
| Short name | Lower limit of detection |
| Definition | The lower limit of detection of the measured points. This is needed if any of the data points have the value "L" (lower than detection limit). |
| **SampledData.upperLimit** |  |
| Short name | Upper limit of detection |
| Definition | The upper limit of detection of the measured points. This is needed if any of the data points have the value "U" (higher than detection limit). |
| **SampledData.dimensions** |  |
| Short name | Number of sample points at each time point |
| Definition | The number of sample points at each time point. If this value is greater than one, then the dimensions will be interlaced - all the sample points for a point in time will be recorded at once. |
| Comments | If there is more than one dimension, the code for the type of data will define the meaning of the dimensions (typically ECG data). |
| **SampledData.data** |  |
| Definition | A series of data points which are decimal values separated by a single space (character u20). The special values "E" (error), "L" (below detection limit) and "U" (above detection limit) can also be used in place of a decimal value. |

## http://hl7.org/fhir/StructureDefinition/Signature

|  |  |
| --- | --- |
| **Signature** | Signature |
| Short name | A digital Signature - XML DigSig, JWT, Graphical image of signature, etc |
| Definition | A digital signature along with supporting context. The signature may be electronic/cryptographic in nature, or a graphical image representing a hand-written signature, or a signature process. Different Signature approaches have different utilities. |
| Comments | The elements of the Signature Resource are for ease of access of these elements. Foro digital signatures (Xml DigSig, JWT), the non-repudiation proof comes from the Signature validation, which includes validation of the referenced objects (e.g., Resources) (a.k.a., Content) in the XML-Signature Detached form. |
| **Signature.type** |  |
| Short name | Indication of the reason the entity signed the object(s) |
| Definition | An indication of the reason that the entity signed this document. This may be explicitly included as part of the signature information and can be used when determining accountability for various actions concerning the document. |
| Comments | Examples include attesting to: authorship, correct transcription, and witness of specific event. Also known as a ”Commitment Type Indication” |
| Binding Description | An indication of the reason that an entity signed the object |
| **Signature.when** |  |
| Short name | When the signature was created |
| Definition | When the digital signature was signed. |
| Comments | This should agree with the information in the signature. |
| **Signature.who[x]** |  |
| Short name | Who signed the signature |
| Definition | A reference to an application-usable description of the person that signed the certificate (e.g. the signature used their private key). |
| Comments | This should agree with the information in the signature. |
| **Signature.contentType** |  |
| Short name | The technical format of the signature |
| Definition | A mime type that indicates the technical format of the signature. Important mime types are application/signature+xml for X ML DigSig, application/jwt for JWT, and image/\* for a graphical image of a signature. |
| Binding Description | The mime type of an attachment. Any valid mime type is allowed |
| **Signature.blob** |  |
| Short name | The actual signature content (XML DigSig. JWT, picture, etc) |
| Definition | The base64 encoding of the Signature content. |
| Comments | Where the signature type is an XML DigSig, the signed content is a FHIR Resource(s), the signature is of the XML form of the Resource(s) using XML-Signature (XMLDIG) "Detached Signature" form. |

## http://hl7.org/fhir/StructureDefinition/SimpleQuantity

|  |  |
| --- | --- |
| **Quantity** | Quantity |
| Short name | A fixed quantity (no comparator) |
| Definition | The comparator is not used on a SimpleQuantity |
| Constraint Text | The comparator is not used on a SimpleQuantity |
| **Quantity.comparator** |  |
| Definition | Not allowed to be used in this context |

## http://hl7.org/fhir/StructureDefinition/Timing

|  |  |
| --- | --- |
| **Timing** | Timing |
| Short name | A timing schedule that specifies an event that may occur multiple times |
| Definition | Specifies an event that may occur multiple times. Timing schedules are used to record when things are expected or requested to occur. The most common usage is in dosage instructions for medications. They are also used when planning care of various kinds. |
| Comments | A timing schedule can be either a list of events - intervals on which the event occurs, or a single event with repeating criteria or just repeating criteria with no actual event. When both event and a repeating specification are provided, the list of events should be understood as an interpretation of the information in the repeat structure. |
| **Timing.event** |  |
| Short name | When the event occurs |
| Definition | Identifies specific times when the event occurs. |
| Requirements | In an MAR, for instance, you need to take a general specification, and turn it into a precise specification. |
| **Timing.repeat** |  |
| Short name | When the event is to occur |
| Definition | A set of rules that describe when the event should occur. |
| Requirements | Many timing schedules are determined by regular repetitions. |
| Constraint Text | If there's a periodMax, there must be a period |
| Constraint Text | If there's a durationMax, there must be a duration |
| Constraint Text | if there's a duration, there needs to be duration units |
| Constraint Text | if there's a period, there needs to be duration units |
| Constraint Text | Either frequency or when can exist, not both |
| **Timing.repeat.bounds[x]** |  |
| Short name | Length/Range of lengths, or (Start and/or end) limits |
| Definition | Either a duration for the length of the timing schedule, a range of possible length, or outer bounds for start and/or end limits of the timing schedule. |
| **Timing.repeat.count** |  |
| Short name | Number of times to repeat |
| Definition | A total count of the desired number of repetitions. |
| Comments | If you have both bounds and count, then this should be understood as within the bounds period, until count times happens. |
| Requirements | Repetitions may be limited by end time or total occurrences. |
| **Timing.repeat.duration** |  |
| Short name | How long when it happens |
| Definition | How long this thing happens for when it happens. |
| Comments | For some events the duration is part of the definition of the event (e.g. IV infusions, where the duration is implicit in the specified quantity and rate). For others, it's part of the timing specification (e.g. exercise). |
| Requirements | Some activities are not instantaneous and need to be maintained for a period of time. |
| Constraint Text | duration SHALL be a non-negative value |
| **Timing.repeat.durationMax** |  |
| Short name | How long when it happens (Max) |
| Definition | The upper limit of how long this thing happens for when it happens. |
| Comments | For some events the duration is part of the definition of the event (e.g. IV infusions, where the duration is implicit in the specified quantity and rate). For others, it's part of the timing specification (e.g. exercise). |
| Requirements | Some activities are not instantaneous and need to be maintained for a period of time. |
| **Timing.repeat.durationUnits** |  |
| Definition | The units of time for the duration, in UCUM units. |
| Binding Description | A unit of time (units from UCUM) |
| **Timing.repeat.frequency** |  |
| Short name | Event occurs frequency times per period |
| Definition | The number of times to repeat the action within the specified period / period range (i.e. both period and periodMax provided). |
| **Timing.repeat.frequencyMax** |  |
| Short name | Event occurs up to frequencyMax times per period |
| Definition | If present, indicates that the frequency is a range - so repeat between [frequency] and [frequencyMax] times within the period or period range. |
| **Timing.repeat.period** |  |
| Short name | Event occurs frequency times per period |
| Definition | Indicates the duration of time over which repetitions are to occur. E.g. to express "3 times per day", 3 would be the frequency and "1 day" would be the period. |
| Constraint Text | period SHALL be a non-negative value |
| **Timing.repeat.periodMax** |  |
| Short name | Upper limit of period (3-4 hours) |
| Definition | If present, indicates that the period is a range from [period] to [periodMax], allowing expressing concepts such as "do this once every 3-5 days. |
| **Timing.repeat.periodUnits** |  |
| Definition | The units of time for the period in UCUM units. |
| Binding Description | A unit of time (units from UCUM) |
| **Timing.repeat.when** |  |
| Short name | Regular life events the event is tied to |
| Definition | A real world event that the occurrence of the event should be tied to. |
| Requirements | Timings are frequently determined by occurrences such as waking, eating and sleep. |
| Binding Description | Real world event that the schedule relates to |
| **Timing.code** |  |
| Definition | A code for the timing pattern. Some codes such as BID are ubiquitous, but many institutions define their own additional codes. |
| Comments | A repeat should always be defined except for the common codes BID, TID, QID, AM and PM, which all systems are required to understand. |
| Binding Description | Code for a known / defined timing pattern |

## http://hl7.org/fhir/StructureDefinition/base64Binary

|  |  |
| --- | --- |
| **base64Binary** | base64 Binary |
| Short name | Primitive Type base64Binary |
| Definition | A stream of bytes |
| Comments | A stream of bytes, base64 encoded |
| **base64Binary.value** |  |
| Short name | Primitive value for base64Binary |
| Definition | Primitive value for base64Binary |

## http://hl7.org/fhir/StructureDefinition/boolean

|  |  |
| --- | --- |
| **boolean** | boolean |
| Short name | Primitive Type boolean |
| Definition | Value of "true" or "false" |
| **boolean.value** |  |
| Short name | Primitive value for boolean |
| Definition | Primitive value for boolean |

## http://hl7.org/fhir/StructureDefinition/code

|  |  |
| --- | --- |
| **string** | string |
| Short name | Primitive Type code |
| Definition | A string which has at least one character and no leading or trailing whitespace and where there is no whitespace other than single spaces in the contents |
| **string.value** |  |
| Short name | Primitive value for code |
| Definition | Primitive value for code |

## http://hl7.org/fhir/StructureDefinition/date

|  |  |
| --- | --- |
| **date** | date |
| Short name | Primitive Type date |
| Definition | A date or partial date (e.g. just year or year + month). There is no time zone. The format is a union of the schema types gYear, gYearMonth and date. Dates SHALL be valid dates. |
| **date.value** |  |
| Short name | Primitive value for date |
| Definition | Primitive value for date |

## http://hl7.org/fhir/StructureDefinition/dateTime

|  |  |
| --- | --- |
| **dateTime** | date Time |
| Short name | Primitive Type dateTime |
| Definition | A date, date-time or partial date (e.g. just year or year + month). If hours and minutes are specified, a time zone SHALL be populated. The format is a union of the schema types gYear, gYearMonth, date and dateTime. Seconds must be provided due to schema type constraints but may be zero-filled and may be ignored. Dates SHALL be valid dates. |
| **dateTime.value** |  |
| Short name | Primitive value for dateTime |
| Definition | Primitive value for dateTime |

## http://hl7.org/fhir/StructureDefinition/decimal

|  |  |
| --- | --- |
| **decimal** | decimal |
| Short name | Primitive Type decimal |
| Definition | A rational number with implicit precision |
| Comments | Do not use a IEEE type floating point type, instead use something that works like a true decimal, with inbuilt precision (e.g. Java BigInteger) |
| **decimal.value** |  |
| Short name | Primitive value for decimal |
| Definition | Primitive value for decimal |

## http://hl7.org/fhir/StructureDefinition/id

|  |  |
| --- | --- |
| **string** | string |
| Short name | Primitive Type id |
| Definition | Any combination of letters, numerals, "-" and ".", with a length limit of 64 characters. (This might be an integer, an unprefixed OID, UUID or any other identifier pattern that meets these constraints.) Ids are case-insensitive. |
| Comments | RFC 4122 |
| **string.value** |  |
| Short name | Primitive value for id |
| Definition | Primitive value for id |

## http://hl7.org/fhir/StructureDefinition/instant

|  |  |
| --- | --- |
| **instant** | instant |
| Short name | Primitive Type instant |
| Definition | An instant in time - known at least to the second |
| Comments | Note: This is intended for precisely observed times, typically system logs etc, and not human-reported times - for them, see date and dateTime below. Time zone is always required |
| **instant.value** |  |
| Short name | Primitive value for instant |
| Definition | Primitive value for instant |

## http://hl7.org/fhir/StructureDefinition/integer

|  |  |
| --- | --- |
| **integer** | integer |
| Short name | Primitive Type integer |
| Definition | A whole number |
| Comments | 32 bit number; for values larger than this, use decimal |
| **integer.value** |  |
| Short name | Primitive value for integer |
| Definition | Primitive value for integer |

## http://hl7.org/fhir/StructureDefinition/markdown

|  |  |
| --- | --- |
| **string** | string |
| Short name | Primitive Type markdown |
| Definition | A string that may contain markdown syntax for optional processing by a mark down presentation engine |
| Comments | Systems are not required to have markdown support, and there is considerable variation in markdown syntax, so the text should be readable without markdown processing. The preferred markdown syntax is described here: http://daringfireball.net/projects/markdown/syntax (and tests here: http://daringfireball.net/projects/downloads/MarkdownTest\_1.0.zip) |
| **string.value** |  |
| Short name | Primitive value for markdown |
| Definition | Primitive value for markdown |

## http://hl7.org/fhir/StructureDefinition/oid

|  |  |
| --- | --- |
| **uri** | uri |
| Short name | Primitive Type oid |
| Definition | An oid represented as a URI |
| Comments | RFC 3001. See also ISO/IEC 8824:1990 â‚¬ |
| **uri.value** |  |
| Short name | Primitive value for oid |
| Definition | Primitive value for oid |

## http://hl7.org/fhir/StructureDefinition/positiveInt

|  |  |
| --- | --- |
| **integer** | integer |
| Short name | Primitive Type positiveInt |
| Definition | An integer with a value that is positive (e.g. >0) |
| **integer.value** |  |
| Short name | Primitive value for positiveInt |
| Definition | Primitive value for positiveInt |

## http://hl7.org/fhir/StructureDefinition/string

|  |  |
| --- | --- |
| **string** | string |
| Short name | Primitive Type string |
| Definition | A sequence of Unicode characters |
| Comments | Note that FHIR strings may not exceed 1MB in size |
| **string.value** |  |
| Short name | Primitive value for string |
| Definition | Primitive value for string |

## http://hl7.org/fhir/StructureDefinition/time

|  |  |
| --- | --- |
| **time** | time |
| Short name | Primitive Type time |
| Definition | A time during the day, with no date specified |
| **time.value** |  |
| Short name | Primitive value for time |
| Definition | Primitive value for time |

## http://hl7.org/fhir/StructureDefinition/unsignedInt

|  |  |
| --- | --- |
| **integer** | integer |
| Short name | Primitive Type unsignedInt |
| Definition | An integer with a value that is not negative (e.g. >= 0) |
| **integer.value** |  |
| Short name | Primitive value for unsignedInt |
| Definition | Primitive value for unsignedInt |

## http://hl7.org/fhir/StructureDefinition/uri

|  |  |
| --- | --- |
| **uri** | uri |
| Short name | Primitive Type uri |
| Definition | String of characters used to identify a name or a resource |
| Comments | see http://en.wikipedia.org/wiki/Uniform\_resource\_identifier |
| **uri.value** |  |
| Short name | Primitive value for uri |
| Definition | Primitive value for uri |

## http://hl7.org/fhir/StructureDefinition/uuid

|  |  |
| --- | --- |
| **uri** | uri |
| Short name | Primitive Type uuid |
| Definition | A UUID, represented as a URI |
| Comments | See The Open Group, CDE 1.1 Remote Procedure Call specification, Appendix A. |
| **uri.value** |  |
| Short name | Primitive value for uuid |
| Definition | Primitive value for uuid |