

Paths	
Nested element	<i>element.subelement.subelement</i>
Array element	<i>array-element[index]</i> ([0] optional)
Choice [x] element	value <i>Data Type</i>
Reference choices	<i>reference-element[Resource or Profile]</i>
Extensions	extension[<i>extension-name or id or url</i>]
	modifierExtension[<i>ext-name or id or url</i>]
Sliced arrays	<i>slice-path[slice-name]</i>
	<i>slice-path[slice-name][reslice-name]</i>
StructureDefinition	<i>^structure-definition-path</i>
escape caret syntax	<i>element-path ^element-definition-path</i>

Notations and Special Values	
code	<i>#code "optional-display-text"</i>
Coding and CodeableConcept	<i>system#code "optional-display-text"</i>
	<i>system version#code "optional-display"</i>
Cardinality	<i>min..max</i> (<i>min</i> integer, <i>max</i> integer or *)
UCUM unit	<i>number 'ucum-unit'</i>
Comments	<i>// single line</i>
	<i>/* multi-line comment */</i>
Flags	MS (must support) TU (trial use) SU (summary, Σ) N (normative) ?! (modifier) D (draft)
Binding strengths	required , extensible , preferred , example
Multi-line string	<i>"" string or markdown with new line ""</i>

Slicing Rubric	
* <i>array-path</i> ^slicing.discriminator.type = #pattern, #value, #type, #profile, #exists	
* <i>array-path</i> ^slicing.discriminator.path = <i>FHIRPath string</i>	
* <i>array-path</i> ^slicing.rules = #open, #closed, #openAtEnd (optional)	
* <i>array-path</i> ^slicing.ordered = true , false (optional)	
* <i>array-path</i> ^slicing.description = <i>string</i> (optional)	

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Item	Keywords (<i>bold</i> ↔ <i>required</i>)
Alias	Alias: <i>alias-name</i> = <i>url, uri, or urn:oid</i>
Profile	Profile: <i>name</i>
	Parent: <i>uri</i> Id: <i>id</i> Title: <i>string</i> Description: <i>markdown</i>
Extension	Extension: <i>name</i>
	Parent: <i>uri</i> (default parent is Extension) Id: <i>id</i> Title: <i>string</i> Description: <i>markdown</i>
Instance	Instance: <i>id</i>
	InstanceOf: <i>profile or resource reference</i> Usage: #example, #definition, #inline Title: <i>string</i> Description: <i>markdown</i>
Value Set and Code System	ValueSet: <i>name</i> or CodeSystem: <i>name</i>
	Id: <i>id</i> Title: <i>string</i> Description: <i>markdown</i>
Invariant	Invariant: <i>id</i>
	Severity: #error, #warning Description: <i>string</i> Expression: <i>FHIRPath string</i> XPath: <i>XPath expression string</i>
Mapping	Mapping: <i>id</i>
	Source: <i>profile name</i> Target: <i>uri</i> Id: <i>id</i> (for target specification) Title: <i>string</i> (describes target specification) Description: <i>string</i>
RuleSet	RuleSet: <i>id</i>

Code System Rules	
Define local code	* [include] <i>code "display text"</i> <i>"definition text"</i>

More Information






[FSH Spec & Doc](#)
[FSH Chat](#)
[SUSHI Github](#)
[Project Page](#)

Rules	
Assignment	* <i>path</i> = <i>value</i> * <i>path</i> = <i>value</i> (exactly) (profiles & extensions only) * <i>Quantity-path</i> = <i>coding</i>
Binding	* <i>path</i> from <i>valueset</i> (<i>strength</i>) * <i>Quantity-path</i> from <i>valueset</i> (<i>strength</i>)
Cardinality	* <i>path min..max</i> * <i>path min..</i> (constrain lower bound only) * <i>path ..max</i> (constrain upper bound only)
Choice	* <i>path</i> only <i>type</i> * <i>path</i> only <i>type1</i> or <i>type2</i> or <i>type3</i> or ... * <i>path</i> only Reference(<i>profile or resource reference</i>) * <i>path</i> only Reference(<i>ref1</i> or <i>ref2</i> or ...)
Extension, inline	* <i>extension-path</i> contains <i>local-name1 card1 flags1</i> and <i>local-name2 card2 flags2</i> ...
Extension, standalone	* <i>extension-path</i> contains <i>extension-reference1</i> named <i>local-name1 card1 flags1</i> and <i>extension-reference2</i> named <i>local-name2 card2 flags2</i> ... (<i>extension-reference</i> is a name, id, or url)
Flag	* <i>path flag1 flag2</i> ... * <i>path1</i> and <i>path2</i> and <i>path3</i> and ... <i>flag1 flag2</i> ...
Invariant	* obeys <i>invariant1</i> and <i>invariant2</i> and ... * <i>path</i> obeys <i>invariant1</i> and <i>invariant2</i> and ...
Mapping	* -> <i>map-string comment-string mime-type</i> * <i>path</i> -> <i>map-string comment-string mime-type</i>
Rule Set	* insert <i>rule-set1</i>
Slicing	* <i>array-element-path</i> contains <i>slice-name1 card1 flags1</i> and <i>slice-name2 card2 flags2</i> ...

Value Set Rules	
[include] indicates the word "include" is optional	
Include single code	* [include] <i>system#code "display"</i>
Exclude single code	* exclude <i>system#code "display"</i>
Include entire code system	* [include] codes from system <i>codesystem</i>
Include from value set	* [include] codes from valueset <i>valueset</i>
Exclude from value set	* exclude codes from valueset <i>valueset</i>
Filter syntax: <i>property operator string-code-boolean-regex</i>	
Filter Operators: (not all apply to every code system) <i>is-a, descendent-of, =, is-not-a, regex, in, not-in, generalizes, exists</i>	
Include codes with filtering	* [include] codes from system <i>system</i> where <i>filter1</i> and <i>filter2</i> and ...
Exclude codes with filtering	* exclude codes from system <i>codesystem</i> where <i>filter</i>



FHIR Shorthand 1.0 Quick Reference: Examples



Paths	
Nested element	stage.assessment
Array element	name[0].given[1]
Choice [x] element	valueQuantity, valueReference
Reference choices	performer[Organization]
Extensions	extension[terminationReason]
	extension[http://hl7.org/fhir/StructureDefinition/location-distance] (Instance only; otherwise use slice name)
Sliced arrays	component[DiastolicPressure]
Resliced arrays	component[RespiratoryScore][OneMinute]
StructureDefinition escape (caret syntax)	^abstract
	component[VariationCode] ^short

Notations and Special Values	
code	#confirmed
Coding and CodeableConcept	http://snomed.info/sct#363346000 "Malignant neoplastic disease (disorder)"
	ICD10CM#C004
Cardinality	0..1 1..1 2..* (two-sided) ..1 1.. 2.. (one-sided)
Comments	// end of line or single line
	/* This comment continues over multiple lines */

Slicing Rubric	
* component ^slicing.discriminator.type = #pattern	
* component ^slicing.discriminator.path = "code"	
* component ^slicing.rules = #open	
* component ^slicing.ordered = false	
* component ^slicing.description = "Slice on component.code"	

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Item	Keywords
Alias	Alias: UCUM = http://unitsofmeasure.org
	Alias: race = urn:oid:2.16.840.1.113883.6.238
Code system	Alias: \$GenderIdentity = http://hl7.org/fhir/StructureDefinition/patient-genderIdentity
	CodeSystem: AJCC_FairUse Title: "AJCC Fair Use" Description: "A small subset of AJCC staging codes used for IG examples."
Extension	Extension: TerminationReason Id: mcode-termination-reason Title: "Termination Reason" Description: "Reason for stopping a treatment."
Instance	Instance: mCODETumorMarkerExample01 InstanceOf: TumorMarker Usage: Example Description: "Epidermal growth factor example."
Invariant	Invariant: us-core-8 Description: "Patient.name.given or Patient.name.family or both SHALL be present" Expression: "family.exists() or given.exists()" Severity: #error XPath: "f:given or f:family"
Mapping	Mapping: USCorePatientToArgonaut Source: USCorePatient Target: "http://unknown.org/Argonaut-DQ-DSTU2" Id: argonaut-dq-dstu2 Title: "Argonaut DSTU2"
Profile	Profile: CancerPatient Parent: \$USCorePatient Id: mcode-cancer-patient Title: "Cancer Patient" Description: "A patient diagnosed with cancer"
Rule set	RuleSet: USCoreTerminologyRuleSet
Value set	ValueSet: AnatomicalOrientationVS Title: "Anatomical Orientation Value Set" Description: "Values for anatomical orientation."

Code System Rule	
Local code definition	* #NED "No Evidence of Disease" "No physical evidence of disease on exam or imaging tests."

Rules	
Assignment	* status = #arrived * code = SCT#18165001 "Jaundice (finding)" * onsetDateTime = "2019-04-02" * subject = Reference(EveAnyperson) * valueQuantity = 2.5 'mm' * valueQuantity = UCUM#mm "millimeters"
Binding	* bodySite from CancerBodyLocationVS (preferred) * valueCodeableConcept from http://loinc.org/vs/LL1971-2 (required) * valueQuantity from LengthUnitsVS (extensible)
Cardinality	* severity 0..0 * subject 1..
Choice	* value[x] only CodeableConcept * effective[x] only dateTime or Period * subject only Reference(CancerPatient) * asserter only Reference(Practitioner or Patient)
Extension, standalone	* extension contains \$GenderIdentity named genderIdentity 0..1 MS and http://hl7.org/fhir/StructureDefinition/patient-disability named disability 0..1 MS
Extension, inline	* extension contains treatmentIntent 0..1 MS and terminationReason 0..* MS
Flag	* deceased[x] MS ?! SU * reasonCode and extension[terminationReason] MS
Invariant	* obeys us-core-6 and us-core-9 * name obeys us-core-8
Mapping	* -> "Patient" * identifier.system -> "Patient.identifier.system"
Rule set	* insert USCoreTerminologyRuleSet
Slicing	* component contains GeneStudied 0..* MS and VariationCode 0..* and GenomicDNAChange 0..1

Value Set Rules	
Single code	* SCT#54102005 "G1 grade (finding)"
Exclude single code	* exclude SCT#12619005
All codes in system	* include codes from system HGVS
Filter Rules for SNOMED-CT (assumes code system aliased as 'SCT')	
Subsumption	* include codes from system SCT where concept is-a #123037004 "Body Structure"
Exclude subsumption	* exclude codes from system SCT where concept is-a #128462008 "Secondary malignant neoplastic disease (disorder)"