Canada Health Infoway

Projectathon Tooling

EVS Validator – Expected Errors or Warnings

Projectathon Testing Supplement

FHIR Validator - Process

- **CA:FeX Client Simulator:** A web application, based on the Swagger UI, used to simulate CA:FeX conformant clients, with or without IUA authorization.

- **CA:FeX Server Simulator:** A FHIR server with RESTful APIs used to simulate CA:FeX conformant servers, with or without IUA authorization.

FHIR Validator - Process

The Canada Health Infoway **FHIR Validator** leverages a FHIR Validation engine, based on the Matchbox Engine (https://ahdis.github.io/matchbox/validation), to structurally and semantically verify a FHIR instance against a FHIR profile.

- Uses loaded FHIR Packages (.tgz files) to look up the rules in selected profiles that a supplied resource or example needs to be validated against
- Invokes external services (e.g., tx.fhir.org terminology server) to evaluate whether a supplied concept matches against a bound value set or code system
- Provides the user with a set of information messages, warnings, and/or errors that describe the process and outcome of the validation

FHIR Validator – Errors & Warnings

- Errors are typically raised when the supplied file does not meet a SHALL rule (e.g., minimum cardinality not met, supplied concept does not belong to required ValueSet)
- Warnings are raised when SHOULD rules are not met (e.g., supplied concept does not belong to a preferred or extensible value set)
- Some errors and warnings result from the validator not being able to properly complete the evaluation against a particular rule –these are referred to in the following slides as Expected Errors/Warnings
- **Regardless of severity – Expected Errors / Warnings described on these slides are not considered test failures**

Expected Errors/Warnings: Non-Resolvable ValueSets

The FHIR Validator cannot evaluate if a concept meets ValueSet binding expectations on concepts not hosted in tx.fhir.org. See list of non-resolvable value sets in Appendix. The severity of this flagged issue (error vs warning) varies based on the profiled binding strength of ValueSet:

Non-Resolvable ValueSets with Preferred and Extensible Binding Strengths will result in Warnings that are not considered a test failure:

- PS-CA Warning Example - PractitionerSpecialty Binding Preferred: *"A definition for CodeSystem 'https://fhir.infoway-inforoute.ca/CodeSystem/scptype' could not be found, so the code cannot be validated"*
- PS-CA Warning Example – Medication Code Binding Preferred: *"A definition for CodeSystem 'https://fhir.infoway-inforoute.ca/CodeSystem/canadianclinicaldrugdataset' could not be found, so the code cannot be validated"*

There are currently no ValueSets with Required Binding Strengths that are Non-Resolvable, should this occur, it would result in an Error that would not be considered a test failure.

Expected Errors/Warnings: Extensible ValueSets

Extensible binding strengths allow for concepts to be provided outside of the bound ValueSet if there is no suitable code in the ValueSet for expressing the concept

The “appropriateness” of this provided code can’t be mechanically determined so warnings are always issued by the validator

- CA:eReC Warning Example – Extensible Binding on Task Business Status: *“None of the codings provided are in the value set 'Task Business Status' (http://fhir.infoway-inforoute.ca/io/CA-eReC/ValueSet/task-business-status), and a coding should come from this value set unless it has no suitable code (note that the validator cannot judge what is suitable) (codes = http://example-system.ca/CodeSystem/test-status#TST)”*

Expected Errors/Warnings: Non-Resolvable National Editions & LOINC Display Values

TX.FHIR.ORG is experiencing a bug where SNOMED CT CA Edition concepts are not resolving

This results in two warnings being issued by the validator when display is provided–Warning on the Bundle.entry[x] resource of type and a warning on Bundle.entry[x]resource.code

- CA:eReC SCT CA Concept Warning: "*Unknown code '7891000087104' in the CodeSystem 'http://snomed.info/sct' version 'http://snomed.info/sct/900000000000207008/version/20240801' line 720, column 10, FHIRPath: Bundle.entry[14].resource/*Immunization/c718d089-e7bb-47fb-9547-4b56c9d05da8*/.vaccineCode.coding[0].code"*
- CA:eReC SCT CA Concept Warning: "*Unknown code '7891000087104' in the CodeSystem 'http://snomed.info/sct' version 'http://snomed.info/sct/900000000000207008/version/20240801' line 720, column 10, FHIRPath: Bundle.entry[14].resource.vaccineCode.coding[0].code"*

TX.FHIR.ORG is also experiencing a bug where display values for LOINC are not resolving

- PS-CA LOINC Display Warning: *"There are no valid display names found for the code http://loinc.org#60591-5 for language(s) 'english'."*

Appendix

Non-Resolvable ValueSets

Non-Resolvable ValueSets that will result in Warnings that are not considered a test failure:

- https://fhir.infoway-inforoute.ca/ValueSet/practitionerspecialty
- https://fhir.infoway-inforoute.ca/ValueSet/healthcareproviderroletype
- https://fhir.infoway-inforoute.ca/ValueSet/prescriptionmedicinalproduct

Non-Resolvable ValueSet Warnings will also be issued if test instances include values from local CodeSystems that are not in the .tgz package or tx.fhir.org, these will not be considered a test failure if underlying profile terminology expectations are met

Canada Health Infoway

Thank you!

To learn more about the Projectathon 2025, visit:

https://infoscribe.infoway-inforoute.ca/display/PCI/Scope%3A+Projectathon+2025

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