



Tutorial: FSHing Equipment



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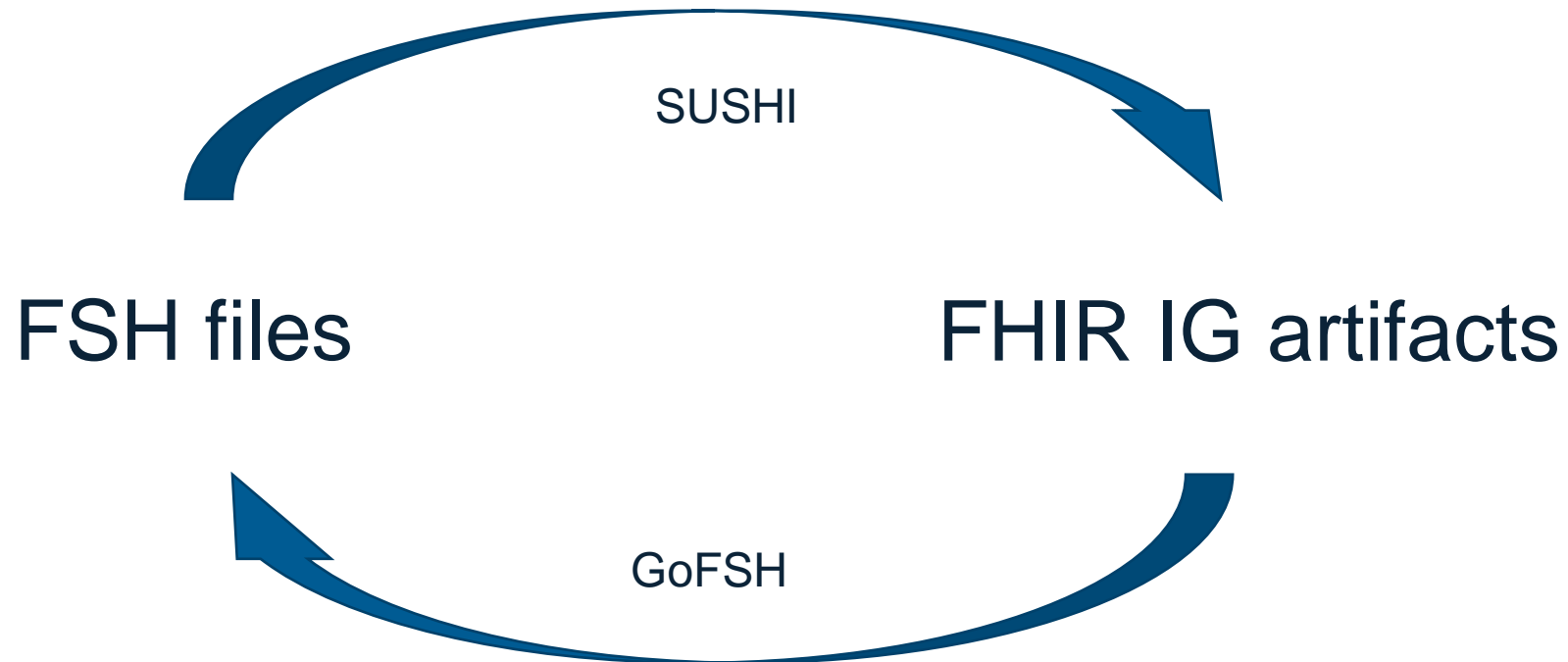
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What is GoFSH?

- A companion tool to SUSHI (SUSHI Unshortens ShortHand Inputs)
 - SUSHI unshortens FHIR Shorthand (FSH) into FHIR
 - GoFSH shortens FHIR into FSH



What is GoFSH good for?

- When you start creating a new IG, you don't need GoFSH.
- When you have an existing IG or StructureDefinitions, and you want to use FSH, you have an obstacle: accurately creating equivalent FSH
 - Manual conversion is tedious and error-prone
 - Automatic conversion using GoFSH removes this obstacle

Current State of GoFSH development

- GoFSH is currently in alpha
- Most features for converting StructureDefinitions to FSH Profiles and Extensions are working
 - Most FSH rules are correctly extracted
 - Some issues remain with complex value types, such as Quantity
- Other FHIR resources are not yet supported
 - ValueSet, CodeSystem, and Instance

Future work for GoFSH

- Support ValueSet, CodeSystem, and Instance
- Stylistic improvements
 - Output should not only be correct, but when possible, should also reflect good FSH authoring styles
- Round-trip using FSHing Trip
 - Helps verify correctness of FSH produced by GoFSH

Example: StructureDefinition

Input: FHIR Resource JSON

```
1 {
2   "resourceType": "StructureDefinition",
3   "id": "MyObservation",
4   "url": "http://example.org/fhir/StructureDefinition/MyObservation",
5   "version": "0.9.5",
6   "name": "MyObservation",
7   "status": "active",
8   "description": "A customized observation.",
9   "fhirVersion": "4.0.1",
10  "kind": "resource",
11  "abstract": false,
12  "type": "Observation",
13  "baseDefinition": "http://hl7.org/fhir/StructureDefinition/Observation",
14  "derivation": "constraint",
15  "differential": {
16    "element": [
17      {
18        "id": "Observation.category",
19        "path": "Observation.category",
20        "min": 1
21      },
22      {
23        "id": "Observation.note",
24        "path": "Observation.note",
25        "isSummary": true
26      }
27    ]
28  }
29 }
```

Output: FSH definition

```
1 Profile: MyObservation
2 Parent: http://hl7.org/fhir/StructureDefinition/Observation
3 Id: MyObservation
4 Description: "A customized observation."
5 * category 1..*
6 * note SU
```

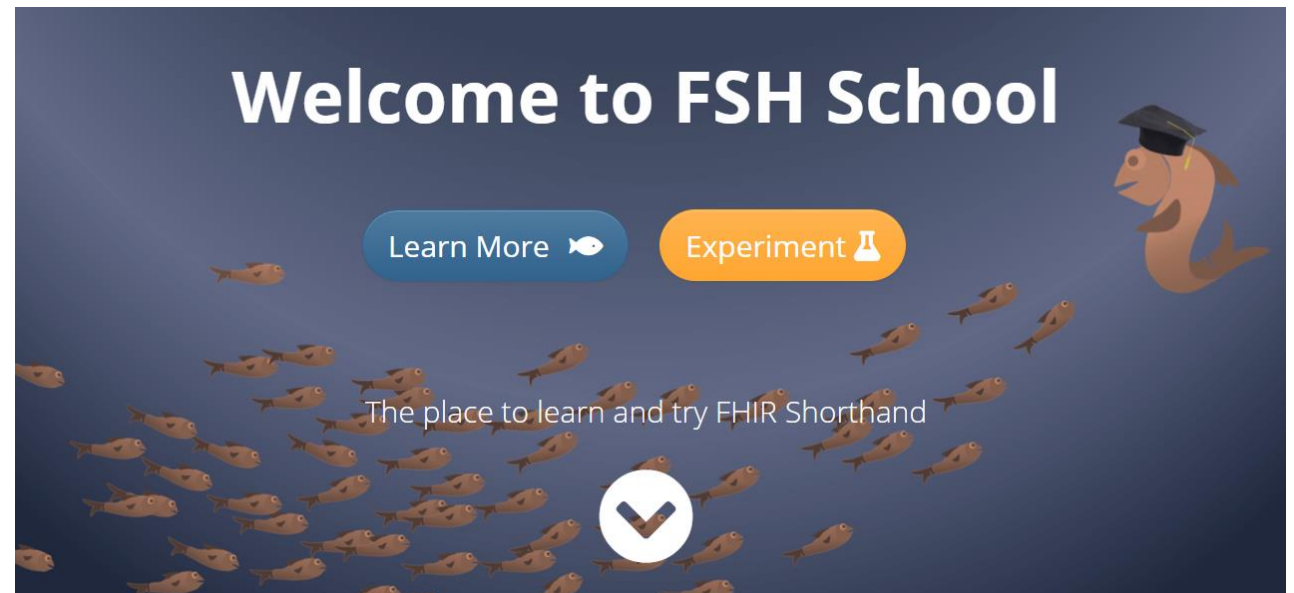
- name – "Profile" keyword
- baseDefinition – "Parent" keyword
- id – "Id" keyword
- description – "Description" keyword
- differential.element[]
 - min – Cardinality rule
 - isSummary – Flag rule

Let's Try Using GoFSH!

- Get your input files (StructureDefinition JSON) ready in one directory
 - Try using the profile at <http://hl7.org/fhir/us/core/StructureDefinition-us-core-allergyintolerance.json.html>
- Install node (version 12.x or 10.x will work): <https://nodejs.org/>
- Install GoFSH from the command line: `npm install -g gofsh`
- Confirm installation from command line: `gofsh --help`
- Run GoFSH from the command line: `gofsh [path-to-fhir-resources]`
- Output is written to `fsh/resources.fsh` by default

FSH School

- The place to go for learning and experimenting with FSH
- Detailed documentation and tutorials showing you how to get started building IGs with FSH
- New home of SUSHI documentation
- Visit <https://fshschool.org/>



FSH and SUSHI Documentation on FSH School

- <https://fshschool.org/docs/>

FSH Online

- The place to go to quickly experiment with FSH
- Author and edit FSH directly in the browser
- Runs SUSHI on the authored FSH
- Visit <https://fshschool.org/FSHOnline/>
- Alpha version for early release and experimentation

The screenshot displays the FSH Online web application interface. At the top, there is a header with "FSH Online" on the left and "Documentation" on the right. Below the header is a "Run" button. The main area is divided into three panels:

- FSH Editor:** Contains FSH (Fast Healthcare Interchange Syntax) text. The visible text includes:

```
1 Alias: SCT = http://snomed.info/sct
2
3 Profile: FishPatient
4 Parent: Patient
5 Id: fish-patient
6 Title: "Fish Patient"
7 Description: "A patient that is a type of fish."
8 * name 1..*
9 * publisher = "A patient at Aquatic Veterinary Services."
10 // Add species extension
11 * extension contains FishSpecies named species 0..1
12 // Remove communication, maritalStatus
13 * maritalStatus 0..0
14 * communication 0..0
15 // Make Species and Contact MS
16 * extension[FishSpecies], contact MS
17
18 Extension: FishSpecies
19 Id: fish-species
20 Title: "Fish Species"
21 Description: "The species name of a piscine (fish) patient."
22 * value[x] only CodeableConcept
23 * valueCodeableConcept from FishSpeciesValueSet (extensible)
24
25 ValueSet: FishSpeciesValueSet
26 Id: fish-species-value-set
27 Title: "Fish Species Value Set"
28 Description: "Codes describing various species of fish from SNOMED-CT."
29 * codes from system SCT where concept is-a #90580008 "Fish (organism)"
30
31 Instance: Shorty
32 InstanceOf: FishPatient
33 * name.given = "Shorty"
34 * name.family = "Koi-Fish"
35 * extension[FishSpecies].valueCodeableConcept = SCT#47978005 "Carpiodes cyprinus"
```
- SUSHI Output:** Displays the JSON output of the SUSHI processor. The "Results" section shows a list of profiles, with the first profile being a StructureDefinition for "fish-patient". It includes details like "resourceType", "id", "url", "name", "title", "status", "publisher", "description", "fhirVersion", and a list of mappings (rim, cda, w5, v2, loinc).
- Console:** Shows log messages from the application, including:

```
info Importing FSH text...
info Preprocessed 1 documents with 1 aliases.
warn Using "," to list paths is deprecated. Please use "and" to list paths.
Line: 16
info Imported 3 definitions and 1 instances.
```