

ClinFHIR Tutorial

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Initial Setup

- Chrome Browser
- Use the Zoom in/out function (CTRL-) if you don't see buttons
- Keep a notepad handy to jot down information

ClinFHIR.com Main Page

clinFHIR Launcher drinterop@gmail.com  

Main modules (open in new tab) Experimental modules (open in new tab)

Patient Viewer	Display resources for a specific patient, using a number of different views such as a list by resource type, json & tree views, encounters by condition, numeric Observation charting and graphical relationship views. There is also the option to add a new patient, and to create sample data for that patient.	Patient resources are stored on the Data Server. The server should support the Patient/\$everything operation.
Server Query	Supports ad hoc queries against any FHIR server. Includes a simple query builder. The response can be displayed as Json or a Tree view, and FHIRPath is supported.	Can access any compliant FHIR server (must expose a Capability Statement)
Scenario Builder	The Scenario Builder is used to join together the resources needed to represent a specific clinical scenario. It can use Core Resource types, Profiles and Logical models as it does this. The intention is to help people understand how resources can tell a clinical story, and to validate that the resource types available (including profiles) are sufficient. Note that the builder still has issues with more complex resource types - this is a work in progress	Patient information is on the Data Server. Profiles on the Conformance server. ValueSets on the Terminology server. Create a simple scenario Adding structured data to a scenario Create a Document
Logical Modeller	The Logical modeller allows the creation of a model that represents a particular interoperability requirement in a format that is easy to use. It uses FHIR datatypes, and can be based on an existing resource type or completely 'ad hoc'. It is intended to act as a 'bridge' between Modeller and User, and can act as the basis for the generation of the profiling components required by FHIR	Models are saved on the Conformance Server. Can reference ValueSets from the Terminology server. Create an Information Model Create a Resources Model
Implementation Guide Browser	Display the contents of an Implementation Guide, and the relationships between the contents of the Guide.	The Implementation guide, profiles and Extension Definitions are on the Conformance Server, the terminology resources (eg ValueSet) are on the Terminology Server
Extension Definition builder	Views and builds extension definitions. These can be defined and applied to the Logical Model, which will allow them to be included in the generated Profile	Extension definitions are saved on the Conformance Server
CodeSystem builder	The CodeSystem defines a set of Concepts from which a ValueSet provides possible values for a resource element. The actual 'binding' between CodeSystem and element is done by the ValueSet. This component allows you to build (and edit) a CodeSystem, and optionally builds the ValueSet as well.	CodeSystems are saved on the Terminology Server.
ValueSet explorer	Lets you view existing ValueSets. The builder works best with SNOMED (at the moment).	ValueSets are stored on the Terminology Server

Current servers [Edit](#)

Data Server	Public HAPI STU3 server	
Conformance Server	Public HAPI STU3 server	
Terminology Server	Public HAPI STU3 server	
Add Server	Set all the same as the Data Server	

FHIR Links (open in new tab)

STU-3 (R3) Specification	Hay on FHIR
STU-2 Specification	FHIR Chat
FHIR wiki	FHIR.org
	Clinicians Workshop

clinFHIR Videos (open in new tab)

Scenario Builder
Adding structured data
Logical Modeller
Logical Modeller and Scenario Builder
RESTful query tool

Note that some of these videos may describe earlier versions, so may not completely match the current functionality.

Other links

SNOMED browser

User Settings

The screenshot shows the clinFHIR Launcher application interface. At the top, there is a header bar with the text "clinFHIR Launcher" on the left, the user's email "drinterop@gmail.com" in the center, and a red square icon with a white arrow pointing right and a gear icon on the right. A red arrow points from the bottom right towards this red square icon.

The main content area is divided into several sections:

- Main modules (open in new tab)** and **Experimental modules (open in new tab)** buttons.
- Patient Viewer**: Describes displaying resources for a specific patient with various views and the option to add a new patient.
- Server Query**: Describes supports ad hoc queries against any FHIR server.
- Scenario Builder**: Describes joining resources for a clinical scenario, mentioning Core Resource types, Profiles, and Logical models.
- Logical Modeller**: Describes creating a model for interoperability requirements using FHIR datatypes.
- Implementation Guide Browser**: Describes displaying the contents of an Implementation Guide.
- Extension Definition builder**: Describes views and builds extension definitions for a Logical Model.
- CodeSystem builder**: Describes defining a set of Concepts for a resource element.
- ValueSet explorer**: Describes viewing existing ValueSets.
- Patient resources**: Describes storage on the Data Server.
- Access to FHIR servers**: Describes access to any compliant FHIR server.
- Patient information**: Describes information on the Data Server, profiles on the Conformance server, and ValueSets on the Terminology server.
- Create a simple scenario**, **Adding structured data to a scenario**, and **Create a Document** buttons.
- Models**: Describes saving models on the Conformance Server and referencing ValueSets from the Terminology server.
- Implementation guide**: Describes the implementation guide, profiles, and Extension Definitions.
- Extension definitions**: Describes saving extension definitions on the Conformance Server.
- CodeSystems**: Describes saving CodeSystems on the Terminology Server.
- ValueSets**: Describes storage on the Terminology Server.
- Current servers** section with tables for **Data Server**, **Conformance Server**, and **Terminology Server**, all listed as "Public HAPI STU3 server". An "Edit" link is at the top right.
- Add Server** button with the note "Set all the same as the Data Server".
- FHIR Links (open in new tab)** section with links to **STU-3 (R3) Specification**, **STU-2 Specification**, **FHIR Chat**, **FHIR.org**, and **Clinicians Workshop**.
- clinFHIR Videos (open in new tab)** section with links to **Scenario Builder**, **Adding structured data**, **Logical Modeller**, **Logical Modeller and Scenario Builder**, and **RESTful query tool**. A note states: "Note that some of these videos may describe earlier versions, so may not completely match the current functionality."
- Other links** section with a link to **SNOMED browser**.

Modules

clinFHIR Launcher drinterop@gmail.com  

Main modules (open in new tab) Experimental modules (open in new tab)

Patient Viewer	Display resources for a specific patient, using a number of different views such as a list by resource type, json & tree views, encounters by condition, numeric Observation charting and graphical relationship views. There is also the option to add a new patient, and to create sample data for that patient.	Patient resources are stored on the Data Server. The server should support the Patient/\$everything operation.
Server Query	Supports ad hoc queries against any FHIR server. Includes a simple query builder. The response can be displayed as Json or a Tree view, and FHIRPath is supported.	Can access any compliant FHIR server (must expose a Capability Statement)
Scenario Builder	The Scenario Builder is used to join together the resources needed to represent a specific clinical scenario. It can use Core Resource types, Profiles and Logical models as it does this. The intention is to help people understand how resources can tell a clinical story, and to validate that the resource types available (including profiles) are sufficient. Note that the builder still has issues with more complex resource types - this is a work in progress	Patient information is on the Data Server. Profiles on the Conformance server. ValueSets on the Terminology server. Create a simple scenario Adding structured data to a scenario Create a Document
Logical Modeler	The Logical modeler allows the creation of a model that represents a particular interoperability requirement in a format that is easy to use. It uses FHIR datatypes, and can be based on an existing resource type or completely 'ad hoc'. It is intended to act as a 'bridge' between Modeler and User, and can act as the basis for the generation of the profiling components required by FHIR	Models are saved on the Conformance Server. Can reference ValueSets from the Terminology server. Create an Information Model Create a Resources Model
Implementation Guide Browser	Display the contents of an Implementation Guide, and the relationships between the contents of the Guide.	The Implementation guide, profiles and Extension Definitions are on the Conformance Server, the terminology resources (eg ValueSet) are on the Terminology Server
Extension Definition builder	Views and builds extension definitions. These can be defined and applied to the Logical Model, which will allow them to be included in the generated Profile	Extension definitions are saved on the Conformance Server
CodeSystem builder	The CodeSystem defines a set of Concepts from which a ValueSet provides possible values for a resource element. The actual 'binding' between CodeSystem and element is done by the ValueSet. This component allows you to build (and edit) a CodeSystem, and optionally builds the ValueSet as well.	CodeSystems are saved on the Terminology Server.
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Scenario Builder
Adding structured data
Logical Modeler
Logical Modeler and Scenario Builder
RESTful query tool

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Other links

SNOMED browser

Server Selection

The screenshot shows the clinFHIR Launcher application interface. At the top, there are tabs for 'Main modules (open in new tab)' and 'Experimental modules (open in new tab)'. Below these are several sections with descriptions and links:

- Patient Viewer**: Describes displaying resources for a specific patient with various views. It also mentions adding a new patient and creating sample data.
- Server Query**: Supports ad hoc queries against any FHIR server, including a simple query builder and FHIRPath support.
- Scenario Builder**: Used to join resources for a clinical scenario, using Core Resource types, Profiles, and Logical models.
- Logical Modeller**: Allows the creation of a model representing interoperability requirements using FHIR datatypes.
- Implementation Guide Browser**: Displays the contents of an Implementation Guide and its relationships.
- Extension Definition builder**: Views and builds extension definitions for a Logical Model.
- CodeSystem builder**: Defines a set of Concepts for a resource element, binding CodeSystem and element via ValueSet.
- ValueSet explorer**: Lets you view existing ValueSets, working best with SNOMED.

On the right side, a 'Current servers' panel is shown, listing three servers: Data Server (Public HAPI STU3 server), Conformance Server (Public HAPI STU3 server), and Terminology Server (Public HAPI STU3 server). A red arrow points to the 'Edit' button in the top right corner of this panel. Below the servers, there's a note: 'Set all the same as the Data Server'. Further down, there are links for FHIR Links, clinFHIR Videos, and Other links (SNOMED browser).

Useful FHIR Links

clinFHIR Launcher drinterop@gmail.com  

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Other links

- SNOMED browser

ClinFHIR Video Demos

clinFHIR Launcher drinterop@gmail.com  

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Other links

- [SNOMED browser](#)

Terminology Links

clinFHIR Launcher

drinterop@gmail.com

Edit

Main modules (open in new tab) Experimental modules (open in new tab)

Patient Viewer	Display resources for a specific patient, using a number of different views such as a list by resource type, json & tree views, encounters by condition, numeric Observation charting and graphical relationship views. There is also the option to add a new patient, and to create sample data for that patient.	Patient resources are stored on the Data Server. The server should support the Patient/\$everything operation.
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Current servers

Data Server	Public HAPI STU3 server	?
Conformance Server	Public HAPI STU3 server	?
Terminology Server	Public HAPI STU3 server	?

Add Server Set all the same as the Data Server

FHIR Links (open in new tab)

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Other links

[SNOMED browser](#)

Create User Account

The screenshot shows the clinFHIR Launcher interface. At the top, there is a header bar with the text "clinFHIR Launcher" on the left, an email address "drinterop@gmail.com" in the middle, and a red square button with a white arrow icon and a gear icon on the right. A red arrow points from the bottom right towards this red button.

The main content area is divided into two main sections:

- Main modules (open in new tab)**: This section contains links to various clinFHIR modules:
 - Patient Viewer
 - Server Query
 - Scenario Builder
 - Logical Modeller
 - Implementation Guide Browser
 - Extension Definition builder
 - CodeSystem builder
 - ValueSet explorer
- Experimental modules (open in new tab)**: This section contains links to experimental modules:
 - Patient resources are stored on the Data Server. The server should support the Patient/\$everything operation.
 - Can access any compliant FHIR server (must expose a Capability Statement)
 - Patient information is on the Data Server. Profiles on the Conformance server. ValueSets on the Terminology server.
 - [Create a simple scenario](#)
 - [Adding structured data to a scenario](#)
 - [Create a Document](#)
 - Models are saved on the Conformance Server. Can reference ValueSets from the Terminology server.
 - [Create an Information Model](#)
 - [Create a Resources Model](#)
 - The Implementation guide, profiles and Extension Definitions are on the Conformance Server, the terminology resources (eg ValueSet) are on the Terminology Server
 - Extension definitions are saved on the Conformance Server
 - CodeSystems are saved on the Terminology Server.
 - ValueSets are stored on the Terminology Server

Create User Account

clinFHIR Launcher

Main modules (open in new tab) Experimental modules (open in new tab)

Patient Viewer Display resources for a specific patient, using a number of resource type, json & tree views, encounters by condition, graphical relationship views.

There is also the option to add a new patient, and to

Server Query Supports ad hoc queries against any FHIR server. Results can be displayed as Json or a Tree view, and FHIRPath is supported.

Scenario Builder The Scenario Builder is used to join together the resources needed to represent a specific clinical scenario. It can use Core Resource types, Profiles and Logical models as it does this. The intention is to help people understand how resources can tell a clinical story, and to validate that the resource types available (including profiles) are sufficient.

Note that the builder still has issues with more complex resource types - this is a work in progress

Logical Modeller The Logical modeller allows the creation of a model that represents a particular interoperability requirement in a format that is easy to use. It uses FHIR datatypes, and can be based on an existing resource type or completely 'ad hoc'. It is intended to act as a 'bridge' between Modeller and User, and can act as the basis for the generation of the profiling components required by FHIR

Implementation Guide Browser Display the contents of an Implementation Guide, and the relationships between the contents of the Guide.

Extension Definition builder Views and builds extension definitions. These can be defined and applied to the Logical Model, which will allow them to be included in the generated Profile

CodeSystem builder The CodeSystem defines a set of Concepts from which a ValueSet provides possible values for a resource element. The actual 'binding' between CodeSystem and element is done by the ValueSet. This component allows you to build (and edit) a CodeSystem, and optionally builds the ValueSet as well.

ValueSet explorer Lets you view existing ValueSets. The builder works best with SNOMED (at the moment).

Login

Email

Password

If you don't yet have an account, then just enter an email and a password, and an account will be generated for you. This will be tightened later!

Cancel

Current servers

Data Server Public HAPI STU3 server

Conformance Server Public HAPI STU3 server

Terminology Server Public HAPI STU3 server

Add Server Set all the same as the Data Server

FHIR Links (open in new tab)
STU-3 (R3) Specification [View on FHIR](#)

This is an UNSECURED server! Use a dummy password!

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Other links [SNOMED browser](#)

Server Selection

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- Logical Modeller**: Allows the creation of a model representing interoperability requirements, using FHIR datatypes and existing resource types.
- Implementation Guide Browser**: Displays the contents of an Implementation Guide and its relationships.
- Extension Definition builder**: Views and builds extension definitions for a Logical Model.
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On the right side, a 'Current servers' panel is shown, listing three servers: Data Server (Public HAPI STU3 server), Conformance Server (Public HAPI STU3 server), and Terminology Server (Public HAPI STU3 server). A red arrow points to the 'Edit' button in the top right corner of this panel. Below the servers, there's a link to 'Add Server' and a note: 'Set all the same as the Data Server'.

Other links include:
FHIR Links (open in new tab):
- STU-3 (R3) Specification
- STU-2 Specification
- FHIR Chat
- FHIR.org
- Clinicians Workshop

clinFHIR Videos (open in new tab):
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Server Selection

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Current servers

Data Server Public HAPI STU3 server

Conformance Server Grahames STU2 server

Terminology Server Grahames STU3 server

Public HAPI STU2 server

Public HAPI STU3 server

Should all be the same FHIR

Add Server

FHIR Links (open in new tab)

STU-3 (R3) Specification

STU-2 Specification

FHIR wiki

clinFHIR Videos (open in new)

Scenario Builder

Adding structured data

Logical Modeller

Logical Modeller and Scenario RESTful query tool

Note that some of these video completely match the current

Other links

[SNOMED browser](#)

Task

- Open clinfhir.com
- Set up an account – DO NOT REUSE AN OLD PW
- Set up your 3 servers – HAPI3
- Lower your laptop lid when you're done

Modules

clinFHIR Launcher drinterop@gmail.com  

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Server Query	Supports ad hoc queries against any FHIR server. Includes a simple query builder. The response can be displayed as Json or a Tree view, and FHIRPath is supported.	Can access any compliant FHIR server (must expose a Capability Statement)
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Logical Modeler	The Logical modeler allows the creation of a model that represents a particular interoperability requirement in a format that is easy to use. It uses FHIR datatypes, and can be based on an existing resource type or completely 'ad hoc'. It is intended to act as a 'bridge' between Modeler and User, and can act as the basis for the generation of the profiling components required by FHIR	Models are saved on the Conformance Server. Can reference ValueSets from the Terminology server. Create an Information Model Create a Resources Model
Implementation Guide Browser	Display the contents of an Implementation Guide, and the relationships between the contents of the Guide.	The Implementation guide, profiles and Extension Definitions are on the Conformance Server, the terminology resources (eg ValueSet) are on the Terminology Server
Extension Definition builder	Views and builds extension definitions. These can be defined and applied to the Logical Model, which will allow them to be included in the generated Profile	Extension definitions are saved on the Conformance Server
CodeSystem builder	The CodeSystem defines a set of Concepts from which a ValueSet provides possible values for a resource element. The actual 'binding' between CodeSystem and element is done by the ValueSet. This component allows you to build (and edit) a CodeSystem, and optionally builds the ValueSet as well.	CodeSystems are saved on the Terminology Server.
ValueSet explorer	Lets you view existing ValueSets. The builder works best with SNOMED (at the moment).	ValueSets are stored on the Terminology Server

Current servers Edit

Data Server	Public HAPI STU3 server
Conformance Server	Public HAPI STU3 server
Terminology Server	Public HAPI STU3 server
Add Server	Set all the same as the Data Server

FHIR Links (open in new tab)

STU-3 (R3) Specification	Hay on FHIR
STU-2 Specification	FHIR Chat
FHIR wiki	FHIR.org
	Clinicians Workshop

clinFHIR Videos (open in new tab)

Scenario Builder	
Adding structured data	
Logical Modeler	
Logical Modeler and Scenario Builder	
RESTful query tool	
Note that some of these videos may describe earlier versions, so may not completely match the current functionality.	

Other links

SNOMED browser

Patient Viewer

Select Patient

Please select a patient using the 'Select Patient' button at the upper right

If you want to add a new patient, then click the 'Select Patient' button, and in the modal dialog that appears, there's a link to add a new patient.



Screenshot of the clinFHIR Patient Viewer interface showing the search for a patient.

The search results for "Bob Anyman male 1954-09-17" are displayed in the "Search for Patient" dialog. The results list includes:

- Robert Anyman male 1956-05-15
- Bob Anyman male 1954-01-01
- Larry Anyman male 1956-03-01
- Bob Anyman male 1954-09-17** (highlighted with a red box and numbered 3)

Red arrows point to the search input fields and the highlighted result.

The detailed view of the selected patient (Bob Anyman male 1954-09-17) shows the following FHIR resource structure:

```
graph TD; Root[coding] --> [0]; [0] --> system["system http://hl7.org/fhir/goal-priority"]; [0] --> code["code high"]; [0] --> display["display high"]; [0] --> text["text high"]; Root --> description["description"]; description --> text["text Improve and maintenance of optimal foot health: aim at early detection of peripheral vascular problems and neuropathy"]; Root --> subject["subject"]; subject --> reference["reference Patient/CarePlan-Patient-1"]; subject --> display["display Bob Anyman male 1954-09-17"]; Root --> startDate["startDate 2016-11-30"]; Root --> addresses["addresses"]; addresses --> [0]; [0] --> reference["reference Condition/CarePlan-Condition-1"]; [0] --> display["display Type 2 diabetes mellitus"];
```

On the right side of the interface, there are sections for "Outward references" and "Inward references".

Bottom left corner: Show Patient Json

Patient Viewer – Resource Explorer

Patient Viewer Bob Anyman male 1954-09-17 (CarePlan-Patient-1) Select Patient

Resource explorer **Resource references graph** **Numeric Observations/Vitals** **Encounter timeline** **FHIRPath** **Documents**

The screenshot illustrates the Patient Viewer - Resource Explorer interface. At the top, the patient information is displayed: Bob Anyman male 1954-09-17 (CarePlan-Patient-1). Below this, the main navigation tabs are shown: Resource explorer, Resource references graph, Numeric Observations/Vitals, Encounter timeline, FHIRPath, and Documents. The 'Resource explorer' tab is selected.

Resource Types:

- CarePlan (2)
- CareTeam (1)
- Condition (8)** (highlighted in green)
- DiagnosticReport (9)
- FamilyMemberHistory (2)
- Goal (6)
- Media (1)
- Observation (121)
- Patient (2)
- Practitioner (3)
- Provenance (1)
- RelatedPerson (1)
- Sequence (1)
- Specimen (1)

Condition resources:

- Health literacy deficit which may impact self-care willingness and ability to achieve goals
- Provisional diagnosis high blood pressure with past history of one high blood pressure
- Peripheral vascular and neuropathy risks leading to heightened foot complication risks
- Obesity
- Inability to maintain effective blood glucose control
- Hypercholesterolemia
- Hypertension
- Type 2 diabetes mellitus** (highlighted in green)

Resource references graph:

This section shows the detailed structure of the selected Condition resource (Type 2 diabetes mellitus). The structure is as follows:

```

    Condition
      - resourceType Condition
      - id CarePlan-Condition-1
      - meta
        - versionId 13
        - lastUpdated 2017-01-13T18:37:35.632-05:00
        - profile
          - [0] http://hl7.org/fhir/us/core/StructureDefinition/us-core-condition
      - text
        - status generated
        - clinicalStatus active
        - verificationStatus confirmed
      - category
        - [0]
          - coding
            - [0]
              - system http://hl7.org/fhir/us/core/CodeSystem/condition-category
              - code problem
      - severity
        - coding
          - [0]
            - system http://snomed.info/sct
            - code 6736007
            - display Moderate
      - text Moderate
      - code
        - coding
          - [0]
            - system http://snomed.info/sct
  
```

Versions: 13 12 11 10 9 8 7 6 5 4 3 2 1

Outward references:

- Condition subject ==> Patient/CarePlan-Patient-1 Bob Anyman

Inward references:

- Goal/CarePlan-Goal-6. 0
Goal: Address patient knowledge deficit on diabetic self-care: aim at addressing patient's knowledge deficit, ensure optimal self-care and prevention/minimization of complications
- Goal/CarePlan-Goal-5. 0
Goal: Maintain blood pressure control with blood pressure readings below 140/90 mmHg; diagnosis of high blood pressure is established by more than one reading of above 140/90 mm Hg within a 4 week period
- Goal/CarePlan-Goal-4. 0
Goal: Improve and maintenance of optimal foot health: aim at early detection of peripheral vascular problems and neuropathy presumed due to diabetes; and prevention of diabetic foot ulcer, gangrene
- Goal/CarePlan-Goal-3. 0
Goal: Conformance to optimise diabetic diet, in conjunction with exercise plan, to achieve weight reduction of 0.5% body weight per month (750 gMLOE)

clinfhir.com/#

Patient Viewer – Resource Reference Graph

Patient Viewer Bob Anyman male 1954-09-17 (CarePlan-Patient-1) Select Patient

Resource explorer **Resource references graph** Numeric Observations/Vitals Encounter timeline FHIRPath Documents

Note that the Patient is not displayed in this graph.

Scroll to zoom graph
Click and drag to move

Tree Text Json

- Condition
 - resourceType Condition
 - id CarePlan-Condition-1
 - meta
 - versionId 13
 - lastUpdated 2017-01-13T18:37:35.632-05:00
 - profile
 - [0] http://hl7.org/fhir/us/core/StructureDefinition/us-core-condition
 - text
 - status generated
 - clinicalStatus active
 - verificationStatus confirmed
 - category
 - [0]
 - coding
 - [0]
 - system http://hl7.org/fhir/us/core/CodeSystem/condition-category
 - code problem
 - severity
 - coding
 - [0]
 - system http://snomed.info/sct
 - code 6736007
 - display Moderate
 - text Moderate
 - code
 - coding
 - [0]
 - system http://snomed.info/sct
 - code 44054006
 - display Type 2 diabetes mellitus
 - text Type 2 diabetes mellitus

Task – Select and View Patient

- Go to Patient Viewer Module
- Enter “Fram” in Patient Search
- Select Patient
- Other interesting patients
 - Joseph Framingham
 - Aric734 Hoppe202 male 1928-02-28 on **GoFHIR** server
- Explore other servers and try out names like “Smith”
- Create a sample patient and view the data

Patient Viewer

Select Patient

Please select a patient using the 'Select Patient' button at the upper right

If you want to add a new patient, then click the 'Select Patient' button, and in the modal dialog that appears, there's a link to add a new patient.



clinFHIR Launcher Patient Viewer Digital Quality Summit Digital Quality Summit

clinfhir.com/patientViewer.html

Patient Viewer Bob Anyman male 1954-09-17 (CarePlan-Patient-1) Select Patient

Resource explorer Resource references graph

Resource Types

- CarePlan 2
- CareTeam 1
- Condition 8
- DiagnosticReport 9
- FamilyMemberHistory 2
- Goal 6**
- Media 1
- Observation 121
- Patient 2
- Practitioner 3
- Provenance 1
- RelatedPerson 1
- Sequence 1
- Specimen 1

Goal resources

Search for Patient

Any Search

Enter Id of patient on this server Load

Enter Identifier of patient on this server Search

Robert Anyman male 1956-05-15

Bob Anyman male 1954-01-01

Larry Anyman male 1956-03-01

Bob Anyman male 1954-09-17

Add new patient

Cancel

Outward references

Goal subject ==> Patient/CarePlan-Patient-1
Bob Anyman

Goal.addresses 0 ==>
Condition/CarePlan-Condition-1
Type 2 diabetes mellitus

Inward references

1

coding [0]

- system <http://hl7.org/fhir/goal-priority>
- code high
- display high
- text high

description

- text Improve and maintenance of optimal foot health: aim at early detection of peripheral vascular problems and neuropathy

subject

- reference Patient/CarePlan-Patient-1
- display Bob Anyman male 1954-09-17

startDate 2016-11-30

addresses [0]

- reference Condition/CarePlan-Condition-1
- display Type 2 diabetes mellitus

Show Patient Json

Create Basic Set of Resources

Patient Viewer

Please select a patient using the 'Select Patient' button.

If you want to add a new patient, then click the 'Select Patient' button.

Add new Patient

Identifier

First Name

Last Name

Date of Birth  Age: 33 years

Gender Male Female

Generate samples

[Find existing patient](#)

Select Patient

[Resource explorer](#)[Resource references graph](#)

Resource Types

[Show Patient Json](#)

Add new Patient

[Close](#)

Progress...

Adding Lucas Thomas

Added patient with the id : 304311

Checking that the required reference resources exist

adding Conditions...

Added Conditions List

adding Encounters...

added encounters Added 10 Encounters

Added 25 Observations

Added Medications List

Added 2 Appointments

All resources have been created. Click the close button to return to the front page

You can review the resource instances that were created using the 'Details' link at the upper left on the screen.

Resource explorer

Resource references graph

Numeric Observations/Vitals

Encounter timeline

FHIRPath

Documents

Resource Types

Appointment	2
Condition	11
Encounter	10
List	2
MedicationStatement	19
Observation	25
Patient	1
Practitioner	2

Condition resources

GERD

onychomycosis

high cholesterol

asthma

angina

hypertension

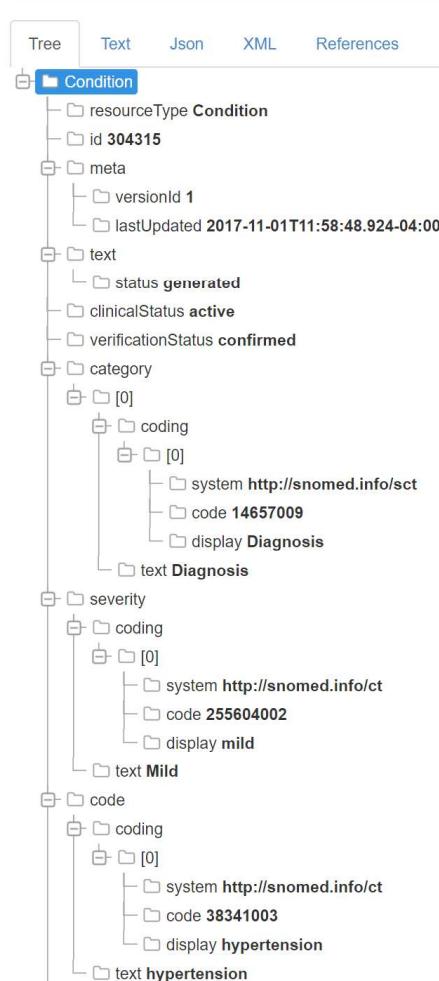
diabetes

neuropathic pain

depression

rheumatoid arthritis - left elbow

rheumatoid arthritis - both hands



Outward references

Condition subject ==> Patient/304311
Lucas Thomas

Inward references

List/304312. item

Creating FHIR Resource INSTANCES

Scenario Builder Module

clinFHIR Launcher drinterop@gmail.com

Main modules (open in new tab)		Experimental modules (open in new tab)
Patient Viewer	Display resources for a specific patient, using a number of different views such as a list by resource type, json & tree views, encounters by condition, numeric Observation charting and graphical relationship views.	Patient resources are stored on the Data Server. The server should support the Patient/\$everything operation.
Server Query	Supports ad hoc queries against any FHIR server. Includes a simple query builder. The response can be displayed as Json or a Tree view, and FHIRPath is supported.	Can access any compliant FHIR server (must expose a Capability Statement)
Scenario Builder	<p>The Scenario Builder is used to join together the resources needed to represent a specific clinical scenario. It can use Core Resource types, Profiles and Logical models as it does this. The intention is to help people understand how resources can tell a clinical story, and to validate that the resource types available (including profiles) are sufficient.</p> <p>Note that the builder still has issues with more complex resource types - this is a work in progress</p>	Patient information is on the Data Server. Profiles on the Conformance server. ValueSets on the Terminology server. Create a simple scenario Adding structured data to a scenario Create a Document
Logical Modeler	The Logical modeler allows the creation of a model that represents a particular interoperability requirement in a format that is easy to use. It uses FHIR datatypes, and can be based on an existing resource type or completely 'ad hoc'. It is intended to act as a 'bridge' between Modeler and User, and can act as the basis for the generation of the profiling components required by FHIR	Models are saved on the Conformance Server. Can reference ValueSets from the Terminology server. Create an Information Model Create a Resources Model
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CodeSystem builder	The CodeSystem defines a set of Concepts from which a ValueSet provides possible values for a resource element. The actual 'binding' between CodeSystem and element is done by the ValueSet. This component allows you to build (and edit) a CodeSystem, and optionally builds the ValueSet as well.	CodeSystems are saved on the Terminology Server.
ValueSet explorer	Lets you view existing ValueSets. The builder works best with SNOMED (at the moment).	ValueSets are stored on the Terminology Server

Current servers Edit

Data Server	Public HAPI STU3 server	
Conformance Server	Public HAPI STU3 server	
Terminology Server	Public HAPI STU3 server	

Add Server Set all the same as the Data Server

FHIR Links (open in new tab)

STU-3 (R3) Specification	Hay on FHIR
STU-2 Specification	FHIR Chat
FHIR wiki	FHIR.org
	Clinicians Workshop

clinFHIR Videos (open in new tab)

Scenario Builder
Adding structured data
Logical Modeler
Logical Modeler and Scenario Builder
RESTful query tool

Note that some of these videos may describe earlier versions, so may not completely match the current functionality.

Other links

SNOMED browser



Create New Scenario

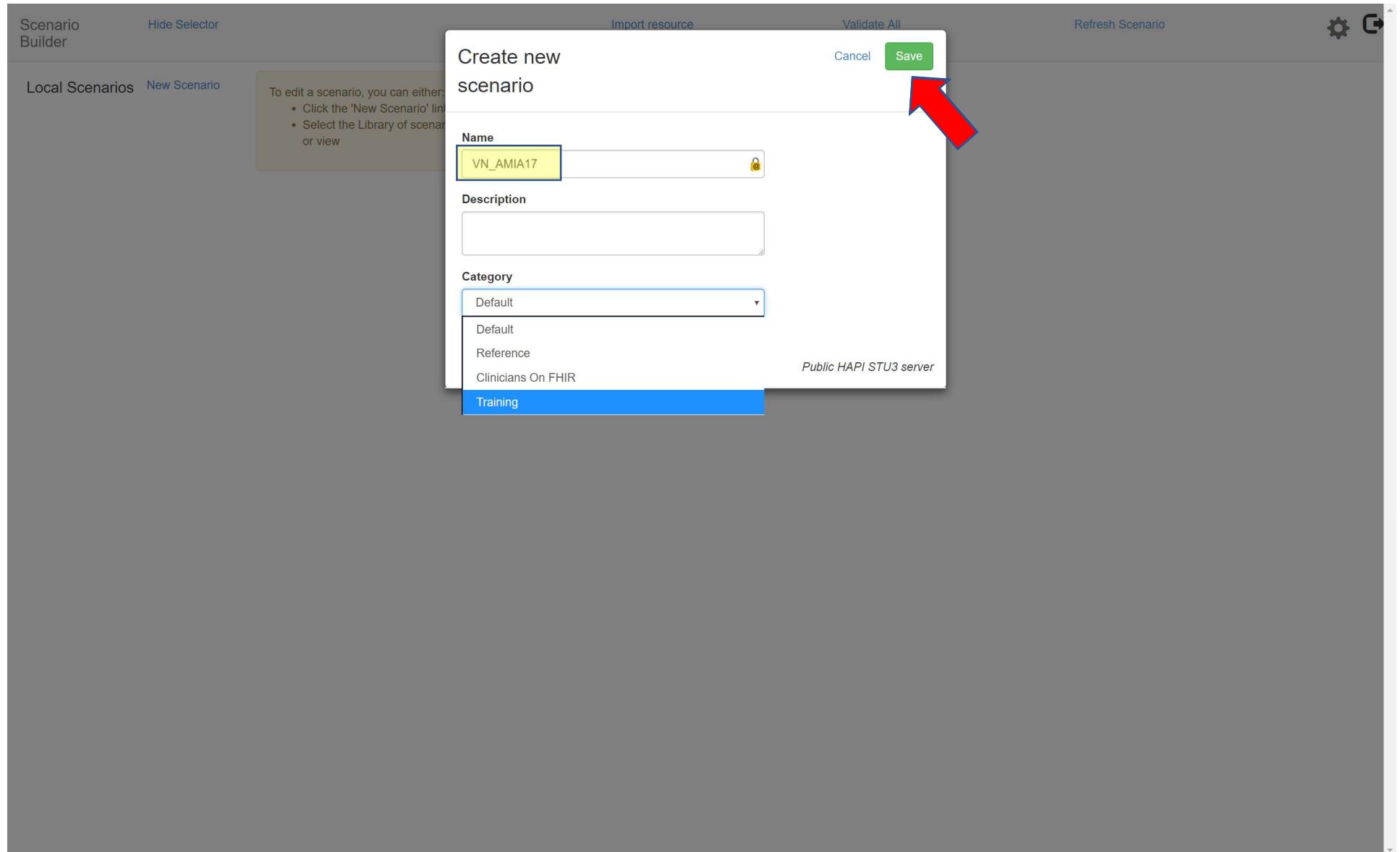
Scenario Builder Hide Selector Import resource Validate All Refresh Scenario  

Local Scenarios [New Scenario](#)



To edit a scenario, you can either:

- Click the 'New Scenario' link to the left to create a new Set
- Select the Library of scenarios ('View Library' link to the upper right) and download one to edit or view



The screenshot shows the 'Scenario Builder' application interface. At the top, there's a navigation bar with links for 'Hide Selector', 'Import resource', 'Show version', 'Validate All', 'Update Server', and a gear icon. Below the navigation bar is a toolbar with tabs for 'List', 'Description', 'Graph', 'FHIRPath', 'Mark', 'New Scenario' (which is currently selected), 'Report', and 'Type', 'Text', 'Valid' (under the Report tab). A large red arrow points to the 'Add Resource' button, which is located in the top right corner of the main content area.

Note: Scenarios are saved locally and need to be posted to a server in order to be shared. Stay tuned!

Scenario Builder Hide Selector Import resource Validate All Refresh Scenario

Show version Update Server

Local Scenarios New Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
------	------	-------

Add new Resource

Core resource Profile Logical Model

Resource Type:

Text

NamingSystem
NutritionOrder
Observation
OperationDefinition
OperationOutcome
Organization

Parameters

Patient PaymentNotice

PaymentReconciliation
Person
PlanDefinition
Practitioner
PractitionerRole
Procedure
ProcedureRequest
ProcessRequest
ProcessResponse
Provenance
Questionnaire

Overview of Resources in spec

Scenario Builder Hide Selector Import resource Validate All Refresh Scenario

Show version Update Server

Local Scenarios New Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
------	------	-------

Add new Resource

Core resource Profile Logical Model

Resource Type: Patient

Text Joseph AMIA001

Cancel Add

Scenario Builder Hide Selector Import resource Show version Validate All Refresh Scenario

Local Scenarios New Scenario List Description Graph FHIRPath Mark Add Resource

Joseph AMIA001 Patient cf-1509554949496

Structure & Reference Current resource views Changes Toggle Input Mode

List Report

Type	Text	Valid
Patient	Joseph AMIA001	

 Link to FHIR Spec

Patient

- identifier *
- active
- name *
- telecom *
- gender
- birthDate
- deceased[x]
- address *
- maritalStatus
- multipleBirth[x]
- photo *
- contact *
 - relationship *
 - name
 - telecom *
 - address
 - gender
 - organization
 - period
- animal
 - species
 - breed
 - genderStatus
- communication *
 - language
 - preferred
 - generalPractitioner *[x]
 - managingOrganization
- link *

Scenario Builder Hide Selector Import resource Show version Validate All Refresh Scenario

Local Scenarios New Scenario List Description Graph FHIRPath Mark Add Resource Joseph AMIA001 Patient cf-1509554949496

Structure & Reference Current resource views Changes Toggle Input Mode

Type Text Valid Patient Joseph AMIA001 ?

Patient identifier * active name * telecom * gender birthDate deceased[x] address * maritalStatus multipleBirth[x] photo * contact * relationship * name telecom * address gender organization period animal species breed genderStatus communication language preferred generalPractitioner *[x] managingOrganization link *

Patient.name HumanName A name associated with the individual.

The screenshot shows the FHIR Scenario Builder interface. At the top, there are tabs for 'List', 'Description', 'Graph', 'FHIRPath', 'Mark', and 'Add Resource'. The 'List' tab is selected. Below it, a table shows a single entry: 'Patient' under 'Type', 'Joseph AMIA001' under 'Text', and a question mark icon under 'Valid'. To the right, the 'Structure & Reference' panel is open, displaying the 'Patient' resource structure. The 'name' field is highlighted with a blue box and a red arrow points to it from the bottom left. The 'HumanName' type is also highlighted with a green box. The 'Toggle Input Mode' button is at the top right of the structure panel. The 'Current resource views' and 'Changes' tabs are also visible.

Scenario Builder Hide Selector Import resource Validate All Refresh Scenario

Add HumanName property to Patient.name

Cancel Save

Joseph AMIA001
dcf-1509554949496

Local Scenarios New Scenario List List Type Patient

Use Usual Pfx Joseph Middle AMIA Suffix

Joseph AMIA

Patient.name

DataType/s (click to add data)

HumanName

deceased[x]
address *
maritalStatus
multipleBirth[x]
photo *
contact *
relationship *
name
telecom *
address
gender
organization
period
animal
species
breed
genderStatus
communication *
language
preferred
generalPractitioner *[x]
managingOrganization
link *

A name associated with the individual.

Toggle Input Mode

Scenario Builder Hide Selector Import resource Show version Validate All Refresh Scenario Update Server

Local Scenarios New Scenario List Description Graph FHIRPath Mark Add Resource

List Report

Type	Text	Valid
Patient	Joseph AMIA001	

Joseph AMIA001
Patient cf-1509554949496

Structure & Reference Current resource views Changes 1

Tree Text Json FHIRPath Summary Edit

```
{
  "resourceType": "Patient",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Joseph AMIA001<a name='mm'></div>"
  },
  "id": "cf-1509554949496",
  "name": [
    {
      "use": "usual",
      "given": [
        "Joseph"
      ],
      "family": "AMIA",
      "text": "Joseph AMIA"
    }
  ]
}
```

Scenario Builder Hide Selector

List Description Graph  Path Mark

Import resource Show version Validate All Refresh Scenario  

Type	Text	Valid
Patient	Joseph AMIA001	

Structure & Reference Current resource views Changes 1

Joseph AMIA001
Patient cf-1509554949496

Patient

- identifier *
- active
- name *** 
- telecom
- gender
- birthDate
- deceased[x]
- address *
- maritalStatus
- multipleBirth[x]
- photo *
- contact *
 - relationship *
 - name
 - telecom *
 - address
 - gender
 - organization
 - period
- animal
 - species
 - breed
 - genderStatus
- communication *
 - language
 - preferred
 - generalPractitioner *[x]
 - managingOrganization
- link *

Patient.name

DataType/s (click to add data)

HumanName

A name associated with the individual.

Toggle Input Mode

```
{
    "resourceType": "Patient",
    "text": {
        "status": "generated",
        "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Josep
    },
    "id": "cf-1509554949496",
    "name": [
        {
            "use": "usual",
            "given": [
                "Joseph"
            ],
            "family": "AMIA",
            "text": "Joseph AMIA"
        }
    ]
}
```

Scenario Builder Hide Selector Import resource Validate All Refresh Scenario

Import resource Show version Validate All Refresh Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Patient	Joseph AMIA001	

Structure & Reference Current resource views Changes 1

Toggle Input Mode

Joseph AMIA001
Patient cf-1509554949496

Patient

- identifier *
- active
- name *
- telecom *
- gender
- birthDate
- deceased[x]
- address *
- maritalStatus
- multipleBirth[x]
- photo *
- contact *
- relationship *
- name
- telecom *
- address
- gender
- organization
- period
- animal
- species
- breed
- genderStatus
- communication *
- language
- preferred
- generalPractitioner *[x]
- managingOrganization
- link *

Joseph AMIA001

Patient.gender

Data Type/s (click to add data)

code

ValueSet Binding (required)

<http://hl7.org/fhir/ValueSet/administrative-gender>

male	Male
female	Female
other	Other
unknown	Unknown

Administrative Gender - the gender that the patient is considered to have for administration and record keeping purposes.

1. Select data element
 2. Look at value set
 3. Delete element
 4. Validate resource

Validate Resource

The screenshot shows the FHIR Scenario Builder interface with the following components:

- Top Bar:** Scenario Builder, Hide Selector, Import resource, Show version, Validate All, Update Server, Refresh Scenario, and a gear/refresh icon.
- Left Sidebar:** List, Description, Graph, FHIRPath, Mark.
- Middle Left:** List, Report.
- Middle Right:** Structure & Reference, Current resource views, Changes 4.
- Bottom Right:** Toggle Input Mode.

A red arrow labeled "1" points to the green checkmark in the "Valid" column of the table, indicating a successful validation. Another red arrow labeled "2" points to the "Validate All" button in the top bar. A third red arrow labeled "3" points to the resource ID "cf-1509554949496" highlighted in yellow in the JSON preview area.

Type	Text	Valid
Patient	Joseph AMIA001	✓

Structure & Reference View:

- Patient
 - identifier *
 - active
 - name *
 - telecom *
 - gender
 - birthDate
 - deceased[x]
 - address *
 - maritalStatus
 - multipleBirth[x]
 - photo *
- contact *
- animal
- communication *
- generalPractitioner *[x]
- managingOrganization
- link *

Resource Preview: Joseph AMIA001

```
{
  "resourceType": "Patient",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Joseph AMIA001</div>"
  },
  "id": "cf-1509554949496",
  "name": [
    {
      "use": "usual",
      "given": [
        "Joseph"
      ],
      "family": "AMIA",
      "text": "Joseph AMIA"
    }
  ],
  "gender": "male",
  "birthDate": "1953-02-01",
  "address": [
    {
      "use": "home",
      "type": "postal",
      "line": [
        "1234",
        "Home Ave"
      ],
      "city": "Hometown",
      "state": "UT",
      "postalCode": "84100",
      "country": "USA"
    }
  ]
}
```

Task – Create a Patient (15 min)

- Use Scenario Builder module to create your own patient
 - Include a name, gender and birthdate
 - Record patient name and id on your note to find it later
- Validate your resource instance
- Update (POST) the resource to the data server
- Confirm that your patient is on the data server using the Patient Viewer module and the patient id

Create FHIR Condition Instance

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario
Hide Selector Show version Update Server

Local Scenarios New Scenario Overview of Resources in spec

VN_AMIA17

Type	Text	Valid
Patient	Joseph AMIA001	

Add new Resource

Core resource Profile Logical Model Existing resources

Resource Type:

Text

- AppointmentResponse
- AuditEvent
- Basic
- Binary
- BodySite
- Bundle
- CarePlan
- CareTeam
- ChargeItem
- Claim
- ClaimResponse
- ClinicalImpression
- Communication
- CommunicationRequest
- Composition
- ConceptMap
- Condition**
- Conformance
- Consent
- Contract

Google clinFHIR Launcher Scenario Builder clinFHIR.com/builder.html

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario
Show Selector Show version Update Server

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	
Patient	Joseph AMIA001	

Structure & Reference Current resource views Changes Hypertension Condition cf-1509562317256 Toggle Input Mode

Condition

- identifier *
- clinicalStatus
- verificationStatus
- category ***
- severity
- code
- bodySite *
- subject[x]**
- context[x]**
- onset[x]
- abatement[x]
- assertedDate
- asserter[x]**
- stage
- evidence *
- note *

Hypertension

Condition.category

Data Type(s) (click to add data)

CodeableConcept

Value Set Binding (e.g. Example)

<http://hl7.org/fhir/valueset/condition-category>

Show values

A category assigned to the condition.

```
{
  "resourceType": "Condition",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Hypertension</div>"
  },
  "id": "cf-1509562317256",
  "subject": {
    "reference": "Patient/cf-1509554949496"
  }
}
```

Scenario Builder Joseph AMIA male 1953-02-01
Show Selector

List Description Graph FHIRPath Mark

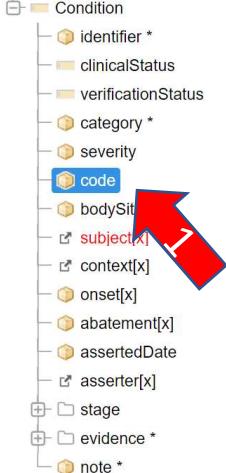
List Report

Type	Text	Valid
Condition	Hypertension	
Patient	Joseph AMIA001	

Import resource Show version Validate All Refresh Scenario

Hypertension
Condition cf-1509562317256

Structure & Reference Current resource views Changes 1

 Hypertension

Condition.code
CodeableConcept

ValueSet Binding: <http://hl7.org/fhir/ValueSet/condition-code>

Identification of the condition, problem or diagnosis.

```
{
  "resourceType": "Condition",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Hypertension</div>"
  },
  "id": "cf-1509562317256",
  "subject": {
    "reference": "Patient/cf-1509554949496"
  },
  "category": [
    {
      "coding": [
        {
          "code": "problem-list-item",
          "system": "http://hl7.org/fhir/condition-category"
        }
      ]
    }
  ]
}
```

Enter search term

Scenario Builder Joseph AMIA male 1953-02-01 Show Selector Import resource Validate All Refresh Scenario  

List Description Graph FHIRPath

List Report

Type	Text
Condition	Hypertension
Patient	Joseph AMIA001

Add CodeableConcept property to Condition.code

benign hypertension

Benign hypertension (disorder)

- Chronic kidney disease stage 1 due to benign hypertension (disorder)
- Chronic kidney disease stage 4 due to benign hypertension (disorder)
- Chronic kidney disease stage 5 due to benign hypertension
- Chronic kidney disease stage 2 due to benign hypertension (disorder)
- Chronic kidney disease stage 3 due to benign hypertension
- Chronic kidney disease due to benign hypertension (disorder)
- ESRD (End stage renal disease) due to benign hypertension

http://hl7.org/fhir/ValueSet/condition-code

Display 

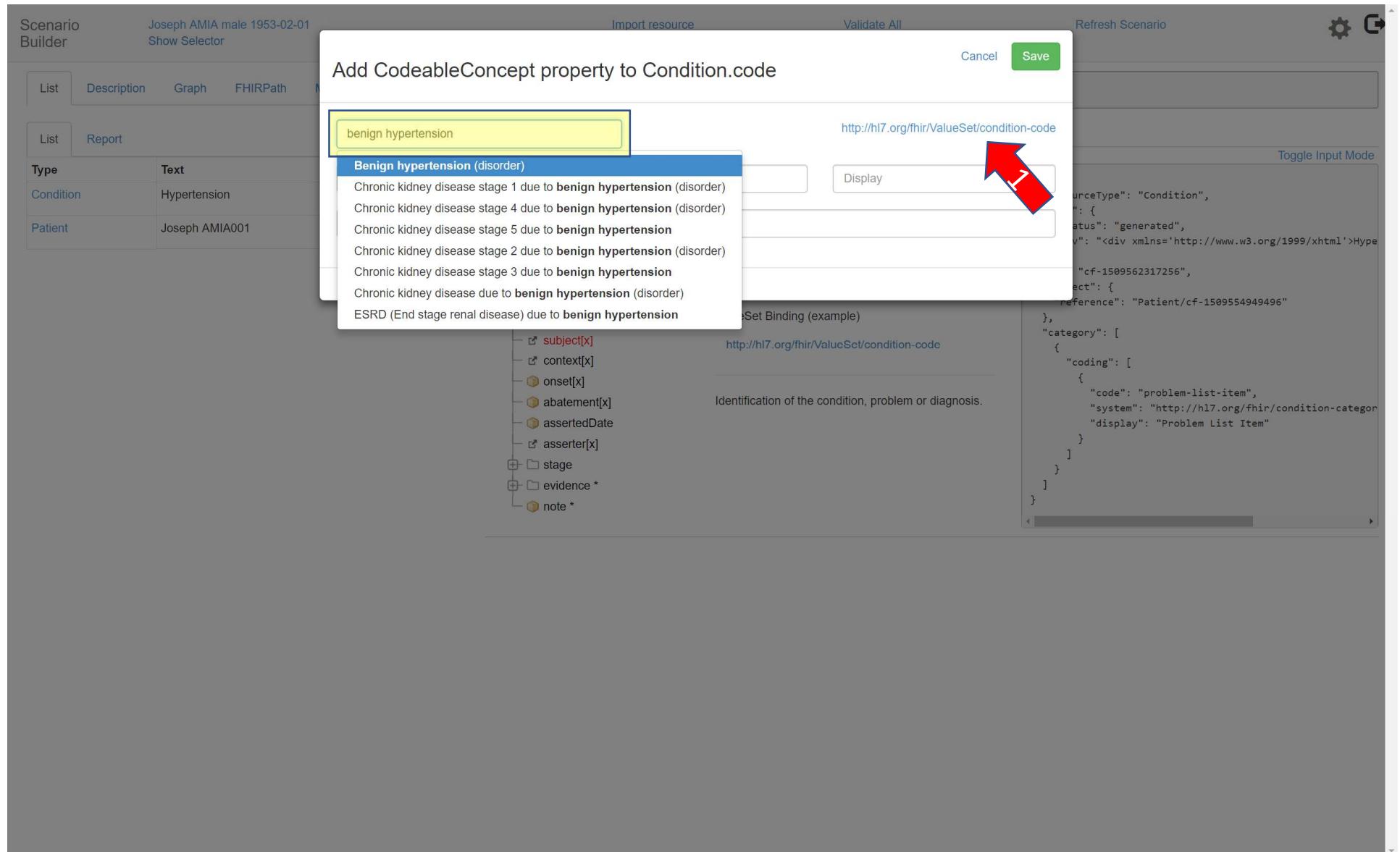
Set Binding (example)

http://hl7.org/fhir/ValueSet/condition-code

Identification of the condition, problem or diagnosis.

sourceType": "Condition",
": {
status": "generated",
": ""cf-1509562317256",
ect": {
reference": "Patient/cf-1509554949496"
},
"category": [
{
"coding": [
{
"code": "problem-list-item",
"system": "http://hl7.org/fhir/condition-categor
"display": "Problem List Item"
}
]
}
]

subject[x]
context[x]
onset[x]
abatement[x]
assertedDate
asserter[x]
stage
evidence *
note *



Explore Value Set

Scenario Builder Joseph AMIA male 1953-02-01 Show Selector

Import resource Validate All Refresh Scenario

Display ValueSet: condition-code

Description CodeSystem Compose JSON Expand Close

List Report

Type Text

Condition Hypertension

Patient Joseph AMIA001

Includes Excludes

1

http://snomed.info/sct SNOMED Concepts

Filters

Property	Operation	Value
concept	is-a	404684003

http://snomed.info/sct Concepts

Code	Display
160245001	No current problems or disability

http://fhirtest.uhn.ca/baseDstu3/ Limitations Define concepts are not recursive

SourceType: "Condition", "status": "generated", "type": "Condition", "id": "cf-1509562317256", "text": "No current problems or disability", "category": ["Problem-List-Item"], "coding": [{ "code": "problem-list-item", "system": "http://hl7.org/fhir/condition-category", "display": "Problem List Item" }]

Toggle Input Mode

The screenshot shows a FHIR Value Set exploration interface. The main title is 'Display ValueSet: condition-code'. The navigation bar includes tabs for Description, CodeSystem, Compose, JSON, and Expand, with 'Description' being the active tab. Below the tabs are 'Includes' and 'Excludes' buttons, with 'Includes' currently selected. A large red arrow points to the 'Includes' button. Another red arrow points to the 'SNOMED Concepts' section, which displays a single concept: '160245001 No current problems or disability'. The background of the interface shows a patient scenario for Joseph AMIA, including details like gender (male), birth date (1953-02-01), and condition (Hypertension). The right side of the interface shows the FHIR JSON representation of the value set.

SNOMED Coded Condition Concept

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario Show Selector

List Description Graph FHIRPath

List Report

Type Text
Condition Hypertension
Patient Joseph AMIA001

Add CodeableConcept property to Condition.code

Benign hypertension (disorder) http://hl7.org/fhir/ValueSet/condition-code

http://snomed.info/sct 10725009 Benign hypertension (disorder)

Text value if not coded

ValueSet Binding (example)
<http://hl7.org/fhir/ValueSet/condition-code>

Identification of the condition, problem or diagnosis.

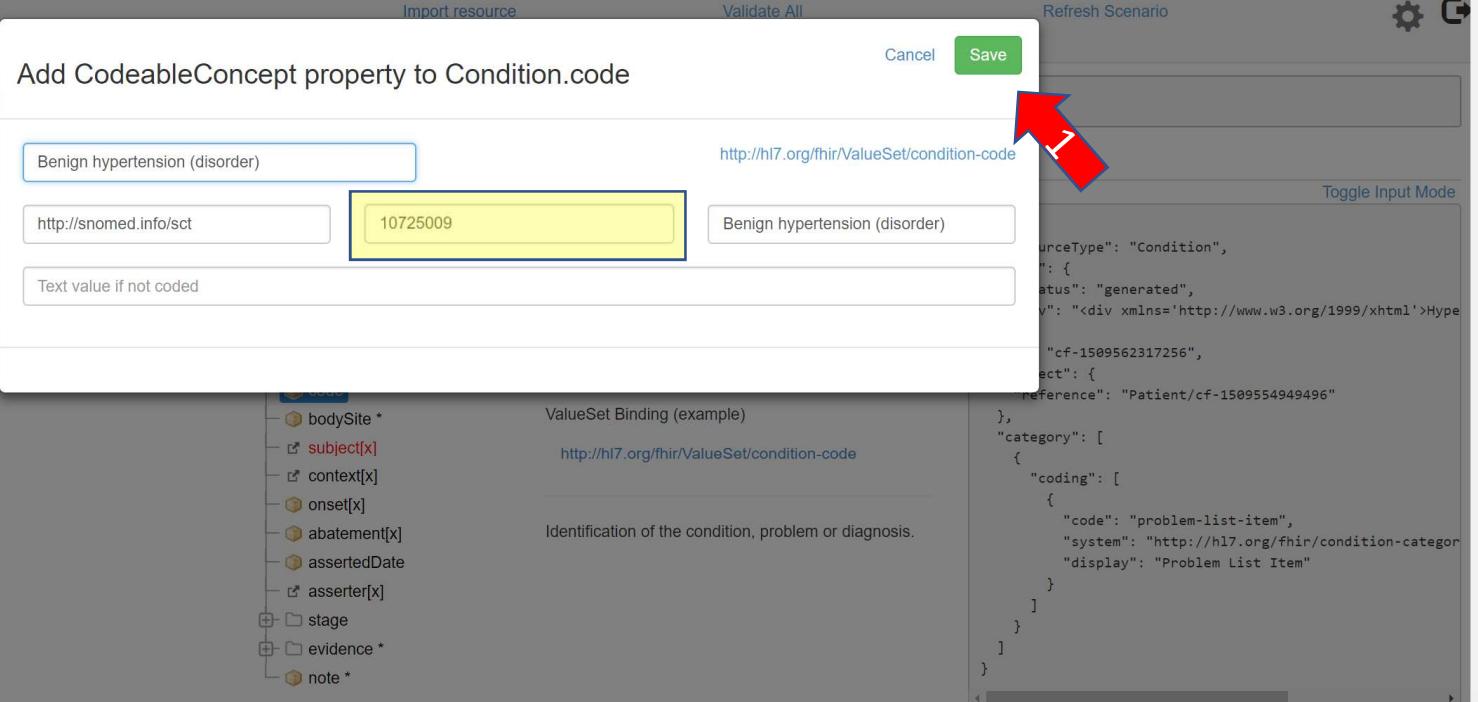
bodySite *
subject[x]
context[x]
onset[x]
abatement[x]
assertedDate
asserter[x]
stage
evidence *
note *

sourceType": "Condition",
": {
status": "generated",
y": "<div xmlns='http://www.w3.org/1999/xhtml'>Hype
"cf-1509562317256",
ect": {
reference": "Patient/cf-1509554949496"
},
"category": [
{
"coding": [
{
"code": "problem-list-item",
"system": "http://hl7.org/fhir/condition-categor
"display": "Problem List Item"
}
]
}
]

Cancel Save

1

Toggle Input Mode



Scenario Builder Joseph AMIA male 1953-02-01 Show Selector

Import resource Validate All
Show version Update Server

Refresh Scenario
⚙️
⟳

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	?
Patient	Joseph AMIA001	?

Hypertension
Condition cf-1509562317256

Structure & Reference Current resource views Changes 2

Condition

- identifier *
- clinicalStatus
- verificationStatus
- category *
- severity
- code
- bodySite *
- subject[x]
- context[x]
- onset[x]
- abatement[x]
- assertedDate
- asserter[x]
- stage
- evidence *
- note *

Hypertension

Condition.code

DataType/s (click to add data)
[CodeableConcept](http://hl7.org/fhir/ValueSet/condition-code)

ValueSet Binding (example)
<http://hl7.org/fhir/ValueSet/condition-code>

Identification of the condition, problem or diagnosis.

```
{
  "resourceType": "Condition",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Hypertension</div>"
  },
  "id": "cf-1509562317256",
  "subject": {
    "reference": "Patient/cf-1509554949496"
  },
  "category": [
    {
      "coding": [
        {
          "code": "problem-list-item",
          "system": "http://hl7.org/fhir/condition-category",
          "display": "Problem List Item"
        }
      ]
    }
  ],
  "code": {
    "coding": [
      {
        "code": "10725009",
        "system": "http://snomed.info/sct",
        "display": "Benign hypertension (disorder)"
      }
    ]
  }
}
```

Link Condition to Patient Resource

Scenario Builder Joseph AMIA male 1953-02-01 Show Selector Import resource Show version Validate All Update Server Refresh Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	
Patient	Joseph AMIA001	

Structure & Reference Current resource views Changes 2

Condition

- identifier *
- clinicalStatus
- verificationStatus
- category *
- severity
- code
- bodySite *
- subject[x]
- context[x]
- onset[x]
- abatement[x]
- assertedDate
- asserter[x]
- stage
- evidence *
- note *

Hypertension Condition cf-1509562317256

Structure & Reference Current resource views Changes 2

Hypertension

Condition.subject

Current Value

```
{"reference": "Patient/cf-1509554949496"}
```

DataType/s (click to add data)

--> Patient

Potential Referrals

Type	Potential resources
Patient	Joseph AMIA001

Indicates the patient or group who the condition record is associated with.

Resource JSON Preview

```
{
  "resourceType": "Condition",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Hypertension</div>"
  },
  "id": "cf-1509562317256",
  "subject": {
    "reference": "Patient/cf-1509554949496"
  },
  "category": [
    {
      "coding": [
        {
          "code": "problem-list-item",
          "system": "http://hl7.org/fhir/condition-category",
          "display": "Problem List Item"
        }
      ]
    }
  ],
  "code": {
    "coding": [
      {
        "code": "10725009",
        "system": "http://snomed.info/sct",
        "display": "Benign hypertension (disorder)"
      }
    ]
  }
}
```

1. Select **subject[x]** data element
2. Appropriate data types
3. Available datatypes in this scenario

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Show Selector Validate All Refresh Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	
Patient	Joseph AMIA001	

Structure & Reference Current resource views Changes 3 Hypertension Condition cf-1509562317256 Toggle Input Mode

Condition

- identifier *
- clinicalStatus
- verificationStatus
- category *
- severity
- code
- bodySite *
- subject[x]**
- context[x]
- onset[x]
- abatement[x]
- assertedDate
- asserter[x]
- stage
- evidence *
- note *

Hypertension

Condition.subject

Current Value

{"reference": "Patient/cf-1509554949496"}

DataType/s (click to add data)

--> Patient
--> Group

Potential References

Type	Potential resources
Patient	

Indicates the patient or group who the condition record is associated with.

```
{
  "resourceType": "Condition",
  "text": {
    "status": "generated",
    "div": "<div xmlns='http://www.w3.org/1999/xhtml'>Hyp"
  },
  "id": "cf-1509562317256",
  "subject": {
    "reference": "Patient/cf-1509554949496"
  },
  "category": [
    {
      "coding": [
        {
          "code": "problem-list-item",
          "system": "http://hl7.org/fhir/condition-category",
          "display": "Problem List Item"
        }
      ]
    }
  ],
  "code": {
    "coding": [
      {
        "code": "10725009",
        "system": "http://snomed.info/sct",
        "display": "Benign hypertension (disorder)"
      }
    ]
  }
}
```

Note: ClinFHIR automatically links new resources to existing patient resource when appropriate

Errors in Validation

The screenshot shows the FHIR Scenario Builder interface. On the left, there's a table with columns for Type, Text, and Valid. The first row has 'Condition' as the type, 'Hypertension' as the text, and a red 'X' in the Valid column, indicating an error. A red arrow points from this 'X' to the validation errors section on the right. On the right, a detailed view of the 'Hypertension' resource is shown. The 'Errors/Warnings' tab is selected, highlighted by a yellow box and a red arrow. The error message listed is: 'Condition.clinicalStatus SHALL be present if verificationStatus is not entered-in-error [verificationStatus='entered-in-error' or clinicalStatus.exists()]'. There are also tabs for 'Structure & Reference', 'Current resource views', and 'Changes'.

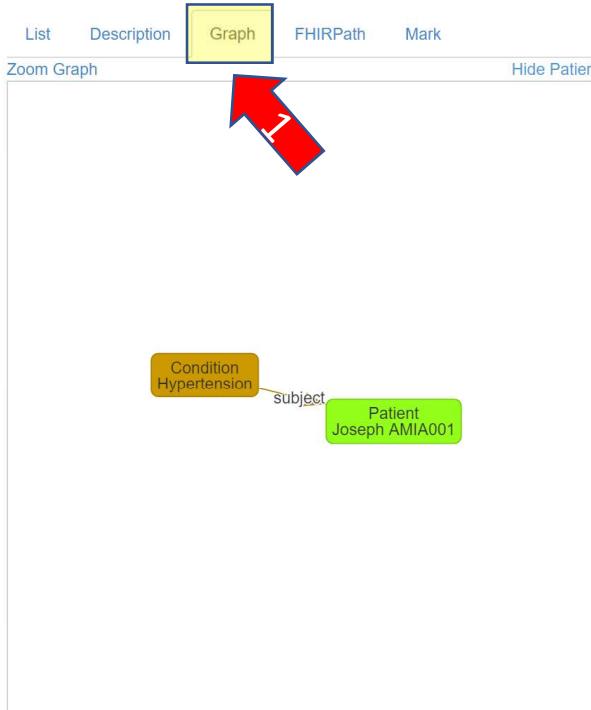
Note: Use the validation warnings/errors to correct your resource, then update the server

View Resource Graph of Scenario

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Show Selector Validate All Refresh Scenario 

List Description Graph FHIRPath Mark Details of Reference
From:
Path:
To:

Zoom Graph Hide Patient



```
graph LR; Condition[Condition Hypertension] -- subject --> Patient[Patient Joseph AMIA001]
```

Task – Create a Condition (15 min)

- Use Scenario Builder module to create your own condition
 - SNOMED Code and link to your patient
 - E.g. Diabetes mellitus type 2 (SCTID 44054006)
- Validate your resource instance
- Update (POST) the resource to the data server
- Confirm that your patient is on the data server using the Patient Viewer module and the patient id
- Add additional conditions if you are done early

Add HgbA1c Observation

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario
Hide Selector Show version Update Server 

Local Scenarios New Scenario Overview of Resources in spec
VN_AMIA17 

List	Description	Graph	FHIRPath	Mark
List	Report			
Type	Text			Valid
Condition	Hypertension			
Patient	Joseph AMIA001			

Add new Resource
Core resource **Profile** Logical Model Existing resources
Resource Type: **Observation**
Text
Cancel **Add** 

Use Value Set Expand to find code

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario

Hide Selector

Local Scenarios New Scenario

VN_AMIA17

List Type Condition Observation Patient

Display ValueSet: observation-codes

Description CodeSystem Compose JSON Expand

Filter hemoglobin a1c ValueSet/observation-codes/\$expand?filter=hemoglobin a1c

Expand

Code	System	Display
LP16413-4	http://loinc.org	Hemoglobin A1c
41995-2	http://loinc.org	Hemoglobin A1c [Mass/volume] in Blood
55454-3	http://loinc.org	Hemoglobin A1c in Blood
43150-2	http://loinc.org	Hemoglobin A1c measurement device panel
LP100945-7	http://loinc.org	Hemoglobin A1c Bld-Ser-Plas
71875-9	http://loinc.org	Hemoglobin A1c/Hemoglobin.total [Pure mass fraction] in Blood
4548-4	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood
17855-8	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood by calculation
4549-2	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood by Electrophoresis
17856-6	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood by HPLC
59261-8	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood by IFCC protocol
62388-4	http://loinc.org	Hemoglobin A1c/Hemoglobin.total in Blood by JDS/JSCC protocol

Close

Refresh Scenario

HgbA1c

on cf-1509564489602

Views Changes 1

Toggle Input Mode

HgbA1c

Observation.code

DataTypes (click to add data)

CodeableConcept

ValueSet Binding (example)

http://hl7.org/fhir/ValueSet/observation-codes

Describes what was observed. Sometimes this is called the observation "name".

<http://fhirtest.uhn.ca/baseDstu3/>

Use the terminology expansion function to explore the ValueSet. Use a filter to restrict the result set - there is a limit to the number of concepts that can be returned.

Scenario Builder Joseph AMIA male 1953-02-01
Show Selector

Import resource Validate All
Show version Update Server

Refresh Scenario
⚙️
⟳

List
Description
Graph
FHIRPath
Mark

List
Report

Type	Text	Valid
Condition	Hypertension	?
Observation	HgbA1c	?
Patient	Joseph AMIA001	?

Structure & Reference
Current resource views
Changes 2

Toggle Input Mode

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Add Quantity Value to Observation

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Show Selector Validate All Refresh Scenario

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	?
Observation	HgbA1c	?
Patient	Joseph AMIA001	?

Add a value to the observation

Structure & Reference Current resource views Changes 2

HgbA1c Observation cf-1509564489602

Toggle Input Mode

Observation

- identifier *
- basedOn *[x]
- status
- category *
- code
- subject[x]
- context[x]
- effective[x]
- issued
- performer[x]
- value[x]** 1
- dataAbsentReason
- interpretation
- comment
- bodySite
- method
- specimen
- device[x]
- referenceRange *
- related *
- component *

HgbA1c

Observation.value[x]

DataType/s (click to add data)

- Quantity
- CodeableConcept
- string
- boolean
- Range
- Ratio
- SampledData
- Attachment
- time
- dateTime
- Period

The information determined as a result of making the observation, if the information has a simple value.

```
{ "resourceType": "Observation", "text": { "status": "generated", "div": "<div xmlns='http://www.w3.org/1999/xhtml'>HgbA1c</div>" }, "id": "cf-1509564489602", "subject": { "reference": "Patient/cf-1509554949496" }, "status": "final", "code": { "coding": [ { "code": "55454-3", "system": "http://loinc.org", "display": "Hemoglobin A1c in Blood" } ] } }
```

Scenario Builder Joseph AMIA male 1953-02-01 Import resource Validate All Refresh Scenario Hide Selector

Add Quantity property to Observation.valueQuantity

Cancel Save

Value: 6.8 System: %

Type: Text Condition: Hypertension Observation: HgbA1c Patient: Joseph AMIA001 ✓

category * code subject[x] context[x] effective[x] issued performer *[x] value[x] dataAbsentReason interpretation comment bodySite method specimen device[x] referenceRange * related * component *

Quantity CodeableConcept string boolean Range Ratio SampledData Attachment time dateType Period

The information determined as a result of making the observation, if the information has a simple value.

sourceType": "Observation", "id": "cf-1509556007887", "status": "generated", "div": "<div xmlns='http://www.w3.org/1999/xhtml'>HgbA1c", "subject": { "reference": "Patient/cf-1509554949496" }, "status": "final", "code": { "coding": [{ "code": "55454-3", "system": "http://loinc.org", "display": "Hemoglobin A1c in Blood" }] }, "valueQuantity": { "value": 6.8, "unit": "%" }

Toggle Input Mode

Validate and POST Observation

Scenario Builder Joseph AMIA male 1953-02-01 Hide Selector Import resource Show version Validate All Update Server Refresh Scenario  

List Description Graph FHIRPath Mark

List Report

Type	Text	Valid
Condition	Hypertension	✓
Observation	HgbA1c	✓
Patient	Joseph AMIA001	✓

1 

Structure & Reference Current resource views Changes 3 

HgbA1c 

Observation cf-1509566007887

Observation.value[x]

DataType/s (click to add data)

- Quantity
- CodeableConcept
- string
- boolean
- Range
- Ratio
- SampledData
- Attachment
- time
- dateTime
- Period

The information determined as a result of making the observation, if the information has a simple value.

```
{ "resourceType": "Observation", "text": { "status": "generated", "div": "<div xmlns='http://www.w3.org/1999/xhtml'>HgbA1c</div>" }, "id": "cf-1509566007887", "subject": { "reference": "Patient/cf-1509554949496" }, "status": "final", "code": { "coding": [ { "code": "55454-3", "system": "http://loinc.org", "display": "Hemoglobin A1c in Blood" } ] }, "valueQuantity": { "value": 6.8, "unit": "%" } }
```

Toggle Input Mode 

Task – Create an Observation (15min)

- Use Scenario Builder module to create your own Observation
 - Try Fasting Blood Glucose, Height, Weight and BMI
- Use FHIR Spec, Google or LOINC Browser to find LOINC concept code
- Validate your resource instance
- Update (POST) the resource to the data server
- Confirm that your patient is on the data server using the Patient Viewer module and the patient id
- Additional task – add additional observations