2018 OpenHIE Connect-A-Thon

The OpenHIE Connectathon is a merger of two exciting types of meetings. This is a technical space for software teams and architects to engage and get their "hands-in" or "on" OpenHIE itself and see it materialised. Combining the principles of a connectathon and a hackathon we are excited to provide a space for teams to connect their existing tools to OpenHIE workflows and use-cases as well as give the community an opportunity to propose low hanging fruit use cases for the groups to work on. Recognising that many attendees may be new to OpenHIE there is no better way than actively engaging in designing, developing, configuring, implementing and connecting to an OpenHIE architecture to learn the fundamentals and build the relationships that you will need going forward.

Objectives

The attendees of the connect-a-thon are aiming to:

- Connect existing tools to OpenHIE foundational registries
- Learn how to implement workflows within their tools
- Jointly work together to implement common use-cases within an OpenHIE architecture
- Self-organise into learning sessions and create breakaway groups to discuss topics / show ideas

Great so what does this really mean/look like?

Well we are looking forward to the attendees (that is you, the participant) bringing their technical strengths to the table and bringing their systems to engage with others in the field. These sessions are focused at providing the space for the architects, the analysts, the developers and the integrators within the communities to meet and discuss how to solve active problems as well as start on the fundamentals of connecting systems. We are expecting a combination of the following to emerge:

- Focused technical discussions around how best to engage with the deeper aspects of data exchange on a fundamental standards level and workflows.
- Generating sequence diagrams and talking about what data systems curate and what would be available in the other systems and documented models and technical specifications to get it there.
- Bringing your technical questions and started projects/code to any persons representing tools and technologies and engaging with them and others on how best to architect and develop the solution
- Bring your code and application and your development skills to the table and try to connect to systems that are present and possibly consume an OpenHIE workflow and share data with other system
- Learn more about the technical nature and how to model things in FHIR and or how others have done it
- Design decisions that impact scale and speed as wells as how different implementers select different development patterns and architectures to solve their challenges.
- And other discussions that flow.

SLACK Channel

Registration link for slack team. Once you register, join the #ohie-hackonnect-athon channel. We can make new channels for the themes if needed.b

So what will be available to connect to and test against?

This space is a technical space and we encourage participants to "**put their hands up**" as to what they will be brining and what they will be making available to the participants to engage with. Depending on the number of participants we are considering scheduling a lightning session where groups can rapidly (5min/5 slides) present their tools as an intro. Currently the following teams and tools have put their hands up to be at the event and have technologies available.

Component Group	Tool / Solution	Organisation / Contact	Description	Online Demo /Sandbox
IOL	OpenHIM (www.openhim.org)	Jembi Health Systems (www.jembi.org)	The OpenHIM is an interoperability layer that facilitates OpenHIE workflows. It allows easy configuration and setting up of channels and endpoints that allow systems to connect and exchange information. The use of mediators allows implementer /developers to add logic and custom flows to the channels. This is the current reference technology for the IOL community of OpenHIE. **Connectathon offering:** The OpenHIM will be setup and available for teams to create their own channels and the Jembi team be avaiable to advise of how mediators and additions can be made	TBD
*New | SHR	HEARTH	Jembi Health Systems (www.jembi.org)	HEARTH is Jembi's HL7 FHIR server that serves as an SHR on many of Jembi's internal projects. This FHIR server allows for FHIR resource management and has been used in multiple ways to manage more than just patient health data; such as patient management, facility mangement etc. **Connectathon offering:** HEARTH will be setup and available for teams to leverage and engage with the endpoints that include the storage and retrieval of FHIR resources from the tool	TBD

*New	OpenCRVS (www. opencrvs.org)	Jembi Health Systems (www. jembi.org) | Plan International (https: //plan-international. org/)	OpenCRVS is an open offering to countries who are looking for a means to better manage Cival Registration and Vital Statiscs (CRVS) needs. The Plan and Jembi team have developed a first version/prototype of the tool based on the OpenHIE architecture and have modeled interfaces to other systems using FHIR. **Connectathon offering:** OpenCRVS will be available for teams to discuss how best to leverage data as well as how to create CRVS event notifications (such as birth notifications) from other health systems	TBD
*New	CQF Ruler (Measure /MeasureRep ort, ADX-on-FHIR)	HarmonIQ Health Systems (http://har moniqhealth.com) bryn@databaseco nsultinggroup.com	**CQF Ruler:** (https://github.com/DBCG/cqf-ruler/wiki) is an implementation of HL7 FHIR's Clinical Reasoning(http://hl7.org/fhir /clinicalreasoning-module.html) module. It provides support for evaluation of quality measures specified using Clinical Quality Language (http://cql.hl7.org/2018May/), as well as decision support evaluation using CDS Hooks (http://cds-hooks.hl7.org /ballots/2018May/). **Connectathon Offering:** The Measure (http://hl7.org/fhir/measure.html) and MeasureReport (http://hl7.org/fhir/measurereport.html) resources in FHIR have been updated to support public health reporting and will be available for development and testing use throughout the connectathon.	http://measure.eval.kanvix. com/cqf-ruler/baseDstu3 source: https://github.com /DBCG/cqf-ruler
HMIS	DHIS2 (www. dhis2.org)	HISP Tanzania (https://hisptanzani a.org) Ismael Yusuf (ismailkoleleni@g mail.com)	DHIS2 is a tool for health information collection, management, analysis and reporting. It is the current reference software for the HMIS component within the openHIE architecture. **Connectathon offering:** A sandbox instance of the latest version of DHIS2 software will be available on the cloud specifically for use within the connectathon/hackathon.	https://ohie.dhis2.org (coming soon)

CR / MPI	MEDIC	Justin Fyfe (justin. fyfe1@mohawkcoll ege.ca)	The MEDIC CR (Client Registry) is a master patient index (MPI) which is used to cross reference patient identities from a variety of assigning authority domains. The version on offer is a recent refactoring to the new SanteMPI branding and includes several updates over the published GitHub version. Unfortunately SanteMPI Version 2.0 is not currently available for testing (so no FHIR DSTU3).
			
			Connectathon offering:
			
			Version 1.3 has been sandboxed and configured with four assigning authorities which may be distributed by interested parties at the connect-a-thon. The assigning authorities are: VENDOR_1, VENDOR_2, VENDOR_3, and VENDOR_4. To register patients sending devices match the assigning authority name and sending facilities are : FACILITY_1, FACILITY_2, etc. respectively.
			
			For example: VENDOR_1 would send
			
			`MSH|^~\&|VENDOR_1|FACILITY_1|...`
			`...`
			`PID|||RJ-439^^^VENDOR_1|...`
			
			If you would like to receive ADT or v3 notifications (ITI-10/ITI-46) please contact Justin Fyfe (justin.fyfe1@mohawkcollege.ca) with your public IP address and port number. ITI-10 allows a remote server to be notified whenever a master record is created /updated or merged in either HL7 v2 (ITI-10) or HL7 v3 (ITI-46).
			
			If you are running an IHE ATNA compliant audit repository and would like the MPI to send either IETF RFC-3881 or DICOM format audits please contact Justin Fyfe (justin.fyfe1@mohawkcollege.ca) with your public IP address and whether you prefer UDP, TCP or STCP audits and whether your repository supports RFC-3881 or DICOM formatted audits.
			
			Another note: The security settings on this MPI do not allow blanket "give me everything" queries on the FHIR interface. Queries must have at least one query parameter or else the server will reject the message.
				http://mpiv1.santedb.org: 8080/fhir (FHIR DSTU1 & PDQm)
				
				http://mpiv1.santedb.org: 8080/pixmanager (IHE PIX v3)
				
				http://mpiv1.santedb.org: 8080/pdqsupplier (IHE PDQ v3)
				
				llp://mpiv1.santedb.org: 2100 (IHE PIX & PDQ v2)

LMIS	OpenLMIS (w ww.openlmis. org)	Brandon Bowersox-Johnson , VillageReach, OpenLMIS Community	OpenLMIS is an electronic logistics management information system that manages and automates logistics processes at over 10,000 health facilities across 9 country implementations in Africa. In the OpenHIE landscape, key areas of interoperability are: Facility Master Data, Product Master Data, and pushing data out to HMIS and third-party reporting /dashboard/analytics tools. **Connectathon offering:** OpenLMIS is available at a demo site in the cloud with a documented REST JSON API. This demo site is available for teams to log in and access the APIs to demonstrate integrations. A few members of the OpenLMIS Community will be on-hand at the Connect-a-Thon to answer questions and discuss interoperability scenarios.	
Use Case	Case Based Surveillance Prototype	Jembi Health Systems	Jembi has implemented HEARTH to support a Case Based Surveillance use case for a Rwanda prototype. The Jembi team will be making this tool available for demonstration and interaction with as well as exposing the FHIR channels to those wanting to leverate it.	Demo: http://46.101.77.66/#/ OpenHIM: http://46. 101.77.66:8888/#/login (demo@jembi.org:rcbs-demo)
Health Worker Registry and InterLinked Registry	OpenInfoMan + modules for ILR as part of mHero	IntraHealth	OpenInfoMan is the reference product for the InterLinked Registry (Health Worker Registry + Facility Registry). IntraHealth would enjoy engaging in a discussion about how it works now and what comes next especially with regard to the emerging FHIR specification and mCSD profile.	TBD
UHC	openIMIS (openimis.org)	openIMIS community Alicia Spengler (GIZ) Nils Kaiser	openIMIS is an open-source MIS designed to facilitate the move towards Universal Health Coverage (UHC) by supporting the management of various types of social health protection schemes, including management of policies - financial information but also included medical supplies and services -, insurees - incl. Enrollment and renewals - and claims. **Connectathon offering:** A connectathon instance with dummy data will be available to analyse and potentially develop integrations with OpenHIE registries and other systems. Examples: export facility data information contained in openIMIS	

| Terminology Services | Distributed Terminology Service (DTS) | Apelon, Inc Caroline Macumber | Apelon's Distributed Terminology System (DTS), is an industry leading open-source healthcare terminology management platform. DTS has been designed to meet emerging enterprise requirements for creating, maintaining, and deploying terminologies with local enhancements into enterprise, regional, and national distributed application environments. DTS's functionality, capabilities, and ease-of-use is why DTS is the preferred platform for the comprehensive management of both standard and local/proprietary terminologies. As an open source solution, DTS provides significant cost, integration and adoption advantages compared to proprietary solutions. Available professional support and subscription content services allow implementers to leverage an open source product, making customizations to the source code without restriction, while also having access to optional Apelon services for implementation guidance, trouble shooting and standard terminology preparation. Exemplary OHIE community implementations include the Philippines Health Information Exchange and the Rwanda Health Enterprise Architecture (RHEA) DTS continues to include updated support for HL7's FHIR Terminology Service. With Apelon's incorporation of these features, users and organizations can continue to leverage the FHIR Standard in their own Terminology applications. **Connectathon offering:** A FHIR (STU v3.0.1) Terminology Service with the HL7 content included in the FHIR specification and many international standards such as ICD-10. **NOTE: Though freely available and publicly accessible, user registration is required. If you plan to use the service during the OHIE Connectathon, please send a request to support@apelon.com for a user/pass. Due to the timezone difference between Arusha and the US Eastern seaboard, it is recommended that requests for user accounts be done as soon as possible and in advance of the Connectathon.** Additional information can be found at www.apelondts.org or by contacting info@apelon.com. | To access the FHIR Terminology Service, use this base URL: http://fhir.ext.apelon.com:7080/dts/fhir/ To access an introductory Demo page that describes the FHIR operations supported and provides sample queries, please see the following webpage: http://fhir.ext.apelon.com:7080/DtsOnFhirDemo/logon/ForwardToLogon.action |
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We ask each team to setup their own tools in the cloud and or locally on their own hardware and bring access details to the meetings.

Current Challenges

Taking into account systems and teams attending we are looking for groups and members to list out the current challenges that they are posing to the attendees. Please add your challenges/hacking ideas below

Title	Description	Ambassador
Global Goods in a Box	building an OpenHIE Core Toolkit	Richard Stanley and Carl Fourie
GOFFR - Ali and Luke	IntraHealth has created a facility reconciliation tool for DHIS2 and lists of facilities in CSV. Reconciling master facility lists from other sources is critical to address. What use cases should be addressed with a facility reconciliation tool?	
mADX - Brin and Pierre	Brin - look at global indicator exchange, help ensure FHIR meets our needs How to use ADX, Measure resources ADX - ADX on FHIR mapping ADX adopted by PEPFAR	
openIMIS - Nils	Insurance management IS - openIMIS is currently a monolitic .NET app with plans for transition into a modular app integrated with OpenHIE. Could we try a simple integration and identify / solve obstacles along the way? Tanzania - community health fund Nepal - national health insurance fund How to move to FHIR- claims and enrollment Submit claims from Medical Record System	Nils Kaiser (GIZ / PATH)
Case Based Surveillance	As the request for Case Based Surveillance grows in and amoungst countries there is a need to identify how OpenHIE patterns can be best applied to support this ask. - Including Client registry Existing openMRS CBS connector Existing Hearth CBS prototype	**Trevor Gowing**

Point of Service and FHIR	OpenMRS Medic	
Creating an OpenHIM mediator	Passthrough mediator Mediator framework	Martin Brocker
MQTT		- Chris
CRVS events The Birth Notification Challenge	While immunisation data and community health worker programmes are strengthening there is a strong opportunity to leverage the health domain to trigger CRVS events and workflows. The OpenCRVS team has identified one such opportunity and is posting the challenge to have systems work with OpenCRVS and generate a birth notificaiton. This has been prototyped to date and the team is looking to expand what can be leveraged and contributed to both OpenHIE and other systems.	Ryan Crichton (OpenCRVS | Jembi)
Product Master Data Management	There is a need for working examples of Product Master List interoperability, along with global standards to support it. The OpenLMIS Community has discussed a pub-sub model where a "Product Registry" API allows other systems to subscribe to receive changes so that all IT systems can stay aligned. GS1 provides a family of standards for global data sources from product manufacturers, but there is still a lot still to be determined about how Product Master List interoperability can and should work in the OpenHIE ecosystem.	Brandon Bowersox-Johnson (OpenLMIS, VillageReach)
DHIS tracker to OpenCRVS notification mediator	It would be useful to have a mediator that integrates DHIS tracker to OpenCRVS's notifications API so that we birth and death notification can be fed into OpenCRVS automatically when reported to DHIS's tracker.	Ryan Crichton (OpenCRVS | Jembi)

The schedule

The connect-a-thon schedule follows a looser flow than a formal agenda with the introduction sessions being sharp and pointed to get the teams aligned to the technical tasks at hand. For the duration of the event all 3 rooms will be open and available for teams to engage in and create breakaway sessions of informal discussions and learnings. Leveraging the unconferencing style the attendees will propose and create their own agendas and topics and "vote with their feet" as to what is of interest.

Expected outputs

Members will be familiar with the OpenHIE communities, architecture, patterns and persons involved. We would have made significant contributions to a real world use case that was proposed in the main event or pre-event polling. We have systems that are able to leverage OpenHIE workflows and connections.

Day 1	
Focus Area 1	**Focus Area 2**
9:00 - 8:30 — Intro to Connectathon and Tech-meeting: • Use-cases and connect-a-thon goals from main OHIE conference	
9:30 - 10:30 — • Lightning Talks (teams need to sign up)	Open Sessions for breakaways presentations / team discussions
10:30 – 11:00 — **Coffee Break**	
11:00 – 12:00 — Development / Hackathon time	Open Sessions for breakaways presentations / team discussions
12:00 – 1:00 — Development / Hackathon time	Open Sessions for breakaways presentations / team discussions

1:00 – 2:00	**Lunch**	
2:00 – 5:00*	Connect-a-thon Breakaway Groups (to be discussed in facilitated session)	Open Sessions for breakaways presentations / team discussions

Day 2	
Session 1	**Session 2**

8:00 - 8:30	Recap of first day (setting of breakaway sessions)	
8:30 - 9:30	Development / Hackathon time	Open Sessions for breakaways presentations / team discussions
9:30 – 1:00*	Connect-a-thon Breakaway Groups	Open Sessions for breakaways presentations / team discussions
1:00 - 2:00	**Lunch**	
2:00 - 3:30*	Connect-a-thon Breakaway Groups	Open Sessions for breakaways presentations / team discussions
3:30- 5:00	Final Discussion: Synthesis and demo of connect-a-thon	

*Coffee and Tea available mid-way through coding session

Sidebar conversation topics / presentations

This is the "parking lot" for possible conversations and topics that are being proposed before the meeting, during the meeting and on the days. Please put down possible presentations you want to host, see and or participate in (indicating if you are willing to present on a topic too).

Possible presentations (presenters self nominated)

- Presentation: Health and geographic data exchange with USDM health FR - Speaker: Michael Stelmach, JSI
- Disease surveillance and epidemic response workflows using OpenHIE: IntraHealth
- Global Facility Registry and Reconciliation -- Use Cases and Design Discussion: Led by IntraHealth
- Presentation: Demo sites with demo data (OpenLMIS, iHRIS,etc.) - Speaker: Carl Leitner, PATH
- Facilitated Discussion Indicators: TBD
- Setting the OpenHIM and mediators - Jembi
- How do I prepare for an IHE connectathon - TBD
- Visualizations - TBD
- Deep dive into the OpenHIE architecture - Shaun Grannis
- Modern application architecture for OpenHIE apps (containers, microservices, packaging) - TBD

Lightning Talks

Lightning talks are a 5-10 min presentation that allows you to present your challenge, product, tool etc to the technical community. The goal is to get your ideas out into the forum and call persons to chat to you during the event. Please put down your topic and a description of what it is about and your details so that we can schedule the talks. If you are looking for a slide guideline it is max 5 slides (prefer 1-3).

Topic	Presenter
OpenHIM - a rapidly scalable interoperability layer	Martin Brocker (Jembi)
OpenCRVS - a civil registration system and how to connect to it	Ryan Crichton (Jembi)
Global Facility Registry Tools: Facility Reconciliation using mCSD, FHIR	Luke Duncan (IntraHealth)
Intro to FHIR	Bryn
FHIR Server fundamentals - Trevor (HapiFHIR, CQFRuler, Hearth)	Trevor Gowing
OpenInfoman - Batch vs Transaction	
OpenHIM Mediator Framework	Ryan Crichton Martin Brocker
OpenIMIS - from monolitic app to modular OpenHIE-integrated	Nils Kaiser

Advanced Prep for Topics

Items you can review in advance of the event days.

Topic & Resources
FHIR
FHIR STU3 Specification (includes good introductions for different audiences: archotects, devs, etc.)
HAPI Open Source FHIR Libraries and Server Implementation
ClinFHIR: Good Set of Tools for Demonstrable Delivery of Clinical Info via FHIR
Technical Presentations Describing FHIR (might be slightly outdated, but still very useful):
FHIR for Developers
FHIR for Architects

Notes from Planning Session

Slides

Areas of Interest