HL7 FHIR at Scale Taskforce (FAST) Update

WEDI Spring Forum
Presenter

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Health Information Manager,
Health Care Service Corporation,
FAST Founding Member
Professional Associations, such as HL7, which bring together competing entities are subject to strict scrutiny under applicable antitrust laws.

HL7 recognizes that the antitrust laws were enacted to promote fairness in competition and, as such, supports laws against monopoly and restraints of trade and their enforcement.

Each individual participating in HL7 meetings and conferences, regardless of venue, is responsible for knowing the contents of and adhering to the HL7 Antitrust Policy as stated in §05.01 of the Governance and Operations Manual (GOM).
What is FAST?

The FHIR at Scale Taskforce (FAST) is a representative community of motivated healthcare industry stakeholders and health information technology experts who have identified HL7® Fast Healthcare Interoperability Resources (FHIR®) scalability gaps and are actively working on solutions to address current barriers to enable scalable data exchange using FHIR APIs.
What is the Problem?

**TODAY - Exchange**
Exchange characterized by point-to-point interfaces
Adoption trajectory is slow, expensive, and fragmented

**FUTURE - Interoperability**
A consistent infrastructure approach to API implementation
Consensus on implementation guides for key enablers, such as directory, security, patient matching, exchange and testing

**DESIRED RESULT:**
A national interoperability approach that enables consistent data exchange via API. We have this for administrative transactions (X12, clearinghouses, WEDI) and pharmacy transactions (NCPDP, Surescripts). We do not have this for HL7-FHIR.
FAST as FHIR Accelerator

HL7® FHIR® ACCELERATOR / COMMUNITY

- Payers/Providers
- Provider/Provider
- Public Health
- Helios
- Cancer Care and Research
- CodeX
- Consumers
- carin
- VULCAN
- gravity project
- DA VINCI
- Argonaut Project

STAKEHOLDERS

Non-Accelerator/Use Case Specific Initiatives

- SDOs
- IHE

NETWORKS/ HIEs

- And More...

ARCHITECTURE

- Common Scalability Approaches & Enablers
- FAST
- TBD
- TBD
- HL7 Working Groups
- Sandbox, Testing, Feedback
- Pilots & Certification

Standards

HL7 Governance Structure

Government Participation/Contributions (ONC, CMS, CDC, VA, DoD, etc.)
FAST is an HL7 Accelerator!
Member Recruitment is Underway
FAST Founding Members

- AEGIS
- Amazon
- Anthem
- Avaneer
- Blue Cross Blue Shield Association (BCBSA)
- Centers for Medicare & Medicaid Services (CMS)
- Edifecs
- Evernorth/ Cigna
- Google
- Health Care Service Corporation (HCSC)
- Health Level Seven (HL7)

- Humana
- Kaiser Permanente
- LexisNexis
- Optum
- Providence
- Smile CDR
- Surescripts
- The Office of the National Coordinator for Health Information Technology (ONC)
- University of California Health
- Veterans Administration (VA)
Proposed Governance Structure

Executive Committee: SC Chairs + PMO

STEERING COMMITTEE
- Payers
- Providers
- Tech/ HIT Vendors
- Govt. Agencies
- HL7

OPERATING COMMITTEE
- Use Case 1 Project Lead
- Use Case 2 Project Lead
- Use Case n+ Project Lead

Program Management Office (PMO)

Advisory Committee TBD
Membership Value

Drive cost-effective interoperability to achieve the triple aim (cost, quality, outcomes)

**Lead Strategy & Decision-Making**
- Prioritize projects and use cases
- Drive what becomes the standard and how they are implemented

**Provide Industry Thought Leadership**
- Position yourself and your organization as an industry thought leader

**Gain Efficiencies**
- Save money by minimizing the need across industry stakeholders to repeatedly address common implementation barriers encountered in most projects
- Scalable FHIR solutions leads to more ubiquitous FHIR adoption to support real-time, secure data exchange between the right stakeholders at the right time

Learn more about FAST Membership by emailing FAST@hl7.org
FAST Solutions Status
Example FHIR Transaction Journey

1. **Requesting System**: Formulates FHIR Request
2. **Requesting System**: Looks Up the FHIR Endpoint for Recipient
3. **Receiving System**: Receives Transaction, Validates Requestor, Validates Version
4. **Receiving System**: Performs Patient Matching and Sends Back Not Found If Unable To Do So
5a. **Receiving System**: Authenticates FHIR User’s Role
5b. **Receiving System**: Filters Out Data That Does Not Have Consent
6. **Receiving System**: Generates & Returns FHIR Response

**DIRECTORY**

**EXCHANGE**

**IDENTITY**

**VERSIONING**

**CONFORMANCE & CERTIFICATION**

**SECURITY**

**PILOTS**
FAST Solutions in Development

A US Wide Solution for a National Healthcare Directory
- HL7 Implementation Guides (Targeting Sept 2022 Ballot Cycle):
  (1) National Directory – Exchange
  (2) National Directory – Endpoint Query
  (3) National Directory – Attestation & Validation

A US Wide Methodology for Supporting Multiple Production Versions of FHIR

US Wide Scaling Requirements for FHIR RESTful Exchange Intermediaries

National Standards Based Approaches for Individual Identity Management
- HL7 Implementation Guide: Interoperable Digital Identity and Patient Matching (May 2022 Ballot Reconciliation)

An HL7 FHIR Standard Based Solution for Exchange with or without Intermediaries
- HL7 Implementation Guide: Hybrid/Intermediary Exchange (Jan 2022 Ballot Reconciliation)

FHIR Testing & Certification Platform

US Wide Model(s) for Scalable Security Solutions
- HL7 Implementation Guide: Scalable Registration, Authentication, and Authorization (Sept 2021 Ballot Reconciliation)
Conceptual Integrated Architecture

Security (Authenticate/Authorize)
UDAP Trusted Dynamic Client Registration - UDAP Tiered OAuth User Authentication - UDAP JWT-Based Client Authentication - UDAP JWT-Based Authorization Assertions

Exchange Routing
RESTful Headers – FHIR Meta Tags

Intermediaries

Identity
Collaborative/Mediated Patient Matching – Collaborative/Mediated Identity Management

National Directory
Endpoints – Profiles – Versioning – Trust – Conformance

CONFORMANCE & CERTIFICATION (Testing & Certification Program)

PILOTS (FAST Capability Vetting with Existing HL7 Accelerators)
FAST Security for Scalable Registration, Authentication, and Authorization
Overview and Status – Security for Scalable Registration, Authentication, and Authorization

BARRIER
Lack of scalable authorization and authentication for FHIR-based information exchange. Current application registration processes are manual and time-consuming.

SOLUTION
Establish common security processes that facilitate automated exchange and reuse existing infrastructure where possible.

IN SCOPE
Trusted Dynamic Client Registration using Unified Data Access Profiles (UDAP)
- JWT-Based Client Authentication & Authorization

OUT OF SCOPE
Directory for Endpoint Discovery, Trust Policy Governance, Requirements for a specific architecture, Patient/provider or provider/patient

STATUS
HL7 Sept 2021 STU Ballot Publication Pending

OPEN ITEMS
- Apply ballot reconciliation changes to the IG
- Continue testing at Connectathons

CURRENT SOLUTION
Security for Scalable Registration, Authentication, and Authorization (CI Build)
UDAP JJWT-Based Client Authentication: Uses asymmetric cryptography to authenticate client apps

UDAP Server Metadata: Endpoint validation for added confidence

UDAP Trusted Dynamic Client Registration: Identify and dynamically register trusted client applications, streamlining app management

UDAP JJWT-Based Authorization Assertions: Extensible JWT-based client authorization grants & other claims incidental to a token request

UDAP Certifications & Endorsements: Trusted informational assertion

UDAP Tiered OAuth: Reusable identities via scalable, dynamic, cross organizational use

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FAST Interoperable Digital Identity & Patient Matching
Overview and Status – Interoperable Digital Identity & Patient Matching

BARRIER
Deployment of disparate patient matching and identity management processes.

SOLUTION
Establish a set of patient matching and identity management patterns and best practices that the industry can adopt to reduce variability.

IN SCOPE
Patient matching during payer/provider interactions: Mediated Patient Matching
Patient-directed workflows focusing on identity management: Networked Identity Management

OUT OF SCOPE
Patient as a requester or responder, contractual arrangements. (Security and directory considerations are addressed by other FAST solutions)

STATUS
May 2022 STU Ballot Reconciliation

OPEN ITEMS
Ballot reconciliation
Continue testing at Connectathons

CURRENT SOLUTION
Interoperable Digital Identity and Patient Matching Implementation Guide (CI Build)
We prioritized patient directed and payer/provider interactions focus areas.

Best practices compliant matching service using demographic data from Requestor

Trusted Identity Providers as source of demographic data and metadata for matching

Mediated Patient Matching

Networked Identity Management

Payer/Provider interactions Focus on patient matching

Includes Patient directed workflows Focus on identity management

Connectathon Track Page: 2022-05 FAST Security & Identity

Implementation Guide: Interoperable Digital Identity & Patient Matching (CI Build)

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<tr>
<th>HL7 Milestone (May 2022 Ballot Cycle)</th>
<th>Due Date</th>
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<tr>
<td>Project Proposal</td>
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<td>Notice of Intent to Ballot (NIB)</td>
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<td>Ballot reconciliation</td>
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FAST National Healthcare Directory
BARRIER
Lack of common methods to find FHIR endpoints and their associated capabilities and attributes. Lack of common processes for maintaining provider information and verifying its accuracy.

SOLUTION
One national source for verified directory information that is available to any national or local directory workflow environment.

IN SCOPE
Individual and entity demographics to determine endpoint relationships, computable endpoint information such as accessibility requirements, metadata for routing, trust framework, implementation guides and certification status. Federated access by HIEs, state directories, EHRs. A FHIR standard implementation guide for use of the directory.

OUT OF SCOPE
Manual / portal access, creation of a trust framework, non-FHIR related endpoints, application certification process.

STATUS
Targeting Sept 2022 Ballot Cycle
Incorporating feedback from industry stakeholders.

OPEN ITEMS
IG Content development
Continue to test solutions during Connectathons.

CURRENT SOLUTION
1. National Directory – Exchange IG (CI Build)
2. National Directory – Query IG (CI Build)
3. National Directory – Attestation & Verification IG (CI Build)
FAST Endpoint Directory – Architecture and Workflow

1. Providers and organizations declare relationships

2. Authenticate/Authorize

3. Request validation of attested information

4. End User Application

5. End User Application responds with requested information

6. Issuing Organizations and Assigned Parties contribute attested Endpoint information

7. Authenticate/Authorize

8. Verification and Testing and Certification

9. Attested Endpoint information is validated against primary sources

10. Synchronize

11. Directory responds with requested information

12. Distributed access/workflow Directory subscribes to specific scope of Organizations and Providers

13. On update push information to Subscriber

14. Directory responds with requested information

15. End User Application

16. End User Application

Connectathon Track Page:
2022-05 FAST Security & Identity

Implementation Guides:

HL7 Milestone (Sept 2022 Ballot Cycle) | Due Date
--- | ---
Project Proposal | ✓
Project Scope Statement (PSS) | ✓
FHIR IG Proposals:
National Directory Exchange | ✓
National Directory Endpoint Query | ✓
National Directory Attestation and Validation | ✓
HL7 Ballot | Sept 2022
FAST Hybrid/Intermediary Exchange
Overview and Status – Hybrid/Intermediary Exchange

**BARRIER**
FHIR information exchange is typically performed “point-to-point” between trusted system endpoints. Lack of a solution for conveying routing metadata when using an intermediary.

**SOLUTION**
Employ standard methods to convey routing information between exchange intermediaries.

**IN SCOPE**
Exchange using intermediaries in addition to point-to-point connections
Methods for exchanging routing information among participating intermediaries

**OUT OF SCOPE**
Value set defining exchange identifiers
Capturing provenance information from exchange through multiple intermediary “hops”

**STATUS**
HL7 Jan 2022 STU Ballot
In Ballot Reconciliation

**OPEN ITEMS**
Ballot Reconciliation
STU2 update

**CURRENT SOLUTION**
Hybrid/Intermediary Exchange Implementation Guide (CI Build)
Supporting a Hybrid Exchange Model

- POPULATION HEALTH
- PROVIDER EMR/EHR
- CLEARINGHOUSE/INTERMEDIARY
- PROVIDER EMR/EHR
- PAYER
- PAYER
- PAYER

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<tr>
<td>Ballot Reconciliation</td>
<td>In Progress</td>
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<td>Publish STU 1</td>
<td>Q2 2022</td>
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Next Steps
FAST solutions participating in the upcoming CMS FHIR Connectathon, July 19 – 21, 2022

- FAST Security & Identity
- FAST National Directory US Realm
- FAST Hybrid/Intermediary Exchange

For more information on the FAST-related tracks, visit:

- CMS 2022 - 07 FAST Infrastructure (Security, Identity, Directory, Exchange)
- CMS 2022 – 07 FAST National Directory US Realm
# Simple Ways to Join FAST’s Work

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<td><strong>Public Meetings</strong> 1&lt;sup&gt;st&lt;/sup&gt; and 3&lt;sup&gt;rd&lt;/sup&gt; Tuesdays Each Month from 1-2 PM ET <a href="https://global.gotomeeting.com/join/262996117">https://global.gotomeeting.com/join/262996117</a></td>
<td><strong>Public Meetings</strong> the 2&lt;sup&gt;nd&lt;/sup&gt; &amp; 4&lt;sup&gt;th&lt;/sup&gt; Tuesdays Each Month at 2PM ET <a href="https://global.gotomeeting.com/join/784708421">https://global.gotomeeting.com/join/784708421</a></td>
<td><strong>Public Meetings:</strong> Mondays at 3pm ET <a href="https://zoom.us/j/98517334633">https://zoom.us/j/98517334633</a> Thursdays at 11 am ET <a href="https://zoom.us/j/98424232906?pwd=dHV0T2hrN3o1Q1NQVTVaQURaQURSQ09">https://zoom.us/j/98424232906?pwd=dHV0T2hrN3o1Q1NQVTVaQURaTVaQURSQ09</a></td>
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Want to learn more about becoming a member of the HL7 FAST FHIR Accelerator?

Contact fast@hl7.org

All content is available on the FAST Project Page
Thank you!

Click to add text

For more information on the FAST Initiative, visit the FAST Project Page

Have any further questions/suggestions?

Please contact fast@hl7.org