Canada Health Infoway
Inforoute Santé du Canada

HALO Working Group Meeting

Meeting Summary

Meeting Chair: Allana Cameron			
Date and Time July 21, 2025,1:00pm – 2:30pm ET	**Location** Virtual	**Note Taker** Sadrina Petit, Senior Project Analyst, Digital Health Interoperability	**Next Meeting Date** July 28, 2025,1:00pm-2:30pm ET
Meeting Agenda: 1. Subscription Deep Dive – In Simplifier • Recovery • REST hooks • WebSockets • Asynchronous SOFA interactions 2. Q&A / Collaboration			
Presenters			
• Alex Reis | Director, Digital Health Interoperability, Canada Health Infoway • Colin Kent-Shepherd | Software Architect, Hamilton Health Sciences			
Invited Guests			
Public			

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1. **Welcome and Introductions**

   A. Reis welcomed all participants to the working group meeting and introduced Colin Kent-Shepherd. Meeting materials and recording of the session will be made available on the InfoCentral working group.

2. **Content Presentation**

   The Infoway team presented each of the agenda items as outlined above. The meeting reviewed the HALO spec for FHIR Subscriptions: how SOFA sends change notifications (events) to POC systems using REST Hook and WebSocket channels. Default preference is full-resource payloads (only *changed* resources are included; others referenced by ID). We walked through the synchronous delivery workflow for both channels, stressing event number tracking for ordered processing and recovery from errors. An asynchronous delivery option—leveraging the FHIR Async API—was outlined for higher volume / parallel processing scenarios. Participants noted the need for stronger delivery confirmation mechanisms; ideas included explicit acknowledgements and possible custom channels to guarantee receipt.

   The presentation deck is available HALO Working Group Meeting

   The video recording is available HALO Working Group Meeting

3. Recommendations

Clarify POC/EMR Integration Responsibility

Issue: Unclear who handles data model ↔ FHIR transformations.
Recommendation: Explicitly state in the spec that the Point-of-Care (POC) / EMR system is responsible for all mapping if it is not natively FHIR. Specifically:

- Transform local/native data → FHIR when invoking **$set-context** to SOFA.
- Consume subscription notification **Bundle** payloads from SOFA and transform back into the local data model.
- Maintain and extend the **SOFA↔POC ID map** seeded at $set-context as new resources arrive.
  Note: SOFA does *not* perform per-vendor mapping/translation.
  Captured In: §G *POC Responsibilities*; tracked via **Action A1**.

Consolidated POC Implementer Checklist / Section

Issue: POC expectations are scattered across the spec, making implementation harder.
Recommendation: Add an up-front "POC Implementer Checklist" (and/or short companion POC Guide) that gathers all required behaviors in one place, including:

- Data transform responsibilities (local ↔ FHIR).
- Maintain SOFA↔POC ID mappings.
- Track **eventNumber**; detect missed events & recover via **$events**.
- Validate channel / security configuration.
- Manage local concurrency & state alignment.
- Honor heartbeat / timeout rules.
  (Add others as needed.)
  Captured In: §G *POC Responsibilities* + **Action A1**; backlog item to create POC Implementer Guide.

4. Action Items:

Action Item #	Action Item	Responsible	Due Date	Status
1	Schedule the next working group meeting for July 28, 2025, 1:00pm-2:30pm ET	Infoway	July 21, 2025	Complete
2	Send the review package, gather stakeholder feedback, and flag items needed for the September release.	Infoway	July 28, 2025	In Progress

Action Item #	Action Item	Responsible	Due Date	Status
3	Evaluate feedback to prioritize change requests, defects, and narrative edits.	Infoway	TBD	In Progress
4	Confirm September release scope and document which items are deferred.	Infoway	TBD	In Progress
5	Validate the February/March projectathon window and define preparatory milestones.	Infoway	TBD	In Progress

5. Questions raised during the working group meeting:

How are REST Hook notifications secured?

Subscriber includes required auth headers (e.g., Authorization: Bearer ...) in Subscription.channel.header[]; SOFA echoes them in outbound POSTs. Jurisdictions may also require mTLS.

How is WebSocket delivery secured?

Uses the WebSocket binding token flow from the FHIR Subscriptions backport: POC requests token, opens WS, sends bind message; SOFA validates before activating subscription. mTLS may also be layered per jurisdiction policy.

No inbound endpoint—can I poll instead of receiving pushes?

HALO v1 doesn't define a formal polling channel. Workaround: create subscription but don't complete handshake; SOFA queues events; periodically call Subscription/$events to pull. Behavior is implementations pecific; jurisdictions should document.

What should a POC do on startup to avoid missed data?

Authenticate (system creds) → if prior subscription exists: call Subscription/$events?eventSince=<lastProcessed> → check $status → reactivate (or create new) subscription → complete handshake.

How do I detect and recover missed notifications later?

Track eventNumber. If heartbeat missed or a sequence gap found, call $status and $events to pull missing range, then resume.

How do I know if notifications arrived out of order?

Use the sequential eventNumber in SubscriptionStatus; expect +1 progression. Gaps trigger $events retrieval; process in numeric order.

What if two apps update the same resource?

HALO does not prescribe conflict resolution. Each POC must apply its own business rules (last write wins, version checks, user review, etc.). Launch IDs are per app/context; POCs can use that to aid reconciliation.

If my EMR isn't natively FHIR, who maps the data?

The **POC** must: (1) transform local data → FHIR for $set-context; (2) receive subscription notification Bundles and map back to its model; (3) maintain SOFA↔POC resourceID mappings (seeded at $set-context, extended over time). SOFA does not vendor map.

Can the spec surface all POC obligations in one place?

Yes—WG will add a consolidated checklist/guide: transform data, ID maps, event tracking, $events recovery, channel security, concurrency handling, heartbeat/timeout behavior, etc.

Where are timeout rules defined (REST sync flow)?

Subscriber can declare preferred timeout; jurisdictions may enforce gateway and backend (SOFA→POC) timeouts. Spec will document both and ensure different error signals, so apps know which layer failed.

Should SOFA send success to app before notification delivered?

No. In synchronous mode SOFA waits for successful POC delivery before committing and returning success; otherwise rolls back and returns error. Diagrams/text will be clarified.

Which notification payload mode should be used (full-resource, id-only, empty)?

WG leaning to **full-resource as default** (simplest). id-only is allowed for reduced PHI / added security but adds round trips & system-level read auth. empty has no HALO use case yet. Clarification pending in full-resource, only *changed* resources are included; others referenced by ID.

Will notifications carry who/what triggered the change?

Not yet. Provenance (app/user/context) is a requested enhancement; planned work in CA Core+ (target Sept) then to be incorporated into HALO.

How does async change the write + notify pattern?

SOFA queues the notification, immediately returns 202 Accepted + status URL. App polls: meanwhile SOFA delivers notification to POC. On POC success, SOFA commits, and job completes (app sees 200/201). Failure → job error; resource discarded. Guaranteed delivery enhancements and push status callbacks under exploration.