Inferno Tech Talk – August 2024

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Inferno Tech Talk Introduction

- Purpose: to provide regularly scheduled updates on the Inferno tool and its implementation of the (g)(10) test procedure
- Typical agenda to include:
  - Announcements about upcoming releases
  - Training on new features
  - Highlight outstanding issues or known problems
  - Open discussion
- Monthly recurrence: 2nd Wednesday at 1PM ET
- This call is being recorded and will be posted on https://inferno.healthit.gov/events/

Content reflects Inferno's implementation of applicable Test Procedure
and does not necessarily reflect ONC policy.

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Today's Agenda

- (g)(10) Standardized API Test Kit v6.0.0: HTI-1 Release
  - HTI-1 Updates
  - Additional Updates
- Other Test Kit Updates
- Discussions / Questions

ONC (g)(10) Standardized API Test Kit v6.0.0

- Major release that incorporates all HTI-1 requirements
- Mostly additive to existing test structure
  - Limited changes made to existing tests
  - New scenarios introduced that cover new requirements
- Many tests have been previously released in other Test Kits (e.g. US Core Test Kit & SMART App Launch Test Kit) or as optional SVAP standards in (g)(10) Test Kit
- Inferno Reference Server updated and pass all tests; Walkthrough update in process
- Release also includes a few updates outside the scope of HTI-1

Available for Download
https://github.com/onc-healthit/onc-certification-g10-test-kit/releases/tag/v6.0.0

ONC Hosted Instance
https://inferno.healthit.gov/test-kits/g10-certification/

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Summary of Updates

- HTI-1 Specific Updates
  - Add checks for additional SMART capabilities (#534).
  - Add Token Introspection tests (#531).
  - Add Asymmetric Client Auth tests (#533).
  - Add SMART App Launch v1 scopes tests (#535).
  - Add SMART Granular Scopes tests (#537).
  - Add tests for the selection of granular scopes when resource-level scopes are requested (#539).
  - Add an attestation for supporting the Observation Clinical Test granular scope (#543).
  - Moves the Visual Inspection and Attestation tests to their own top-level group (#540).
- Other Fixes/Updates
  - Add US Core 6 Screening and Assessment test group (#542).
  - Fix an issue which only used the code value and ignored the system when checking for the presence of Must Support slices based on bound Value Sets (#536).

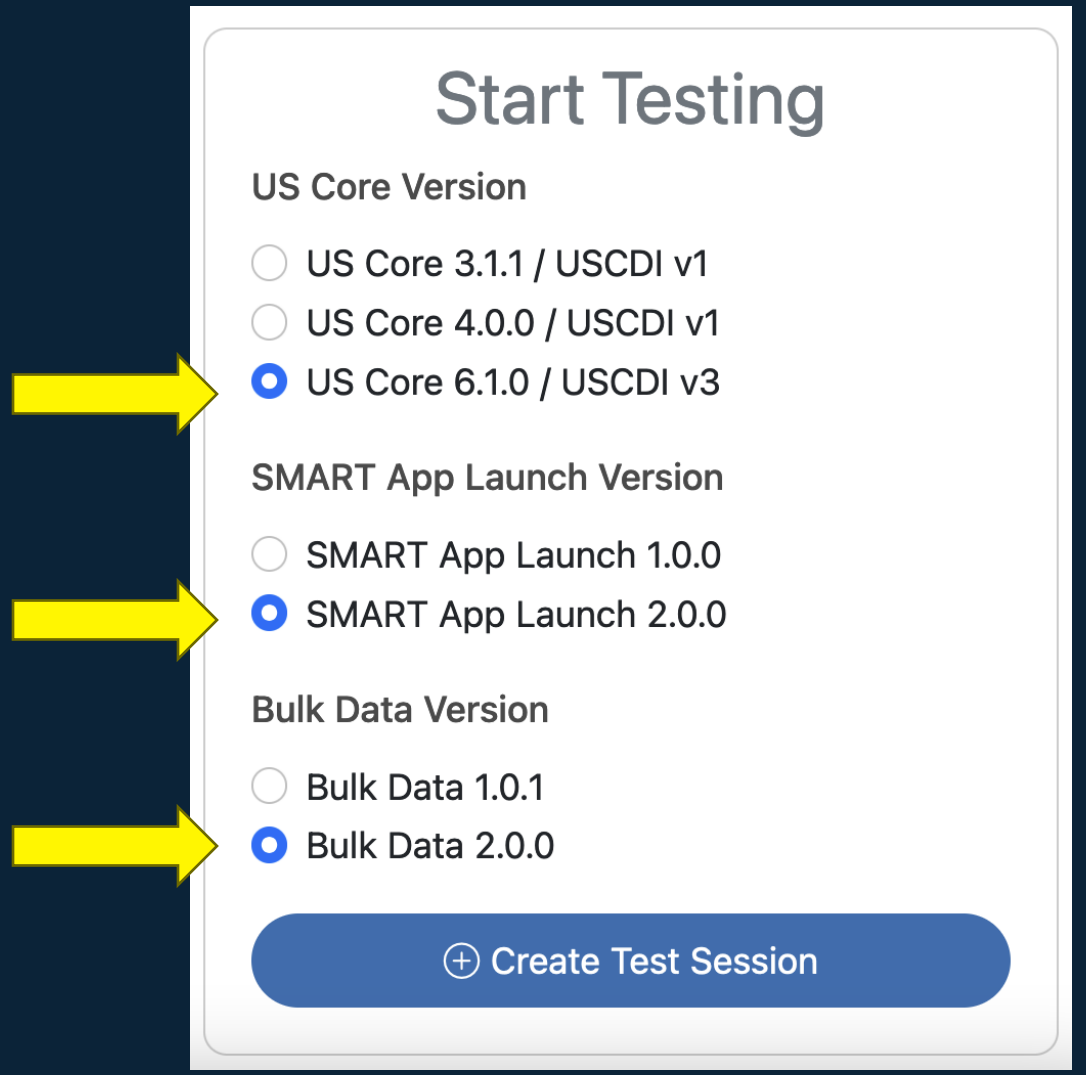
HTI-1 specific (g)(10) Test Kit Updates

HTI-1 Final Rule Resources

- ONC Informational Material:
  - https://www.healthit.gov/topic/laws-regulation-and-policy/health-data-technology-and-interoperability-certification-program
- HTI-1 Final Rule:
  - https://www.federalregister.gov/documents/2024/01/09/2023-28857/health-data-technology-and-interoperability-certification-program-updates-algorithm-transparency-and
- (g)(10) Certification Companion Guide & Test Procedure:
  - https://www.healthit.gov/test-method/standardized-api-patient-and-population-services

Most of the new tests apply to the new baseline versions of standards set by HTI-1.

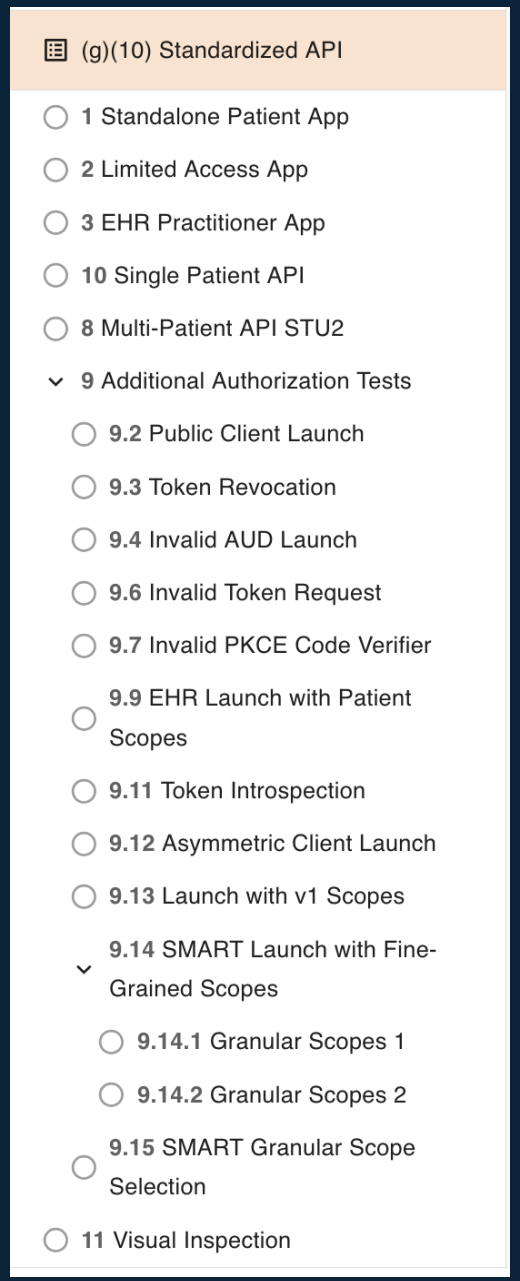
Older versions of standards still available for certification until phased out as described in HTI-1



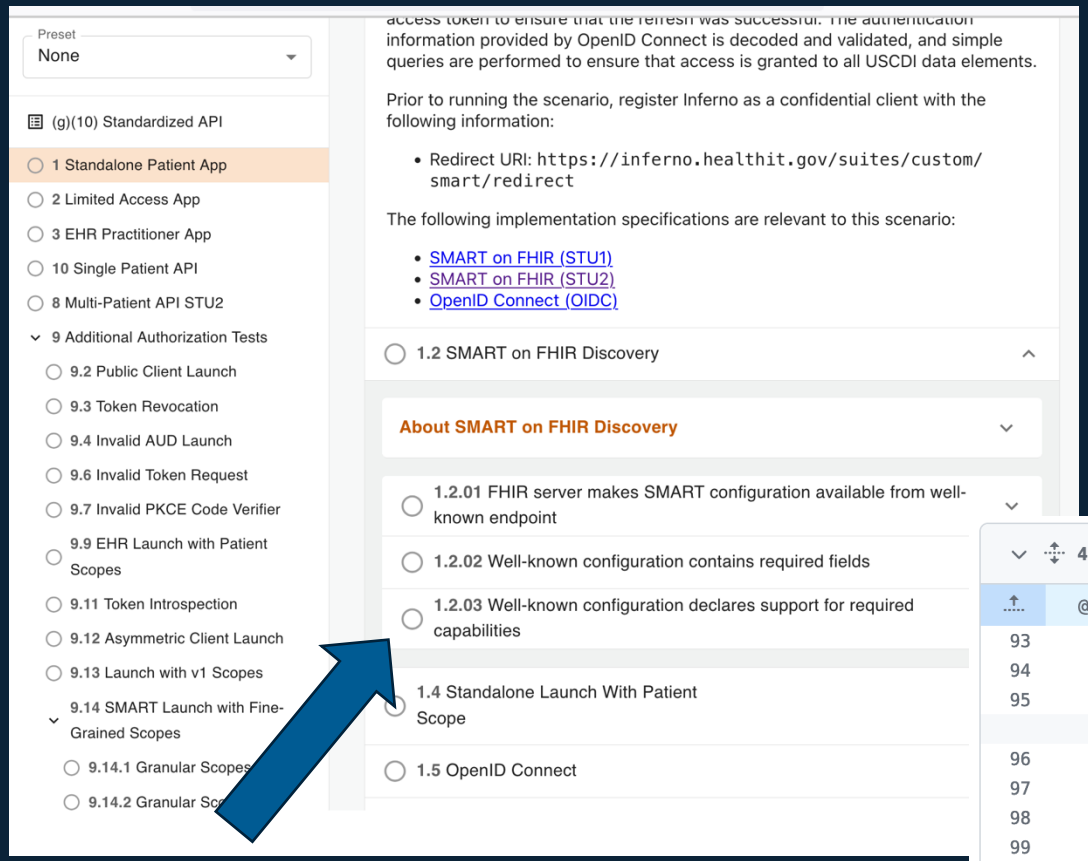
Updates are isolated* in additional tests when selecting latest approved versions of standards

*** One exception: SMART well-known capabilities check in early scenarios was updated**

Also note that “Visual Inspection” was moved to its own top-level group, and ”Additional Tests” group was renamed to “Additional Authorization Tests”



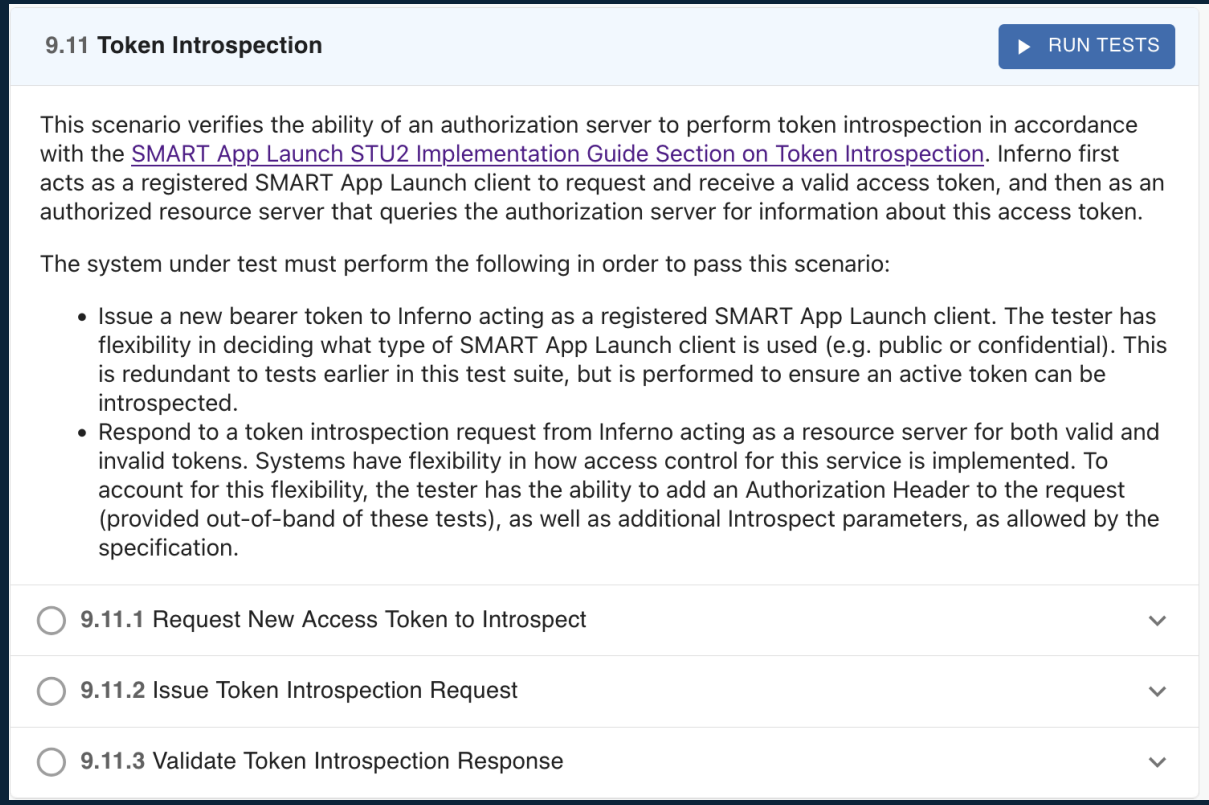
Additional SMART Capabilities Discovery check



HTI-1 requires implementation of the ‘client-confidential-asymmetric’ capability in SMART App Launch v2, and to support the ‘permission-v1’ for backwards compatibility

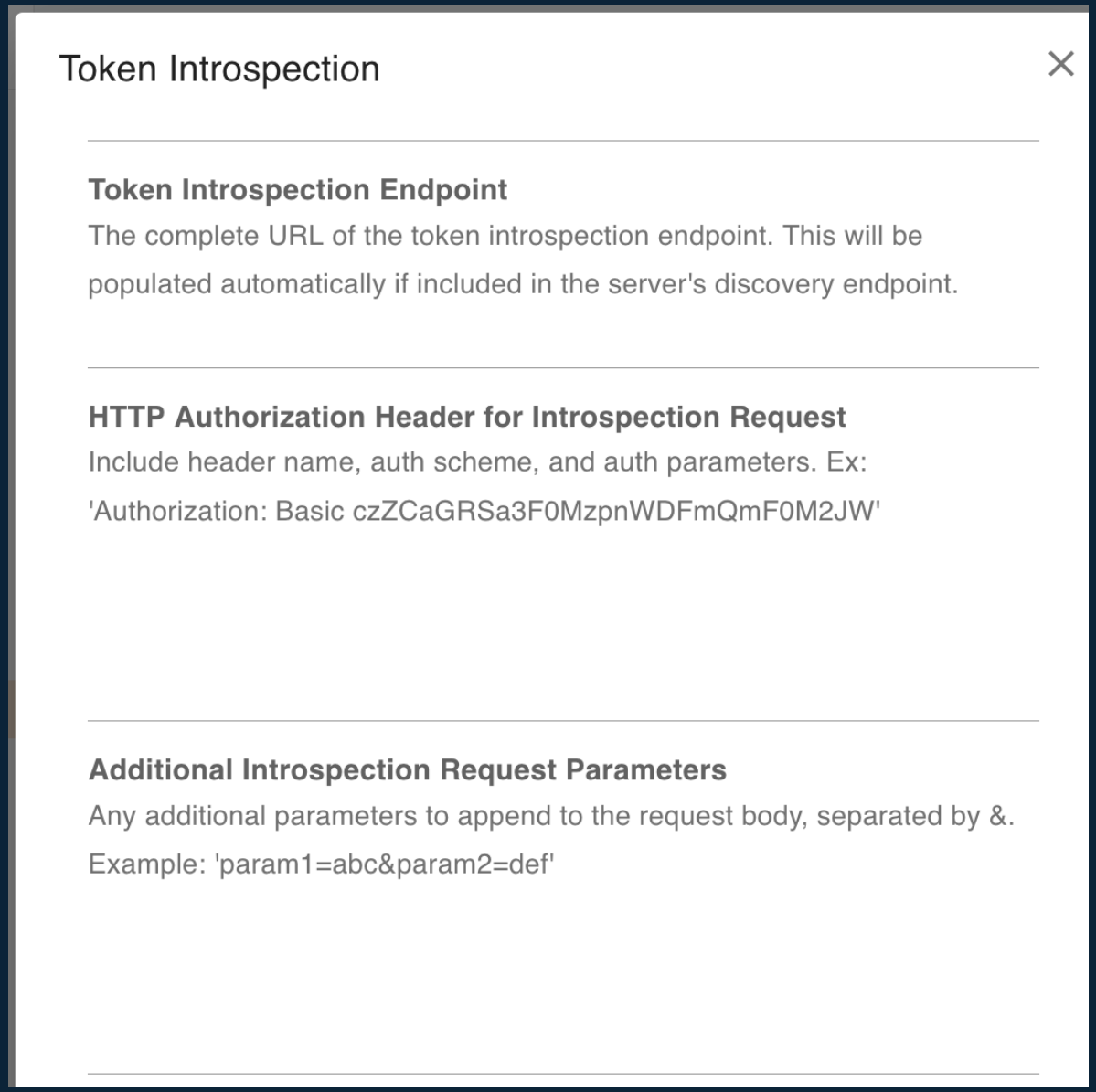
Token Introspection (1/2)

- HTI-1 requires a standard API implementation for Token Introspection (previously only a functional requirement)
- Specification provided by SMART App Launch v2.0.0
- Incorporates Token Introspection tests from the SMART App Launch Test Kit that were initially released in December 2023
- Requires demonstration of introspecting an active bearer token and a known invalid token
- Token introspection preceded by a SMART App Launch to retrieve a new bearer token



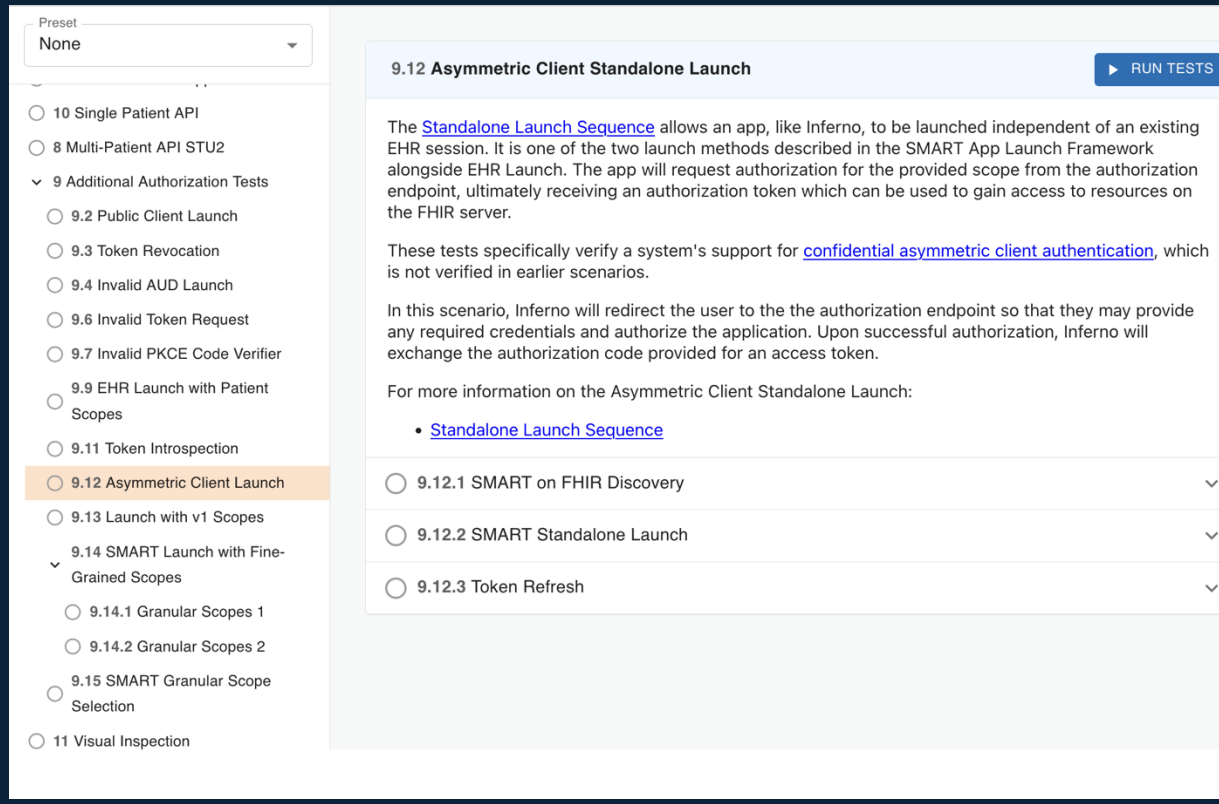
Token Introspection (2/2)

- Access Control method for use of this API is not specified
- Inferno provides flexibility in how this might occur by allowing testers to add ad-hoc headers to the request (e.g. a Bearer token in an Authorization header) that are created out-of-band
- Also allows any arbitrary extra parameters to be added to the introspection request as allowed by the standard
- Please let us know if this needs to be made more flexible



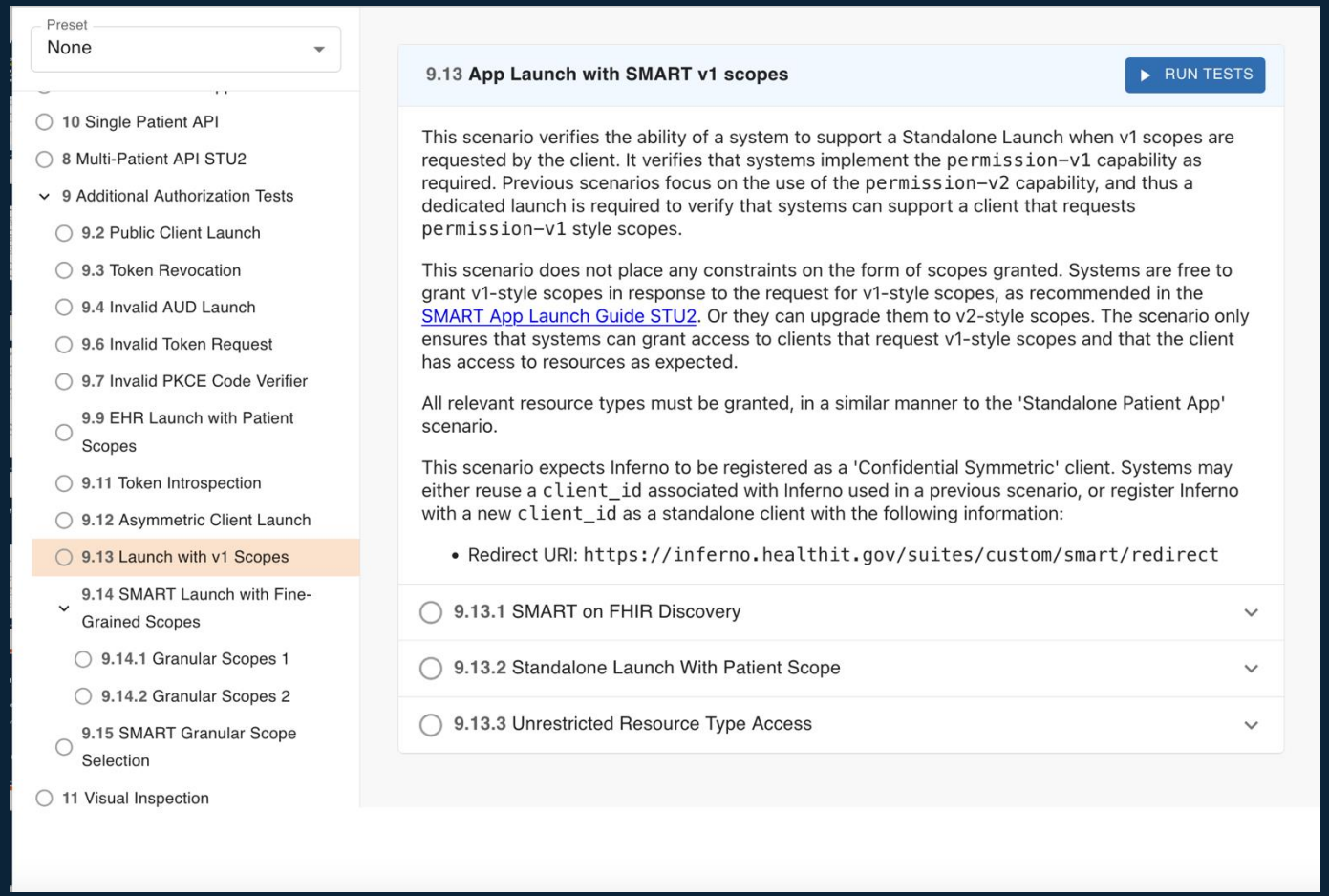
Asymmetric Client Authentication for SMART Launch

- HTI-1 requires support for the client-confidential-asymmetric capability for patient/user scopes
- Instead of adjusting existing launches, we add a separate launch
- Inferno JWKs URL provided in the input instructions when running tests; functions similar to the Multi-Patient API authorization



Launch with v1 Scopes

- Existing (g)(10) SMART v2 tests only verified use of SMART v2-style scopes
- ONC requires support for SMART v1 as well, for clients that may not support SMART v2 style scopes
- Additional test performs another launch that request SMART v1 scopes, and ensures that a Bearer token is granted that allows access to all relevant USCDI resource types
  - Not opinionated about what form of scopes are granted
- Inferno may be registered with a separate client_id if necessary

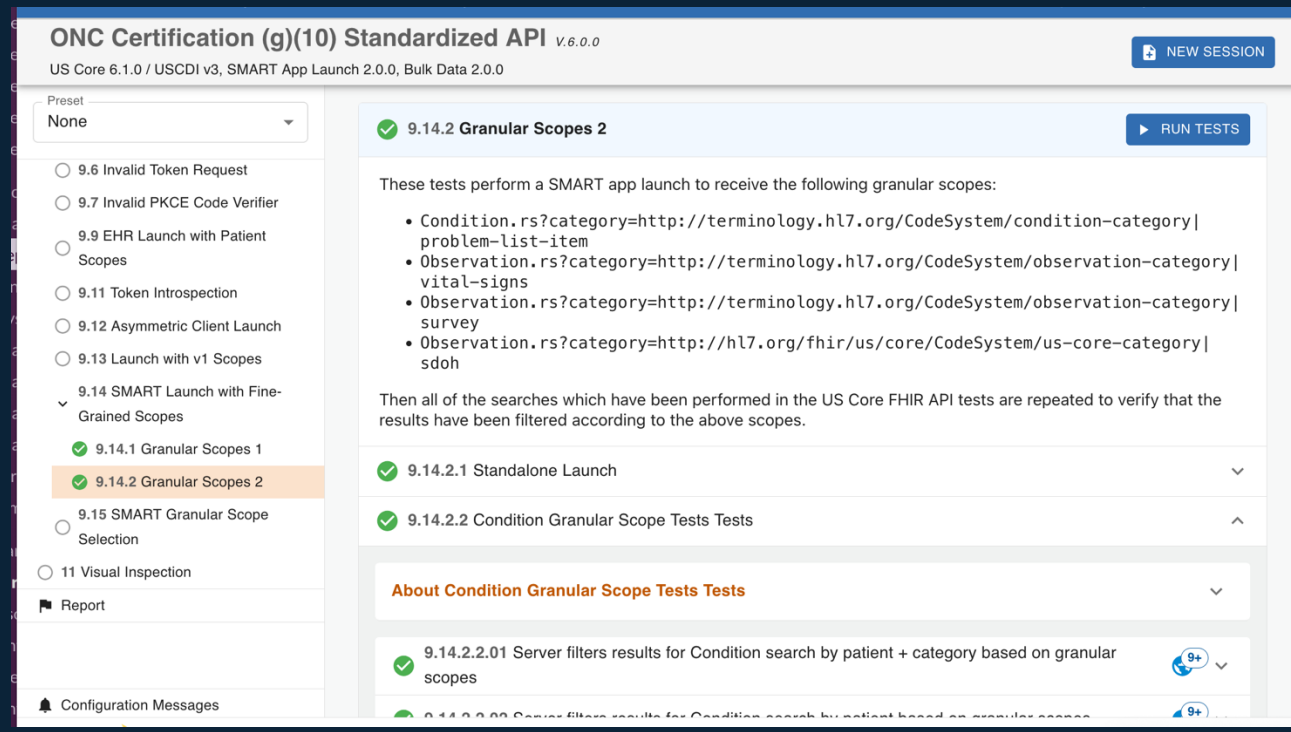


SMART Launch with Fine-Grained Scopes (1/2)

- Verifies ability of a system to support “Granular Scopes” or “Fine-grained Scopes” as described in SMART App Launch v2
- Based on tests introduced in February into the US Core Test Kit and demonstrated for feedback from the community
- ONC specifically requires support for: (1) the Condition resource with Condition sub-resources Encounter Diagnosis, Problem List, and Health Concern and (2) the Observation resource with Observation sub-resources Clinical Test, Laboratory, Social History, SDOH, Survey, and Vital Signs.
- Specific scopes used in tests defined by US Core
- Clinical Test Observation is ambiguous and requires an attestation

SMART Launch with Fine-Grained Scopes (2/2)

- Prior to running this test, systems must first run the ‘Single Patient API’ tests which gather all available information relating to a patient or set of patients
- This test performs two extra launches, each with a subset of finer-grained scopes to be granted
- After each bearer token is granted, the tests perform the same set of searches as the Single Patient API and verifies that appropriate resources can be accessed with limited scope



SMART Granular Scope Selection (1/3)

- ONC provided the following clarification in the CCG:

As part of supporting the SMART App Launch “permission-v2” capability for the purposes of certification, if an app requests authorization for a resource level scope for the “Condition” or “Observation” resources, then for patient authorization purposes a Health IT Module must support presentation of the required sub-resource scopes to the patient for authorization. Specifically, sub-resource scopes must be presented for patient authorization as follows:

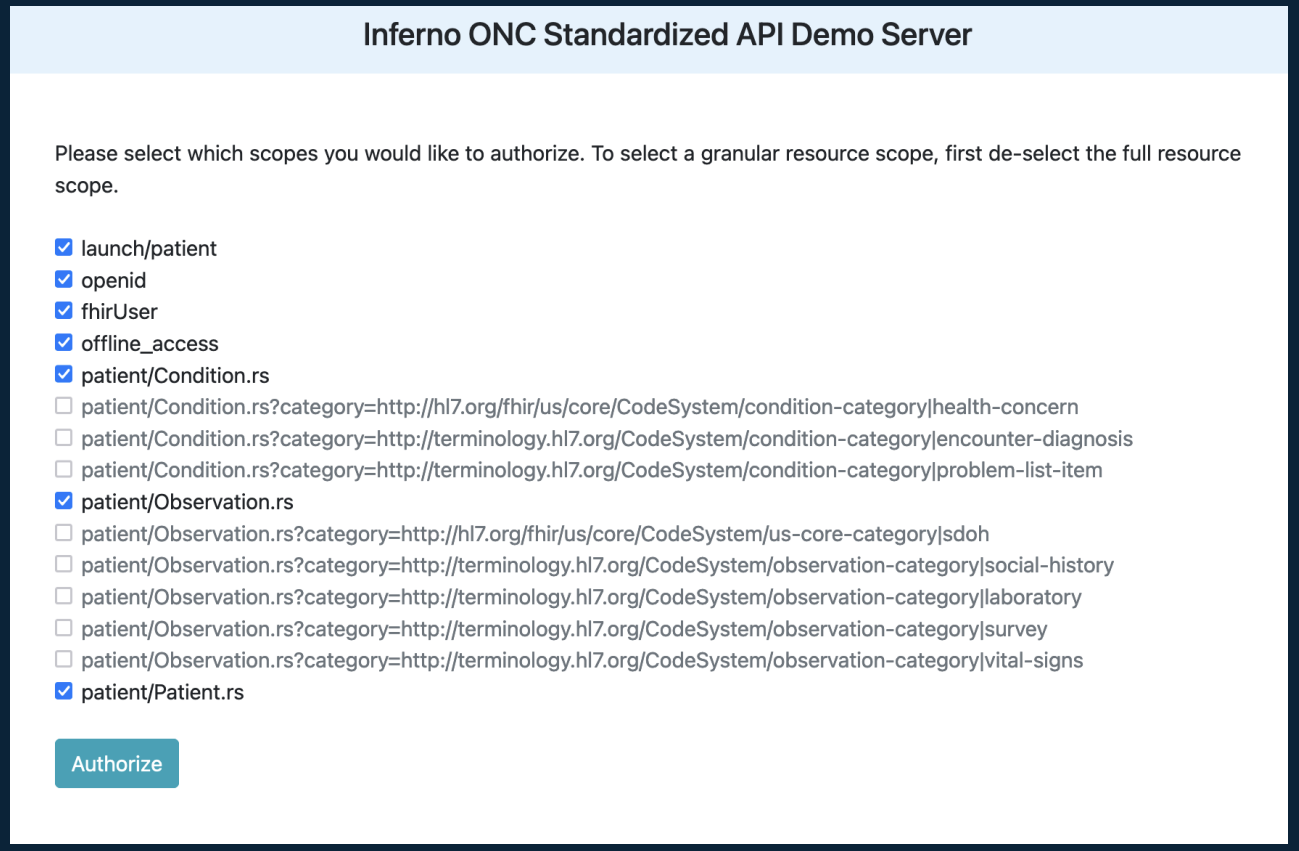
- “Condition” sub-resource scopes “Encounter Diagnosis”, “Problem List”, and “Health Concern” if a “Condition” resource level scope is requested
- “Observation” sub-resource scopes “Clinical Test”, “Laboratory”, “Social History”, “SDOH”, “Survey”, and “Vital Signs” if an “Observation” resource level scope is requested

SMART Granular Scope Selection (2/3)

- This test verifies that when resource-level scopes are REQUESTED, the patient user can choose to instead GRANT sub-resource-level scopes
- In some ways, this is similar to the ‘Limited Access App’ tests in that it is verifying the ability of the patient user to authorize something different than what an app requests
- However, this is not just a subset of requested scopes; they are different scopes that are a logical subset
- The test performs a launch and instructs the tester to not grant access to the requested Condition and Observation scopes, but instead grant only those

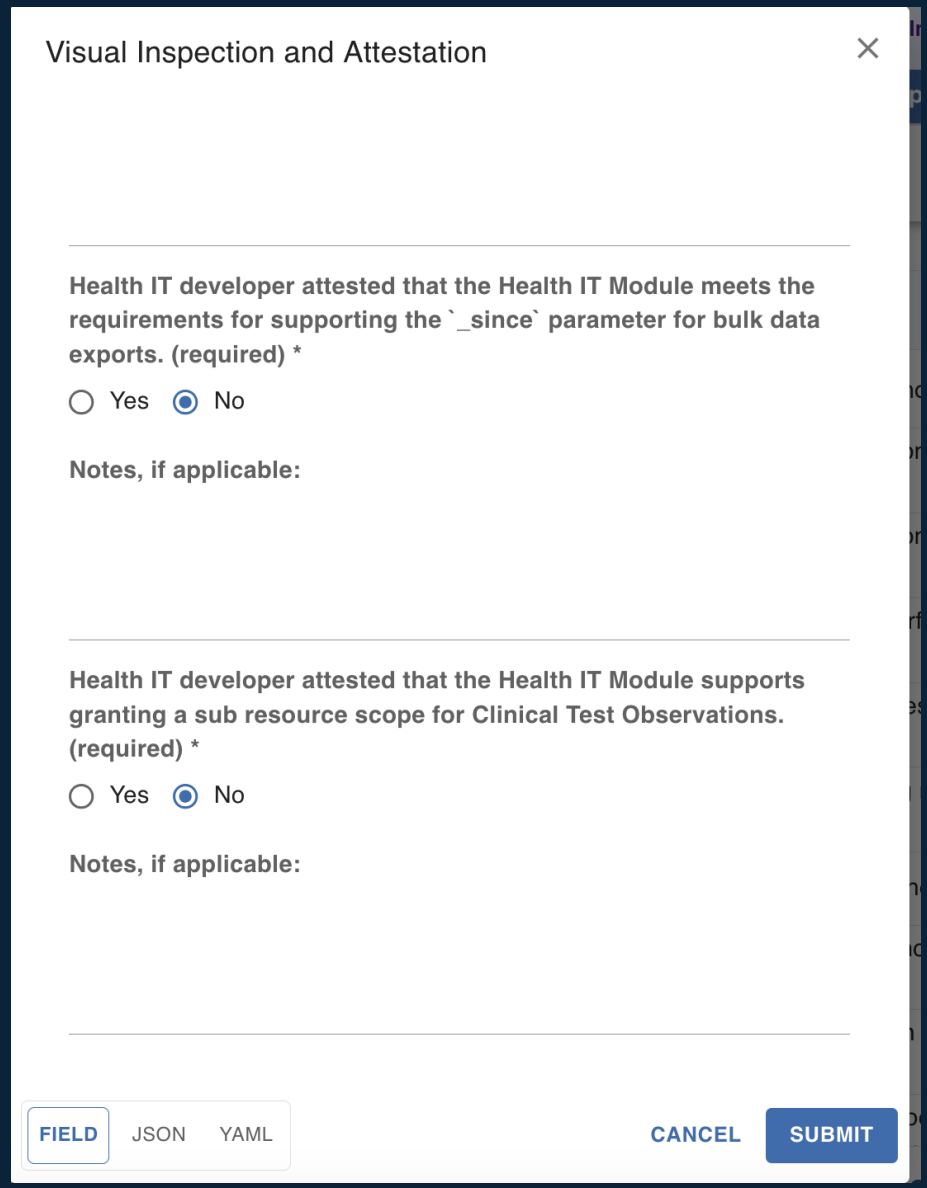
SMART Granular Scope Selection (3/3)

- Example scope selection screen from the Inferno Reference Server (implementations do NOT have to look like this, this is just an example that enables the required functionality):



Clinical Test Observation Scope

- There's no clear mapping from Clinical Test to a specific category code
- Rather than an automated test for a specific category code, we have the user attest that the system supports granting a sub resource scope for Clinical Test Observations



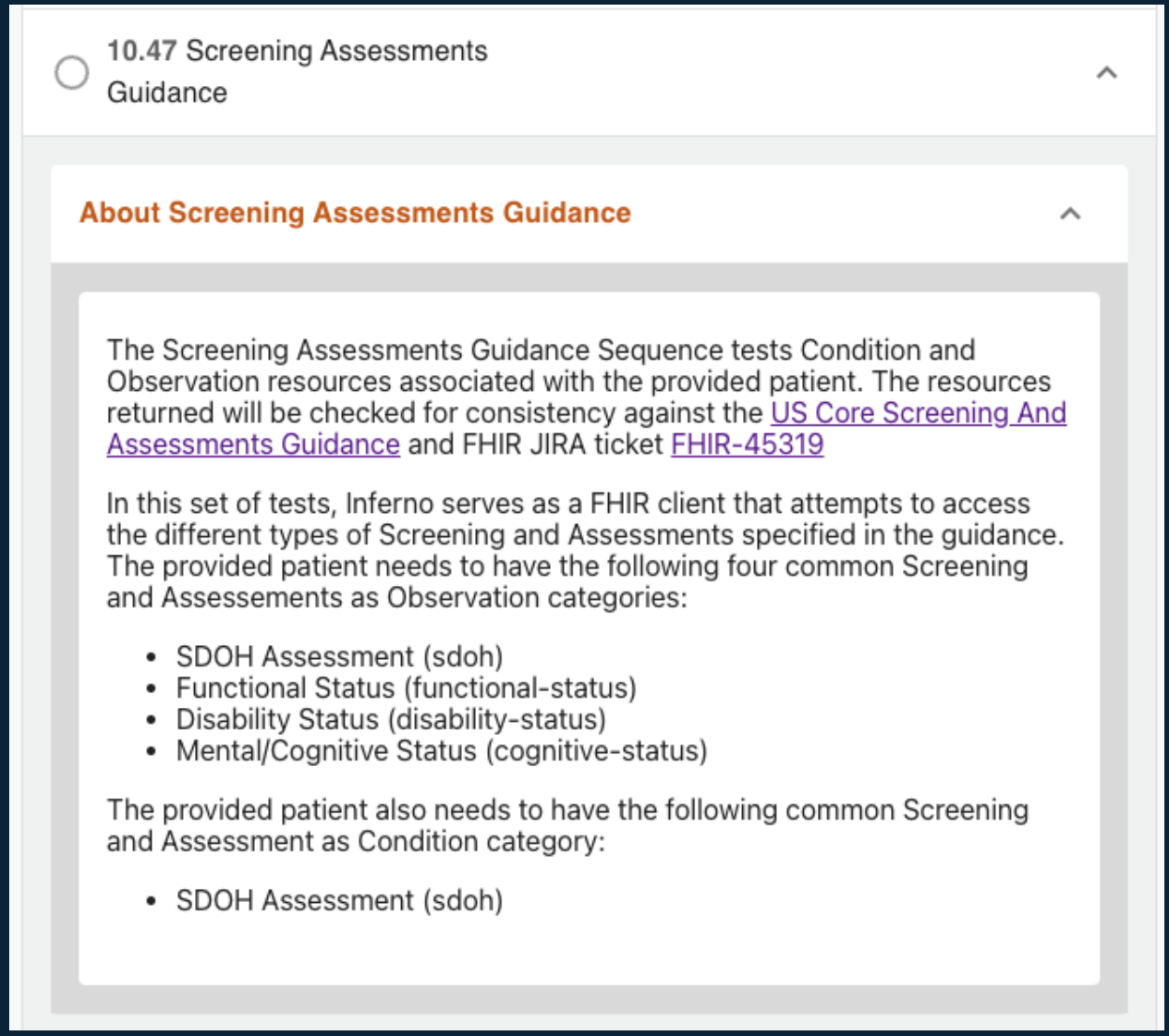
Additional (g)(10) Test Kit Updates

Observation Screening and Assessment Patch

ONC CCG

Applies to US Core 6.1.0 and USCDI v3 (required by December 31, 2025):

- The HL7® Cross-Group Projects workgroup approved the US Core 'Patch' Process ticket FHIR-45319 for US Core 6.1.0. In alignment with that issued guidance, the Health IT Module must support all four codes from the US Core Screening Assessment Observation Category ValueSet for the US Core Observation Screening Assessment Profile for "Observation.category:screening-assessment". Additionally, the Health IT Module must support the "sdoh" code from the US Core Screening Assessment Condition Category ValueSet for the US Core Condition Problems and Health Concerns Profile for "Condition.category:screening-assessment".



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MustSupport test on requiredBinding slices

We found that Inferno US Core MustSupport test on requiredBinding slicing only verifies coding.code.

One example is on Observation.category

Observation SDOH Assessment profile in US Core 5 has slice with requiredBinding http://hl7.org/fhir/us/core/CodeSystem/us-core-tags|sdoh.

Observation Screening and Assessment profile in US Core 6 has slice with requiredBinding http://hl7.org/fhir/us/core/CodeSystem/us-core-category|sdoh.

Without coding.system value, MustSupport test could incorrectly pass MustSupport test using Observations instance with incorrect sdoh coding.

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Other Test Kit Releases

- Introducing UDAP Security Test Kit (v0.9)
  - https://inferno.healthit.gov/test-kits/udap-security/
  - Replaces the FAST Security Test Kit
  - Aligned to requirements in the Security for Scalable Registration, Authentication, and Authorization IG
- Incremental updates to the following Test Kits:
  - US Core Test Kit v0.8.0
  - Da Vinci Payer Data Exchange (PDex) Test Kit v0.10.5
  - Da Vinci Prior Authorization Support (PAS) Test Kit v0.10.1
  - Service Base URL Test Kit v0.10.1
  - SMART App Launch Test Kit v0.4.3e

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Open Discussion / Feedback

Resources and Contact Information

- https://inferno.healthit.gov/
  - General materials & live demonstration server
- https://inferno-framework.github.io
  - Create your own Inferno Test Kits!
- https://github.com/onc-healthit/onc-certification-g10-test-kit/
  - ONC Certification tests repository, downloads, issues
  - “Watch” repository to receive alerts (new releases, etc)
  - Note: this repository is specific to ONC Certification testing
- inferno@groups.mitre.org (or rscanlon@mitre.org)
- FHIR Zulip Chat: https://chat.fhir.org/#narrow/stream/179309-inferno

Upcoming Meetings

- Next Inferno Tech Talk: Wednesday September 11 at 1 PM ET

- Please reach out with questions & issues