

Passing the Inferno G10 tests with your FHIR server

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Firely Server
Power your online portal,
app or database

- Turnkey
- Cloud-agnostic
- Integration

Firely .NET SDK
The open source FHIR Software
Development Kit

simplifier.net
The FHIR registry

firely

Learning Objectives

- Become familiar with the ONC Inferno testing suite for G10
- Understand prerequisites to get started using Inferno
- Highlight important aspects before, during, and post-testing to become certified.
- Highlight “out-of-test” processes
 - Token management
 - Launch context workflow
- Learn how to investigate errors.
 - We’ll intentionally create an error to review
- Certification day insider knowledge

What is G10? What is Inferno?

- [170.315\(g\)\(10\)](#) is a US CMS Regulation requiring the use of a FHIR API to support Patient and Population services and was enacted through the US 21 Century Cures Act legislation.
 - It also contains several related criteria such as MFA, Encryption requirements, Authentication and Access control, and others.
- [Inferno](#) is an open-source framework for automated API testing
 - We will use the pre-built G10 test kit provided by ONC.
 - When you hear “Inferno” it most often refers to the ONC G10 testing process.

Getting Started

- A FHIR Server & Authorization Server (if not combined)
 - We will use Firely Server and Firely Auth, however most of the workflow will be agnostic to any FHIR/Auth combination.
- If you don't have a FHIR server ready, but still want to learn Inferno:
 - [Test using our ebook and public endpoints](#)
 - Caveat, this presentation is using the latest versions, which has minor differences from our public deployment.
 - The ebook will be updated when there is an official release.

Getting Started

- Two Patient examples
 - A primary patient who will be queried throughout Inferno
 - test-uscore4
 - A secondary patient for Bulk Data Export within a Group resource containing both the primary and secondary patient
 - other-uscore4
- At least 1 user assigned to the primary patient
 - Authorization server uses the patient and/or fhirUser claim
 - Patient = test-uscore4 and/or fhirUser = Patient/test-uscore4
- US Core Profiles linked to the primary patient

Getting Started

- Setup Authorization server to use Reference tokens vs JWT
 - Only reference tokens can be revoked
- Register the Inferno client as a SMART App with the following information:
 - SMART Launch URI:
 - <https://inferno.healthit.gov/suites/custom/smart/launch>
 - OAuth Redirect URI:
 - <https://inferno.healthit.gov/suites/custom/smart/redirect>
 - Multi-patient API, register Inferno with the following JWK Set Url:
 - https://inferno.healthit.gov/suites/custom/g10_certification/.well-known/jwks.json

Recommendations from Experience

- Run tests in order, individually, rather than all at once.
 - Don't skip around when testing. Some tests rely on the previous.
 - Token revocation before certain tests will cause failure
- Be prepared to use a client such as Postman
 - Introspect tokens (not part of Inferno tests, but manual)
 - Revoke tokens (pre-step for Inferno Test)
- Build out the optional resources to avoid any “gray” items
 - Medication resource linked to the MedicationRequest to avoid
 - Location and PractitionerRole
- Save time by making all Devices “Implantable Devices”

Recommendations from Experience

- Visit the “Visual Inspection” section to note items that will be helpful to build into your presentation during actual certification.
 - i.e. Health IT Module informed patient when "offline_access" scope is being granted during authorization.
 - This is seen in the first test.
 - This section also contains fields that you otherwise will need ready on certification day
 - URL to primary documentation <https://fire.ly/g10-certification>
 - URL to API https://docs.fire.ly/projects/Firely-Server/en/latest/_static/swagger/

Visual Inspection Highlights

- *Health IT developer demonstrated the ability of the Health IT Module / authorization server to validate token it has issued.*
 - Introspection process
- *Health IT Module attested that it is capable of issuing refresh tokens that are valid for a period of no shorter than three months.*
 - Be prepared to show settings
- URLs previously mentioned for public documentation

Inferno Demo

ONC Certification (g) (10) Standardized API

The ONC Certification (g)(10) Standardized API Test Kit is a testing tool for Health Level 7 (HL7®) Fast Healthcare Interoperability Resources (FHIR®) services seeking to meet the requirements of the Standardized API for Patient and Population Services criterion § 170.315(g)(10) in the 2015 Edition Cures Update rule.

Systems may adopt later versions of standards than those named in the rule as approved by the ONC Standards Version Advancement Process (SVAP). Please select which approved version of each standard to use, and click 'Select Options' to begin testing.

←
Options

- US Core Version
- US Core 3.1.1 / USCDI v1
- US Core 4.0.0 / USCDI v1
- US Core 5.0.1 / USCDI v2
- SMART App Launch Version
- SMART App Launch 1.0.0
- SMART App Launch 2.0.0
- Bulk Data Version
- Bulk Data 1.0.1
- Bulk Data 2.0.0

START TESTING

Certification Day Insider Knowledge

- Be prepared for the proctor to ask for minor configuration changes
 - ClientId/password, scope changes in Limited Access test
- Be prepared to show all related documentation
 - API, Certification landing page, and MFA public links.
 - Possibly other attestation items.
- Document all setting before Certification day.
 - Everything you will provide to the Inferno prompts and more.
 - ClientIds, passwords, PKCE settings, Users, patientIds, GroupId, encryption
 - URLs (FHIR/Auth server, launch context, token endpoints, revoke, introspect)

Certification Day Insider Knowledge

- Preconfigure Postman requests as much as possible
- Have a single presenter, but have support staff attend or on standby listening in the event of an issue.
- Run through the tests a couple hours before official test

What did you learn?

- How to navigate Inferno
- Prerequisites to getting started using Inferno
- Important aspects throughout Inferno
- Which items require out-of-test workflow
- How to investigate errors

Contact

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Q&A

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