WebEx Management

GP Connect

WebEx Interactions

- Submit questions using the chat facility to **'everyone'**
- Please keep chat conversations private
- Refrain from answering questions proposed
- We'll answer questions at the end of each section

Sound: During the WebEx all attendees will be muted with the exception of presenters.

Thank you for joining us. We aim to start at **14:00**

Technical Introduction to GP Connect

September 2016

Information and technology
for better health and care

Michael Measures: Technical Architect

Glen Collett: Programme Manager

Introduction

- Established to address the need for greater integration in Health and Social Care.
- NIB framework for action stated 'all patient and care records will be digital, interoperable and real-time by 2020'
- Supporting better clinical care by opening up information and data held within GP Practice IT systems
- Achieved through the development of standard interface mechanisms to enable information sharing (FHIR Standards)

First of Type (FoT)

- Test the end to end process for usage of the API's
- Commissioning Body FoT Requirements:
  - Commissioning of the end product or service
  - Use cases which support one or multiple GP Connect capabilities
  - Sites within a body which support interaction from multiple Provider Systems
  - Funding available to support development and licence costs
  - Have Data Sharing Agreements in place
  - Be comfortable providing a level of assurance of the end product (Adhering to IG and Clinical Safety Standards)

Capabilities

- Priority Capabilities
  - Access Record
    - HTML
    - Structured Data
  - Appointment Management
  - Task Management

- Open API Design Principles
  - NHS England Open API Policy
  - International Standards
    - FHIR

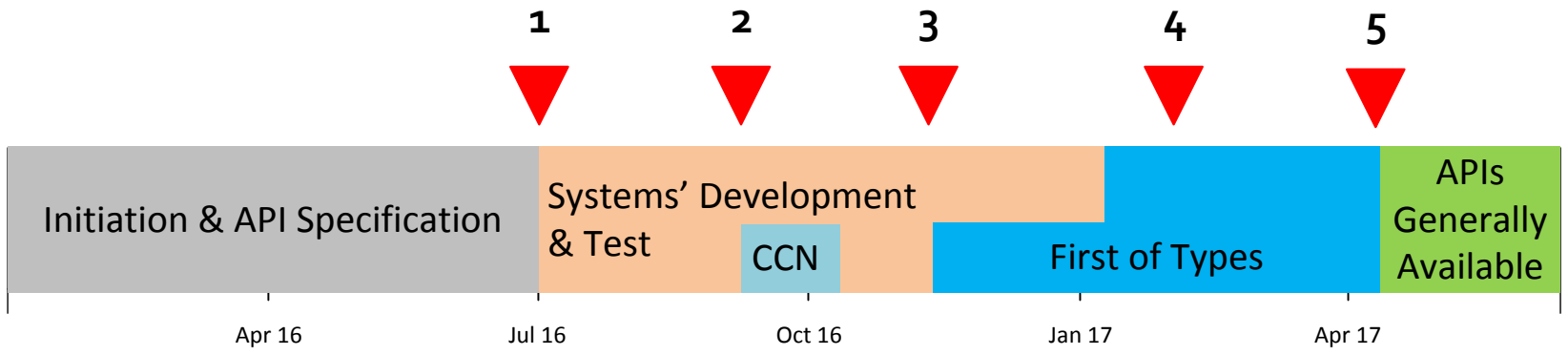
Roadmap

- Phase 1 (Current Scope)
  - Supporting GP Federations/Cross-setting Patient Care
    - Get Record API (Html & Structured)
    - Appointments API
    - Task API (Simple)
    - Digital Interop Platform (Spine Security Proxy etc..)
- Phase 2 (Potential Scope)
  - Supporting Patient Interactions/Wider Patient Care
    - Patient Facing Services functionality
    - Get/Update Documents API
    - Update Record Functionality (Basic)
    - Incremental updates to Phase 1 APIs
    - Digital Interop Platform (Record Locator, Citizen Id, etc..)

Approach

- Accelerated delivery of business value
  - Crowd sourced feedback
  - Developer ecosystem & tools
  - Streamline accreditation
- Agile engagement
  - Iterative approach
  - Willingness to change
  - Clinical demonstrator implementation
- 'Light touch' governance and assurance process
  - Clinical Safety
  - Information Governance
- Increased cross program coordination
  - Don't reinvent the wheel
  - Promote reuse of assets where possible

Indicative Timeline



1. Interop Platform available for testing — early July 2016
2. CCN issued — late Sept 2016
3. Initial First of Type live — Nov 2016
4. Phase 1 Structured Record API available — Feb 2017
5. Proposed General Roll Out — Q1 2017-18

Technical Overview

FHIR APIs

http://www.hl7.org/fhir/

- **Fast Healthcare Interoperability Resources (FHIR).**
- **Leverages established principles, technologies and tools.**
  - Uniform Resource Identification (URI)
  - RESTful APIs (GET, POST, PUT and DELETE)
  - Resources represented as either XML or JSON
  - Human readable summary as XHTML
  - ETags for managing version aware updates
- **Compatible with many open source FHIR client libraries.**

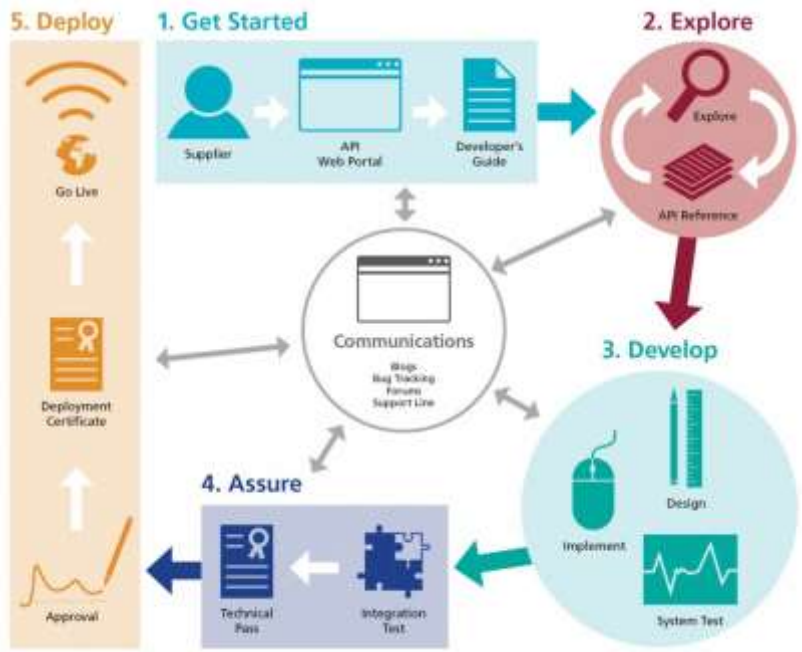
HAPI-FHIR

FHIR-NET-API

SMART-ON-FHIR / CLIENT-JS

Developer journey

- **Get Started (Engage)**
  - Design principles / ground rules
  - Beginner: Step-by-step tutorials
- **Explore**
  - Interactive API console
  - Sandbox environments
- **Develop - Design**
  - Intermediate: Implementation Guides
  - Code snippets
- **Develop - Build**
  - Advanced: Technical Reference
  - Application code (project templates)
  - Automated system testing
- **Assure**
  - Integration testing
  - Technical accreditation
- **Deploy**
  - Path to live
  - Solution assurance



https://nhsconnect.github.io/gpconnect/

Engage

Community engagement

- Open forums
- More self-service resources
- Transparent & reproducible processes
- Rapid turnaround on feedback
- Iterative reviews and releases
- Demand driven roadmap / enhancements

Implementation guidance

To improve collaboration and aid in transparency we are publishing the technical documentation on GitHub along with code snippets and machine readable FHIR resources.

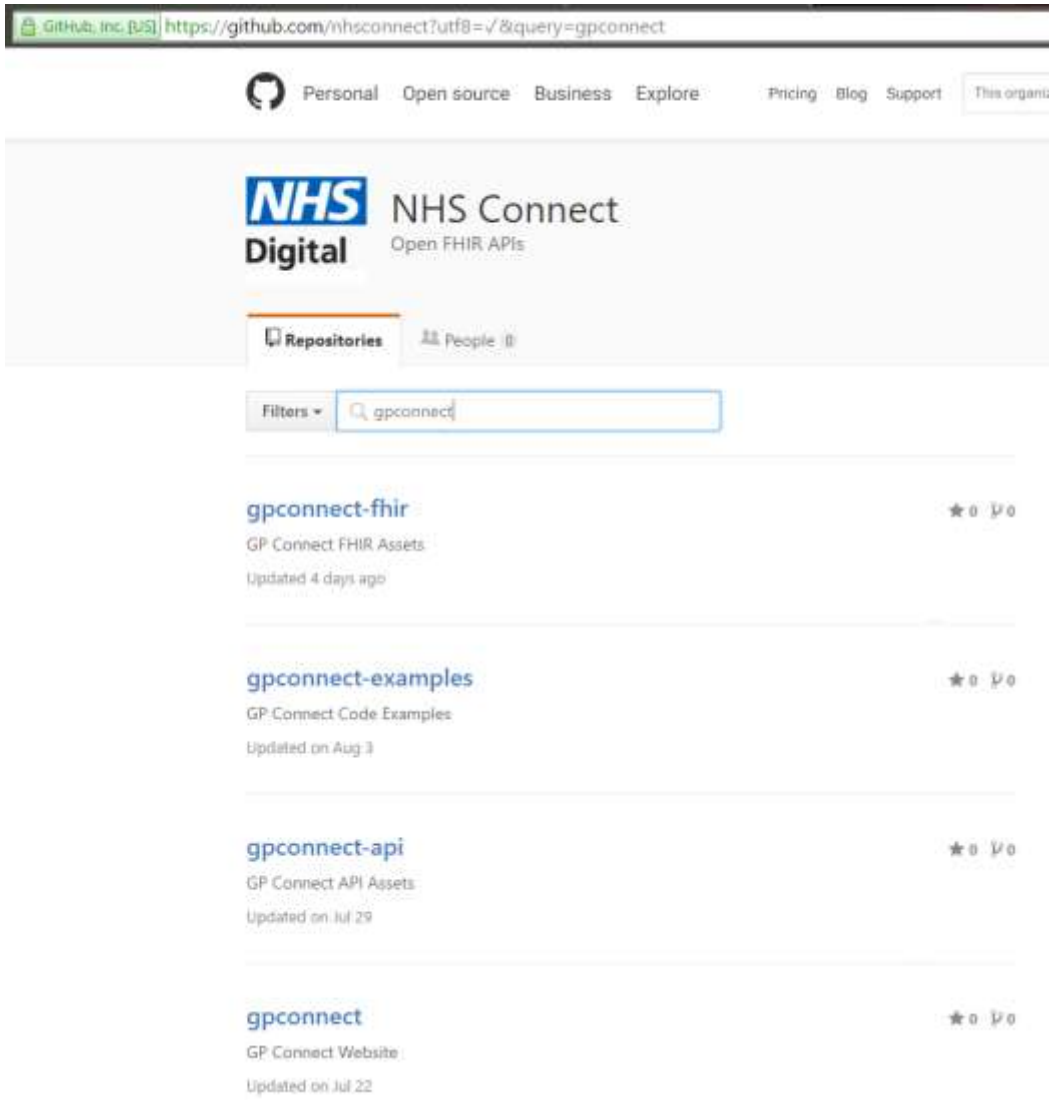
GitHub is:

- a modern platform proven to support open and collaborative working on technical assets.
- greatly improves change tracking of technical assets.
- allows well defined versioning of assets to be established.
- allows issues to be easily raised by the community.
- allows a potential fix for any issue to be submitted by the community.

All technical assets are released under a permissive open-source license (the Apache 2.0 License) to help promote re-use.

GitHub repos

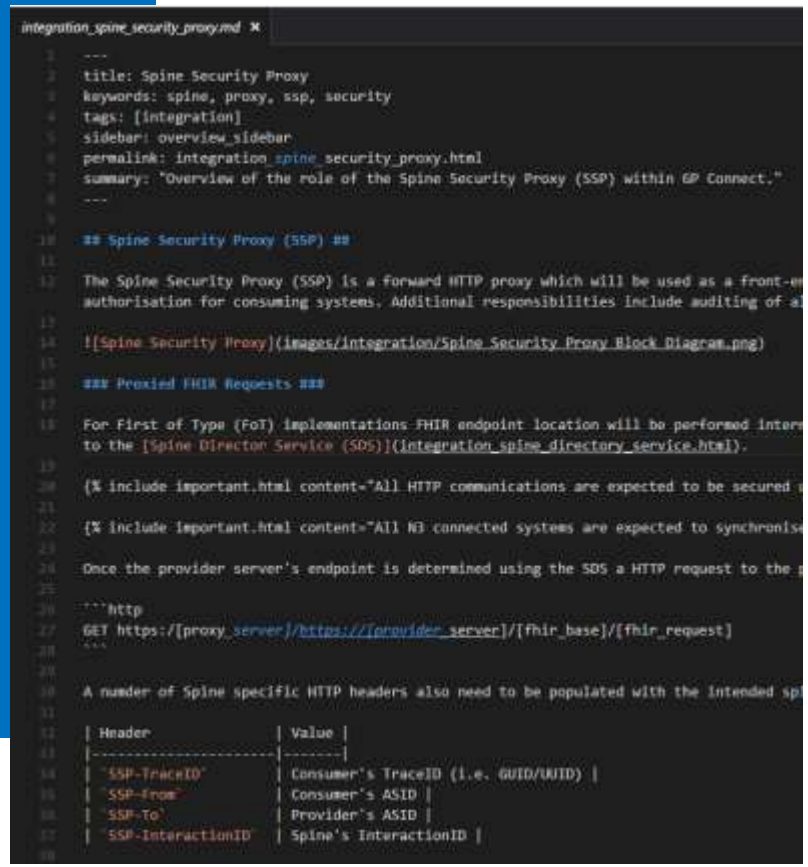
- gpconnect
- gpconnect-api
- gpconnect-fhir
- gpconnect-examples



Implementation Guidance

GitHub pages

- Technical documentation to be delivered using GitHub Pages.
  - Based on the Jekyll static website / blogging platform.
  - Pages are written in plain-text using GitHub Flavoured Markdown.
  - Utilising the Jekyll Documentation Theme by Tom Johnson.
  - Fully change/version controlled using Git and GitFlow.



Spine Security Proxy

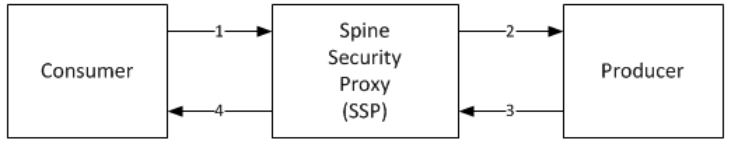
Summary: Overview of the role of the Spine Security Proxy (SSP) within GP Connect.

Table of Contents

- Spine Security Proxy (SSP)
  - Proxied FHIR Requests

Spine Security Proxy (SSP)

The Spine Security Proxy (SSP) is a forward HTTP proxy which will be used as a front-end to contr
principal IT systems that will be exposing FHIR based RESTful APIs as defined by the GP Connect
single security point for both authentication and authorisation for consuming systems. Additional resp
all requests, throttling of requests and transaction logging for performance and commercial remunera



Proxied FHIR Requests

For First of Type (FoT) implementations FHIR endpoint location will be performed internally by the co
patient's GP organisational identifier (i.e. ODSCode as returned from a separate PDS lookup proces
endpoint being resolved via LDAP queries to the Spine Director Service (SDS).

Technical documentation

GP Connect
- Overview
  - Introduction
  - Getting Started
  - News
  - Capabilities
  - Workshops and Timeline
  - First of Type
  - Glossary
- Design Approach
  - *Design Principles*
  - Clinical Terminologies
  - Product Versioning
- Explore
  - Consumer Demonstrator
  - Reference Implementation
  - Swagger API Documentation

Development Guidance
- Development Assets
  - FHIR API Guidance
    - Open Source
    - Server Guidance
    - Common API Guidance
    - Operation Guidance
    - Resource Guidance
    - Error Handling
  - *FHIR Data Models*

Implement A Capability
- *API Foundations*
- *Access Record*
- *Task Management*
- *Appointment Management*

Integrate With Spine
- Cross Org Audit & Provenance
- Personal Demographic Service
- Spine Directory Services
- Spine Security Proxy Introduction
- Spine Security Proxy Implementation Guide

...

CodeSnippet
- Systems
  - Clinical Demonstrator
  - Technical Reference
- Task Management
  - Overview
    - Introduction
    - Clinical Scenarios
    - Design Decisions
    - Wireframes
    - Release Notes
    - Known Issues
  - API Use Cases
    - Send a task

Test & Assure
- Testing Assets
- Accreditation
- Assurance
  - System Test
    - Stage 1. Test Window
    - Stage 2. Test Window
    - Stage 3. Test Window
- Path to Live

Help & Support
- Frequently Asked Questions (FAQ)

Appointment Management
- Overview
  - Introduction
  - Clinical Scenarios
  - Design Decisions
  - Wireframes
  - Release Notes
  - Known Issues
- API Use Cases
  - Retrieve a patients appointments
  - Search for free slots
  - Read an appointment
  - Book an appointment
  - Amend an appointment
  - Cancel an appointment

Design Principles
- Design Principles
  - Maturity Model
  - Development Principles
  - Open API Principles
  - Data Model Principles
  - Information Governance Principles
  - Clinical Safety Principles
  - Assurance Principles
  - Non Functional Principles
  - Open API Licence Principles

FHIR Data Library
- Overview
  - FHIR Delta
- Foundations
  - Patient
  - Practitioner
  - Organization
  - Location
- Access Record
  - Bundle (Searchset)
  - Composition
  - Device
- Appointment Management
  - Appointment
  - Schedule
  - Slot

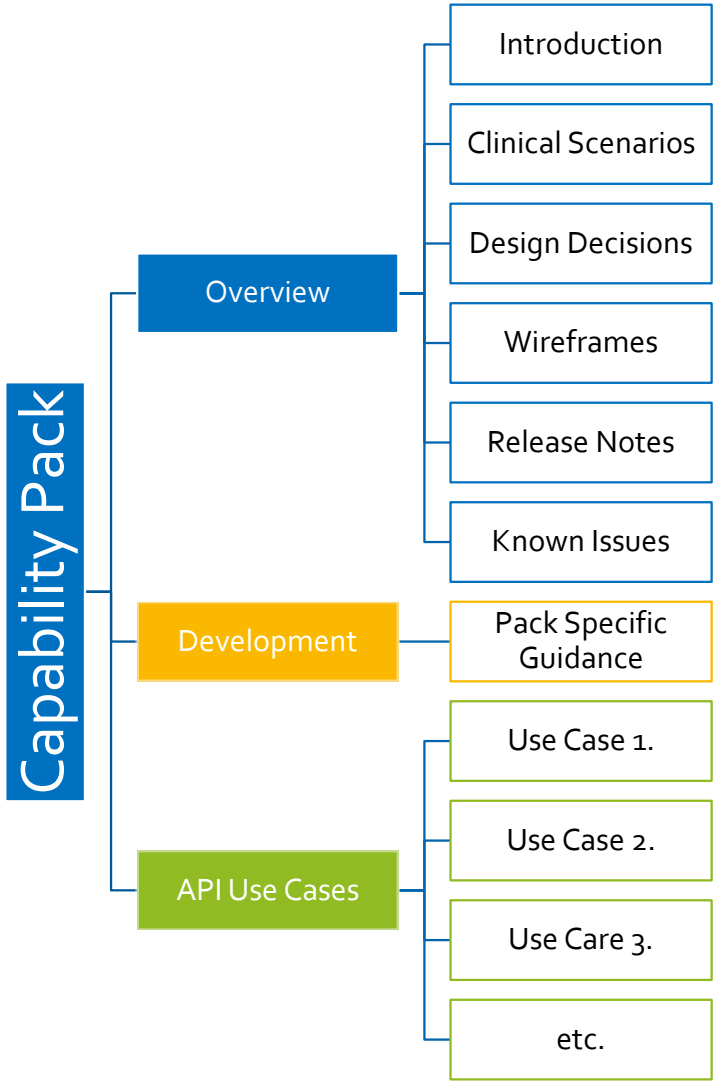
Foundations
- Overview
  - Introduction
  - Design Decisions
  - Release Notes
- API Use Cases
  - Get the FHIR; conformance profile
  - Find a patient
  - Read a patient
  - Find a practitioner
  - Read a practitioner
  - Find an organisation
  - Read an organisation
  - Find a location
  - Read a location
  - Register a patient

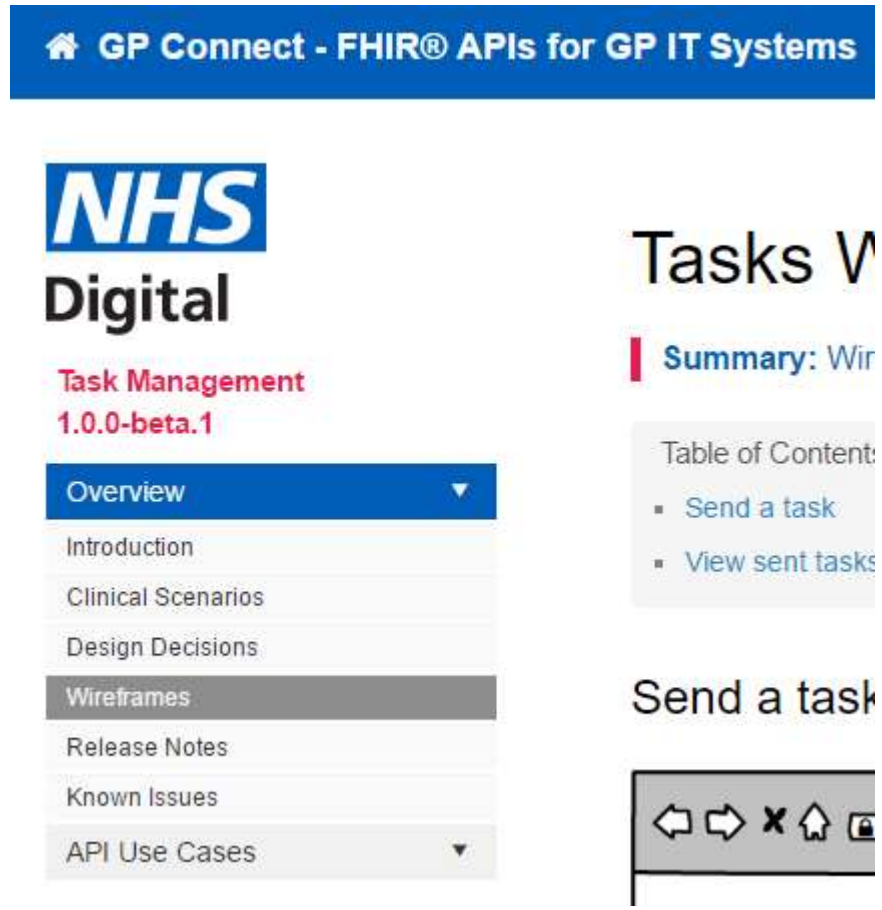
Access Record
- Overview
  - Introduction
  - Clinical Scenarios
  - Design Decisions
  - Wireframes
  - Release Notes
  - Known Issues
- API Use Cases
  - Retrieve a care record section
- Development
  - HTML Implementation Guide
- HTML Views
  - Summary
  - Encounters
  - Clinical Items
  - Problems
  - Allergies
  - Medications
  - Referrals
  - Observations
  - Investigations
  - Immunisations
  - Administrative Items
  - Patient Details
- Structured Data
  - Coming Soon

Task Management
- Overview
  - Introduction
  - Clinical Scenarios
  - Design Decisions
  - Wireframes
  - Release Notes
  - Known Issues
- API Use Cases
  - Send a task

FHIR DMS
- Get Care Record Operation
- Task Management
- Appointments

Capability pack

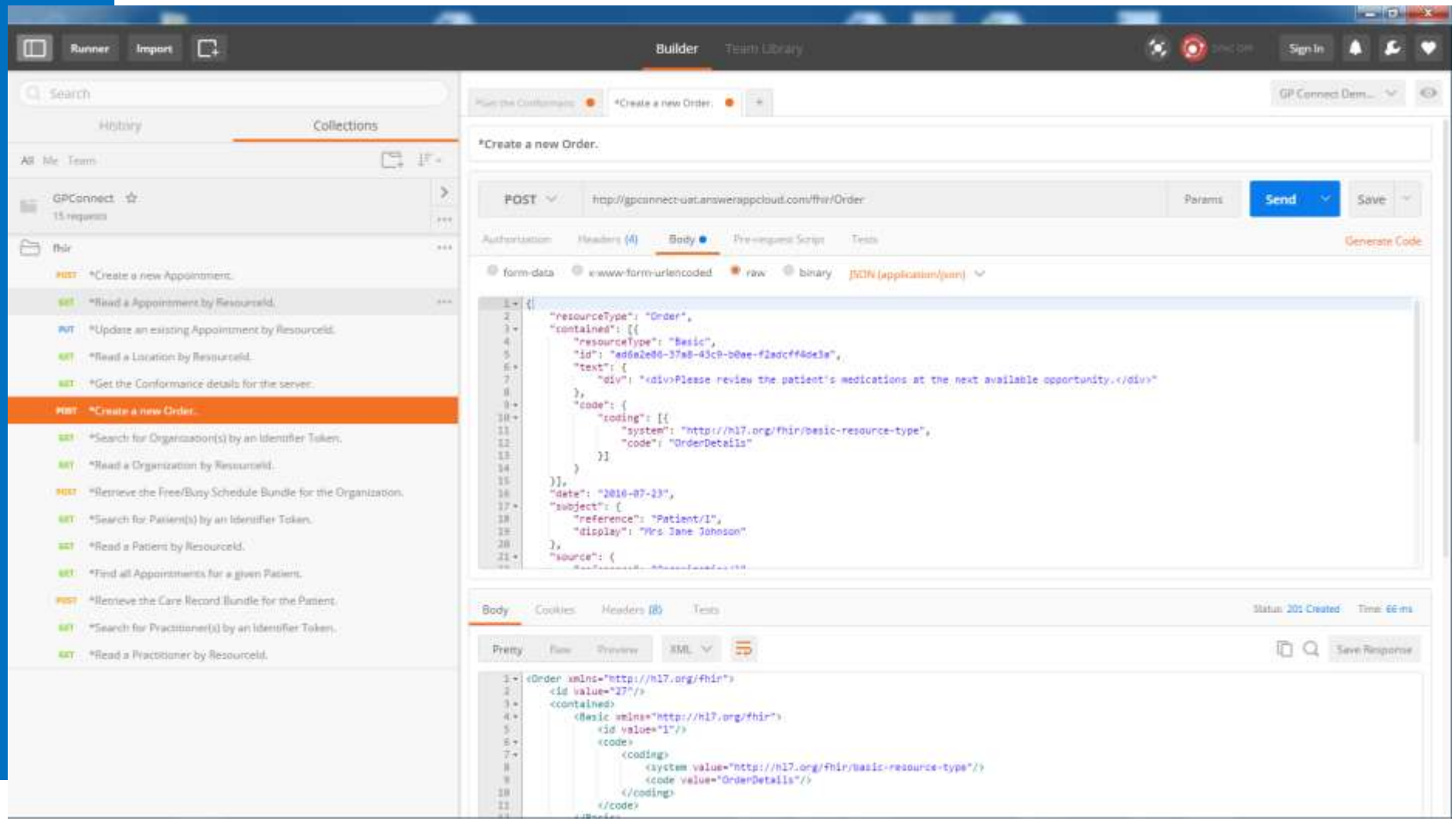




Explore

Explore the API

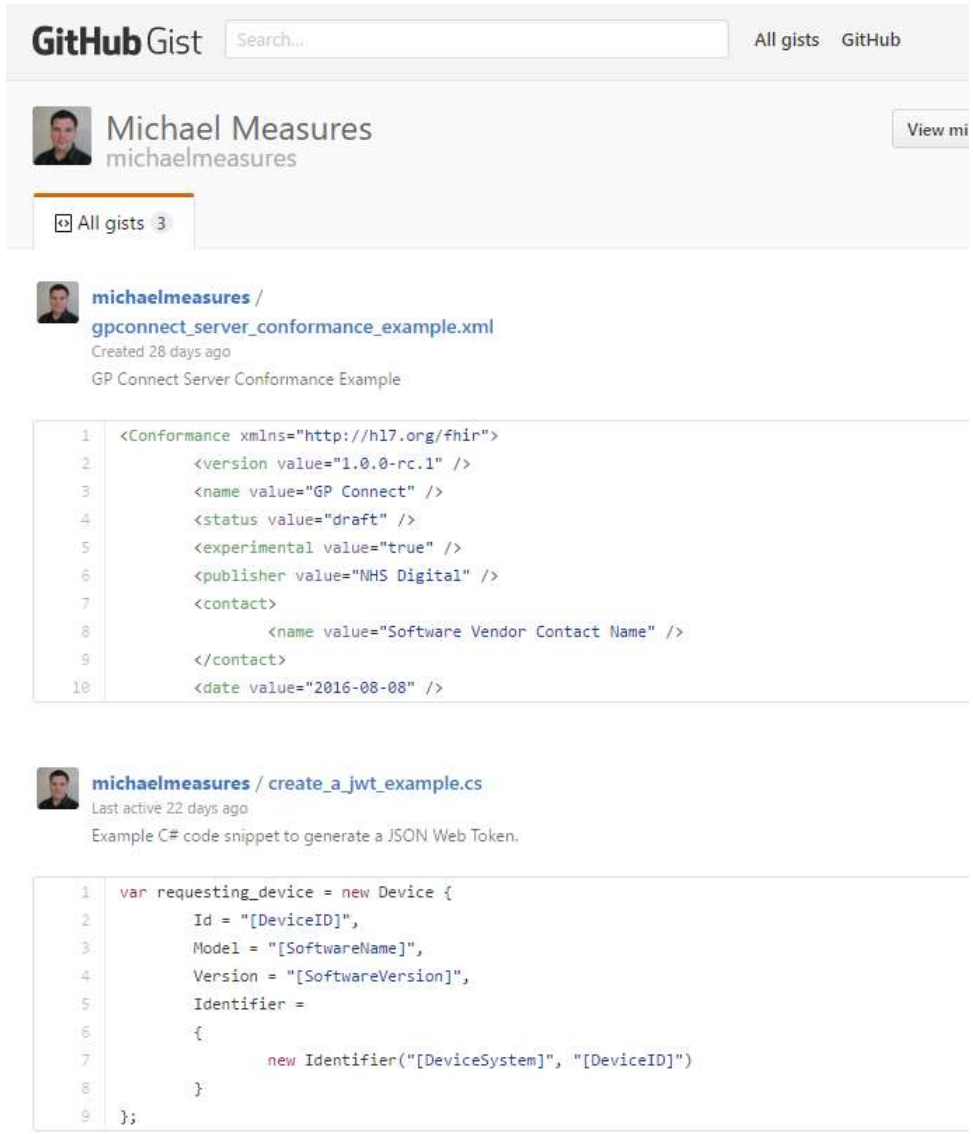
- Swagger API Console with Postman



Develop

Back-end code snippets

- Back-end code snippets to be delivered using GitHub Gists.

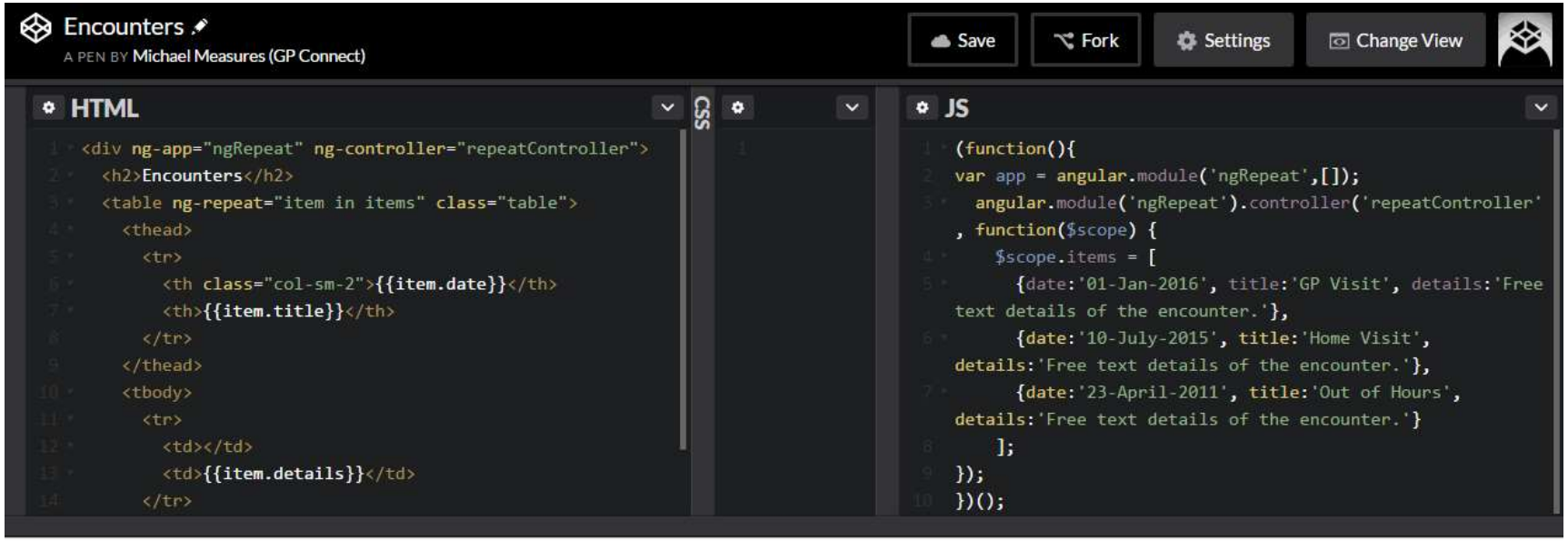


Microsoft .NET

Java

Front-end code snippets

- Front-end code snippets to be delivered using CodePen.



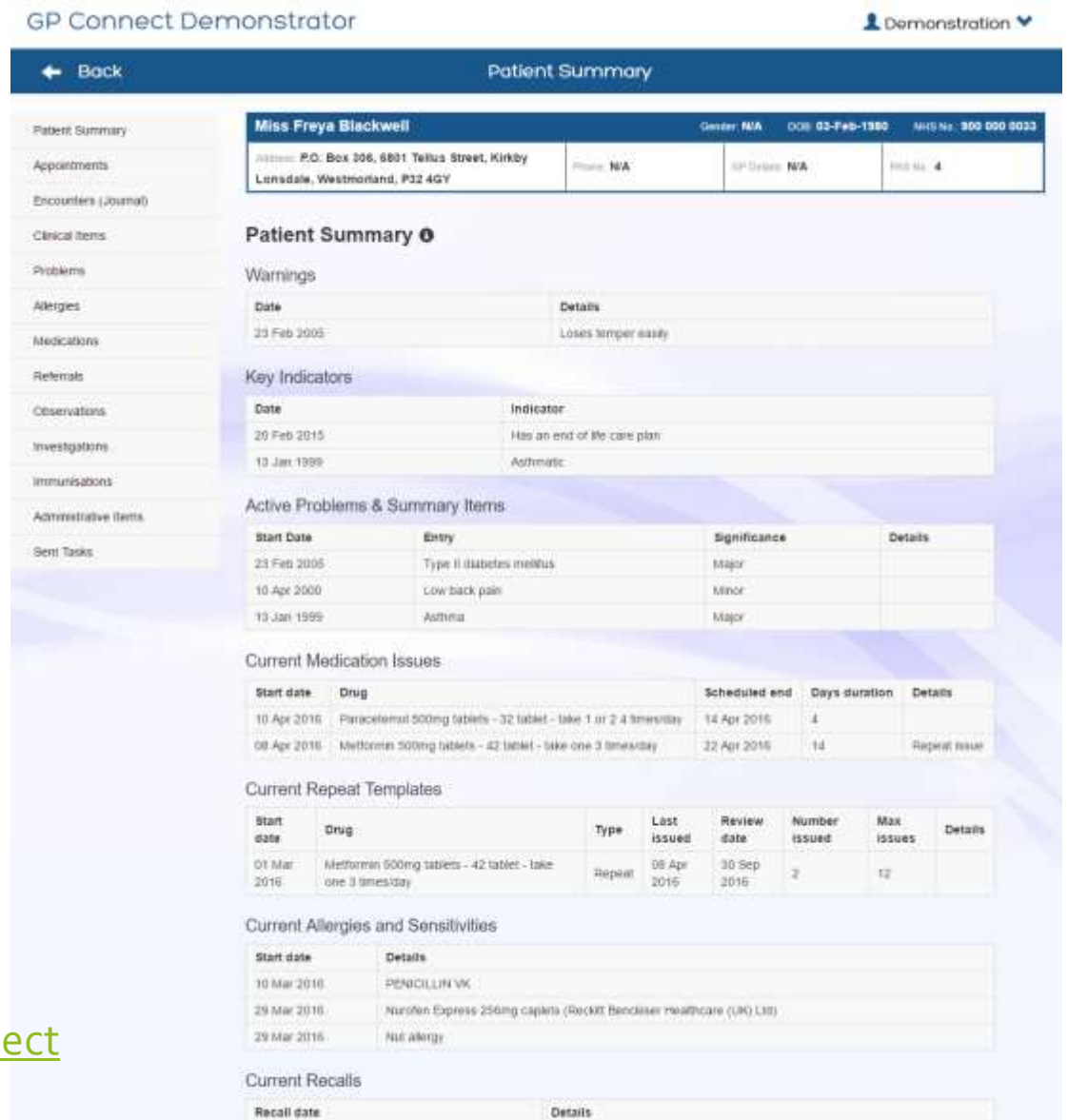
Encounters

01-Jan-2016	GP Visit
	Free text details of the encounter.
10-July-2015	Home Visit
	Free text details of the encounter.
23-April-2011	Out of Hours
	Free text details of the encounter.

ANGULARJS by Google

Consumer demonstrator

- Consumer Demonstrator & Live demonstrator



https://github.com/nhs-digital/gpconnect

Ripple

Questions

- Please submit questions in the WebEx chat facility.
- We will aim to get through as many as possible
- Those not addressed we'll pick up separately
- Questions and Answers will be distributed in due course

Contact Us

For any further questions regarding GP Connect, the capabilities on offer, or what the next steps are for Commissioning Bodies looking to engage in First of Type activities, please contact the dedicated GP Connect Mailbox:

gpconnect@nhs.net