



# FHIR Webinar

---

Grahame Grieve

4-Dec 2012

# FHIR



---

- **F**ast **H**ealth **I**nteroperability **R**esources

- Pronounced “Fire”

...insert your fire related joke here....



# Why FHIR?



- Arose out of Fresh Look Taskforce:  
“What would interoperability look like if we started afresh”
- Existing standards are not a platform for the future:
  - V2 – venerable, but old technology, self limiting
  - V3 – thorough and correct, but not practical
  - CDA – well established, but also limited in scope and difficult
  - Different approaches not reconciled



# Why FHIR?



- Web search for success markers led to RESTful based APIs
  - Exemplar: Highrise (<https://github.com/37signals/highrise-api>)
- Drafted a healthcare Exchange API based on this approach
- This has grown into FHIR



# Target Markets

---



- Classic in-institution interoperability
- Back-end e-business systems (financial)
- RHIO
- National EHR systems
  
- **Social Web (Health)**
- **Mobile Applications**



# Resources



“Resources” are:

- Small logically discrete units of exchange
- Defined behaviour and meaning
- Known identity / location
- Smallest unit of transaction
- Represented in XML or JSON (or others)
- Addressed through HTTP or other methods



# Resources



## ■ Administrative Concepts

- Person, Patient, Organization, Device, Facility
- Coverage, Invoice, etc.

## ■ Clinical Concepts

- Allergy, Problem, Medication, Family History
- Care Plan

## ■ Infrastructure Functionality

- Document, Message, Conformance/Profiling



# Resources



Resources have 3 parts

- Defined Structured Data

- The logical, *common* contents of the resource
- Mapped to formal definitions/RIM & other formats

- Extensions

- Local requirements, but everyone can use
- Published and managed

- Narrative

- Human readable (fall back)





# Person



```
<Person xmlns="http://hl7.org/fhir">

  <name>
    <use>official</use>
    <family>Grieve</family>
    <given>Grahame</given>
    <given>David</given>
  </name>

  <telecom>
    <system>email</system>
    <value>grahame@healthintersections.com.au</value>
    <use>work</use>
  </telecom>

  <gender>
    <system>http://hl7.org/fhir/v2-0001</system>
    <code>M</code>
    <display>Male</display>
  </gender>

  <deceased>>false</deceased>

  <extension>
    <url>http://nehta.gov.au/Indigenous-Status</url>
    <valueCode>1</valueCode>
  </extension>

  <text>
    <status>generated</status>
    <div xmlns="http://www.w3.org/1999/xhtml">
      <a href="mailto:grahame@healthintersections.com.au">Grahame Grieve</a>
    </div>
  </text>
</Person>
```



# Resources



Resources have 3 parts

- Defined Structured Data

- The logical, *common* contents of the resource
- Mapped to formal definitions/RIM & other formats

- Extensions

- Local requirements, but everyone can use
- Published and managed

- Narrative

- Human readable (fall back)



# Using Resources



- Classic HTTP RESTful approach
  - Simple approach led by Facebook, Twitter, etc.
- Atom (RSS feed standard)
  - Use Atom to “bundle” resources
  - Pub/sub framework, Multi-resource Transactions
  - Messages (v2-like), Documents (per CDA)
- Custom Services / SOA
  - Same content
  - Same base rules



# The Specification

---



- Introduction

- Background, basics, framework

- Implementation

- HTTP, conformance, JSON, etc.

- Resource Definitions

- Actual logical definitions of resources and their behaviour



[Introduction](#)[Roadmap](#)[Resource Format](#)[Data Types](#)[Using Codes](#)[Extensibility](#)[Resource Profiles](#)[Implementation](#)[REST \(HTTP\)](#)[Messaging](#)[Documents](#)[Errors & Warnings](#)[hData Integration](#)[Atom Feeds](#)[JSON format](#)[Value Set](#)[Conformance](#)[Security](#)[Resources](#)[Agent](#)[Animal](#)[Coverage](#)[Device](#)[Group](#)

## Welcome to FHIR

1.0



Fast Healthcare Interoperability Resources (FHIR) defines a set of 'resources' to represent health and healthcare administration-related information. These resources express granular clinical and administrative concepts that can be electronically exchanged in order to quickly and effectively solve system interoperability problems in healthcare and related processes. The resources cover the basic elements of healthcare - patients, admissions, diagnostic reports, medications and problem lists - with their typical data elements and also support a range of richer and more complex clinical models. The simple direct definitions of the resources are based on thorough requirements gathering, formal analysis and extensive cross-mapping to other relevant standards.

## Useful Links

1.0.1

- If this is your first time here, read the [Roadmap / Introduction](#)
- In addition to this web site, you can download [a zip of the whole specification](#) for offline use, or access the [book form](#)
- Get a list of the [resources defined by FHIR](#), or see the [full table of contents](#)
- [FHIR Schemas & Schematrons](#), [XML Examples](#) and [JSON examples](#)
- [Reference Implementations & processable definition formats](#)
- [FHIR wiki](#) - home for the FHIR development team
- [Publicly Available Test Servers](#)

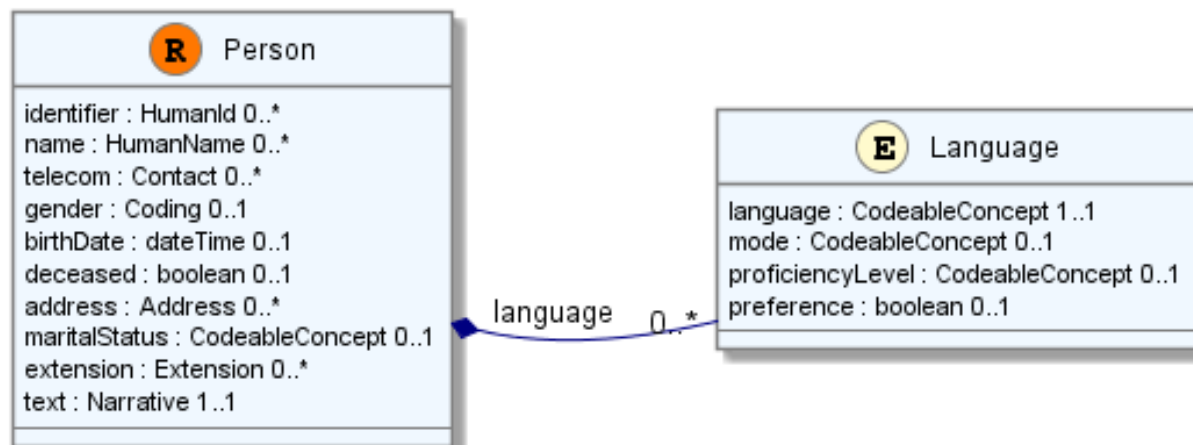
## Ballot Notes for FHIR Draft for Comment ballot

1.0.2

At present, the FHIR specification is undergoing HL7 ballot (Draft for comment round 2)



## Person



```

<Person xmlns="http://hl7.org/fhir">
  <identifier><!-- 0..* HumanId A Human identifier for this person --></identifier>
  <name><!-- 0..* HumanName A name associated with the person --></name>
  <telecom><!-- 0..* Contact A contact detail for the person --></telecom>
  <gender><!-- 0..1 Coding Administrative Gender --></gender>
  <birthDate><!-- 0..1 dateTime The birth date for the person --></birthDate>
  <deceased><!-- 0..1 boolean Indicates if the Person is deceased or not --></deceased>
  <address><!-- 0..* Address One or more addresses for the person --></address>
  <maritalStatus><!-- 0..1 CodeableConcept Marital (civil) status of the person --></maritalStatus>
  <language> <!-- 0..* The person's proficiency level of a language -->
    <language><!-- 1..1 CodeableConcept Language with optional region --></language>
    <mode><!-- 0..1 CodeableConcept Language method of expression --></mode>
    <proficiencyLevel><!-- 0..1 CodeableConcept Proficiency level of the language --></proficiencyLevel>
    <preference><!-- 0..1 boolean Language preference indicator --></preference>
  </language>
  <extension><!-- 0..* Extension See Extensions --></extension>
  <text><!-- 1..1 Narrative Text summary of resource (for human interpretation) --></text>
</Person>
  
```

Alternate definitions: [Schema/Schematron](#), [RDF](#) (to do), [XML](#), [XMI](#) (to do), [Resource Profile](#)



# Ethos



- Simplicity / Web alignment
- Implementation focused
  - Reference Implementations published
  - Publically available test servers (now)
  - Connectathon
- Freely available
  - <http://hl7.org/fhir>
  - Unencumbered – free for anyone to use



# License



## FHIR License

1.0.3

FHIR plain English license:

- FHIR is © HL7. The right to maintain FHIR remains vested in HL7
- You can redistribute FHIR
- You can create derivative specifications or implementation-related products and services
- Derivative Specifications cannot redefine what conformance to FHIR means
- You can't claim that HL7 or any of its members endorses your derived [thing] because it uses content from this specification
- Neither HL7 nor any of the contributors to this specification accept any liability for your use of FHIR





# Collaborations



## ■ IHE

- investigating - use of FHIR for MHD (mobile XDS)

## ■ DICOM

- interested - RESTful access to image metadata

## ■ W3C

- Semantic health group helping us with RDF

## ■ Lots of work to be done



# Future Plans



- 2<sup>nd</sup> Draft for comment open now
  - Infrastructure very solid (implementation focus)
  - Definitions & Mappings need work
  - Resource coverage needs to broaden
  
- Next ballot cycle – DSTU grind starts
  - Publish FHIR as full DSTU
  - Testing, real world implementation experience



# Next Steps



- Read the spec: <http://hl7.org/fhir>
- Follow #FHIR on Twitter
- Shape the specification:
  - Make Ballot comments
  - Join the FHIR email list  
[http://wiki.hl7.org/index.php?title=FHIR\\_email\\_list\\_subscription\\_instructions](http://wiki.hl7.org/index.php?title=FHIR_email_list_subscription_instructions)
  - Try implementing it
  - Come to the Connectathon!
  - Come to the next meeting (Phoenix in January)



# Webinar



---

- Questions....

<http://hl7.org/fhir>

