



# FHIR - What's In Store for R4 and Beyond

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# FHIR – Where We Are Now



- Release 3 (STU3) – version 3.0.1
  - STU = Standard for Trial Use
  - Includes 1 technical errata
  - Published 19 April 2017
- <http://hl7.org/fhir/index.html>



Home

This is the Current officially released version of FHIR, which is Release 3 (STU) with 1 technical errata. For a full list of available versions, see the Directory of published versions

# 0 Welcome to FHIR®

**First time here?** See the executive summary, the developer's introduction, clinical introduction, or architect's introduction, and then the FHIR overview / roadmap & Timelines. See also the open license (and don't miss the full Table of Contents or you can search this specification).

### Technical Corrections:

- Apr-19 2017: Corrections to invariants & generated conformance resources, and add note about isSummary

**Level 1** Basic framework on which the specification is built

<b>Foundation</b>	Base Documentation, XML, JSON, REST API + Search, Data Types, Extensions
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**Level 2** Supporting Implementation, and binding to external specifications

<b>Implementer Support</b>	<b>Security &amp; Privacy</b>	<b>Conformance</b>	<b>Terminology</b>	<b>Linked Data</b>
Downloads, Common Use, Cases, Testing	Security, Consent, Provenance, AuditEvent	StructureDefinition, CapabilityStatement, ImplementationGuide, Profiling	CodeSystem, ValueSet, ConceptMap, Terminology Svc	RDF



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# FHIR RELEASE 4

# FHIR Product Roadmap



- R4 is expected to be the first **normative** version
  - Only some parts of the specification will be normative
    - The rest will remain STU
  - Will continue to follow the overall [FHIR Maturity Model](#)
- Longer term, anticipate following R4 with a roughly 18 month publication cycle, with increasing normative content.

# R4 Timeline



- Dec 2017: Publish first draft of R4 for comment
  - Finalize plans for normative sections
- Jan 2018: First R4 based connectathon(s)
- April 2018: Ballot R4
- May – Sept 2018: Ballot reconciliation
- Oct 2018: Publish FHIR R4

# R4 Planned Priorities



## ■ Push to Normative

- Foundation / API / XML / JSON / Bundle / OperationOutcome
- Terminology Service (ValueSet / CodeSystem / ExpansionProfile)
- StructureDefinition / CapabilityStatement
- Patient / RelatedPerson / Practitioner / Organization / ?Endpoint

## ■ Position a core set of clinical resources ('health base'?) for normative in R5

- Or Observation | AllergyIntolerance | MedicationStatement normative for R4?

# R4 Planned Priorities (cont.)



- JSON: Use manifest for extensions, parameters resource?
  - This probably will be dropped
- RDF: More ontology bindings + resolve status of JSON-LD
- Data Analytics: Support for a bulk data analysis bridge format
  - Apache Parquet?
- API: Better control over retrieving graphs, and value added query support
  - Tabular format?



# R4 Planned Priorities (cont.)



- Patterns: Change the W5 framework to a pattern (logical model)
  - Tie the patterns to ontology, and use of patterns to drive more consistency
  - How to do this without decreasing quality)
- Services: More services
  - Candidates: conformance, registry, personal health summary, etc.?
- Deployment: Get a clear standards path for SMART on FHIR / CDS Hooks (and alignment with UMA/Heart)



# R4 Planned Priorities (cont.)



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- FM: work on alignment between FM resources and the rest of FHIR

# Update from San Diego



- HL7 Work Group Meeting San Diego September 2017
- Timeline Updates
  - Draft for comment, Dec 2017/Jan 2018: Lining up for ballot
  - Mixed normative/STU, Apr/May 2018: Main normative ballot
  - 2nd Normative + STU, Aug/Sept 2018: “2<sup>nd</sup> chance” ballot
  - Publication Mid-Dec 2018
- The updated dates are pretty firm
  - Proposed normative content will slip back to STU rather than hold up the timeline

# Update from San Diego (cont.)



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- Some new resources are being considered candidates for normative
  - Last call for comments about which resources should be candidates should be in November



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# **FHIR TERMINOLOGY SERVICE**

# FHIR Terminology Service


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- Terminology Service Documentation

Terminology-service - FHIR v3 x Robert

build.fhir.org/terminology-service.html



**Current Build**

- Home
- Getting Started
- Documentation
- Resources
- Profiles
- Extensions
- Operations
- Terminologies

Terminology > **TerminologyService**

## 4.6 Terminology Service

FHIR Infrastructure <a href="#">Work Group</a>	Maturity Level: 5	Ballot Status: Trial Use
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This specification includes support for the provision of a terminology service - that is, a service that lets healthcare applications make use of codes and value sets without having to become experts in the fine details of code system, value set and concept map resources, and the underlying code systems and terminological principles. A server that supports all the functionality described here can be described as a "FHIR Terminology Service", and SHALL conform to the [Terminology Service Capability Statement](#). Note that servers can declare that they provide terminology services in their capability statement:

```
<CapabilityStatement xmlns="http://hl7.org/fhir">
  <!-- snip -->
  <instantiates value="http://hl7.org/fhir/CapabilityStatement/terminology-server"/>
  <!-- snip -->
</CapabilityStatement>
```

### 4.6.1 Security

# Terminology Service Operations

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## ■ ValueSet

- \$expand
- \$validate-code

## ■ CodeSystem

- \$lookup
- \$subsumes
- \$compose

## ■ ConceptMap

- \$translate
- \$closure



# Operation Descriptions



- **\$expand (proposed for normative)**
  - Takes a ValueSet reference or resource and returns a ValueSet containing the expansion (code set)
- **\$validate-code (proposed for normative)**
  - Takes a code/Coding/CodeableConcept and checks if it's valid against a value set
- **\$lookup (proposed for normative)**
  - Takes a code+system(version) / Coding and returns additional details about the concept

# Operation Descriptions (cont.)



- **\$subsumes** (proposed for normative)
  - Test whether codeA / codingA subsumes (or is subsumed by) codeB / codingB
- **\$translate** (proposed for normative)
  - Can you translate this code to another code system?
- **\$compose** (not planned for normative)
  - Given a set of properties, return one or more possible matching codes
- **\$closure** (not planned for normative)
  - Support maintenance of a client-side transitive closure

# More Terminology Service Plans



- Terminology capability statement
  - Make the server defaults explicit
- Add a \$validate-code operation to the CodeSystem resource (in addition to ValueSet) – possible?
  - Allows directly validating a code with the code system (not requiring specifying a particular value set)