

About HL7[®] FHIR[®]

HL7[®] FHIR[®]—Fast Healthcare Interoperability Resources (HL7.org/fhir)—is a next generation standards framework created by Health Level Seven[®] (HL7) International. It combines the best features of HL7's Version 2, Version 3 and Clinical Document Architecture (CDA[®]) product lines while leveraging the latest web standards and focusing on implementability.

HL7 FHIR solutions are built from a set of modular components called **resources**. Resources can easily be assembled into working systems that solve real-world clinical and administrative problems at a fraction of the price of existing alternatives.

HL7 FHIR is suitable for use in a wide variety of contexts—social media on mobile phones, cloud communications, EHR-based data sharing, server communication in large institutional healthcare providers and much more.

Why HL7 FHIR is Better

HL7 FHIR offers many advantages over existing standards:

- **Strong focus on implementation**—fast and easy to implement
- **Multiple implementation libraries**, many examples available to kick-start development
- **Free for use** with no restrictions
- **Interoperability out-of-the-box**—base resources can be used as is, but can also be adapted for local requirements
- **Evolutionary development** from HL7 Version 2 and CDA—standards can co-exist and leverage each other
- **Leverages web standards**—XML, JSON, HTTP, Atom, OAuth, etc.
- **Supports RESTful** architectures, messages and documents
- **Human-readable wire format** for developers
- **Solid ontology-based analysis** with rigorous formal mapping for correctness

Flexibility

A central challenge for healthcare standards is how to handle variability caused by diverse healthcare processes. Over time, more fields and optionality are added to solutions and specifications, gradually adding cost and complexity. The alternative option is to rely on custom extensions, but this also creates implementation problems. HL7 FHIR defines a simple framework for extending and adapting the existing resources. All systems can easily read and use these extensions.

Each resource carries a human-readable text representation using HTML as a fallback display option for clinical safety. This is important for complex clinical information where many systems take a simple textual/document based approach.

HL7.org/fhir — Follow us on  #FHIR

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Adoption

While HL7 FHIR still maturing as a standard, there are significant implementations developed and being developed around the world. Solutions cover national, regional and personal clinical repositories, EHR extensibility projects, coordinated care, and basic healthcare infrastructure. Key development partners in the USA include the Argonaut Project, Apple, CARIN Alliance, CodeX, Da Vinci Project, Google, Gravity Project, Logica Health, ONC/CMS/CDC as well as other providers and vendors.

Example Resource: Patient

This simple example shows the important sections of a resource: metadata, a local extension, the human-readable HTML presentation and the standard defined data content.

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

```
  <extension>
    <url value="http://www.goodhealth.org/consent/trials"/>
    <valueCode value="renal"/>
  </extension>
```

▶ Extension with reference to its definition

```
  <text>
    <status value="generated"/>
    <div xmlns="http://www.w3.org/1999/xhtml">
      <p>Henry LEVIN the 7th, DOB 24-Sept 1932</p>
      <p>MRN: 123456</p>
    </div>
  </text>
```

▶ Human Readable Summary

```
  <active value="true"/>
  <identifier>
    <use value="usual"/>
    <label value="MRN"/>
    <system value="http://www.goodhealth.org/identifiers/mrn"/>
    <id value="123456"/>
  </identifier>
```

```
  <details>
    <name>
      <family value="Levin"/>
      <given value="Henry"/>
      <suffix value="The 7th"/>
    </name>
    <gender>
      <system value="http://www.hl7.org/v2/0001"/>
      <code value="M"/>
    </gender>
    <birthDate value="1932-09-24"/>
  </details>
```

▶ Standard Data Content:

- MRN
- Name
- Gender
- Date of Birth
- Provider

```
  <provider>
    <type value="Organization"/>
    <url value="./organization/@1"/>
    <display value="Good Health Clinic"/>
  </provider>
</Patient>
```

The HL7 FHIR Community

FHIR Release 4 was published in December 2018 and approved by ANSI in March 2019. There are hundreds of implementations across 30+ countries with more announced regularly. Two key US-based communities have been leading stakeholder engagement as the standard continues to evolve:

- HL7 FHIR Accelerator Program (HL7.me/FHIRAccelerators)
- Logica Health (www.logicahealth.org)



Join the HL7 FHIR community now and have your say by joining chat.fhir.org, coming to a connectathon or following [#FHIR](https://twitter.com/FHIR) on Twitter.