



# HIRA – Healthcare Interoperability Reference Architecture

(former HSRA Healthcare Service Reference Architecture)

## Project Update

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# HIRA Status

- HIRA will be balloted (STU) in the January Ballot Cycle
- Remaining work for ballot:
  - Finalize model details (inventory)
  - [Pattern Library](#)
  - Some introductory text

# HIRA MODEL RECAP

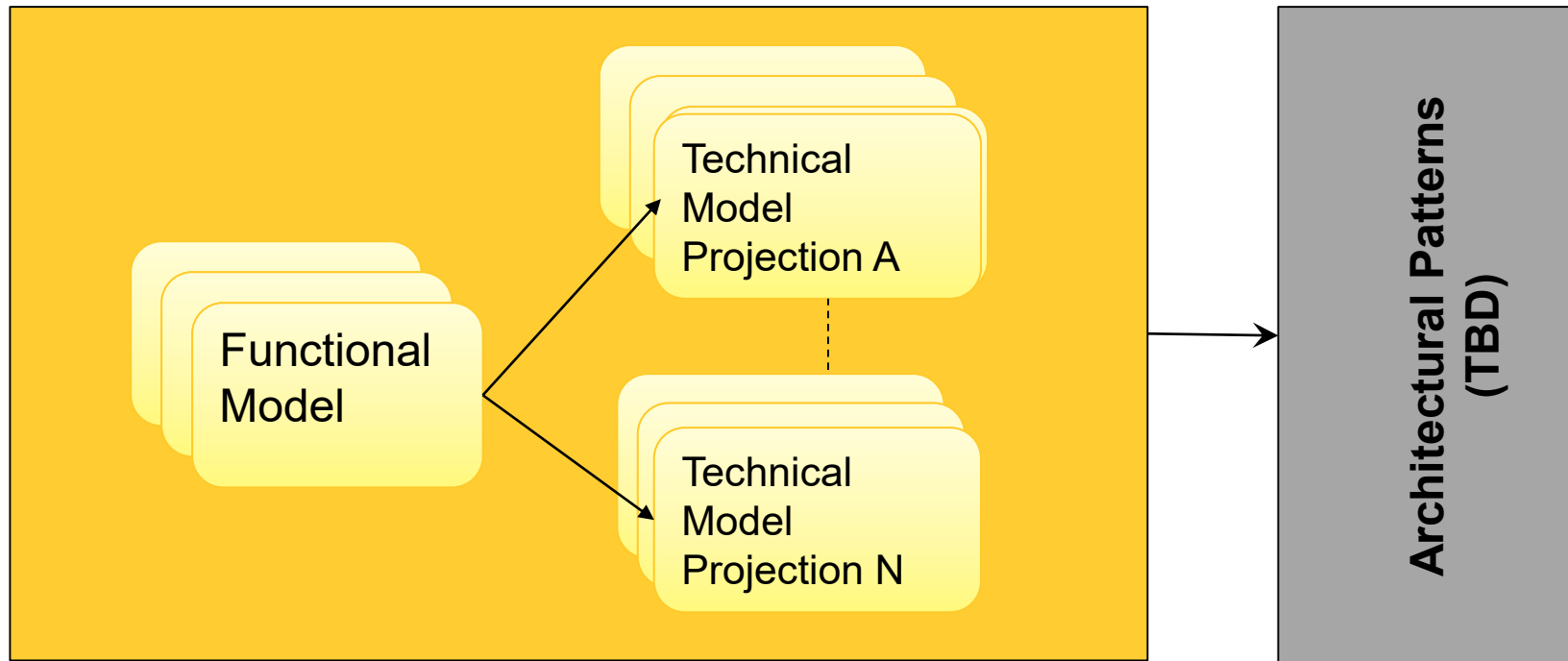
# Healthcare Interoperability Reference Architecture

- The objective of the HL7 Healthcare Service Reference Architecture (HL7-HIRA) is to support the design of medium/large scale eHealth architectures based on HL7 services and standards.
- The project organizes adopted HL7 Service Functional Models, Functional Profiles and Domain Models as a basis for:
  - a formalized Enterprise Service Inventory (Normative)
  - an Architectural Patterns Catalog (Normative)
  - guidelines for enterprise Service Discovery and Orchestration (Informative)

# HIRA as a tool

- HIRA represent a tool for architects and CIOs
- The Reference Architecture it's useful to navigate and select Health Standards and can be used also in combination with an Enterprise Architecture Frameworks (e.g. TOGAF and NAF 4.0)
- HIRA is centered on standard business capabilities and shown how these capabilities are realized with different technical standards (Technical Model Projections).

# Functional models and technical projections



**Approach for Enterprise Service Discovery and Orchestration  
(link TBD)**

# Modeling language for HIRA

- The Modeling language used for HIRA is the OMG UAF (Unified Architecture Framework).
- UAF is a modeling language based on UML/SysML and also integrated with BPMN2 and SoaML.
- The UAF scope is the representation of complex Architectures

# A single artifact approach

- We use of a specific modeling language, as UAF, to support a “single artifact” approach with the objective to support the maintainability and the navigability of HSRA
- We’ll have a single artifact (the model) that can be easily published as a web site with linked standard documents, or in a traditional document.
- *The UAF editor used is MagicDraw because the HL7/Sparx EA license agreement do not include UAF plugin.*



# HIRA MODEL UPDATE

Model

# HIRA model navigation

- HSRA
  - Strategic Capability
  - Services
  - Personnel
  - Resources
  - Standards
  - Actual Resources
  - Dictionary
  - Summary & Overview
  - Requirements
  - Operational
- Utils
  - Pattern
  - Service Inventory
    - Composite Services (coordinating)
    - Enabling Service
      - Identification
      - Record Management
      - Service and Provider Directory
      - Identification
      - Record Management
      - Services and Provider Directories
      - Terminology Services
    - Supporting Functionality and Services
- HIRA
- Capability Legend

# HIRA

## HIRA

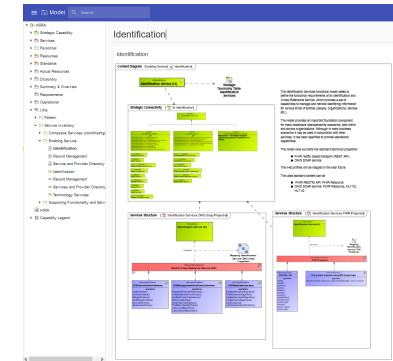
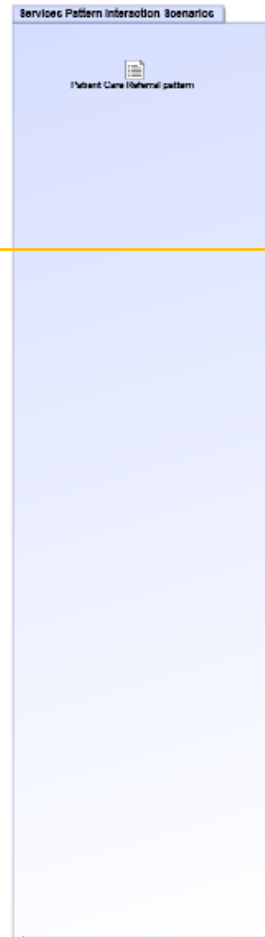
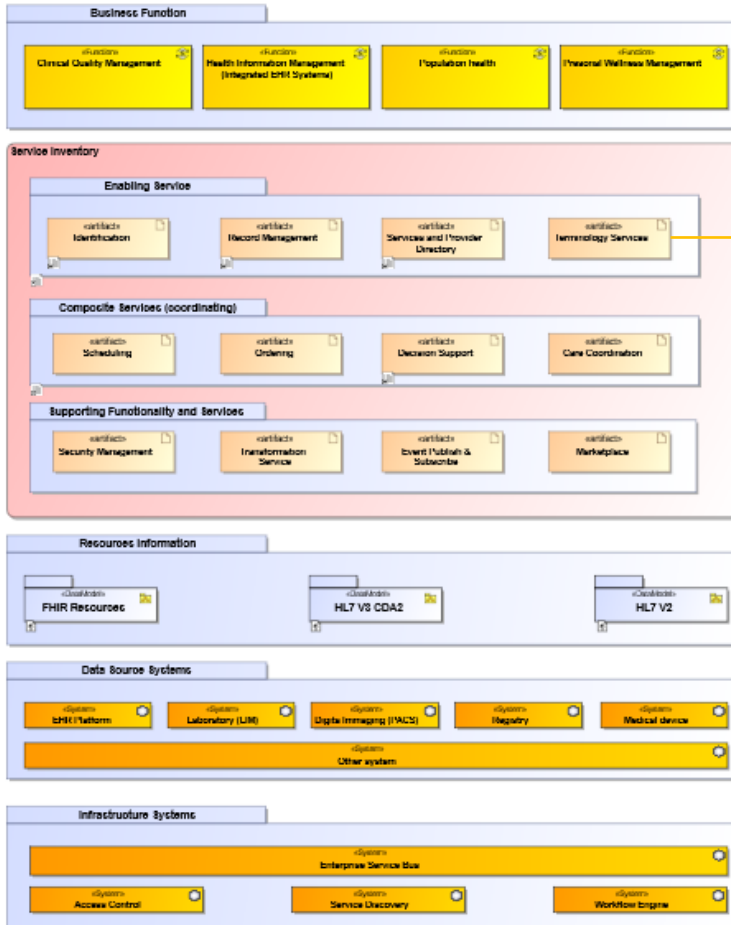
Content Diagram: HIRA [HIRA]

### Healthcare Interoperability Reference Architecture

The objective of the HL7 Health Interoperability Reference Architecture (HL7-HIRA) is to support the design of multi-organizational architectures based on HL7 services and standards. The objective is to:

This project organizes adopted HL7 Service Functional Mode's, Functional Profiles and Domain Mode's as a basis for:

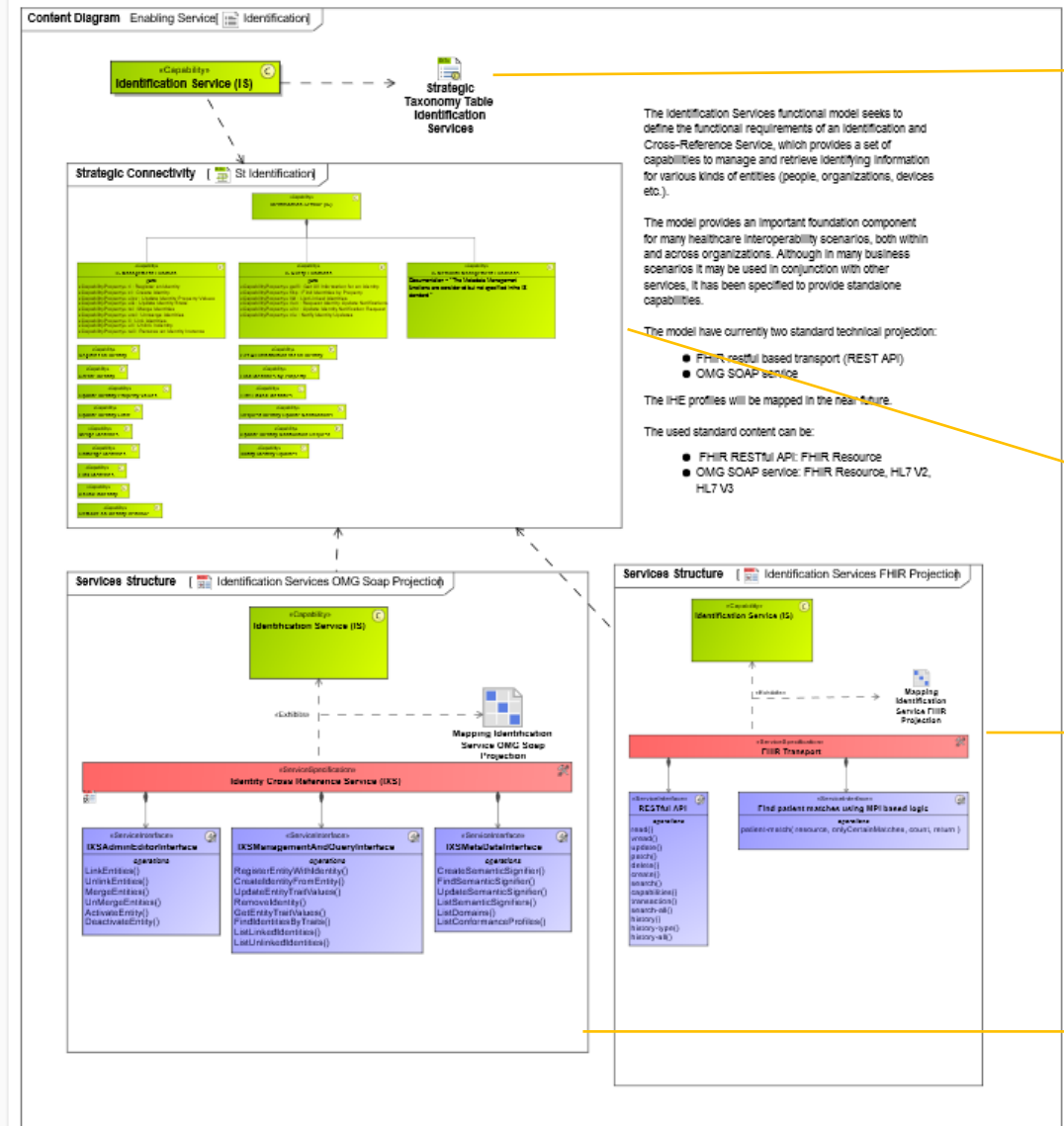
- a formalized Strategic Service Inventory (Normative)
- an Architectural Relation Catalog (Normative)
- methods for Strategic Service Discovery and Orchestration (Implementation guidance)



- HSRA
  - Strategic Capability
  - Services
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  - HIRA
  - Capability Legend

# Identification

## Identification



The Identification Services functional model seeks to define the functional requirements of an Identification and Cross-Reference Service, which provides a set of capabilities to manage and retrieve identifying information for various kinds of entities (people, organizations, devices etc.).

The model provides an important foundation component for many healthcare interoperability scenarios, both within and across organizations. Although in many business scenarios it may be used in conjunction with other services, it has been specified to provide standalone capabilities.

The model have currently two standard technical projection:

- FHIR RESTful based transport (REST API)
- OMG SOAP service

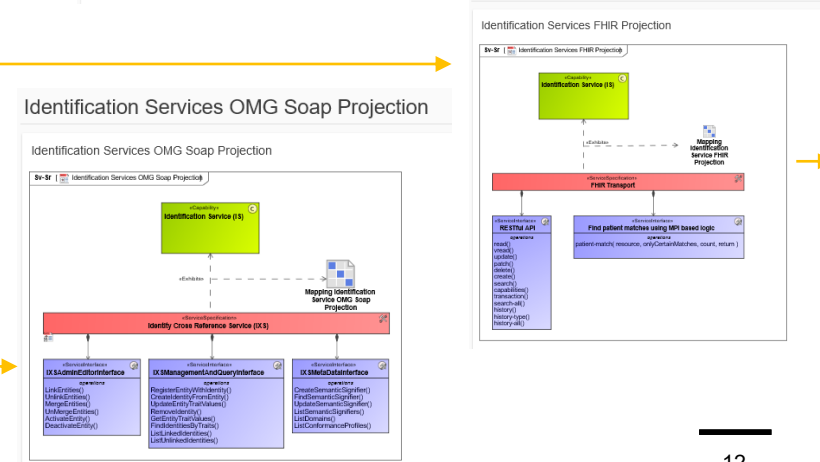
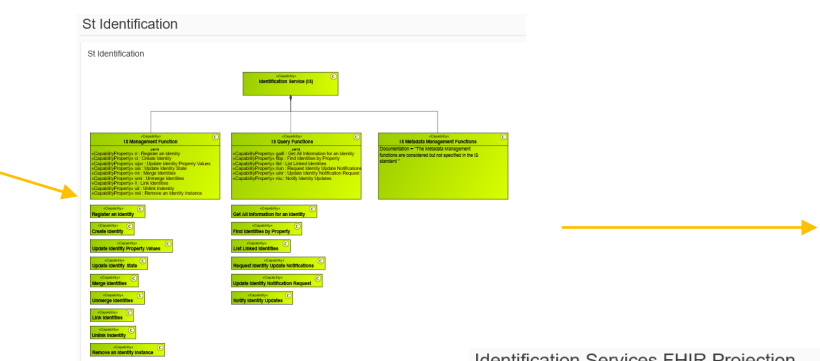
The IHE profiles will be mapped in the near future.

The used standard content can be:

- FHIR RESTful API: FHIR Resource
- OMG SOAP service: FHIR Resource, HL7 V2, HL7 V3

Strategic Taxonomy Table Identification Services

ID	Name	Description
1	Identification Service (IS)	The Identification and Cross-Reference Service (IS) Functional Specification is designed to define the functional requirements of an Identification and Cross-Reference Service. This service provides a set of capabilities to manage and retrieve identifying information for various kinds of entities (people, organizations, devices etc.).
2	IS Management Functions	This section is intended to provide the functional requirements of the Identification and Cross-Reference Service (IS) Management Functions. The section is organized into sub-sections that describe the functional requirements for each of the management functions. The section is organized into sub-sections that describe the functional requirements for each of the management functions. The section is organized into sub-sections that describe the functional requirements for each of the management functions.
3	IS Query Functions	This section is intended to provide the functional requirements of the Identification and Cross-Reference Service (IS) Query Functions. The section is organized into sub-sections that describe the functional requirements for each of the query functions. The section is organized into sub-sections that describe the functional requirements for each of the query functions.
4	IS Metadata Management Functions	This section is intended to provide the functional requirements of the Identification and Cross-Reference Service (IS) Metadata Management Functions. The section is organized into sub-sections that describe the functional requirements for each of the metadata management functions. The section is organized into sub-sections that describe the functional requirements for each of the metadata management functions.



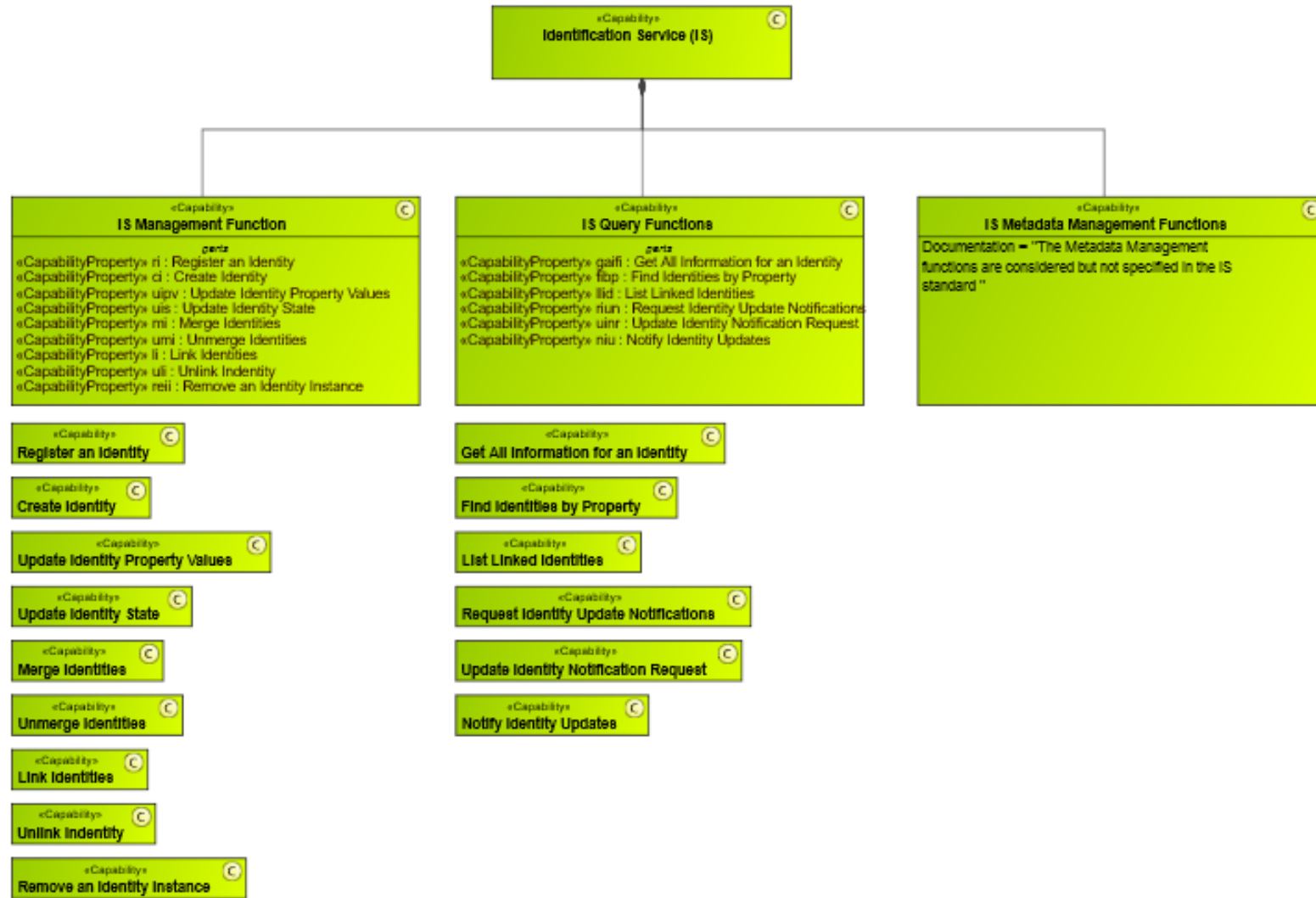
- HSRA
  - Strategic Capability
    - Strategic Taxonomy
      - St Composite Services (coord)
        - St Enabling Service
          - St Data Mapping and Transf
            - St Identification Service
              - St Identification
                - Strategic Taxonomy Table Identification Services
                  - Create Identity
                  - Find Identities by Proper
                  - Get All Information for a
                  - Identification Service (IS)
                  - IS Management Function
                  - IS Metadata Managemen
                  - IS Query Functions
                  - Link Identities
                  - List Linked Identities
                  - Merge Identities
                  - Notify Identity Updates
                  - Register an Identity
                  - Remove an Identity Inst
                  - Request Identity Update
                  - Unlink Identity
                  - Unmerge Identities
                  - Update Identity Notificat
                  - Update Identity Property
                  - Update Identity State
                  - St Retrieve, Locate, and U
                  - St Service and Provider Dir
                  - St Terminology Service
                  - St Unified Communication M
                  - St Supporting Functionality
                  - Strategic Structure
                  - Strategic Connectivity
                  - Strategic Traceability
                  - Strategic Capability
                - Services
                - Personnel
                - Resources
                - Standards
                - Actual Resources
                - Dictionary

## Strategic Taxonomy Table Identification Services

| # | Name                        | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | URI                                                                                                                                                                     |
|---|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Identification Service (IS) | The Identification and Cross-Reference Service (IXS) Functional Specification is charged with defining the functional specifications of a set of service interfaces to uniquely identify various kinds of entities (e.g. people, patients, providers, devices and so on) within disparate systems within a single enterprise and/or across a set of collaborating enterprises.<br><br>This service is intended to allow for the resolution of demographics and other identifying characteristics (aka properties aka traits) to a unique identifier. This allows any clinical system that uses the service to maintain a common description for each entity and to manage the entities. Having a standard interface for accessing and maintaining entity identification information allows systems and applications to have a consistent means of indexing data related to an entity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <a href="https://www.hl7.org/implementation/standards/product_brief.cfm?product_id=87">https://www.hl7.org/implementation/standards/product_brief.cfm?product_id=87</a> |
| 2 | IS Management Function      | Core identity management functions<br><br>Allows for creation of an identity with a supplied set of property values. Uses an identifier supplied by the service consumer which is unique within the Domain for the EntityType.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                         |
| 3 | Register an Identity        | Although it does not directly impact the description of the interface or parameters other than the potential output message, it is expected that IXS implementations will typically provide some level of automated implicit linking capabilities. This could be policy driven, or be handled manually using the explicit linking operations described in this specification. This functionality is similar to that described by the IHE PIX profile. This would be triggered when a new entity is created or the properties of an entity updated. The triggered behavior should be as described for the Link Identities operation.<br><br>Actually "merging" entities based on automated logic is not encouraged. Note that the actual policies are handled through "out of band" agreements.<br><br>Allows for creation of an Identity Instance with a list of property values, where the Identifier is generated and passed back to the service consumer. Would only be used where the consumer cannot generate and supply its own "local identifiers", although this is an implementation and technical specification choice. This identifier is different from IXS Id.<br><br>IXS Id is an identifier for a Real World Entity that is guaranteed to be unique across an instance of an IXS (i.e. across all Policy Domains covered by the instance). This may be generated by the IXS implementation and is only used internally by the Service, although this is an implementation and technical specification choice. |                                                                                                                                                                         |

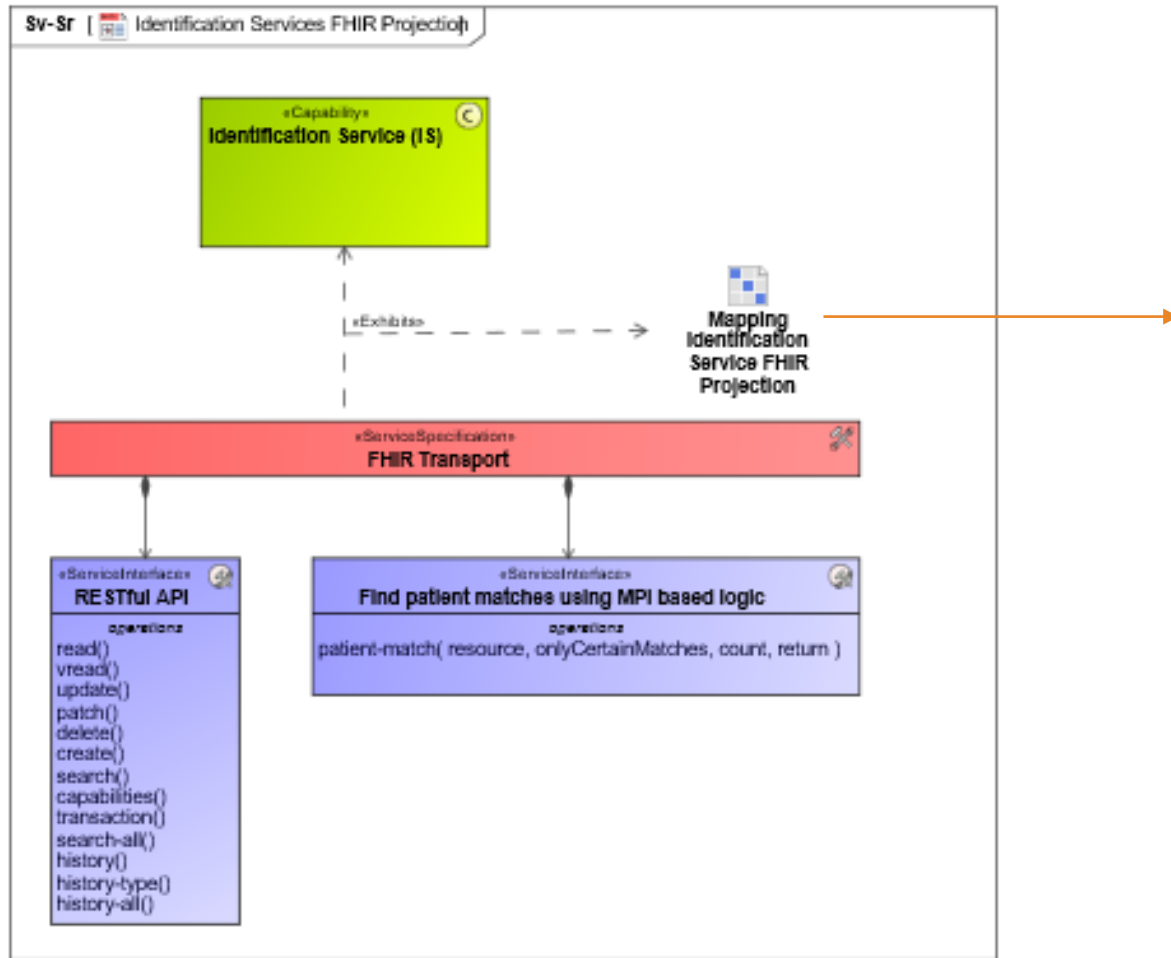
# St Identification

## St Identification



# Identification Services FHIR Projection

## Identification Services FHIR Projection



# Mapping Identification Service FHIR Projection

## Mapping Identification Service FHIR Projection

**Legend**  
 ↗ Dependency

|                                              | find patient matches | patient-match resource | capabilities | create | delete | history-all | history-type | history | patch | read | search-all | search | transaction | updates | read |
|----------------------------------------------|----------------------|------------------------|--------------|--------|--------|-------------|--------------|---------|-------|------|------------|--------|-------------|---------|------|
| IS Management Function                       | 1                    | 1                      | 2            | 1      | 1      | 1           | 1            | 2       | 1     | 1    | 5          | 3      | 2           |         |      |
| : Identification Service (IS)                |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| ci : Create Identity                         |                      | 2                      | ✓            |        |        |             |              |         |       |      |            |        |             | ✓       |      |
| li : Link Identities                         |                      | 1                      |              |        |        |             |              |         |       |      |            |        |             |         | ✓    |
| mi : Merge Identities                        |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| rei : Remove an Identity Instance            |                      | 2                      | ✓            |        |        |             |              |         |       |      |            |        |             | ✓       |      |
| ri : Register an Identity                    |                      | 2                      | ✓            |        |        |             |              |         |       |      |            |        |             | ✓       |      |
| uipv : Update Identity Property Values       |                      | 3                      |              |        |        |             |              |         | ✓     |      |            |        |             | ✓       | ✓    |
| uis : Update Identity State                  |                      | 3                      |              |        |        |             |              |         | ✓     |      |            |        |             | ✓       | ✓    |
| ui : Unlink Identity                         |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| umi : Unmerge Identities                     |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| IS Metadata Management Functions             |                      | 1                      | ✓            |        |        |             |              |         |       |      |            |        |             |         |      |
| IS Query Functions                           | 1                    | ✓                      |              |        |        |             |              |         |       |      |            |        |             |         |      |
| filp : Find Identities by Property           |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| galfi : Get All Information for an Identity  |                      | 7                      |              |        | ✓      | ✓           | ✓            | ✓       | ✓     | ✓    | ✓          | ✓      | ✓           | ✓       | ✓    |
| llid : List Linked Identities                |                      | 2                      |              |        |        |             |              |         |       |      |            |        |             |         | ✓    |
| niu : Notify Identity Updates                |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| riun : Request Identity Update Notifications |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |
| uinr : Update Identity Notification Request  |                      |                        |              |        |        |             |              |         |       |      |            |        |             |         |      |

# Next steps

- Download model draft on Confluence
- Understand model publication path in HL7 (web/document)
- Finalize inventory details
- Include IHE Profile projection
- Patterns
- Some introductory texts
- January 2021 Ballot



# Q&A

Thank  
You

**HIRA HL7 Confluence Page:**

<https://confluence.hl7.org/x/Ag0hAg>