



FY 2026 HMIS Logic Model



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Disclaimers

HMIS Logic Model development is related to HUD Data Lab initiatives concerning machine-readable documentation and cross-system interoperability. Its scope and degree of articulation depends on how it will be integrated with the overall suite of tools being developed to support these use cases. It is expected that the overall structure and supported functionality of the Logic Model will continue to evolve in response to related tool development, community engagement, and use case refinement.

The Logic Model was originally developed as part of the implementation of the FY2022 HMIS Data Standards. No changes were made during the FY2024 revision cycle. FY2026 updates focused on updating the class and property lists to mirror changes made to data elements in the FY2026 HMIS Data Standards. The “Differences from past versions of the HMIS Logical Models” section identifies components of the Logic Model that are different from the FY2022 Logic Model and provides context for these design decisions.


Purpose of the HMIS Logical Model

The HMIS Logical Model exists to define normative relationships for the HUD HMIS data elements, independent of any technical implementation considerations. The model is intended to technically express the relationships and underlying constraints described in the HMIS Data Standards Model. The HMIS Data Standards Model is comprised of:

- **HMIS Data Dictionary:** designed for HMIS/comparable database vendors and HMIS Leads/System Administrators to identify the data elements required in an HMIS and understand the function and specific use of each element by the appropriate federal partner.
- **HMIS CSV Format Specifications:** describes the common format and associated basic expectations and assumptions for standardized HMIS data import and export. In general, HUD expects that it is possible to export, in a standard format, all data entered into an HMIS platform for any data element defined by the HMIS Data Dictionary, regardless of whether a given data element is required based on project type or funder.

The Logical Model makes no assumption about how the HMIS standards will be implemented. The Logical Model is not intended to be specific to any database, data flows, or even to databases in general. The Logical Model simply describes basic data model constraints for any system fully adhering to the HMIS Data Standards. For the FY2026 HMIS Data Standards release, the HMIS Logical Model is represented by the following:

- Entity Relationship Diagram (ERD) based on the HUD CSV Specifications
- HMIS Ontology
 - Machine-readable semantic model made in the Web Ontology Language (OWL)
 - Human-readable Class Diagram



The Entity Relationship Diagram models the basic relationships that are assumed in the HMIS CSV Specifications. The HMIS Ontology and the Entity Relationship Diagram uses the HMIS Data Dictionary and CSV Specifications to create the Ontology Classes and ERD Tables. The Classes and Tables are not a 1:1 to the CSV Specifications but are instead representative to specific concepts in HMIS (i.e., Client, Enrollment, and Project). You can use the HMIS Logical Model too:

- Quickly get an overview of the HMIS data structures and how they relate to each other.
- Map between HMIS and other existing models for interoperability purposes

How to access the HMIS Logical Model

The FY2026 Logical Model is hosted on [HMIS-Logic-Model/urn_hud_hmis_owl.owl at main · HUD-Data-Lab/HMIS-Logic-Model](#).

- Entity Relationship Diagram: [FY2026 Entity Relationship Diagram - dbdiagram.io](#)
- HMIS Ontology
 - Human Readable Class Diagram: [WebVOWL](#)
 - Computer model made in the Web Ontology Language (OWL): [HMIS-Logic-Model/FY2026_HMIS_Logic_Model_RDF.owl at main · HUD-Data-Lab/HMIS-Logic-Model](#)

Differences from past versions of the HMIS Logical Models

Better alignment to the HMIS CSV Specifications.

The FY2026 HMIS Logic Model included additional items into the Ontology to allow for a better alignment to the HMIS CSV Specifications. The following items were included in the Ontology:

- **The inclusion of primary and foreign key:** The FY2022 Logic Model used relationship properties instead of foreign keys to define the relationships between classes. Relationship properties are defined as "object properties" (i.e., The relationship between the Classes "Project" and "Affiliation" is defined through the "has Affiliation" object property). While the FY2026 version retains object properties to support ontology-specific semantic functionality, it now also includes the primary and foreign keys for each class. These keys are defined as "Data Properties".
- **Inclusion of Metadata Class:** The FY2026 Logic Model created an additional Class called "Metadata". This Class represents the various meta data elements that exist in the CSV Specifications.
- **Annotation of Classes to relate them to the HUD CSV:** Each Class has a new annotation, "CSVTableReference", to allow the user to identify which CSV table the Class originated from. This can be used to help understand how the relationships defined in the ontology compare to the relationships defined in the ERD.

The data picklist values are defined in the HMIS Data Standards Dictionary and CSV Specifications. References to the FY2022 [HMIS XML Schema](#) will be updated when the XML schema replacement is finalized.

When the original FY2022 version of the Logic Model was developed, the primary HMIS resource for machine-readability was the HMIS XML Schema, and rather than redundantly defining data element response option lists within the ontology, the FY2022 Logic Model referenced the existing definitions present within the HMIS XML Schema. As of FY2026, the HMIS XML Schema is retired, but its replacement is not yet finalized. For this reason, the HUD Data Lab elected to retain the existing references to the FY2022 XML Schema for elements not impacted by intervening data standards updates. These references should be understood as informational only, and users should give priority to the list values established in the HUD HMIS CSV Format specifications for HMIS data elements. It is anticipated that a future iteration of the Logic Model will either include data element response option definitions within the ontology or will remap references to the anticipated replacement of the HMIS XML Schema.

The Logic Model OWL file is formatted as RDF/XML.

The published version of the Logic Model is formatted as an RDF/XML.

Available Tools

- [Protege](#): Stanford's open source editing software for OWL, used to make the HMIS Logical Model
- [Python RDFLib](#) and [Owlready2](#): Open source software libraries for reading and writing
- OWL and knowledge graph data in many formats
- [Java RDF4J](#): Open source software libraries for reading and writing OWL and knowledge graph data in many formats
- [TripleStores](#): to store your Knowledge Graph data

How to assist with the HMIS Logical Model

Submit [HUD HMIS Ask-A-Questions](#), and/or [post issues](#) to correspond with the Logical Model developers.

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