

Important Terms and Concepts

This document provides short definitions for:

Model Types

Conceptual Model	A conceptual model is a description of a content domain, such as education information, that consists of the significant concepts, and the relationships among the concepts, in the domain. Conceptual models can be represented as a formal ontology. A conceptual model does not take into account database technology or any other details concerning how the information will be represented by computers.
Logical Model	A Logical model is a rendering of a conceptual model that takes into account the technology that will be used to represent the information. The target technology for SIF is XML. However, the SIF logical model is also appropriate for use in relational database systems (RDBMS). Therefore, the SIF logical model defines objects, attributes, and the relations among entities using explicit cardinalities. UML is a framework for describing logical models.
Physical Model	A physical data model describes a logical model in terms of the implementation environment. The implementation environment includes the physical means by which data are stored, such as servers and disk drives, lookup tables, management tables, etc.; and the physical means by which data are moved, such as messages, document transfer, etc. SIF physical models will express data structures in XSD language. SIF data structures are moved using XML and JSON encoding. Relations between data structures are represented using SIF Reference Identifiers (RefIds, see below).

SIF Data Models

Global Core	The Global Core Model forms the basis for the logical model of all Locales, and is set up in order to facilitate easier alignment between locales. It is used to manage change in locales, so that alignment with other locales is enforced.
Locale	A Locale Data Model is meant to be a complete SIF standard for a country or region in which terminology and education organizations are similar.
Instance	A SIF Instance Data Model is a slight variation of a Locale Model based upon the needs of a particular implementation of SIF. The variations will be accomplished using SIF extension points and will be documented by the SIF Data Dictionary Tool. An instance model is intended to be associated with states, provinces, and local authorities.
SIF Entity Model	The SIF Physical Data Model will contain two broad types of SIF objects, namely, Entity-type objects and other types of objects. Entity objects (defined below) are special because they each represent a distinct concept. Entity objects, together, represent a sub-model that is normalized, queryable, and flexible.

SIF Design Patterns

Data Structure	This is a general term for a set of XML elements that are part of the same physical package.
SIF Object	An arbitrarily defined data structure. In SIF, an object is a root-level complex XML type. However, not all complex types are SIF objects. The SIF object is a convenient concept that does not exist in XML but does exist in modeling paradigms.
Entity Object	An Entity object represents a distinct concept taken from the logical and conceptual SIF models. The design of these objects is model-driven, not use-case-driven, so they may need to be combined to fit a particular use case. Examples of Entity objects include student, teacher, school, and student-school-enrollment.
Composite Object	A Composite object is an object designed for a particular use case or limited set of use cases. The object is usually made up of the combined parts of Entity objects. These objects are part of the SIF Physical Model but are not part of the Entity model (sub-model). An example of a Composite object is the StudentPersonal object from the US 2.6 specification. This object contains student information from the Student object in the Entity model as well as information from other objects.
Report Object	A Report object is designed to represent point-in-time information and can contain summary information, cross tabulations, or information associated with a range of entities. This is the same kind of information as would be contained in a typical report.

SIF Elements and Types

RefId	The Reference Identifier is a 32-digit hexadecimal number associated with an instance of a SIF data object which uniquely identifies the object instance.
SIF Base Type	A SIF Base Type is an XML simple type. These are data structures that involve one and only one element that should be applied uniformly throughout the data model. For example, the postal code in a US address can be defined as a character string consisting of five numerals, a dash, and then four more numerals. Using this XML simple type, postal code can be defined uniformly throughout the data model. Not all simple types in the SIF Data Model are SIF Base Types.
SIF Common Type	A SIF Common Type is an XML complex type. These are data structures that involve more than one element that should be applied uniformly throughout the data model. For example, the name of a person can be defined as first name, middle name, and last name. Using this XML complex type, name can be defined uniformly throughout the data model. Not all complex types in the SIF Data Model are SIF Common Types.
SIF Global Type	A SIF Global Type is a SIF Base Type or a SIF Common Type inherited from the Global Core data model.
SIF Code Set	A SIF Code Set is a closed set of values for a field (element) that can be defined as a set of values. In the SIF Data Model, Code Sets are specified in one of three ways: (1) an enumeration in the XML definition of the element in the data model, (2) an enumeration in a SIF Code Set file published separately from the Data Model, and (3) an enumeration (or range) published by an organization external to SIF. Number (3) is called an external code set and numbers (1) and (2) are called SIF Code Sets.