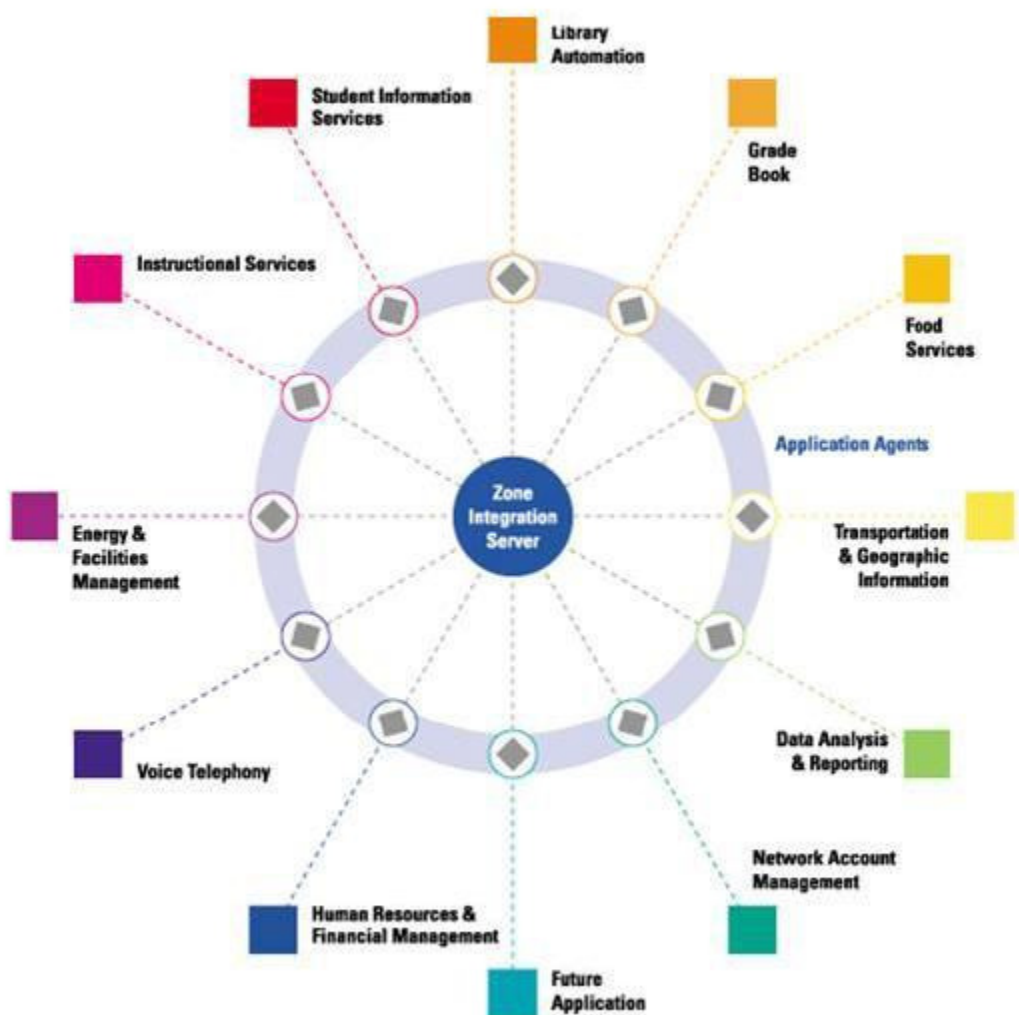# Systems Interoperability Framework™
SIF Implementation Specification (Australia) 1.1

December 23, 2010

This version:
http://specification.sifassociation.org/Implementation/AU/1.1/

Previous version:
http://specification.sifassociation.org/Implementation/AU/1.0/

Latest version:
http://specification.sifassociation.org/Implementation/AU/

Schemas

SIF_Message (single file, non-annotated) (ZIP archive)
SIF_Message (single file, annotated) (ZIP archive)
SIF_Message (includes, non-annotated) (ZIP archive)
SIF_Message (includes, annotated) (ZIP archive)
DataModel (single file, non-annotated) (ZIP archive)
DataModel (single file, annotated) (ZIP archive)
DataModel (includes, non-annotated) (ZIP archive)
DataModel (includes, annotated) (ZIP archive)
ServiceBodyDefinitions (includes, annotated) (ZIP archive)

Note: SIF_Message schemas define every data object element as optional per SIF's Publish/Subscribe and SIF Request/Response Models; *DataModel* schemas maintain the cardinality of all data object elements.

Please refer to the errata for this document, which may include some normative corrections.

This document is also available in these non-normative formats: ZIP archive, PDF (for printing as a single file), Excel spreadsheet.

1 Preamble

1.1 Abstract

1.1.1 What is SIF?

The Schools Interoperability Framework (SIF) is not a product, but a technical blueprint for enabling diverse applications to interact and share data related to entities in the pK-12 instructional and administrative environment. SIF is designed to:

Facilitate data sharing and reporting between applications without incurring expensive customer development costs;

Enhance product functionality efficiently; and

Provide best-of-breed solutions to customers easily and seamlessly.

The SIF Implementation Specification defines:

an XML-based messaging framework that allows diverse software applications to interoperate and share and report data related to entities in the pK-12 instructional and administrative environment;

an HTTP(S)-based transport for conveying these SIF messages;

an abstract, platform-independent definition of a message queue for reliable delivery of asynchronous SIF messages and related synchronous administrative functions—the *Zone Integration Server (ZIS)*; and

an abstract, platform-independent definition of the interface between a software application and the ZIS—the *SIF Agent*.

These are known collectively as the *SIF Infrastructure*. The SIF Implementation Specification also defines the *SIF Data Model*:

an XML-based data model that models entities in the pK-12 environment as *SIF Data Objects* to be shared between applications.

A *SIF Zone* is a distributed system that consists of a ZIS and one or more software applications with a SIF Agent (a *SIF-enabled application*) sharing/reporting one or more SIF data objects over a network. A *SIF Implementation* consists of one or more SIF Zones deployed and configured to meet customer data sharing and reporting needs.

The SIF Implementation Specification defines architecture requirements and communication protocols for software components and the interfaces between them; it makes no assumption of specific hardware or software products needed to develop SIF-enabled applications and Zone Integration Server implementations, other than their ability to support technologies leveraged as the foundation for SIF, most prominently XML and HTTP(S).

1.1.1.1 What is SIF (AU)?

SIF Implementation Specification (Australia) defines a set of data objects supporting the Australia's interoperability requirements for the education sector and combines this data model with established infrastructure protocols from the SIF Implementation Specification

[SIF]. SIF Implementation Specification (Australia) 1.1 leverages the SIF architecture and redefines the SIF infrastructure from SIF Implementation Specification 2.4 [SIF 2.4] to support its data objects, with an Australia-specific namespace and the data objects defined in this specification. Until such time as the SIF infrastructure is defined separately from its data objects, technical readers should note that the version number internal to SIF XML messages may differ from the version number of the corresponding specification. This is the case for SIF Implementation Specification (Australia) 1.1, which uses version 2.4 from SIF Implementation Specification 2.4, upon which it is based.

1.1.2 Schools Interoperability Framework Association

The Schools Interoperability Framework Association (SIF Association) is an industry initiative to enable interoperability and data sharing between software applications in the pK-12 instructional and administrative environment, and the forum for companies and educators to participate in the development of SIF specifications in the SIF Association's working groups and task forces. The SIF Association is designed to:

Join industry leaders in creating the next-generation framework for education technology; and

Leverage co-marketing opportunities with partners and distributors.

1.2 Disclaimer

The information, software, products, and services included in the SIF Implementation Specification may include inaccuracies or typographical errors. Changes are periodically added to the information herein. The SIF Association may make improvements and/or changes in this document at any time without notification. Information contained in this document should not be relied upon for personal, medical, legal, or financial decisions. Appropriate professionals should be consulted for advice tailored to specific situations.

THE SIF ASSOCIATION, ITS PARTICIPANT(S), AND THIRD PARTY CONTENT PROVIDERS MAKE NO REPRESENTATIONS ABOUT THE SUITABILITY, RELIABILITY, TIMELINESS, AND ACCURACY OF THE INFORMATION, SOFTWARE, PRODUCTS, SERVICES, AND RELATED GRAPHICS CONTAINED IN THIS DOCUMENT FOR ANY PURPOSE. ALL SUCH INFORMATION, SOFTWARE, PRODUCTS, SERVICES, AND RELATED GRAPHICS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. THE SIF ASSOCIATION AND/OR ITS PARTICIPANT (S) HEREBY DISCLAIM ALL WARRANTIES AND CONDITIONS WITH REGARD TO THIS INFORMATION, SOFTWARE, PRODUCTS, SERVICES, AND RELATED GRAPHICS, INCLUDING ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NON-INFRINGEMENT.

IN NO EVENT SHALL THE SIF ASSOCIATION, ITS PARTICIPANT(S), OR THIRD PARTY CONTENT PROVIDERS BE LIABLE FOR ANY DIRECT, INDIRECT, PUNITIVE, INCIDENTAL, SPECIAL, CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF USE, DATA, OR PROFITS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE USE OR PERFORMANCE OF THIS DOCUMENT, WITH THE DELAY OR INABILITY TO USE THE DOCUMENT, THE PROVISION OF OR FAILURE TO PROVIDE SERVICES, OR FOR ANY INFORMATION, SOFTWARE, PRODUCTS, SERVICES AND RELATED GRAPHICS OBTAINED THROUGH THIS DOCUMENT OR OTHERWISE ARISING OUT OF THE USE OF THIS DOCUMENT, WHETHER BASED ON CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE, EVEN IF THE SIF ASSOCIATION, ITS PARTICIPANT(S), OR THIRD PARTY CONTENT PROVIDERS HAVE BEEN ADVISED OF THE POSSIBILITY OF DAMAGES. BECAUSE SOME STATES/JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IF YOU ARE DISSATISFIED WITH ANY PORTION OF THIS DOCUMENT OR WITH ANY OF THESE TERMS OF USE, YOUR SOLE AND EXCLUSIVE REMEDY IS TO DISCONTINUE USING THIS DOCUMENT.

This specification is released with the following provisos to developers and educators.

1.3 Certification and Compliance Claims

Though a product may be demonstrated to comply with this specification, no product may be designated as *SIF Certified*™ by an organization or individual until the product has been tested against and passed established compliance criteria, published separately

[SIFCertification]. Organizations and individuals that are currently paying annual membership dues to the SIF Association and dedicating resources to the initiative may also use the designation *SIF Participant* to describe their involvement with the SIF Association and SIF in marketing, public relations and other materials.

Quick Table of Contents

Full Table of Contents

A Common Types

B Code Sets

2 Introduction

2.1 Specification Organization

Beyond the abstract and this introduction, educators and non-technical readers are typically interested in the pK-12 data objects that can be shared and reported on by SIF-enabled applications in SIF implementations. These are presented in the

Data Model section in a format that should not be a barrier to readers with a background that includes a brief introduction to [XML], though they may benefit from the introductory sections of Architecture. Technical readers, including software architects, developers and integrators, should have a solid background in Architecture, Messaging, Infrastructure and Data Model.

The Preamble provides an abstract of SIF along with the SIF Association disclaimer and details regarding certification and compliance claims.

This Introduction outlines the organization of the specification, provides conventions used in this document, and summarizes versioning of the specification. Highlights of additions/changes since the previous version of the specification are also provided.

Architecture describes the assumptions, concepts, models, and requirements related to the SIF infrastructure and data model.

Messaging details the actions Agents and Zone Integration Servers take when sending and receiving messages.

Infrastructure provides definitions of the XML structure of elements, messages and objects related to SIF infrastructure as opposed to data in the pK-12 environment.

The Data Model section provides definitions of the XML structure for common elements in the data model and all objects related to entities in the pK-12 environment. This section is organized by the working groups and task forces within the SIF Association that have defined common elements or objects.

The document concludes with various appendices including lists of code set values defined within SIF and in external documents, and ends with a list of references to other documents.

2.2 Document Conventions

2.2.1 Definitions

The first time a term or concept is defined, it may be *emphasized*.

2.2.2 Structure and Values

```
SIF message and object names, XML element tags, attribute names and values, and other codes or values are typically
presented as in this sentence.
```

2.2.3 Examples

```
Longer examples of XML or HTTP messages are typically numbered and presented as given here.
```
Example 2.2.3-1: Examples Convention

2.2.4 References

References to other works occuring in this text are given in brackets, e.g. [REFERENCE]. The text in brackets corresponds to a key in the

References appendix. Often when the text in the brackets duplicates surrounding text, the reference alone is used (e.g. [XML] instead of XML [XML]).

2.2.5 Terminology

The key words MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, OPTIONAL, when EMPHASIZED, are to be interpreted as described in

[RFC 2119].

2.2.6 XML Diagrams

Quick overviews of XML structures, including messages, objects, common elements and types, are provided in XML diagrams. The following diagram illustrates the conventions typically encountered in SIF.
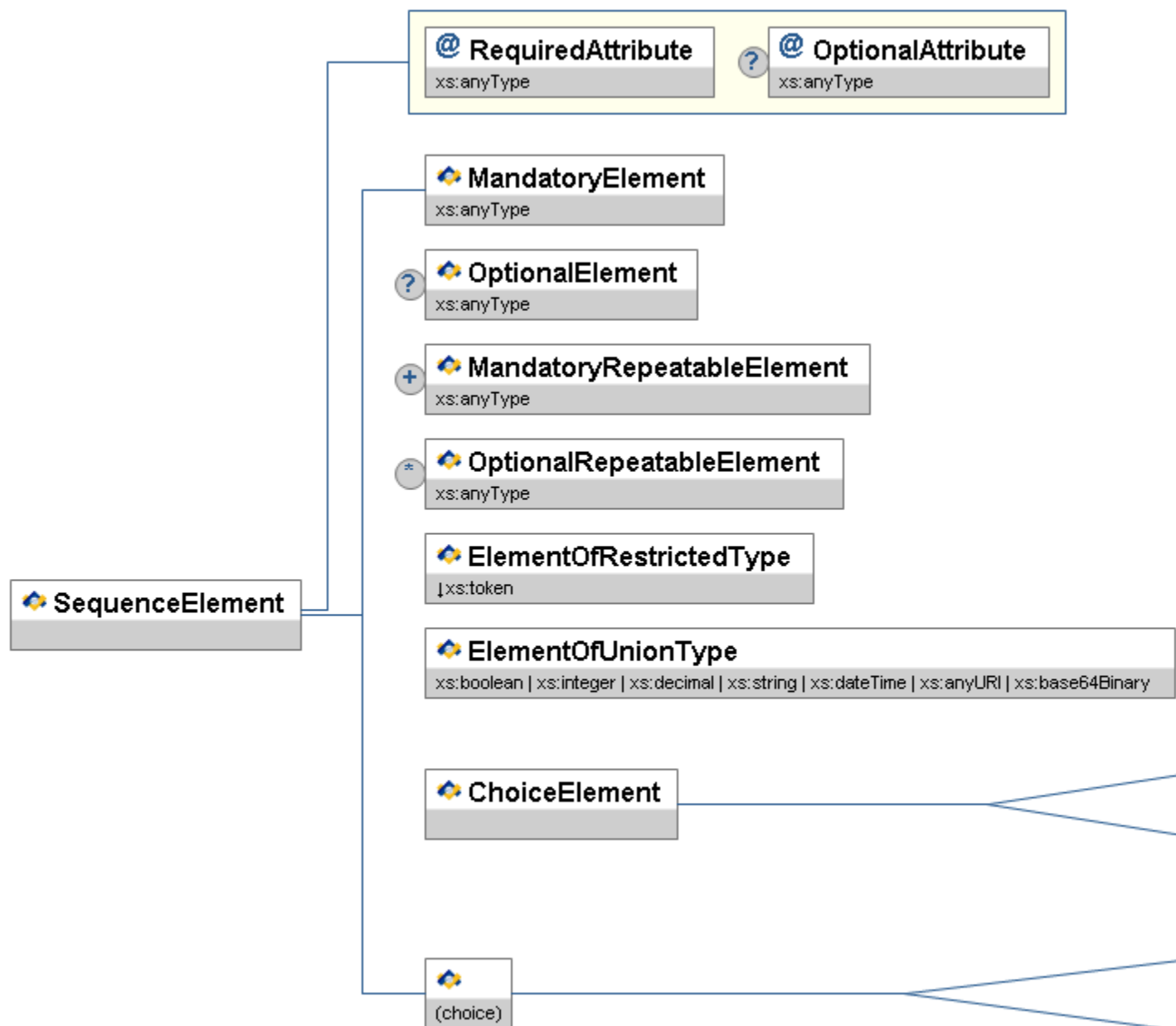
Figure 2.2.6-1: XML Diagram Conventions

XML elements are represented by rectangles with the name of the element in the upper portion and the type, if any, in the lower portion. Attributes are represented in the same fashion, but have an @ icon rather than a SIF icon. Elements and attributes that are optional have a circled ? (0 or 1 occurrence) to the left of the rectangle. Optional and mandatory repeatable elements are indicated by a circled * (0 or more occurrences) and + (1 or more occurrences), respectively. Element attributes are grouped together in a rectangular block and connected to the element with a line that turns at right angles. Ordered sequences of XML elements are

bracketed by lines that turn at right angles. When a choice of XML elements is indicated, the elements are bracketed by angled lines. A choice of elements can occur within an element, or may be an unnamed choice of elements.

XML types are represented using the same conventions as for XML elements, though the type portion of the rectangle typically indicates a base type, if any.

The type name of any element, attribute or type may be prefixed with a ↓, indicating the type is restricted in some fashion by one or more XML Schema facets (e.g. enumeration). When the type is a union of types, a list of types is presented, each type separated by ⌐; if the list of union types is long, the list may be ellipted with ⌐ . . .

In an actual XML diagram, element, type and attribute rectangles are usually linked to their corresponding definitions/descriptions in accompanying tables.

2.3 Version Numbers

The SIF Implementation Specification uses the following version numbering scheme:

major version.*minor version*ᵣ*revision number*

Major versions typically introduce additions/changes to the SIF infrastructure and/or data model changes that impact a significant percentage of SIF-enabled applications (e.g. making previously optional elements mandatory, removal of deprecated objects, elements or values). The first release of a major version has a minor version of 0 (2.0); major version numbers start at 1 and are incremented as major versions are released (1.0, 2.0, 3.0, ...).

Minor releases typically introduce new data objects, or optional additions to data objects, to the marketplace, and may include minor infrastructure additions/changes that do not impact existing SIF-enabled applications and that ZIS vendors have agreed to implement. The first minor version released subsequent to and within a major release has a minor version of 1 and is incremented as new minor versions are released (2.1, 2.2, ...). If a significant number of minor release features is introduced in a specification, the SIF Association may decide to increment the minor version number by more than 1 (e.g. 1.1 to 1.5), though a number like 1.5 is not an indication of being halfway to a major release, as minor version numbers may be incremented significantly past 10 (2.10, 2.11, ...) as data objects and other minor version features are released.

Corrections resulting from identified errata, as well as textual changes, may be incorporated into a revision release. These typically include minor corrections to messages or data objects, corrections of typographical errors, or corrected/expanded documentation. If major errors in any release are identified, a revision release may incorporate changes more typical of a major or minor release. First major and minor releases have a revision number of 0, which is omitted from the version number (2.0, not 2.0r0); subsequent revision numbers start at 1 and are incremented as new revisions are released (2.0r1, 2.0r2, ...).

2.4 Highlighted Additions/Changes

This release contains the following significant updates and extensions to the SIF specification.

Additions

SystemRole Object – New Object proposed by DSWG to support the ability to transfer information about the individual as well as their role in targeted downstream systems.

Address – Elements – Community, LocalId and AddressGlobalUID added.

Identity – Added additional Authentication source for OpenID

MaritalStatus – Added MaritalStatus to Demographics

DwellingArrangement/OtherCodeList – Added Other CodeList to DwellingArrangement in Demographics

Language/Dialect – Added Dialect to Language

CalendarDayDate – OtherCodeList, Teacher Attendance AdministratorAttendance as per US Data Model

StudentPeriodAttendance – Added AuditInfo and TimeIn, TimeOut

StudentPersonal – Added GiftedTalented and GraduationDate

StudentParticipation – ReferralDate, ReferralSource, ReferralSource/Code, ReferralSource/OtherCodeList, ProgramStatus, GiftedEligibilityCriteria, EvaluationParentalConsentDate, EvaluationDate, EvaluationExtensionDate, ExtensionComments,

ReevaluationDate, ProgramEligibilityDate, ProgramPlanDate, ProgramPlanEffectiveDate, NOREPDate, PlacementParentalConsentDate, ProgramPlacementDate, ExtendedSchoolYear, ExtendedDay, ProgramAvailability, ProgramAvailability/Code, ProgramAvailability/OtherCodeList, EntryPerson added.

StaffAssignment – StaffActivity and TeacherAssignmentList added.

AggregatedStatistics Objects – AggregatedStatisticFact, AggregaredStatisticFact, AggregatedCharacteristicInfo added.

Assessment set of Objects – Assessment, AssessmentItem, AssessmentRegistration, AssessmentSubTest, AssessmentForm, AssessmentAdministration, AssessmentPackage, StudentScoreSet added.

LearningStandards set of Objects – LearningStandardItem, LearningStandardDocument, LearningResource, LearningResourcePackage added.

Education Filter – Added LearningStandard items included in EducationFilter.

StudentContactRelationsip – Added ParentRelationshipStatus.

Changes

Demographics/VisaStatisticalCode – Changed Type to xs:normalizedString and Removed CodeSet.

Demographics/VisaSubClass – Added xs:string as a possibility for VisaCode.

3 Architecture

3.1 Assumptions

The following assumptions are made of non-technical readers of this specification, especially end users undertaking SIF implementations:

A passing familiarity with

[XML] and its use. Readers lacking this prerequisite are referred to [XMLINTRO] and other ubiquitous materials.

A familiarity with HTTP and HTTPS and the security, encryption and authentication features of the latter. These should be familiar to World Wide Web users.

A good understanding of the educational data that applications in an implementation store and would benefit from sharing, and the ability to identify equivalents in the SIF Data Model.

They should also be aware that there are numerous third-party products and services available to aid in SIF implementation and integration.

Technical readers implementing SIF software and software solutions, particularly those implementing SIF Agents and Zone Integration Servers from scratch as opposed to using or building upon third-party products and services, should have an understanding of:

The subset of HTTP 1.1 [RFC 2616] referenced in the SIF HTTPS and SIF HTTP Transport Layers.

Those portions of TLS 1.0 [RFC 2246], SSL 3.0 [SSL3] and SSL 2.0 [SSL2] that are applicable to the SIF HTTPS and SIF HTTP Transport Layers, including associated encryption, signature and authentication algorithms, including the use of X.509 certificates.

XML 1.0 [XML] and its references to Unicode and the UTF-8 Encoding.

The role and use of namespaces in XML [XMLNS].

Accessing XML elements/attributes using XPath [XPATH].

XML Schema data types and structures [XMLSCHEMA].

Relational database and message queue concepts.

It is furthermore assumed that implementers have at their disposal or can implement:

Adequate XML tools (e.g. parsers; parsers that can validate using XML Schema, if desired; simple XPath evaluators) as they develop SIF-compliant software.

Implementations of HTTP(S) that support the SIF HTTPS Transport Layer, and optionally, the SIF HTTP Transport Layer.

3.1.1 Notes on Related Technologies

Implementers are referred to

Notes on Related Technologies, which highlights technologies leveraged within SIF or related to SIF, either in their entirety or as a subset. This partially normative appendix points out specifics casual readers of referenced documents on these technologies must not ignore when implementing SIF Zone Integration Servers and Agents.

3.2 Concepts

This section presents the ideas behind the implementation of SIF, including the application and data models on which it is based. It serves as a precursor to further descriptions in following sections.

3.2.1 Data Model

The data that can be exchanged in SIF is defined using a series of data objects. These objects are expressed using

[XML] and are defined structurally by this document and associated schemas, with this document and supporting documentation defining the semantics behind the exchange of individual data objects. `StudentPersonal`, `StudentSchoolEnrollment` and `StaffPersonal` are three of the many predefined data objects.

3.2.2 Zone Architecture

Although there are many variations of SIF topographies, the common feature is that a number of applications wish to share data. All SIF implementations, regardless of their complexity, consist of one or more applications with their associated agents communicating via a Zone Integration Server (ZIS).

One typical use of SIF is to connect products from various vendors together within a single school. These applications could include a student information application, a food service program, and a library automation application. Each of these applications has a vendor-provided interface program called an Agent.

Since the same school shares these applications, it makes sense to group them together into a logical entity. This entity is referred to as a Zone and is managed by a Zone Integration Server (ZIS).

There are no predefined sizes for zones, so a zone can be as large or small as required in order to meet the needs of the customer.

An application relies on its agent to exchange data using a predefined data model. Agents then communicate with other agents using the ZIS as a routing resource. The ZIS also provides access control so the customer can control which applications have access to which SIF data.

3.2.2.1 Contexts

The Zone is the primary means of partitioning data, applications, and policies. Zones are typically organized around geographic boundaries (e.g. school, district, region, state) or functional boundaries (e.g. horizontal integration, student locator services, data warehousing and reporting services). A SIF Context offers the ability to further partition the data within a Zone, to offer different perspectives of the data based on customer needs and application abilities. For example, while a student information system typically serves as the source for student-related data in the default context of a zone that integrates applications in a school or district, a data warehouse might better be suited to provide a historical or longitudinal perspective of that exact same student data in a different context, a context more suited to the reporting and data warehousing needs of an implementation. Contexts enable customers and system integrators to work with data in new ways while retaining the zone topologies commonly in use in implementations.

In addition to offering different perspectives on a zone's data, contexts allow two or more agents to register as a provider of the same object type within a zone. This may lead to future solutions built around contexts; for example, to better define how systems that publish similar objects cooperate in the same zone (e.g. student information systems and special education packages). Contexts also make it easier to apply a different set of business rules to different audiences. Unlike zones, which can be named and assembled in a variety of ways at the discretion of system integrators, contexts are to be treated as a part of the specification. The SIF Association sanctions contexts and provides documentation that defines each context's purpose and any associated message choreographies and business rules for it. Contexts defined by the SIF Association have context names that begin with `SIF_` and the default context for a zone is named `SIF_Default`. It is RECOMMENDED that all ZIS implementations support the SIF Association-defined contexts as they are introduced; support for user-defined contexts is strictly implementation dependent, and agents are discouraged from relying on ad hoc or user-defined contexts.

3.2.3 Infrastructure and Messaging

Agents share data in a Zone via two models, the Publish/Subscribe model and the Request/Response model. Agents publish data changes of interest to subscribers by sending a `SIF_Event` message to the ZIS. Agents can also request or query data from other agents in a Zone by sending a `SIF_Request` message to an Agent, eventually being sent one or more `SIF_Response` messages in return. This exchange of messages over a SIF-defined transport layer, SIF HTTPS or SIF HTTP, is the primary feature that defines the SIF Infrastructure. Every message exchanged over this infrastructure is wrapped inside a `SIF_Message` and contains a `SIF_Header` element that specifies the source of the message and optional security, destination and context information. In addition to the messages exchanged between Agents via the ZIS, the SIF Infrastructure defines a number of messages that are exchanged between Agent and ZIS, and between ZIS and Push-mode Agent—these serve primarily to register various Agent settings at the ZIS and to support the exchange of messages between Agents.

3.2.4 Data Provision: A Request/Response Model

When an application (the *Requester*) wants to gather data from a specific data object, a SIF_Request message is sent to ZIS. The application may direct this request to a given *Responder* by specifying an Agent ID in the SIF_DestinationId element of SIF_Header. In most cases, however, the SIF_DestinationId element is omitted in which case the ZIS routes the request to the default responder, or *Provider*, for the data object of interest. Agents register as Providers with the ZIS using either the SIF_Provision or SIF_Provide message.

There is a single Provider per object per context per zone. There may be multiple Responders for a given object in a zone context.

In order to maintain control over what data is exchanged over the zone and who exchanges it, the ZIS must provide an access control system that limits who can provide, request, and respond to requests for which data objects. The access control system must maintain policies for each registered application.

If the requester knows or wants to control who the responder will be, it must place the responder's agent identifier in the SIF_DestinationId element of the header of the SIF_Request message. The ZIS will examine the SIF_Request message's header. If a SIF_DestinationId element is present, the ZIS must route the SIF_Request to the specified agent/application subject to the limitations imposed by the access control security policies for the zone. For instance, even though an application specifies that it wishes a specified application to respond, the zone security policy may prohibit the specified application from generating SIF_Response messages.

An application that wants to provide access to the data it contains via SIF may function as a responder. Such applications will support one or more SIF data objects. The application listens for SIF_Request messages for the objects that it supports. When it receives a SIF_Request for a supported object, the application will generate one or more SIF_Response messages containing the application's data, which will be routed by the ZIS to the requester. The responder must place the requester's agent identifier in the SIF_DestinationId element of the header for each SIF_Response message generated.

When an application receives a SIF_Request for a data object that it does not support, it must return a SIF_Response message with the SIF_Error element populated to indicate the nature of the error (invalid object), a SIF_PacketNumber of 1 and the SIF_MorePackets element set to indicate that no further packets will be sent in response to the SIF_Request.

3.2.5 Event Reporting: A Publish/Subscribe Model

Applications propagate data updates by publishing SIF_Event messages for the SIF data objects that are being added, changed, or deleted. In order for an application to receive these SIF_Events, subscriptions for the SIF data objects of interest must be entered at the ZIS. This subscription process is performed when an application sends a SIF_Provision message or one or more SIF_Subscribe messages to the ZIS. Once the subscriptions are entered, any SIF_Events for those objects received by the ZIS will be routed to the list of subscribers for those objects.

Once an application successfully sends a SIF_Event to the ZIS, the ZIS is responsible for delivering that SIF_Event to the subscribing parties without any further communication to the SIF_Event originator. The SIF_Event originator does not know how many applications, if any, receive the SIF_Event. No notifications are provided to the originator to indicate whether a SIF_Event was delivered to a subscriber or not.

The ZIS must maintain an access control system that limits who can publish and subscribe to events for which data objects.

Before an application can utilize the services of the ZIS, the application must register itself by sending a SIF_Register message to the ZIS. Once registered, an application does not have to perform any additional registration with the ZIS in order to be a publisher of SIF_Event data. Any application that has registered itself with the ZIS may publish SIF_Events subject to the limitations imposed by the access control security policies for the zone. It is recommended that event publishers register their ability to publish events by using the SIF_Provision message.

Multiple applications may publish SIF_Event messages for a given data object.

The application that is registered as the Provider for a given data object must be able to subscribe to SIF_Events for that object but the application is not required to subscribe to SIF_Events in a given SIF implementation.

An application that has subscribed to a SIF_Event must attempt to process the SIF_Event according to the business rules of the application. If the SIF_Event contains insufficient information or information that is inconsistent with the application's business rules, the application may ignore the message.

If an application publishes a SIF_Event as a result of changing the data within the application and the ZIS rejects the SIF_Event message, it is recommended that the application rolls back or cancels the changes that were made, but the application does not have to roll back the changes. For example, an application may attempt to add a new student and publish a SIF_Event to reflect the

addition. If the application does not have permission to publish SIF_Event messages for that type of object, the SIF_Event is rejected. The application does not have to remove the newly added student from its local database.

3.2.6 Communication: An Asynchronous Model

In order to ensure scalability and reliability, SIF requires that its request/response and publish/subscribe models be asynchronous in nature. Once a ZIS synchronously acknowledges receipt of a SIF_Event, SIF_Request or SIF_Response with the return of a successful SIF_Ack, an agent cannot be assured that these messages will immediately be delivered to subscribers, providers/responders or requesters, respectively, or that it will receive an immediate SIF_Response to any submitted SIF_Request.

The asynchronous communication model can be likened to communicating with someone via e-mail or through the postal office: an individual sends the message, but does not know when it will be received, much less when the receiver will respond.

By requiring asynchronous communications, a SIF implementation can exploit software designs that achieve high scalability and reliability. For example, even if an agent is not currently connected to a Zone, another application's agent can still send messages to that agent knowing that the ZIS will deliver those messages as soon as the agent is available.

In contrast to the asynchronous communication model, most agent-to-ZIS and ZIS-to-agent communication—over currently defined transport layers—is synchronous in nature. Any time an agent sends a SIF_Message to a ZIS, the agent waits for a SIF_Ack to be returned from the ZIS to acknowledge receipt of the message. Once acknowledged, the ZIS guarantees future delivery of SIF_Event, SIF_Request and SIF_Response messages, barring certain error conditions. For messages not directly related to the request/response and publish/subscribe models, the acknowledgement from the ZIS also indicates successful completion of operations related to registration, subscription, provision and system control operations. Relatedly, when a ZIS contacts an agent in Push mode, the ZIS waits for a SIF_Ack to be returned from the agent to acknowledge successful delivery of the message currently pending for the agent.

3.2.7 Security Model

The security model of SIF centers around three areas: encryption, authentication and access control. SIF provides application agents the ability to specify the encryption and authentication requirements for all other agents that eventually come into contact with their sensitive data. Various communication protocols over which SIF data may be transferred, including SIF HTTPS, provide built-in support for easing the implementation details of guaranteeing encryption and authentication requirements. In addition, access control at the ZIS allows a zone administrator complete control over which agents are allowed to communicate which data to other agents.

As SIF HTTPS is the default communication protocol that all agents and ZIS implementations must support, many of the encryption and authentication levels specified in this document are tailored to the encryption and authentication algorithms currently defined within SIF HTTPS. When a ZIS implementation supports other communication protocols, the ZIS must guarantee that these levels are accurately reflected and adhered to when communicating with agents that support these same protocols.

3.2.7.1 Encryption

Encryption provides the mechanism to ensure that only the sender and receiver of a message can view the message contents. In a totally secure model, all communications between agent and ZIS will be encrypted. The SIF HTTPS protocol, which must be supported by all agents and ZIS implementations, is a secure transport and provides encryption of the data being exchanged.

If additional communication protocols, or transports, are used, it is important to know if these transports are secure to avoid exposing sensitive data. SIF provides a method for an agent to specify to the ZIS how secure the channel between the ZIS and other agents must be when ultimately delivering the originating agent's sensitive data. ZIS implementations must guarantee the requested security levels when communicating with recipient agents, regardless of which transport is in use. If a ZIS is unable to ensure these security levels when communicating with a recipient agent, the ZIS must not transport the message across the insufficiently secure channel. It is recommended that the ZIS log the inability to deliver the message to the recipient agent due to security requirements.

The responsibility for guaranteeing the security of data that an originating agent transfers to the ZIS lies ultimately with the originating agent, or zone administrators. For example, if the originating agent requires a very secure channel for a given message, it should not intentionally or inadvertently communicate that message to the ZIS over an insecure or insufficiently secure channel, should the ZIS support such channels. At that point, the data has already been communicated insecurely. Zone administrators can prevent such occurrences by configuring the ZIS and agents within the zone such that a minimum security level is maintained, below which communication is impossible.

In many cases, the establishment of a secure channel and encryption can be delegated to the transport layer.

3.2.7.2 Authentication and Validation

The role of authentication is to provide a means to ensure that the author of a message is the actual author. Authentication guards against a situation where a foreign agent claims to be a legitimate zone participant and fakes a message to gain access or alter the SIF data.

Another important role of authentication is to provide the ability to detect that each message that passes through the Zone arrives at its destination unaltered by other intermediaries.

Authentication support is optional but highly recommended.

3.2.7.3 Access Control

SIF must be customizable for specific deployments. This particularly applies to customization for the security policies. For example, a SIF administrator can specify which applications can participate in the SIF deployment, which data objects each application can provide or request, and what events each application can produce and receive.

The access control requirements are discussed more fully under ZIS Requirements.

3.3 SIF Architecture

This section describes the architecture and components that make up SIF. It presents high-level functional requirements for each component and interfaces between them. More detail on particular requirements and interfaces may be found in

Messaging and Infrastructure.

3.3.1 Architectural Components

A SIF Zone is a distributed networking system that consists of a Zone Integration Server (ZIS) and one or more integration Agents. The size of a zone is flexible and could consist of a single building, school, a small group of schools, a district, a region, a state, a nation, etc. SIF is a scalable solution for data exchange. A SIF Implementation consists of one or more SIF Zones deployed and configured to meet customer data sharing and reporting needs.

A Zone Integration Server is a program that provides integration services to all the agents registered with it so that they can provide data, subscribe to events, publish events, request data, and respond to requests. It is responsible for all access control and routing within the Zone.

Each application requires an agent, which typically is provided by the application vendor, to communicate with other applications via the ZIS and their respective agents. For example, a school may use a student information application, a food service application, and a library automation application. Each of these applications must have an agent that acts as a go-between between the application and the Zone Integration Server.

In SIF, an agent never communicates with another agent directly. Instead, each agent communicates with the ZIS as a trusted intermediary that brokers the exchange of data with other agents. Having the ZIS manage routing responsibilities allows complex communications to occur between agents that have no direct information about each other and that may or may not be available for communication at any given point in time.

The following diagram illustrates a typical single-zone SIF implementation for a school.

Figure 3.3.1-1: Single-Zone School SIF Implementation

A zone is often defined according to physical boundaries; for example, a zone can consist of all the applications that are connected over a private network and managed by one organization, such as a school. Security, scalability, and manageability requirements can also influence the decision of how zones are designed and configured.

Zones are a flexible and powerfully creative tool for meeting the data exchange and reporting needs of users; zones can be as varied as the customers in the education marketplace. While a single school zone may meet the needs of a single school, SIF implementations can scale to meet the needs of specific end users through the use of multiple zones, sometimes managed by different ZIS implementations. Two examples of many multiple-zone implementation design patterns are included here for illustration.

In the first, the data exchange needs of a district are met through the use of four zones, one for the district, and three for schools within the district: elementary, middle and high school. Here a student information system provides its complete set of district-wide data to a district zone, while providing school-based views of and access to that data in the individual school zones. Library systems in this implementation are school-based, while the food services system, like the SIS, is district-based.
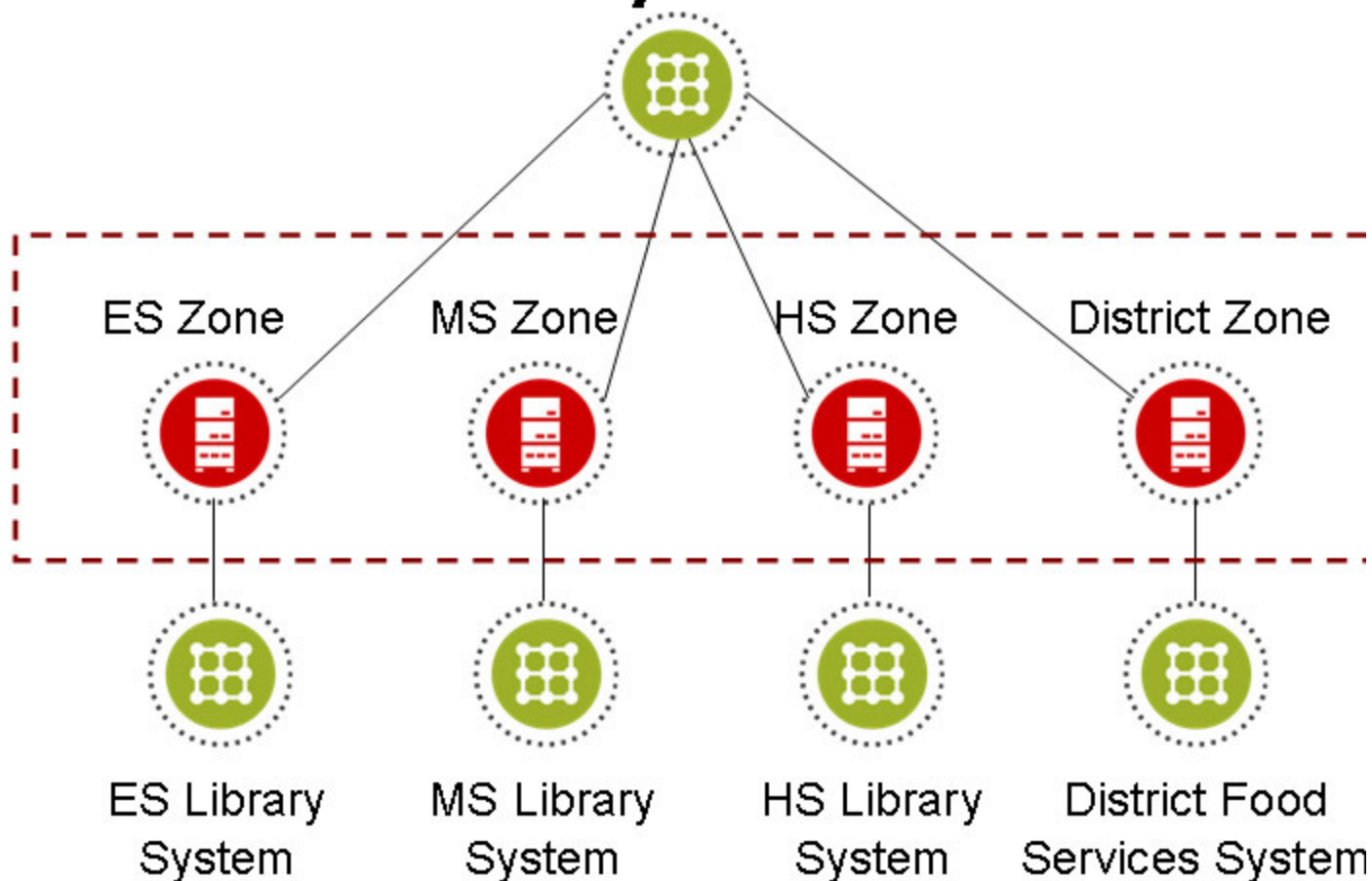
Figure 3.3.1-2: Multiple-Zone District SIF Implementation

The second example illustrates an agent communicating in both a district and a state zone. This agent could be associated with many different types of applications, including a SIS or data warehouse, reporting date up to the state, and so on.
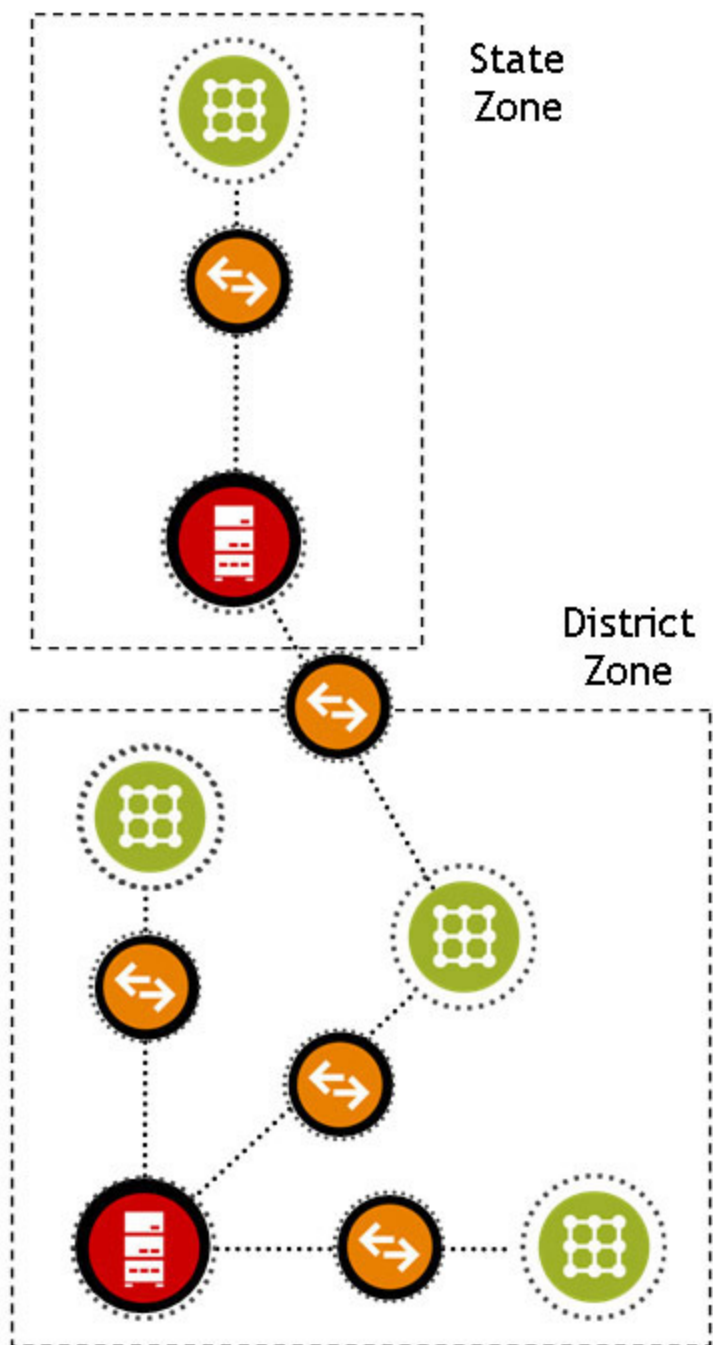
Figure 3.3.1-3: Multiple-Zone State SIF Implementation

Multiply the district portion of this diagram by dozens or hundreds of districts, each with its own local zone or configuration of zones, and the distributed scalability of SIF using zones is readily apparent.

3.3.2 Naming Conventions for Agents and Zone Integration Servers

SIF requires that each agent and ZIS be identified with a distinct case-sensitive identifier that is unique within a zone. This identifier is carried inside the SIF_SourceId element of the SIF_Header included in each SIF message and is used, among other things, at the ZIS to reference access control permissions of each agent within the zone. It is recommended that agent and ZIS implementations have user-configurable identifiers in order for zone administrators to maintain unique identifiers within the zone.

The identifier should be descriptive of the role of the application in the zone. For example, the library automation agent for Ramsey Elementary might carry the identifier RamseyLib instead of the less descriptive CC41Agent. The Zone Integration Server for Ramsey might be known as RamseyZIS.

3.3.3 Object Identifiers

Data objects and the data local to an application that map to these objects often must be retrieved by a unique identifier. Likewise there often exist relationships between data objects that require a unique key or identifier for efficient look-up of related data. SIF provides these keys or unique identifiers through object identifiers, also known as RefIds or GUIDs thanks to SIF naming conventions and the type of identifiers used in SIF, respectively. The `StudentPersonal` object, for instance, carries detailed information about a student, and most agents that manage or require student information reference the data stored in this object and often map the `RefId` of `StudentPersonal` to locally stored data, or request `StudentPersonal` objects from the zone by `RefId`. Objects often carry an attribute that identifies a particular object instance; this attribute is named `RefId`. It is imperative that `RefId`s not clash with any other `RefId`. This is especially relevant when an agent manages a database comprised of a mix of objects; for example, a library database containing patrons, which are a mix of both students and staff. To virtually eliminate the possiblity of duplicate object identifiers and to provide a consistent, decentralized way of generating these identifiers, SIF requires the use of a globally unique identifier (GUID) that MUST be generated per published algorithms

[RFC 4122] whenever a `RefId` is used. GUIDs in SIF have their own format; they MUST be 32 characters long and contain only valid upper-case hexadecimal characters (0-9, A-F) with no spaces or punctuation.

Object identifiers do not have to appear on any customer screens and they do not replace any identifiers currently in use by applications. Applications and application users users can still reference data as they always have. The GUID provides an additional key, which becomes the SIF primary key that agents use to reference an object within SIF.

As stated, object identifiers are also used to represent telationships between objects. Where referenced, `RefId` is typically prefixed with the object name, e.g. `StudentPersonalRefId` in `StudentPicture` refers to the `RefId` of the `StudentPersonal` object corresponding to the student photographed. Other more complex conventions surrounding object identifiers and RefIds can be found in Data Model.

3.3.3.1 Persistence

When used as identifiers for objects that persist over time—take for instance the `StudentPersonal` object that represents a student in a Zone—it is SIF's intent that object identifiers not change over time. The `RefId` attribute for John Doe in first grade should have the same value when John Doe is in second grade, in middle school or in high school. This persistence of object identifiers enables longitudinal tracking of data within SIF, especially where there exist no locally unique identifiers associated with objects. Implementations SHOULD avoid reassignment of object identifiers within a zone and as the primary home for individual objects may move from one zone to zone over time (e.g. a student moving from a middle-school to a high-school zone).

3.3.4 Agent/Application Requirements

Each application that wants to be a SIF application, or SIF-enabled application, must have an agent written for it. An agent is an extension to the application that communicates with the ZIS. An agent can be an integral part of an application itself, or may be a separate, specialized client of or interface to an application.

All applications that are part of a SIF zone must be able to gracefully handle all SIF messages including those messages and data objects that the application does not support. It is RECOMMENDED that the application return an error `SIF_Ack` message to the ZIS for those messages that the agent does not support (error category Generic Message Handling, error code "Message not supported"). An agent MAY return an "Immediate" `SIF_Ack` to the ZIS and ignore unsupported messages.

High-level functional requirements for all SIF-enabled applications include the following. More detail on particular requirements may be found in

Messaging and Infrastructure.

3.3.4.1 Communicate with the ZIS

Support for

SIF HTTPS is REQUIRED of all agents. An agent MUST be able to communicate with the ZIS using SIF HTTPS, but it may attempt to communicate with the ZIS using any communication protocol defined in this or other specifications. SIF HTTP is the other communication protocol defined in this specification at this time. Support for any communication protocol other than SIF HTTPS is implementation-dependent. If connection attempts in protocols other than SIF HTTPS fail, a connection over SIF HTTPS should be made in order for communication to proceed. Given the sensitive nature of much of the data within the zone, it is RECOMMENDED that all communication occur over SIF HTTPS or similarly secure communication protocols.

Given a communication channel between agent and ZIS, an agent is `REQUIRED` to register with the ZIS if it is not already registered or if it wishes to change or retransmit its registration settings. The `SIF_Register` message provides the ZIS information regarding agent capabilities and requirements, and allows the ZIS to contact the agent in the future if the agent is capable of accepting ZIS-initiated communications (a Push-Mode Agent).

An agent `MAY` also indicate its support for various data objects and associated messages using one or more of the `SIF_Provision`, `SIF_Provide` and `SIF_Subscribe` messages.

3.3.4.2 Transmit Application Changes to the ZIS

When an application makes changes to its data that correspond to a SIF object it supports, the application `MUST` be able to publish `SIF_Event`s reflecting those data changes. If the application/agent makes changes to its data in processing a `SIF_Event` it has received, it `MUST NOT` publish an event that duplicates the changes as described in the processed `SIF_Event`. Should the application/agent, however, make additional changes beyond those in the `SIF_Event` being processed, the application `SHOULD` generate a new event describing the additional changes.

If an application does not support an optional field of an object or that element was not changed during the last edit, it `MUST NOT` send an empty element, (i.e., <BirthDate/> or <BirthDate></BirthDate>); it `MUST` omit the element from the XML stream instead.

When publishing `Add` events, Agents `MUST` include all elements listed as mandatory in

Data Model for the object.

3.3.4.3 Respond to Requests

All agents `MUST` be prepared to handle `SIF_Request` messages for all objects gracefully. In the case where an agent receives a `SIF_Request` for an object that it does not support, in addition to acknowledging the receipt of the message to the ZIS it `MUST` send a `SIF_Response` message to the Requester with the `SIF_Error` element populated to indicate the nature of the error (invalid object), a `SIF_PacketNumber` of 1 and the `SIF_MorePackets` element set to indicate that no further packets will be sent in response to the `SIF_Request`.

If an application agent is a responder for any object, the agent must be prepared to process `SIF_Request` messages for that object. This involves the ability of the agent to traverse the application database and construct an XML response stream based upon the parameters of the query request. All responders `MUST` support `SIF_Query` and query conditions that reference root attributes of the object as well as any mandatory elements within the object, along with their mandatory attributes. Responders `SHOULD` support query conditions that reference optional elements and their attributes, when the application supports such queries. Responders `MAY` support `SIF_ExtendedQuery` and `MUST` register their support for `SIF_ExtendedQuery` using `SIF_Provision` and/or `SIF_Provide`.

When an agent is creating `SIF_Response` packets, it `MUST` attempt to ensure that each packet is no larger than the `SIF_MaxBufferSize` specified by the `SIF_Request`. If for any packet a single packet does fit within the supplied `SIF_MaxBufferSize`, the agent `MUST`, in addition to acknowledging receipt of the message to the ZIS, send a `SIF_Response` message to the Requester with the `SIF_Error` element populated to indicate the nature of the error, and the `SIF_MorePackets` element set to indicate that no further packets will be sent in response to the `SIF_Request`.

The `SIF_Request` message also contains `SIF_Version` elements that specify which SIF versions the responding agent should use when preparing the response packets. If a responding agent can support a single requested SIF version, it returns a response packet using that version. If more than one version is specified and the responding agent supports more than one of those versions it `SHOULD` respond with the highest version it supports. If the agent cannot support any requested SIF version, in addition to acknowledging receipt of the message to the ZIS, the agent `MUST` send a `SIF_Response` message to the Requester with the `SIF_Error` element populated to indicate the nature of the error, a `SIF_PacketNumber` of 1 and the `SIF_MorePackets` element set to indicate that no further packets will be sent in response to the `SIF_Request`.

If any other error occurs while creating `SIF_Response` packets for a given request, in addition to acknowledging receipt of the message to the ZIS, the agent `MUST` send a `SIF_Response` message to the Requester with the `SIF_Error` element populated to indicate the nature of the error, with `SIF_MorePackets` set to indicate that no further packets will be sent in response to the `SIF_Request`.

Agents supporting `SIF_Request`s `MUST` be able to return all of the object fields that the responding application supports or a subset of the fields as specified by the query request. For example, an Agent may request that only a student's graduation year be returned and not the entire `StudentPersonal` object. If the responder does not support a requested element, it `MUST NOT` exclude the object from the response stream. Any requested element that is unsupported is omitted from the response stream; when processing `SIF_Query` requests, parent elements of requested elements, including the object itself, are included in the response stream.

If an application does not support an optional element of an object, it MUST NOT return an empty element. The element MUST instead be omitted from the XML stream.

3.3.4.4 Changes Required to the Vendor's Application

Depending upon the type of architecture, the core application may need to be altered to ensure that the agent is able to forward changes to objects of interest to SIF. For example, an application that edits student data may need to be modified to capture the adds, changes, and deletes made to students and store them into a temporary repository until the agent can forward them to the ZIS. Other architectures provide the ability to trap these changes at a server level eliminating the need for any changes to the application itself.

To meet the SIF requirement of data robustness, it is highly RECOMMENDED that all changes to objects of interest to SIF be persisted using a database table, local message queue, or other highly reliable storage system. This specification allows for the ZIS and any or all agents to be offline at any given time. Without storing agent changes locally, these changes can be lost when the ZIS is temporarily unavailable; local storage allows these changes to be transmitted to the ZIS when it becomes available.

When an object is shared for the first time in SIF, it is the responsibility of the application making the object available to assign its object identifiers/primary keys, typically a RefId in the form of a GUID, before releasing that object to the zone in an Add event or in a SIF_Response. Some application databases are extended to include SIF object identifiers, others maintain mappings from SIF object identifiers to locally-defined keys.

If an application changes data that maps to a SIF object, it is RECOMMENDED that only the changed fields be sent to the zone. This will result in smaller message sizes and improved performance.

To avoid unintentional overwriting of data, unsupported fields or fields that have not been changed MUST NOT be sent to the zone using empty XML elements, (i.e. <Name Type="04"/> or <Name Type="04"></Name>); the fields MUST be omitted from the XML stream instead.

3.3.4.5 Support Authentication and Digital Signatures

Supporting authentication is not a requirement but it is highly RECOMMENDED to ensure that your agent will be able to communicate with any ZIS. SIF does not mandate the use of authentication, but it is feasible that many SIF implementations will require this functionality. This is especially true for installations that may use the Internet to transport data.

Typically the authentication and verification mechanisms that are built into the network operating system or transport protocol can be leveraged. If these services are available, authentication and verification take place completely within the underlying security package.

The SIF HTTPS protocol supports authentication between an agent and a ZIS. If authentication is enabled and properly configured, a message receiver (agent or ZIS) can trust the SIF HTTPS implementation to verify that the message in its entirety comes from the claimed sender.

3.3.4.6 Agent Local Queue

An Agent can be developed with a local queuing mechanism so that it can automatically cache incoming messages in a local queue and can acknowledge receipt of each message to the ZIS with "Immediate" SIF_Ack messages (which causes the ZIS to remove received messages from the agent's queue). Agents with an Agent Local Queue do not need to send any "Intermediate" SIF_Acks to the ZIS. Use of an Agent Local Queue can be used to locally support selective processing of messages, similar to the functionality provided by Selective Message Blocking; its use also allows more flexibility and robustness during application/system failure when successfully acknowledging events, requests and/or responses before performing the corresponding SIF_Event, SIF_Request and/or SIF_Response handling.

Agent Local Queue is not a required feature of any Agent. Agent developers can choose not to develop the Agent Local Queue mechanism since this is not part of the compliance requirements for the specification at this time.

3.3.4.7 Wildcard Version Support

It is possible for a SIF Zone to contain Agents written to different versions of the SIF Implementation Specification if a ZIS supports multiple versions in a Zone and has at least one version in common with all registered Agents. As such, it is possible for a SIF Zone to contain Agents that have no versions in common with other Agents. These Agents consequently have no ability to exchange SIF_Event, SIF_Request or SIF_Response messages, unless the ZIS provides message conversion as described in

"Multiple Version" Zones.

As message conversion is an implementation-dependent feature of a ZIS, it is RECOMMENDED that Agents register in Zones and request data using SIF_Version wildcards (see SIF_Register for format) that allow for the exchange of data between Agents supporting any subset of releases within a major release cycle of this specification (e.g. 2.* or * to accept any SIF_Message in the 2.x lifecycle). (Note that * allows messages from any major version to be delivered, which can be structurally quite different across major versions and pose development challenges, and is not particularly recommended for indicating the ability to receive messages from all versions within a major version release cycle.) This maximizes the ability of Agents to exchange messages and data in these Zones and, for customers, maximizes the utility of Zones supporting different versions of this specification.

Wildcard version support is particularly important for SIF-enabled applications that are not updated with each release of this specification. Furthermore, given that releases of the SIF Implementation Specification are on a more rapid release cycle beginning with version 2.1, typically smaller in scope than SIF Implementation Specification releases historically, it is anticipated that it will become more common for SIF-enabled applications in Zones to support different specification versions, and for more applications not to be updated with each release of this specification. Wildcard version support also allows applications to be SIF-enabled at any time in a SIF Implementation Specification major release cycle without risking the need to upgrade with the introduction of a new minor release of the specification, particularly when the new functionality offered by the specification does not apply to or impact the application.

Ignoring revision releases, the changes typical of releases within a given major version are limited to new data objects and optional additions to existing data objects (and optional infrastructure additions). This nature of a lower release being a subset of each higher release within a major release lifecycle—and of a higher release being a superset of each lower version—allows SIF-enabled applications access to the same elements they rely on at the time of their implementation from SIF messages defined by a number of SIF Implementation Specification versions. For associated implementation notes, see Wildcard Version Support Implementation Notes.

While wildcard version support in this specification is only RECOMMENDED, SIF-enabled application developers should be aware that this support may be mandatory in some SIF Certification Program product standards [SIFCertification] associated with a major release cycle, if application vendors wish to establish their applications as SIF Certified™.

3.3.5 Zone Integration Server Requirements

The Zone Integration Server is the central integration point for all the agents in a zone. Depending on the message type, a ZIS either saves information in the messages that it receives or forwards the messages to other appropriate agents.

The ZIS implementer is free to internally manage registration and access permissions information in any form that the implementer supports. In order to provide an example of how an administration system may be structured, this document describes a database consisting of an Access Control List and Zone Status.

3.3.5.1 Access Control List

A ZIS MAY maintain access control on whether a zone administrator has granted an agent permissions to register.

A ZIS MAY exhibit behavior with regard to the ACL that could be perceived by an Agent as if virtual tables exists defining the following information:

Field	Comments
Agent ID	The unique ID for an Agent (provided as the Source ID in a SIF_Register message)
Register	May this agent register in the zone?

Table 3.3.5.1-1: Register

An example of this virtual table, which defines which agents are allowed to register in the zone, might be as follows:

Agent ID	Register
RamseySIS	true

Table 3.3.5.1-2: Virtual Table Example (Register)

In addition, a ZIS MUST exhibit behavior with regard to the ACL that could be perceived by an Agent as maintaining per-context/per-object permissions for each message associated with SIF's Publish/Subscribe and Request/Response models. When an agent tries to inquire about a student's personal information, for example, the ZIS needs to check if the agent has the proper permission to request such information. Access control is needed to ensure that the information available in SIF only originates from and is accessible by authorized agents.

Field	Comments
Agent ID	The unique ID for an Agent (provided as the Source ID in a `SIF_Register` message)
Context Name	The name of the SIF Context to which the permissions apply
Object Name	The object being manipulated (e.g., `StudentPersonal`, etc.)
Provide	May this Agent register as the provider for this object in this context?
Subscribe	May this Agent register as a subscriber for this object in this context?
Publish "Add" Event	May this Agent publish "Add" events for this object in this context?
Publish "Update" Event	May the Agent publish "Update" events for this object in this context?
Publish "Delete" Event	May the Agent publish "Delete" events for this object in this context?
Request	May this Agent request this object in this context?
Respond	May this Agent respond to a request for this object in this context?

Table 3.3.5.1-3: Access Control

It is important to understand that this is a virtual table, defining the appearance of the functionality to the Agents, the actual implementation of this functionality is at the discretion of the implementers of a ZIS. An example follows:

Agent ID	Context Name	Object Name	Provide	Subscribe	Publish "Add" Event	Publish "Update" Event	Publish "Delete" Event	Request	Respond
RamseySIS	SIF_Default	StudentPersonal	true	true	true	true	true	false	true
RamseySIS	SIF_Default	LibraryPatronStatus	false	false	false	false	false	true	false
…	…	…	…	…	…	…	…	…	…

Table 3.3.5.1-4: Virtual Table Example (Access Control)

In addition to access control permission violations, attempts to register any of this functionality with the ZIS may fail due to other reasons; e.g. unsupported transport mechanisms, there already being a provider for an object, etc. As a result, an Agent SHOULD be able to gracefully handle corresponding error conditions or report those errors to a zone administrator.

3.3.5.2 Zone Status

The ZIS MUST maintain the status of the zone for implementation purposes, as well as for communicating this status to other agents, as defined in `SIF_ZoneStatus`, when requested. This status includes but is not limited to:

> product information about the ZIS;

> supported transport protocols, authentication methods and SIF versions;

> supported contexts (see below for more information);

> the currently registered agents, along with applicable registration settings and the current state of each agent; and

> lists of currently registered providers, subscribers, publishers, responders, and requesters.

Providing examples of virtual tables that illustrate storage of all the information associated with `SIF_ZoneStatus` is beyond the scope of the specification; implementers should refer to

`SIF_ZoneStatus` for requirements.

3.3.5.3 Zone Context Registry

Zone Integration Servers MUST maintain a registry of the contexts used in each zone in order to perform contextual message routing and to populate the `SIF_ZoneStatus/SIF_Contexts` element. This registry will always contain, at a minimum, the official list of contexts defined by the version of SIF that the ZIS supports. Beginning with SIF 2.0, that means that each zone will, at a minimum, support the `SIF_Default` context. A ZIS MAY support allowing additional contexts to be defined within the context registry at the discretion of the ZIS administrator. Access Control Lists within each context MUST also be able to be managed by the ZIS administrator. The set of permissions for each agent within each context MUST be able to be set differently than ACL permissions within a different context for the same agent.

An agent can obtain a list of all contexts currently defined in a zone by requesting the `SIF_ZoneStatus` object and enumerating the children of its `SIF_Contexts` element. An agent can determine its ACL permissions within the zone and each context by referring to the `SIF_AgentACL` object and enumerating the permissions and contexts defined within it.

3.3.5.4 Administration

A ZIS MUST provide an interface for Zone Administrators to configure zone settings, including access control permissions. Given the distributed nature of SIF, it is RECOMMENDED this be a Web-based interface. Some of the areas that require administration are:

Administration
> Start and stop the ZIS and/or set the state of the ZIS to "asleep" or "awake."

Security Policies
> A ZIS must provide an interface for administering access control permissions as described above.
> Administering the minimum `SIF_EncryptionLevel` for the zone (if only one encryption level is supported, configuration options are unnecessary).
> Administering the minimum `SIF_AuthenticationLevel` for the zone (if only one authentication level is supported, configuration options are unnecessary).
> It may also include installing client and server certificate administration.

Zone Settings
> If the ZIS supports more than one SIF version it must support configuration of which SIF versions are used in a zone.
> If the ZIS supports more than one transport protocol, it must allow for configuration of which transports agents can use to communicate, including limiting communication to SIF HTTPS.
> The ZIS must support configuration of the minimum acceptable `SIF_MaxBufferSize` for the zone.
> If message validation is supported and configurable, configuration to enable or disable message validation in a Zone should be available.

Logging
> Capture error and message logs to aid in tracking pending, successful and failed delivery of messages.

Reporting
> Report zone status and statistics.

Testing
> Provide a mechanism to "ping" Push-Mode agents.

3.3.5.5 Support Selective Message Blocking (SMB) to Resolve Deadlocks

3.3.5.5.1 Description

Selective Message Blocking is a feature that MUST be implemented by a ZIS to enable non-multitasking agents unable to persist portions of their message queue locally to request information from other Agents while processing a `SIF_Event` message, without causing communication "deadlock" between an agent and a ZIS.

This feature allows an agent to inform the ZIS with an "Intermediate" `SIF_Ack` message that the ZIS must temporarily stop delivering `SIF_Event` messages to the agent. The "Intermediate" `SIF_Ack` message must not be used by agents in response to messages other than `SIF_Event`. The ZIS, however, can deliver other agent-destined messages, `SIF_Request` and `SIF_Response`, to this agent. After it finishes processing the `SIF_Event` message this agent sends the "Final" `SIF_Ack` message to the ZIS, which will discard the blocked `SIF_Event` message and resume normal delivery of all messages, including `SIF_Event`s. SMB is supported for both Push and Pull modes.

3.3.5.5.2 Requirements

> If, after attempting delivery of a `SIF_Event` message to an agent, the ZIS receives an Intermediate `SIF_Ack` (`SIF_Status/SIF_Code`=2) from the agent, the event is blocked and all `SIF_Event` messages destined for the agent, whether already in the queue or that arrive while blocked, are considered frozen. The ZIS will not deliver any `SIF_Event` messages that are frozen.

> If no `SIF_Ack` at all is received, or if a transport error occurs, this `SIF_Event` must be considered an undelivered message. The next message to be delivered to the agent will be this event.

> The ZIS must not deliver another `SIF_Event` message to the agent until a "Final" `SIF_Ack` is received (`SIF_Status/SIF_Code`=3), giving the ZIS permission to discard the original event and resume event delivery. The `SIF_OriginalMsgId` in the "Final" `SIF_Ack` MUST contain the `SIF_MsgId` of the blocked `SIF_Event`.

> If `SIF_Event`s are frozen, the next message to be delivered is the oldest message that is not a `SIF_Event` message. Once `SIF_Event`s are unfrozen, all remaining messages in this agent's queue, including `SIF_Event`s, will be delivered in the order in which they have been received by the ZIS.

If the ZIS receives a `SIF_Wakeup` or `SIF_Register` message then the block on any frozen `SIF_Event` messages will be removed and the originally blocked message will be the next message delivered to the Agent.

3.3.5.5.3 Example

For a detailed example of SMB, see the

Selective Message Blocking (SMB) Example.

3.3.6 Message Processing

To ensure interoperability, SIF defines a set of messages that are exchanged between agents and Zone Integration Servers. The SIF messages are used to perform various operations such as provision, subscription, event reporting, request and response, and ZIS administration.

3.3.6.1 Message Validation

SIF recommends that each message receiver validate any incoming message to ensure that it is a valid SIF message. A message receiver should discard any messages that do not conform to the definition of `SIF_Message` and return an error to the originator of the message.

This specification will evolve over time to include new messages and modifications to messages that have been defined. Each agent and ZIS should explicitly define which version(s) of the specification they support and validate each incoming message according to its version.

The SIF Association provides an XML Schema

[SCHEMA] corresponding to this version of the specification for ZIS and agent implementations that choose to perform optional message validation. Implementations are free to include additional validation above and beyond the validation capabilities that XML Schema provides.

The schemas for all versions of this specification are available from the SIF Association and can be referenced by ZIS and agent implementations that choose to perform optional message validation. This allows implementations to choose schemas based on the particular version in use by an agent or a ZIS. SIF messages MUST NOT be transmitted with hard-coded references to DTDs, schemas or other validation mechanisms. The XML "doctypedecl" (<!DOCTYPE SIF_Message…) MUST NOT occur in SIF XML messages, nor should `xsi:schemaLocation` be used on `SIF_Message`.

The schemas for supported versions of the SIF Implementation Specification enforce ordering of elements and data typing within objects, as per the element tables given in Infrastructure and Data Model. In the event that ZIS and agent implementations choose not to perform message validation, ZIS and agent implementations must still send elements as ordered with the types specified in the element tables (i.e., well-formed AND valid XML must be sent for approved objects even if validation is known to be turned off). When XML validation is turned off, the sending of draft and locally-defined objects not included in the schemas becomes possible, and these objects may experimentally be sent as desired until they make their way into future versions of the specification and supporting schemas.

ZIS implementations are in the unique position of not only sending messages they themselves formulate; they also forward messages received from agents. When optional message validation is not being performed by a ZIS, it is possible that the ZIS may receive a well-formed but invalid XML message from a non-compliant agent. Under these circumstances, and being the routing mechanism it is, a ZIS is under no obligation to correct an invalid XML message it receives from an agent for delivery to other agents. Zone administrators can prevent invalid XML messages from being delivered if the ZIS supports message validation and they choose to turn that feature on, if configurable. Should it receive an invalid but well-formed message from an agent, a ZIS not performing message validation delivers the message like any other to destination agents.

3.3.6.2 Message Identification

Each message originating from an agent or ZIS needs to have a message identifier (`SIF_MsgId`) that is used to identify the message. In order to eliminate the possibility of duplicated message identifiers, and to provide a consistent way of generating these identifiers, SIF requires the use of a globally unique identifier

[RFC 4122] as message identifiers.

The reason that a unique identifier is required is that many messages are handled asynchronously in SIF. This means, for example, that `SIF_Response`s for a given `SIF_Request` message may not arrive until some time in the future. When the `SIF_Response` arrives, it

will contain the original SIF_MsgId but no other information about the original message is guaranteed to be provided. The message originator must ensure that it will be able to match up the SIF_Response with the original message based solely on the message identifier.

For further information concerning the generation of GUIDs, see [RFC 4122].

3.3.6.3 Message Security

Because of policy or legislation, providers of extremely sensitive data must never expose that data over an insecure channel. An insecure channel at delivery time is one whose levels of authentication (SIF_AuthenticationLevel) and data encryption (SIF_EncryptionLevel) fall below the values specified by the originating sender. Once the data is communicated to the ZIS, the originator of the message depends upon the ZIS to enforce the security levels requested and the ZIS must not deliver that message to recipient agents using an insecure channel. The originating agent requests the use of a secure channel at delivery time by incorporating a SIF_Security element in the header of the message. The SIF_Security element contains SIF_AuthenticationLevel and SIF_EncryptionLevel elements that define the minimum level of security a data transport channel must provide upon delivery. If a ZIS does not deliver a message due to insufficient security of the connection with a recipient agent, it is recommended that the ZIS log the inability to deliver the message due to security requirements.

The only SIF messages that currently originate with an agent and that are ultimately delivered to other agents are SIF_Request, SIF_Response and SIF_Event. An originating agent may add a SIF_Security element to all messages, but these three messages are the only ones where SIF_Security will be examined and processed by the ZIS. SIF_Security is used by an originating agent to specify the security requirements of the communication channel between the ZIS and any recipient agent at delivery time. The semantics of including the SIF_Security element on messages other than SIF_Request, SIF_Response and SIF_Event are reserved for future versions of the specification.

The specification provides several levels of authentication and encryption protection.

3.3.6.3.1 SIF_AuthenticationLevel

0

No authentication required and a valid certificate does not need to be presented.

1

A valid certificate must be presented.

2

A valid certificate from a trusted certificate authority must be presented.

3

A valid certificate from a trusted certificate authority must be presented and the CN field of the certificate's Subject entry must match the host sending the certificate.

The CN field is more commonly known as the "Common Name" field. SIF_AuthenticationLevel 3 requires that the CN contents match the host where the message was originated. For instance, a CN entry could be "sifinfo.org" or perhaps "207.95.37.30". If a ZIS at SifInfo.org (IP address 207.95.37.30) contacts an agent at MyAgent.sifinfo.org, the agent's SIF HTTPS transport layer can look at the CN entry in the certificate that was presented by the ZIS and compare it to the actual IP address of the ZIS. SIF_AuthenticationLevel 3 ensures that not only a valid and trusted certificate was presented but that the agent is actually communicating to the ZIS located at the IP address referenced in the certificate.

Because security is a cornerstone of the SIF specification, it is recommended that all ZIS and Agent implementations support client authentication as well as server authentication. When client authentication is being used, the connection first authenticates the server (the party that is being contacted) and if the authentication was successful, the server will request that the client present its certificate for authentication. In this manner, both the ZIS and the agent confirm that they are communicating with the proper parties.

Since client authentication is not universally available in all SIF HTTPS implementations, client authentication is only recommended. The need for client authentication is reduced somewhat by using asynchronous message delivery (Push mode) since the ZIS and the agent are both server type applications and will authenticate each other. The need for client authentication is greater for those agents polling for messages (Pull mode) because the ZIS never has to initiate contact with the agent.

3.3.6.3.2 SIF_EncryptionLevel

0

No encryption required

1

Symmetric key length of at least 40 bits is to be used

2

Symmetric key length of at least 56 bits is to be used

3

Symmetric key length of at least 80 bits is to be used

4

Symmetric key length of at least 128 bits is to be used

If a `SIF_Request`, `SIF_Response` or `SIF_Event` is received by the ZIS that does not contain a `SIF_Security` element, the ZIS assigns the lowest level (`0`) to both the `SIF_AuthenticationLevel` and `SIF_EncryptionLevel` requirements for the message, unless a Zone administrator has configured higher minimum encryption and authentication levels for the Zone. This means that the ZIS may distribute this message to any agent that has registered with the ZIS subject to the access control security provisions in place for the zone.

The lack of a `SIF_Security` element does not mean that the message will be transported in an insecure manner. Recipient agents communicating with the ZIS over secure channels will receive the message in a secure manner, consistent with the connection. Omitting the `SIF_Security` element simply allows for those agents that communicate over insecure channels to receive the message, should a zone allow for insecure channels. A zone administrator can prevent messages without `SIF_Security` elements being communicated over insecure channels by configuring the ZIS and agents in the zone such that a minimum security level is maintained, below which communication is impossible.

For ZIS and agent implementations that support communication protocols or transport implementations where the security of a channel cannot be determined at delivery time, it is recommended that the zone administrator configure the ZIS and agents in the zone such that a minimum security level is maintained, below which insecure connections cannot be established.

3.3.6.3.3 Notes on SIF_AuthenticationLevel

If authentication based on certificates is being used, care needs to be given to determine if Level 2 (anonymous certificates) will provide the necessary level of protection. With Level 2 authentication, it is possible to use a web browser to make secure connections to the ZIS using the certificates that are built into the browser. This level of authentication is what is used by almost all Internet transactions (stock trading, shopping, financial, etc.). Level 2 does expose the user to a risk of a "man-in-the-middle" attack that can't occur using Level 3 authentication.

Level 3 mandates that a certificate issued by a trusted authority, (i.e. school district), be installed in the web browser before the browser will be able to connect to the ZIS. This may place unnecessary burdens on the client especially if it is likely that authorized users may wish to connect to the ZIS using a variety of browsers.

3.3.6.3.4 Notes on SIF_EncryptionLevel

Weaknesses in a cipher algorithm aside, the major governing factor as to the strength of data encryption is the length of the cipher key. Thus a 128-bit implementation typically provides stronger encryption than an 80-bit implementation. Please note that support of some SIF encryption levels may be subject to export control, limiting distribution of all levels in all countries

[EXPORT].

There are also two main types of cipher algorithms. The first is called a symmetric cipher, which uses the same key to encrypt and decrypt the data. The second type is called public-key cipher, which depends upon using a private key of the sender along with the public key of the receiver. Because of the nature of public-key ciphers, a larger number of bits must be used to achieve a comparable level of encryption strength.

The `SIF_EncryptionLevel` bit sizes are based on symmetric ciphers. A table that lists the equivalent key length for a public-key cipher is listed below.

Symmetric Key Length	Public Key Length	Strength
40 bits	256 bits	Very weak, not recommended except for very minimal protection (i.e. prevents casual snooping but can be broken in minutes by knowledgeable attackers).
64 bits	512 bits	Weak. The current U.S. "standard" has been bumped up to 64 bits from 56 bits but the key length is still weak for sensitive data.
80 bits	768 bits	Moderate
128 bits	2048 bits	Strong, recommended for Internet

Table 3.3.6.3.4-1: Key Lengths

For more information regarding this topic, please refer to Chapter 7 of

[Schneier].

3.3.6.4 Message Robustness

It is important for SIF to guarantee message delivery no matter what happens during delivery of a message, including an unexpected network breakdown or system crash. This requires that each agent and ZIS save each message in permanent storage. At delivery time it is also possible, however, for a ZIS to be prohibited from delivering a message due to security requirements requested by originating agents for individual messages. If this occurs, it is recommended that ZIS implementations discard the affected message so that delivery of other messages may proceed. If the ZIS does discard the message, the ZIS MUST report a SIF_LogEntry event with the appropriate error category and code, containing a copy of the SIF_Header from the original message. In addition, it is recommended that the ZIS log the delivery failure to its own log.

When a message is delivered under normal circumstances by a ZIS, an agent will return an "Immediate" SIF_Ack or a SIF_Ack with any applicable error condition, signaling the ZIS that it may delete the message from permanent storage. In the case of events, agents may also return an "Intermediate" SIF_Ack to invoke Selective Message Blocking (SMB). In that case, the ZIS will not delete the current SIF_Event from permanent storage until the agent sends a "Final" SIF_Ack to the ZIS.

When a message is sent to the ZIS under normal circumstances by an agent, the ZIS returns a successful SIF_Ack or a SIF_Ack with any applicable error condition to indicate to the agent that it has in fact received the message and that the agent may delete the message from any permanent storage.

If a ZIS or agent encounters a transport error in sending a message, it is recommended that the sender retry sending the message. Transport errors where retrying the message is warranted include, but are not limited to, a connection close without a SIF_Ack returned, a transport error or a SIF_Ack with an error category of 10 indicating a connection cannot currently be established, etc. A ZIS in particular must retry delivery of messages from the agent queue until a SIF_Ack that removes the message from the agent's queue is received, subject to certain undeliverable error conditions (e.g. security requirements cannot be negotiated, maximum buffer size too small, etc.). Facing such error conditions, other potentially unresolvable transport errors, or if a SIF_Ack is returned with any other type of error category, the sender may decide not to retry or—when queued, to delete—a message to avoid a potential deadlock condition. Agents returning SIF_Ack messages with error conditions should be aware that such acknowledgements will remove the currently pending message from their delivery queue.

3.3.6.5 Message Cycle

All SIF messages follow the same model. The sender posts a message and receives a SIF_Ack back as a response. The posting of the message by the sender and the receipt of the SIF_Ack from the receiver constitutes one complete cycle. Agents and ZISes can function as senders or receivers, depending on the type of message. The message process is identical, regardless of the type of message being sent.

If for any reason a sender inadvertently resends a message with a given SIF_MsgId and the receiver detects this, the receiver may return a SIF_Status code indicating that it already has the message. This SIF_Status code is considered a success; the receiver simply discards the duplicate message and continues handling of the original message.

3.3.6.6 Message Delivery

There are two models for delivering messages to an agent, "Push" and "Pull." An agent specifies which mode it wants to use when it registers with the ZIS.

"Push" refers to the action by a ZIS to actively deliver messages to an agent without the agent having to initiate contact with the ZIS. When the ZIS receives a message for an agent and the agent is not in "Sleep" mode; the ZIS will initiate contact with the agent and send the message to the agent.

"Pull" refers to the action by an agent to explicitly request a single message from the ZIS. When an agent is ready to receive a message, it sends a "Pull" request to the ZIS, to obtain a message that the ZIS has saved in the queue for the agent. After receiving the pull request, the ZIS will examine the agent's queue and either returns a message or a status code indicating that no messages are available for the agent.

Both modes serve useful purposes. The key requirement is that both an agent and its ZIS must communicate using the SAME mode to avoid potential conflicts.

At delivery time, be it in push or pull mode, a ZIS may encounter messages that it is prohibited from delivering, e.g. due to security requirements requested by originating agents for individual messages, etc. If this occurs, it is recommended that ZIS implementations discard the affected message(s) so that delivery of other messages may proceed. If the ZIS does discard a message, the ZIS MUST report a SIF_LogEntry event with the appropriate error category and code, containing a copy of the SIF_Header from the original message. SIF_LogEntry/SIF_Desc must contain the SourceId of the agent that has failed to receive the message. In addition, it is recommended that the ZIS log the delivery failure to its own log.

3.3.6.6.1 The "Push" Model

When an agent has registered using the "Push" mode, the agent assumes that the ZIS will open a transport connection and send the next available message to the agent. An agent can reply to the sent message with an "Immediate" or optionally—in the case of `SIF_Event`s—an "Intermediate" `SIF_Ack`, invoking Selective Message Blocking (SMB); it can also reply using a `SIF_Ack` with any applicable error condition. "Immediate" or error `SIF_Ack`s remove the current message from the agent's queue, freeing any remaining or future messages to be delivered to the agent. A "Final" `SIF_Ack` sent to the ZIS will terminate SMB, removing the frozen event from the agent's queue, freeing any remaining or future messages to be delivered to the agent.

3.3.6.6.2 The "Pull" Model

When an agent has registered using the "Pull" mode, the agent requests a message from the ZIS by sending a `SIF_GetMessage` message to the ZIS.

An agent can only issue a `SIF_GetMessage` to request a message if the agent has previously sent a successful `SIF_Register` message specifying Pull mode. If the ZIS receives a `SIF_GetMessage` request and the agent hasn't registered using the Pull mode, the ZIS must return a `SIF_Ack` containing an error category of Registration and an error code indicating that the agent has registered using Push mode.

After receiving a `SIF_GetMessage` request from an agent, the ZIS will return the next message available for delivery to the agent, subject to Selective Message Blocking. The criteria used to select the message are identical to that used if the ZIS were to Push a message to an agent.

If a message is available for the agent, the ZIS will return a `SIF_Ack` message with a `SIF_Status/SIF_Code` of `0` and `SIF_Status/SIF_Data` containing the message from the queue:

```xml
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>ABCD1058E028D076F083738296372D4E</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1058ABCDE028D076F083283BC63E6276</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
      <SIF_Data>
        <SIF_Message Version="2.3">
          <SIF_Event>
            <SIF_Header>
              <SIF_MsgId>AB34DC093261545A31905937B265CE01</SIF_MsgId>
              <SIF_Timestamp>2006-02-18T08:39:12-08:00</SIF_Timestamp>
              <SIF_SourceId>RamseyLib</SIF_SourceId>
            </SIF_Header>
            <SIF_ObjectData>
              <SIF_EventObject ObjectName="StudentPersonal" Action="Change">
                <StudentPersonal RefId="D3E34B359D75101A8C3D00AA001A1652">
                  <PersonInfo>
                    <Name Type="LGL">
                      <FamilyName>Smith</FamilyName>
                      <GivenName>Fred</GivenName>
                      <FullName>Fred Smith</FullName>
                    </Name>
                  </PersonInfo>
                </StudentPersonal>
              </SIF_EventObject>
            </SIF_ObjectData>
          </SIF_Event>
        </SIF_Message>
      </SIF_Data>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 3.3.6.6.2-1: The "Pull" Model - SIF_Status/SIF_Code of 0

When a pull-mode agent supports multiple SIF specification versions, the version of the `SIF_Ack` message returned by the ZIS must match the version of any `SIF_Message` contained in `SIF_Status/SIF_Data`. For example, if an agent supports versions 1.1 and 1.5 (or 1.*) and the next message in the agent's queue has a `SIF_Message/@Version` value of `1.5`, the `Version` attribute of the `SIF_Ack` message returned by the ZIS must be `1.5`, even if the pull-mode agent sent its `SIF_GetMessage` in a 1.1 `SIF_Message`. For an agent that supports both 1.1 or later versions and pre-1.1 version(s) (e.g. 1.0r2), when the next message in the agent's queue is from a pre-1.1 agent, the ZIS must return the message in a `SIF_Ack` message as defined by the pre-1.1 specification.

A pull-mode agent removes the returned message from its queue in one of three ways. In each case the value for the `SIF_OriginalMsgId` element in any `SIF_Ack`(s) created by the agent originates from the `SIF_MsgId` of the `SIF_Message` returned as `SIF_Data` by the ZIS. Typically a pull-mode agent removes the message from its queue by sending an "Immediate" `SIF_Ack` to the ZIS; an agent may also send a `SIF_Ack` with any applicable error condition to the ZIS. The ZIS then removes the message from the agent's queue and returns a successful `SIF_Ack`. If the message is a `SIF_Event` and the agent wishes to invoke SMB, it can instead notify the ZIS that it is processing the event by sending an "Intermediate" `SIF_Ack` (which the ZIS acknowledges with a successful `SIF_Ack`) and later sending a "Final" `SIF_Ack` when the `SIF_Event` processing is complete. When the ZIS receives the "Final" `SIF_Ack`, it removes the `SIF_Event` from the agent's queue and returns a successful `SIF_Ack`.

If there are no messages in the agent's queue that can be delivered, the ZIS will return a `SIF_Ack` message with a `SIF_Status/SIF_Code` of `9` to indicate that there are no messages available for the agent:

```
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>ABCD1058E028D076F0835E32AC89E048</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1058ABCDE028D076F08365109BE7C892</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>9</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 3.3.6.6.2-2: The "Pull" Model - SIF_Status/SIF_Code of 9

3.3.6.6.3 "Multiple Version" Zones

It is possible for a zone to contain agents written to different versions of the SIF Implementation Specification if a ZIS supports multiple versions in a zone and has at least one version in common with all registered agents. It is possible that two agents in the same zone—both successfully registered—have no version in common, and this affects message delivery by the ZIS in the following manner.

When the next message to be delivered to a given agent has a `SIF_Message/@Version` attribute that the agent is known not to support, the ZIS cannot successfully deliver that message to the agent without conversion. Should a ZIS implementation choose to convert messages on the fly as a "value-add" feature, it is free to do so; this specification does not prescribe how to convert messages, and support for such conversion is implementation-dependent. However, if the ZIS does not or cannot convert the message such that it can be delivered, it should discard the pending message so that delivery of other messages may proceed. If the ZIS does discard the message, the ZIS MUST report a `SIF_LogEntry` event with the appropriate error category and code, containing a copy of the `SIF_Header` from the original message. `SIF_LogEntry/SIF_Desc` must contain the SourceId of the agent that has failed to receive the message. In addition, it is recommended that the ZIS log the delivery failure to its own log.

3.3.7 Infrastructure Transport Layer

The Infrastructure messages are used by SIF to encapsulate and transfer the data objects. They form a messaging application program interface (API) which is expressed in XML.

It is a design objective to express the entire Infrastructure API in XML and not to have dependencies upon any underlying transport layer to provide functionality other than the transportation of the XML from client to server and back. This ensures that the Infrastructure messages can be carried over a variety of communication transports.

The infrastructure depends upon the transport layer to provide a reliable connection to move messages back and forth from client and server. The transport layer is also responsible for providing data security by means of data encryption and authentication of the client and server. Some transport layers even provide data compression, which is an important factor when processing a large volume of XML messages.

By delegating the authentication, compression, and encryption to the transport layer, it makes the user interface to the transport simpler. A client that wishes to send an infrastructure message assembles the message in XML and then hands it off to the transport layer for delivery. The transport layer takes the XML message and transfers it to the server where it is taken from the transport layer and processed.

In moving from the client to the server, the transport may have compressed, encrypted, and authenticated the connections but all of this is transparent to the users of the Infrastructure API. To the user, it is XML in and XML out.

Different types of transports are or will become available providing various features and benefits. An Agent or ZIS MAY employ multiple transport protocols but they MUST support SIF HTTPS.

Please note that throughout this specification transport layer errors are sometimes illustrated as `SIF_Ack` messages with `SIF_Error/SIF_Category` of Transport and applicable error codes. Under many transport error conditions, these `SIF_Ack` messages could not be returned or sent by the remote host. Depending on the SIF infrastructure transport layer implementation these messages may be generated by the implementation (e.g. when a connection to a server cannot be established), or may occur as transport layer errors or exceptions in the underlying network operating system or transport protocol. Both should be treated equivalently.

3.3.7.1 SIF HTTPS Transport

In order to ensure that Agents and Zone Integration Servers can communicate with each other regardless of vendor or platform, all Agent and ZIS implementations MUST support the SIF HTTPS transport layer protocol.

SIF HTTPS is a combination of the HTTP 1.1 protocol

[RFC 2616] with secure socket layer (SSL) protocols, resulting in an easy-to-use and secure transport protocol. The RECOMMENDED SSL implementation is TLS 1.0 [RFC 2246]; however, SSL 3.0 [SSL3] is also supported and SSL 2.0 client hellos [SSL2] used to negotiate TLS 1.0 or SSL 3.0 connections are also permitted. Support for the SSL 2.0 protocol itself—aside from its client hello message—is not provided in SIF. Due to the age of the SSL 3.0 and SSL 2.0 protocols and the increasing prevalence of TLS 1.0, The SIF Association expects to deprecate support for the SSL 3.0 protocol and SSL 2.0 client hellos in future major releases of this specification.

Being based upon HTTP 1.1, the SIF HTTPS and SIF HTTP protocols support persistent or keep-alive connections that greatly increase the message throughput between sender and receiver. This is an especially important factor when using HTTP in conjunction with secure socket layers, where there is a significant amount of overhead when initially opening a connection.

When using HTTP 1.1 with SIF, [RFC 2616] can be used as a reference, however SIF uses a subset of the HTTP 1.1 protocol. For example, only the POST method and the 200-OK response notice are used by the SIF HTTPS protocol.

Support of Transfer Encoding and data chunking ([RFC 2616], Section 3.6) is not required for SIF HTTPS. An implementation of the protocol may support Transfer Encoding and data chunking but it must be able to communicate successfully with a client or server that does not support this feature.

Because protocol changes are handled at the Infrastructure XML API level, a client or server must not use the `Connection: Upgrade` or `Upgrade: xxx` headers to invoke a request for a protocol change. If a client or server receives an upgrade header, it must ignore that header and not change communication protocols.

3.3.7.1.1 HTTPS Request/Response Model

A client is the party (Agent or ZIS) who initiates a connection to a remote machine. The remote end (ZIS or Push-Mode Agent) is known as the server.

A client using the SIF HTTPS protocol opens a connection to the server and sends a HTTP 1.1 POST request with the SIF Infrastructure XML message as the POST payload. The server responds with an HTTP response with the Infrastructure XML acknowledgement message as the response payload. Clients MUST encode the XML message using UTF-8; servers MUST be able to process UTF-8-encoded XML and SHOULD expect all incoming SIF XML messages to be encoded using UTF-8.

The default behavior for HTTP 1.1 is to use persistent or "keep-alive" connections. When operating in this mode, the client may send additional POST requests and receive the HTTP responses using the same connection. Clients SHOULD use persistent connections for performance reasons but MUST be able to use non-persistent connections if the server does not wish to use persistent connections.

3.3.7.1.2 HTTP Request Headers

The following HTTP request and common headers defined in

[RFC 2616] MUST be present in all SIF HTTPS messages sent by a client:

Header	Description	Required Contents
Content-Length	The exact size of the attached payload (XML message)	

Header	Description	Required Contents
Content-Type	Describes the contents of the request. Firewall and web server programs can filter messages going through a network by examining this header.	application/xml;charset="utf-8"
Host	Specifies the Internet host and port number of the destination server	

Table 3.3.7.1.2-1: HTTP Request Headers

Note that all header values MUST conform to the requirements of

[RFC 2616] and MAY take equivalent forms subject to those requirements (e.g. `application/xml;charset=utf-8` (no quotes), `application/xml; charset=utf-8` (optional spacing), etc.).

In addition to the headers above, a client may include a `Connection: close` header in the HTTP request if it wishes to close the current connection after receiving the response. If this header is included, the client MUST NOT send additional requests on this connection. The client MUST close the connection after receiving the response.

Clients may also include an "Expect: 100-continue" header (see below).

Additional headers beyond the required and optional headers listed here MAY be included by a client; however, the server MUST be able to successfully process POST requests that only contain the required headers.

```
POST /MyPath HTTP/1.1
Content-Length: 420
Content-Type: application/xml;charset="utf-8"
Host: sifinfo.org:8000

<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>56409F0C01FBD1C44300B4518E100765</SIF_MsgId>
      <SIF_Timestamp>2006-04-11T18:18:13-05:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestAgent</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_Ping />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 3.3.7.1.2-1: SIF HTTPS Request

Implementations of SIF HTTPS MUST be able to specify the value for the path (`/MyPath` in the example) as the Agent or ZIS may require a specific value for routing purposes.

3.3.7.1.3 HTTP Response Headers

The following HTTP response and common headers defined in [RFC 2616] must be present in all SIF HTTPS responses messages sent by a server:

Header	Description	Required Contents
Content-Length	The exact size of the attached payload (XML message)	
Content-Type	Describes the contents of the request. Firewall and web server programs can filter messages going through a network by examining this header.	application/xml;charset="utf-8"
Date	The current date and time in the format described in RFC 2616 Section 3.3. Note that the date is UTC based and NOT local time.	
Server	Identifies the server sending the response. Clients may use this information to infer information about the server being contacted (vendor, model, version, capabilities, etc.)	

Table 3.3.7.1.3-1: HTTP Response Headers

Note that all header values MUST conform to the requirements of

[RFC 2616] and `MAY` take equivalent forms subject to those requirements (e.g. `application/xml;charset=utf-8`, `application/xml; charset=utf-8`, etc.).

In addition to the headers above, a server `MAY` include a `Connection: close` header in the HTTP response if it wishes to close the current connection after sending the response. The server `MUST` close the connection after sending the response.

The server `MAY` include additional headers; however, the client `MUST` be able to successfully process response notices that only contain the required headers and optional header listed here.

```
HTTP/1.1 200 OK
Content-Length: 529
Content-Type: application/xml;charset="utf-8"
Date: Mon, 02 Apr 2001 23:32:00 GMT
Server: SIFZIS;V1.1

<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>4A900E10F4E675CF4A01B4518E100765</SIF_MsgId>
      <SIF_Timestamp>2006-04-11T18:18:13-05:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>SifInfo_TestAgent</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>56409F0C01FBD1C44300B4518E100765</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 3.3.7.1.3-1: SIF HTTPS Response

Although the SIF HTTPS protocol uses the 200-OK response notice to communicate all responses, Agent or ZIS implementations could be built using existing web server infrastructures. As such, SIF HTTPS implementations should expect the possible receipt of other HTTP 1.1 response notices.

3.3.7.1.4 100 (Continue)

This response message status is generally returned if the client has included an `Expect: 100-continue` header in its request. Certain web server implementations return a 100 (Continue) status response even though the original request did not contain an `Expect: 100-continue` header. When a client receives an unexpected response with a 100 (Continue) status, it must discard that response and wait for a subsequent final (e.g. 200-OK) response. Clients explicitly requesting a 100 (Continue) status response by including an `Expect: 100-continue` header in a request should proceed with the request body according to section 8.2.3 of the HTTP 1.1

[RFC 2616] specification upon receipt of the 100 (Continue) status response.

A SIF HTTPS client may include an `Expect: 100-continue` header but generally does not. If it does, however, servers (ZIS and push-mode agent implementations) must handle the header according to section 8.2.3 of the HTTP 1.1 [RFC 2616] specification, possibly returning an intermediate response with 100 (Continue) status, for communication to proceed correctly.

3.3.7.1.5 3XX, 4XX, 5XX Notices

A server should only return 200-OK response notices but may return other notices. Servers built using existing web server technology are more likely to return other types of response notices. If a client receives any 3xx, 4xx, or 5xx response notices, it must treat these responses as if a transport error has occurred.

3.3.7.2 SIF HTTP Transport

The SIF HTTP protocol is identical to the SIF HTTPS transport without a secure socket layer to provide data encryption and authentication.

An Agent or ZIS `MAY` implement the SIF HTTP transport but `MUST` implement the SIF HTTPS protocol.

Because of the sensitive data being exchanged in SIF, it is `RECOMMENDED` that only SIF HTTPS be used.

3.3.7.3 SIF HTTP(S) Transport Compression

It is possible that compression can improve network throughput in SIF implementations where large amounts of data are transferred over SIF HTTP(S), either horizontally or vertically. The HTTP 1.1 specification

[RFC 2616] allows for negotiating the content encoding (and compression) of server responses using the `Accept-Encoding` request header and the `Content-Encoding` response header. Registered content encodings include in addition to the default uncompressed `identity` encoding a number of compressed encodings: `gzip`, `compress` and `deflate`. A client can specify one or more encodings to use in a response along with its preference for each using `Accept-Encoding`, and the server responds accordingly, per the HTTP specification. If the server does not support a requested encoding, it is recommended the server return a `406 (Not Acceptable)` status code.

```
POST /MyPath HTTP/1.1
Content-Length: 420
Content-Type: application/xml;charset="utf-8"
Accept-Encoding: gzip
Host: sifinfo.org:8000

<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
...
</SIF_Message>
```

Example 3.3.7.3-1: SIF client requesting compression of response

```
HTTP/1.1 200 OK
Content-Length: 24
Content-Type: application/xml;charset="utf-8"
Content-Encoding: gzip
Date: Wed, 25 Apr 2007 23:32:00 GMT
Server: SIFZIS

...compressed SIF_Ack...
```

Example 3.3.7.3-2: SIF server returning compressed SIF_Ack

The content encoding of any HTTP entity body, either in a request or a response, is indicated using the `Content-Encoding` header, which is considered a modifier to the `Content-Type` header. A client may compress or apply an encoding to the body of an HTTP request and indicate it has done so with an appropriate `Content-Encoding` value. It is recommended that a server that cannot or will not accept a particular encoding return a `415 (Unsupported Media Type)` status code.

```
POST /MyPath HTTP/1.1
Content-Length: 149
Content-Type: application/xml;charset="utf-8"
Content-Encoding: gzip
Host: sifinfo.org:8000

...compressed SIF_Message...
```

Example 3.3.7.3-3: SIF client sending compressed SIF_Message

```
POST /MyPath HTTP/1.1
Content-Length: 149
Content-Type: application/xml;charset="utf-8"
Content-Encoding: gzip
Accept-Encoding: gzip
Host: sifinfo.org:8000

...compressed SIF_Message...
```

Example 3.3.7.3-4: SIF client sending compressed SIF_Message and requesting compression of response

With these HTTP-defined headers, SIF Agents and Zone Integration Servers have the ability to compress or negotiate compression of SIF HTTP(S) request and response entity bodies using any version of SIF where the transport protocol is SIF HTTPS or SIF HTTP. However, to increase interoperability of Agents and Zone Integration Servers that wish to compress requests or receive compressed responses beyond the level of trial and error in an environment where server status codes are not guaranteed, the following mechanisms were developed in SIF Implementation Specification Version 2.1.

3.3.7.4 SIF_Protocol/SIF_Property Accept-Encoding

In both `SIF_Register` and `SIF_ZoneStatus` the following `SIF_Property` is defined when used in conjunction with a `SIF_Protocol/@Type` value of `HTTPS` or `HTTP`:

SIF_Name	SIF_Value
Accept-Encoding	An `Accept-Encoding` header value as per HTTP 1.1 [RFC 2616].

This property indicates that an HTTP(S) server can accept corresponding content encodings with an appropriate `Content-Encoding` header value.

```
<SIF_Protocol Type="HTTPS" Secure="Yes">
  <SIF_URL>https://www.sifinfo.org/sifagent/MyAgent/</SIF_URL>
  <SIF_Property>
    <SIF_Name>Accept-Encoding</SIF_Name>
    <SIF_Value>gzip</SIF_Value>
  </SIF_Property>
</SIF_Protocol>
```

Example 3.3.7.4-1: SIF_Protocol with Accept-Encoding indicating acceptance of gzip (and identity)

```
<SIF_Protocol Type="HTTPS" Secure="Yes">
  <SIF_URL>https://www.sifinfo.org/sifagent/MyAgent/</SIF_URL>
  <SIF_Property>
    <SIF_Name>Accept-Encoding</SIF_Name>
    <SIF_Value>gzip;q=1.0, identity;q=0.5, *;q=0</SIF_Value>
  </SIF_Property>
</SIF_Protocol>
```

Example 3.3.7.4-2: SIF_Protocol with Accept-Encoding indicating no acceptance of encodings other than gzip or identity, gzip preferred over identity

The recommended compression algorithm for use in SIF is `gzip`. It is NOT RECOMMENDED that the `identity` (uncompressed) encoding ever be explicitly excluded in the `Accept-Encoding SIF_Property`.

3.3.7.5 HTTP Client Requirements

A client (ZIS, Push- or Pull-Mode Agent) that wishes to receive a compressed response MUST include an `Accept-Encoding` header, per HTTP 1.1, and MUST be prepared to handle a `406 (Not Acceptable)` or other HTTP error, in which case the client SHOULD assume compression using the specified algorithm(s) is not supported and retry communication as per

SIF HTTPS Transport or SIF HTTP Transport above. Clients MUST be prepared to receive `identity`-encoded (unencoded) responses unless the client explicitly excludes `identity` in its `Accept-Encoding` header, which is NOT RECOMMENDED.

Zone Integration Servers MAY consult a Push-Mode Agent's registered `SIF_Protocol/SIF_Property` value where `SIF_Name` is `Accept-Encoding` before contacting the Agent and SHOULD assume that posting a corresponding encoded entity body accompanied by the applicable `Content-Encoding` header value will be processed without content encoding support errors by the Agent.

Push- and Pull-Mode Agents MAY consult a Zone's supported compression algorithms in the `SIF_ZoneStatus/SIF_SupportedProtocols/SIF_Protocol/SIF_Property` entitled `Accept-Encoding` in `SIF_Name` before contacting the Zone Integration Server and SHOULD assume that posting a corresponding encoded entity body accompanied by the applicable `Content-Encoding` header value will be processed without content encoding support errors by the ZIS.

3.3.7.6 HTTP Server Requirements

A server (ZIS or Push-Mode Agent) that receives an HTTP request with an `Accept-Encoding` header MUST process the request per HTTP 1.1's `Accept-Encoding` specification. It is RECOMMENDED that servers return a `406 (Not Acceptable)` status when a requested encoding cannot be negotiated.

A server that receives an HTTP request with a `Content-Encoding` header specified MUST process the request per HTTP 1.1's `Content-Encoding` specification. It is RECOMMENDED that servers unable to process a particular content encoding return a `415 (Unsupported Media Type)` status code.

3.3.7.7 Push-Mode Agent Requirements

A Push-Mode Agent that wishes to receive compressed/encoded requests from the ZIS MUST register its preference with the ZIS in the `SIF_Register/SIF_Protocol` property entitled `Accept-Encoding` in `SIF_Name`, providing an `Accept-Encoding` value in `SIF_Value` per HTTP 1.1 (the recommended compression algorithm for SIF is `gzip`). The Agent MUST be prepared to handle an error `SIF_Ack` from the ZIS when registering `Accept-Encoding` (`SIF_Error/SIF_Category` of 5 [Registration], `SIF_Error/SIF_Code` value of 10) if the ZIS cannot support at least one specified encoding and SHOULD re-attempt registration without `Accept-Encoding`.

Upon successful registration of an `Accept-Encoding` value, the Agent SHOULD expect to receive requests from the ZIS encoded accordingly, but it MAY received `identity`-encoded (unencoded) requests unless `identity` was explicitly excluded in the registered `Accept-Encoding` value.

3.3.7.8 Zone Integration Server Requirements

A Zone Integration Server that receives a `SIF_Register/SIF_Protocol/SIF_Property` named `Accept-Encoding` in `SIF_Name` must fail the attempt to register if the ZIS does not support at least one of the specified encodings (`SIF_Error/SIF_Category` of 5 [Registration], `SIF_Error/SIF_Code` value of 10). While this property is typically registered by Push-Mode Agents, Pull-Mode Agents may also specify this property when registering. A ZIS SHOULD compress requests when contacting a Push-Mode Agent if the Agent has previously registered that preference, but it MAY send uncompressed requests if the Push-Mode Agent did not explicitly exclude the `identity` encoding in its registered `Accept-Encoding` value.

Zone Integration Servers that support handling of compressed/encoded requests SHOULD return an `Accept-Encoding` header `SIF_Value` in the `SIF_ZoneStatus/SIF_SupportedProtocols/SIF_Protocol/SIF_Property` named `Accept-Encoding` in `SIF_Name`.

4 Messaging

This section documents the messaging and message handling protocols defined in SIF. A messaging protocol consists of sending a `SIF_Message` to initiate an operation, receiving back a `SIF_Ack`; a message handling protocol consists of processing an incoming `SIF_Message` and responding with a `SIF_Ack` and possibly sending follow-up `SIF_Message`s. This section is independent of transport layer details, aside from encryption and authentication level impacts associated with individual messages. Unless otherwise noted, all protocols assume successful communication over the appropriate transport layer; agent and ZIS implementations should also be prepared to handle transport layer errors and exceptions, directly or wrapped in a `SIF_Ack/SIF_Error` by underlying code.

4.1 Agent Protocols

4.1.1 Agent Messaging Protocols

This section documents how Agents should send individual messages, and the resulting post-conditions upon success or failure, along with any necessary steps to take. These correspond to each of the operations an Agent can initiate.

4.1.1.1 SIF_Register

An Agent must register with the ZIS to participate in a Zone. To do so, it sends a `SIF_Register` message. An Agent may at any time re-register by sending another `SIF_Register` message. The ZIS updates the Agent's registered settings accordingly.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Register` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place your Agent's name, supported versions and maximum buffer size for receiving messages into `SIF_Name`, `SIF_Version` and `SIF_MaxBufferSize`, respectively. Specify whether your Agent is Push- or Pull-mode in `SIF_Mode`. If `SIF_Mode` is `Push`, specify the protocol information for the ZIS to use when delivering messages to your agent in `SIF_Protocol`; optional compression settings may be included in the `Accept-Encoding SIF_Protocol/SIF_Property`. If desired, supply optional information regarding your Agent and/or application in `SIF_NodeVendor`, `SIF_NodeVersion`, `SIF_Application` and `SIF_Icon`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now registered in the Zone. The Access Control settings for your agent (`SIF_AgentACL` are in `SIF_Status/SIF_Data`).	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included. Note particularly category 5. If an `Accept-Encoding SIF_Protocol/SIF_Property` was specified, the ZIS may return error code `10` (ZIS does not support the requested `Accept-Encoding` value). Your agent SHOULD re-attempt registration without, or with another, `Accept-Encoding` value.	Messaging protocol complete (failure).

Table 4.1.1.1-1: SIF_Register Protocol

4.1.1.2 SIF_Unregister

An Agent removes itself from a Zone by sending a `SIF_Unregister` message to the ZIS. Successful completion of this operation removes all settings associated with the Agent, including the objects it is currently providing and subscribed to in the zone; the Agent's message queue is also deleted. Note that a successful `SIF_Unregister` message may, depending on the ZIS implementation,

remove access control settings that have been manually configured by a Zone administrator and that may need to be re-configured for a subsequent successful `SIF_Register`.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Unregister` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now removed from the Zone.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.2-1: SIF_Unregister Protocol

4.1.1.3 SIF_Provide

An Agent registers with the ZIS to be the default Responder, or Provider, for one or more SIF objects in one or more contexts by sending a

`SIF_Provide` message to the ZIS. The Agent must have access control rights at the ZIS to successfully register as a Provider for an object.

Note that upon successful completion of `SIF_Provide` that your Agent is still the Provider of any objects for which it was previously registered as the Provider. To unregister as the Provider of given objects, use `SIF_Unprovide`. To replace all objects your Agent provides in one operation, use `SIF_Provision`.

As of version 2.0 of this specification, `SIF_Provision` is the preferred method for registering an Agent as a Provider, and provisioning an Agent in general. Support for `SIF_Provide` may be removed in a future major release of this specification.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Provide` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. For each object your Agent would like to provide, place a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Your Agent's support for `SIF_ExtendedQuery` can be specified in `SIF_ExtendedQuerySupport` for each object.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now the Provider of each of the objects specified in the `SIF_Provide` message, in the applicable context(s). Any request sent by an Agent for one of these objects without explicitly specifying a particular Responder in `SIF_Header/SIF_DestinationId` will be placed in your Agent's message queue.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included. Note particularly category 4, code 3 (no permission to provide) and category 6, code 4 (object already has a Provider).	Messaging protocol complete (failure).

Table 4.1.1.3-1: SIF_Provide Protocol

4.1.1.4 SIF_Unprovide

Your Agent unregisters with the ZIS as the default Responder, or Provider, for one or more SIF objects in one or more contexts by sending a

`SIF_Unprovide` message to the ZIS. Note that any `SIF_Request`s for these objects already pending in your Agent's queue will still be delivered.

As of version 2.0 of this specification, `SIF_Provision` is the preferred method for unregistering an Agent as a Provider, and provisioning an Agent in general. Support for `SIF_Unprovide` may be removed in a future major release of this specification.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Unprovide` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. For each object your Agent would like to provide, include a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted).	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is no longer the Provider of each of the objects specified in the `SIF_Unprovide` message, in the applicable context(s). `SIF_Request`s will no longer be routed to your Agent by default, but this does not prevent other Agents from sending requests directly to your Agent (if permitted by access control rights).	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.4-1: SIF_Unprovide Protocol

4.1.1.5 SIF_Subscribe

An Agent registers with the ZIS to receive `SIF_Event`s for one or more SIF objects in one or more contexts by sending a

`SIF_Subscribe` message to the ZIS. The Agent must have access control rights at the ZIS to successfully subscribe to events for an object.

Note that upon successful completion of `SIF_Subscribe` that your Agent is still subscribed to objects to which it had previously subscribed. To unregister as a Subscriber of given objects, use `SIF_Unsubscribe`. To replace all objects to which your Agent subscribes in one operation, use `SIF_Provision`.

As of version 2.0 of this specification, `SIF_Provision` is the preferred method for registering an Agent as a Subscriber, and provisioning an Agent in general. Support for `SIF_Subscribe` may be removed in a future major release of this specification.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Subscribe` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. For each object your Agent would like to subscribe to, place a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted).	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now subscribed to each of the objects specified in the `SIF_Subscribe` message, in the specified context(s) if included. Any `SIF_Events` for these objects will be placed in your Agent's queue.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).

Step	Process	Flow Control
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included. Note particularly category `4`, code `4` (no permission to subscribe).	Messaging protocol complete (failure).

Table 4.1.1.5-1: SIF_Subscribe Protocol

4.1.1.6 SIF_Unsubscribe

To stop receiving `SIF_Event`s for one or more objects in one or more contexts, an Agent sends a

`SIF_Unsubscribe` message to the ZIS. Note that if there are events already pending in your Agent's queue for these objects, they will still be delivered after a successful `SIF_Unsubscribe`.

As of version 2.0 of this specification, `SIF_Provision` is the preferred method for unregistering an Agent as a Subscriber, and provisioning an Agent in general. Support for `SIF_Unsubscribe` may be removed in a future major release of this specification.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Unsubscribe` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. For each object your Agent would like to cease receiving events, include a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted).	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now unsubscribed from each of the objects specified in the `SIF_Unsubscribe` message, in the applicable context(s). `SIF_Events` for these objects will cease to be placed in your Agent's queue.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.6-1: SIF_Unsubscribe Protocol

4.1.1.7 SIF_Provision

The `SIF_Provision` message provides an Agent the ability to register the objects it provides and to which it subscribes in a single operation, replacing whatever settings the ZIS has on record for the Agent. In effect it is an alternative to `SIF_Provide`, `SIF_Unprovide`, `SIF_Subscribe` and `SIF_Unsubscribe`, though an Agent may choose to use this message or those, or a combination of these messages.

This message also allows the Agent to fully describe the operations it will perform in a Zone beyond those that can be communicated with `SIF_Provide` and `SIF_Subscribe`, including the types of events it will publish, the requests to which it will respond with or without being the Provider for requested objects, and the objects for which it sends requests.

The Agent must have the appropriate access control settings to successfully register any of the corresponding information included in `SIF_Provision`. Note that the list of access control settings can be determined by examining the `SIF_AgentACL` object returned in the `SIF_Register` or `SIF_GetAgentACL` message protocols.

Note that `SIF_Provision` will also fail if the Agent is attempting to provide an object that is already provided by another Agent in the applicable Zone Context. The list of Providers in a Zone can be found in `SIF_ZoneStatus`.

As of version 2.0 of this specification, `SIF_Provision` is the preferred method for provisioning an Agent. Support for `SIF_Subscribe`, `SIF_Unsubscribe`, `SIF_Provide` and `SIF_Unprovide` may be removed in a future major release of this specification.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Provision` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Include `SIF_ProvideObjects` and for each object your Agent would like to provide, place a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Your Agent can also state its support for `SIF_ExtendedQuery` in `SIF_ExtendedQuerySupport`, which defaults to `false`. Include `SIF_SubscribeObjects` and for each object to which your Agent would like to subscribe, place a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Include `SIF_PublishAddObjects`, `SIF_PublishChangeObjects` and `SIF_PublishDeleteObjects` elements and include a `SIF_Object` element with an `ObjectName` in the respective sections for each event type your agent publishes with regard to that oject. Optionally specify for each object one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Include `SIF_RequestObjects` and for each object your Agent requests, place a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Your Agent can also state its support for `SIF_ExtendedQuery` in `SIF_ExtendedQuerySupport`, which defaults to `false`. Include `SIF_RespondObjects` and for each object for which your Agent processes requests (including those listed in `SIF_ProvideObjects`), include a `SIF_Object` element with an `ObjectName` and optionally one or more `SIF_Context` names (which default to `SIF_Default` if omitted). Your Agent can also state its support for `SIF_ExtendedQuery` in `SIF_ExtendedQuerySupport`, which defaults to `false`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	Your Agent is now registered with the corresponding settings in the Zone. Any previously recorded settings with regard to the operations your Agent performs have been replaced.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.7-1: SIF_Provision Protocol

4.1.1.8 SIF_Event

When an application adds, changes or deletes data represented in one or more Zone Contexts, its Agent SHOULD publish the corresponding `Add`, `Change` or `Delete` `SIF_Event` to the Zone. Upon successful delivery of a `SIF_Event` to the ZIS, the ZIS places the event in the queue for any Agents subscribed to events for the object, including your Agent if it is a subscriber.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Event` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`. If your Agent would like to indicate minimum encryption and/or authentication requirements for Agents receiving this `SIF_Event`; supply `SIF_Security` with the appropriate settings; use an equally secure channel when communicating with the ZIS, if desired. If this event specifically applies to one or more contexts, place them in `SIF_Contexts`; if omitted, the context is `SIF_Default`. Specify the name of the object that is being added, changed or deleted in `SIF_EventObject/@ObjectName`. Place the type of event in `SIF_EventObject/@Action` and place the object in `SIF_EventObject`. For an `Add` event, this MUST be the complete object with all mandatory elements present. If the agent wishes to indicate that a particular optional element is supported but has no value, the element MAY be included as empty, with `xsi:nil` set to `true` if necessary. For a `Change` event, all unchanged elements, whether mandatory or optional SHOULD be omitted from the object. Optional elements that have been deleted MAY be included as empty, with `xsi:nil` set to `true` if necessary. For each list of repeatable elements in the object that has changed, include the whole list if the list type indicated is `List`. If the list type is `ActionList`, the agent MAY include only those elements in the list that have been added, changed or deleted. If an element has been deleted from an `ActionList`, the element MUST be included with at least its key attribute(s) and/or element(s) specified, and include a `SIF_Action` attribute value of `Delete` on the deleted child element in the list. Omitting an element in an `ActionList` indicates that it has been unchanged in the event. Refer to the Dat Model section of the specification, Lists/Repeatable Elements, for more details on ActionLists and Lists. For a `Delete` event, only elements/attributes that identify the object sufficiently for deletion SHOULD be included. This set of identifying elements/attributes are typically communicated by the mandatory root attributes of an object, which MUST be included.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code 0`?	If no, go to Step 5.
4	The event has been successfully received by the ZIS. It will be placed in the queue of any Agents registered as subscribers to events for the given object.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.8-1: SIF_Event Protocol

4.1.1.9 SIF_Request

An Agent can request data from another Agent at any time by sending a `SIF_Request` message. Agents use one of two query mechanisms in requests. SIF's default query mechanism, `SIF_Query`, is used to request objects of a given type, matching optional query conditions, optionally returning a subset of object elements. `SIF_ExtendedQuery` is used to select elements from one or more objects, joined together, if necessary, on `RefId`-based conditions. Before delivering a request with a `SIF_ExtendedQuery` to a Responder, the ZIS checks that the Responder supports `SIF_ExtendedQuery` for all referenced objects.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Request` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`. If your Agent would like to indicate minimum encryption and/or authentication requirements for Agents receiving this `SIF_Request`, supply `SIF_Security` with the appropriate settings; use an equally secure channel when communicating with the ZIS, if desired. If this request is associated with a context, specify a single `SIF_Context` in `SIF_Contexts`; if omitted, the context is `SIF_Default`. If your Agent would like to explicitly route this request to a given Agent, specify the Agent's ID in `SIF_DestinationId`. Specify the SIF versions the responder may choose from when returning data in `SIF_Version`. Each version specified MUST be registered at the ZIS as supported by your Agent. Specify the maximum buffer size the Responder must respect when sending `SIF_Response` packets; this MUST be less than or equal to the `SIF_MaxBufferSize` with which your Agent registered with the ZIS.	If using `SIF_ExtendedQuery`, go to step 3; otherwise go to step 2.
2	In `SIF_Query`, specify the object name being requested in `SIF_QueryObject/@ObjectName`. Optionally specify the subset of elements/attributes to be returned from each object in `SIF_QueryObject/SIF_Element`; note that parent elements of specified elements/attributes are returned as well. If your Agent would like to specify query matching conditions, include `SIF_ConditionGroup`. Alternately an example of an object allowed for use in query-by-example can be placed in `SIF_Example`.	Send `SIF_Message` to ZIS over appropriate transport. Go to step 4.
3	Include a `SIF_ExtendedQuery`. If your Agent did not specify `SIF_DestinationId`, the `SIF_Request` will be routed to the Provider for `SIF_From/@ObjectName`. If your Agent would like to override this routing mechanism, include `SIF_DestinationProvider` set to the object name for which the ZIS will determine the Provider and route the request accordingly.	Send `SIF_Message` to ZIS over appropriate transport.
4	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 8.
5	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 7.
6	The request has been successfully received by the ZIS. It will be placed in the queue of the appropriate Responder as specified in `SIF_Header/SIF_DestinationId` or determined by `SIF_ExtendedQuery/SIF_From/@ObjectName` or `SIF_ExtendedQuery/SIF_DestinationProvider`.	Messaging protocol complete (success).
7	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
8	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.9-1: SIF_Request Protocol

4.1.1.10 SIF_Ping

An agent can "ping" the ZIS or check that it's online and/or "awake" by sending a

SIF_Ping message to the ZIS. If the agent receives a successful acknowledgement, the ZIS is awake; the ZIS may also reply that it is asleep. As a ZIS may be offline completely, Agents should be prepared to handle transport errors directly or wrapped in a `SIF_Ack/SIF_Error` by underlying code.

Step	Process	Flow Control
1	Prepare a `SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_Ping` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 8.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	The ZIS is awake.	Messaging protocol complete (success).
5	Is `SIF_Status/SIF_Code` 8 (ZIS is asleep)?	If no, go to Step 7.
6	The ZIS is asleep.	Messaging protocol complete (success).

Step	Process	Flow Control
7	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
8	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.10-1: SIF_Ping Protocol

4.1.1.11 SIF_Sleep

A Push-mode Agent can send a

SIF_Sleep message to the ZIS to change its state to "asleep," indicating that the ZIS should not send the Agent messages until it "wakes up" by sending a `SIF_Wakeup` message or re-registering with `SIF_Register`. A Pull-mode Agent can also changes it state to "sleeping," but this has no effect other than indicating to other Agents via `SIF_ZoneStatus` that it is "sleeping" and not processing messages in its queue. Sending a `SIF_Wakeup` or `SIF_GetMessage` will indicate that the Agent is "awake," as will re-registering with `SIF_Register`.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_Sleep` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	Your Agent's state has been set to "asleep" in the ZIS. This is reflected to other Agents in `SIF_ZoneStatus` and if your Agent is a Push-mode Agent, the ZIS will stop delivering messages to your Agent. To "wake up," send a `SIF_Wakeup` message, or re-register with `SIF_Register`. Pull-mode Agents may also send `SIF_GetMessage`.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.11-1: SIF_Sleep Protocol

4.1.1.12 SIF_Wakeup

An Agent can send a

SIF_Wakeup message to the ZIS to change its state to "awake," whether sleeping or not; this state is available to other Agents via SIF_ZoneStatus. Upon success, the ZIS may begin delivering messages to a Push-mode Agent again, if previously sleeping.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_Wakeup` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	Your Agent's state has been set to "awake" in the ZIS. This is reflected to other Agents in `SIF_ZoneStatus` and if your Agent is a Push-mode Agent and it was previously asleep, the ZIS will resume delivering messages to your Agent.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.12-1: SIF_Wakeup Protocol

4.1.1.13 SIF_GetZoneStatus

To retrieve the current status of the Zone (

`SIF_ZoneStatus`), send a `SIF_GetZoneStatus` message to the ZIS.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_GetZoneStatus` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	`SIF_Status/SIF_Data` contains the current status of the Zone in `SIF_ZoneStatus`.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.13-1: SIF_GetZoneStatus Protocol

4.1.1.14 SIF_GetAgentACL

To retrieve your Agent's current access control list settings from the ZIS (

`SIF_AgentACL`), send a `SIF_GetAgentACL` message to the ZIS.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_GetAgentACL` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	`SIF_Status/SIF_Data` contains your Agent's current access control list settings in the Zone in `SIF_AgentACL`.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.14-1: SIF_GetAgentACL Protocol

4.1.1.15 SIF_CancelRequests

Agents can request that a ZIS cancel `SIF_Request`s, pending or in process, by sending a list of `SIF_RequestMsgId`s in a `SIF_CancelRequests` message. If an Agent abandons or restarts a data collection using `SIF_Request`s, whether or not the response stream has started, it is RECOMMENDED that the Agent send one or more `SIF_CancelRequests` messages to the ZIS. Such data collections can place a heavy load on responding Agents, where often all data of a specific object type is requested, and cancelling requests may spare Zone resources. Cancelling of responses can also reduce the number of response packets the receiving/cancelling agent needs to process and discard.

If the cancelling Agent wishes to receive a "final" `SIF_Response` from the ZIS for each cancelled message, it can specify `Standard` in `SIF_CancelRequests/SIF_NotificationType`. If the cancelling Agent does not desire or require "final" `SIF_Response`s, the Agent can specify `None` in `SIF_NotificationType`.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Add a `SIF_CancelRequests` element in `SIF_SystemControlData`.	
2	Specify `Standard` in `NotificationType` if your Agent desires or requires a "final" `SIF_Response` be returned by the ZIS for each cancelled message (`SIF_Response/SIF_MorePackets` = `No`). Otherwise specify `None`.	
3	Add a `SIF_RequestMsgIds` element and add a child `SIF_RequestMsgId` element for each `SIF_Request` that the Agent wishes to cancel.	Send `SIF_Message` to ZIS over appropriate transport.
4	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 8.
5	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 7.
6	The ZIS has accepted the `SIF_CancelRequests` message. Your Agent will receive or not receive "final" `SIF_Response`s per the specified `NotificationType`.	Messaging protocol complete (success).
7	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate SIF_MsgId).	Messaging protocol complete (failure).
8	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.15-1: SIF_CancelRequests Protocol

4.1.1.16 SIF_GetMessage (Pull-Mode only)

Pull-mode Agents retrieve the next message in their queue by sending a

`SIF_GetMessage` message to the ZIS. Note that as individual messages may have specific minimum encryption/authentication levels attached to them by senders, a Pull-Mode Agent should always use the highest encryption/authentication levels it supports when contacting the ZIS to avoid individual messages being discarded when contacting the ZIS using lower encryption/authentication levels than might be required for receipt of a given message.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_GetMessage` element in `SIF_SystemControlData`.	Send `SIF_Message` to ZIS over appropriate transport. Always use the highest encryption/authentication levels that your Agent supports to maximize the number of messages that can be returned to your Agent.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 7.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	`SIF_Status/SIF_Data` contains the next `SIF_Message` in your agent's queue.	Messaging protocol complete (success). Process the returned `SIF_Message` according to Agent Message Handling Protocols below.
5	Is `SIF_Status/SIF_Code` 9?	If yes, there are no messages available for your Agent. Message processing complete (success).
6	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
7	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included. If a Push-mode Agent sends `SIF_GetMessage`, note particularly category 5, code 9 (agent registered in Push mode).	Messaging protocol complete (failure).

Table 4.1.1.16-1: SIF_GetMessage Protocol

4.1.1.17 SIF_Ack (Push-Mode)

Push-Mode Agents end Selective Message Blocking (SMB) by sending a final `SIF_Ack` to the ZIS.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. From the message being unblocked/removed from the queue, place the `SIF_Header/SIF_SourceId` value into `SIF_OriginalSourceId` and place the `SIF_Header/SIF_MsgId` value into `SIF_OriginalMsgId`. Place 3 (final `SIF_Ack`) into `SIF_Code/SIF_Data`.	Send `SIF_Message` to ZIS over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 5.
4	The referenced message has been unblocked and removed from your Agent's queue. The ZIS resumes delivery of events to your Agent.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (ZIS is asleep) or 7 (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.17-1: SIF_Ack Protocol (Push-Mode)

4.1.1.18 SIF_Ack (Pull-Mode)

Pull-mode Agents acknowledge messages received in response to `SIF_GetMessage` and remove them from their queue by sending a `SIF_Ack` message to the ZIS. `SIF_Ack` is also sent by Pull-Mode Agents to invoke and end Selective Message Blocking (SMB).

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply.	If your Agent is invoking SMB, go to Step 3. If your Agent is ending SMB, go to Step 4.
2	From the message being acknowledged/the message to be removed from the queue, place the `SIF_Header/SIF_SourceId` value into `SIF_OriginalSourceId` and place the `SIF_Header/SIF_MsgId` value into `SIF_OriginalMsgId`. Place 1 (immediate `SIF_Ack`) into `SIF_Code/SIF_Data` or an appropriate error description in `SIF_Error`. If your Agent indicates a transport error or places 8 (receiver is sleeping) into `SIF_Code/SIF_Data`, the message will be acknowledged but remain in your Agent's queue.	Send `SIF_Message` to ZIS over appropriate transport. Go to Step 5.
3	From the `SIF_Event` being blocked, place the `SIF_Header/SIF_SourceId` value into `SIF_OriginalSourceId` and place the `SIF_Header/SIF_MsgId` value into `SIF_OriginalMsgId`. Place 2 (intermediate `SIF_Ack`) into `SIF_Code/SIF_Data`.	Send `SIF_Message` to ZIS over appropriate transport. Go to Step 5.
4	From the `SIF_Event` being unblocked, place the `SIF_Header/SIF_SourceId` value into `SIF_OriginalSourceId` and place the `SIF_Header/SIF_MsgId` value into `SIF_OriginalMsgId`. Place 3 (final `SIF_Ack`) into `SIF_Code/SIF_Data`.	Send `SIF_Message` to ZIS over appropriate transport.
5	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 9.
6	Is `SIF_Status/SIF_Code` 0?	If no, go to Step 8.
7	If your Agent did not invoke or end SMB for a `SIF_Event`, the referenced message has been removed from your Agent's queue, unless your agent indicated a transport error or that it was sleeping (in which case the message has been acknowledged but remains in your Agent's queue). If your Agent invoked SMB by sending an intermediate `SIF_Ack`, delivery of events is blocked until your Agent removes the `SIF_Event` from its queue by sending a final `SIF_Ack`. Your Agent will continue to receive `SIF_Response`s and `SIF_Request`s. If your Agent ended SMB by sending a final `SIF_Ack`, the ZIS has removed the blocked event from your Agent's queue and resumes delivery of events to your Agent.	Messaging protocol complete (success).

Step	Process	Flow Control
8	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of `8` (ZIS is asleep) or `7` (your Agent sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
9	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.1.1.18-1: SIF_Ack Protocol (Pull-Mode)

4.1.2 Agent Message Handling Protocols

This section documents how Agents should respond to incoming messages, and the resulting post-conditions upon success or failure, along with any necessary steps to take.

Note that in handling any `SIF_Message`, an Agent may return a `SIF_Ack` with `SIF_Status/SIF_Code` 8 (receiver is sleeping) or 7 (already have this `SIF_MsgId` from you) if a duplicate message is detected. These responses are typically omitted from the handling protocols below.

4.1.2.1 SIF_Message

Upon receipt of a generic message from the ZIS, in most cases it may be safely assumed that the message XML is well-formed, and perhaps even valid, but the Agent should take the following steps to determine whether the XML is well-formed, optionally validate the message, and check that the message is of a valid type before handing the message off to the respective message handling protocol below.

Step	Process	Flow Control
1	If your transport layer implementation rejects XML that is not well-formed and optionally that is invalid, go to Step 3, 5, 7 or 9 depending on the extent of that implementation. Otherwise, is the XML message well-formed?	If yes, go to step 3.
2	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. If your Agent can scan the incoming message as UTF-8 encoded text to locate `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId`, these values can be placed in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Otherwise include these elements with empty values, including an `xsi:nil` attribute value of `true` on `SIF_OriginalMsgId`. Include a `SIF_Error` element with a `SIF_Category` of `1` (XML Validation) and a `SIF_Code` of `2` (message is not well-formed).	Go to step 12.
3	Is the root element of the message unprefixed with a local name of `SIF_Message`?	If yes, go to step 5.
4	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Error` element with a `SIF_Category` of `1` (XML Validation) and a `SIF_Code` of `3` (generic validation error).	Go to step 12.
5	Is the namespace for `SIF_Message` a namespace of a major version of SIF your Agent supports? Is `SIF_Message/@Version` present with a value that your Agent supports? (If omitted, interpret `SIF_Message/@Version` as `1.1`.)	If yes, go to step 7.
6	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Error` element with a `SIF_Category` of `12` (Generic Message Handling) and a `SIF_Code` of `3` (version not supported).	Go to step 12.
7	If your Agent does not validate messages, go to step 9. Otherwise choose a validation schema based on the value of `SIF_Message/@Version`. Does the message validate?	If yes, go to step 9.
8	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Error` element with a `SIF_Category` of `1` (XML Validation) and an appropriate `SIF_Code` from the corresponding choices in Error Codes.	Go to step 12.

Step	Process	Flow Control
9	If the namespace for SIF_Message is for a previous major version of SIF, handle according to the specification for SIF_Message/@Version. Otherwise, is the message type (the child element of SIF_Message) SIF_Event, SIF_Request, SIF_Response, SIF_Ping (Push-mode only), SIF_Sleep (Push-mode only), SIF_Wakeup (Push-mode only), or SIF_CancelRequests (Push-mode only and your Agent chooses to support this optional message)?	If yes, go to step 11.
10	Prepare a SIF_Ack message with SIF_Header containing a new GUID in SIF_MsgId, your Agent's Agent ID in SIF_SourceId and the current time in SIF_Timestamp; other SIF_Header elements do not apply. Place the incoming SIF_Header/SIF_SourceId and SIF_Header/SIF_MsgId in SIF_OriginalSourceId and SIF_OriginalMsgId, respectively. Include a SIF_Error element with a SIF_Category of 12 (Generic Message Handling) and a SIF_Code of 2 (message not supported).	Go to step 12.
11	Process per the corresponding message handling protocol below.	Message handling is complete.
12	If your Agent is a Push-mode Agent, return the SIF_Ack to the ZIS. If your Agent is a Pull-mode Agent send the SIF_Ack to the ZIS per SIF_Ack (Pull-Mode) above.	Message handling is complete.

Table 4.1.2.1-1: SIF_Message Handling

4.1.2.2 SIF_Event

A ZIS places a SIF_Event in your Agent's queue when an event occurs in a Zone Context with regard to an object for which your agent has subscribed to receive events. A SIF_Event is delivered when it is the next message pending delivery in the queue.

An event may apply to one or more contexts; these are listed in SIF_Header/SIF_Contexts. If SIF_Contexts is not present, the context for the event is SIF_Default. The type of event is specified in SIF_EventObject/@Action, the corresponding data object is in SIF_EventObject. A Change or Delete event may contain a partial object, but it must include the necessary attribute(s) and element(s) to uniquely identify the object being changed or deleted. These keys/identifiers are typically communicated in the root attributes of an object.

Step	Process	Flow Control
1	Does your Agent invoke Selective Message Blocking (SMB) for all events, or does this event indicate to your Agent that it will invoke SMB?	If no, go to Step 3.
2	Prepare a SIF_Ack message with SIF_Header containing a new GUID in SIF_MsgId, your Agent's Agent ID in SIF_SourceId and the current time in SIF_Timestamp; other SIF_Header elements do not apply. Place the incoming SIF_Header/SIF_SourceId and SIF_Header/SIF_MsgId in SIF_OriginalSourceId and SIF_OriginalMsgId, respectively. Place 2 (intermediate SIF_Ack) in SIF_Status/SIF_Code. If your Agent is a Push-Mode Agent, return the SIF_Ack to the ZIS and commence sending the necessary requests as described in the SIF_Request protocol above to complete processing of the event per your Agent's business rules. When complete or if an error occurs, end SMB as described in the SIF_Ack (Push-Mode) protocol above. If your Agent is a Pull-Mode Agent, send the SIF_Ack to the ZIS per SIF_Ack (Pull-Mode) above and commence sending the necessary requests as described in the SIF_Request protocol above to complete processing of the event per your Agent's business rules. When complete or if an error occurs, end SMB as described in the SIF_Ack (Pull-Mode) protocol above. If an error occurs, it is RECOMMENDED that your Agent publish a SIF_LogEntry Add event.	Message handling complete.

Step	Process	Flow Control
3	If your Agent is a Pull-Mode Agent, process the event per your Agent's business rules. When complete or if an error occurs, acknowledge the message and remove it from your Agent's queue per `SIF_Ack` (Pull-Mode) above. If your Agent is a Push-Mode Agent, it has one of two options: process the event, then acknowledge it; or acknowledge the event, then process it. The advantage of first processing the event is the ability to return a descriptive error, if necessary, to the ZIS when acknowledging the message. The disadvantage of first processing is that if the processing is long running, the connection from the ZIS to your Agent may time out, which will lead to the event being redelivered to your Agent in another delivery attempt, to possibly run into another time-out. To avoid the latter, it is RECOMMENDED that your Push-Mode Agent first acknowledge the event, then process it, unless event processing is known to always occur within a reasonable amount of time. Agents that first acknowledge then process SHOULD persist the event locally until processing is complete, as the event is removed from your Agent's queue upon successful acknowledgement, otherwise the event will be lost in the case of an application or system error that affects your Agent's ability to complete processing of the event. Choose an option and process the event according to your Agent's business rules. When acknowledging: Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Place `1` (immediate `SIF_Ack`) in `SIF_Status/SIF_Data` in the case of successful procssing, and return the `SIF_Ack` to the ZIS. If an error has occurred, include a `SIF_Error` element with an appropriate `SIF_Category` and `SIF_Code` and describe the error as needed in `SIF_Desc` and optionally `SIF_ExtendedDesc`. Note that indicating a transport error will not remove the message from your Agent's queue, only acknowledge it. The same action can be accomplished indicating `8` (receiver is sleeping) in `SIF_Status/SIF_Code`. If an error occurs regardless of the option chosen, it is RECOMMENDED that your Agent publish a `SIF_LogEntry Add` event.	Message handling complete

Table 4.1.2.2-1: SIF_Event Handling

4.1.2.3 SIF_Request

A ZIS places a `SIF_Request` in your Agent's queue when an Agent sends a request directly to your Agent, or when an Agent sends a request without a `SIF_DestinationId` and your agent is registered as the Provider for the object requested in `SIF_Query`, or in the case of `SIF_ExtendedQuery` when your agent is registered as the Provider of the object specified by the Requester in `SIF_ExtendedQuery/SIF_DestinationProvider` or `SIF_ExtendedQuery/SIF_From/@ObjectName`. The ZIS will not send your Agent a `SIF_ExtendedQuery` unless your Agent has registered its support for that query type using `SIF_Provide` or `SIF_Provision`. A `SIF_Request` is delivered when it is the next message pending delivery in your Agent's queue.

Any error that occurs while generating `SIF_Response`s during `SIF_Request` handling MUST be sent to the Requester with `SIF_MorePackets` set to `No`, at which point the response stream ends.

Step	Process	Flow Control
1	Examine `SIF_Header/SIF_Contexts` to determine the context for the request; if none is specified, the context is `SIF_Default`.	Go to Step 3 if the context is supported.
2	Prepare a `SIF_Response` message with a copy of `SIF_Contexts`, `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate General Message Handling and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the requested context is not supported. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Message handling complete.

Step	Process	Flow Control
3	Examine the `SIF_Version` element or elements specified in the `SIF_Request` message. If more than one version is supported, select the highest version number supported.	Go to Step 5 if a version is supported.
4	Prepare a `SIF_Response` message with a copy of `SIF_Contexts`, `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the requested `SIF_Version`s are not supported. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Message handling complete.
5	Examine the `SIF_MaxBufferSize` specified in the `SIF_Request` message.	Go to Step 7 if it is greater than or equal to the minimum buffer size your Agent can support. (The buffer size of individual packets will be handled below).
6	Using the SIF version selected in Step 1, prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the `SIF_MaxBufferSize` cannot be honored. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Message handling complete.
7	Is `SIF_ExtendedQuery` specified?	If yes, go to Step 10.
6	The query type is `SIF_Query`. Examine the object name being queried in `SIF_QueryObject/@ObjectName`.	Go to Step 8 if the object is supported.
7	Prepare a `SIF_Response` message using the version chosen in Step 1 with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the object is not supported. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Stop processing the message.
8	Examine the query represented, if any, by `SIF_ConditionGroup`, or `SIF_Example` in the case of objects that support query-by-example, and determine whether it is supported.	Go to Step 12 if neither `SIF_ConditionGroup` nor `SIF_Example` is present, or if the query represented by `SIF_ConditionGroup` or `SIF_Example` is supported.

Step	Process	Flow Control
9	Prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the query is not supported. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Stop processing the message.
10	Examine the query represented by `SIF_ExtendedQuery`, and determine whether it is supported.	Go to Step 12 if the query is supported.
11	Prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the query is not supported. Add `SIF_PacketNumber` with a value of `1` and set `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester and acknowledge the error to the ZIS.	Stop processing the message.
12	Note that Push-Mode Agents should acknowledge receipt of the `SIF_Request` as response generation is typically a long-running operation that will typically lead to HTTP time-outs. As the request will be removed from the Agent's queue, it is RECOMMENDED that the Push-Mode Agent persist the request and its `SIF_PacketNumber` while generating responses, in case of an application or system failure that prevents it from completing the request processing; upon restarting, the Agent can end the response stream with a `SIF_Error`, `SIF_PacketNumber` set to the last successfully transmitted `SIF_PacketNumber + 1` and `SIF_MorePackets` set to `No`. If a Push-Mode Agent elects to successfully acknowledge the request before processing, it can do so. Otherwise it should acknowledge receipt of the request upon completion of response generation. Pull-Mode Agents can choose to acknowledge receipt of the request here or at the end of response generation. Initialize packet counter to 1.	
13	Prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. When handling `SIF_ExtendedQuery`, copy the requested columns into `SIF_ExtendedQueryResults/SIF_ColumnHeaders`.	
14	Add one or more of the matching objects into `SIF_ObjectData`, for `SIF_Query`, or rows into `SIF_ExtendedQueryResult`, for `SIF_ExtendedQuery`, until no more will fit within the specified buffer size. If no objects or rows will fit within `SIF_MaxBufferSize`, go to Step 15 with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that `SIF_MaxBufferSize` cannot be honored. Otherwise, note that only requested columns are returned when processing `SIF_ExtendedQuery`. When processing `SIF_Query`, if the requester specified only certain elements be returned, that the Responder needs to return only those elements and their parent elements and attributes. Not supporting a requested element/attribute does not exclude the object from the response stream; include the parent elements/attributes of any missing elements, including the object itself.	If no errors occur in retrieving/adding matching objects, go to step 16.
15	Set `SIF_PacketNumber` to the current packet counter and `SIF_MorePackets` to `No`. Add an appropriate `SIF_Error` element to the `SIF_Response` and send the `SIF_Response` to the ZIS.	Go to Step 19.

Step	Process	Flow Control
16	Set `SIF_PacketNumber` to the current packet counter value and set `SIF_MorePackets` appropriately. Send the `SIF_Response` to the ZIS.	
17	Examine the `SIF_Ack` returned by the ZIS.	If an error occurred, stop processing the `SIF_Request` message. Go to Step 19.
18	Determine if more objects or rows match the specified conditions.	If yes, increment the packet counter and go to Step 13; otherwise, go to Step 19.
19	If your Agent has not yet acknowledged receipt of the incoming request, acknowledge successful receipt of the request, or return a descriptive error to the ZIS.	Message handling complete.

Table 4.1.2.3-1: SIF_Request Handling

4.1.2.4 SIF_Response

A ZIS places a `SIF_Response` in your Agent's queue when a responder sends a response packet to your Agent per a `SIF_Request` previously sent by your Agent. It is delivered when it is the next message available for delivery to your Agent.

Step	Process	Flow Control
1	`SIF_RequestMsgId` indicates which of your `SIF_Request`s this packet is in response to. Is `SIF_Error` present?	If no, go to Step 3.
2	The Responder's handling of your Agent's `SIF_Request` has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included. this is the last packet your Agent will receive associated with that request. If your Agent is a Pull-Mode Agent, acknowledge the message per `SIF_Ack` (Pull-Mode) above. If your Agent is a Push-Mode Agent: Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Place 1 (immediate `SIF_Ack`) in `SIF_Status/SIF_Data`, and return the `SIF_Ack` to the ZIS.	Message handling complete. Any resources associated with the request can be released.

Step	Process	Flow Control
3	If your Agent is a Pull-Mode Agent, process the response per your Agent's business rules. When complete or if an error occurs, acknowledge the message and remove it from your Agent's queue per `SIF_Ack` (Pull-Mode) above. If your Agent is a Push-Mode Agent, it has one of two options: process the response, then acknowledge it; or acknowledge the response, then process it. The advantage of first processing the response is the ability to return a descriptive error, if necessary, to the ZIS when acknowledging the message. The disadvantage of first processing is that if the processing is long running, the connection from the ZIS to your Agent may time out, which will lead to the response being redelivered to your Agent in another delivery attempt, to possibly run into another time-out. To avoid the latter, it is RECOMMENDED that your Push-Mode Agent first acknowledge the response, then process it, unless response processing is known to always occur within a reasonable amount of time. Agents that first acknowledge then process SHOULD persist the response locally until processing is complete, as the response is removed from your Agent's queue upon successful acknowledgement, otherwise the response will be lost in the case of an application or system error that affects your Agent's ability to complete processing of the response. Choose an option and process the response according to your Agent's business rules. When acknowledging: Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Place 1 (immediate `SIF_Ack`) in `SIF_Status/SIF_Data` in the case of successful procssing, and return the `SIF_Ack` to the ZIS. If an error has occurred, include a `SIF_Error` element with an appropriate `SIF_Category` and `SIF_Code` and describe the error as needed in `SIF_Desc` and optionally `SIF_ExtendedDesc`. Note that indicating a transport error will not remove the message from your Agent's queue, only acknowledge it. The same action can be accomplished indicating 8 (receiver is sleeping) in `SIF_Status/SIF_Code`. If an error occurs regardless of the option chosen, it is RECOMMENDED that your Agent publish a `SIF_LogEntry` Add event.	Message handling complete. If `SIF_MorePackets` is No, this is the last packet associated with the request your Agent will receive; any resources associated with the request can be released.

Table 4.1.2.4-1: SIF_Event Handling

4.1.2.5 SIF_Ping (Push-Mode only)

The ZIS is pinging your Agent to see if it is reachable, "awake" and/or processing messages.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. If your Agent is "awake," include a `SIF_Status` element with a `SIF_Code` of 1 (immediate `SIF_Ack`). Otherwise you may optionally notify the ZIS that your Agent is asleep by returning a `SIF_Code` of 8 (receiver is sleeping).	
2	Return the `SIF_Ack` to the ZIS.	Message processing complete (success).

Table 4.1.2.5-1: SIF_Ping Handling

4.1.2.6 SIF_Sleep (Push-Mode only)

The ZIS has changed its state to "asleep" and is either not processing incoming messages or all incoming messages will be acknowledged with a `SIF_Ack/SIF_Status/SIF_Code` value of 8 (receiver is sleeping); delivery of queued messages to your Agent is halted. Your Agent SHOULD avoid sending messages to the ZIS until receipt of a `SIF_Wakeup` message, or be prepared to handle transport errors or the aforementioned acknowledgement.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of 1 (immediate `SIF_Ack`). Change your Agent's ZIS state to "asleep."	
2	Return the `SIF_Ack` to the ZIS.	Message processing complete (success).

Table 4.1.2.6-1: SIF_Sleep Handling

4.1.2.7 SIF_Wakeup (Push-Mode only)

The ZIS has changed its state to "awake" and is processing incoming messages and delivering queued messages again.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of 1 (immediate `SIF_Ack`). Change your Agent's ZIS state to "awake."	
2	Return the `SIF_Ack` to the ZIS.	Message processing complete (success).

Table 4.1.2.7-1: SIF_Wakeup Handling

4.1.2.8 SIF_CancelRequests (Push-Mode only) (optional)

A ZIS is requesting that your Agent cancel processing of one or more `SIF_Request` messages. Support for handling of this message is currently optional for Push-Mode Agents. If your Agent does not support `SIF_CancelRequests`, it returns a Generic Message Handling error upon receipt of the `SIF_SystemControl` message, error code "Message not supported," per the

`SIF_Message` handling protocol.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Agent's Agent ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of 1 (immediate SIF_Ack).	
2	If your Agent is currently preparing `SIF_Response` packets for any of the `SIF_Request` messages specified in the `SIF_RequestMsgId` element(s), stop processing the request(s). If your Agent has any of the specified `SIF_Request`s queued locally, remove them from the agent local queue.	
3	Return the `SIF_Ack` to the ZIS.	Message processing complete (success).

Table 4.1.2.8-1: SIF_CancelRequests Handling

4.2 ZIS Protocols

4.2.1 ZIS Messaging Protocols

This section documents how Zone Integration Servers send individual messages, and the resulting post-conditions upon success or failure, along with any necessary steps to take. These correspond to each of the actions a Zone Integration Server can initiate.

4.2.1.1 SIF_Message Delivery (SIF_Event, SIF_Request, SIF_Response to a Push-mode Agent)

A ZIS contacts a Push-Mode Agent to deliver SIF_Event, SIF_Request and SIF_Response messages queued for the Agent. This delivery protocol starts with a check on whether there are messages pending, as the protocol can loop as messages are delivered.

Step	Process	Flow Control
1	Are there messages queued for the Agent?	If yes, go to Step 2. Otherwise messaging protocol complete (success).
2	Is the state of the Agent "asleep?" If yes, the ZIS SHOULD wait until the Agent sends a SIF_Wakeup message or re-registers in Push mode before attempting message delivery. Otherwise the ZIS MUST be prepared to handle transport errors/exceptions and/or the Agent responding with a SIF_Status/SIF_Code of 8 (receiver is sleeping).	If no, go to Step 3. Otherwise messaging protocol complete (success).
3	Has the Agent previously invoked SMB?	If no, go to Step 6.
4	Iterate through the Agent's queue from the message received first to the most recently received message. Stop at the first SIF_Response or SIF_Request in the queue, if one exists.	If one exists, it is the next message to be delivered. Go to Step 7.
5	The only messages queued for the Agent are SIF_Events; try again later, or after a SIF_Response or SIF_Request arrives, or after the Agent has ended SMB by sending a final SIF_Ack.	Messaging protocol complete (no message needs to be delivered).
6	The next message to be delivered is the message received first in the Agent's queue.	
7	Is SIF_Header/SIF_Security present in the SIF_Message with SIF_EncryptionLevel, SIF_AuthenticationLevel, or both?	If no, the message delivery encryption/authentication levels are the minimum encryption/authentication levels set up for the Zone. Go to Step 9.
8	The ZIS MUST guarantee that the minimum encryption and/or authentication levels specified are respected when delivering this message. Use the higher of these and the Zone's minimum encryption and/or authentication levels during message delivery.	
9	If a connection is already open to the Push-Mode Agent from a previously delivered message, are the encryption and authentication levels greater than or equal to those needed for the delivery of this message?	If there is no connection open, go to Step 11. If there is and the encryption/authentication levels are adequate for delivery, go to Step 13.
10	Attempt to renegotiate the encryption/authentication levels for the connection, or close the connection and attempt to open a new connection with adequate encryption/authentication levels.	Go to Step 12.
11	If the registered transport layer is known to not provide adequate encryption/authentication levels (e.g. SIF HTTP), go to Step 12. Otherwise attempt to open a connection to the Agent with adequate encryption/authentication levels, using the appropriate transport layer.	
12	Was a connection opened or renegotiated with adequate encryption/authentication levels? If no, the message cannot be delivered; remove it from the Agent's queue. It is RECOMMENDED that your ZIS log the error. Your ZIS MUST post a SIF_LogEntry Add event with the appropriate error category and code, containing a copy of the SIF_Header of the queued message. SIF_LogEntry/SIF_Desc MUST contain the SIF_SourceId of the Agent that failed to receive the message.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (error).
13	Send the message to the Agent over the connection.	
14	Receive SIF_Ack in response. Is SIF_Error present?	If yes, go to Step 24.
15	Is SIF_Status/SIF_Code 1 (immediate SIF_Ack)?	If no, go to Step 17.

Step	Process	Flow Control
16	The Agent has successfully acknowledged receipt of the message; remove it from the Agent's queue.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (success).
17	Is SIF_Status/SIF_Code 2 (intermediate SIF_Ack)?	If no, go to Step 21.
18	The Agent is invoking SMB. Is the delivered message a SIF_Event?	If yes, go to Step 20.
19	The Agent has violated protocol; remove the message from the Agent's queue. It is RECOMMENDED that your ZIS log the error. Your ZIS MUST post a SIF_LogEntry Add event with the appropriate error category of 13 (SMB Error) and code 2 (SMB can only be invoked for SIF_Event), containing a copy of the SIF_Header of the queued message. SIF_LogEntry/SIF_Desc MUST contain the SIF_SourceId of the Agent that committed the protocol error.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (error).
20	The Agent has invoked SMB on this SIF_Event. Persist that the Agent has invoked SMB along with the SIF_MsgId of the event. The event stays in the agent's queue as blocked, and all other events are frozen until the Agent eventually ends SMB by sending a final SIF_Ack with this SIF_MsgId in SIF_OriginalMsgId, or by sending a SIF_Wakeup or by re-registering.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (success).
21	Is SIF_Status/SIF_Code 8 (receiver is sleeping)?	If no, go to Step 23.
22	The Agent is asleep. Re-attempt delivery later.	Messaging protocol complete (success).
23	Messaging protocol has failed due to a SIF_Status/SIF_Code of 7 (already have this SIF_MsgId). The ZIS cannot correct this, as the SIF_MsgId originates from an Agent and can't be changed without other repercussions. Remove the message from the Agent's queue. It is RECOMMENDED that your ZIS log the error. Your ZIS MUST post a SIF_LogEntry Add event with the appropriate error category and code, containing a copy of the SIF_Header of the queued message. SIF_LogEntry/SIF_Desc MUST contain the SIF_SourceId of the Agent that did not receive the message.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (error).
24	Messaging protocol has failed due to a SIF_Error condition. See Error Codes with SIF_Category and SIF_Code, and examine SIF_Desc and SIF_ExtendedDesc, if included. If SIF_Category does not indicate a transport error, remove the message from the Agent's queue. Otherwise re-attempt delivery of this message later. It is RECOMMENDED that your ZIS log the error. Your ZIS MAY post a SIF_LogEntry Add event with the appropriate error category and code, containing a copy of the SIF_Header of the queued message. SIF_LogEntry/SIF_Desc MUST contain the SIF_SourceId of the Agent that indicated the error.	Go to Step 1 to start delivery of the next queued message, if desired. Otherwise messaging protocol complete (error).

Table 4.2.1.1-1: SIF_Message Delivery Protocol

4.2.1.2 SIF_Ping (to a Push-mode Agent)

A ZIS can "ping" a Push-Mode Agent or check that it's "awake" by sending a

SIF_Ping message to the Agent. If the Agent returns a successful acknowledgement, it is awake; the Agent may also reply that it is asleep. As a Push-Mode Agent may be offline completely, Zone Integration Servers should be prepared to handle transport errors directly or wrapped in a SIF_Ack/SIF_Error by underlying code.

Step	Process	Flow Control
1	Prepare a SIF_SystemControl message with SIF_Header containing a new GUID in SIF_MsgId, the Zone ID in SIF_SourceId and the current time in SIF_Timestamp; other SIF_Header elements do not apply. Place an empty SIF_Ping element in SIF_SystemControlData.	Send SIF_Message to Agent over appropriate transport.
2	Receive SIF_Ack in response. Is SIF_Error present?	If yes, go to Step 8.
3	Is SIF_Status/SIF_Code 1?	If no, go to Step 5.
4	The Agent is awake.	Messaging protocol complete (success).
5	Is SIF_Status/SIF_Code 8 (receiver is sleeping)?	If no, go to Step 7.

Step	Process	Flow Control
6	The Agent is asleep.	Messaging protocol complete (success).
7	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 7 (your ZIS sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
8	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.2.1.2-1: SIF_Ping Protocol

4.2.1.3 SIF_Sleep (to a Push-mode Agent)

A ZIS can send a

`SIF_Sleep` message to a Push-Mode Agent to change its state to "sleeping," indicating that it will either be offline or acknowledging incoming messages with a `SIF_Status/SIF_Code` of 8 (receiver is sleeping), and that it will not be delivering messages to the Agent until it "wakes up" by sending a `SIF_Wakeup` message.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_Sleep` element in `SIF_SystemControlData`.	Send `SIF_Message` to Agent over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 1?	If no, go to Step 5.
4	The Agent has successfully acknowledged your `SIF_Sleep` and should not be expecting further message delivery until your ZIS sends a `SIF_Wakeup`.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (Agent is asleep) or 7 (your ZIS sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.2.1.3-1: SIF_Sleep Protocol

4.2.1.4 SIF_Wakeup (to a Push-mode Agent)

A ZIS can send a

SIF_Wakeup message to a Push-Mode Agent to change its state to "awake;" i.e., that it is ready to process incoming messages and deliver queued messages again.

Step	Process	Flow Control
1	Prepare a `SIF_Message/SIF_SystemControl` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place an empty `SIF_Wakeup` element in `SIF_SystemControlData`.	Send `SIF_Message` to Agent over appropriate transport.
2	Receive `SIF_Ack` in response. Is `SIF_Error` present?	If yes, go to Step 6.
3	Is `SIF_Status/SIF_Code` 1?	If no, go to Step 5.
4	The Agent has successfully acknowledged your "awake" status.	Messaging protocol complete (success).
5	Messaging protocol has failed due to a `SIF_Status/SIF_Code` of 8 (Agent is asleep) or 7 (your ZIS sent a duplicate `SIF_MsgId`).	Messaging protocol complete (failure).
6	Messaging protocol has failed due to a `SIF_Error` condition. See Error Codes with `SIF_Category` and `SIF_Code`, and examine `SIF_Desc` and `SIF_ExtendedDesc`, if included.	Messaging protocol complete (failure).

Table 4.2.1.4-1: SIF_Wakeup Protocol

4.2.1.5 SIF_CancelRequests (to a Push-mode Agent)

A ZIS can send a

SIF_CancelRequests message to a Push-Mode Agent after receiving a SIF_CancelRequests messages from another agent, as per the SIF_CancelRequests message handling protocol. As support for this message is currently optional for Push-Mode Agents, the ZIS should be prepared to handle a Generic Message Handling error from the Agent upon receipt of the SIF_SystemControl message, error code "Message not supported."

Step	Process	Flow Control
1	Prepare a SIF_Message/SIF_SystemControl message with SIF_Header containing a new GUID in SIF_MsgId, your Zone ID in SIF_SourceId and the current time in SIF_Timestamp; other SIF_Header elements do not apply. Place a SIF_CancelRequests element in SIF_SystemControlData.	
2	Place the requests that should be cancelled in SIF_RequestMsgIds/SIF_RequestMsgId. While it is not used by the Push-Mode Agent, set the NotificationType to None.	Send SIF_Message to Agent over appropriate transport.
3	Receive SIF_Ack in response. Is SIF_Error present?	If yes, go to Step 7.
4	Is SIF_Status/SIF_Code 1?	If no, go to Step 6.
5	The Agent has successfully acknowledged your SIF_CancelRequests and should have cancelled any corresponding response activity.	Messaging protocol complete (success).
6	Messaging protocol has failed due to a SIF_Status/SIF_Code of 8 (Agent is asleep) or 7 (your ZIS sent a duplicate SIF_MsgId).	Messaging protocol complete (failure).
7	Messaging protocol has failed due to a SIF_Error condition. See Error Codes with SIF_Category and SIF_Code, and examine SIF_Desc and SIF_ExtendedDesc, if included.	If the SIF_Error is a Generic Message Handling error, error code "Message not supported," go to Step 8. Otherwise messaging protocol complete (failure).
8	The Agent does not support SIF_CancelRequests.	Messaging protocol complete (success).

Table 4.2.1.5-1: SIF_CancelRequests Protocol

4.2.2 ZIS Message Handling Protocols

This section documents how Zone Integration Servers should respond to incoming messages, and the resulting post-conditions upon success or failure, along with any necessary steps to take.

Note that in handling any SIF_Message, the ZIS can return a SIF_Ack with SIF_Status/SIF_Code 8 (receiver is sleeping) or 7 (already have this SIF_MsgId from you) if a duplicate message is detected. These responses are omitted from the handling protocols below.

4.2.2.1 SIF_Message

When a message is received, the ZIS should first validate the XML message. If the message is not SIF_Register, the ZIS should determine whether the sender is registered in the zone. If errors are found, a SIF_Ack with a SIF_Error element should be returned to the caller and no further processing should occur. If no errors are found, message processing proceeds according to message type. Subsequent message processing sections are assured of receiving well-formed and/or valid XML, and all non-SIF_Register message processing sections are assured that the agent is indeed registered with the zone.

Step	Process	Flow Control
1	Validate incoming XML message. Message validation is optional. The Version attribute of SIF_Message can be used to indicate the appropriate message definition.	If not performing message validation, go to Step 3 if XML is well-formed. If performing message validation, go to Step 3 if message is well-formed and valid.

Step	Process	Flow Control
2	Prepare a `SIF_Ack` containing a `SIF_Error` element. (Note that if XML is not well-formed, or invalid and the well-formed XML is not made available by the XML parser, `SIF_SourceId` and `SIF_MsgId` will not be available from the incoming XML message. If this is the case, include `SIF_OriginalSourceId` and `SIF_OriginalMsgId` in the `SIF_Ack` as empty elements with xsi:nil set to true as necessary to indicate the current message.) Set `SIF_Error/SIF_Category` to indicate XML Validation and place the appropriate error code and description in `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc`. Place any additional parser information into `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to caller. If it can be determined the message is a `SIF_Response`, see `SIF_Response` Handling below, Step 13, to send an error `SIF_Response` to the requester.	Stop processing this message.
3	Examine the Version attribute of the message.	If the version is supported, go to Step 5.
4	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to Generic Message Handling, indicating that the message is not supported in `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc`. Return the `SIF_Ack` to the caller. If this message is a `SIF_Response`, see `SIF_Response` Handling below, Step 13, to send an error `SIF_Response` to the requester.	Stop processing this message.
5	Examine message's `SIF_Header` to retrieve the `SIF_SourceId` and the message to get the message type. If message type is not `SIF_Register`, determine if the sender identified by `SIF_SourceId` is registered.	If message type is `SIF_Register` or if the sender's `SIF_SourceId` is registered, go to Step 7.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to Access and Permissions, indicating that the sender is not registered in `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc`. Return the `SIF_Ack` to the caller. If this message is a `SIF_Response`, see `SIF_Response` Handling below, Step 13, to send an error `SIF_Response` to the requester.	Stop processing the message.
7	Forward message to the proper handler based on the message type.	

Table 4.2.2.1-1: SIF_Message Handling

4.2.2.2 SIF_Register

Before an agent can participate in a zone, it must register itself in order to provide the data that the ZIS needs to interact with the agent. This process is handled using a `SIF_Register` message.

Step	Process	Flow Control
1	If ZIS implementation limits `SIF_SourceId` values in some way, examine `SIF_SourceId` and determine whether it is valid.	If implementation allows any `SIF_SourceId` or if the `SIF_SourceId` is valid, go to Step 3.
2	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Registration and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that `SIF_SourceId` is invalid. Return the `SIF_Ack` to the caller.	Stop processing this message.
3	If ZIS implementation requires previous permissions to register, examine `SIF_SourceId` and determine whether sender is permitted to register.	If implementation allows any sender to register or if sender is permitted to register, go to Step 5.
4	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Access and Permissions and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the lack of permission to register. Return the `SIF_Ack` to the caller.	Stop processing this message.
5	Examine `SIF_Version` element(s) and determine if the ZIS can handle the version(s).	Go to Step 7 if the ZIS can handle the SIF version(s) specified by agent.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Registration and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the ZIS cannot handle SIF messages in a version requested. Place the unsupported version in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing this message.

Step	Process	Flow Control
7	Examine `SIF_MaxBufferSize` and verify that it is greater than or equal to the minimum value for the ZIS.	Go to Step 9 if `SIF_MaxBufferSize` is large enough.
8	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Registration and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the `SIF_MaxBufferSize` is too small to be supported by the ZIS. Return the `SIF_Ack` to the caller	Stop processing this message.
9	If the supplied value of `SIF_Mode` is `Push`, verify that the `SIF_Protocol` element is provided and that the protocol information appears sufficient for contacting the agent in Push mode and that the ZIS supports the `Accept-Encoding SIF_Protocol/SIF_Property`, if specified.	Go to Step 11 if `SIF_Mode` is `Pull` or `SIF_Protocol` information appears valid.
10	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Registration and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the protocol is not supported, a secure transport is required, or that the ZIS does not support the supplied `Accept-Encoding` value. Return the `SIF_Ack` to the caller.	Stop processing this message.
11	Store data from the `SIF_Register` message into the agent's database profile.	
12	Prepare a `SIF_Ack` containing a `SIF_Status` element indicating success, placing the agent's access control permissions in `SIF_Status/SIF_Data/SIF_AgentACL`. Return the `SIF_Ack` to the caller.	Stop processing this message.

Table 4.2.2.2-1: SIF_Register Handling

An agent may also send the `SIF_Register` message when already registered. In this case, the ZIS should re-register the agent in the same manner as defined for initial registration. Any existing provision and subscription entries, as well as any pending messages, maintained by the ZIS for the agent should remain intact. Upon successful re-registration, any new or updated registration settings for the agent, including push mode protocol information, take effect after the ZIS has returned a successful `SIF_Ack` for the `SIF_Register` message.

4.2.2.3 SIF_Unregister

When an agent is going be removed from a Zone, the agent must send a `SIF_Unregister` message. When a ZIS receives this message from an agent, it performs those steps—ignoring `SIF_Ack` preparation and delivery—outlined for the `SIF_Unprovide` and `SIF_Unsubscribe` messages for any agent provisions or subscriptions, respectively. The ZIS then discards any messages pending for the agent. The ZIS will also remove any registration information and remove the agent from its list of registered agents.

It is recommended that the ZIS not remove access control data from its database as a replacement agent may be installed. Keeping the access permissions is optional, however.

Step	Process	Flow Control
1	Examine message and retrieve the `SIF_SourceId` of the message. The ZIS must remove the agent from its list of registered agents. Perform `SIF_Unprovide` functionality for any objects the agent is providing. Perform `SIF_Unsubscribe` functionality for any objects to which the agent is subscribed. Discard any pending messages for the agent.	
2	Prepare a `SIF_Ack` containing a `SIF_Status` element indicating success. Return the `SIF_Ack` to caller.	Stop processing the message.

Table 4.2.2.3-1: SIF_Unregister Handling

4.2.2.4 SIF_Provide

An agent makes an object available to be requested by a process called Provision that is represented by the `SIF_Provide` message.

The `SIF_Provide` message can contain provision requests for multiple objects. The ZIS must treat all of the objects as a set; if there is an error with one of the objects then there should be no change to the Providers database.

Step	Process	Flow Control
1	Prepare a `SIF_Ack`.	Go to Step 3.

Step	Process	Flow Control
2	Examine the message to determine whether any more objects are being provided.	Go to Step 11 if there are no further object provisions to process for this message.
3	Retrieve the name of the next object to be provided. If not otherwise performed in initial message validation, check whether the object name is valid (e.g. valid/supported object, not `SIF_ZoneStatus`).	If object name is valid, go to Step 5.
4	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Provision and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the object is invalid. Place the name of the invalid object in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 14.
5	If no `SIF_Context` is specified, the context is `SIF_Default`. Otherwise check that each `SIF_Context` supplied in `SIF_Contexts` is supported.	If they are all supported, go to Step 7.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Generic Message Handling. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate a context is not supported. Place the name of the context in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 14.
7	Using the `SIF_SourceId`, consult the ACL to determine if the sender has the proper access and permissions for this object in each of the specified contexts.	If sender has the proper access and permissions, go to Step 9.
8	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Access and Permissions. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the sender lacks permission to provide this object. Place the name of the object in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 14.
9	Check the Providers database to see if this object has already been provided in the contexts specified.	If the object does not have a provider in the contexts specified, go to Step 11.
10	Is the current provider the same as the `SIF_SourceId` of this message?	If the provider differs from the `SIF_SourceId` of this message, go to Step 14. Otherwise go to Step 2.
11	Add a record in the Providers database to indicate that `SIF_SourceId` is the provider of this object in the given contexts. If an error occurs, add a `SIF_Error` element to the `SIF_Ack`.	If an error occurs, go to Step 13; otherwise go to Step 2.
12	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Provision and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that the object already has a provider. Place the name of the provider in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 14.
13	Add a `SIF_Status` element indicating success to the `SIF_Ack`. Return the `SIF_Ack` to the caller.	Stop processing the message.
14	Undo all changes to the Providers database. Return the `SIF_Ack` to the caller.	Stop processing the message.

Table 4.2.2.4-1: SIF_Provide Handling

4.2.2.5 SIF_Unprovide

If an agent wishes to withdraw an object previously provided, the `SIF_Unprovide` message is used.

The `SIF_Unprovide` message can contain multiple objects. The ZIS must treat all of the objects as a set; if there is an error with one of the objects then there should be no change to the Providers database.

Step	Process	Flow Control
1	Prepare a `SIF_Ack`.	Go to Step 3.
2	Examine the message to determine whether any more objects are being unprovided.	Go to Step 7 if there are no further objects to process for this message.
3	Examine the message and retrieve the name of an object to be unprovided. If not otherwise performed in initial message validation, check whether the object name is valid (e.g. valid/supported object, not `SIF_ZoneStatus`).	Go to Step 5 if the object name is valid.

Step	Process	Flow Control
4	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Provision and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the object is invalid. Place the name of the invalid object in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 10.
5	If no `SIF_Context` is specified, the context is `SIF_Default`. Otherwise check that each `SIF_Context` supplied in `SIF_Contexts` is supported.	If they are all supported, go to Step 7.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Generic Message Handling. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate a context is not supported. Place the name of the context in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 10.
7	If it exists, remove the records in the Providers database that marks `SIF_SourceId` as the provider of this object for the given contexts. If an error occurs, add a `SIF_Error` element to the `SIF_Ack`.	If an error occurs, go to Step 10.
8	Leave all pending `SIF_Request`s for the object in the responder's queue, as they may include `SIF_Request`s routed explicitly to the responder using `SIF_DestinationId`.	Go to Step 2.
9	Add a `SIF_Status` element indicating success to the `SIF_Ack`. Return the `SIF_Ack` to the caller	Stop processing the message.
10	Undo all changes to the Providers database. Return the `SIF_Ack` to the caller.	Stop processing the message.

Table 4.2.2.5-1: SIF_Unprovide Handling

4.2.2.6 SIF_Subscribe

An agent requests to receive `SIF_Event`s for an object by a process called Subscription that is represented by the `SIF_Subscribe` message.

The `SIF_Subscribe` message can contain subscription requests for multiple objects. The ZIS must treat all of the objects as a set, if there is an error with one of the objects then there should be no change to the Subscribers database.

Step	Process	Flow Control
1	Prepare a `SIF_Ack`.	Go to Step 3.
2	Examine the message to determine whether any more subscriptions need to be processed.	Go to Step 9 if there are no further subscriptions to process in this message.
3	Retrieve the name of the next object to be subscribed to. If not otherwise performed in initial message validation, check whether the object name is valid (e.g., valid/supported object with events reported).	If the object name is valid, go to Step 5.
4	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Subscription and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the object is invalid. Place the name of the invalid object in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 12.
5	If no `SIF_Context` is specified, the context is `SIF_Default`. Otherwise check that each `SIF_Context` supplied in `SIF_Contexts` is supported.	If they are all supported, go to Step 7.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Generic Message Handling. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate a context is not supported. Place the name of the context in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 12.
7	Using the `SIF_SourceId`, consult the ACL to determine if the sender has the proper access and permissions for this object and contexts.	If sender has the proper access and permissions, go to Step 9.
8	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Access and Permissions. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the sender lacks permission to subscribe to this object. Place the name of the object in `SIF_Error/SIF_ExtendedDesc`.	Go to Step 12.
9	Check the Subscribers database to see if the caller is already subscribed to this object for the specified contexts.	If the caller is already subscribed to this object, go to Step 2.

Step	Process	Flow Control
10	Add a record in the Subscribers database to indicate that SIF_SourceId is a subscriber of this object's SIF_Events in the specified contexts. If an error occurs, add a SIF_Error element to the SIF_Ack.	If an error occurs go to Step 12; otherwise go to Step 2.
9	Add a SIF_Status element indicating success to the SIF_Ack. Return the SIF_Ack to the caller.	Stop processing the message.
12	Undo all changes to the Subscribers database. Return the SIF_Ack to the caller.	Stop processing the message.

Table 4.2.2.6-1: SIF_Subscribe Handling

4.2.2.7 SIF_Unsubscribe

If an agent wishes to cancel one or more subscriptions, the SIF_Unsubscribe message is used. Events already queued for delivery prior to unsubscription will be delivered.

The SIF_Unsubscribe message can contain subscription requests for multiple objects. The ZIS must treat all of the objects as a set, if there is an error with one of the objects then there should be no change to the Subscribers database.

Step	Process	Flow Control
1	Prepare a SIF_Ack.	Go to Step 3.
2	Examine the message to determine whether any more unsubscriptions need to be processed.	Go to Step 6 if there are no further objects to process in the message.
3	Retrieve the name of the next object. If not otherwise performed in initial message validation, check whether the object name is valid (e.g. valid/supported object with events reported).	If the object name is valid, go to Step 5.
4	Add a SIF_Error element to the SIF_Ack. Set SIF_Error/SIF_Category to indicate Subscription and set SIF_Error/SIF_Code and SIF_Error/SIF_Desc to indicate the object is invalid. Place the name of the invalid object in SIF_Error/SIF_ExtendedDesc.	Go to Step 9.
5	If no SIF_Context is specified, the context is SIF_Default. Otherwise check that each SIF_Context supplied in SIF_Contexts is supported.	If they are all supported, go to Step 7.
6	Prepare a SIF_Ack containing a SIF_Error element. Set SIF_Error/SIF_Category to indicate Generic Message Handling. Set SIF_Error/SIF_Code and SIF_Error/SIF_Desc to indicate a context is not supported. Place the name of the context in SIF_Error/SIF_ExtendedDesc.	Go to Step 12.
7	If it exists, remove the record in the Subscribers database that marks SIF_SourceId as a subscriber of this object's SIF_Events in the specified contexts. If an error occurs, add a SIF_Error element to the SIF_Ack.	If an error occurs go to Step 9, otherwise go to Step 2.
8	Add a SIF_Status element indicating success to the SIF_Ack. Return the SIF_Ack to the caller.	Stop processing the message.
9	Undo all changes to the Subscribers database. Return the SIF_Ack to the caller.	Stop processing the message.

Table 4.2.2.7-1: SIF_Unsubscribe Handling

4.2.2.8 SIF_Provision

An Agent is registering its support for various messages with regard to various objects. Settings supplied replace any previously recorded settings for the Agent.

Step	Process	Flow Control
1	Prepare SIF_Ack.	
2	Process SIF_ProvideObjects as provide.	On error go to step 13.
3	Process objects not in SIF_ProvideObjects as unprovide.	On error go to step 13.
4	Process SIF_SubscribeObjects as subscribe.	On error go to step 13.
5	Process objects not in SIF_SubscribeObjects as unsubscribe.	On error go to step 13.

Step	Process	Flow Control
6	Process `SIF_PublishAddObjects`.	On error go to step 13.
7	Process `SIF_PublishChangeObjects`.	On error go to step 13.
8	Process `SIF_PublishDeleteObjects`.	On error go to step 13.
9	Process `SIF_RequestObjects`.	On error go to step 13.
10	Process `SIF_RespondObjects`.	On error go to step 13.
11	Save changes.	
12	Return success `SIF_Ack`.	Stop processing.
13	Roll back any changes.	
14	Return error `SIF_Ack`.	Stop processing.

Table 4.2.2.8-1: SIF_Provision Handling

4.2.2.9 SIF_Event

When an application has made a change in an object that is part of the Zone and for which the application has declared the ability to generate `SIF_Event`s, the agent will send a `SIF_Event` message to its Zone Integration Server so the framework may distribute it.

Step	Process	Flow Control
1	Examine message and retrieve the name of the object. Check whether the object name is valid (e.g. valid/supported object with events reported).	If object name is valid, go to Step 3.
2	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Event Reporting and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the event is invalid. Place the name of the invalid object in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
3	If no `SIF_Context` is specified, the context is `SIF_Default`. Otherwise check that each `SIF_Context` supplied in `SIF_Contexts` is supported.	If they are all supported, go to Step 5.
4	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Generic Message Handling. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate a context is not supported. Place the name of the context in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
5	Using the `SIF_SourceId`, consult the ACL to determine if the sender has the proper access and permissions for this object in the specified contexts.	If sender has the proper access and permissions, go to Step 7.
6	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Access and Permissions. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the sender lacks permission to publish events pertaining to this object (use general `SIF_Event` error code, or specific Add, Change, Delete codes). Place the name of the object in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
7	Check the Subscriber database to see if there are any subscribers in the specified contexts for the `SIF_Event`.	Go to Step 9 if there are no subscribers for this object.
8	Create a new message for this `SIF_Event` and place a copy into each subscribing agent's queue. If more than one context is specified for the event, only one copy of the event is placed in the subscribing agent's queue. If the event cannot be placed into an individual agent's queue due to the agent's maximum buffer size or because the subscribing agent does not support the message version of the `SIF_Event`, it is recommended that the ZIS log the inability to deliver the event. In addition, the ZIS MUST report a `SIF_LogEntry` event with the appropriate error category and code, containing a copy of the `SIF_Header` from the original message. `SIF_LogEntry/SIF_Desc` must contain the SourceId of the agent that has failed to receive the message.	
9	Prepare a `SIF_Ack` containing a `SIF_Status` element indicating success. Return a `SIF_Ack` to the caller.	Stop processing the message.

Table 4.2.2.9-1: SIF_Event Handling

4.2.2.10 SIF_Request

When an agent needs information from a Zone context it sends a `SIF_Request` message to the ZIS. If the `SIF_Request`'s header does not contain a `SIF_DestinationId` element, the ZIS will route the message to the Provider of the object referenced in the `SIF_Request`. If the header contains a `SIF_DestinationId`, the ZIS will route the message to the application referenced in the `SIF_DestinationId` if the security policies of the zone permit such routing. The ZIS will return a `SIF_Ack` message to the requesting agent to indicate whether or not it was able to process the `SIF_Request` message.

After the ZIS returns a success `SIF_Ack` to the requester, the ZIS will route the `SIF_Request` to the responder and the requesting agent may expect to receive one or more `SIF_Response` messages sent by the responder. However, the responder may not be currently on-line or it may not be able to immediately satisfy the `SIF_Request`. Therefore, requesting agents must not depend upon a timely response to their `SIF_Request`.

If the ZIS returns an error `SIF_Ack`, the requesting agent will not receive any `SIF_Response` messages from a responder.

Step	Process	Flow Control
1	Prepare a `SIF_Ack`.	
2	Retrieve the name of the object from the `ObjectName` attribute of `SIF_Query/SIF_QueryObject` and check whether it's a valid/supported object.	Go to Step 4 if the object name is valid.
3	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Request and Response and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the object name is invalid. Place the name of the invalid object in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
4	If no `SIF_Context` is specified, the context is `SIF_Default`. Otherwise check that the context supplied in `SIF_Contexts` is supported. If more than one context is specified, go to Step 5.	If the context is supported, go to Step 6.
5	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Generic Message Handling. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate a specified context is not supported or that multiple contexts are not supported, depending on the error. Place the name of the context in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
6	Using the `SIF_SourceId`, consult the ACL to determine if the sender has the proper access and permissions for this object in the applicable contexr.	If sender has the proper access and permissions, go to Step 8.
7	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Access and Permissions. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the sender lacks permission to request this object. Place the name of the object in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
8	Examine the `SIF_Request` header looking for a `SIF_DestinationId`	Go to Step 11 if a `SIF_DestinationId` was located.
9	No `SIF_DestinationId` was found. Examine the Providers database to locate the responder for the requested object in the applicable context.	Go to Step 12 if a Provider was located.
10	Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate that no provider was found. Return the `SIF_Ack` to the caller.	Stop processing the message.
11	A `SIF_DestinationId` was specified indicating the responder. Confirm that the agent specified in `SIF_DestinationId` has permission to send `SIF_Response` messages for the requested data object in the applicable context.	Go to Step 10 if the agent does not have the necessary permission.
12	If it can be determined from ACL settings or settings recorded by `SIF_Provision` and/or `SIF_Provide` that the Responder cannot handle a `SIF_Query` for a given object or `SIF_ExtendedQuery` for any referenced object, or that the Responder doesn't handle extended queries in general, add a `SIF_Error` element with the applicable `SIF_Error/SIF_Category` and `SIF_Error/SIF_Code` (object not supported, query not supported, or `SIF_ExtendedQuery` not supported). Place an appropriate error message in `SIF_Desc` and/or `SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.

Step	Process	Flow Control
13	Deposit the `SIF_Request` in the responder's queue. If the request cannot be placed into an individual agent's queue due to the agent's maximum buffer size or because the destination agent does not support the message version of the `SIF_Request`, it is recommended that the ZIS log the inability to deliver the request. In addition, the ZIS `MUST` report a `SIF_LogEntry` event with the appropriate error category and code, containing a copy of the `SIF_Header` from this message. `SIF_LogEntry/SIF_Desc` `MUST` contain the SourceId of the agent that has failed to receive the request.	
14	Return a `SIF_Ack`, with `SIF_Status` set to `0`, to the caller to indicate that `SIF_Request` has been sent.	Stop processing the message.

Table 4.2.2.10-1: SIF_Request Handling

4.2.2.11 SIF_Response

When receiving a `SIF_Response` packet from an agent responding to a `SIF_Request`, the ZIS `MUST` perform the validation protocol below.

Step	Process	Flow Control
1	Prepare a `SIF_Ack`.	
2	Using the supplied `SIF_RequestMsgId`, look up the `SIF_Request` that initiated this response.	Go to Step 4 if the `SIF_Request` is found.
3	Add a `SIF_Error` element to the `SIF_Ack`. Set `SIF_Error/SIF_Category` to indicate Request and Response and set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the `SIF_RequestMsgId` is invalid. Place `SIF_RequestMsgId` in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Stop processing the message.
4	Examine the `SIF_MaxBufferSize` specified in the `SIF_Request` message and compare it to the size of the `SIF_Response` packet.	If the `SIF_Response` packet is smaller than or equal to the `SIF_MaxBufferSize` specified in the original request, go to Step 6.
5	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate indicate Request and Response. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the `SIF_MaxBufferSize` is incorrect. Place a description of the `SIF_MaxBufferSize` and the actual size of the message received in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Go to step 13.
6	Examine the `SIF_DestinationId` specified in the `SIF_Response` and compare it to the `SIF_SourceId` of the original request.	If the `SIF_DestinationId` is correct, go to Step 8.
7	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate indicate Request and Response. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the `SIF_DestinationId` is incorrect. Place a description of the `SIF_DestinationId` specified and the `SIF_DestinationId` expected in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Go to step 13.
8	Examine the `SIF_PacketNumber` specified in the `SIF_Response`. If this is the first `SIF_Response` packet received, the `SIF_PacketNumber` must be set to a value of `1`. Subsequent packets must be received in order with the `SIF_PacketNumber` set to `1` + the previous `SIF_PacketNumber`.	If the `SIF_PacketNumber` is correct, go to Step 10.
9	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate indicate Request and Response. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the `SIF_PacketNumber` is incorrect. Place a description of the `SIF_PacketNumber` specified and the `SIF_PacketNumber` expected in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Go to step 13.
10	Examine the `SIF_Version` specified in the `SIF_Response` and compare it to the `SIF_Version`s allowed in the original request.	If the SIF version matches one of the SIF Versions requested in the `SIF_Request`, go to Step 12.

Step	Process	Flow Control
11	Prepare a `SIF_Ack` containing a `SIF_Error` element. Set `SIF_Error/SIF_Category` to indicate Request and Response. Set `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the `SIF_Version` is incorrect. Place a description of the version of the `SIF_Response` and versions allowed by the `SIF_Request` in `SIF_Error/SIF_ExtendedDesc`. Return the `SIF_Ack` to the caller.	Go to step 13.
12	Place the `SIF_Response` packet in the requesting agent's queue.	Message processing is complete. Stop processing the message.
13	Prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message. Add a `SIF_Error` element with the `SIF_Error/SIF_Category` set to indicate Request and Response and `SIF_Error/SIF_Code` and `SIF_Error/SIF_Desc` to indicate the reason that the `SIF_Response` packet was rejected. Add `SIF_PacketNumber` with a value set to set to `1` + the previous `SIF_PacketNumber` and `SIF_MorePackets` to `No`. Send the `SIF_Response` to the original requester. In addition, the ZIS MUST report a `SIF_LogEntry` event with the appropriate error category and code, containing a copy of the `SIF_Header` from the request. `SIF_LogEntry/SIF_ExtendedDesc` should contain information about why the message failed `SIF_Response` validation.	Stop processing the message. The ZIS must also guarantee that no additional `SIF_Response` packets for this `SIF_Request` will be accepted. Depending on the implementation, the ZIS may need to alter the `SIF_Request` cache it maintains to signal that the `SIF_Request` is no longer valid. The ZIS may remove the `SIF_Request` from the cache as the stream is closed.

Table 4.2.2.11-1: SIF_Response Handling

4.2.2.11.1 Implementation Notes

The ZIS must maintain a reliable list of all open `SIF_Request`s in order to satisfy the Quality of Service validations that are applied to `SIF_Response`s above. It is envisioned that once a `SIF_Response` has been completed, either by receiving the last packet or by failing one of the validations applied below, knowledge of the initiating `SIF_Request` will no longer need to be maintained by the ZIS. If the responding agent attempts to send any more `SIF_Response`s for a failed `SIF_Request`, it will automatically fail at Step 2 and get the error response specified in Step 3. Notification of the failed `SIF_Response` would have already been sent to the requesting agent.

There remain three cases where a requesting agent will not receive a complete `SIF_Response` for a request.

1. The responding agent never replies with a `SIF_Response`.
2. The responding agent starts replying, but never finishes the `SIF_Response` by sending a `SIF_Response` with the `SIF_MorePackets` element set to "No".
3. The responding agent attempts a reply with a `SIF_Response` but the ZIS is unable to parse the message enough to read the `SIF_RequestMsgId`. If this case occurs, and the responding agent sends a subsequent `SIF_Response` that is parseable, it is likely that the requesting agent will be notified of the problem because subsequent `SIF_Response` packets will not pass the `SIF_PacketNumber` validation.

Management of the `SIF_Request` cache that is maintained by the ZIS is left up to the ZIS implementation. The ZIS is required to maintain the `SIF_Request`s for a reasonable amount of time. If the ZIS eventually removes `SIF_Request`s that have been cached for a long period of time, that option must be able to be configured by the ZIS administrator.

When an open request cache entry is removed by the administrator or a timeout of the record, the ZIS should publish a `SIF_LogEntry` and a `SIF_Response/SIF_Error` indicating the reason it was removed.

4.2.2.12 SIF_Ping

An Agent is pinging your ZIS to see if it is reachable, "awake" and/or processing messages.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. If your ZIS is "awake," include a `SIF_Status` element with a `SIF_Code` of `0` (success). Otherwise you may optionally notify the Agent that your ZIS is asleep by returning a `SIF_Code` of `8` (receiver is sleeping).	
2	Return the `SIF_Ack` to the Agent.	Message processing complete (success).

Table 4.2.2.12-1: SIF_Ping Handling

4.2.2.13 SIF_Sleep

The Agent wants its state changed to "asleep." Upon successful state change, your ZIS SHOULD avoid sending messages to a Push-Mode Agent until receipt of a `SIF_Wakeup` message or that Agent re-registers, or be prepared to handle transport errors or the aforementioned acknowledgement. Whether the Agent is registered in Push or Pull mode, this state is communicated to other Agents in `SIF_ZoneStatus` and MUST be persisted accordingly. In addition to sending a `SIF_Wakeup` or `SIF_Register`, a Pull-Mode Agent can also change its state to "awake" by sending a `SIF_GetMessage`.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of `0` (success). Change the state of the Agent to "asleep."	
2	Return the `SIF_Ack` to the Agent.	Message processing complete (success).

Table 4.2.2.13-1: SIF_Sleep Handling

4.2.2.14 SIF_Wakeup

An Agent wants its state changed to "awake," notifying the ZIS and other Agents of the state change. A ZIS MUST persist this state in order to communicate it to other Agents via `SIF_ZoneStatus`. When a Push-Mode Agent changes its state to "awake," the ZIS may also resume delivery of queued messages to the Agent.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of `0` (success). Change the Agent's state to "awake."	
2	Return the `SIF_Ack` to the Agent.	Message processing complete (success).

Table 4.2.2.14-1: SIF_Wakeup Handling

4.2.2.15 SIF_GetZoneStatus

An Agent is requesting the status of the zone.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of `0` (success). Reflect the current state of the zone in `SIF_Status/SIF_Data/SIF_ZoneStatus`.	
2	Return the `SIF_Ack` to the Agent.	Message processing complete (success).

Table 4.2.2.15-1: SIF_GetZoneStatus Handling

4.2.2.16 SIF_GetAgentACL

An Agent is requesting its access control permissions.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of `0` (success). Communicate the Agent's ACL permissions in `SIF_Status/SIF_Data/SIF_AgentACL`.	
2	Return the `SIF_Ack` to the Agent.	Message processing complete (success).

Table 4.2.2.16-1: SIF_GetZoneStatus Handling

4.2.2.17 SIF_CancelRequests

If an Agent abandons or restarts a data collection using `SIF_Request`s, whether or not the response stream has started, it is `RECOMMENDED` that it send one or more `SIF_CancelRequests` messages to the ZIS. Upon receipt of the `SIF_CancelRequests` message, the ZIS deletes corresponding `SIF_Request` messages from Agent queues and deletes its own state/tracking information regarding each request. Doing the latter ensures that if a Responder is still processing a request, the ZIS effectively ends the response stream upon receipt of the next `SIF_Response` packet by returning a `SIF_Error` with a `SIF_Category` of `8` (Request and Response Error) and a `SIF_Code` of `10` (invalid SIF_RequestMsgId specified in SIF_Response). No changes to responding Agent behaviors are required as all agents in the SIF 2.x lifecycle have the capability to handle this error state.

When cancelling `SIF_Request`s, the ZIS also has the ability to send a `SIF_CancelRequests` message to Push-Mode Agents. Pull-Mode Responders cannot receive these messages, but any pending response handling is cancelled per the ZIS behavior above. When dealing with Push-Mode Agents, ZIS implementations must bear in mind that support for this message is optional for Push-Mode Agents.

When a cancelling Agent specifies a `NotificationType` of `Standard`, it is the responsibility of the ZIS to end the response stream to the requesting Agent by sending a `SIF_Response` packet with a `SIF_MorePackets` of `No` on the Responder's behalf.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. Include a `SIF_Status` element with a `SIF_Code` of `0` (success). Return the `SIF_Ack` to the Agent. (There are no error return values that apply to this message.)	Go to Step 2.
2	For each `SIF_RequestMsgId` element, perform the following steps.	If all `SIF_RequestMsgId` elements have been processed, processing is complete.

Step	Process	Flow Control
3	Using the supplied `SIF_RequestMsgId`, look up the `SIF_Request` that initiated this response.	Go to Step 2 if the `SIF_Request` is not found, or has already been completed with a "final" `SIF_Response` packet (`SIF_MorePackets = No`).
4	Examine the `SIF_SourceId` specified in the `SIF_Request` message and compare it to the `SIF_SourceId` in the `SIF_SystemControl` message.	If the `SIF_SourceId` is not the same, go to Step 2.
5	Close out the `SIF_Request` tracking state for the request so that no further tracking is performed.	
6	If the responding Agent has already received the request and is running in Push mode, send a `SIF_CancelRequests` message to that Agent. (Note: This could also be accomplished by packaging up all `SIF_RequestMsgId`s that apply to the same responding Agent and sending a single `SIF_CancelRequests` message.)	
7	Examine the value of `SIF_NotificationType`.	If set to `Standard`, go to Step 8. If set to `None`, go to Step 10.
8	Prepare a `SIF_Response` message with `SIF_DestinationId` set to `SIF_SourceId` and `SIF_RequestMsgId` set to `SIF_MsgId` from the `SIF_Request` message.	
9	Add a `SIF_Error` element with the `SIF_Category` set to indicate Request and Response, with `SIF_Code` and `SIF_Desc` indicating `18` (SIF_Request cancelled by requesting agent). Add `SIF_PacketNumber` with a value set to the previous `SIF_PacketNumber + 1`. Set `SIF_MorePackets` to `No`. Place the `SIF_Response` in the requester's queue.	
10	Determine if there are any more `SIF_RequestMsgId` elements left to process.	Go to Step 2 if there are more `SIF_RequestMsgId` elements, otherwise processing is complete.

Table 4.2.2.17-1: SIF_CancelRequests Handling

4.2.2.18 SIF_GetMessage

A Pull-Mode Agent is requesting the next message in its queue.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply. Place the incoming `SIF_Header/SIF_SourceId` and `SIF_Header/SIF_MsgId` in `SIF_OriginalSourceId` and `SIF_OriginalMsgId`, respectively. If the Agent sending `SIF_GetMessage` is registered as a Pull-Mode Agent, go to step 3.	
2	The Agent is a Push-Mode Agent and is not allowed to send `SIF_GetMessage`. Include a `SIF_Error/SIF_Category` of `5` (Registration) and a `SIF_Error/SIF_Code` of `9` (Agent is registered in Push mode). Populate `SIF_Desc` and optionally `SIF_ExtendedDesc` as desired. Return the `SIF_Ack` to the Agent.	Message processing complete.
3	If the recorded state of the Pull-Mode Agent is "asleep," change that state to "awake." Is there a message available in the Agent's message queue, subject to Selective Message Blocking? If yes, go to step 5.	
4	There is no message currently available for the Agent. Include a `SIF_Status/SIF_Code` of `9` (no messages available). Return the `SIF_Ack` to the Agent.	Message processing complete.

Step	Process	Flow Control
5	The next available message in the Agent's queue, subject to Selective Message Blocking, can be delivered (it will be removed from the queue later per successful handling of a `SIF_Ack` from the Pull-Mode Agent). If `SIF_Security` is specified on the message and the connection from the Pull-Mode Agent does not meet the specified minimum encryption and/or authentication levels, or if the connection does not meet minimum encryption/authentication levels in the Zone, remove the message from the Agent's queue and return an appropriate `SIF_Error`. Otherwise include a `SIF_Status/SIF_Code` of `0` (success) and place the message in `SIF_Status/SIF_Data`.	Message processing complete.

Table 4.2.2.18-1: SIF_GetMessage Handling

4.2.2.19 SIF_Ack (from a Push-Mode Agent)

A Push-Mode Agent is sending a final `SIF_Ack` to end Selective Message Blocking (SMB).

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply.	
2	Is `SIF_Status/SIF_Code 3` (final `SIF_Ack`)?	If yes, go to Step 3.
2	The Agent has violated protocol. End SMB if it has been invoked by the Agent and remove the blocked `SIF_Event` from the Agent's queue. Indicate `SIF_Error/SIF_Category` of `13` (SMB Error) and `SIF_Error/SIF_Code 3` (final `SIF_Ack` expected). It is RECOMMENDED that your ZIS log the error. Your ZIS MAY post a `SIF_LogEntry Add` event with the same error category and code above, containing a copy of the `SIF_Header` of the message.	Return the `SIF_Ack` to the Agent. Message handling complete (error).
3	Does `SIF_OriginalMsgId` match the `SIF_MsgId` for the `SIF_Event` that was blocked in SMB, if any?	If yes, go to Step 5.
4	The Agent has violated protocol. As there can be only one event blocked by SMB, end SMB for the agent and remove the blocked `SIF_Event` from the Agent's queue, if any. Indicate `SIF_Error/SIF_Category` of `13` (SMB Error) and `SIF_Error/SIF_Code 4` (incorrect `SIF_MsgId` in final `SIF_Ack`). It is RECOMMENDED that your ZIS log the error. Your ZIS MAY post a `SIF_LogEntry Add` event with the same error category and code above, containing a copy of the `SIF_Header` of the message.	Return the `SIF_Ack` to the Agent. Message handling complete (error).
5	SMB has been ended by the Agent. Removed the blocked `SIF_Event` from the Agent's queue. Place `0` in `SIF_Status/SIF_Code`.	Return the `SIF_Ack` to the Agent. Message handling complete (success).

Table 4.2.2.19-1: SIF_Ack Handling

4.2.2.20 SIF_Ack (from a Pull-Mode Agent)

A Pull-Mode Agent is acknowledging a message it has retrieved using `SIF_GetMessage`. This typically leads to the message in question being removed from the Agent's queue. The Agent may also invoke Selective Message Blocking when acknowledging an event, blocking delivery of subsequent `SIF_Event`s until Selective Message Blocking is ended by the Agent.

Step	Process	Flow Control
1	Prepare a `SIF_Ack` message with `SIF_Header` containing a new GUID in `SIF_MsgId`, your Zone ID in `SIF_SourceId` and the current time in `SIF_Timestamp`; other `SIF_Header` elements do not apply.	
2	Is `SIF_Error` present?	If yes, go to Step 14.

Step	Process	Flow Control
3	Is SIF_Status/SIF_Code 1 (immediate SIF_Ack)?	If no, go to Step 5.
4	If no message matches SIF_OriginalMsgId, set SIF_Error/SIF_Category to 12 (Generic Message Handling) and SIF_Error/SIF_Code to 6 (no such message). Otherwise remove the identified message from the Agent's queue and set SIF_Status/SIF_Code to 0.	Return SIF_Ack. Message handling complete.
5	Is SIF_Status/SIF_Code 2 (intermediate SIF_Ack)?	If no, go to Step 7.
6	If no message matches SIF_OriginalMsgId, set SIF_Error/SIF_Category to 12 (Generic Message Handling) and SIF_Error/SIF_Code to 6 (no such message). If the message identified is not a SIF_Event, set SIF_Category to 13 (SMB Error) and SIF_Code to 2 (SMB can only be invoked on a SIF_Event). Otherwise invoke SMB on the identified SIF_Event, persisting SIF_OriginalMsgId, and set SIF_Status/SIF_Code to 0. This event is blocked and all SIF_Events are frozen.	Return SIF_Ack. Message handling complete.
7	Is SIF_Status/SIF_Code 3 (final SIF_Ack)?	If no, go to Step 9.
8	If SMB has not been invoked or the message identified by SIF_OriginalMsgId doesn't exist or doesn't match the SIF_Event blocked by SMB, set SIF_Error/SIF_Category to 13 (SMB Error) and SIF_Error/SIF_Code to 4 (incorrect SIF_MsgId in final SIF_Ack). (In the case of SMB having been invoked but the message not matching, end SMB, remove the message blocked by SMB from the Agent's queue and unfreeze delivery of events.) Otherwise end SMB, remove the identified message from the Agent's queue and unfreeze delivery of events. Set SIF_Status/SIF_Code to 0.	Return SIF_Ack. Message handling complete.
9	Is SIF_Status/SIF_Code 7 (already have this SIF_MsgId from you)?	If no, go to Step 11.
10	The ZIS cannot correct this, as the SIF_MsgId originates from an Agent and can't be changed without other repercussions. Remove the message from the Agent's queue. Set SIF_Status/SIF_Code to 0.	Return SIF_Ack. Message handling complete.
11	Is SIF_Status/SIF_Code 8 (receiver is sleeping)?	If no, go to Step 13.
12	The Agent is stating it cannot process the message at this time; leave it as the next message to be delivered. Set SIF_Status/SIF_Code to 0.	Return SIF_Ack. Message handling complete.
13	The Agent has violated protocol. Indicate SIF_Error/SIF_Category of 12 (Generic Message Handling Error) and SIF_Error/SIF_Code 5 (protocol error). of the message.	Return SIF_Ack. Message handling complete.
14	The Agent has indicated a SIF_Error condition. See Error Codes with SIF_Category and SIF_Code, and examine SIF_Desc and SIF_ExtendedDesc, if included. If SIF_Category does not indicate a transport error, remove the message from the Agent's queue. Otherwise it remains the next message to be delivered. Set SIF_Status/SIF_Code to 0.	Return SIF_Ack. Message handling complete.

Table 4.2.2.20-1: SIF_Ack Handling

5 Infrastructure

This section presents the XML structure for Infrastructure common elements, messages and objects in a tabular format for readers less versed in parsing formal XML schema definitions.

The Char(acteristics) column for all of the tables in this section use the following codes:

Code	Characteristic
M	Mandatory element or attribute
O	Optional element or attribute
C	Conditional element or attribute
MR	Mandatory and repeatable element
OR	Optional and repeatable element
CR	Conditional and repeatable element

Mandatory elements and attributes `MUST` be provided in the Infrastructure messages in which they appear. Infrastructure data objects (`SIF_ZoneStatus`, `SIF_AgentACL`) can be subject to SIF's request/response and event models; when impacted by these models (in a `SIF_Event` or in a `SIF_Response`), these objects follow the same conventions as listed in

Data Model.

5.1 Common Elements

5.1.1 SIF_Message

The `SIF_Message` element is the root element of all SIF messages.
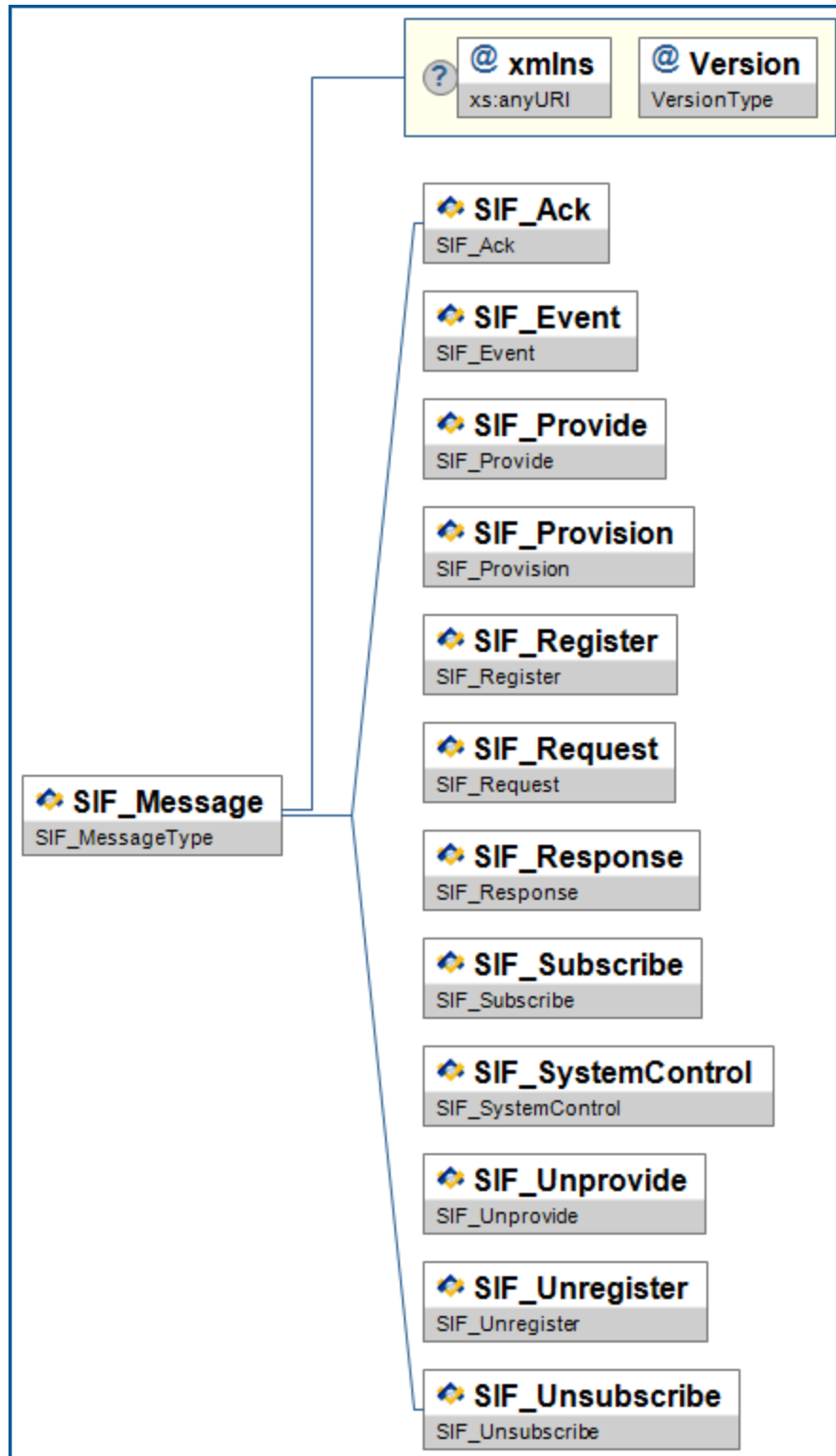
Figure 5.1.1-1: SIF_Message

	Element/@Attribute	Char	Description	Type
	SIF_Message		Contains one of the SIF message types.	**choice of:** SIF_Ack SIF_Event SIF_Provide SIF_Provision SIF_Register SIF_Request SIF_Response SIF_Subscribe SIF_SystemControl SIF_Unprovide SIF_Unregister SIF_Unsubscribe
@	xmlns	C	The xmlns attribute specifies the XML namespace for SIF messages. For this version of the specification, the value of this attribute MUST be `http://www.sifinfo.org/au/infrastructure/2.x` . This XML namespace value will remain the same until the next major release of SIF (3.0). Note that one SIF_Message may be contained within another when a ZIS delivers a Pull-Mode Agent's next message in a SIF_Ack response to a SIF_GetMessage from the Pull-Mode Agent. If the default namespace specified for the child SIF_Message is the same as the default namespace of the parent SIF_Message, the xmlns attribute for the child message MAY be omitted.	xs:anyURI
@	Version	M	The version of the SIF Implementation Specification that defines this message's XML structure. For this version of the specification, the value of this attribute is 2.4. This attribute can be used by ZIS and agent implementations to choose schema files to validate the message's XML.	VersionType

Table 5.1.1-1: SIF_Message

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
        ...
        </SIF_Message>
```

Example 5.1.1-1: SIF_Message

5.1.2 SIF_Header

SIF_Header is a common message header for all SIF messages.
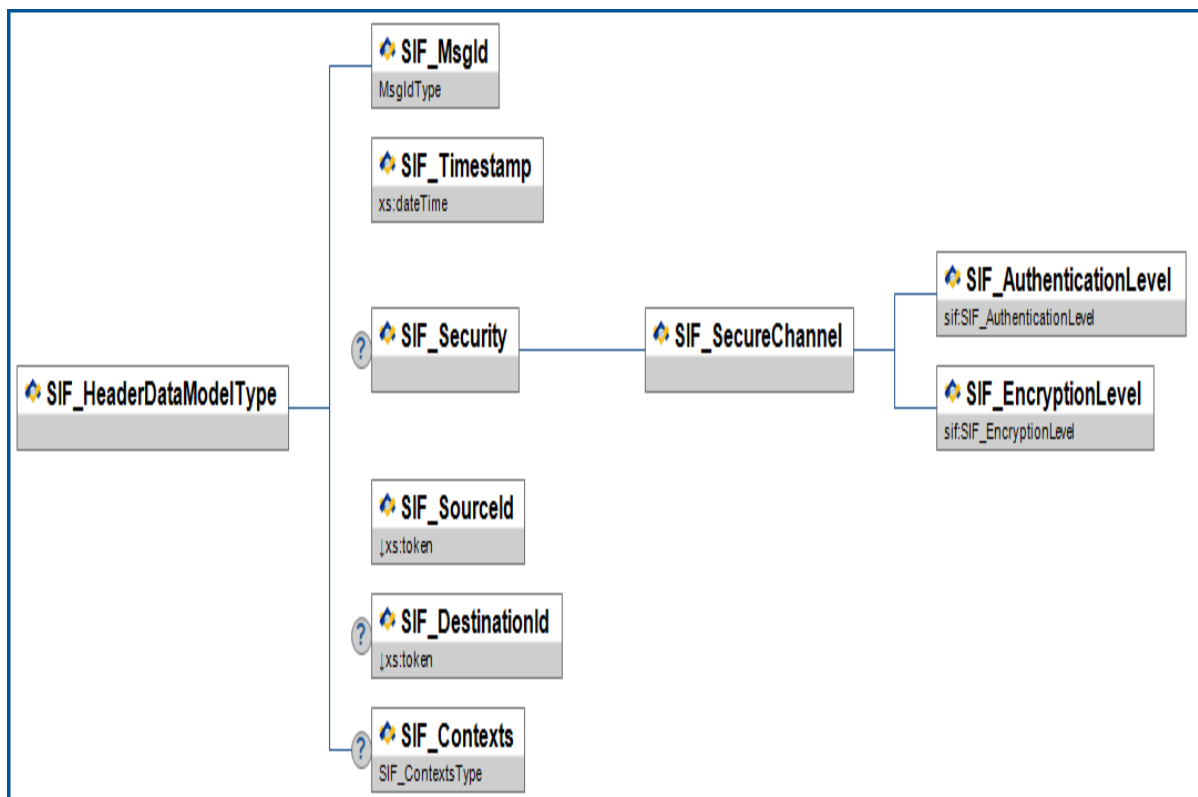
Figure 5.1.2-1: SIF_Header

Element/@Attribute	Char	Description	Type
SIF_Header	M	Header information associated with a message.	
SIF_MsgId	M	`SIF_MsgId` is a globally unique message identifier from the Agent or ZIS that sends out the message.	`MsgIdType`
SIF_Timestamp	M	Timestamp of when the message was sent.	`xs:dateTime`
SIF_Security	O	This element allows an originating agent to specify security requirements that the ZIS must ensure upon delivery of the message to recipient agents. `SIF_Security` is only examined and processed by a ZIS on `SIF_Request`, `SIF_Response` and `SIF_Event` messages. In this version of the specification, `SIF_Security` is ignored on all other messages; its use on other messages is reserved for future versions of this specification.	
SIF_Security/SIF_SecureChannel	M	The originating agent uses this element to specify security requirements for the channel between the ZIS and any recipient agents at delivery time. The ZIS must ensure these requirements are met for this message when delivered to other agents.	

Element/@Attribute	Char	Description	Type
SIF_Security/SIF_SecureChannel/ SIF_AuthenticationLevel	M	The minimum level of authentication required by the message originator to be considered a secure channel upon message delivery to other agents.	SIF_AuthenticationLevel
SIF_Security/SIF_SecureChannel/ SIF_EncryptionLevel	M	The minimum level of encryption required by the message originator to be considered a secure channel upon message delivery to other agents.	SIF_EncryptionLevel
SIF_SourceId	M	The SIF_SourceId is the ID of the originator of the message. Each source needs to have a zone unique case-sensitive identifier.	xs:token xs:maxLength 64
SIF_DestinationId	C	This element represents the ID of the recipient of the message and may be present as follows: SIF_Response messages MUST have this element set to the SIF_SourceId of the originator of the SIF_Request message. The ZIS will use this information to route the SIF_Response to the requesting agent. SIF_Request messages MAY have this element set to the ID of a specific agent if the requesting agent wishes to direct the SIF_Request to a specific responder. If present, the ZIS will route the SIF_Request to the agent referenced in the element subject to the access control policies in effect for the zone. This element SHOULD NOT be used in any other SIF Infrastructure messages. If the element is present, it will be ignored by the ZIS.	xs:token xs:maxLength 64
SIF_Contexts	O	Contains each SIF Context that applies to the message. If omitted, the applicable context is SIF_Default. SIF_Context is repeatable for SIF_Events, not repeatable for SIF_Request or SIF_Response.	SIF_Contexts

Table 5.1.2-1: SIF_Header

```
<SIF_Header>
  <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
  <SIF_Timestamp>2006-02-18T14:30:00-05:00</SIF_Timestamp>
  <SIF_SourceId>RamseySIS</SIF_SourceId>
</SIF_Header>
```

Example 5.1.2-1: SIF_Header

```
<SIF_Header>
  <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330E</SIF_MsgId>
  <SIF_Timestamp>2006-03-11T08:39:49-08:00</SIF_Timestamp>
  <SIF_Security>
    <SIF_SecureChannel>
      <SIF_AuthenticationLevel>3</SIF_AuthenticationLevel>
      <SIF_EncryptionLevel>4</SIF_EncryptionLevel>
    </SIF_SecureChannel>
  </SIF_Security>
  <SIF_SourceId>RamseyLIB</SIF_SourceId>
  <SIF_DestinationId>RamseySIS</SIF_DestinationId>
</SIF_Header>
```

Example 5.1.2-2: SIF_Header

5.1.3 SIF_EncryptionLevel

The minimum level of encryption required by the message originator to be considered a secure channel upon message delivery to other agents.

Figure 5.1.3-1: SIF_EncryptionLevel

Element/@Attribute	Char	Description	Type
SIF_EncryptionLevel		The minimum level of encryption required by the message originator to be considered a secure channel upon message delivery to other agents.	**values:** 0 No encryption required 1 Symmetric key length of at least 40 bits is to be used 2 Symmetric key length of at least 56 bits is to be used 3 Symmetric key length of at least 80 bits is to be used 4 Symmetric key length of at least 128 bits is to be used

Table 5.1.3-1: SIF_EncryptionLevel

5.1.4 SIF_AuthenticationLevel

The minimum level of authentication required by the message originator to be considered a secure channel upon message delivery to other agents.
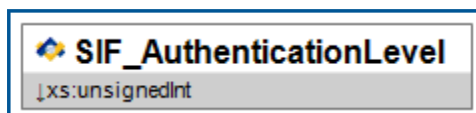
Figure 5.1.4-1: SIF_AuthenticationLevel

Element/@Attribute	Char	Description	Type

SIF_AuthenticationLevel		The minimum level of authentication required by the message originator to be considered a secure channel upon message delivery to other agents.	**values:**
			
			0
			   No authentication required and a valid certificate does not need to be presented.
			
			1
			   A valid certificate must be presented.
			
			2
			   A valid certificate from a trusted certificate authority must be presented.
			
			3
			   A valid certificate from a trusted certificate authority must be presented and the CN field of the certificate's Subject entry must match the host sending the certificate.

Table 5.1.4-1: SIF_AuthenticationLevel

5.1.5 SIF_Contexts

A list of SIF contexts that applies to a message or operation. Typically where used as an optional element, the omission of this element implies the SIF_Default context applies.

Figure 5.1.5-1: SIF_Contexts

Element/@Attribute	Char	Description	Type
SIF_Contexts		A list of SIF contexts that applies to a message or operation. Typically where used as an optional element, the omission of this element implies the SIF_Default context applies.	List
SIF_Context	MR		SIF_Context

Table 5.1.5-1: SIF_Contexts

5.1.6 SIF_Context

The name of a SIF Context that applies to a message or operation.

Figure 5.1.6-1: SIF_Context

Element/@Attribute	Char	Description	Type
SIF_Context		The name of a SIF Context that applies to a message or operation.	xs:token xs:maxLength 64

Table 5.1.6-1: SIF_Context

5.1.7 SIF_Protocol

Contains protocol information regarding a ZIS or Agent.
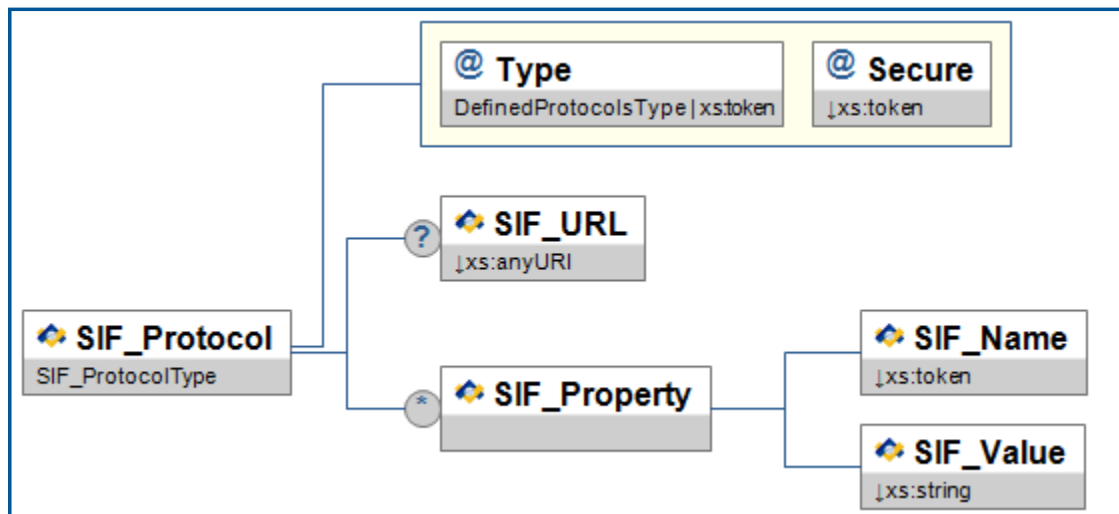
Figure 5.1.7-1: SIF_Protocol

Element/@Attribute	Char	Description	Type
SIF_Protocol	C	Contains protocol information regarding a ZIS or Agent.	
@ Type	M	The type of protocol to use (HTTPS, HTTP or an implementation-defined protocol).	**union of:** DefinedProtocolsType xs:token
@ Secure	M	Whether the protocol provides a secure channel.	**values:** Yes No
SIF_URL	C	This element is required if the protocol is HTTPS or HTTP. It contains the https or http URL for contacting the agent.	xs:anyURI xs:maxLength 256
SIF_Property	OR	May contain zero or more SIF_Property elements containing SIF_Name/SIF_Value pairs describing any protocol settings required to ensure proper communication.	
SIF_Property/SIF_Name	M	Property name.	xs:token xs:maxLength 64
SIF_Property/SIF_Value	M	Property value.	xs:string xs:maxLength 256

Table 5.1.7-1: SIF_Protocol

5.1.8 SIF_Status

This element is used to signal a successful response.
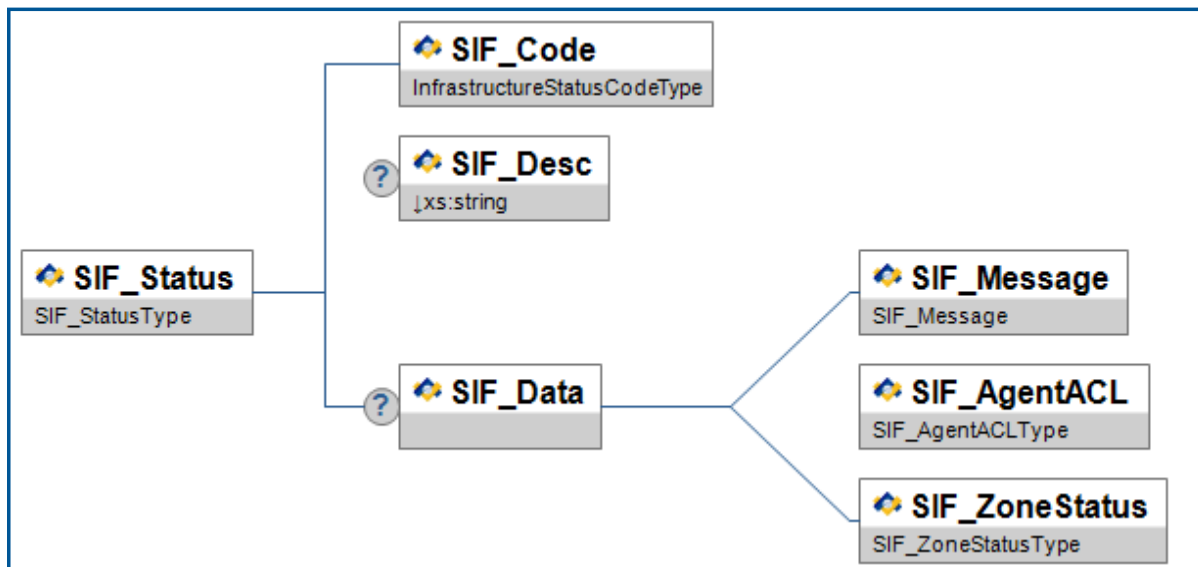
Figure 5.1.8-1: SIF_Status

Element/@Attribute	Char	Description	Type
SIF_Status		This element is used to signal a successful response.	
SIF_Code	M		`InfrastructureStatusCodeType`
SIF_Desc	O	An optional textual description/equivalent of `SIF_Code`.	`xs:string` `xs:maxLength` `1024`
SIF_Data	O	Optional element to hold data related to a successful operation. This data is currently limited to a `SIF_Message` returned by the ZIS in response to a Pull-Mode Agent's `SIF_GetMessage`, `SIF_AgentACL` returned by the ZIS in response to `SIF_Register` and `SIF_GetAgentACL`, and `SIF_ZoneStatus` returned by the ZIS in response to `SIF_GetZoneStatus`.	**choice of:** `SIF_Message` `SIF_AgentACL` `SIF_ZoneStatus`

Table 5.1.8-1: SIF_Status

5.1.9 SIF_Error

This element is used to signal an unsuccessful response.
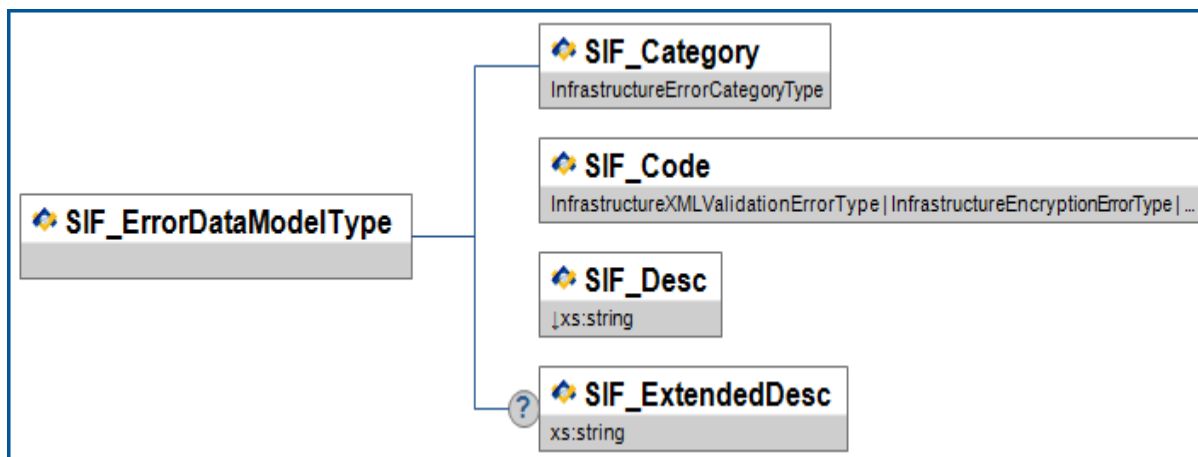
Figure 5.1.9-1: SIF_Error

Element/@Attribute	Char	Description	Type
SIF_Error		This element is used to signal an unsuccessful response.	
SIF_Category	M		`InfrastructureErrorCategoryType`

SIF_Code	M	See Error Codes.	**union of:**
			
			`InfrastructureXMLValidationErrorType`
			`InfrastructureEncryptionErrorType`
			`InfrastructureAuthenticationErrorType`
			`InfrastructureAccessAndPermissionErrorType`
			`InfrastructureRegistrationErrorType`
			`InfrastructureProvisionErrorType`
			`InfrastructureSubscriptionErrorType`
			`InfrastructureRequestAndResponseErrorType`
			`InfrastructureEventReportingAndProcessingErrorType`
			`InfrastructureTransportErrorType`
			`InfrastructureSystemErrorType`
			`InfrastructureGenericMessageHandlingErrorType`
			`xs:token`

SIF_Desc	M	A simple, easy to understand, description of the error. The primary consumer of this message is the application user. Example: "Unable to open database."	`xs:string`
			
			`xs:maxLength` `1024`

SIF_ExtendedDesc	O	An optional error description that is more complete and technical in nature. It is to be used as a diagnostic message in trouble-shooting procedures. Example: "The 'Students' table is opened in exclusive mode by user 'ADM1' (dbm.cpp, line 300)."	`xs:string`

Table 5.1.9-1: SIF_Error

5.1.10 SIF_Query

SIF's default query mechanism.
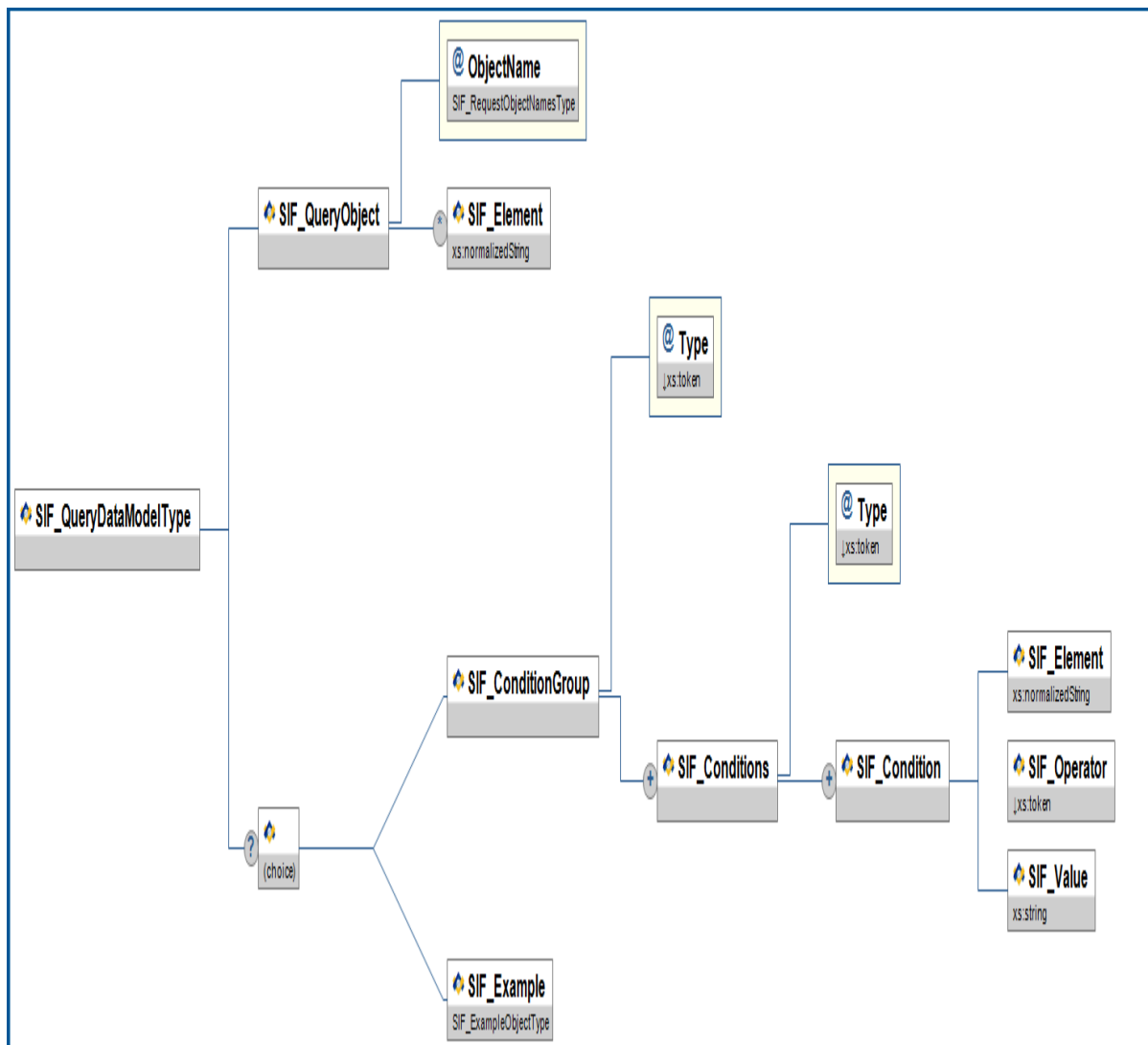
Figure 5.1.10-1: SIF_Query

	Element/@Attribute	Char	Description	Type
	SIF_Query		SIF's default query mechanism.	
	SIF_QueryObject	M	This is the object that is being queried for.	
@	ObjectName	M	The actual name of the object that is being queried for.	SIF_RequestObjectNamesType

	Element/@Attribute	Char	Description	Type
	SIF_QueryObject/SIF_Element	OR	Individual elements/attributes being requested of matching object. See `SIF_Element` Syntax below. If specified, only the elements/attributes requested are returned in the `SIF_Response` (with any parent elements/attributes); otherwise, all elements supported by the provider's object are returned. Note that this is a means to filter or select a subset of elements/attributes from a matching object; specifying elements/attributes here that do not occur in or are not supported in a matching object does not exclude that matching object from being returned. Include any existing parent elements/attributes of the elements/attributes that are requested but not present.	`xs:normalizedString`
	SIF_ConditionGroup	C	Either `SIF_ConditionGroup` or `SIF_Example` may optionally be specified to present conditions matching objects should satisfy. `SIF_ConditionGroup` represents the conditions that the queried object(s) must meet. If conditions are specified, only those objects that meet the conditions are returned; otherwise, all objects of the specified name are returned.	

@	Type	M	The Boolean operator for joining conditions (`SIF_Conditions` elements) within this element. Note that `None` should be used if there is only one `SIF_Conditions` element.	**values:**
				`And`
				`Or`
				`None`

	SIF_ConditionGroup/SIF_Conditions	MR	This construct allows for nested conditions.	

@	Type	M	The boolean operator for joining conditions (`SIF_Condition` elements) within this element. Note that `None` should be used if there is only one `SIF_Condition` element.	**values:**
				`And`
				`Or`
				`None`

	SIF_ConditionGroup/SIF_Conditions/ SIF_Condition	MR	This element represents an individual condition.	
	SIF_ConditionGroup/SIF_Conditions/ SIF_Condition/SIF_Element	M	This is the element/attribute being queried. See below for syntax.	`xs:normalizedString`

	Element/@Attribute	Char	Description	Type
	SIF_ConditionGroup/SIF_Conditions/ SIF_Condition/SIF_Operator	M	The comparison operator for the condition.	**values:** EQ Equals LT Less Than GT Greater Than LE Less Than Or Equals GE Greater Than Or Equals NE Not Equals
	SIF_ConditionGroup/SIF_Conditions/ SIF_Condition/SIF_Value	M	SIF_Value is the data that is used to compare with the value of the element or attribute.	xs:string
	SIF_Example	C	An example SIF object that serves as a template for matching objects. There is an implied EQ operator for every element/attribute value present and an implied And group of all resulting conditions. Currently this is an experimental feature and limited to use with select objects; wider use may be considered in future versions of this specification.	SIF_ExampleObjectType

Table 5.1.10-1: SIF_Query

5.1.10.1 SIF_ConditionGroup

The SIF_Query element may have a SIF_ConditionGroup element that may have one or more SIF_Conditions elements. A SIF_Conditions element may contain one or more SIF_Condition elements. Each SIF_Condition element defines a search criterion, which contains the following sub-elements. For example, if you wished to request the StaffPersonal object for all teachers, the SIF_ConditionGroup would be:

```
<SIF_ConditionGroup Type="None">
  <SIF_Conditions Type="None">
    <SIF_Condition>
      <SIF_Element>@SIF_RefObject</SIF_Element>
      <SIF_Operator>EQ</SIF_Operator>
      <SIF_Value>StaffPersonal</SIF_Value>
    </SIF_Condition>
  </SIF_Conditions>
</SIF_ConditionGroup>
```

Example 5.1.10.1-1

If you wished to request the StaffPersonal object for a specific teacher then the SIF_ConditionGroup would be:

```
<SIF_ConditionGroup Type="None">
  <SIF_Conditions Type="And">
    <SIF_Condition>
      <SIF_Element>@SIF_RefObject</SIF_Element>
      <SIF_Operator>EQ</SIF_Operator>
      <SIF_Value>StaffPersonal</SIF_Value>
    </SIF_Condition>
    <SIF_Condition>
      <SIF_Element>@SIF_RefId</SIF_Element>
      <SIF_Operator>EQ</SIF_Operator>
      <SIF_Value>D3E34B359D75101A8C3D00AA001A1652</SIF_Value>
    </SIF_Condition>
  </SIF_Conditions>
</SIF_ConditionGroup>
```

Example 5.1.10.1-2

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Request>
    <SIF_Header>
      <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_Version>2.*</SIF_Version>
    <SIF_MaxBufferSize>1048576</SIF_MaxBufferSize>
    <SIF_Query>
      <SIF_QueryObject ObjectName="StudentPersonal" />
      <SIF_ConditionGroup Type="None">
        <SIF_Conditions Type="None">
          <SIF_Condition>
            <SIF_Element>Name/LastName</SIF_Element>
            <SIF_Operator>EQ</SIF_Operator>
            <SIF_Value>Smith</SIF_Value>
          </SIF_Condition>
        </SIF_Conditions>
      </SIF_ConditionGroup>
    </SIF_Query>
  </SIF_Request>
</SIF_Message>
```

Example 5.1.10.1-3: SIF_ConditionGroup querying into an object

5.1.10.2 SIF_Element Syntax

To reference individual elements/attributes in query criteria for objects, and in lists of individual elements/attributes to be returned from matching objects, SIF defines a path syntax which is based on a small subset of

[XPath], for use in `SIF_Element`. Elements are specified by name (e.g. `Name`) and attributes are specified by name, prefixed with `@` (e.g. `@Type`). Namespace prefixes may precede element/attribute names as necessary (e.g. `@xml:lang`) and reference the current prefix-to-namespace mappings within the XML of the request. To reference child elements or attributes of child elements, a path notation is used where each element/attribute in the path is separated by `/` (e.g. `Name/FirstName` , `Name/@Type`). The object's element is the root element and is not included when referencing child elements (e.g. `Name/FirstName` , not `StudentPersonal/Name/FirstName`); no `/` is required when referencing attributes of the object itself (e.g. `@RefId`, not `StudentPersonal/@RefId`) .

`SIF_Condition/SIF_Element` may also contain XPath predicates (e.g. `[@Type='04']`) to allow for more precise matching, especially with regard to repeatable elements with "key" attributes. The following `SIF_Condition` would match object withs any `FirstName` of `Cameron`:

```
<SIF_Condition>
  <SIF_Element>Name/FirstName</SIF_Element>
  <SIF_Operator>EQ</SIF_Operator>
  <SIF_Value>Cameron</SIF_Value>
</SIF_Condition>
```

Example 5.1.10.2-1

Using a predicate allows the requester to specifically query the person's name of record (`04`) vs. his/her previous, professional, current legal name, etc.

```
<SIF_Condition>
  <SIF_Element>Name[@Type='04']/FirstName</SIF_Element>
  <SIF_Operator>EQ</SIF_Operator>
  <SIF_Value>Cameron</SIF_Value>
</SIF_Condition>
```

Example 5.1.10.2-2

Predicate expressions supported in SIF are limited to `or`, `and`, `=`, element/attribute names with optional prefixes and accessing nested elements/attributes using `/`.

5.1.11 SIF_ExtendedQuery

SIF's default query mechanism for SIF_Request, SIF_Query, has several limitations that limit its usefulness when creating reporting applications that process data from a SIF zone. SIF_Query is limited to matching only one object type per query, requiring applications to manually join together results as needed for reporting and general data processing. SIF_ExtendedQuery is designed to allow for joins on object identifiers/RefIds and to allow retrieval of data in a row/column fashion similar to SQL. Each returned column may contain hierarchical XML elements/objects. While envisioned as the primary mechanism for SIF-based ReportManifests, Providers and Responders in a Zone may support SIF_ExtendedQuery in addition to SIF_Query. Support for SIF_ExtendedQuery can be declared in and retrieved from the Zone is various Infrastructure messages and objects.

Note that matching rows are generated solely based on the SIF_From clause, with optional join criteria, optionally limited/filtered by the SIF_Where clause. If a repeatable element is requested as a column in SIF_Select, this does not generate multiple rows for each occurrence of matching elements; all elements are returned in the corresponding column within a single row.

SIF_DestinationProvider
SIF_RequestObjectNamesType

Distinct
xs:boolean

RowCount
xs:positiveInteger | xs:token

SIF_Select

SIF_Element
xs:normalizedString

Alias
| xs:normalizedString

ObjectName
SIF_RequestObjectNamesType

ObjectName
SIF_RequestObjectNamesType

Type
| xs:token

SIF_From

SIF_Join

SIF_JoinOn

SIF_LeftElement
xs:normalizedString

ObjectName
SIF_RequestObjectNamesType

SIF_RightElement
xs:normalizedString

ObjectName
SIF_RequestObjectNamesType

SIF_ExtendedQueryDataModelType

Type
| xs:token

Type
| xs:token

SIF_Where

SIF_ConditionGroup

SIF_Conditions

SIF_Condition

SIF_Element
xs:normalizedString

ObjectName
SIF_RequestObjectNamesType

SIF_Operator
| xs:token

SIF_Value
xs:string

SIF_OrderBy

SIF_Element

ObjectName

Ordering

Figure 5.1.11-1: SIF_ExtendedQuery

	Element/@Attribute	Char	Description	Type
	SIF_ExtendedQuery		SIF's default query mechanism for `SIF_Request`, `SIF_Query`, has several limitations that limit its usefulness when creating reporting applications that process data from a SIF zone. `SIF_Query` is limited to matching only one object type per query, requiring applications to manually join together results as needed for reporting and general data processing. `SIF_ExtendedQuery` is designed to allow for joins on object identifiers/RefIds and to allow retrieval of data in a row/column fashion similar to SQL. Each returned column may contain hierarchical XML elements/objects. While envisioned as the primary mechanism for SIF-based `ReportManifest`s, Providers and Responders in a Zone may support `SIF_ExtendedQuery` in addition to `SIF_Query`. Support for `SIF_ExtendedQuery` can be declared in and retrieved from the Zone is various Infrastructure messages and objects. Note that matching rows are generated solely based on the `SIF_From` clause, with optional join criteria, optionally limited/filtered by the `SIF_Where` clause. If a repeatable element is requested as a column in `SIF_Select`, this does not generate multiple rows for each occurrence of matching elements; all elements are returned in the corresponding column within a single row.	
	SIF_DestinationProvider	O	If no `SIF_DestinationId` applies to the request and this element is supplied, the Requester specifies that the extended query be routed to the Provider on record for the given object name. If this element is omitted and no `SIF_DestinationId` applies to the request, the ZIS routes the request to the Provider on record for the object name in `SIF_From`.	`SIF_RequestObjectNamesType`
	SIF_Select	M	Identifies which data elements/attribute are to be returned as columns in each matching row.	
@	Distinct	M	Specifies whether query results should return all rows (`false`) or just distinct ones (`true`). Rows are distinct if at least one column differs between them.	`xs:boolean`

@	RowCount	M	The maximum number of rows to return. If `All`, return all rows, otherwise return the top rows up to the maximum row count indicated.	**union of:**
				
				`xs:positiveInteger`
				
				additional values:
				
				`All`

	Element/@Attribute	Char	Description	Type
	SIF_Select/SIF_Element	MR	Indicates the element/attribute to return as a column. Contents can be left empty to return the whole object specified in `ObjectName`, or `*` can be designated to return all attributes and immediate child elements of the object specified in `ObjectName`, or `SIF_Element` Syntax can be specified, relative to the object specified in `ObjectName`. Requested attributes are to be returned as the text value of the corresponding attribute, elements as a copy of the XML element itself including attributes if they exist.	`xs:normalizedString`
@	Alias	O	Optional caption for the column.	`xs:normalizedString` `xs:maxLength` 6 4
@	ObjectName	M	The name of the object from which to retrieve element/attributes.	`SIF_RequestObjectNamesType`
	SIF_From	M	Join specification for the query if more than one object is being queried. If only one object is being queried, specify it without the `SIF_Join` clause. This clause generates the matching rows returned, optionally limited/filtered by the `SIF_Where` clause. Each object referenced in the `SIF_Select`, `SIF_Where` and `SIF_OrderBy` clauses must be included here.	
@	ObjectName	M	The name of the object to query.	`SIF_RequestObjectNamesType`
	SIF_From/SIF_Join	OR	Additional objects to query, with join conditions specifying the relationships between objects.	

@	Type	M	Type of relational join.	**values:**
				
				`Inner`
				`LeftOuter`
				`RightOuter`
				`FullOuter`

	SIF_From/SIF_Join/SIF_JoinOn	MR	Specifies the conditions for the join.	
	SIF_From/SIF_Join/SIF_JoinOn/ SIF_LeftElement	M	Specifies the left-side element/attribute on which to constrain the join. Currently only support for keys/RefIds/RefId references is required.	`xs:normalizedString`
@	ObjectName	M	Name of the object that contains the element/attribute.	`SIF_RequestObjectNamesType`

	Element/@Attribute	Char	Description	Type
	SIF_From/SIF_Join/SIF_JoinOn/ SIF_RightElement	M	Specifies right left-side element/attribute on which to constrain the join. Currently only support for keys/RefIds/RefId references is required.	`xs:normalizedString`
@	ObjectName	M	Name of the object that contains the element/attribute.	`SIF_RequestObjectNamesType`
	SIF_Where	O	Optionally specifies conditions to limit/filter rows resulting from the `SIF_From` clause.	
	SIF_Where/SIF_ConditionGroup	M	Conditions that matching rows must meet.	

@	Type	M	The Boolean operator for joining conditions (`SIF_Conditions` elements) within this element. Note that `None` should be used if there is only one `SIF_Conditions` element.	**values:**
				`And`
				`Or`
				`None`

	SIF_Where/SIF_ConditionGroup/ SIF_Conditions	MR	This construct allows for nested conditions.	

@	Type	M	The boolean operator for joining conditions (`SIF_Condition` elements) within this element. Note that `None` should be used if there is only one `SIF_Condition` element.	**values:**
				`And`
				`Or`
				`None`

	SIF_Where/SIF_ConditionGroup/ SIF_Conditions/SIF_Condition	MR	This element represents an individual condition.	
	SIF_Where/SIF_ConditionGroup/ SIF_Conditions/SIF_Condition/ SIF_Element	M	This is the element/attribute being queried.	`xs:normalizedString`
@	ObjectName	M	The name of the object containing the element/attribute.	`SIF_RequestObjectNamesType`
	SIF_Where/SIF_ConditionGroup/ SIF_Conditions/SIF_Condition/ SIF_Operator	M	The comparison operator for the condition.	**values:** `EQ` Equals `LT` Less Than `GT` Greater Than `LE` Less Than Or Equals `GE` Greater Than Or Equals `NE` Not Equals

	Element/@Attribute	Char	Description	Type
	SIF_Where/SIF_ConditionGroup/ SIF_Conditions/SIF_Condition/ SIF_Value	M	`SIF_Value` is the data that is used to compare with the value of the element or attribute.	`xs:string`
	SIF_OrderBy	O	An optional list of elements/attributes by which to sort the resulting rows.	
	SIF_OrderBy/SIF_Element	MR	Indicates the element/attribute by which to sort.	`xs:normalizedString`
@	ObjectName	M	The name of the object containing the element/attribute.	`SIF_RequestObjectNamesType`
@	Ordering	M	Whether to order the element/attribute in ascending or descending order.	**values:** `Ascending` `Descending`

Table 5.1.11-1: SIF_ExtendedQuery

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="false" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal" />
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal" />
</SIF_ExtendedQuery>
```

Example 5.1.11-1: Selecting all StudentPersonal objects

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="false" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal">*</SIF_Element>
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal" />
</SIF_ExtendedQuery>
```

Example 5.1.11-2: Selecting all attributes and immediate child elements of StudentPersonal as columns from all StudentPersonal objects

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="false" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal">@RefId</SIF_Element>
    <SIF_Element ObjectName="StudentPersonal">Name/GivenName</SIF_Element>
    <SIF_Element ObjectName="StudentPersonal">Name/FamilyName</SIF_Element>
    <SIF_Element ObjectName="StudentPersonal">EmailList</SIF_Element>
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal" />
</SIF_ExtendedQuery>
```

Example 5.1.11-4: Selecting specific attributes and elements from all StudentPersonal objects

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="true" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal" />
    <SIF_Element ObjectName="StudentSchoolEnrollment" Alias="Student Entry Date">EntryDate</SIF_Element>
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal">
    <SIF_Join Type="Inner">
      <SIF_JoinOn>
        <SIF_LeftElement ObjectName="StudentPersonal">@RefId</SIF_LeftElement>
        <SIF_RightElement ObjectName="StudentSchoolEnrollment">@StudentPersonalRefId</SIF_RightElement>
      </SIF_JoinOn>
    </SIF_Join>
  </SIF_From>
  <SIF_Where>
    <SIF_ConditionGroup Type="And">
      <SIF_Conditions Type="And">
        <SIF_Condition>
          <SIF_Element ObjectName="StudentSchoolEnrollment">@SchoolInfoRefId</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>A3E90785EFDA330DACB00785EFDA330D</SIF_Value>
        </SIF_Condition>
        <SIF_Condition>
          <SIF_Element ObjectName="StudentSchoolEnrollment">@SchoolYear</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>2007</SIF_Value>
        </SIF_Condition>
        <SIF_Condition>
          <SIF_Element ObjectName="StudentSchoolEnrollment">@MembershipType</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>Home</SIF_Value>
        </SIF_Condition>
      </SIF_Conditions>
      <SIF_Conditions Type="Or">
        <SIF_Condition>
          <SIF_Element ObjectName="StudentSchoolEnrollment">@TimeFrame</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>Current</SIF_Value>
        </SIF_Condition>
        <SIF_Condition>
          <SIF_Element ObjectName="StudentSchoolEnrollment">@TimeFrame</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>Future</SIF_Value>
        </SIF_Condition>
      </SIF_Conditions>
    </SIF_ConditionGroup>
  </SIF_Where>
  <SIF_OrderBy>
    <SIF_Element ObjectName="StudentPersonal" Ordering="Ascending">Name/LastName</SIF_Element>
  </SIF_OrderBy>
</SIF_ExtendedQuery>
```

Example 5.1.11-5: Selecting StudentPersonal objects along with each student's EntryDate from StudentSchoolEnrollment for a specific school, school year and other StudentSchoolEnrollment values, sorted by student's last name

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="false" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal" />
    <SIF_Element ObjectName="StudentSchoolEnrollment" />
    <SIF_Element ObjectName="SchoolInfo">SchoolName</SIF_Element>
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal">
    <SIF_Join Type="Inner">
      <SIF_JoinOn>
        <SIF_LeftElement ObjectName="StudentPersonal">@RefId</SIF_LeftElement>
        <SIF_RightElement ObjectName="StudentSchoolEnrollment">@StudentPersonalRefId</SIF_RightElement>
      </SIF_JoinOn>
    </SIF_Join>
    <SIF_Join Type="Inner">
      <SIF_JoinOn>
        <SIF_LeftElement ObjectName="StudentSchoolEnrollment">@SchoolInfoRefId</SIF_LeftElement>
        <SIF_RightElement ObjectName="SchoolInfo">@RefId</SIF_RightElement>
      </SIF_JoinOn>
    </SIF_Join>
  </SIF_From>
  <SIF_Where>
    <SIF_ConditionGroup Type="None">
      <SIF_Conditions Type="None">
        <SIF_Condition>
          <SIF_Element ObjectName="StudentPersonal">@RefId</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>123456789012345678901234567890012</SIF_Value>
        </SIF_Condition>
      </SIF_Conditions>
    </SIF_ConditionGroup>
  </SIF_Where>
</SIF_ExtendedQuery>
```

Example 5.1.11-6: Selecting a specific StudentPersonal's StudentSchoolEnrollment objects, along with the corresponding school name for each enrollment

5.1.11.1 Mapping SIF_Query to SIF_ExtendedQuery

While there are differences in how matching objects are returned, note that all non-`SIF_Example` `SIF_Query`-based requests can be mapped to a corresponding `SIF_ExtendedQuery`-based request:

1	Place `SIF_Query/SIF_QueryObject/@ObjectName` in `SIF_ExtendedQuery/SIF_From/@ObjectName`.
2	If elements/attributes are specified in `SIF_Query/SIF_QueryObject/SIF_Element`, place them in `SIF_ExtendedQuery/SIF_Select/SIF_Element` with `@ObjectName` set to `SIF_Query/SIF_QueryObject/@ObjectName`. Otherwise in `SIF_Select`, specify an empty `SIF_Element` element with `@ObjectName` set to `SIF_Query/SIF_QueryObject/@ObjectName`.
3	If `SIF_Query/SIF_ConditionGroup` exists, place it in `SIF_ExtendedQuery/SIF_Where` setting `@ObjectName` to `SIF_Query/SIF_QueryObject/@ObjectName` in every occurrence of `SIF_Element`.
4	Set `SIF_Select/@Distinct` to `false` and `SIF_Select/@RowCount` to `All`.

Table 5.1.11.1-1: Mapping SIF_Query to SIF_ExtendedQuery

```
<SIF_Query>
  <SIF_QueryObject ObjectName="StudentPersonal">
    <SIF_Element>Name/FirstName</SIF_Element>
    <SIF_Element>Name/LastName</SIF_Element>
  </SIF_QueryObject>
  <SIF_ConditionGroup Type="None">
    <SIF_Conditions Type="None">
      <SIF_Condition>
        <SIF_Element>@RefId</SIF_Element>
        <SIF_Operator>EQ</SIF_Operator>
        <SIF_Value>F0F29E6AE742498D9CB91CBB3BE6890E</SIF_Value>
      </SIF_Condition>
    </SIF_Conditions>
  </SIF_ConditionGroup>
</SIF_Query>
```

Example 5.1.11.1-1: Input SIF_Query

```
<SIF_ExtendedQuery>
  <SIF_Select Distinct="false" RowCount="All">
    <SIF_Element ObjectName="StudentPersonal">Name/FirstName</SIF_Element>
    <SIF_Element ObjectName="StudentPersonal">Name/LastName</SIF_Element>
  </SIF_Select>
  <SIF_From ObjectName="StudentPersonal" />
  <SIF_Where>
    <SIF_ConditionGroup Type="None">
      <SIF_Conditions Type="None">
        <SIF_Condition>
          <SIF_Element ObjectName="StudentPersonal">@RefId</SIF_Element>
          <SIF_Operator>EQ</SIF_Operator>
          <SIF_Value>F0F29E6AE742498D9CB91CBB3BE6890E</SIF_Value>
        </SIF_Condition>
      </SIF_Conditions>
    </SIF_ConditionGroup>
  </SIF_Where>
</SIF_ExtendedQuery>
```

Example 5.1.11.1-2: Corresponding SIF_ExtendedQuery

5.1.12 SIF_ExtendedQueryResults

This element provides a wrapper for data returned in response to a `SIF_ExtendedQuery`. Used in `SIF_Response` and `SIF_ReportObject`.
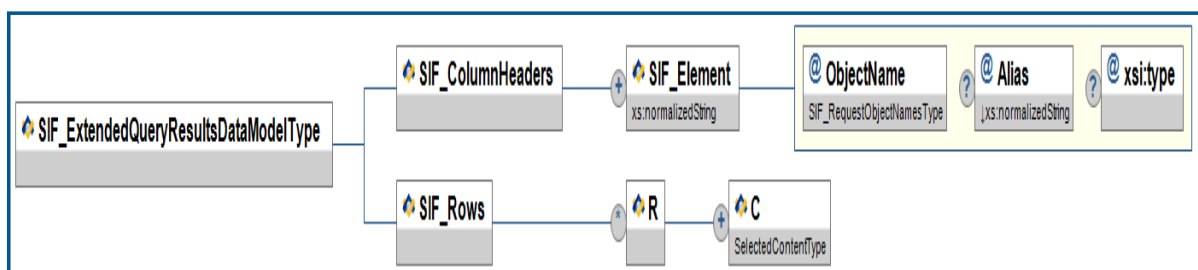
Figure 5.1.12-1: SIF_ExtendedQueryResults

	Element/@Attribute	Char	Description	Type
	SIF_ExtendedQueryResults		This element provides a wrapper for data returned in response to a `SIF_ExtendedQuery`. Used in `SIF_Response` and `SIF_ReportObject`.	
	SIF_ColumnHeaders	M	Provides the element/attribute and caption information for each column supplied in `SIF_ExtendedQuery`. The order must correspond to the order of the elements as requested in `SIF_ExtendedQuery`.	
	SIF_ColumnHeaders/SIF_Element	MR	The element/attribute specified for the column in `SIF_ExtendedQuery`.	`xs:normalizedString`
@	ObjectName	M	The object in which the element/attribute occurs.	`SIF_RequestObjectNamesType`

	Element/@Attribute	Char	Description	Type
@	Alias	O	The caption for the column, if specified in SIF_ExtendedQuery.	xs:normalizedString xs:maxLength 64
@	xsi:type	O	Optionally allows type of column value to be explicitly communicated.	
	SIF_Rows	M	A list of matching rows resulting from the supplied SIF_ExtendedQuery. Note that the complete list of rows may span multiple SIF_Response messages, per the SIF_MaxBufferSize supplied in SIF_Request. If there are no matching rows, this is an empty list.	
	SIF_Rows/R	OR	An individual matching row resulting from the supplied SIF_ExtendedQuery.	
	SIF_Rows/R/C	MR	Contains the value of each column specified in SIF_ExtendedQuery/SIF_Select. The order of the columns must correspond to the order of the elements as requested in SIF_ExtendedQuery. Note the number of columns may be expanded from the requested columns if * is indicated one or more times in the SIF_Select clause.	SelectedContentType xs:maxLength 64

Table 5.1.12-1: SIF_ExtendedQueryResults

```
<SIF_ExtendedQueryResults>
  <SIF_ColumnHeaders>
    <SIF_Element ObjectName="StudentPersonal" />
    <SIF_Element ObjectName="StudentSchoolEnrollment" />
    <SIF_Element ObjectName="SchoolInfo">SchoolName</SIF_Element>
  </SIF_ColumnHeaders>
  <SIF_Rows>
    <R>
      <C>
        <StudentPersonal RefId="123456789012345678901234567890123456789012">
          <!--...-->
        </StudentPersonal>
      </C>
      <C>
        <StudentSchoolEnrollment RefId="AED4AEF825284D7E9F082EBBEB1999FA" StudentPersonalRefId="1234567890123456789
          <!--...-->
        </StudentSchoolEnrollment>
      </C>
      <C>
        <SchoolName>SIFA High</SchoolName>
      </C>
    </R>
    <R>
      <C>
        <StudentPersonal RefId="123456789012345678901234567890123456789012">
          <!--...-->
        </StudentPersonal>
      </C>
      <C>
        <StudentSchoolEnrollment RefId="AED4AEF825284D7E9F082EBBEB1999FA" StudentPersonalRefId="1234567890123456789
          <!--...-->
        </StudentSchoolEnrollment>
      </C>
      <C>
        <SchoolName>SIFA University</SchoolName>
      </C>
    </R>
  </SIF_Rows>
</SIF_ExtendedQueryResults>
```

Example 5.1.12-1: SIF_ExtendedQueryResults

5.2 Messages

5.2.1 SIF_Ack

This message is used as an acknowledgement for infrastructure messages. All infrastructure messages will return a SIF_Ack as a result to indicate if the request was successful or not. A SIF_Ack must contain either a SIF_Status element acknowledging a successful result or a SIF_Error element describing the failure. The SIF_Error element contains a standardized error number as well as a description of the error.

A successful SIF_Ack is typically returned to the caller containing a SIF_Header, SIF_OriginalSourceId, SIF_OriginalMsgId and the SIF_Status element. In situations where additional information needs to be returned to the caller, a SIF_Data element can be added to the SIF_Status element.

In addition, successful SIF_Ack messages may also be sent to the ZIS under two conditions. The first is when a pull-mode agent requests that a message is to be removed from its queue. The second is when an agent which has invoked SMB wishes to end SMB handling. In that case, the agent sends a "Final" SIF_Ack to the ZIS. In each instance the ZIS returns a SIF_Ack in response to the agent's SIF_Ack message.
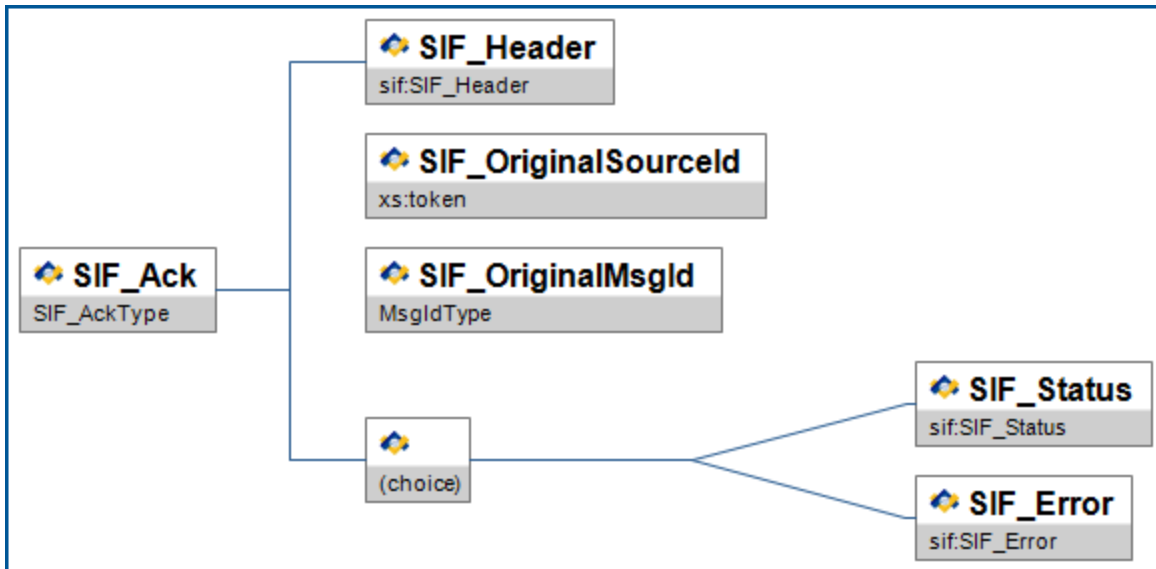
Figure 5.2.1-1: SIF_Ack

Element/@Attribute	Char	Description	Type
SIF_Ack	M	This message is used as an acknowledgement to an infrastructure message.	
SIF_Header	M	Header information associated with this message.	SIF_Header
SIF_OriginalSourceId	M	The SIF_SourceId of the infrastructure message for which the SIF_Ack serves as a response.	xs:token
SIF_OriginalMsgId	M	The SIF_MsgId of the infrastructure message for which the SIF_Ack message serves as a response.	MsgIdType
SIF_Status	C	This element is used to signal a successful response.	SIF_Status
SIF_Error	C	This element is used to signal an unsuccessful response.	SIF_Error

Table 5.2.1-1: SIF_Ack

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>AB1058CD3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyLib</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1298ACEF3261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
      <SIF_Data>
        <SIF_Message Version="2.4">
          <SIF_Request>
            <SIF_Header>
              <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
              <SIF_Timestamp>2006-02-18T08:39:02-08:00</SIF_Timestamp>
              <SIF_SourceId>RamseySIS</SIF_SourceId>
            </SIF_Header>
            <SIF_Version>2.*</SIF_Version>
            <SIF_MaxBufferSize>1048576</SIF_MaxBufferSize>
            <SIF_Query>
              <SIF_QueryObject ObjectName="SchoolInfo" />
              <SIF_ConditionGroup Type="None">
                <SIF_Conditions Type="None">
                  <SIF_Condition>
                    <SIF_Element>@SIF_RefObject</SIF_Element>
                    <SIF_Operator>EQ</SIF_Operator>
                    <SIF_Value>StaffPersonal</SIF_Value>
                  </SIF_Condition>
                </SIF_Conditions>
              </SIF_ConditionGroup>
            </SIF_Query>
          </SIF_Request>
        </SIF_Message>
      </SIF_Data>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.1-1: SIF_Ack Status Message

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>AB1058CD3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SifInfo_TestZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyLib</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1298ACEF3261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
      <SIF_Data>
        <SIF_Message Version="2.4">
          <SIF_Request>
            <SIF_Header>
              <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
              <SIF_Timestamp>2006-02-18T08:39:02-08:00</SIF_Timestamp>
              <SIF_SourceId>RamseySIS</SIF_SourceId>
            </SIF_Header>
            <SIF_Version>2.*</SIF_Version>
            <SIF_MaxBufferSize>1048576</SIF_MaxBufferSize>
            <SIF_Query>
              <SIF_QueryObject ObjectName="SchoolInfo" />
              <SIF_ConditionGroup Type="None">
                <SIF_Conditions Type="None">
                  <SIF_Condition>
                    <SIF_Element>@SIF_RefObject</SIF_Element>
                    <SIF_Operator>EQ</SIF_Operator>
                    <SIF_Value>StaffPersonal</SIF_Value>
                  </SIF_Condition>
                </SIF_Conditions>
              </SIF_ConditionGroup>
            </SIF_Query>
          </SIF_Request>
        </SIF_Message>
      </SIF_Data>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.1-2: SIF_Ack Status Message

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>CD5087FE3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1945CD783261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Error>
      <SIF_Category>3</SIF_Category>
      <SIF_Code>5</SIF_Code>
      <SIF_Desc>Sender's certificate is not trusted</SIF_Desc>
      <SIF_ExtendedDesc>Agent requires certificate issued by ISD11 CA</SIF_ExtendedDesc>
    </SIF_Error>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.1-3: SIF_Ack Error Message

5.2.2 SIF_Event

SIF_Event is used to deliver event objects as defined in SIF. Events represent the availability of a new data object, changes to, or deletions of data object.
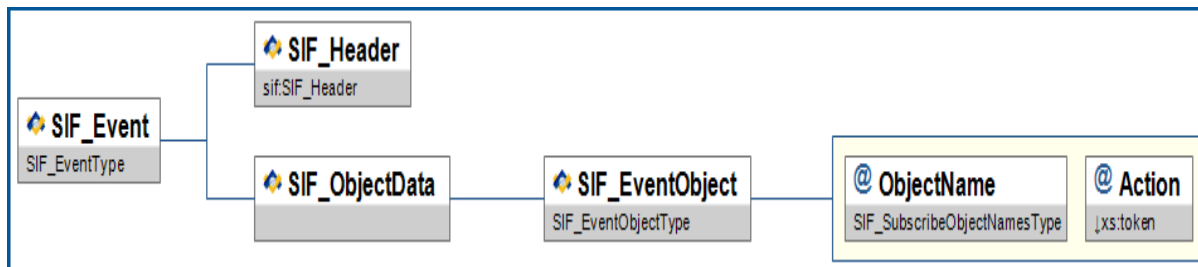
Figure 5.2.2-1: SIF_Event

	Element/@Attribute	Char	Description	Type
	SIF_Event	M	`SIF_Event` is used to deliver event objects as defined in SIF.	
	SIF_Header	M	Header information associated with this message.	`SIF_Header`
	SIF_ObjectData	M		
	SIF_ObjectData/SIF_EventObject	M	Contains the actual object (partial or whole) that is being added, changed or deleted.	`SIF_EventObjectType`
@	ObjectName	M	This is the name of the object being added, changed or deleted.	`SIF_SubscribeObjectNamesType`
@	Action	M	This is the action associated with the object that is being conveyed by this `SIF_Event`.	**values:** Add Delete Change

Table 5.2.2-1: SIF_Event

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Event>
    <SIF_Header>
      <SIF_MsgId>AB34DC093261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_ObjectData>
      <SIF_EventObject ObjectName="StudentPersonal" Action="Change">
        <StudentPersonal RefId="D3E34B359D75101A8C3D00AA001A1652">
          <PersonInfo>
            <PhoneNumberList>
              <PhoneNumber Type="0096">
                <Number>03 9637-2289</Number>
                <Extension>72289</Extension>
                <ListedStatus>Y</ListedStatus>
              </PhoneNumber>
              <PhoneNumber Type="0888">
                <Number>0437-765-234</Number>
                <ListedStatus>N</ListedStatus>
              </PhoneNumber>
            </PhoneNumberList>
          </PersonInfo>
        </StudentPersonal>
      </SIF_EventObject>
    </SIF_ObjectData>
  </SIF_Event>
</SIF_Message>
```

Example 5.2.2-1: SIF_Event Message with StudentPersonal changes

5.2.3 SIF_Provide

The `SIF_Provide` message is used to attempt registering as the provider of one or more data objects.
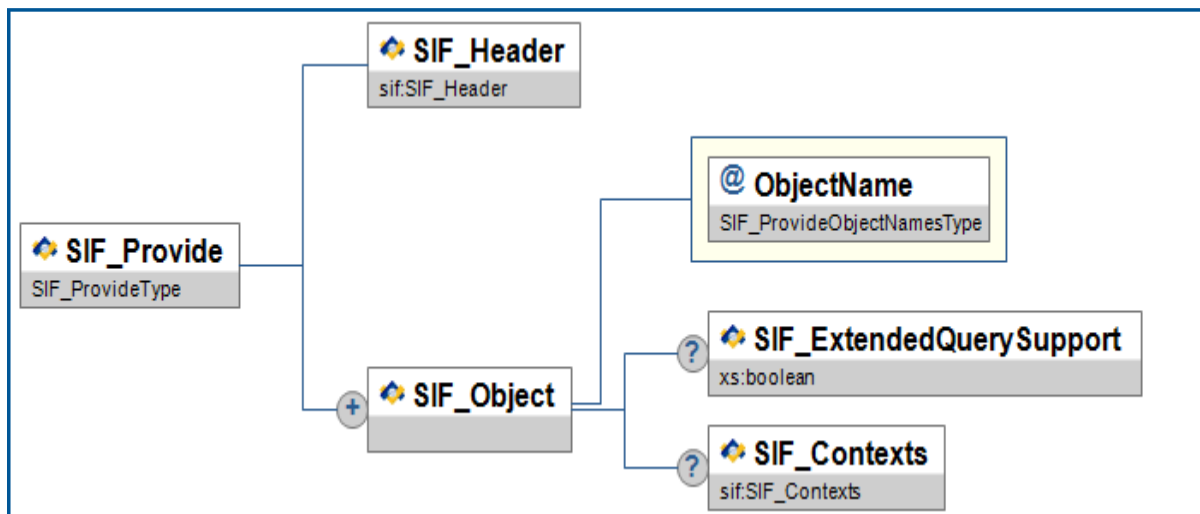
Figure 5.2.3-1: SIF_Provide

	Element/@Attribute	Char	Description	Type
	SIF_Provide	M	The `SIF_Provide` message is used for advertising the provision of data objects.	
	SIF_Header	M	Header information associated with this message.	`SIF_Header`
	SIF_Object	MR	This is the object that is being provided.	
@	ObjectName	M	The actual name of the object that is being provided.	`SIF_ProvideObjectNamesType`
	SIF_Object/SIF_ExtendedQuerySupport	O	Whether or not the Agent supports `SIF_ExtendedQuery` for this object.	`xs:boolean`
	SIF_Object/SIF_Contexts	O	The contexts in which the object is being provided; if omitted, the context is `SIF_Default`.	`SIF_Contexts`

Table 5.2.3-1: SIF_Provide

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Provide>
    <SIF_Header>
      <SIF_MsgId>34DC87FE3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_Object ObjectName="StudentPersonal" />
    <SIF_Object ObjectName="StudentSchoolEnrollment" />
  </SIF_Provide>
</SIF_Message>
```

Example 5.2.3-1: SIF_Provide

5.2.4 SIF_Provision

Once registered, this message allows an agent to announce to the ZIS the functionality the agent will provide. The ZIS compares the functionality to its access control list and either returns a failure or a success. Upon success, the ZIS performs an atomic update of its provide/subscribe database entries for the agent to match the objects listed in this message and atomically updates other stored settings for the agent. A ZIS must not allow an agent to perform operations that it did not successfully announce. Agents should be aware that if the access control list changes after a successful SIF_Provision, some operations may still be rejected with access control errors.

Figure 5.2.4-1: SIF_Provision

Element/@Attribute	Char	Description	Type
SIF_Provision		Once registered, this message allows an agent to announce to the ZIS the functionality the agent will provide. The ZIS compares the functionality to its access control list and either returns a failure or a success. Upon success, the ZIS performs an atomic update of its provide/subscribe database entries for the agent to match the objects listed in this message and atomically updates other stored settings for the agent. A ZIS must not allow an agent to perform operations that it did not successfully announce. Agents should be aware that if the access control list changes after a successful `SIF_Provision`, some operations may still be rejected with access control errors.	
SIF_Header	M	Header information associated with this message.	`SIF_Header`
SIF_ProvideObjects	M	A list of objects an Agent wishes to provide.	
SIF_ProvideObjects/SIF_Object	OR		
@ ObjectName	M	The name of each object.	`SIF_ProvideObjectNamesType`
SIF_ProvideObjects/SIF_Object/ SIF_ExtendedQuerySupport	O	Whether or not `SIF_ExtendedQuery` is supported with regard to this object.	`xs:boolean`
SIF_ProvideObjects/SIF_Object/ SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to `SIF_Default`.	`SIF_Contexts`

	Element/@Attribute	Char	Description	Type
	SIF_SubscribeObjects	M	A list of objects to which an Agent wishes to subscribe.	
	SIF_SubscribeObjects/SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_SubscribeObjectNamesType
	SIF_SubscribeObjects/SIF_Object/ SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts
	SIF_PublishAddObjects	M	A list of objects for which an Agent wishes to publish Add events.	
	SIF_PublishAddObjects/SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_SubscribeObjectNamesType
	SIF_PublishAddObjects/SIF_Object/ SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts
	SIF_PublishChangeObjects	M	A list of objects for which an Agent wishes to publish Change events.	
	SIF_PublishChangeObjects/ SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_SubscribeObjectNamesType
	SIF_PublishChangeObjects/ SIF_Object/SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts
	SIF_PublishDeleteObjects	M	A list of objects for which an Agent wishes to publish Delete events.	
	SIF_PublishDeleteObjects/ SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_SubscribeObjectNamesType

	Element/@Attribute	Char	Description	Type
	SIF_PublishDeleteObjects/ SIF_Object/SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts
	SIF_RequestObjects	M	A list of objects an Agent wishes to request.	
	SIF_RequestObjects/SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_RequestObjectNamesType
	SIF_RequestObjects/SIF_Object/ SIF_ExtendedQuerySupport	O	Optionally specify whether or not SIF_ExtendedQuery may be sent in requests for this object.	xs:boolean
	SIF_RequestObjects/SIF_Object/ SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts
	SIF_RespondObjects	M	A list of objects for which an Agent wishes to handle requests, whether or not it is the Provider for each object. Note that this list MUST include those objects specified in SIF_ProvideObjects.	
	SIF_RespondObjects/SIF_Object	OR		
@	ObjectName	M	The name of each object.	SIF_RequestObjectNamesType
	SIF_RespondObjects/SIF_Object/ SIF_ExtendedQuerySupport	O	Whether or not SIF_ExtendedQuery is supported with regard to this object.	xs:boolean
	SIF_RespondObjects/SIF_Object/ SIF_Contexts	O	Applicable contexts for stated object support. If omitted, the context defaults to SIF_Default.	SIF_Contexts

Table 5.2.4-1: SIF_Provision

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Provision>
    <SIF_Header>
      <SIF_MsgId>A10F92EB649F4A648B5BFC44C7FD965C</SIF_MsgId>
      <SIF_Timestamp>2006-08-18T11:23:11-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_ProvideObjects>
      <SIF_Object ObjectName="StudentPersonal" />
      <SIF_Object ObjectName="StudentSchoolEnrollment" />
    </SIF_ProvideObjects>
    <SIF_SubscribeObjects>
      <SIF_Object ObjectName="PersonPicture" />
    </SIF_SubscribeObjects>
    <SIF_PublishAddObjects>
      <SIF_Object ObjectName="StudentPersonal" />
      <SIF_Object ObjectName="StudentSchoolEnrollment" />
    </SIF_PublishAddObjects>
    <SIF_PublishChangeObjects>
      <SIF_Object ObjectName="StudentPersonal" />
      <SIF_Object ObjectName="StudentSchoolEnrollment" />
    </SIF_PublishChangeObjects>
    <SIF_PublishDeleteObjects>
      <SIF_Object ObjectName="StudentPersonal" />
      <SIF_Object ObjectName="StudentSchoolEnrollment" />
    </SIF_PublishDeleteObjects>
    <SIF_RequestObjects>
      <SIF_Object ObjectName="PersonPicture" />
    </SIF_RequestObjects>
    <SIF_RespondObjects>
      <SIF_Object ObjectName="StudentPersonal" />
      <SIF_Object ObjectName="StudentSchoolEnrollment" />
    </SIF_RespondObjects>
  </SIF_Provision>
</SIF_Message>
```

Example 5.2.4-1: SIF_Provision Example

5.2.5 SIF_Register

SIF_Register is the message for registering an agent with a ZIS. An agent must be registered before it sends out other SIF messages. SIF_Register serves to provide the ZIS with the sender's identification information as well as to provide the information that the ZIS will need to contact this agent, should it register in Push mode.

Once a sender registers in the ZIS with the SIF_Register message, the sender can use the SIF_SourceId value in the header of all other outgoing messages as its identification. It is not necessary to send a SIF_Register message each time your agent starts up but it is not an error to do so. If there are any blocked events in the Agent's queue when a ZIS receives the SIF_Register message, the blocks will be removed.
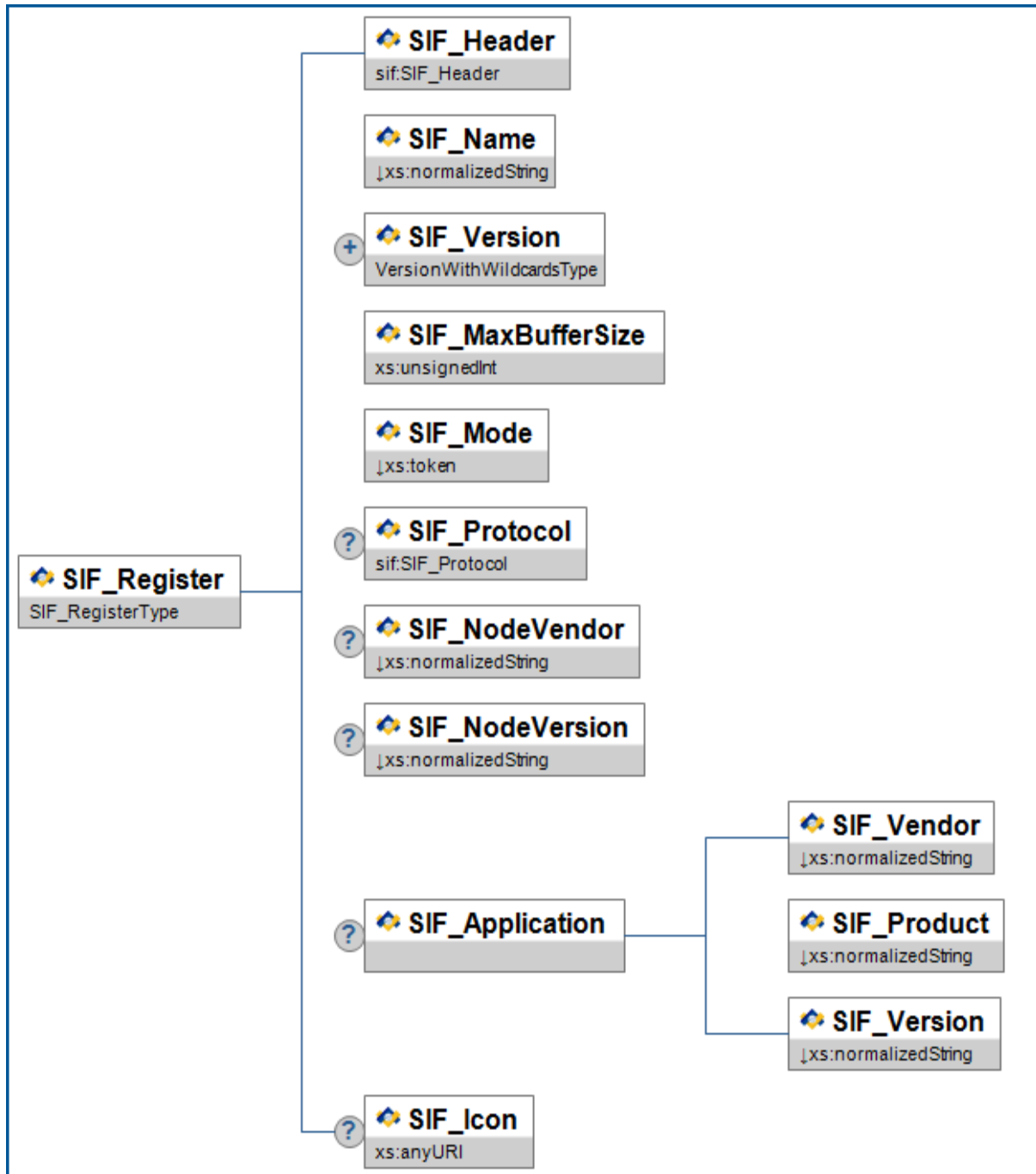
Figure 5.2.5-1: SIF_Register

Element/@Attribute	Char	Description	Type
SIF_Register	M	SIF_Register is the message for registering an agent with a ZIS.	
SIF_Header	M	Header information associated with this message.	SIF_Header
SIF_Name	M	This is the descriptive name of the agent that is registering (i.e. Ramsey Media Center).	xs:normalizedString xs:maxLength 64

Element/@Attribute	Char	Description	Type
SIF_Version	MR	Specifies the SIF Implementation Specification version(s) defining messages the agent can receive. If the ZIS cannot communicate in this format, it should reject the request. The format of SIF_Version values can be found in Version Numbers. In a SIF_Register message, an individual SIF_Version element may also contain the following wildcards: * - Any SIF version \<major version>.* - Any minor version plus revisions within a major version (e.g., 1.*) \<major version>.\<minor version>\<r>* - Any revision within a minor version (e.g., 1.1r*) Note: As wildcarding was first introduced in version 1.1 of the specification, 1.* does not match versions 1.0, 1.0r1 or 1.0r2. 1.1 or later agents that register with 1.* and wish to also receive messages from pre-1.1 agents must include SIF_Version element(s) with the supported pre-1.1 versions.	VersionWithWildcardsType
SIF_MaxBufferSize	M	Specifies the maximum size of a packet to be returned by the ZIS. The ZIS may return packets smaller than, or equal to, the maximum value.	xs:unsignedInt
SIF_Mode	M	Specifies the communication mode (Pull or Push) as chosen by the message sender.	**values:** Push Pull
SIF_Protocol	C	If SIF_Mode is Push, SIF_Protocol contains protocol information for contacting the agent in Push mode. A Pull-mode agent does not need to send SIF_Protocol; if received, a ZIS ignores it.	SIF_Protocol
SIF_NodeVendor	O	The vendor of the SIF agent.	xs:normalizedString xs:maxLength 256
SIF_NodeVersion	O	The agent version number. The format of this field is undefined, but it should match the format used in the agent's conformance statement, if the agent is SIF Certified. **Examples** 2.0.1.11	xs:normalizedString xs:maxLength 32
SIF_Application	O	Contains information about the vendor of the product that the agent represents.	
SIF_Application/SIF_Vendor	M	The name of the company of the product that this agent supports.	xs:normalizedString xs:maxLength 256

Element/@Attribute	Char	Description	Type
SIF_Application/SIF_Product	M	The name of the product that this agent supports.	xs:normalizedString xs:maxLength 256
SIF_Application/SIF_Version	M	The version of the product. This field is informative only.	xs:normalizedString xs:maxLength 32
SIF_Icon	O	HTTP URL referencing an icon for graphical representation of the application/agent. Should range from 16x16 pixels to 128x128 pixels and be of an image MIME type commonly supported by Web browsers (e.g. PNG, JPEG, GIF). Agents may optionally follow the more restrictive guidelines at [FAVICON].	xs:anyURI

Table 5.2.5-1: SIF_Register

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Register>
    <SIF_Header>
      <SIF_MsgId>14BA09653261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-06:00</SIF_Timestamp>
      <SIF_SourceId>AcmeAgent</SIF_SourceId>
    </SIF_Header>
    <SIF_Name>Acme Agent for WAP 2.x</SIF_Name>
    <SIF_Version>2.4</SIF_Version>
    <SIF_MaxBufferSize>524288</SIF_MaxBufferSize>
    <SIF_Mode>Push</SIF_Mode>
    <SIF_Protocol Type="HTTPS" Secure="Yes">
      <SIF_URL>https://AcmeHost:8030/StudentAdmin</SIF_URL>
    </SIF_Protocol>
    <SIF_NodeVersion>2.0.1.20</SIF_NodeVersion>
    <SIF_Application>
      <SIF_Vendor>Acme Consulting</SIF_Vendor>
      <SIF_Product>Web Administration Portal 5.x</SIF_Product>
      <SIF_Version>5.1.2</SIF_Version>
    </SIF_Application>
  </SIF_Register>
</SIF_Message>
```

Example 5.2.5-1: SIF_Register

5.2.6 SIF_Request

This message is used to request information in SIF data objects from other SIF nodes. It optionally specifies the query criteria with which to match objects, as well as an optional subset of elements to be returned for matching objects.
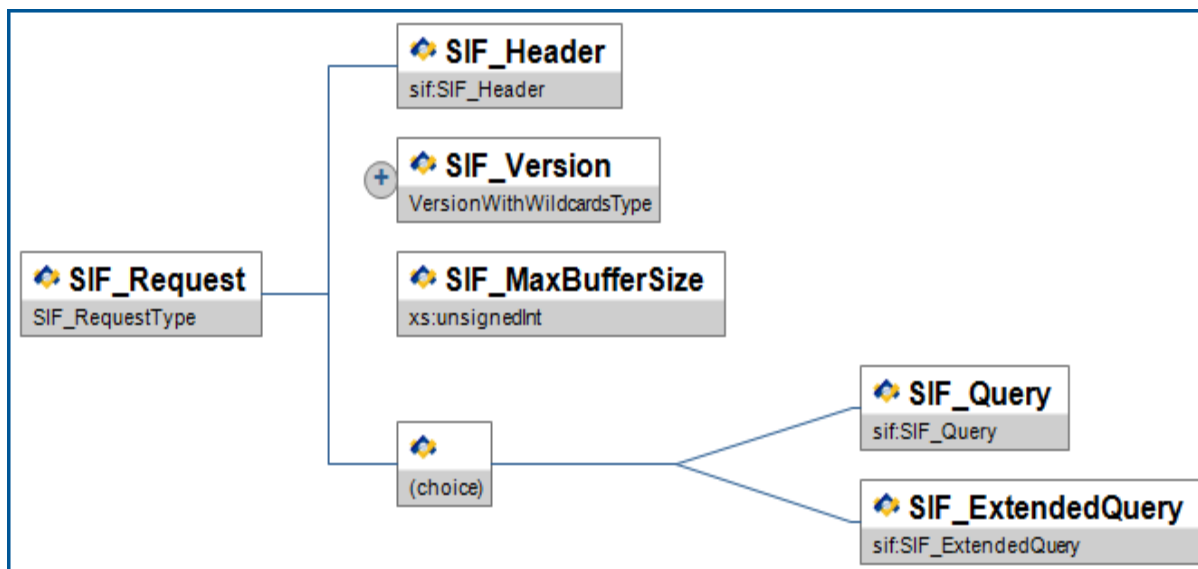
Figure 5.2.6-1: SIF_Request

Element/@Attribute	Char	Description	Type
SIF_Request	M	`SIF_Request` is used to request information in SIF data objects from other SIF nodes.	
SIF_Header	M	Header information associated with this message.	`SIF_Header`
SIF_Version	MR	Specifies which SIF Implementation Specification version should be used when returning the response data; wildcards are allowed. The responding agent `SHOULD` return data using the highest version it supports that falls within the specified versions.	`VersionWithWildcardsType`
SIF_MaxBufferSize	M	Specifies the maximum size of a response packet to be returned to the requester. The responder may return packets smaller than, or equal to, the maximum value. To guarantee delivery of response packets, requesting agents must not specify a `SIF_MaxBufferSize` greater than its registered `SIF_Register/SIF_MaxBufferSize`.	`xs:unsignedInt`
SIF_Query	C	Either `SIF_Query` or `SIF_ExtendedQuery` must be specified, which contain the criteria to be used to match response objects.	`SIF_Query`
SIF_ExtendedQuery	C		`SIF_ExtendedQuery`

Table 5.2.6-1: SIF_Request

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Request>
    <SIF_Header>
      <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_Version>2.*</SIF_Version>
    <SIF_MaxBufferSize>1048576</SIF_MaxBufferSize>
    <SIF_Query>
      <SIF_QueryObject ObjectName="LibraryPatronStatus" />
      <SIF_ConditionGroup Type="None">
        <SIF_Conditions Type="None">
          <SIF_Condition>
            <SIF_Element>@SIF_RefObject</SIF_Element>
            <SIF_Operator>EQ</SIF_Operator>
            <SIF_Value>StaffPersonal</SIF_Value>
          </SIF_Condition>
        </SIF_Conditions>
      </SIF_ConditionGroup>
    </SIF_Query>
  </SIF_Request>
</SIF_Message>
```

Example 5.2.6-1: SIF_Request

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Request>
    <SIF_Header>
      <SIF_MsgId>A3E90785EFDA330DACB00785EFDA330D</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_Version>2.*</SIF_Version>
    <SIF_MaxBufferSize>1048576</SIF_MaxBufferSize>
    <SIF_Query>
      <SIF_QueryObject ObjectName="SchoolInfo" />
      <SIF_ConditionGroup Type="None">
        <SIF_Conditions Type="None">
          <SIF_Condition>
            <SIF_Element>@SIF_RefObject</SIF_Element>
            <SIF_Operator>EQ</SIF_Operator>
            <SIF_Value>StaffPersonal</SIF_Value>
          </SIF_Condition>
        </SIF_Conditions>
      </SIF_ConditionGroup>
    </SIF_Query>
  </SIF_Request>
</SIF_Message>
```

Example 5.2.6-2: SIF_Request

5.2.7 SIF_Response

SIF_Response is used to respond to a SIF_Request message. A response may span multiple SIF_Response messages.
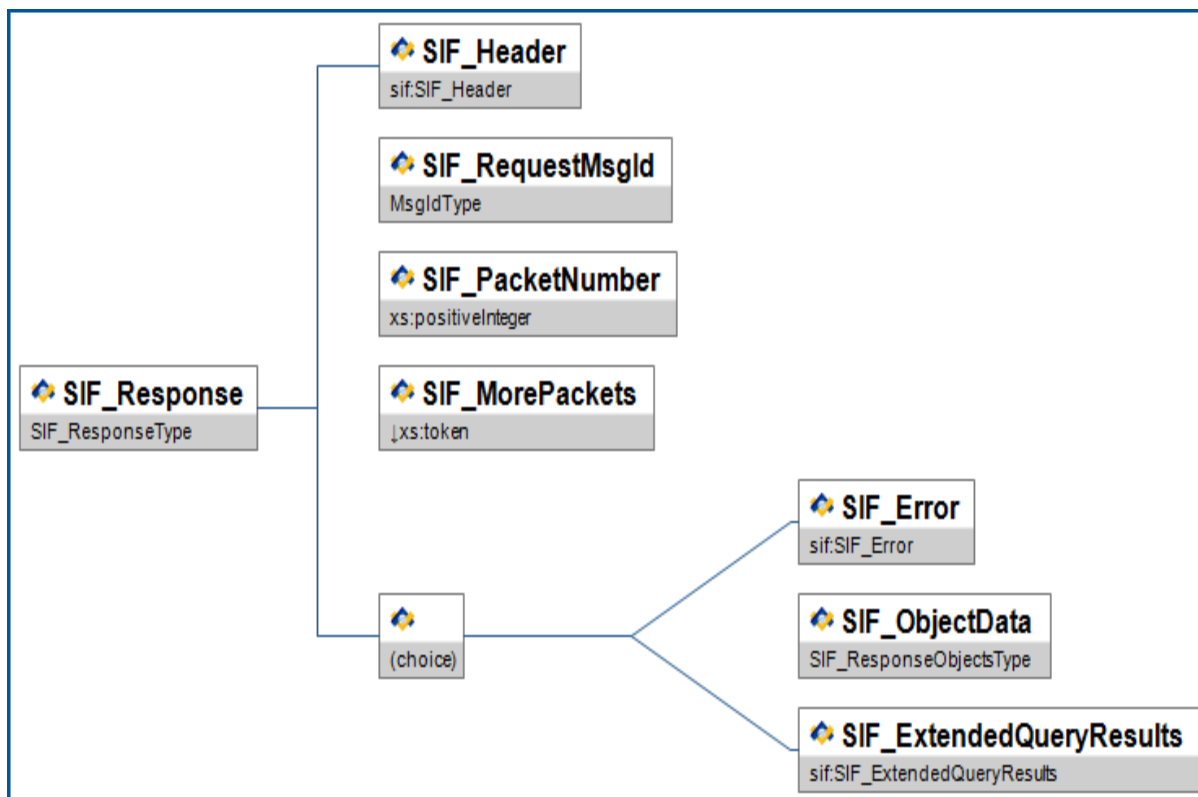
Figure 5.2.7-1: SIF_Response

Element/@Attribute	Char	Description	Type
SIF_Response	M	SIF_Response is used to respond to a SIF_Request message.	
SIF_Header	M	Header information associated with this message. The SIF_DestinationId needs to be the SIF_SourceId of the original SIF_Request message being processed.	SIF_Header
SIF_RequestMsgId	M	This is the message ID of the SIF_Request message being processed. It provides a unique match between a SIF_Response and a previous SIF_Request. Since the ID of each message from an agent is unique, the receiver of a SIF_Response message will be able to relate the SIF_Response to a SIF_Request that it sent out previously.	MsgIdType
SIF_PacketNumber	M	This element represents the index of the SIF_Response message in the sequence of packets that make up a complete response. Its value must be in the range of 1 through n, with n equal to the total number of packets that make up a response. The receiver of a SIF_Response message, with the help of the SIF_MorePackets and SIF_PacketNumber element in each incoming SIF_Response message, will be able to interpret and process each SIF_Response as part of a complete response to a previous SIF_Request.	xs:positiveInteger

Element/@Attribute	Char	Description	Type
SIF_MorePackets	M	This element provides an indication as to whether there are more packets besides this one to make up a complete response. The necessity of this element stems from the requirement on an agent to break response data to fit into the SIF_MaxBufferSize provided in the SIF_Request. Agents may also break response data into multiple packets for the benefit of improving performance or for circumventing limitations of the underlying network infrastructure. When this element's value is equal to No, it is an indication from the sender to the receiver that it has already sent out all the packets that make up a complete response for a SIF_Request as indicated by the SIF_RequestMsgId element.	**values:** Yes No
SIF_Error	C	The responder returns SIF_Error, SIF_ObjectData or SIF_ExtendedQueryResults. This element allows the Responder to report an error condition that occurs while processing the SIF_Request. If a SIF_Error element is present, the requesting agent must not expect to receive further SIF_Responses to the SIF_Request.	SIF_Error
SIF_ObjectData	C	The SIF_ObjectData element contains the data objects matching the supplied criteria in the SIF_Request message if the SIF_Request contained SIF_Query. If the SIF_Request contained SIF_ExtendedQuery, include SIF_ExtendedQueryResults.	SIF_ResponseObjectsType
SIF_ExtendedQueryResults	C	This element contains the elements requested by SIF_ExtendedQuery in SIF_Request.	SIF_ExtendedQueryResults

Table 5.2.7-1: SIF_Response

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>1BCD10580EF250789012AC0554321EA2</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SISAgent</SIF_SourceId>
      <SIF_DestinationId>NetworkAgent</SIF_DestinationId>
    </SIF_Header>
    <SIF_RequestMsgId>FE1078BA3261545A319059376B3A4898</SIF_RequestMsgId>
    <SIF_PacketNumber>1</SIF_PacketNumber>
    <SIF_MorePackets>No</SIF_MorePackets>
    <SIF_ObjectData>
      <StudentPersonal RefId="E3E34B359D75101A8C3D00AA00184753">
        <PersonInfo>
          <Name Type="LGL">
            <FamilyName>Smith</FamilyName>
            <GivenName>Fred</GivenName>
            <FullName>Fred Smith</FullName>
          </Name>
        </PersonInfo>
      </StudentPersonal>
    </SIF_ObjectData>
  </SIF_Response>
</SIF_Message>
```

Example 5.2.7-1: Sample single-packet SIF_Response to a SIF_Request for the Name element from a StudentPersonal object

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>322925BC9818433E8090D5110EE61DA3</SIF_MsgId>
      <SIF_Timestamp>2006-04-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>SISAgent</SIF_SourceId>
      <SIF_DestinationId>NetworkAgent</SIF_DestinationId>
    </SIF_Header>
    <SIF_RequestMsgId>FE1078BA3261545A31905937B265CE01</SIF_RequestMsgId>
    <SIF_PacketNumber>1</SIF_PacketNumber>
    <SIF_MorePackets>Yes</SIF_MorePackets>
    <SIF_ObjectData>
      <StudentPersonal RefId="E3E34B359D75101A8C3D00AA00184753">
        <PersonInfo>
          <Name Type="LGL">
            <FamilyName>Smith</FamilyName>
            <GivenName>Fred</GivenName>
            <FullName>Fred Smith</FullName>
          </Name>
        </PersonInfo>
      </StudentPersonal>
    </SIF_ObjectData>
  </SIF_Response>
</SIF_Message>
```

Example 5.2.7-2: SIF_Response (first packet)

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>322925BC9818433E8090D51256786BC9</SIF_MsgId>
      <SIF_Timestamp>2006-04-18T08:39:49-08:00</SIF_Timestamp>
      <SIF_SourceId>SISAgent</SIF_SourceId>
      <SIF_DestinationId>NetworkAgent</SIF_DestinationId>
    </SIF_Header>
    <SIF_RequestMsgId>FE1078BA3261545A31905937B265CE01</SIF_RequestMsgId>
    <SIF_PacketNumber>2</SIF_PacketNumber>
    <SIF_MorePackets>No</SIF_MorePackets>
    <SIF_ObjectData>
      <StudentPersonal RefId="F14B5B359D75101A8C3D00AA00184753">
        <PersonInfo>
          <Name Type="LGL">
            <FamilyName>Smith</FamilyName>
            <GivenName>Alice</GivenName>
            <FullName>Alice Smith</FullName>
          </Name>
        </PersonInfo>
      </StudentPersonal>
    </SIF_ObjectData>
  </SIF_Response>
</SIF_Message>
```

Example 5.2.7-3: SIF_Response (second packet)

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>F557D40A1367455E9F01DED76E29260C</SIF_MsgId>
      <SIF_Timestamp>2006-04-18T08:43:08-08:00</SIF_Timestamp>
      <SIF_SourceId>SISAgent</SIF_SourceId>
      <SIF_DestinationId>NetworkAgent</SIF_DestinationId>
    </SIF_Header>
    <SIF_RequestMsgId>971D7C7EF2684C7081A7765BF89FAD14</SIF_RequestMsgId>
    <SIF_PacketNumber>1</SIF_PacketNumber>
    <SIF_MorePackets>No</SIF_MorePackets>
    <SIF_ObjectData />
  </SIF_Response>
</SIF_Message>
```

Example 5.2.7-4: SIF_Response with no matching objects

5.2.8 SIF_Subscribe

This message is used to subscribe to event objects that are contained in this message.
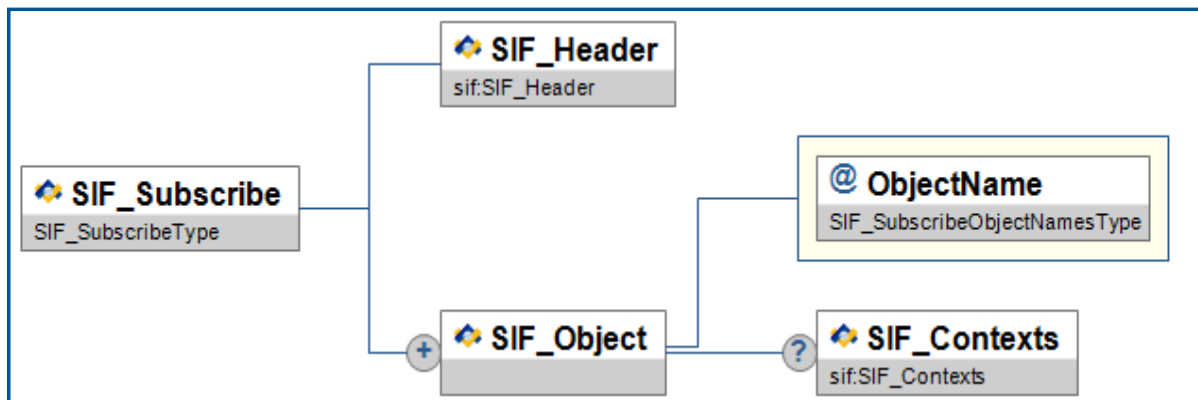
Figure 5.2.8-1: SIF_Subscribe

	Element/@Attribute	Char	Description	Type
	SIF_Subscribe	M	This message is used to subscribe to event objects that are contained in this message.	
	SIF_Header	M	Header information associated with this message.	SIF_Header
	SIF_Object	MR		
@	ObjectName	M	The actual name of the object that is being subscribed to. All valid SIF_Events for this object will be routed to the subscriber.	SIF_SubscribeObjectNamesType
	SIF_Object/SIF_Contexts	O	The contexts to which the subscription applies; if omitted, the context is SIF_Default.	SIF_Contexts

Table 5.2.8-1: SIF_Subscribe

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Subscribe>
    <SIF_Header>
      <SIF_MsgId>AB2065FD3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_Object ObjectName="StudentPersonal" />
    <SIF_Object ObjectName="StaffPersonal" />
  </SIF_Subscribe>
</SIF_Message>
```

Example 5.2.8-1: SIF_Subscribe

5.2.9 SIF_SystemControl

A `SIF_SystemControl` message is designed to control the flow of data between an agent and ZIS or vice-versa, and to synchronously retrieve data available from the ZIS. The `SIF_SystemControl` message is a container for a number of specialized control messages. `SIF_SystemControl` messages are handled immediately by receivers and are not persisted in a message queue for later delivery.

Figure 5.2.9-1: SIF_SystemControl

Element/@Attribute	Char	Description	Type
SIF_SystemControl	M	This message is designed to control the flow of data an agent and ZIS or vice-versa, and to synchronously retrieve data available from the ZIS.	
SIF_Header	M	Header information associated with this message.	`SIF_Header`

SIF_SystemControlData	M	This element holds the sub-message being sent.	**choice of:**
			
			`SIF_Ping`
			`SIF_Sleep`
			`SIF_Wakeup`
			`SIF_GetMessage`
			`SIF_GetZoneStatus`
			`SIF_GetAgentACL`
			`SIF_CancelRequests`

Table 5.2.9-1: SIF_SystemControl

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>C332B8A9DFA5480AB89B6B6F62BE57B3</SIF_MsgId>
      <SIF_Timestamp>2006-12-27T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_Ping />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.9-1: SIF_SystemControl

5.2.10 SIF_Ping

SIF_Ping is sent to detect if a ZIS or push-mode agent is ready to receive and process messages.

Figure 5.2.10-1: SIF_Ping

Element/@Attribute	Char	Description	Type
SIF_Ping	M	This sub-message detects if an a Push-Mode Agent or ZIS is ready to receive and process messages.	EMPTY

Table 5.2.10-1: SIF_Ping

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>C332B8A9DFA5480AB89B6B6F62BE57B3</SIF_MsgId>
      <SIF_Timestamp>2006-12-27T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_Ping />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.10-1: SIF_Ping

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>AE9E2BD747B94F4D8545E41F482854C8</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T14:23:20-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyZIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>9812ABFD3261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>1</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.10-2: SIF_SystemControl—SIF_Ping ("Okay" status)

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>3C11DFF1451C4E9A8A1F07E03C1D7FBB</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T14:24:31-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyZIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>9812ABFD3261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>8</SIF_Code>
      <SIF_Desc>Receiver is sleeping</SIF_Desc>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.10-3: SIF_SystemControl—SIF_Ping ("Receiver is sleeping" status)

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>1594A3B29DD34786B5EA77998899F49F</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T14:24:31-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>9812ABFD3261545A31905937B265CE01</SIF_OriginalMsgId>
    <SIF_Error>
      <SIF_Category>10</SIF_Category>
      <SIF_Code>4</SIF_Code>
      <SIF_Desc>Unable to establish connection</SIF_Desc>
      <SIF_ExtendedDesc>Error 10061: Connection refused</SIF_ExtendedDesc>
    </SIF_Error>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.10-4: SIF_SystemControl—SIF_Ping (Transport error returned)

5.2.11 SIF_Sleep

The SIF_Sleep message allows an agent to notify a ZIS or a ZIS to notify a push-mode agent that it must not send any more messages to the sender of the SIF_Sleep. After the sender receives a SIF_Ack indicating that the message was received, the receiver must not send any further messages to the sender.

This message provides the ability to signal an agent or ZIS that the sender will be unable to process further messages until some time in the future. Reasons for sending a SIF_Sleep message include the sender is unable to process more data because of limited resources (i.e. disk storage, network bandwidth, etc.), or the sender is being temporarily shutdown and will be unable to receive messages.

Since the sender may send a SIF_Sleep message for a variety of reasons, if the receiver sends messages after a SIF_Sleep message but prior to receiving a SIF_Wakeup or SIF_Register message from the sender, an error must be returned. A transport error will occur or be returned if a connection cannot be established with the sender, or the sender may choose to receive the connection but return an error.

If the sender is an agent, the ZIS will continue to hold any messages for the agent in the queue but the ZIS will not send those messages until a SIF_Wakeup (or SIF_Register) message is received. If an agent is processing a message requiring additional SIF_Requests to be sent to the ZIS and a SIF_Sleep message is received from the ZIS, the agent will not be able to retrieve the additional data. The agent must abort the processing of the message and only attempt to process the message after receiving a SIF_Wakeup message from the ZIS.

An agent or ZIS is not required to be able to send SIF_Sleep messages. However, if an agent or ZIS has the ability to send a SIF_Sleep, it must also be able to send a SIF_Wakeup. Although the sending of SIF_Sleep is optional, an agent or ZIS must always be able to process and respond appropriately to these messages if received.

Figure 5.2.11-1: SIF_Sleep

Element/@Attribute	Char	Description	Type
SIF_Sleep	M	This sub-message tells a receiver not to send any more messages to the sender.	EMPTY

Table 5.2.11-1: SIF_Sleep

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>1594A3B29DD34786B5EA77998899F49F</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T14:28:19-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_Sleep />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.11-1: SIF_Sleep

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>9F5167FA5CA848F99EB27544B314AF4D</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T14:29:09-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyZIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>1594A3B29DD34786B5EA77998899F49F</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>1</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.11-2: SIF_Ack with "Okay" status in response to SIF_Sleep

5.2.12 SIF_Wakeup

When the "sleeping" agent or ZIS is ready to resume message processing, it will send a SIF_Wakeup message. This will signal the receiver that the sender is now able to process messages. Sending a SIF_Wakeup message without a previous SIF_Sleep message is permissible and is not considered an error.

If there are any blocked events in the Agent's queue when a ZIS receives the SIF_Wakeup message, the blocks will be removed.

Since a ZIS may choose to stop sending messages to an agent if a connection cannot be made with that agent, it is recommended that an agent send a SIF_Wakeup message to the ZIS upon agent startup.

An agent or ZIS is not required to be able to send SIF_Wakeup messages. Although the sending of SIF_Wakeup is optional, an agent or ZIS must always be able to process and respond to these messages correctly if received.

Figure 5.2.12-1: SIF_Wakeup

Element/@Attribute	Char	Description	Type
SIF_Wakeup	M	This message tells a receiver that the sender is able to process messages.	EMPTY

Table 5.2.12-1: SIF_Wakeup

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>715A32E026B0495A826DF84E821949BD</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T15:34:22-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_Wakeup />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.12-1: SIF_Wakeup

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>5631E28868E3482EAA51B6CDE4145957</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T15:34:48-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseyZIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>715A32E026B0495A826DF84E821949BD</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>1</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.12-2: SIF_Ack with an "Okay" status in response to SIF_Wakeup

5.2.12.1 SIF_Sleep/SIF_Wakeup versus SIF_Register/SIF_Unregister

Using the SIF_Wakeup message is the preferred method of communicating that an agent or ZIS is ready to process messages. This is preferable over the use of a SIF_Register message because a SIF_Register message specifies protocol information while the SIF_Sleep/SIF_Wakeup pair communicates flow control information. However, when a SIF_Register message is processed, the receiver must behave like a SIF_Wakeup message was also received.

It is important to note that while SIF_Sleep and SIF_Wakeup are opposites of one another, this is not the case with SIF_Register and SIF_Unregister. This is because a SIF_Unregister command removes essential agent configuration information such as the provision and subscription lists, which will not be specified by a subsequent SIF_Register command. (SIF_Unregister also causes any messages pending delivery to the agent to be purged from the agent's queue.) In other words, a SIF_Register alone will not reverse the effects of a SIF_Unregister.

5.2.13 SIF_GetMessage

The SIF_GetMessage message provides the mechanism for an agent to pull message from a ZIS. An agent sends a SIF_GetMessage and the ZIS returns the next available message, subject to Selective Message Blocking, wrapped in a SIF_Ack with a SIF_Status/SIF_Code of 0 and the message in the SIF_Status/SIF_Data element. If there are no messages to be returned, the ZIS returns a value of 9 in SIF_Status/SIF_Code.

If an agent is not registered with a mode of Pull the ZIS will return a SIF_Ack with an error category of Registration and an error code indicating the agent is registered in Push mode.
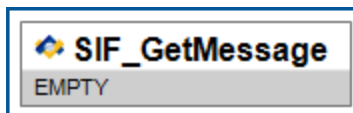
Figure 5.2.13-1: SIF_GetMessage

Element/@Attribute	Char	Description	Type
SIF_GetMessage	M	This message tells the ZIS to return the first available message to the agent, subject to Selective Message Blocking.	EMPTY

Table 5.2.13-1: SIF_GetMessage

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>B0E80A74265A4A75ADDC0ECC50AEF737</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T15:54:32-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_GetMessage />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.13-1: SIF_GetMessage

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>9861A45AAC364607938A7DB440514DDF</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T15:54:42-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>B0E80A74265A4A75ADDC0ECC50AEF737</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
      <SIF_Data>
        <SIF_Message Version="2.4">
          <SIF_Event>
            <SIF_Header>
              <SIF_MsgId>AB34DC093261545A31905937B265CE01</SIF_MsgId>
              <SIF_Timestamp>2006-10-14T15:40:12-08:00</SIF_Timestamp>
              <SIF_SourceId>RamseySIS</SIF_SourceId>
            </SIF_Header>
            <SIF_ObjectData>
              <SIF_EventObject ObjectName="StudentPersonal" Action="Change">
                <StudentPersonal RefId="D3E34B359D75101A8C3D00AA001A1652">
                  <PersonInfo>
                    <PhoneNumberList>
                      <PhoneNumber Type="0096">
                        <Number>03 9637-2289</Number>
                        <Extension>72289</Extension>
                        <ListedStatus>Y</ListedStatus>
                      </PhoneNumber>
                      <PhoneNumber Type="0888">
                        <Number>0437-765-234</Number>
                        <ListedStatus>N</ListedStatus>
                      </PhoneNumber>
                    </PhoneNumberList>
                  </PersonInfo>
                </StudentPersonal>
              </SIF_EventObject>
            </SIF_ObjectData>
          </SIF_Event>
        </SIF_Message>
      </SIF_Data>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```
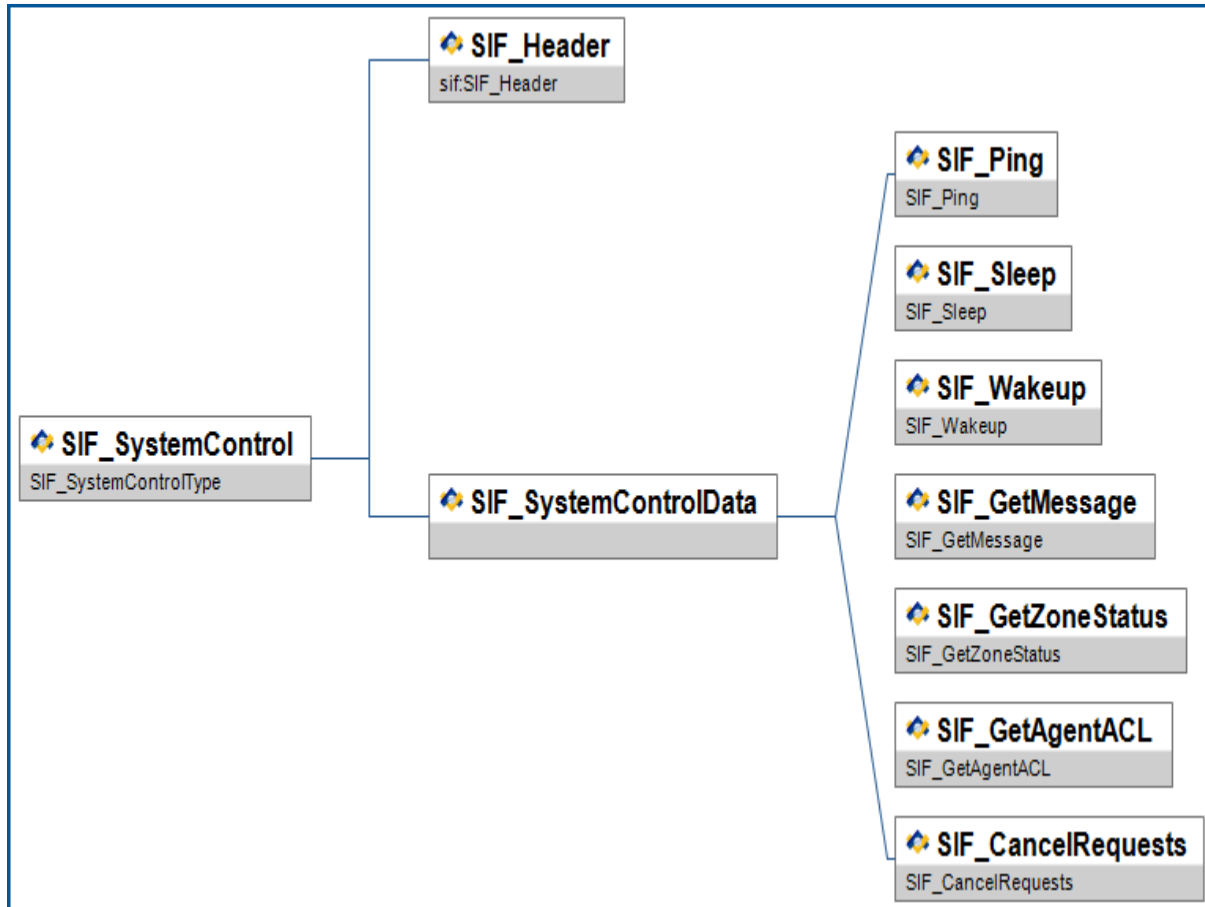
Example 5.2.13-2: SIF_Ack in response to SIF_GetMessage

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>9861A45AAC364607938A7DB440514DDF</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T15:54:42-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>B0E80A74265A4A75ADDC0ECC50AEF737</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>9</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.13-3: SIF_Ack in response to SIF_GetMessage (no message in queue)

5.2.14 SIF_GetZoneStatus

The SIF_GetZoneStatus message provides the agent with the ability to synchronously retrieve the current status of the zone, by-passing the asynchronous nature of retrieving the zone status by sending a SIF_Request for SIF_ZoneStatus and waiting for the arrival of the SIF_ZoneStatus response at the top of its queue. Agents may also use the asynchronous model for requesting SIF_ZoneStatus, if and when desired.

Figure 5.2.14-1: SIF_GetZoneStatus

Element/@Attribute	Char	Description	Type
SIF_GetZoneStatus	M	This message tells the ZIS to return the current SIF_ZoneStatus in a SIF_Ack.	EMPTY

Table 5.2.14-1: SIF_GetZoneStatus

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>91401B5073F54AB1AEBC63E51764C77A</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T16:09:54-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_GetZoneStatus />
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.14-1: SIF_GetZoneStatus

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>C4BF5F868EEC4A41AF7DAF316C4E89DC</SIF_MsgId>
      <SIF_Timestamp>2006-10-14T16:10:42-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>91401B5073F54AB1AEBC63E51764C77A</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>0</SIF_Code>
      <SIF_Data>
        <SIF_ZoneStatus ZoneId="SIFExampleZone">...</SIF_ZoneStatus>
      </SIF_Data>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example 5.2.14-2: SIF_Ack containing SIF_ZoneStatus

5.2.15 SIF_GetAgentACL

The `SIF_GetAgentACL` message provides the agent with the ability to synchronously retrieve its Access Control List permissions in the Zone via `SIF_AgentACL`. Agents may also use the asynchronous model of `SIF_Request` for requesting `SIF_AgentACL`, if and when desired.

Figure 5.2.15-1: SIF_GetAgentACL

Element/@Attribute	Char	Description	Type
SIF_GetAgentACL	M	This message tells the ZIS to return the Agent's ACL permissions in a `SIF_Ack`.	EMPTY

Table 5.2.15-1: SIF_GetAgentACL

5.2.16 SIF_CancelRequests

The SIF_SystemControl—SIF_CancelRequests message allows an Agent or ZIS to notify a ZIS or Push-Mode Agent, respectively, that the specified `SIF_Request`s should be cancelled, whether pending or in process. Handling by a Push-Mode Agent is optional; if unsupported, the Agent returns a Generic Message Handling error upon receipt of the `SIF_SystemControl` message, error code "Message not supported."
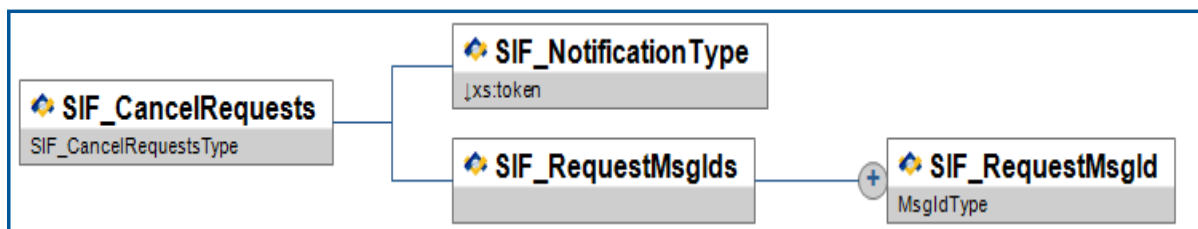
Figure 5.2.16-1: SIF_CancelRequests

Element/@Attribute	Char	Description	Type
SIF_CancelRequests	M	This sub-message asks a receiver (ZIS or Push-Mode Agent) to cancel the specified `SIF_Request`s, pending or in process.	

SIF_NotificationType	M		**values:**
			
			`Standard`
			    ZIS will send a "final" SIF_Response for each cancelled SIF_Request.
			`None`
			    No further SIF_Responses for these requests will be placed in the Agent's queue.

SIF_RequestMsgIds	M	The list of `SIF_Request`s to cancel.	`List`
SIF_RequestMsgIds/SIF_RequestMsgId	MR	This is the `SIF_MsgId` of the `SIF_Request` message being cancelled.	`MsgIdType`

Table 5.2.16-1: SIF_CancelRequests

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_SystemControl>
    <SIF_Header>
      <SIF_MsgId>C332B8A9DFA5480AB89B6B6F62BE57B3</SIF_MsgId>
      <SIF_Timestamp>2006-12-27T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>AcmeAgent</SIF_SourceId>
    </SIF_Header>
    <SIF_SystemControlData>
      <SIF_CancelRequests>
        <SIF_NotificationType>None</SIF_NotificationType>
        <SIF_RequestMsgIds>
          <SIF_RequestMsgId>C332B8A9DFA5480AB89B6B6F62BE57B3</SIF_RequestMsgId>
          <SIF_RequestMsgId>1058ABCDE028D076F08365109BE7C892</SIF_RequestMsgId>
        </SIF_RequestMsgIds>
      </SIF_CancelRequests>
    </SIF_SystemControlData>
  </SIF_SystemControl>
</SIF_Message>
```

Example 5.2.16-1: SIF_CancelRequests

5.2.17 SIF_Unprovide

This message performs the opposite function of `SIF_Provide`. It removes the message sender as a provider of the data objects contained in this message.
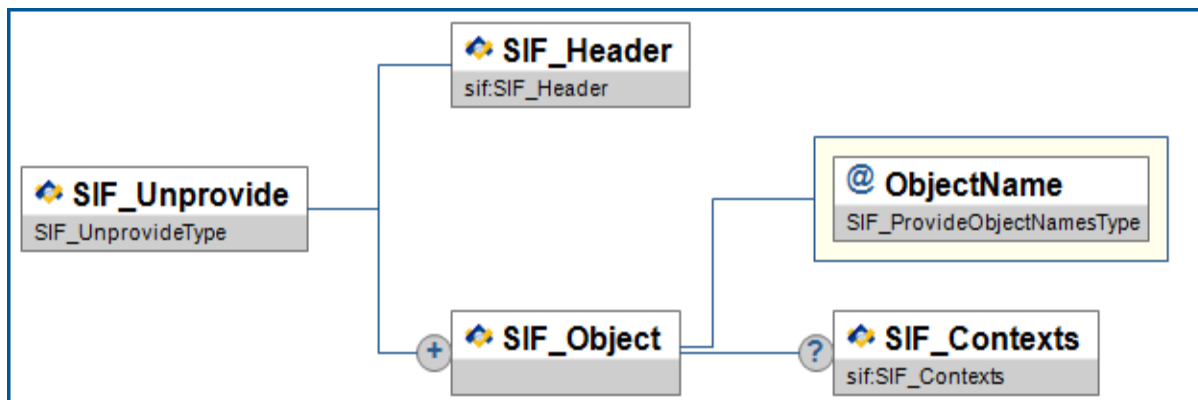
Figure 5.2.17-1: SIF_Unprovide

Element/@Attribute	Char	Description	Type
SIF_Unprovide	M	This message performs the opposite function of SIF_Provide.	
SIF_Header	M	Header information associated with this message.	SIF_Header
SIF_Object	MR	This is the object that is being removed from the provider list.	
@ ObjectName	M	The actual name of the object that is being removed.	SIF_ProvideObjectNamesType
SIF_Object/SIF_Contexts	O	The contexts from which the object is being removed; if omitted, the context is SIF_Default.	SIF_Contexts

Table 5.2.17-1: SIF_Unprovide

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Unprovide>
    <SIF_Header>
      <SIF_MsgId>76EFAB543261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseySIS</SIF_SourceId>
    </SIF_Header>
    <SIF_Object ObjectName="StudentPersonal" />
    <SIF_Object ObjectName="StaffPersonal" />
  </SIF_Unprovide>
</SIF_Message>
```

Example 5.2.17-1: SIF_Unprovide

5.2.18 SIF_Unregister

This message allows an agent to remove any association it has with the ZIS. By sending this message, the ZIS will remove all provisions and subscriptions it maintains for the sender and discards any messages pending for the agent.

Figure 5.2.18-1: SIF_Unregister

Element/@Attribute	Char	Description	Type
SIF_Unregister	M	This message is used to unregister an agent from a Zone.	
SIF_Header	M	Header information contained in the message.	SIF_Header

Table 5.2.18-1: SIF_Unregister

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Unregister>
    <SIF_Header>
      <SIF_MsgId>1057FABD3261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyFOOD</SIF_SourceId>
    </SIF_Header>
  </SIF_Unregister>
</SIF_Message>
```

Example 5.2.18-1: SIF_Unregister

5.2.19 SIF_Unsubscribe

This message performs the opposite function of SIF_Subscribe. It removes the message sender as a subscriber to the SIF_Events contained in this message.
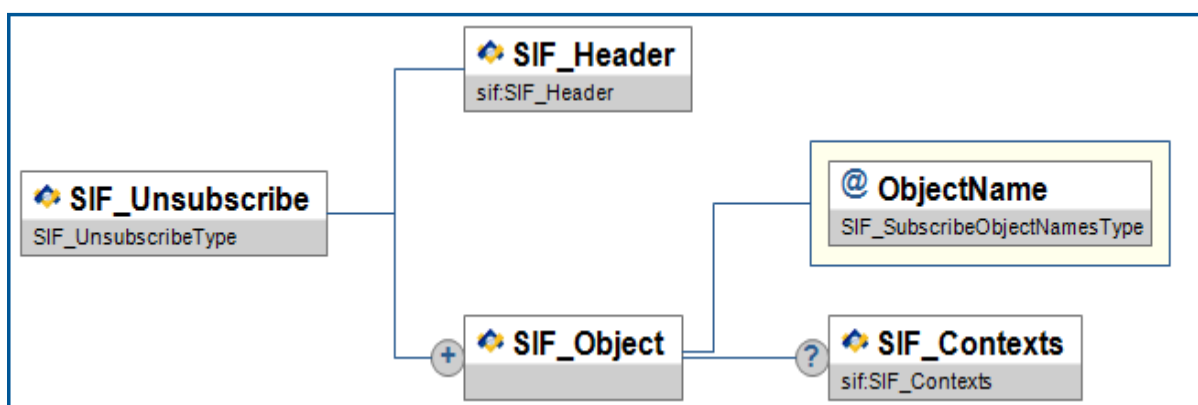
Figure 5.2.19-1: SIF_Unsubscribe

	Element/@Attribute	Char	Description	Type
	SIF_Unsubscribe	M	This message is used to unsubscribe from SIF_Events.	
	SIF_Header	M	Header information associated with this message.	SIF_Header
	SIF_Object	MR		
@	ObjectName	M	The actual name of the object from which the agent should be unsubscribed. Events pertaining to this object published after successful unsubscription will no longer be queued for delivery to the agent. Events already queued for delivery to the agent prior to unsubscription will be delivered.	SIF_SubscribeObjectNamesType
	SIF_Object/SIF_Contexts	O	The applicable contexts; if omitted, the context is SIF_Default.	SIF_Contexts

Table 5.2.19-1: SIF_Unsubscribe

```
<SIF_Message Version="2.4" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Unsubscribe>
    <SIF_Header>
      <SIF_MsgId>101AE3703261545A31905937B265CE01</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T20:39:12-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyFOOD</SIF_SourceId>
    </SIF_Header>
    <SIF_Object ObjectName="StudentPersonal" />
    <SIF_Object ObjectName="StaffPersonal" />
  </SIF_Unsubscribe>
</SIF_Message>
```

Example 5.2.19-1: SIF_Unsubscribe

5.3 Objects

5.3.1 SIF_AgentACL

This object provides an Agent its access control list (ACL) settings in the Zone. It does not communicate which objects the Agent is currently registered as providing, subscribing, publishing, requesting, or responding; it simply lists the ACL rights granted to the Agent in the Zone. When objects are absent from any of the access lists, the Agent does not have the necessary rights to perform the given action on the object. While an Agent may asynchronously request this object from the ZIS via SIF_Request, it is typically returned synchronously in response to the SIF_SystemControl message SIF_GetAgentACL; it is also returned synchronously in response to SIF_Register.

Typically only Change events are reported.
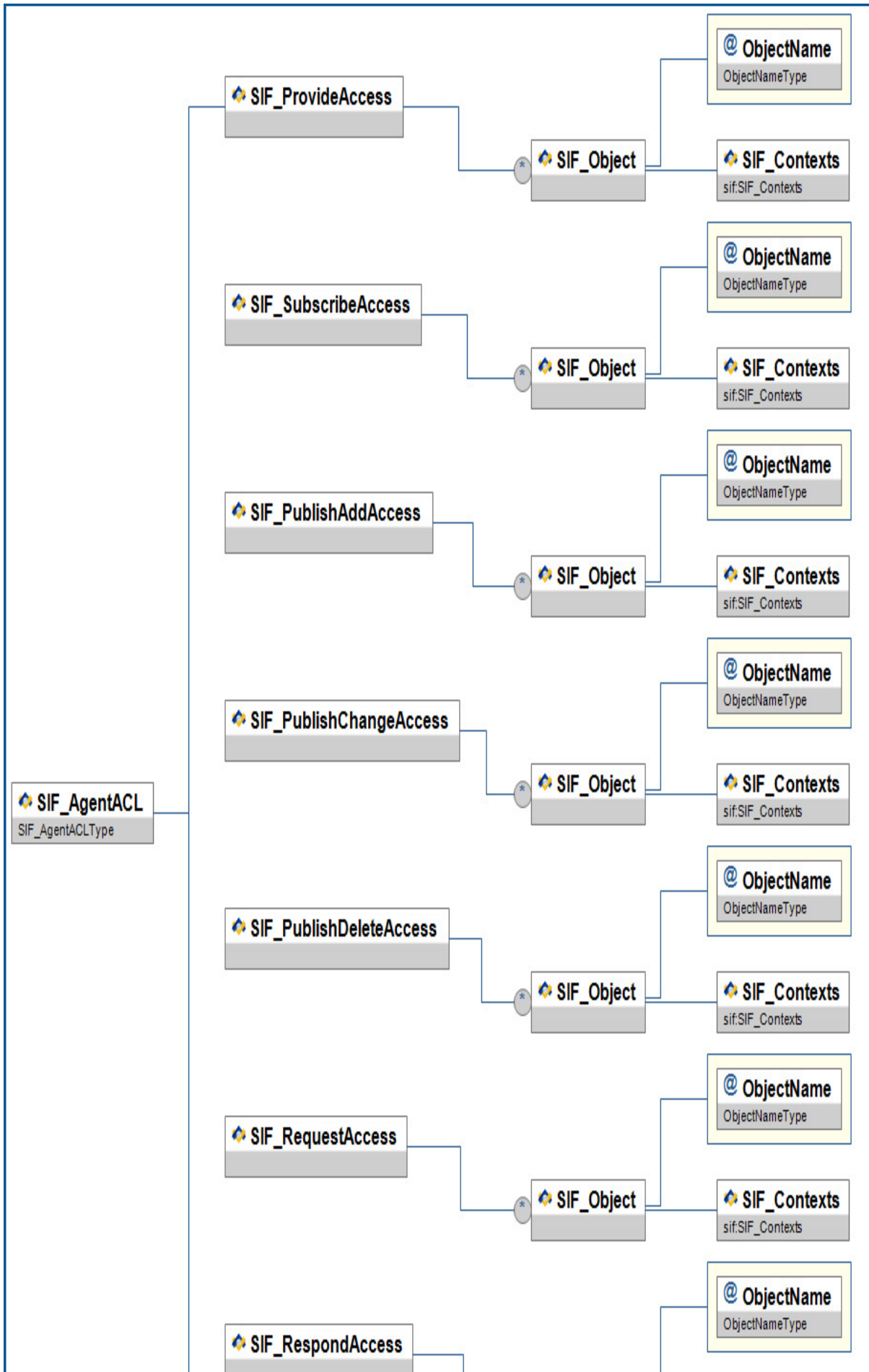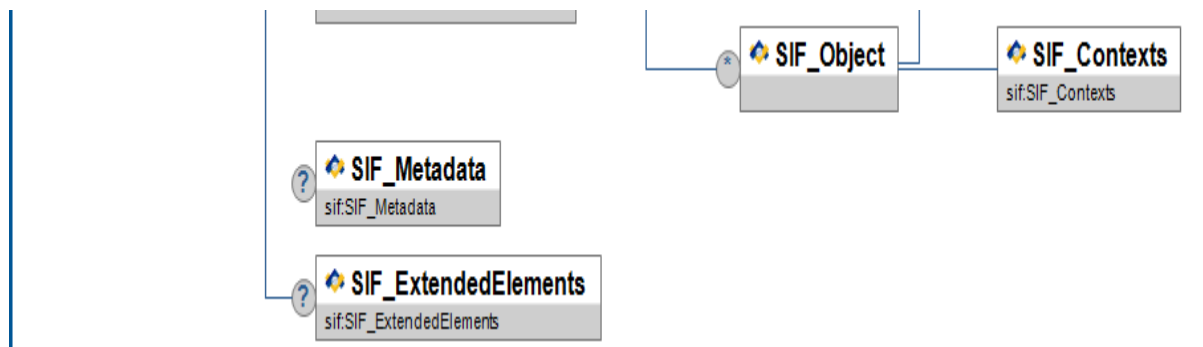
Figure 5.3.1-1: SIF_AgentACL

	Element/@Attribute	Char	Description	Type
	SIF_AgentACL		This object provides an Agent its access control list (ACL) settings in the Zone.	
	SIF_ProvideAccess	M	Access control list by object for SIF_Provide and corresponding section in SIF_Provision.	List
	SIF_ProvideAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_ProvideAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_SubscribeAccess	M	Access control list by object for SIF_Subscribe and corresponding section in SIF_Provision.	List
	SIF_SubscribeAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_SubscribeAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_PublishAddAccess	M	Access control list by object for corresponding section in SIF_Provision, whether the Agent has the right to publish Add events.	List
	SIF_PublishAddAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType

	Element/@Attribute	Char	Description	Type
	SIF_PublishAddAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_PublishChangeAccess	M	Access control list by object for corresponding section in SIF_Provision, whether the Agent has the right to publish Change events.	List
	SIF_PublishChangeAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_PublishChangeAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_PublishDeleteAccess	M	Access control list by object for corresponding section in SIF_Provision, whether the Agent has the right to publish Delete events.	List
	SIF_PublishDeleteAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_PublishDeleteAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_RequestAccess	M	Access control list by object for SIF_Request and corresponding section in SIF_Provision.	List
	SIF_RequestAccess/SIF_Object	OR		
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_RequestAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_RespondAccess	M	Access control list by object for corresponding section in SIF_Provision, whether the Agent has the right to respond to requests for an object regardless of being the Provider of that object.	List
	SIF_RespondAccess/SIF_Object	OR		

	Element/@Attribute	Char	Description	Type
@	ObjectName	M	The name of each object.	ObjectNameType
	SIF_RespondAccess/SIF_Object/ SIF_Contexts	M	List of contexts in which rights for the given action/object apply.	SIF_Contexts
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 5.3.1-1: SIF_AgentACL

```
<SIF_AgentACL>
  <SIF_ProvideAccess>
    <SIF_Object ObjectName="StudentPersonal">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_ProvideAccess>
  <SIF_SubscribeAccess>
    <SIF_Object ObjectName="Authentication">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_SubscribeAccess>
  <SIF_PublishAddAccess>
    <SIF_Object ObjectName="StudentPersonal">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_PublishAddAccess>
  <SIF_PublishChangeAccess>
    <SIF_Object ObjectName="StudentPersonal">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_PublishChangeAccess>
  <SIF_PublishDeleteAccess>
    <SIF_Object ObjectName="StudentPersonal">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_PublishDeleteAccess>
  <SIF_RequestAccess>
    <SIF_Object ObjectName="Authentication">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_RequestAccess>
  <SIF_RespondAccess>
    <SIF_Object ObjectName="StudentPersonal">
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_Object>
  </SIF_RespondAccess>
</SIF_AgentACL>
```

Example 5.3.1-1: SIF_AgentACL

5.3.2 SIF_LogEntry

This object captures an occurrence within a SIF node (ZIS or agent)—error, warning or information—for storage in an optionally provided zone log. SIF_LogEntry Adds are reported and are used to post new log entries to the provider of the log. Of course, subscribing agents may also filter incoming Adds as part of their own logging mechanism. Any Change or Delete SIF_Events should be ignored at the agent level, but should be routed by the ZIS (though this should not be necessary). Use of the log is optional and voluntary, except where noted as mandatory in this specification. Nodes may post as much or as little log data as required with the expectation that if there is a provider of SIF_LogEntry that the logged entries be available for a provider-defined amount of time subject to provider-defined restrictions on the quantity of data logged by any given node.

SIF_Events are reported for this object.
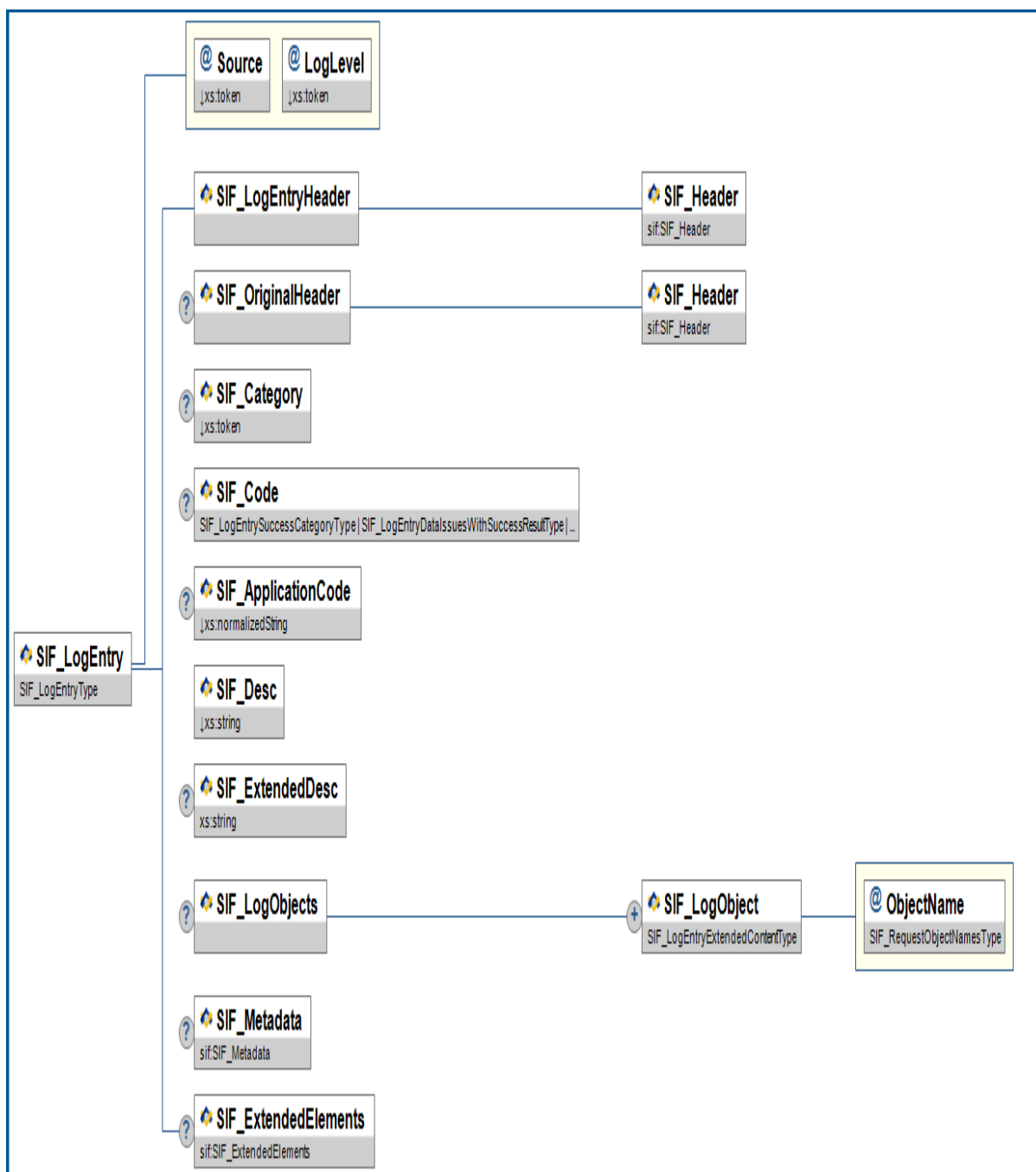
Figure 5.3.2-1: SIF_LogEntry

	Element/@Attribute	Char	Description	Type
	SIF_LogEntry		This object captures an occurrence within a SIF node (ZIS or agent)—error, warning or information—for storage in an optionally provided zone log. SIF_LogEntry Adds are reported and are used to post new log entries to the provider of the log. Of course, subscribing agents may also filter incoming Adds as part of their own logging mechanism. Any Change or Delete SIF_Events should be ignored at the agent level, but should be routed by the ZIS (though this should not be necessary). Use of the log is optional and voluntary, except where noted as mandatory in this specification. Nodes may post as much or as little log data as required with the expectation that if there is a provider of SIF_LogEntry that the logged entries be available for a provider-defined amount of time subject to provider-defined restrictions on the quantity of data logged by any given node.	
@	Source	M	The SIF node that logged this entry.	**values:** Agent ZIS
@	LogLevel	M	The level of the log entry herein described.	**values:** Info Warning Error
	SIF_LogEntryHeader	M	This is a copy of the SIF_Event/SIF_Header in the message that added this SIF_LogEntry to the zone. This copy facilitates querying log entries with regard to source, time, optionally destination, etc.	
	SIF_LogEntryHeader/SIF_Header	M		SIF_Header
	SIF_OriginalHeader	O	If this log entry references a previous SIF_Message, this element contains a copy of the referenced message's SIF_Header.	
	SIF_OriginalHeader/SIF_Header	M		SIF_Header

	Element/@Attribute	Char	Description	Type
	SIF_Category	C	A SIF_LogEntry category. May be omitted for informational-type postings, where typically a textual description will suffice. Note that categories may be combined with the Source attribute of SIF_LogEntry to differentiate agent error conditions from ZIS error conditions.	**values:** 1 Success 2 Data Issues with Success Result 3 Data Issues with Failure Result 4 Error Conditions

	SIF_Code	O	A SIF_LogEntry code with regard to SIF_Category above. May be omitted for informational-type postings, where typically a textual description will suffice. If a SIF_Code is included, SIF_Category must be included as well.	**union of:**
				
				`SIF_LogEntrySuccessCategoryType`
				`SIF_LogEntryDataIssuesWithSuccessResultType`
				`SIF_LogEntryDataIssuesWithFailureResultType`
				`SIF_LogEntryAgentErrorConditionType`
				`SIF_LogEntryZISErrorConditionType`

	SIF_ApplicationCode	O	An error code specific to the application posting the entry. Can be used by vendors to query log entries for errors specific to their applications. If a SIF_ApplicationCode is included, SIF_Category must be included as well; i.e., application-specific error codes should fall within one of the defined log entry categories.	`xs:normalizedString` `xs:maxLength` 64
	SIF_Desc	M	A textual description of the error.	`xs:string` `xs:maxLength` 1024
	SIF_ExtendedDesc	O	Any extended error description.	`xs:string`
	SIF_LogObjects	O		`List`
	SIF_LogObjects/SIF_LogObject	MR	Any SIF data objects to which this log entry may apply.	`SIF_LogEntryExtendedContentType`
@	ObjectName	M	The name of the SIF object referenced (e.g. StudentPersonal).	`SIF_RequestObjectNamesType`
	SIF_Metadata	O		`SIF_Metadata`
	SIF_ExtendedElements	O		`SIF_ExtendedElements`

Table 5.3.2-1: SIF_LogEntry

```
<SIF_LogEntry Source="Agent" LogLevel="Error">
  <SIF_LogEntryHeader>
    <SIF_Header>
      <SIF_MsgId>83252CE5C5F14FD88607F645224E4CAA</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:36:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseySISAgent</SIF_SourceId>
    </SIF_Header>
  </SIF_LogEntryHeader>
  <SIF_Category>4</SIF_Category>
  <SIF_Code>1</SIF_Code>
  <SIF_Desc>Agent has run out of memory and will shut down</SIF_Desc>
  <SIF_ExtendedDesc>OutOfMemoryException: ...</SIF_ExtendedDesc>
</SIF_LogEntry>
```

Example 5.3.2-1: SIF_LogEntry when an agent encounters a system failure

```
<SIF_LogEntry Source="Agent" LogLevel="Error">
  <SIF_LogEntryHeader>
    <SIF_Header>
      <SIF_MsgId>BA86894B795A4EB7A45093AD1CDBA54C</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:39:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseySISAgent</SIF_SourceId>
    </SIF_Header>
  </SIF_LogEntryHeader>
  <SIF_OriginalHeader>
    <SIF_Header>
      <SIF_MsgId>74234DCB460A4BCB8937B07467EA73CC</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:29:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLibraryAgent</SIF_SourceId>
    </SIF_Header>
  </SIF_OriginalHeader>
  <SIF_Category>3</SIF_Category>
  <SIF_Code>2</SIF_Code>
  <SIF_ApplicationCode>-33</SIF_ApplicationCode>
  <SIF_Desc>Could not delete student John Smith due to business rule</SIF_Desc>
  <SIF_LogObjects>
    <SIF_LogObject ObjectName="StudentPersonal">
      <StudentPersonal RefId="76D3A70232FE40D7A5D43A7A317EAEF9">
        <AlertMessages>
          <AlertMessage Type="Legal">This is the Legal Alert for Joe Student</AlertMessage>
        </AlertMessages>
        <LocalId>P00001</LocalId>
        <StateProvinceId>WB0025</StateProvinceId>
        <ElectronicIdList>
          <ElectronicId Type="Barcode">206654</ElectronicId>
        </ElectronicIdList>
        <Name Type="04">
          <LastName>Student</LastName>
          <FirstName>Joe</FirstName>
          <MiddleName />
          <PreferredName>Joe</PreferredName>
        </Name>
        <Demographics>
          <Gender>M</Gender>
        </Demographics>
        <AddressList>
          <Address Type="0123">
            <Street>
              <Line1>6799 33rd Ave.</Line1>
              <StreetNumber>6799</StreetNumber>
              <StreetName>33rd</StreetName>
              <StreetType>Ave.</StreetType>
            </Street>
            <City>Chicago</City>
            <StateProvince>IL</StateProvince>
            <Country>US</Country>
            <PostalCode>60660</PostalCode>
          </Address>
        </AddressList>
        <PhoneNumberList>
          <PhoneNumber Type="0096">
            <Number>(312) 555-1234</Number>
          </PhoneNumber>
        </PhoneNumberList>
        <EmailList>
          <Email Type="Primary">Joe.Student@anyschool.com</Email>
        </EmailList>
        <OnTimeGraduationYear>2007</OnTimeGraduationYear>
      </StudentPersonal>
    </SIF_LogObject>
  </SIF_LogObjects>
</SIF_LogEntry>
```

Example 5.3.2-2: SIF_LogEntry when an agent fails to delete a student

```
<SIF_LogEntry Source="Agent" LogLevel="Info">
  <SIF_LogEntryHeader>
    <SIF_Header>
      <SIF_MsgId>64B0CC6CFB314A328E520A102229CBC8</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:46:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseySISAgent</SIF_SourceId>
    </SIF_Header>
  </SIF_LogEntryHeader>
  <SIF_Desc>Agent starting synchronization</SIF_Desc>
</SIF_LogEntry>
```

Example 5.3.2-3: SIF_LogEntry when an agent starts synchronizing data

```
<SIF_LogEntry Source="ZIS" LogLevel="Error">
  <SIF_LogEntryHeader>
    <SIF_Header>
      <SIF_MsgId>BC1D982CEC5F49D998169930FE5B271C</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:49:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseyZIS</SIF_SourceId>
    </SIF_Header>
  </SIF_LogEntryHeader>
  <SIF_OriginalHeader>
    <SIF_Header>
      <SIF_MsgId>74234DCB460A4BCB8937B07467EA73CC</SIF_MsgId>
      <SIF_Timestamp>2006-08-19T10:29:00-05:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLibraryAgent</SIF_SourceId>
    </SIF_Header>
  </SIF_OriginalHeader>
  <SIF_Category>4</SIF_Category>
  <SIF_Code>2</SIF_Code>
  <SIF_Desc>Could not deliver StudentPicture Add to RamseyLibraryAgent (127,546 bytes) due to maximum buffer size
</SIF_LogEntry>
```

Example 5.3.2-4: SIF_LogEntry when a ZIS fails to deliver a message due to buffer size limitations

5.3.3 SIF_ZoneStatus

The SIF_ZoneStatus object is an object that is implicitly provided by all Zone Integration Servers to provide information about the ZIS. Zone Integration Servers MUST provide this object.

Change events are supported on SIF_ZoneStatus.

@ ZoneId
xs:token

SIF_Name
xs:normalizedString

SIF_Icon
xs:anyURI

SIF_Vendor

SIF_Name
xs:normalizedString

SIF_Product
xs:normalizedString

SIF_Version
xs:normalizedString

@ SourceId
j:xs:token

SIF_Providers

SIF_Provider

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_ExtendedQuerySupport
xs:boolean

SIF_Contexts
sif:SIF_Contexts

@ SourceId
j:xs:token

SIF_Subscribers

SIF_Subscriber

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_Contexts
sif:SIF_Contexts

@ SourceId
j:xs:token

SIF_AddPublishers

SIF_Publisher

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_Contexts
sif:SIF_Contexts

@ SourceId
xs:token

SIF_ChangePublishers

SIF_Publisher

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_Contexts
sif:SIF_Contexts

@ SourceId
xs:token

SIF_DeletePublishers

SIF_Publisher

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_Contexts
sif:SIF_Contexts

@ SourceId
xs:token

SIF_Responders

SIF_Responder

SIF_ObjectList

@ ObjectName
ObjectNameType

SIF_Object

SIF_ExtendedQuerySupport
xs:boolean

SIF_Contexts
sif:SIF_Contexts

SIF_ZoneStatus
SIF_ZoneStatusType

@ SourceId

xs:token

SIF_Requesters

SIF_Requester

SIF_ObjectList

SIF_Object

@ ObjectName
ObjectNameType

SIF_ExtendedQuerySupport
xs:boolean

SIF_Contexts
sif:SIF_Contexts

@ Type
xs:token

SIF_Name
xs:normalizedString

SIF_Icon
xs:anyURI

SIF_NodeVendor
xs:normalizedString

SIF_NodeVersion
xs:normalizedString

SIF_Application

SIF_Vendor
xs:normalizedString

SIF_Product
xs:normalizedString

SIF_Version
xs:normalizedString

SIF_SIFNodes

SIF_SIFNode

SIF_SourceId
xs:token

SIF_Mode
xs:token

SIF_Protocol
sif:SIF_Protocol

SIF_VersionList

SIF_Version
VersionWithWildcardsType

Figure 5.3.3-1: SIF_ZoneStatus

	Element/@Attribute	Char	Description	Type
	SIF_ZoneStatus			
			The SIF_ZoneStatus object is an object that is implicitly provided by all Zone Integration Servers to provide information about the ZIS. Zone Integration Servers MUST provide this object.	
@ 🔑	ZoneId	M	The identifier for this Zone. It is the same as the SIF_SourceId that the ZIS would place in any SIF_Header that it creates.	xs:token
	SIF_Name	M	The descriptive name for the zone.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	SIF_Icon	O	HTTP URL referencing an icon for graphical representation of the ZIS/Zone. Should range from 16x16 pixels to 128x128 pixels and be of an `image` MIME type commonly supported by Web browsers (e.g. PNG, JPEG, GIF). Agents may optionally follow the more restrictive guidelines at [FAVICON].	`xs:anyURI`
	SIF_Vendor	O	Contains information about the vendor that wrote this ZIS.	
	SIF_Vendor/SIF_Name	M	The name of the company that wrote the ZIS.	`xs:normalizedString`
	SIF_Vendor/SIF_Product	M	The product name assigned by the vendor to identify this ZIS.	`xs:normalizedString`
	SIF_Vendor/SIF_Version	M	The version of the vendor's product—not necessarily the SIF version.	`xs:normalizedString`
	SIF_Providers	C	Encompasses all the providers registered with this ZIS. This element is mandatory if there are providers registered with the ZIS.	`List`
	SIF_Providers/SIF_Provider	MR		
@	SourceId	M	The identifier of the SIF node that is providing objects. This is the agent or ZIS identifier that would appear in the `SIF_SourceId` field of any `SIF_Header` created by the SIF node.	`xs:token` `xs:maxLength` 64
	SIF_Providers/SIF_Provider/ SIF_ObjectList	M		`List`
	SIF_Providers/SIF_Provider/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being provided by this SIF node.	`ObjectNameType`
	SIF_Providers/SIF_Provider/ SIF_ObjectList/SIF_Object/ SIF_ExtendedQuerySupport	M		`xs:boolean`
	SIF_Providers/SIF_Provider/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		`SIF_Contexts`

	Element/@Attribute	Char	Description	Type
	SIF_Subscribers	C	Encompasses all the subscribers registered with this ZIS. This element is mandatory if there are subscribers registered with the ZIS.	List
	SIF_Subscribers/SIF_Subscriber	MR		
@	SourceId	M	The identifier of the SIF node that is subscribing to the object events. This is the agent or ZIS identifier that would appear in the SIF_SourceId field of any SIF_Header created by the SIF node.	xs:token xs:maxLength 64
	SIF_Subscribers/SIF_Subscriber/ SIF_ObjectList	M		List
	SIF_Subscribers/SIF_Subscriber/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being subscribed to by this SIF node.	ObjectNameType
	SIF_Subscribers/SIF_Subscriber/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		SIF_Contexts
	SIF_AddPublishers	C	Encompasses all the Add SIF_Event publishers registered with this zone.	List
	SIF_AddPublishers/SIF_Publisher	MR		
@	SourceId	M	The identifier of the SIF node that can publish the SIF_Event. This is the agent identifier that would appear in the SIF_SourceId field of any SIF_Header created by the agent.	xs:token xs:maxLength 64
	SIF_AddPublishers/SIF_Publisher/ SIF_ObjectList	M		List
	SIF_AddPublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being published by this agent.	ObjectNameType
	SIF_AddPublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		SIF_Contexts
	SIF_ChangePublishers	C	Encompasses all the Change SIF_Event publishers registered with this zone.	List
	SIF_ChangePublishers/SIF_Publisher	MR		

	Element/@Attribute	Char	Description	Type
@	SourceId	M	The identifier of the SIF node that can publish the SIF_Event. This is the agent identifier that would appear in the SIF_SourceId field of any SIF_Header created by the agent.	xs:token xs:maxLength 64
	SIF_ChangePublishers/SIF_Publisher/ SIF_ObjectList	M		List
	SIF_ChangePublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being published by this agent.	ObjectNameType
	SIF_ChangePublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		SIF_Contexts
	SIF_DeletePublishers	C	Encompasses all the Delete SIF_Event publishers registered with this zone.	List
	SIF_DeletePublishers/SIF_Publisher	MR		
@	SourceId	M	The identifier of the SIF node that can publish the SIF_Event. This is the agent identifier that would appear in the SIF_SourceId field of any SIF_Header created by the agent.	xs:token xs:maxLength 64
	SIF_DeletePublishers/SIF_Publisher/ SIF_ObjectList	M		List
	SIF_DeletePublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being published by this agent.	ObjectNameType
	SIF_DeletePublishers/SIF_Publisher/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		SIF_Contexts
	SIF_Responders	C	Encompasses all the responders registered with this zone.	List
	SIF_Responders/SIF_Responder	MR		
@	SourceId	M	The identifier of the SIF node that can respond. This is the agent identifier that would appear in the SIF_SourceId field of any SIF_Header created by the agent.	xs:token xs:maxLength 64
	SIF_Responders/SIF_Responder/ SIF_ObjectList	M		List
	SIF_Responders/SIF_Responder/ SIF_ObjectList/SIF_Object	MR		

	Element/@Attribute	Char	Description	Type
@	ObjectName	M	The name of the object for which the agent can respond to requests.	`ObjectNameType`
	SIF_Responders/SIF_Responder/ SIF_ObjectList/SIF_Object/ SIF_ExtendedQuerySupport	M		`xs:boolean`
	SIF_Responders/SIF_Responder/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		`SIF_Contexts`
	SIF_Requesters	C	Encompasses all the requesters registered with this zone.	`List`
	SIF_Requesters/SIF_Requester	MR		
@	SourceId	M	The identifier of the SIF node that can request an object. This is the agent identifier that would appear in the `SIF_SourceId` field of any `SIF_Header` created by the agent.	`xs:token` `xs:maxLength` 64
	SIF_Requesters/SIF_Requester/ SIF_ObjectList	M		`List`
	SIF_Requesters/SIF_Requester/ SIF_ObjectList/SIF_Object	MR		
@	ObjectName	M	The name of the object being requested by this agent.	`ObjectNameType`
	SIF_Requesters/SIF_Requester/ SIF_ObjectList/SIF_Object/ SIF_ExtendedQuerySupport	M		`xs:boolean`
	SIF_Requesters/SIF_Requester/ SIF_ObjectList/SIF_Object/ SIF_Contexts	M		`SIF_Contexts`
	SIF_SIFNodes	C	Encompasses all of the nodes registered with the ZIS. This element is mandatory if there are SIF nodes registered.	`List`
	SIF_SIFNodes/SIF_SIFNode	MR		

@	Type	M	The type of the node registered with the ZIS. Note that `ZIS` is forward-looking and not used currently; all information about this Zone/ZIS is contained outside `SIF_SIFNodes`.	**values:**
				 `Agent`
				 `ZIS`

	SIF_SIFNodes/SIF_SIFNode/ SIF_Name	M	The descriptive name of the SIF node (i.e. Ramsey Food Services).	`xs:normalizedString`

Element/@Attribute	Char	Description	Type
SIF_SIFNodes/SIF_SIFNode/ SIF_Icon	O	HTTP URL referencing an icon for graphical representation of the application/agent. Should range from 16x16 pixels to 128x128 pixels and be of an `image` MIME type commonly supported by Web browsers (e.g. PNG, JPEG, GIF). Agents may optionally follow the more restrictive guidelines at [FAVICON].	`xs:anyURI`
SIF_SIFNodes/SIF_SIFNode/ SIF_NodeVendor	O	The vendor of the SIF agent.	`xs:normalizedString` `xs:maxLength` 256
SIF_SIFNodes/SIF_SIFNode/ SIF_NodeVersion	O	The agent version number. The format of this field is undefined, but it should match the format used in the agent's conformance statement, if the agent is SIF Certified. **Examples** `2.0.1.11`	`xs:normalizedString` `xs:maxLength` 32
SIF_SIFNodes/SIF_SIFNode/ SIF_Application	O	Contains information about the vendor of the product that the agent represents.	
SIF_SIFNodes/SIF_SIFNode/ SIF_Application/SIF_Vendor	M	The name of the company of the product that this agent supports.	`xs:normalizedString` `xs:maxLength` 256
SIF_SIFNodes/SIF_SIFNode/ SIF_Application/SIF_Product	M	The name of the product that this agent supports.	`xs:normalizedString` `xs:maxLength` 256
SIF_SIFNodes/SIF_SIFNode/ SIF_Application/SIF_Version	M	The version of the product. This field is informative only.	`xs:normalizedString` `xs:maxLength` 32
SIF_SIFNodes/SIF_SIFNode/ SIF_SourceId	M	The agent or ZIS identifier. This is the same value that the SIF node would place in any `SIF_Header` that it would create.	`xs:token` `xs:maxLength` 64
SIF_SIFNodes/SIF_SIFNode/ SIF_Mode	M	Specifies the communication mode (Pull or Push) as chosen by the message sender.	**values:** `Push` `Pull`
SIF_SIFNodes/SIF_SIFNode/ SIF_Protocol	O	Describes the currently active protocol that the SIF node is using to communicate with the ZIS.	`SIF_Protocol`
SIF_SIFNodes/SIF_SIFNode/ SIF_VersionList	M		`List`

	Element/@Attribute	Char	Description	Type
	SIF_SIFNodes/SIF_SIFNode/ SIF_VersionList/SIF_Version	MR	This is the version or versions of the SIF Implementation Specification that define(s) the messages the SIF node can receive. For agents, this information was communicated when the SIF node registered with the ZIS.	`VersionWithWildcardsType`
	SIF_SIFNodes/SIF_SIFNode/ SIF_AuthenticationLevel	O	This is the level of authentication that the SIF node supports when it wants to communicate via a secure channel.	`SIF_AuthenticationLevel`
	SIF_SIFNodes/SIF_SIFNode/ SIF_EncryptionLevel	O	This is the level of encryption that the SIF node supports when it wants to communicate via a secure channel.	`SIF_EncryptionLevel`
	SIF_SIFNodes/SIF_SIFNode/ SIF_MaxBufferSize	M	Specifies that the ZIS should never send packets larger than this value. Query responses from other providers are controlled by the `SIF_MaxBufferSize` attribute in the `SIF_Request` message.	`xs:unsignedInt`

	SIF_SIFNodes/SIF_SIFNode/ SIF_Sleeping	M	This element shows whether the SIF node is ready to process messages.	**values:**
				
				`No`
				    The SIF node is ready to process messages
				`Yes`
				    The SIF node is sleeping and cannot process messages

	SIF_SupportedAuthentication	C	Enumerates the various authentication protocols that the ZIS supports. If the ZIS supports an authentication protocol this element is mandatory.	`List`
	SIF_SupportedAuthentication/ SIF_ProtocolName	MR	Describes a particular authentication protocol supported.	**values:** `X.509`
	SIF_SupportedProtocols	M	Enumerates the various communication transport protocols that are supported by the ZIS.	`List`
	SIF_SupportedProtocols/SIF_Protocol	MR		`SIF_Protocol`
	SIF_SupportedVersions	M	Enumerates the versions of the SIF Implementation Specification that this ZIS can use when communicating with the agent.	`List`
	SIF_SupportedVersions/SIF_Version	MR	Lists a specific SIF Implementation Specification version.	`VersionType`

	Element/@Attribute	Char	Description	Type
	SIF_AdministrationURL	O	Should a ZIS vendor provide an administration interface for the zone via a URL, the ZIS can make the URL available in SIF_ZoneStatus. Agent administrators can use the URL to access zone administration features, should they have permission to do so.	xs:anyURI
	SIF_Contexts	M		SIF_Contexts
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 5.3.3-1: SIF_ZoneStatus

```xml
<SIF_ZoneStatus ZoneId="RamseyZIS">
  <SIF_Name>Ramsey Elementary</SIF_Name>
  <SIF_Vendor>
    <SIF_Name>ZoneMaster, Inc.</SIF_Name>
    <SIF_Product>ZonePlus Zone Integration Server</SIF_Product>
    <SIF_Version>3.01</SIF_Version>
  </SIF_Vendor>
  <SIF_Providers>
    <SIF_Provider SourceId="RamseyFOOD">
      <SIF_ObjectList>
        <SIF_Object ObjectName="StudentMeal">
          <SIF_ExtendedQuerySupport>false</SIF_ExtendedQuerySupport>
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Provider>
    <SIF_Provider SourceId="RamseyLIB">
      <SIF_ObjectList>
        <SIF_Object ObjectName="LibraryPatronStatus">
          <SIF_ExtendedQuerySupport>false</SIF_ExtendedQuerySupport>
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Provider>
    <SIF_Provider SourceId="RamseySIS">
      <SIF_ObjectList>
        <SIF_Object ObjectName="StudentPersonal">
          <SIF_ExtendedQuerySupport>false</SIF_ExtendedQuerySupport>
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
        <SIF_Object ObjectName="StudentSchoolEnrollment">
          <SIF_ExtendedQuerySupport>false</SIF_ExtendedQuerySupport>
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Provider>
  </SIF_Providers>
  <SIF_Subscribers>
    <SIF_Subscriber SourceId="RamseyFOOD">
      <SIF_ObjectList>
        <SIF_Object ObjectName="StudentPersonal">
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
        <SIF_Object ObjectName="StudentSchoolEnrollment">
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Subscriber>
    <SIF_Subscriber SourceId="RamseyLIB">
      <SIF_ObjectList>
        <SIF_Object ObjectName="StudentPersonal">
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
        <SIF_Object ObjectName="StudentSchoolEnrollment">
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Subscriber>
    <SIF_Subscriber SourceId="RamseySIS">
      <SIF_ObjectList>
        <SIF_Object ObjectName="StudentContact">
          <SIF_Contexts>
            <SIF_Context>SIF_Default</SIF_Context>
          </SIF_Contexts>
        </SIF_Object>
      </SIF_ObjectList>
    </SIF_Subscriber>
```

```
      </SIF_Subscribers>
      <SIF_SIFNodes>
        <SIF_SIFNode Type="Agent">
          <SIF_Name>Ramsey Food Services</SIF_Name>
          <SIF_SourceId>RamseyFOOD</SIF_SourceId>
          <SIF_Mode>Push</SIF_Mode>
          <SIF_Protocol Type="HTTPS" Secure="Yes">
            <SIF_URL>https://RamseyNT:8010/FoodService</SIF_URL>
          </SIF_Protocol>
          <SIF_VersionList>
            <SIF_Version>2.3</SIF_Version>
          </SIF_VersionList>
          <SIF_MaxBufferSize>16384</SIF_MaxBufferSize>
          <SIF_Sleeping>No</SIF_Sleeping>
        </SIF_SIFNode>
        <SIF_SIFNode Type="Agent">
          <SIF_Name>Ramsey Media Resource Center</SIF_Name>
          <SIF_SourceId>RamseyLIB</SIF_SourceId>
          <SIF_Mode>Pull</SIF_Mode>
          <SIF_Protocol Type="HTTPS" Secure="Yes">
            <SIF_URL>https://RamseyNT:8020/Library</SIF_URL>
          </SIF_Protocol>
          <SIF_VersionList>
            <SIF_Version>2.3</SIF_Version>
          </SIF_VersionList>
          <SIF_MaxBufferSize>16384</SIF_MaxBufferSize>
          <SIF_Sleeping>No</SIF_Sleeping>
        </SIF_SIFNode>
        <SIF_SIFNode Type="Agent">
          <SIF_Name>Ramsey Administration</SIF_Name>
          <SIF_SourceId>RamseySIS</SIF_SourceId>
          <SIF_Mode>Push</SIF_Mode>
          <SIF_Protocol Type="HTTPS" Secure="Yes">
            <SIF_URL>https://RamseyNT:8030/StudentAdmin</SIF_URL>
          </SIF_Protocol>
          <SIF_VersionList>
            <SIF_Version>2.3</SIF_Version>
          </SIF_VersionList>
          <SIF_MaxBufferSize>16384</SIF_MaxBufferSize>
          <SIF_Sleeping>No</SIF_Sleeping>
        </SIF_SIFNode>
      </SIF_SIFNodes>
      <SIF_SupportedAuthentication>
        <SIF_ProtocolName>X.509</SIF_ProtocolName>
      </SIF_SupportedAuthentication>
      <SIF_SupportedProtocols>
        <SIF_Protocol Type="HTTPS" Secure="Yes">
          <SIF_URL>https://RamseyNT:8000/ZIS</SIF_URL>
        </SIF_Protocol>
        <SIF_Protocol Type="HTTP" Secure="No">
          <SIF_URL>http://RamseyNT:8000/ZIS</SIF_URL>
        </SIF_Protocol>
      </SIF_SupportedProtocols>
      <SIF_SupportedVersions>
        <SIF_Version>2.3</SIF_Version>
      </SIF_SupportedVersions>
      <SIF_AdministrationURL>http://RamseyNT:8000/Administer</SIF_AdministrationURL>
      <SIF_Contexts>
        <SIF_Context>SIF_Default</SIF_Context>
      </SIF_Contexts>
    </SIF_ZoneStatus>
```

Example 5.3.3-1: SIF_ZoneStatus

6 Data Model

6.1 Introduction

This section presents the XML structure for SIF Data Model common elements and objects in a tabular format for readers less versed in parsing formal XML schema definitions, along with conventions that typically apply in the data model for easy reference.

6.1.1 Format

The Char(acteristics) column for all of the tables in this section use the following codes:

Code	Characteristic
M	Mandatory element or attribute
O	Optional element or attribute
C	Conditional element or attribute
MR	Mandatory and repeatable element
OR	Optional and repeatable element
CR	Conditional and repeatable element

Mandatory elements `MUST` be present in Add events, and in non-empty and non-error responses to requests for entire SIF objects (e.g., no `SIF_Query/SIF_QueryObject/SIF_Element` elements supplied in the request). Mandatory attributes `MUST` always be present if their corresponding element is present.

SIF Agents and Zone Integration Servers `MUST` supply data according to the types specified in the Type columns and their corresponding equivalents in the most recent schema files associated with this specification. If there is a discrepancy between object and element definitions in this specification and the corresponding schema files, the definition in the schema files takes precedence; every effort will be made to note discrepancies in the

errata for this document as they are identified.

6.1.2 Conventions

6.1.2.1 Object Attributes/Primary Keys

While XML attributes are primarily used in SIF to provide additional processing information regarding the associated element content, attributes at the root level of an object have special significance. These attributes serve as the primary key or identifier for the object; in many cases this is no more than a `RefId` GUID of

`RefIdType`, though the primary key may consist solely of foreign key references to other SIF objects and include school years, dates, etc. These key attributes are immutable over the lifetime of an object and serve the purpose of uniquely identifying an object, especially in `Change` and `Delete` events. Some groups include non-primary key attributes in object attributes (e.g. mandatory foreign key references to other objects) and attributes that provide additional processing information regarding the objects. As SIF currently mandates that all object attributes be included in all messages, when a SIF Association working group or task force places a non-primary key attribute in the object's attribute definitions (typically out of historical query conventions), they are indicating that this value must still be accessible to systems in `Change` and, more notably, `Delete` events. All object attributes must be supplied to identify the object in `Change` and `Delete` events.

6.1.2.2 Object References

As stated elsewhere, SIF primarily uses GUIDs as object identifiers, primary keys, or `RefId`s. References to primary keys (foreign key references) follow certain conventions in SIF in most objects:

An element or attribute of type

IdRefType can be defined that consists of the referenced object name concatenated with RefId, e.g., DataPersonalRefId (a reference to the object identifier/primary key/RefId of a DataPersonal object);

An element requiring a more descriptive name for the reference or one that refers to more than one object type is defined as IdRefType, has an element name of a group's choosing (or generically SIF_RefId) and enumerates all possible object types that can be referenced in the SIF_RefObject attribute; or

A pair of attributes can be defined, one of type IdRefType containing the referenced object's RefId, the other enumerating all possible object types that can be referenced; generically these are named SIF_RefId and SIF_RefObject, respectively; naming conventions that programmatically allow identification of the pair beyond the generic names will be documented when the need arises.

6.1.2.3 Lists/Repeatable Elements

To those accustomed with normalized relational databases, the SIF Data Model will appear to not be especially normalized, especially with regard to repeating groups of data not being separated into their own "tables," or in SIF's case, "objects" with primary/foreign keys to maintain the relationship. Bear in mind that SIF is not a format for storing data; it is a format for transmitting data *asynchronously* between *disparate* and *distributed* systems needing to share data for interoperability; the format this data takes in different systems can vary greatly, and the data related to any given "entity" may come from a variety of sources and systems. The goals of normalization—eliminating redundancy, organizing data efficiently, reducing inconsistencies, etc.—take on a different meaning in a message queuing system. Of primary importance is transmitting the data needed for interoperability in a minimum number of messages. The need to "join" together a great number of separate objects is kept to a minimum in SIF, as individual systems do not have access to all the data required and due to the asynchronous nature of SIF, any one of these systems may take a fair amount of time before returning data necessary for joins (SIF_ExtendedQuery has been developed to communicate a join to a single system that may have direct access to the all the data necessary to efficiently accomplish this task). It's one thing to make a separate request for a student's picture or enrollment information, another entirely to request every available phone number, address and e-mail address separately from the SIF Zone. As such, it is often the case in SIF that repeating data is stored directly in an object, rather than being separated out into a separate object.

Repeating data is very analogous to objects, though, within any given object. In SIF's Publish/Subscribe model, repeating elements in objects can be added to, changed in or deleted from an object, much like objects can be added to, changed in or deleted from a Zone. Within an existing object, all of these actions take place within a Change event, and repeating elements—if any exist initially—are first made available within an object in an Add event or can be obtained directly via requests. Repeatable elements are contained within a parent *List* element in most SIF objects whether or not they support events, e.g.:

```
<EmailList>
  <Email Type="01">contact@sifinfo.org</Email>
  <Email Type="02">info@sifinfo.org</Email>
</EmailList>
```

Example 6.1.2.3-1: EmailList

Two types of list are currently defined in SIF, *ActionList* and *List*; both consist of a list container element and a single repeatable child element. Each type of list serves different needs and has associated conventions for communication and processing in the SIF Publish/Subscribe Model. *List* or *ActionList* is specified in the Type column in tables in this section for each list; when an *ActionList* the key, possibly compound, is also indicated in the Type column. *ActionList* key values must be unique within an instance of an *ActionList*.

6.1.2.3.1 ActionList

An *ActionList* has a key that uniquely identifies each child element within the list. This type of list is primarily used when it is desirable or necessary for systems to support or refer to a subset of the list, either due to functionally only being able to support a subset or because specifying a subset in Change events is more efficient than transmitting a whole list as in *List*. While one system may support the Primary and Alternate1 e-mail address types above, another may additionally support Alternate2 addresses. The second system is able to communicate the addition, change or deletion of an Alternate2 address without the first system inadvertently interpreting that to mean a student or staff member's Primary and Alternate1 addresses have been deleted.

Systems communicate the whole list as a cohesive unit consisting of the parent list container element and all child elements in an Add event; if the container is present with no child elements, the list is empty; the same is implied when an optional list is not present in an Add event. In a Change event, systems SHOULD only transmit those elements that have been added, changed or deleted. Deletion is not implied by the omission of a child element, but rather explicitly communicated with a SIF_Action attribute of Delete added to the deleted element, along with the element's key attribute(s)/element(s) at a minimum. An empty list in a Change event implies no changes have occurred in the list, as does the omission of the list. Systems storing *ActionList* data should set/replace/delete any existing values identified by primary keys in the Change event they support.

```
<EmailList>
  <Email Type="01">editor@sifinfo.org</Email>
  <Email Type="02" SIF_Action="Delete" />
</EmailList>
```

Example 6.1.2.3.1-1: Indicating a new value for the Primary e-mail address and deleting the Alternate1 address

A system that supports an `Alternate2` e-mail makes no changes to its value for that address type.

6.1.2.3.2 List

While a unique, primary key may still be identifiable in its child elements, a *List* is used primarily when:

> the list is a cohesive whole conceptually, where supporting or referring to a subset of the list is of little value;

> when the list consists only of keys, and no associated data;

> the list is informational/temporary state information and not typically persisted; or

> when no key exists to uniquely identify items in the list.

*List*s are always transmitted as a cohesive unit consisting of the parent list container element and all child elements. If no child elements exist in the list, the list consists of the container element alone. Omission of an optional *List* in an `Add` event also implies no list items. In a `Change` event, omission of the *List* indicates no changes have been made; otherwise the parent container element and all child elements, if any, are included. Systems storing *List* data should replace all corresponding data in their systems when persisting the list; likewise when a change is made to one or more list items or when all items in the list are deleted, systems should send the whole list in a `Change` event.

```
<CountriesOfCitizenship>
  <CountryOfCitizenship>1101</CountryOfCitizenship>
  <CountryOfCitizenship>2304</CountryOfCitizenship>
</CountriesOfCitizenship>
```

Example 6.1.2.3.2-1: Indicating an updated list of country citizenships

A system that supports `CountriesOfCitizenship` updates its local data to reflect Australia and German citizenship.

6.1.2.4 Supported Optional Elements Without Values

Some agents follow the convention of supplying an optional element as empty (e.g. `<BirthDate></BirthDate>` or `<BirthDate/>` to indicate that the application supports the element, but that it currently has no value available within a given object. To allow for this convention within SIF—as in this example an empty string does not satisfy the `xs:date` type definition of `BirthDate`—all optional elements in SIF are defined as `nillable`

[SCHEMA]. To satisfy type constraints on an element while still supplying an empty or "nil" value, agents MUST tag the element with a `true` value for the `nil` attribute from namespace `http://www.w3.org/2001/XMLSchema-instance` [SCHEMA] (e.g. `<BirthDate xsi:nil="true"/>` where the prefix `xsi` has been mapped to the namespace `http://www.w3.org/2001/XMLSchema-instance`), unless an empty value is valid with regard to the element's type definition, in which case supplying the `nil` attribute value of `true` is optional. See SIF and XML Namespaces for more details on namespaces, and SIF and XML Schema for more details on SIF's use of XML Schema.

6.1.2.5 Externally-Defined XML

Note that XML not defined within SIF does not necessarily support ad hoc omission of XML elements at will to conform with the conventions of the SIF Publish/Subscribe Model (where unchanged elements are typically omitted in Change events, and where non-key elements are often omitted in Delete events) or of the SIF Request/Response Model (where a subset of elements can be retrieved from objects with requests). If externally-defined XML occurs within a SIF data object, SIF conventions do not extend to that XML unless that XML is defined to accommodate SIF conventions; the XML, when transmitted, must only conform to any external definitions dictating its structure, if any. Applications should be prepared for the possibility of receiving whole externally-defined XML structures in Change events (regardless of how little or much of the external XML has changed) and possibly also Delete events, likewise in responses even when a subset of the XML structure's child elements may have explicitly been requested.

6.2 Common Elements

6.2.1 ACStrandSubjectArea
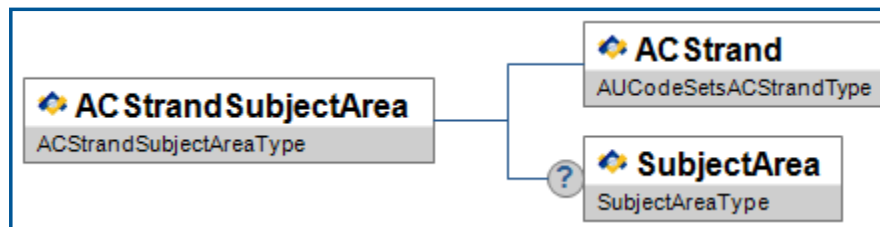
Subject matter.

Figure 6.2.1-1: ACStrandSubjectArea

Element/@Attribute	Char	Description	Type
ACStrandSubjectArea		Subject matter.	
ACStrand	M	Subject matter.	AUCodeSetsACStrandType
SubjectArea	O	Subject matter.	SubjectArea

Table 6.2.1-1: ACStrandSubjectArea

```
<ACStrandSubjectArea>
  <ACStrand>M</ACStrand>
  <SubjectArea>
    <Code>Maths</Code>
    <OtherCodeList>
      <OtherCode Codeset="Text">Mathematics</OtherCode>
    </OtherCodeList>
  </SubjectArea>
</ACStrandSubjectArea>
```

Example 6.2.1-1: ACStrandSubjectArea

6.2.2 Address

This element contains address data

@ Type
AUCodeSetsAddressTypeType

@ Role
AUCodeSetsAddressRoleType

Line1
xs:normalizedString

Line2
xs:normalizedString

Line3
xs:normalizedString

Complex
xs:normalizedString

StreetNumber
xs:normalizedString

StreetPrefix
xs:normalizedString

Street

StreetName
xs:normalizedString

StreetType
xs:normalizedString

StreetSuffix
xs:normalizedString

ApartmentType
xs:normalizedString

ApartmentNumberPrefix
xs:normalizedString

ApartmentNumber
xs:normalizedString

ApartmentNumberSuffix
xs:normalizedString

Address
AddressType

City
xs:normalizedString

StateProvince
StateProvinceType

Figure 6.2.2-1: Address

Element/@Attribute	Char	Description	Type
Address	M	This element contains address data.	
@ Type	M	Code that defines the location of the address. Note: A subset of specific valid values for each instance in a data object may be listed in that object.	AUCodeSetsAddressTypeType
@ Role	M	A facet of Address	AUCodeSetsAddressRoleType
Street	M	The street element is a complex element and breaks the street down into several parts. (Allow for PO Box here)	

Element/@Attribute	Char	Description	Type
Street/Line1	M	Address line 1.	xs:normalizedString
Street/Line2	O	Address line 2.	xs:normalizedString
Street/Line3	O	Address line 3.	xs:normalizedString
Street/Complex	O	Name of the complex.	xs:normalizedString
Street/StreetNumber	O	The address number assigned to the building.	xs:normalizedString
Street/StreetPrefix	O	Street prefix like NE	xs:normalizedString
Street/StreetName	O	The name of the street.	xs:normalizedString
Street/StreetType	O	The type of street. For example, Lane, Blvd., Ave., etc.	xs:normalizedString
Street/StreetSuffix	O	Street suffix like SW.	xs:normalizedString
Street/ApartmentType	O	Type of apartment, for example, Suite.	xs:normalizedString
Street/ApartmentNumberPrefix	O	Apartment number prefix.	xs:normalizedString
Street/ApartmentNumber	O	The number of the apartment.	xs:normalizedString
Street/ApartmentNumberSuffix	O	Apartment number suffix.	xs:normalizedString
City	M	The city part of the address.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	StateProvince	C	The state or province code. StateTerritory Code only applicable if an Australian Address. Conditional- If Australian Address this is mandatory.	StateProvince
	Country	O	The country code.	Country
	PostalCode	M	The ZIP/postal code.	xs:normalizedString
	GridLocation	O	The location of the address.	GridLocation
	MapReference	O	A Map Reference in x-y co-ordinates.	
@	Type	M	Type map reference	xs:normalizedString
	MapReference/XCoordinate	M	X Co-ordinate of reference	xs:normalizedString
	MapReference/YCoordinate	M	Y Co-ordinate of reference	xs:normalizedString
	RadioContact	O	UHF Radio frequency or channel used for contact eg: 477MHz or CH60	xs:string
	Community	O	This element is used to describe a Community that is associated with the instance of the address.	xs:normalizedString
	LocalId	O	This is the LocalId of the specific address if it can be provided.	LocalId
	AddressGlobalUID	O	This is the GUID generated by the Provider system. Where it is available to be provided, the globally unique identifier links together separate instances of the Address Common Element which reference the same physical address. When it can be provided, it can be used by subsribing systems to connect addresses from different personal objects.	GUIDType

Table 6.2.2-1: Address

```
<Address Type="0123" Role="012B">
  <Street>
    <Line1>1 IBM Plaza</Line1>
    <Line2>Suite 2000</Line2>
    <StreetNumber>1</StreetNumber>
    <StreetName>IBM</StreetName>
    <StreetType>Plaza</StreetType>
    <ApartmentType>Suite</ApartmentType>
    <ApartmentNumber>2000</ApartmentNumber>
  </Street>
  <City>Chicago</City>
  <StateProvince>IL</StateProvince>
  <Country>1101</Country>
  <PostalCode>60611</PostalCode>
  <GridLocation>
    <Latitude>41.850000</Latitude>
    <Longitude>-87.650000</Longitude>
  </GridLocation>
  <Community>Bidyadanga Community</Community>
  <LocalId>A1530</LocalId>
  <AddressGlobalUID>4286194F43ED43C18EE2F0A27C4BEF87</AddressGlobalUID>
</Address>
```

Example 6.2.2-1: Address

6.2.3 AddressList

A list of Address elements.
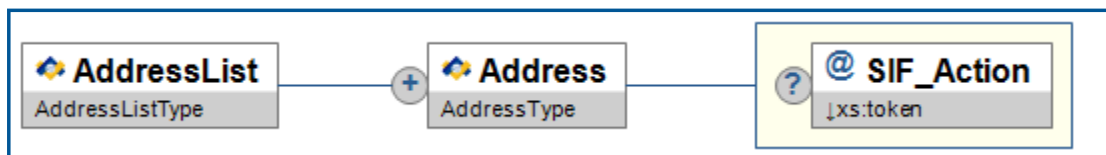
Figure 6.2.3-1: AddressList

Element/@Attribute	Char	Description	Type
AddressList		A list of Address elements.	ActionList (Address/@Type, Address/@Role)
Address	MR		Address
@ SIF_Action	O	In a `Change` event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** Delete

Table 6.2.3-1: AddressList

```
<AddressList>
  <Address Type="0123" Role="012B">
    <Street>
      <Line1>1 IBM Plaza</Line1>
      <Line2>Suite 2000</Line2>
      <StreetNumber>1</StreetNumber>
      <StreetName>IBM</StreetName>
      <StreetType>Plaza</StreetType>
      <ApartmentType>Suite</ApartmentType>
      <ApartmentNumber>2000</ApartmentNumber>
    </Street>
    <City>Chicago</City>
    <StateProvince>IL</StateProvince>
    <Country>1101</Country>
    <PostalCode>60611</PostalCode>
    <GridLocation>
      <Latitude>41.850000</Latitude>
      <Longitude>-87.650000</Longitude>
    </GridLocation>
  </Address>
</AddressList>
```

Example 6.2.3-1: AddressList

6.2.4 AttendanceCode
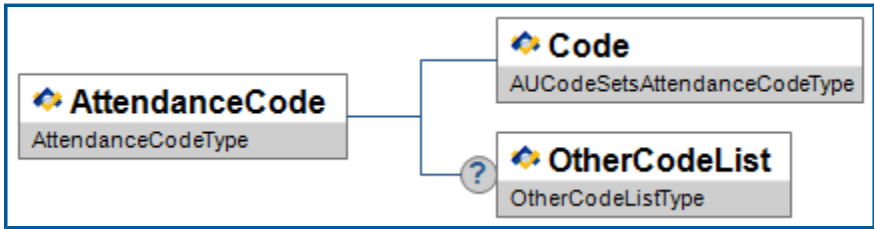
Figure 6.2.4-1: AttendanceCode

Element/@Attribute	Char	Description	Type
AttendanceCode		Code that describes the absence/attendance.	
Code	M	Code representing the absence/attendance.	AUCodeSetsAttendanceCodeType
OtherCodeList	O		OtherCodeList

Table 6.2.4-1: AttendanceCode

```
<AttendanceCode>
  <Code>200</Code>
  <OtherCodeList>
    <OtherCode Codeset="Local">S</OtherCode>
    <OtherCode Codeset="Other">C</OtherCode>
  </OtherCodeList>
</AttendanceCode>
```

Example 6.2.4-1: AttendanceCode

6.2.5 BirthDate

A person's date of birth.
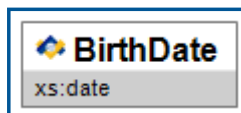
Figure 6.2.5-1: BirthDate

Element/@Attribute	Char	Description	Type
BirthDate		A person's date of birth.	xs:date

Table 6.2.5-1: BirthDate

```
<BirthDate>1970-08-11</BirthDate>
```

Example 6.2.5-1: BirthDate

6.2.6 ContactInfo

Common element used to supply information for a contact person at a school, LEA, or other institution.
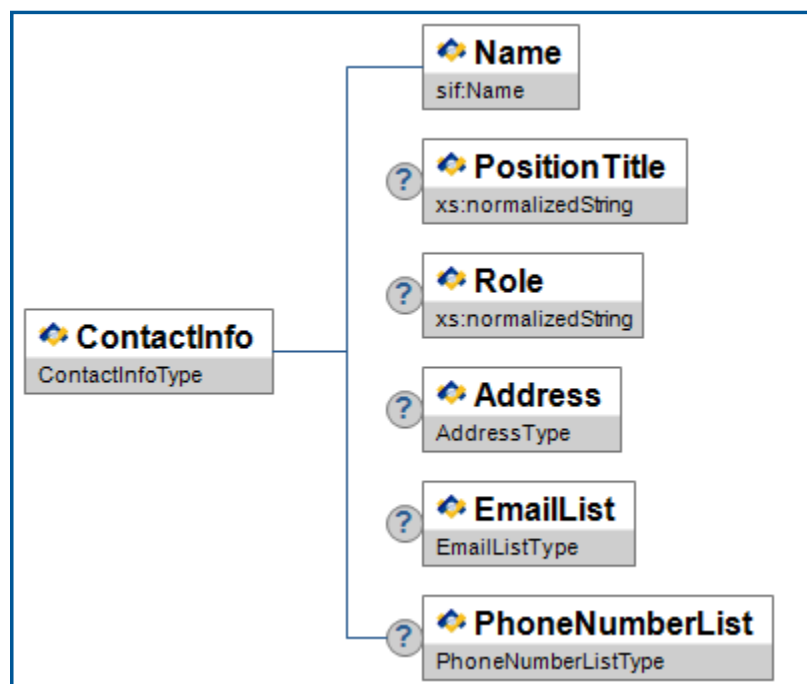
Figure 6.2.6-1: ContactInfo

Element/@Attribute	Char	Description	Type
ContactInfo		Common element used to supply information for a contact person at a school, LEA, or other institution.	
Name	M		Name
PositionTitle	O	The contact person's position title. **Examples** `Superintendent`	xs:normalizedString

Role	O	Role played by this contact in this instance.
		
		Examples
		`Report Contact`
		`Primary Contact`
		`Alternate Contact`
			xs:normalizedString

Address	O	Address of the contact.	Address
EmailList	O	List of Email elements.	EmailList
PhoneNumberList	O	List of PhoneNumber elements.	PhoneNumberList

Table 6.2.6-1: ContactInfo

```
<ContactInfo>
  <Name Type="LGL">
    <FamilyName>Woodall</FamilyName>
    <GivenName>Charles</GivenName>
    <MiddleName>William</MiddleName>
  </Name>
  <PositionTitle>Superintendent</PositionTitle>
  <EmailList>
    <Email Type="01">drseuss@whoville.k12.state.us</Email>
  </EmailList>
  <PhoneNumberList>
    <PhoneNumber Type="0096">
      <Number>(02) 9555-0102</Number>
    </PhoneNumber>
  </PhoneNumberList>
</ContactInfo>
```

Example 6.2.6-1: ContactInfo

6.2.7 Country

A country code.
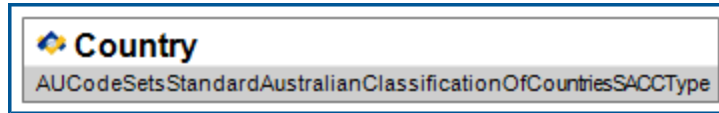
Figure 6.2.7-1: Country

Element/@Attribute	Char	Description	Type
Country		A country code.	**union of:** AUCodeSetsStandardAustralianClassificationOfCountriesSACCType

Table 6.2.7-1: Country

```
<Country>1101</Country>
```

Example 6.2.7-1: Country

6.2.8 Demographics

Demographics information about the student, contact, staff member, etc.

IndigenousStatus
AUCodeSetsIndigenousStatusType

Sex
AUCodeSetsSexCodeType

BirthDate
BirthDateType

BirthDateVerification
AUCodeSetsBirthdateVerificationType

PlaceOfBirth
xs:normalizedString

StateOfBirth
StateProvinceType

CountryOfBirth
CountryType

CountriesOfCitizenship — **CountryOfCitizenship**
CountryType

CountriesOfResidency — **CountryOfResidency**
CountryType

CountryArrivalDate
xs:date

AustralianCitizenshipStatus
AUCodeSetsAustralianCitizenshipStatusType

EnglishProficiency
EnglishProficiencyType

LanguageList
LanguageListType

Demographics
DemographicsType

DwellingArrangement
- **Code**
  AUCodeSetsDwellingArrangementType
- **OtherCodeList**
  OtherCodeListType

Religion
- **Code**
  AUCodeSetsAustralianStandardClassificationOfReligiousGroupsASCRGType
- **OtherCodeList**

Figure 6.2.8-1: Demographics

Element/@Attribute	Char	Description	Type
Demographics		Demographics information about the student, contact, staff member, etc.	
IndigenousStatus	O	Whether or not the student identifies themselves as being of Aboriginal and/or Torres Strait Islander descent.	AUCodeSetsIndigenousStatusType

Element/@Attribute	Char	Description	Type
Sex	O	'Sex' is the distinction 'male' and 'female', as reported by the person	AUCodeSetsSexCodeType
BirthDate	O	The person's date of birth.	BirthDate
BirthDateVerification	O	Means by which the person's birth date was validated.	AUCodeSetsBirthdateVerificationType
PlaceOfBirth	O	The person's place of birth—like village, town, city etc.	xs:normalizedString
StateOfBirth	O	The person's state of birth.	StateProvince
CountryOfBirth	O	The person's country of birth.	Country
CountriesOfCitizenship	O		List
CountriesOfCitizenship/CountryOfCitizenship	MR	A person's country of citizenship.	Country
CountriesOfResidency	O		List
CountriesOfResidency/CountryOfResidency	MR	A person's country of residence.	Country
CountryArrivalDate	O	Date the person first arrived in the country.	xs:date
AustralianCitizenshipStatus	O	The person's citizenship status.	AUCodeSetsAustralianCitizenshipStatusType

Element/@Attribute	Char	Description	Type
EnglishProficiency	O	Person's proficiency in English.	EnglishProficiency
LanguageList	O	List of languages an individual uses to communicate.	LanguageList
DwellingArrangement	O	Setting/environment in which the person resides.	
DwellingArrangement/Code	M	Code representing the setting/environment in which the person resides	AUCodeSetsDwellingArrangementType
DwellingArrangement/OtherCodeList	O		OtherCodeList
Religion	O	Type of Religion if any	
Religion/Code	M	Religion Code	AUCodeSetsAustralianStandardClassificationOfReligiousGroup
Religion/OtherCodeList	O		OtherCodeList
ReligiousEventList	O	List of Religious events	List
ReligiousEventList/ReligiousEvent	OR		
ReligiousEventList/ReligiousEvent/ Type	M	Religious Event - Currently Free Text	xs:normalizedString
ReligiousEventList/ReligiousEvent/ Date	M	Date of Religious Event	xs:date
ReligiousRegion	O	Belong to Religious Region - Currently Free Text.	xs:normalizedString

Element/@Attribute	Char	Description	Type
PermanentResident	O	Australian Residency Status (Mandatory for Student)	AUCodeSetsPermanentResidentStatusType
VisaSubClass	O	Visa Sub-Class - Can be free text - not necessary to validate	**union of:** AUCodeSetsVisaSubClassType xs:string
VisaStatisticalCode	O	Visa Statistical Code - Can be free text - not necessary to validate	xs:normalizedString
VisaExpiryDate	O	Expiry Date of Visa if one exists	xs:date
ImmunisationCertificateStatus	O	Status of Immunisation Certificate	AUCodeSetsImmunisationCertificateStatusType
CulturalBackground	O	Used to indicate cultural background.	AUCodeSetsAustralianStandardClassificationOfCulturalAndEth
MaritalStatus	O	The person's marital status.	AUCodeSetsMaritalStatusAIHWType

Table 6.2.8-1: Demographics

```
<Demographics>
  <IndigenousStatus>3</IndigenousStatus>
  <Sex>1</Sex>
  <BirthDate>1990-09-26</BirthDate>
  <BirthDateVerification>1004</BirthDateVerification>
  <PlaceOfBirth>Clayton</PlaceOfBirth>
  <StateOfBirth>VIC</StateOfBirth>
  <CountryOfBirth>1101</CountryOfBirth>
  <CountriesOfCitizenship>
    <CountryOfCitizenship>8104</CountryOfCitizenship>
    <CountryOfCitizenship>1101</CountryOfCitizenship>
  </CountriesOfCitizenship>
  <CountriesOfResidency>
    <CountryOfResidency>8104</CountryOfResidency>
    <CountryOfResidency>1101</CountryOfResidency>
  </CountriesOfResidency>
  <CountryArrivalDate>1990-09-26</CountryArrivalDate>
  <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
  <EnglishProficiency>
    <Code>1</Code>
  </EnglishProficiency>
  <LanguageList>
    <Language>
      <Code>0001</Code>
      <LanguageType>1</LanguageType>
    </Language>
  </LanguageList>
  <DwellingArrangement>
    <Code>1671</Code>
  </DwellingArrangement>
  <Religion>
    <Code>2013</Code>
  </Religion>
  <ReligiousEventList>
    <ReligiousEvent>
      <Type>Baptism</Type>
      <Date>2000-09-01</Date>
    </ReligiousEvent>
    <ReligiousEvent>
      <Type>Christmas</Type>
      <Date>2009-12-24</Date>
    </ReligiousEvent>
  </ReligiousEventList>
  <ReligiousRegion>The Religion Region</ReligiousRegion>
  <PermanentResident>P</PermanentResident>
  <VisaSubClass>101</VisaSubClass>
  <VisaStatisticalCode>05</VisaStatisticalCode>
</Demographics>
```

Example 6.2.8-1: Demographics Example

6.2.9 EducationalLevel

A code representing the highest level of education completed by a person.
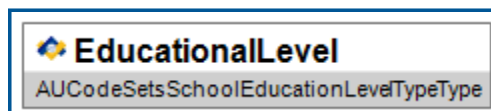
Figure 6.2.9-1: EducationalLevel

Element/@Attribute	Char	Description	Type
EducationalLevel		A code representing the highest level of education completed by a person.	AUCodeSetsSchoolEducationLevelTypeType

Table 6.2.9-1: EducationalLevel

```
<EducationalLevel>3</EducationalLevel>
```

Example 6.2.9-1: EducationalLevel

6.2.10 EducationFilter

Based on feedback from publishers, instructional management and system integrator vendors, `EducationFilter` was developed to provide the ability to tag objects with metadata that allows for categorization, sorting, and filtering, to empower teaching and learning SIF usage. There exist two main business cases:

Content providers receiving a request for learning resources can tag content with applicable filters. Upon receipt of SIF objects, receiving application can then read the metadata to categorize the content most appropriately.

When supported by providers, this metadata can then be utilized in queries to more precisely limit the type of content returned to requesting applications.

The use cases for `EducationFilter` require a contract and choreography to be understood between both sides of the transaction as is the case with all `SIF_Metadata`.

Figure 6.2.10-1: EducationFilter

	Element/@Attribute	Char	Description	Type
	EducationFilter			
	LearningStandardItems	O	Allows any SIF object to be correlated to learning standards.	List
	LearningStandardItems/LearningStandardItemRefId	MR		IdRefType

Table 6.2.10-1: EducationFilter

```
<EducationFilter>
  <LearningStandardItems>
    <LearningStandardItemRefId>FA3023B26277CAD47105327F3A782BED</LearningStandardItemRefId>
    <LearningStandardItemRefId>DE937CB2627AAE872850E1F3A782BEDF</LearningStandardItemRefId>
    <LearningStandardItemRefId>BCFA143627AAE87E830E1F3AD92B4DA7</LearningStandardItemRefId>
    <LearningStandardItemRefId>DE840286ABB72198756E1F349CAE8273</LearningStandardItemRefId>
    <LearningStandardItemRefId>913DE839BA8329FCA938EF2709BC31A0</LearningStandardItemRefId>
    <LearningStandardItemRefId>A8930CD176EBB992714ACEB78492AE9C</LearningStandardItemRefId>
    <LearningStandardItemRefId>0264FFBA72C78ED903BE27CAA18905FB</LearningStandardItemRefId>
  </LearningStandardItems>
</EducationFilter>
```

Example 6.2.10-1: EducationFilter - Example 1

6.2.11 ElectronicId

Common element used to specify entity identifiers that are read by electronic equipment.
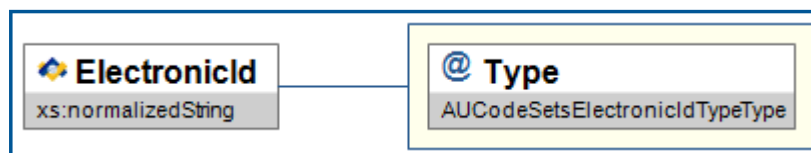
Figure 6.2.11-1: ElectronicId

Element/@Attribute	Char	Description	Type
ElectronicId		Common element used to specify entity identifiers that are read by electronic equipment.	xs:normalizedString
@ Type	M	Electronic ID type.	AUCodeSetsElectronicIdTypeType

Table 6.2.11-1: ElectronicId

```
<ElectronicId Type="01">206654</ElectronicId>
```

Example 6.2.11-1: ElectronicId

6.2.12 ElectronicIdList

A list of electronic identifiers associated with an entity.

Figure 6.2.12-1: ElectronicIdList

Element/@Attribute	Char	Description	Type
ElectronicIdList		A list of electronic identifiers associated with an entity.	List
ElectronicId	MR		ElectronicId

Table 6.2.12-1: ElectronicIdList

```
<ElectronicIdList>
  <ElectronicId Type="01">206654</ElectronicId>
  <ElectronicId Type="03">1234</ElectronicId>
</ElectronicIdList>
```

Example 6.2.12-1: ElectronicIdList

6.2.13 Email

This element represents an e-mail address of one of a number of types and occurs in objects such as StudentPersonal, StaffPersonal, StudentContactPersonal, etc.
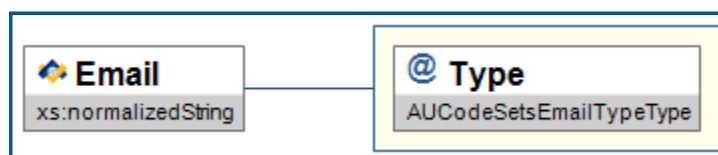
Figure 6.2.13-1: Email

Element/@Attribute	Char	Description	Type
Email		This element represents an e-mail address of one of a number of types and occurs in objects such as StudentPersonal, StaffPersonal, StudentContactPersonal, etc.	xs:normalizedString
@ Type	M	This attribute specifies the type of e-mail address.	AUCodeSetsEmailTypeType

Table 6.2.13-1: Email

```
<Email Type="01">contact@sifinfo.org</Email>
```

Example 6.2.13-1: Email

6.2.14 EmailList

A list of e-mail addresses associated with an individual or organization.
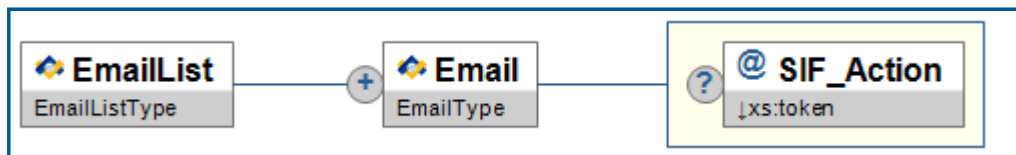
Figure 6.2.14-1: EmailList

Element/@Attribute	Char	Description	Type
EmailList		A list of e-mail addresses associated with an individual or organization.	ActionList (Email/@Type)
Email	MR		Email
@ SIF_Action	O	In a `Change` event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** Delete

Table 6.2.14-1: EmailList

```
<EmailList>
  <Email Type="01">contact@sifinfo.org</Email>
  <Email Type="02">info@sifinfo.org</Email>
</EmailList>
```

Example 6.2.14-1: EmailList

6.2.15 EnglishProficiency
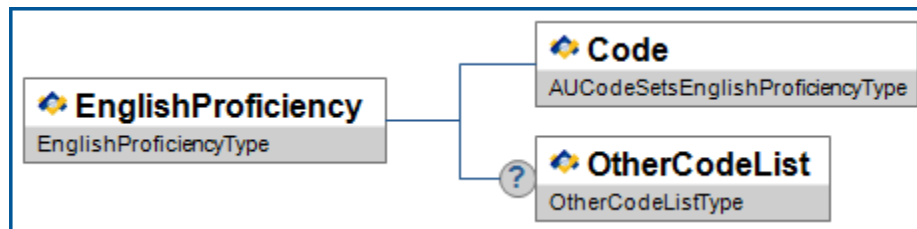
Figure 6.2.15-1: EnglishProficiency

Element/@Attribute	Char	Description	Type
EnglishProficiency	O		
Code	M	Person's proficiency in English.	AUCodeSetsEnglishProficiencyType
OtherCodeList	O		OtherCodeList

Table 6.2.15-1: EnglishProficiency

```
<EnglishProficiency>
  <Code>9</Code>
</EnglishProficiency>
```

Example 6.2.15-1: EnglishProficiency

6.2.16 GraduationDate

Date student officially graduated from secondary education.
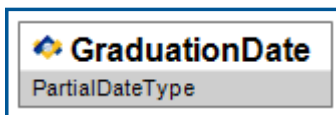
Figure 6.2.16-1: GraduationDate

Element/@Attribute	Char	Description	Type
GraduationDate		Date student officially graduated from secondary education.	PartialDateType

Table 6.2.16-1: GraduationDate

```
<GraduationDate>2005-05-27</GraduationDate>
```

Example 6.2.16-1: GraduationDate

6.2.17 GridLocation

This element contains a map location. The GridLocation element is utilized within the Address element.
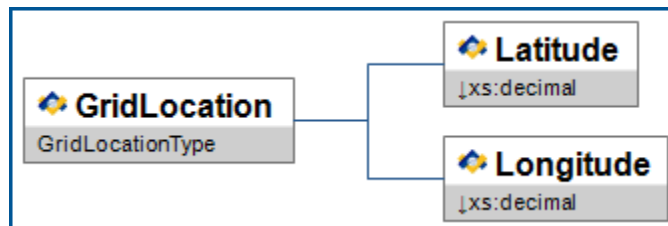
Figure 6.2.17-1: GridLocation

Element/@Attribute	Char	Description	Type
GridLocation		This element contains a map location. The GridLocation element is utilized within the Address element.	
Latitude	M	Latitude in decimal degrees. Latitudes north of the equator are positive, latitudes south of the equator are negative [ISO 6709].	xs:decimal xs:minInclusive −90 xs:maxInclusive 90
Longitude	M	Longitude in decimal degrees. Longitudes east of the Prime Meridian in Greenwich are positive, longitudes west of the Prime Meridian are negative. The 180th meridian is negative. [ISO 6709]	xs:decimal xs:minInclusive −180 xs:maxInclusive 180

Table 6.2.17-1: GridLocation

```
<GridLocation>
   <Latitude>41.850000</Latitude>
   <Longitude>-87.650000</Longitude>
</GridLocation>
```

Example 6.2.17-1: GridLocation

6.2.18 HomeroomNumber

Common element used to specify the locally-defined number or identifier for a homeroom. It is used in objects such as RoomInfo and StudentSnapshot.
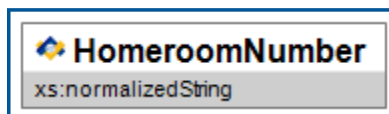
Figure 6.2.18-1: HomeroomNumber

Element/@Attribute	Char	Description	Type
HomeroomNumber		Common element used to specify the locally-defined number or identifier for a homeroom. It is used in objects such as RoomInfo and StudentSnapshot.	xs:normalizedString

Table 6.2.18-1: HomeroomNumber

```
<HomeroomNumber>A-204</HomeroomNumber>
```

Example 6.2.18-1: HomeroomNumber

6.2.19 LanguageList
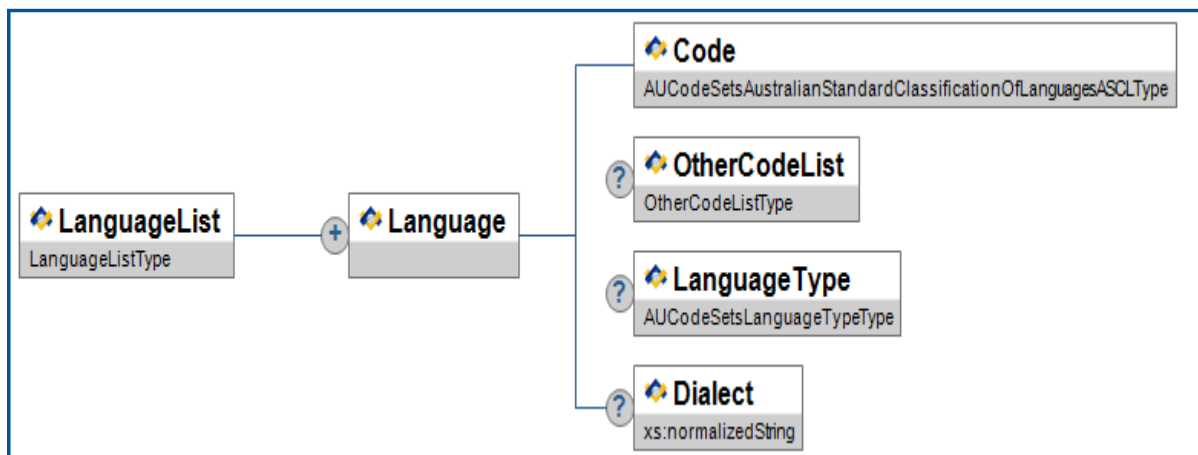
Figure 6.2.19-1: LanguageList

Element/@Attribute	Char	Description	Type
LanguageList	O		List
Language	MR		
Language/Code	M	The code representing the specific language that an individual uses to communicate.	AUCodeSetsAustralianStandardClassificationOfLanguagesASCLType
Language/OtherCodeList	O		OtherCodeList
Language/LanguageType	O	An indication of the function and context in which an individual uses a language to communicate.	AUCodeSetsLanguageTypeType
Language/Dialect	O	Specific dialect of a person's language.	xs:normalizedString

Table 6.2.19-1: LanguageList

```
<LanguageList>
  <Language>
    <Code>1201</Code>
    <LanguageType>1</LanguageType>
  </Language>
  <Language>
    <Code>1301</Code>
    <LanguageType>9</LanguageType>
  </Language>
</LanguageList>
```

Example 6.2.19-1: LanguageList

6.2.20 LifeCycle

This common metadata element describes the life cycle of the object it represents, based on the IEEE LOM LifeCycle element [LOM].
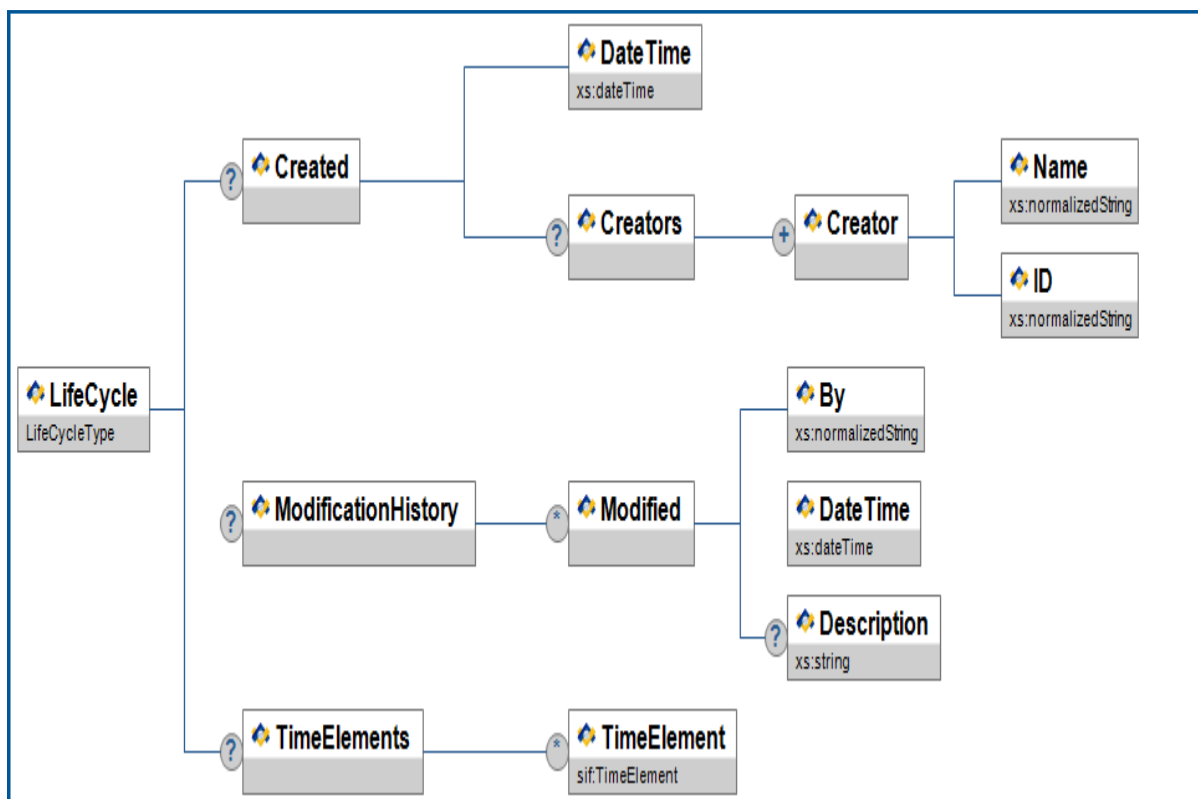
Figure 6.2.20-1: LifeCycle

Element/@Attribute	Char	Description	Type
LifeCycle		This common metadata element describes the life cycle of the object it represents, based on the IEEE LOM LifeCycle element [LOM].	
Created	O	When the object was created by whom. This is a more persistent creation date than the date/time in the object's `SIF_Header`. Depending on the use case being implemented, this value could contain the date the data in the object first entered the zone or was actually created.	
Created/DateTime	M		`xs:dateTime`
Created/Creators	O		`List`

Element/@Attribute	Char	Description	Type
Created/Creators/Creator	MR		
Created/Creators/Creator/ Name	M	Human-readable name of the data's creator. If the object contains system-generated data, the name should identify the creating service or application.	`xs:normalizedString`
Created/Creators/Creator/ ID	M	Unique identifier of the creator. An email address or URI could be used here.	`xs:normalizedString`
ModificationHistory	O	An ordered set of `Modified` elements describing which system modified the data, when the modification took place, and a brief description of the modification.	`List`
ModificationHistory/Modified	OR	A single modification event.	
ModificationHistory/Modified/ By	M	Identifier of the system or person that modified the data.	`xs:normalizedString`
ModificationHistory/Modified/ DateTime	M	The date/time the modification occurred.	`xs:dateTime`
ModificationHistory/Modified/ Description	O	Human readable description of the data modifications.	`xs:string`
TimeElements	O		`List`
TimeElements/TimeElement	OR		`TimeElement`

Table 6.2.20-1: LifeCycle

```
<LifeCycle>
  <Created>
    <DateTime>2006-08-13T09:00:00-05:00</DateTime>
    <Creators>
      <Creator>
        <Name>Alphonse Berdonosi</Name>
        <ID>http://www.edugeeks.com/aberdonosi</ID>
      </Creator>
    </Creators>
  </Created>
  <ModificationHistory>
    <Modified>
      <By>http://www.edugeeks.com/aberdonosi</By>
      <DateTime>2006-08-17T09:30:00-05:00</DateTime>
    </Modified>
  </ModificationHistory>
</LifeCycle>
```

Example 6.2.20-1: LifeCycle

6.2.21 LocalId

This is a common element used to define the locally assigned identifier associated with an entity.
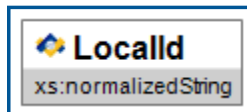
Figure 6.2.21-1: LocalId

Element/@Attribute	Char	Description	Type
LocalId		This is a common element used to define the locally assigned identifier associated with an entity.	`xs:normalizedString`

Table 6.2.21-1: LocalId

```
<LocalId>123321A</LocalId>
```

Example 6.2.21-1: LocalId

6.2.22 Location

This common element initially supports core data elements describing specific physical locations.
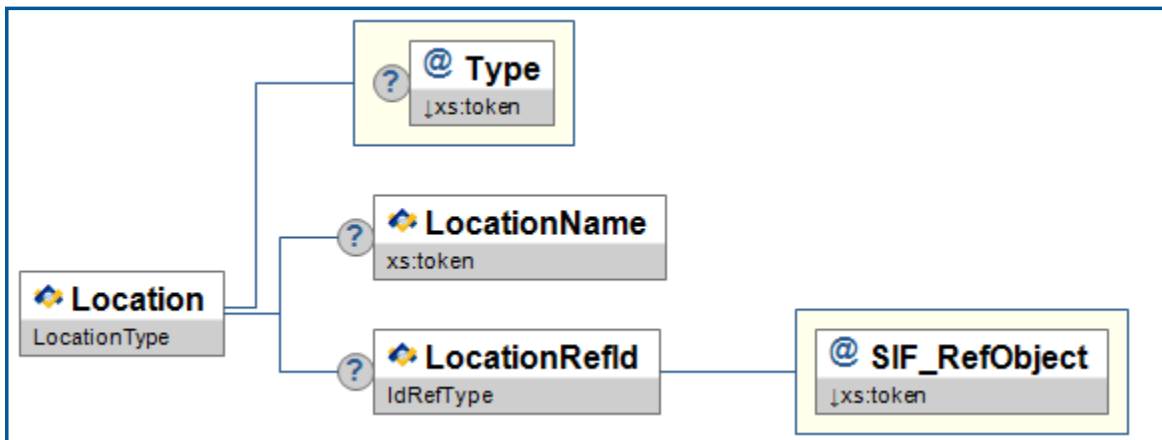
Figure 6.2.22-1: Location

	Element/@Attribute	Char	Description	Type
	Location			

@	Type	O		**values:**
				
				`Classroom`
				`School`
				`District`
				`Campus`
				`IntermediateUnit`
				`StateEducationAgency`
				`NonInstructionalSpace`
				`AthleticVenue`
				`Other`

	LocationName	O	Name of the location.	`xs:token`
	LocationRefId	O	RefId of the location object if the location is a SIF Object such as `SchoolInfo`.	`IdRefType`

@	SIF_RefObject	M	Type of SIF Object `Location` points to.	**values:**
				
				`SchoolInfo`
				`LEAInfo`
				`RoomInfo`

Table 6.2.22-1: Location

```
<Location Type="Classroom">
   <LocationName>Beaconhills Middle School Library</LocationName>
   <LocationRefId SIF_RefObject="RoomInfo">947582610947583ACEB2BB345291BAAA</LocationRefId>
</Location>
```

Example 6.2.22-1: Location

6.2.23 Name

The Name element, which could belong to a student, staff member, contact, etc. This element or a form with a subset of Type values occurs within objects such as StudentPersonal, StudentContactPersonal, StaffPersonal, etc.
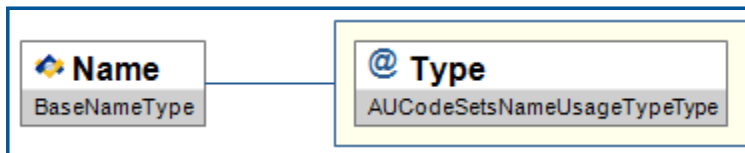
Figure 6.2.23-1: Name

	Element/@Attribute	Char	Description	Type
	Name		The Name element, which could belong to a student, staff member, contact, etc. This element or a form with a subset of Type values occurs within objects such as StudentPersonal, StudentContactPersonal, StaffPersonal, etc.	BaseNameType
@	Type	M	Code that specifies what type of name this is. If unsure, use LGL.	AUCodeSetsNameUsageTypeType

Table 6.2.23-1: Name

```
<Name Type="LGL">
  <FamilyName>Woodall</FamilyName>
  <GivenName>Charles</GivenName>
  <MiddleName>William</MiddleName>
</Name>
```

Example 6.2.23-1: Name

6.2.24 OnTimeGraduationYear

First projected graduation year, usually determined when student is accepted into 9th grade (CCYY).
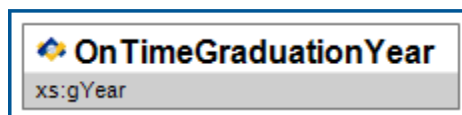
Figure 6.2.24-1: OnTimeGraduationYear

Element/@Attribute	Char	Description	Type
OnTimeGraduationYear		First projected graduation year, usually determined when student is accepted into 9th grade (CCYY).	xs:gYear

Table 6.2.24-1: OnTimeGraduationYear

```
<OnTimeGraduationYear>2006</OnTimeGraduationYear>
```

Example 6.2.24-1: OnTimeGraduationYear

6.2.25 OperationalStatus

This common element contains status information an institution.
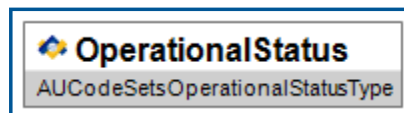
Figure 6.2.25-1: OperationalStatus

Element/@Attribute	Char	Description	Type
OperationalStatus		Operational condition of an institution.	**union of:** AUCodeSetsOperationalStatusType

Table 6.2.25-1: OperationalStatus

```
<OperationalStatus>O</OperationalStatus>
```

Example 6.2.25-1: OperationalStatus

6.2.26 OtherCodeList

List of other codes or strings that crosswalk to or serve as translations of the Code element paired with this common element. If Code changes and OtherCodes are supported, both Code and all associated OtherCode elements must be present.
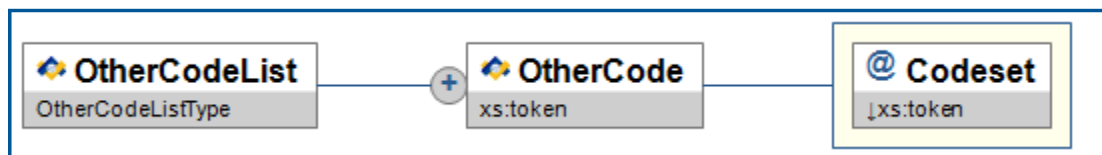
Figure 6.2.26-1: OtherCodeList

Element/@Attribute	Char	Description	Type
OtherCodeList		List of other codes or strings that crosswalk to or serve as translations of the Code element paired with this common element. If Code changes and OtherCodes are supported, both Code and all associated OtherCode elements must be present.	List
OtherCode	MR	A state/province code, local code, other code or a text string that crosswalks to or serves as a translation of an associated Code element.	xs:token
@ Codeset	M	Describes the OtherCode element content as either a state/province code, a local code, other code, or text string.	**values:** StateProvince Local Other Text

Table 6.2.26-1: OtherCodeList

```
<OtherCodeList>
  <OtherCode Codeset="Local">S</OtherCode>
  <OtherCode Codeset="Text">Semester</OtherCode>
</OtherCodeList>
```

Example 6.2.26-1: OtherCodeList

6.2.27 OtherNames

Previous, alternate or other names or aliases associated with a person.
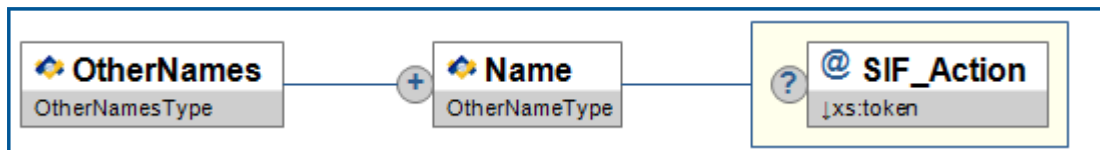
Figure 6.2.27-1: OtherNames

	Element/@Attribute	Char	Description	Type
	OtherNames	O	Previous, alternate or other names or aliases associated with a person.	ActionList (Name/@Type)
	Name	MR	Name of the person. Note: Type value of LGL may not occur here.	OtherNameType
@	SIF_Action	O	In a Change event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** Delete

Table 6.2.27-1: OtherNames

```
<OtherNames>
  <Name Type="AKA">
    <FamilyName>Anderson</FamilyName>
    <GivenName>Samuel</GivenName>
    <FullName>Samuel Anderson</FullName>
  </Name>
  <Name Type="PRF">
    <FamilyName>Rowinski</FamilyName>
    <GivenName>Sam</GivenName>
    <FullName>Sam Rowinski </FullName>
  </Name>
</OtherNames>
```

Example 6.2.27-1: OtherNames

6.2.28 PersonInfo
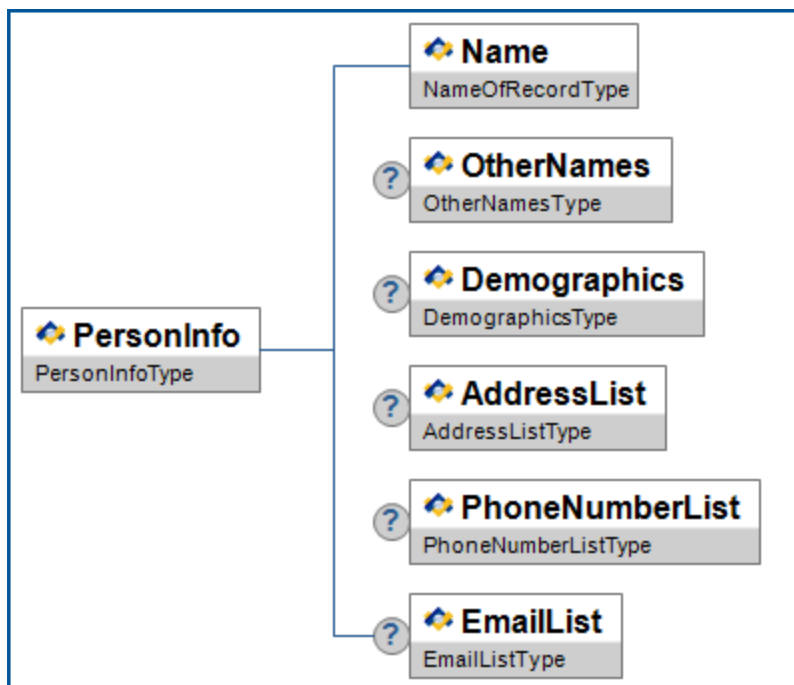
Figure 6.2.28-1: PersonInfo

Element/@Attribute	Char	Description	Type
PersonInfo			
Name	M	The name of the person. Note: Type attribute value of LGL must be used here.	NameOfRecordType
OtherNames	O	Previous, alternate or other names or aliases associated with the person.	OtherNames
Demographics	O	Demographic information about the person.	Demographics
AddressList	O	The person's address(es).	AddressList
PhoneNumberList	O	The person's phone number(s).	PhoneNumberList
EmailList	O	The person's e-mail address(es).	EmailList

Table 6.2.28-1: PersonInfo

```xml
<PersonInfo>
  <Name Type="LGL">
    <FamilyName>Smith</FamilyName>
    <GivenName>Fred</GivenName>
    <FullName>Fred Smith</FullName>
  </Name>
  <OtherNames>
    <Name Type="AKA">
      <FamilyName>Anderson</FamilyName>
      <GivenName>Samuel</GivenName>
      <FullName>Samuel Anderson</FullName>
    </Name>
    <Name Type="PRF">
      <FamilyName>Rowinski</FamilyName>
      <GivenName>Sam</GivenName>
      <FullName>Sam Rowinski </FullName>
    </Name>
  </OtherNames>
  <Demographics>
    <IndigenousStatus>3</IndigenousStatus>
    <Sex>1</Sex>
    <BirthDate>1990-09-26</BirthDate>
    <BirthDateVerification>1004</BirthDateVerification>
    <PlaceOfBirth>Clayton</PlaceOfBirth>
    <StateOfBirth>VIC</StateOfBirth>
    <CountryOfBirth>1101</CountryOfBirth>
    <CountriesOfCitizenship>
      <CountryOfCitizenship>8104</CountryOfCitizenship>
      <CountryOfCitizenship>1101</CountryOfCitizenship>
    </CountriesOfCitizenship>
    <CountriesOfResidency>
      <CountryOfResidency>8104</CountryOfResidency>
      <CountryOfResidency>1101</CountryOfResidency>
    </CountriesOfResidency>
    <CountryArrivalDate>1990-09-26</CountryArrivalDate>
    <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
    <EnglishProficiency>
      <Code>1</Code>
    </EnglishProficiency>
    <LanguageList>
      <Language>
        <Code>0001</Code>
        <LanguageType>1</LanguageType>
      </Language>
    </LanguageList>
    <DwellingArrangement>
      <Code>1671</Code>
    </DwellingArrangement>
    <Religion>
      <Code>2013</Code>
    </Religion>
    <ReligiousEventList>
      <ReligiousEvent>
        <Type>Baptism</Type>
        <Date>2000-09-01</Date>
      </ReligiousEvent>
      <ReligiousEvent>
        <Type>Christmas</Type>
        <Date>2009-12-24</Date>
      </ReligiousEvent>
    </ReligiousEventList>
    <ReligiousRegion>The Religion Region</ReligiousRegion>
    <PermanentResident>P</PermanentResident>
    <VisaSubClass>101</VisaSubClass>
    <VisaStatisticalCode>05</VisaStatisticalCode>
  </Demographics>
  <AddressList>
    <Address Type="0123" Role="2382">
      <Street>
        <Line1>Unit1/10</Line1>
        <Line2>Barkley Street</Line2>
      </Street>
      <City>Yarra Glenn</City>
      <StateProvince>VIC</StateProvince>
      <Country>1101</Country>
      <PostalCode>9999</PostalCode>
    </Address>
    <Address Type="0123A" Role="013A">
      <Street>
        <Line1>34 Term Address Street</Line1>
      </Street>
      <City>Home Town</City>
      <StateProvince>WA</StateProvince>
```

```
      <Country>1101</Country>
      <PostalCode>9999</PostalCode>
    </Address>
  </AddressList>
  <PhoneNumberList>
    <PhoneNumber Type="0096">
      <Number>03 9637-2289</Number>
      <Extension>72289</Extension>
      <ListedStatus>Y</ListedStatus>
    </PhoneNumber>
    <PhoneNumber Type="0888">
      <Number>0437-765-234</Number>
      <ListedStatus>N</ListedStatus>
    </PhoneNumber>
  </PhoneNumberList>
  <EmailList>
    <Email Type="01">fsmith@yahoo.com</Email>
    <Email Type="02">freddy@gmail.com</Email>
  </EmailList>
</PersonInfo>
```

Example 6.2.28-1: PersonInfo

6.2.29 PhoneNumber

This element represents a phone number and occurs within objects such as StudentPersonal, StaffPersonal, etc.
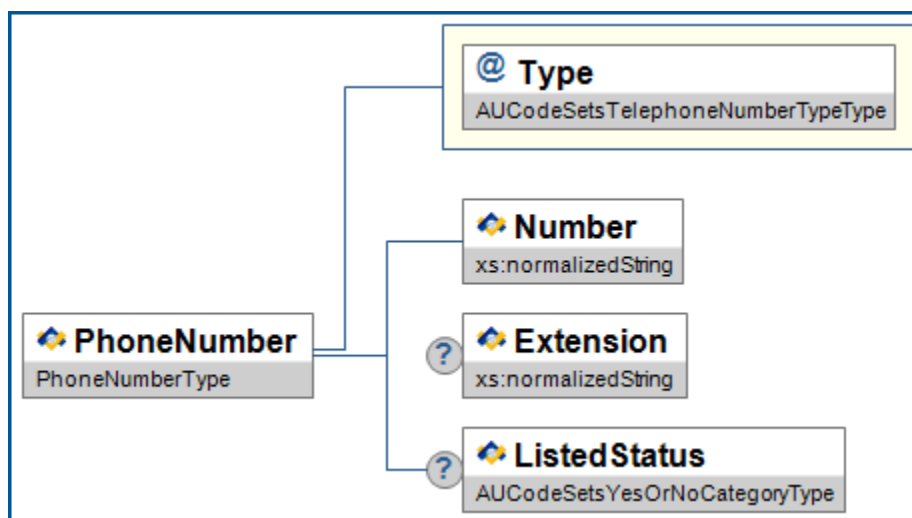
Figure 6.2.29-1: PhoneNumber

Element/@Attribute	Char	Description	Type
PhoneNumber		This element represents a phone number and occurs within objects such as StudentPersonal, StaffPersonal, etc.	
@ Type	M	Code that specifies what type of phone number this is. Note: A subset of valid values may be specified in data objects.	AUCodeSetsTelephoneNumberTypeType

Element/@Attribute	Char	Description	Type
Number	M	Phone number. Free-form, but typical Australian formats include: • (###) ####-#### • ####-#### • +##### ### ###	`xs:normalizedString`
Extension	O	Phone number extension.	`xs:normalizedString`
ListedStatus	O	Indicates whether or not the phone number is available to the public.	`AUCodeSetsYesOrNoCategoryType`

Table 6.2.29-1: PhoneNumber

```
<PhoneNumber Type="0096">
   <Number>(03) 9543 2000</Number>
   <Extension>245</Extension>
</PhoneNumber>
```

Example 6.2.29-1: PhoneNumber

6.2.30 PhoneNumberList

Lists phone numbers associated with an entity.
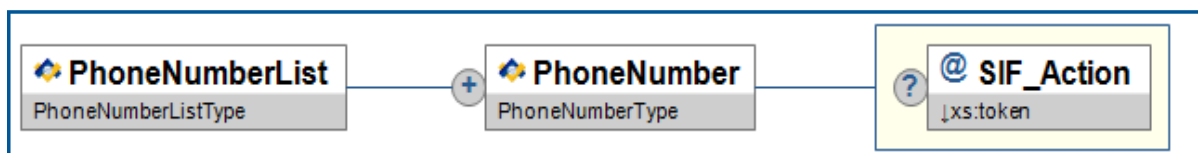
Figure 6.2.30-1: PhoneNumberList

Element/@Attribute	Char	Description	Type
PhoneNumberList		Lists phone numbers associated with an entity.	`ActionList` `(PhoneNumber/@Type)`
PhoneNumber	MR		`PhoneNumber`
@ SIF_Action	O	In a `Change` event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** `Delete`

Table 6.2.30-1: PhoneNumberList

```
<PhoneNumberList>
  <PhoneNumber Type="0096">
    <Number>(03) 9543 2000</Number>
  </PhoneNumber>
</PhoneNumberList>
```

Example 6.2.30-1: PhoneNumberList

6.2.31 PrincipalInfo

Information about the campus or school principal.
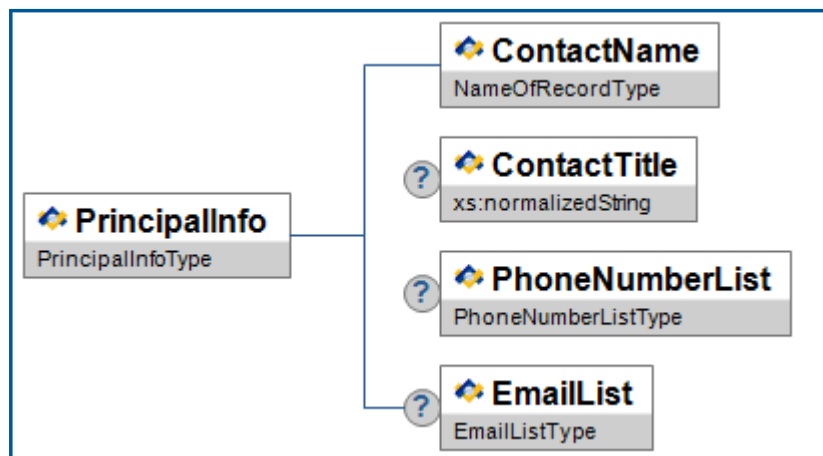
Figure 6.2.31-1: PrincipalInfo

Element/@Attribute	Char	Description	Type
PrincipalInfo	O	Information about the campus or school principal.	
ContactName	M	The name of the principal.	NameOfRecordType
ContactTitle	O	The principal's title.	xs:normalizedString
PhoneNumberList	O	The principal's phone number(s).	PhoneNumberList
EmailList	O	The principal's e-mail address(es).	EmailList

Table 6.2.31-1: PrincipalInfo

```
<PrincipalInfo>
  <ContactName Type="LGL">
    <Title>Mr</Title>
    <FamilyName>Miller</FamilyName>
    <GivenName>James</GivenName>
    <MiddleName>Frank</MiddleName>
    <Suffix>Jr.</Suffix>
    <FullName>Mr James Frank Miller Jr.</FullName>
  </ContactName>
  <ContactTitle>School Principal</ContactTitle>
  <PhoneNumberList>
    <PhoneNumber Type="0096">
      <Number>03 9637-2000</Number>
      <Extension>72345</Extension>
      <ListedStatus>Y</ListedStatus>
    </PhoneNumber>
  </PhoneNumberList>
  <EmailList>
    <Email Type="01">jmiller@lsc.vic.edu.au</Email>
    <Email Type="02">jmiller@yahoo.com.au</Email>
  </EmailList>
</PrincipalInfo>
```

Example 6.2.31-1: PrincipalInfo

6.2.32 ProgramStatus
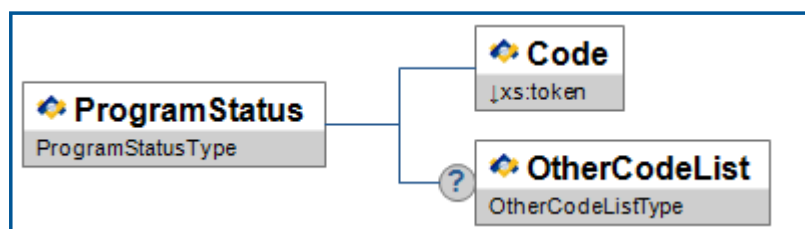
Figure 6.2.32-1: ProgramStatus

Element/@Attribute	Char	Description	Type
ProgramStatus			
Code	M	The current status of the student's program participation.	**values:** S001 Referred S002 Eligible S003 Not Eligible S004 Active S005 Exited S006 Withdrew/refused 9999 Other
OtherCodeList	O		OtherCodeList

Table 6.2.32-1: ProgramStatus

```
<ProgramStatus>
  <Code>S004</Code>
</ProgramStatus>
```

Example 6.2.32-1: ProgramStatus

6.2.33 ProjectedGraduationYear

Currently projected graduation year.
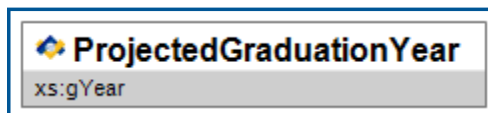
Figure 6.2.33-1: ProjectedGraduationYear

Element/@Attribute	Char	Description	Type
ProjectedGraduationYear		Currently projected graduation year (CCYY).	xs:gYear

Table 6.2.33-1: ProjectedGraduationYear

```
<ProjectedGraduationYear>2006</ProjectedGraduationYear>
```

Example 6.2.33-1: ProjectedGraduationYear

6.2.34 PublishInDirectory

This is a common element used to specify whether or not information (e.g., contact information) should be published in a directory.

Figure 6.2.34-1: PublishInDirectory

Element/@Attribute	Char	Description	Type
PublishInDirectory		Indicates whether or not information should be published in a directory.	AUCodeSetsYesOrNoCategoryType

Table 6.2.34-1: PublishInDirectory

```
<PublishInDirectory>Y</PublishInDirectory>
```

Example 6.2.34-1: PublishInDirectory

6.2.35 Relationship

Code that defines the relationship of one person to another.
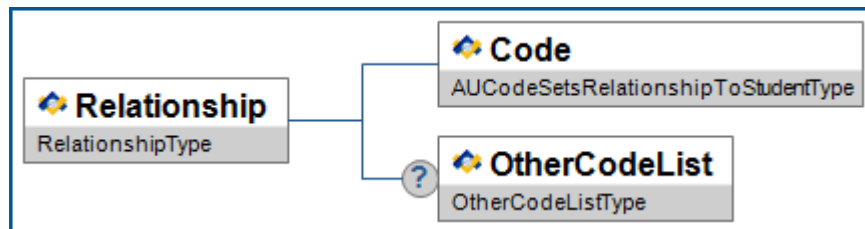
Figure 6.2.35-1: Relationship

Element/@Attribute	Char	Description	Type
Relationship		Code that defines the relationship of one person to another.	
Code	M	Code representing the relationship.	AUCodeSetsRelationshipToStudentType
OtherCodeList	O		OtherCodeList

Table 6.2.35-1: Relationship

```
<Relationship>
  <Code>01</Code>
</Relationship>
```

Example 6.2.35-1: Relationship

6.2.36 SchoolContactList

A list of contact persons associated with a school.
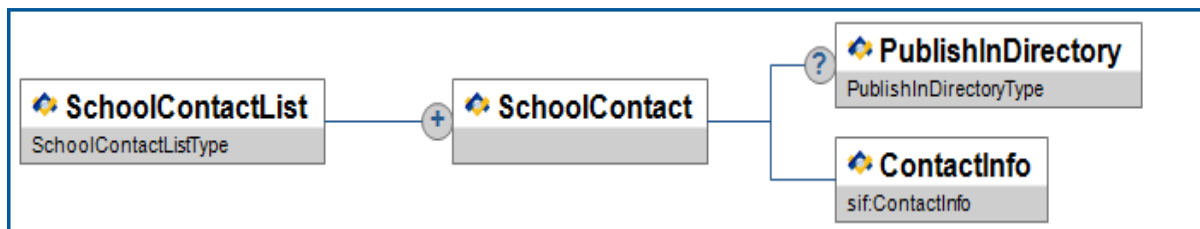
Figure 6.2.36-1: SchoolContactList

Element/@Attribute	Char	Description	Type
SchoolContactList		A list of contact persons associated with a school.	List
SchoolContact	MR	Information on contact persons for this school.	
SchoolContact/PublishInDirectory	O	Indicates whether or not this school contact's information should be published in a directory of school information.	PublishInDirectory

Element/@Attribute	Char	Description	Type
SchoolContact/ContactInfo	M		ContactInfo

Table 6.2.36-1: SchoolContactList

```
<SchoolContactList>
  <SchoolContact>
    <PublishInDirectory>Y</PublishInDirectory>
    <ContactInfo>
      <Name Type="LGL">
        <FamilyName>Woodall</FamilyName>
        <GivenName>Charles</GivenName>
        <MiddleName>William</MiddleName>
      </Name>
      <PositionTitle>Superintendent</PositionTitle>
      <EmailList>
        <Email Type="01">drseuss@whoville.k12.state.us</Email>
      </EmailList>
      <PhoneNumberList>
        <PhoneNumber Type="0096">
          <Number>(08) 8555-0102</Number>
        </PhoneNumber>
      </PhoneNumberList>
    </ContactInfo>
  </SchoolContact>
</SchoolContactList>
```

Example 6.2.36-1: SchoolContactList

6.2.37 SchoolURL

URL for a school.
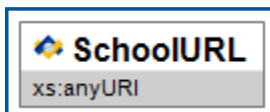
Figure 6.2.37-1: SchoolURL

Element/@Attribute	Char	Description	Type
SchoolURL		URL for a school.	xs:anyURI

Table 6.2.37-1: SchoolURL

```
<SchoolURL>http://www.lincolnhs.edu</SchoolURL>
```

Example 6.2.37-1: SchoolURL

6.2.38 SchoolYear

Common element used to designate the academic school year to which an object relates.
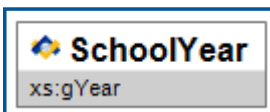
Figure 6.2.38-1: SchoolYear

Element/@Attribute	Char	Description	Type
SchoolYear		School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	xs:gYear

Table 6.2.38-1: SchoolYear

```
<SchoolYear>2005</SchoolYear>
```

Example 6.2.38-1: SchoolYear

6.2.39 SIF_ExtendedElements

This element is supported at the end of all SIF objects. The element is used to extend existing SIF objects with locally-defined elements. Extended elements SHOULD NOT be used to duplicate data that can be obtained from other SIF objects.
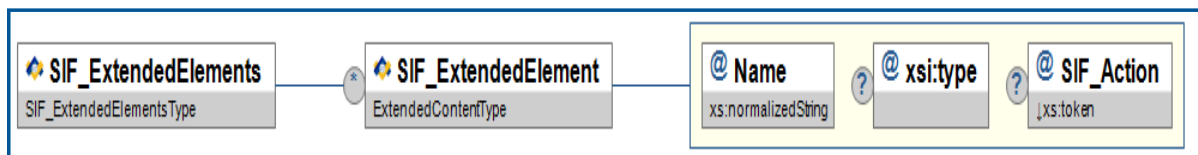
Figure 6.2.39-1: SIF_ExtendedElements

Element/@Attribute	Char	Description	Type
SIF_ExtendedElements		Allows an agent to include data not yet defined within a SIF data object as name/value pairs.	ActionList (SIF_ExtendedElement/@Name)
SIF_ExtendedElement	OR	A name/value pair, the name being contained in the Name attribute, the value being the element content.	ExtendedContentType
@ Name	M	The name of the extended element. As it is possible that names for extended elements may collide from agent to agent, it is recommended that the names of extended elements be configurable in an agent, or that agents use URIs for the names of extended elements.	xs:normalizedString
@ xsi:type	O	Allows type of element to be explicitly communicated.	
@ SIF_Action	O	In a Change event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** Delete

Table 6.2.39-1: SIF_ExtendedElements

```
<SIF_ExtendedElements>
  <SIF_ExtendedElement Name="ApplicationSubmissionStatus">4</SIF_ExtendedElement>
  <SIF_ExtendedElement Name="DynamicXml">
    <Parent xmlns="http://myapplication.com">
      <Child n="1">one</Child>
      <Child n="2" />
      <Child n="3">three</Child>
    </Parent>
  </SIF_ExtendedElement>
  <SIF_ExtendedElement Name="Note">
    <xhtml:strong xmlns:xhtml="http://www.w3.org/1999/xhtml">Double</xhtml:strong>-check submission status.
    </SIF_ExtendedElement>
</SIF_ExtendedElements>
```

Example 6.2.39-1: SIF_ExtendedElements

6.2.40 SIF_Metadata

Metadata is commonly referred to as data about data and includes information such as author, grade level, or keywords relating to a learning object, as examples. Metadata can be used to structure and contain any of this kind of information in a consistent manner. In the context of SIF, SIF_Metadata provides a consistent structure to appropriate SIF objects for the purpose of cataloging and object discovery, as well as other metadata functions and purposes. One recurring use case within the SIF data model is the requirement for some form of temporal constraints and tagging on objects (see

TimeElement). Other metadata elements are based on needs brought to the Data Model Task Force.

IMPORTANT NOTE ON PERSISTENCE

This data is not designed to be permanent. It is designed to frame an object instance and could dissolve as soon as it leaves the SIF framework for the application space. A data warehouse could be used to store metadata for later tracking.

IMPORTANT NOTE ON USAGE

Any usage of metadata is optional unless made a requirement within individual SIF objects, or if a SIF or local profile or zone installation mandates it. SIF_Metadata allows for the usage of metadata in agents and applications that choose to support it.

This element is designed to operate much like SIF_ExtendedElements. It is an approved common element that is part of any data object.
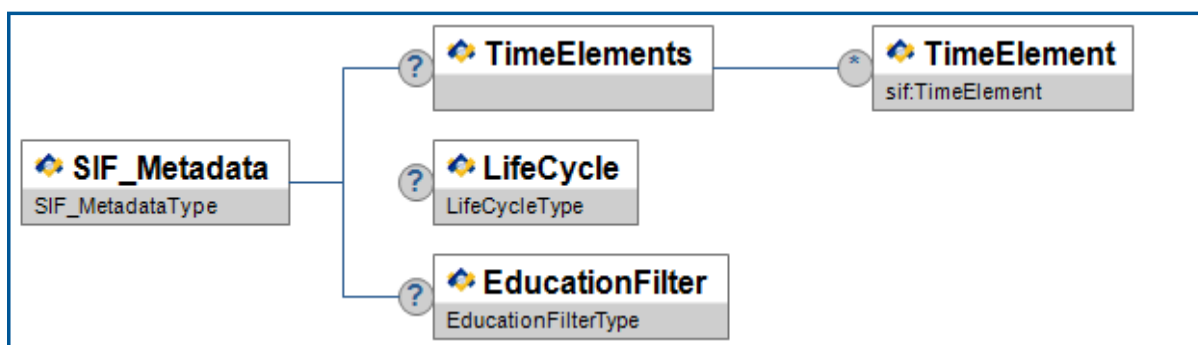
Figure 6.2.40-1: SIF_Metadata

Element/@Attribute	Char	Description	Type
SIF_Metadata		A commonly defined container for metadata elements defined within SIF.	
TimeElements	O		List
TimeElements/TimeElement	OR		TimeElement
LifeCycle	O		LifeCycle

Element/@Attribute	Char	Description	Type
EducationFilter	O		EducationFilter

Table 6.2.40-1: SIF_Metadata

6.2.41 StateProvince

A state or province code. Note: When dealing with countries other than Australia, state/province codes/values other than those referenced here can be used.

Figure 6.2.41-1: StateProvince

Element/@Attribute	Char	Description	Type
StateProvince		A state or province code. Note: When dealing with countries other than Australia, state/province codes/values other than those referenced here can be used.	**union of:** AUCodeSetsStateTerritoryCodeType xs:token

Table 6.2.41-1: StateProvince

```
<StateProvince>ACT</StateProvince>
```

Example 6.2.41-1: StateProvince

6.2.42 StateProvinceId

This is a common element used to define the state or province assigned identifier associated with an entity.
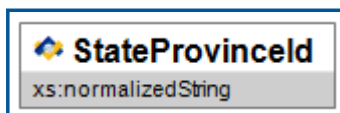
Figure 6.2.42-1: StateProvinceId

Element/@Attribute	Char	Description	Type
StateProvinceId		The identifier for this entity as assigned by the state or province.	xs:normalizedString

Table 6.2.42-1: StateProvinceId

```
<StateProvinceId>L65432765</StateProvinceId>
```

Example 6.2.42-1: StateProvinceId

6.2.43 SubjectArea

Subject matter.
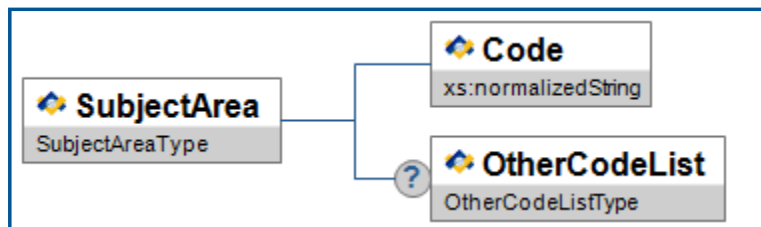
Figure 6.2.43-1: SubjectArea

Element/@Attribute	Char	Description	Type
SubjectArea		Subject matter.	
Code	M	The subject area details	`xs:normalizedString`
OtherCodeList	O		`OtherCodeList`

Table 6.2.43-1: SubjectArea

```
<SubjectArea>
   <Code>05</Code>
   <OtherCodeList>
     <OtherCode Codeset="Text">Graphic Arts</OtherCode>
   </OtherCodeList>
</SubjectArea>
```

Example 6.2.43-1: SubjectArea

6.2.44 SubjectAreaList

A list of subject areas.

Figure 6.2.44-1: SubjectAreaList

Element/@Attribute	Char	Description	Type
SubjectAreaList		A list of subject areas.	`List`
SubjectArea	MR	Subject matter.	`SubjectArea`

Table 6.2.44-1: SubjectAreaList

```
<SubjectAreaList>
  <SubjectArea>
    <Code>05</Code>
    <OtherCodeList>
      <OtherCode Codeset="Text">Graphic Arts</OtherCode>
      <OtherCode Codeset="Local">GRA</OtherCode>
    </OtherCodeList>
  </SubjectArea>
  <SubjectArea>
    <Code>06</Code>
    <OtherCodeList>
      <OtherCode Codeset="Text">Visual Arts</OtherCode>
    </OtherCodeList>
  </SubjectArea>
</SubjectAreaList>
```

Example 6.2.44-1: SubjectAreaList

6.2.45 TimeElement

A common metadata element designed to contain time data, both self-defined and by type.
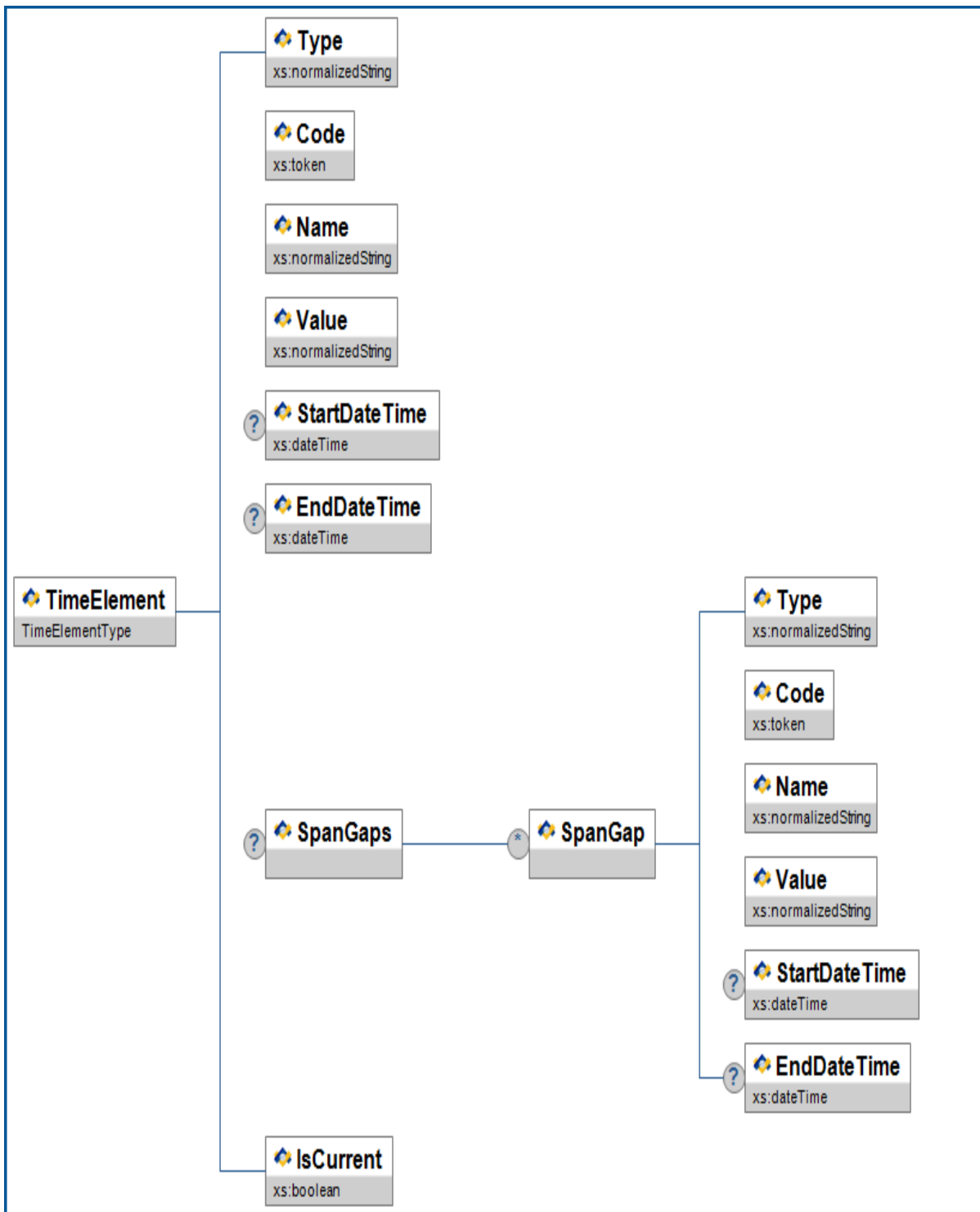
Figure 6.2.45-1: TimeElement

Element/@Attribute	Char	Description	Type
TimeElement		A common metadata element designed to contain time data, both self-defined and by type.	

Element/@Attribute	Char	Description	Type

Type	M	This element is designed to contain the time period attached to an object. Very long periods (school year, quarter, etc.) and very small periods (second, millisecond, etc.) can be defined. This element provides a scoping description of the time metadata enclosed.
		
		Because the educational environment varies so greatly we are including here a suggested but not prescriptive list of values. Although there may be unique needs for values not covered here—and we may have missed a major one—a best practice would be to utilize the examples here to enhance interoperability.
		
		Examples
		`Full school year`
		`Mini-term`
		`Long session`
		`Other`
		`Semester`
		`Trimester`
		`Quarter`
		`Spring Vacation`
		`Summer Term`
		`Intercession`
		`Holiday`
			xs:normalizedString

Code	M	This element provides a place for the application to send structured data (code values, unique identifier, timestamps). This code value can, depending upon the use case agreement between agents, be used to qualify the data in the `Value` element.
		
		Examples
		`2007SY`
		`2006.FallConferences`
			xs:token

Name	M	Contains a human-readable description of the value in `Value`.
		
		Examples
		`Class of '07`
		`Fall 2007 Parent-Teacher Conferences`
			xs:normalizedString

Value	M	Contains the human-readable value.
		
		Examples
		`2007`
		`Evening of 10/12/06`
			xs:normalizedString

StartDateTime	O		xs:dateTime
EndDateTime	O		xs:dateTime
SpanGaps	O	A container element for holding multiple possible span gaps.	List
SpanGaps/SpanGap	OR	This structure duplicates much of the structure of `TimeElement` and is designed to represent a gap in the parent time period defined by `StartDateTime` and `EndDateTime` above.	
SpanGaps/SpanGap/Type	M		xs:normalizedString
SpanGaps/SpanGap/Code	M		xs:token
SpanGaps/SpanGap/Name	M		xs:normalizedString
SpanGaps/SpanGap/Value	M		xs:normalizedString
SpanGaps/SpanGap/StartDateTime	O		xs:dateTime
SpanGaps/SpanGap/EndDateTime	O		xs:dateTime

Element/@Attribute	Char	Description	Type
IsCurrent	M	This element allows for the system to tag an object as being explicitly current. Although the baseline assumption in SIF is that objects are always current (default value is typically `true`), there are use cases when that is not the case.	xs:boolean

Table 6.2.45-1: TimeElement

```
<TimeElement>
  <Type>Full school year</Type>
  <Code>01</Code>
  <Name>2004/2005 School Year</Name>
  <Value>2004-2005</Value>
  <StartDateTime>2004-09-01T08:00:00-05:00</StartDateTime>
  <EndDateTime>2005-06-30T15:00:00-05:00</EndDateTime>
  <SpanGaps>
    <SpanGap>
      <Type>Holiday</Type>
      <Code>02</Code>
      <Name>2005 Winter Break</Name>
      <Value>2005 Winter Break</Value>
      <StartDateTime>2005-02-21T15:00:00-05:00</StartDateTime>
      <EndDateTime>2005-02-25T08:00:00-05:00</EndDateTime>
    </SpanGap>
  </SpanGaps>
  <IsCurrent>true</IsCurrent>
</TimeElement>
```

Example 6.2.45-1: TimeElement

6.2.46 YearLevel

Figure 6.2.46-1: YearLevel

Element/@Attribute	Char	Description	Type
YearLevel		Year or academic level.	
Code	M	Code representing the year level.	AUCodeSetsYearLevelCodeType

Table 6.2.46-1: YearLevel

```
<YearLevel>
  <Code>8</Code>
</YearLevel>
```

Example 6.2.46-1: YearLevel

6.2.47 YearLevels

List of year levels.

Figure 6.2.47-1: YearLevels

Element/@Attribute	Char	Description	Type
YearLevels		List of year levels.	List
YearLevel	MR		YearLevel

Table 6.2.47-1: YearLevels

```
<YearLevels>
  <YearLevel>
    <Code>5</Code>
  </YearLevel>
  <YearLevel>
    <Code>6</Code>
  </YearLevel>
  <YearLevel>
    <Code>7</Code>
  </YearLevel>
  <YearLevel>
    <Code>8</Code>
  </YearLevel>
</YearLevels>
```

Example 6.2.47-1: YearLevels

6.3 SIF AU

The introduction for the SIF AU data model.

6.3.1 AggregateCharacteristicInfo

This object defines the attribute of a group of objects that implicitly or explicitly defines a subset of the group.

SIF_Events are reported for this object.
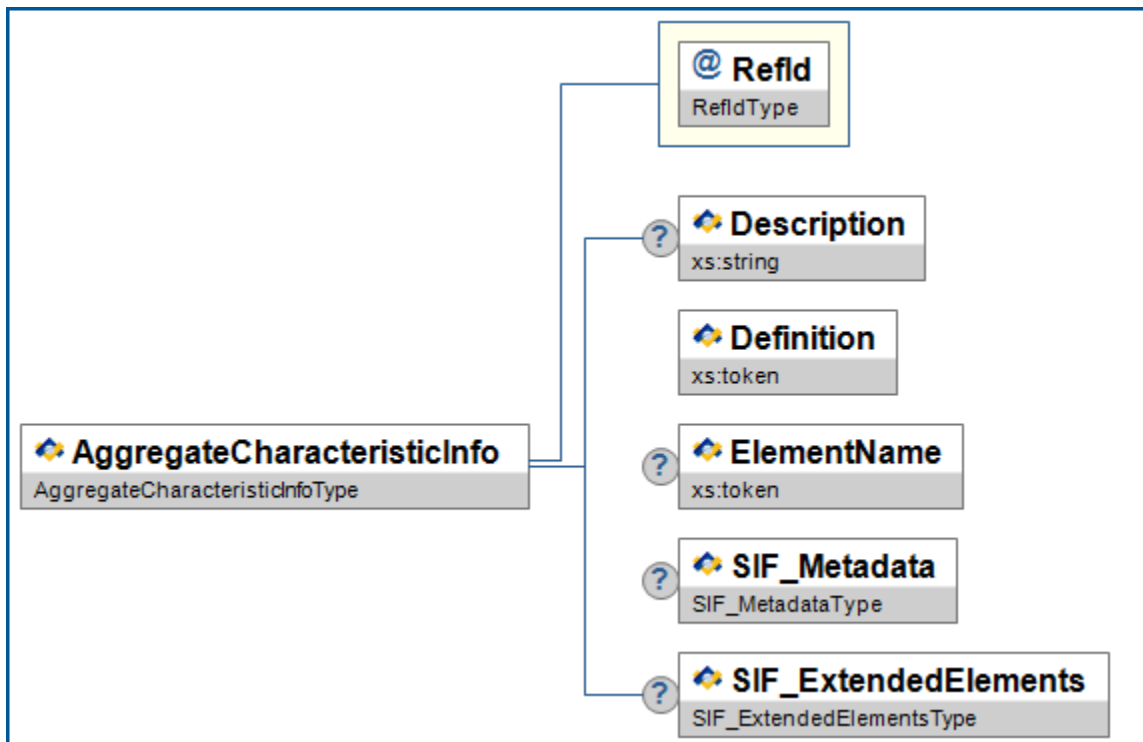
Figure 6.3.1-1: AggregateCharacteristicInfo

	Element/@Attribute	Char	Description	Type
	AggregateCharacteristicInfo		This object defines the attribute of a group of objects that implicitly or explicitly defines a subset of the group.	
@ 🔑	RefId	M	Key for aggregate characteristic information.	RefIdType

	Description	O	Describes the supercategory of the characteristic described in the `Definition` element below.
			
			Examples
			`Sex`
			`CulturalBackground`
			`YearLevel`
			`IndigenousStatus`
				xs:string

	Definition	M	Defines the aggregate characteristic information.
			
			Examples
			`LBOTE`
			`Male`
				xs:token

	ElementName	O	Reference to SIF elements or external authority (e.g., `StudentPersonal/PersonInfo/Demographics/Sex`). **Examples** `Dropout Status`	xs:token
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.1-1: AggregateCharacteristicInfo

```
<AggregateCharacteristicInfo RefId="06AF1D69FB064AB388983505714F18FB">
  <Description>Sex</Description>
  <ElementName>StudentPersonal/PersonInfo/Demographics/Sex</ElementName>
</AggregateCharacteristicInfo>
```

Example 6.3.1-1: AggregateCharacteristicInfo

6.3.2 AggregateStatisticFact

This object is the actual value of the measurement. It is always associated with one statistic and one or more characteristics.

SIF_Events are reported for this object.
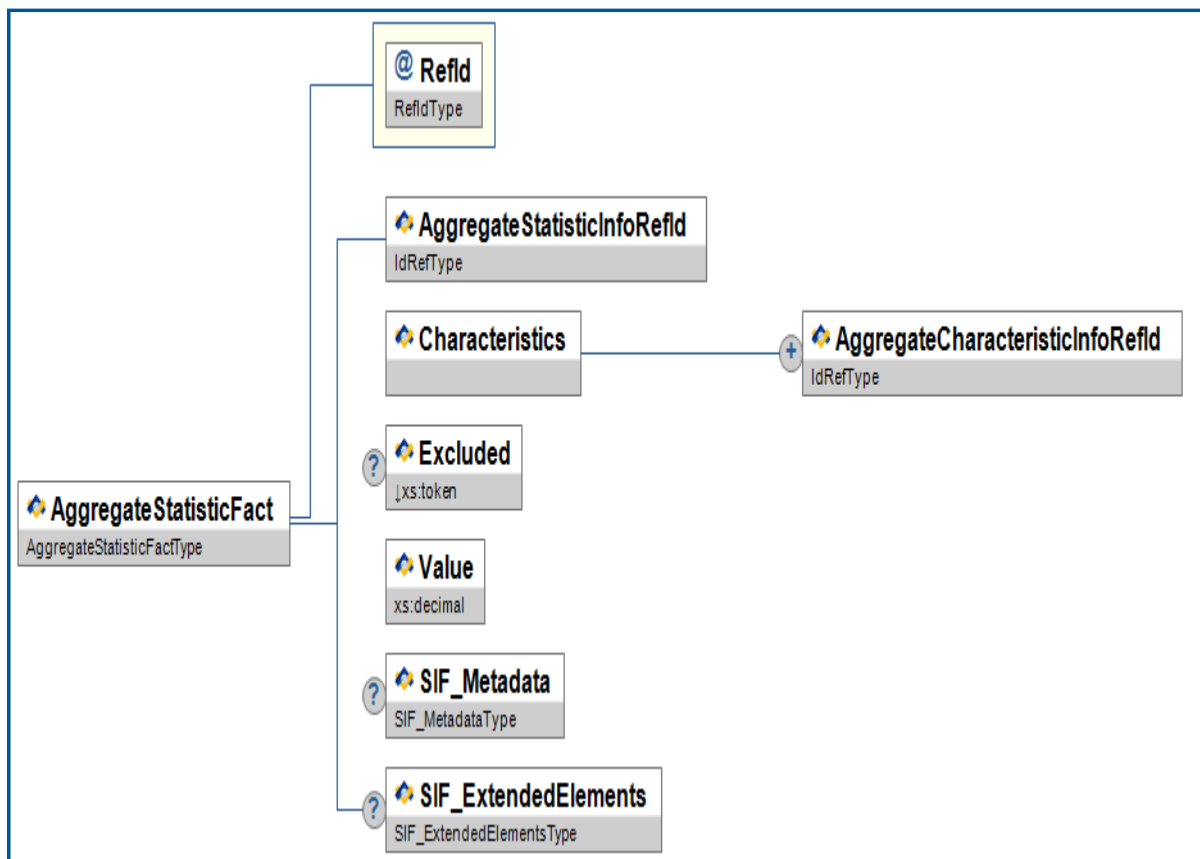
Figure 6.3.2-1: AggregateStatisticFact

	Element/@Attribute	Char	Description	Type
	AggregateStatisticFact		This object is the actual value of the measurement. It is always associated with one statistic and one or more characteristics.	
@ 🔑	RefId	M		RefIdType
	AggregateStatisticInfoRefId	M	Reference to statistic defined by AggregateStatisticInfo.	IdRefType

	Element/@Attribute	Char	Description	Type
	Characteristics	M	Reference to one or more `AggregateCharacteristicInfo` objects.	List
	Characteristics/AggregateCharacteristicInfoRefId	MR	Reference to an `AggregateCharacteristicInfo` object.	IdRefType
	Excluded	O		**values:** Yes No
	Value	M	Value of the fact.	xs:decimal
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.2-1: AggregateStatisticFact

```
<AggregateStatisticFact RefId="3A4E2822C696433B812B49DEAE557E41">
  <AggregateStatisticInfoRefId>91A4209F7F4F4F4B9DC8D21CEFD1DC2F</AggregateStatisticInfoRefId>
  <Characteristics>
    <AggregateCharacteristicInfoRefId>0B972D8644EE4D7994F5FF1C3131772D</AggregateCharacteristicInfoRefId>
  </Characteristics>
  <Excluded>No</Excluded>
  <Value>27</Value>
</AggregateStatisticFact>
```

Example 6.3.2-1: AggregateStatisticFact

6.3.3 AggregateStatisticInfo

This object defines the data that is being aggregated as well as the type of measurement that is being performed.

SIF_Events are reported for this object.
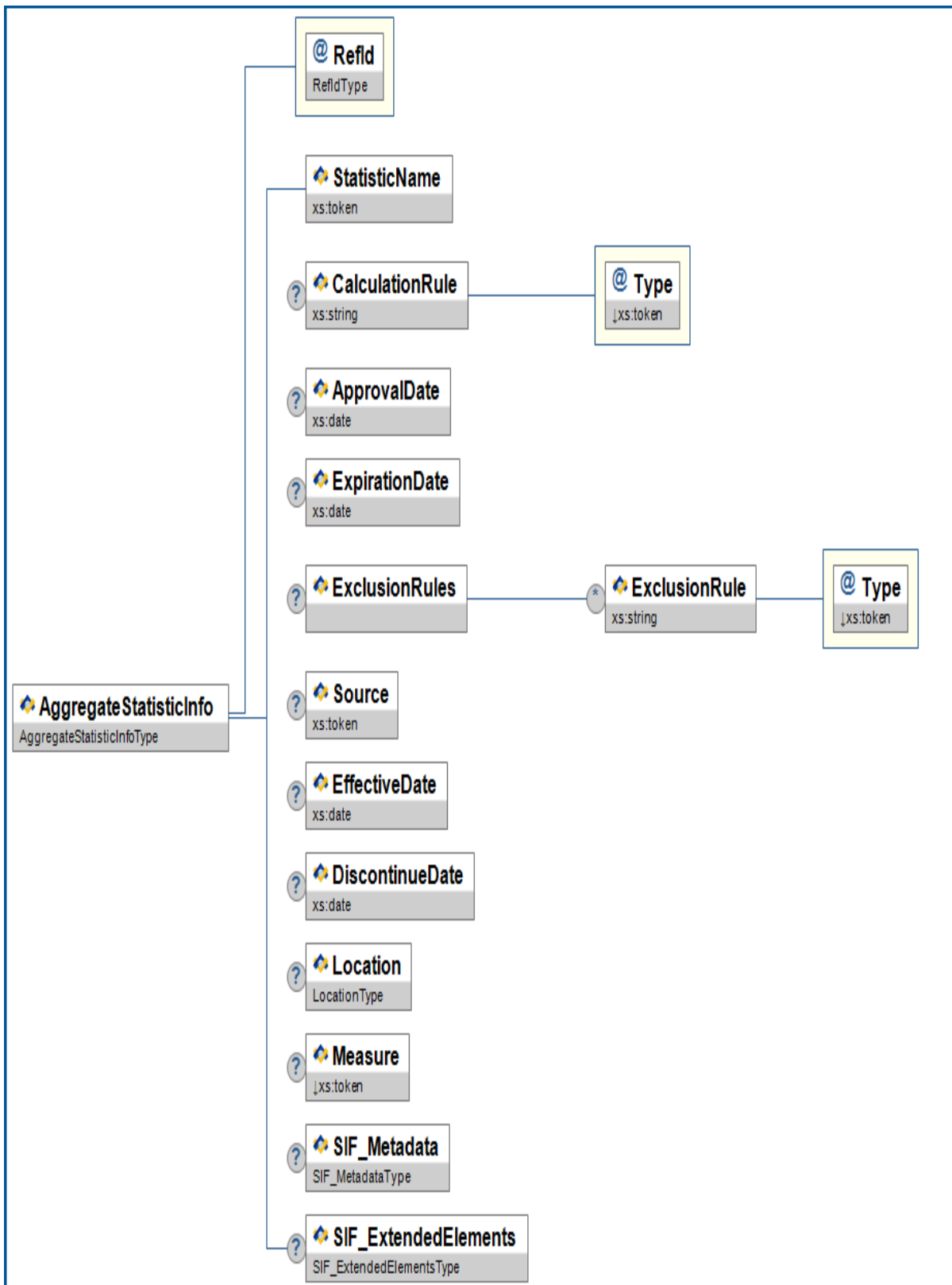
Figure 6.3.3-1: AggregateStatisticInfo

Element/@Attribute	Char	Description	Type
AggregateStatisticInfo		This object defines the data that is being aggregated as well as the type of measurement that is being performed.	

	Element/@Attribute	Char	Description	Type
@ 🔑	RefId	M	Key	RefIdType
	StatisticName	M	Name of Aggregate Statistic **Examples** Total Enrollment Diploma Recipients	xs:token
	CalculationRule	O	Rule for calculating the aggregate statistic	xs:string
@	Type	M		**values:** Description Formula URL Other
	ApprovalDate	O	Date for which the statistic is initially valid	xs:date
	ExpirationDate	O	Date after which the statistic is no longer valid	xs:date
	ExclusionRules	O	Rules for which statistic may not be reported.	List
	ExclusionRules/ExclusionRule	OR	Rule for which statistic may not be reported	xs:string
@	Type	M		**values:** SampleSize Description
	Source	O	System providing the data: i.e., SIS, Transportation,	xs:token
	EffectiveDate	O	Effective date of the statistic	xs:date
	DiscontinueDate	O	Discontinue date of the statistic	xs:date
	Location	O	Location where the activity takes place.	Location

Element/@Attribute	Char	Description	Type
Measure	O	Type of the statistic.	**values:** Count Minimum Maximum Percent Mean Median Mode Sum StandardDeviation UnduplicatedCount FTE Other
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.3-1: AggregateStatisticInfo

```
<AggregateStatisticInfo RefId="A5DECBD3161B4F5D9F46EBA64C87B002">
  <StatisticName>Read Proficiency L1</StatisticName>
  <CalculationRule Type="Description">Number of students scoring at Reading Proficiency Level 1</CalculationRule>
  <ApprovalDate>2002-09-01</ApprovalDate>
  <ExpirationDate>2006-06-30</ExpirationDate>
  <ExclusionRules>
    <ExclusionRule Type="SampleSize">N less than 10</ExclusionRule>
  </ExclusionRules>
  <Source>SIS</Source>
  <Location Type="School">
    <LocationName>Green River High School</LocationName>
    <LocationRefId SIF_RefObject="SchoolInfo">279BCEE5515E4C1AAC3A765D1F069BC3</LocationRefId>
  </Location>
  <Measure>Count</Measure>
</AggregateStatisticInfo>
```

Example 6.3.3-1: AggregateStatisticInfo

6.3.4 Assessment

An assessment measures a student's progress and learning on specific academic standards.

SIF_Events are not reported for this object.
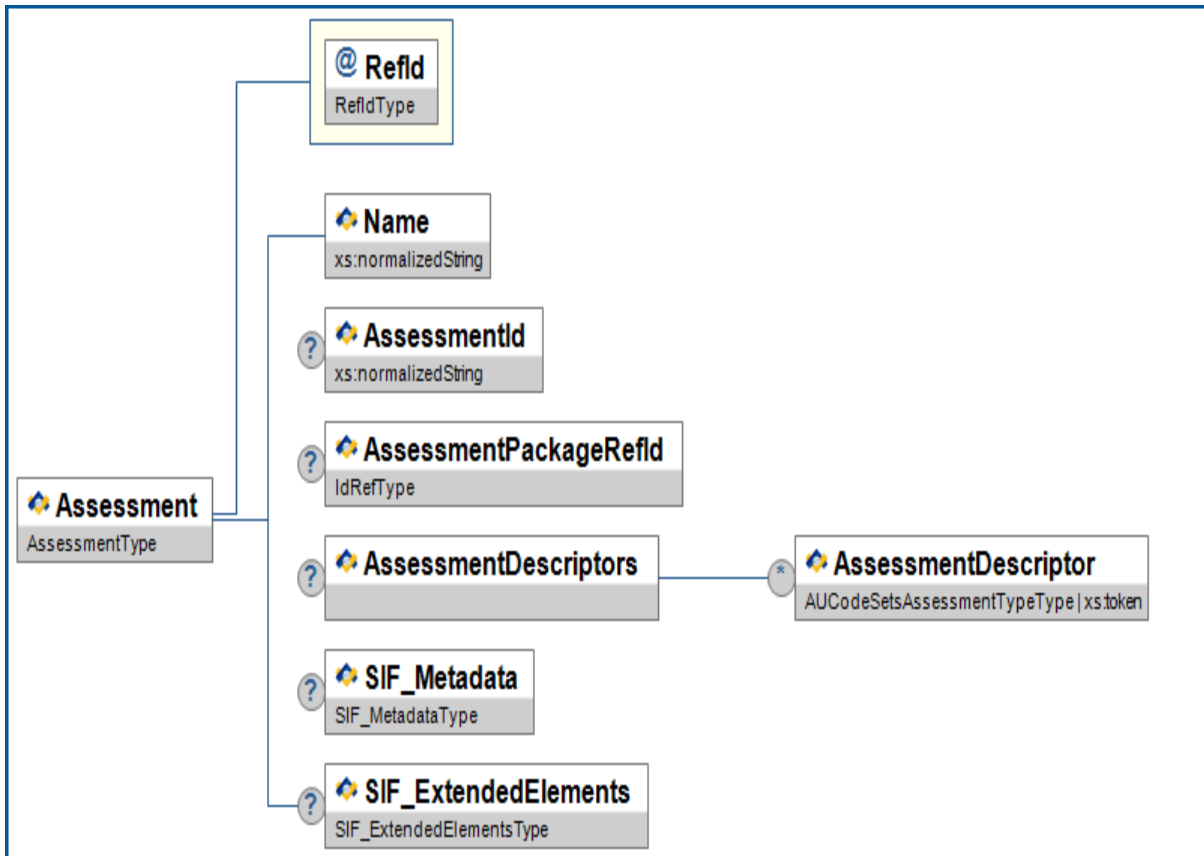
Figure 6.3.4-1: Assessment

	Element/@Attribute	Char	Description	Type
	Assessment			
@ 🔑	RefId	M	The GUID that uniquely identifies this object.	RefIdType
	Name	M	Name of the test.	xs:normalizedString
	AssessmentId	O	The state, local or publisher unique Id for the assessment.	xs:normalizedString
	AssessmentPackageRefId	O		IdRefType
	AssessmentDescriptors	O	Describes what type of assessment this represents.	List
	AssessmentDescriptors/AssessmentDescriptor	OR		**union of:** AUCodeSetsAssessmentTypeType **additional values:** Statewide Formative Local Summative Diagnostic Benchmark

	Element/@Attribute	Char	Description	Type
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.4-1: Assessment

```
<Assessment RefId="CC2834DE9138FAB032EF399BA72A8234">
  <Name>TAKS Test</Name>
  <AssessmentId>TX48A</AssessmentId>
  <AssessmentPackageRefId>B8846EB83F0D4609A3299AC59410814E</AssessmentPackageRefId>
  <AssessmentDescriptors>
    <AssessmentDescriptor>Statewide</AssessmentDescriptor>
  </AssessmentDescriptors>
  <SIF_Metadata>
    <EducationFilter>
      <LearningStandardItems>
        <LearningStandardItemRefId>FA3023B26277CAD47105327F3A782BED</LearningStandardItemRefId>
        <LearningStandardItemRefId>DE937CB2627AAE872850E1F3A782BEDF</LearningStandardItemRefId>
        <LearningStandardItemRefId>BCFA143627AAE87E830E1F3AD92B4DA7</LearningStandardItemRefId>
        <LearningStandardItemRefId>DE840286ABB72198756E1F349CAE8273</LearningStandardItemRefId>
        <LearningStandardItemRefId>913DE839BA8329FCA938EF2709BC31A0</LearningStandardItemRefId>
        <LearningStandardItemRefId>A8930CD176EBB992714ACEB78492AE9C</LearningStandardItemRefId>
        <LearningStandardItemRefId>0264FFBA72C78ED903BE27CAA18905FB</LearningStandardItemRefId>
      </LearningStandardItems>
    </EducationFilter>
  </SIF_Metadata>
</Assessment>
```

Example 6.3.4-1: Assessment

6.3.5 AssessmentAdministration

This object represents an assessment event. It includes information related to the time of administration, place of administration, and unusual events related to the administration.

SIF_Events are reported for this object.
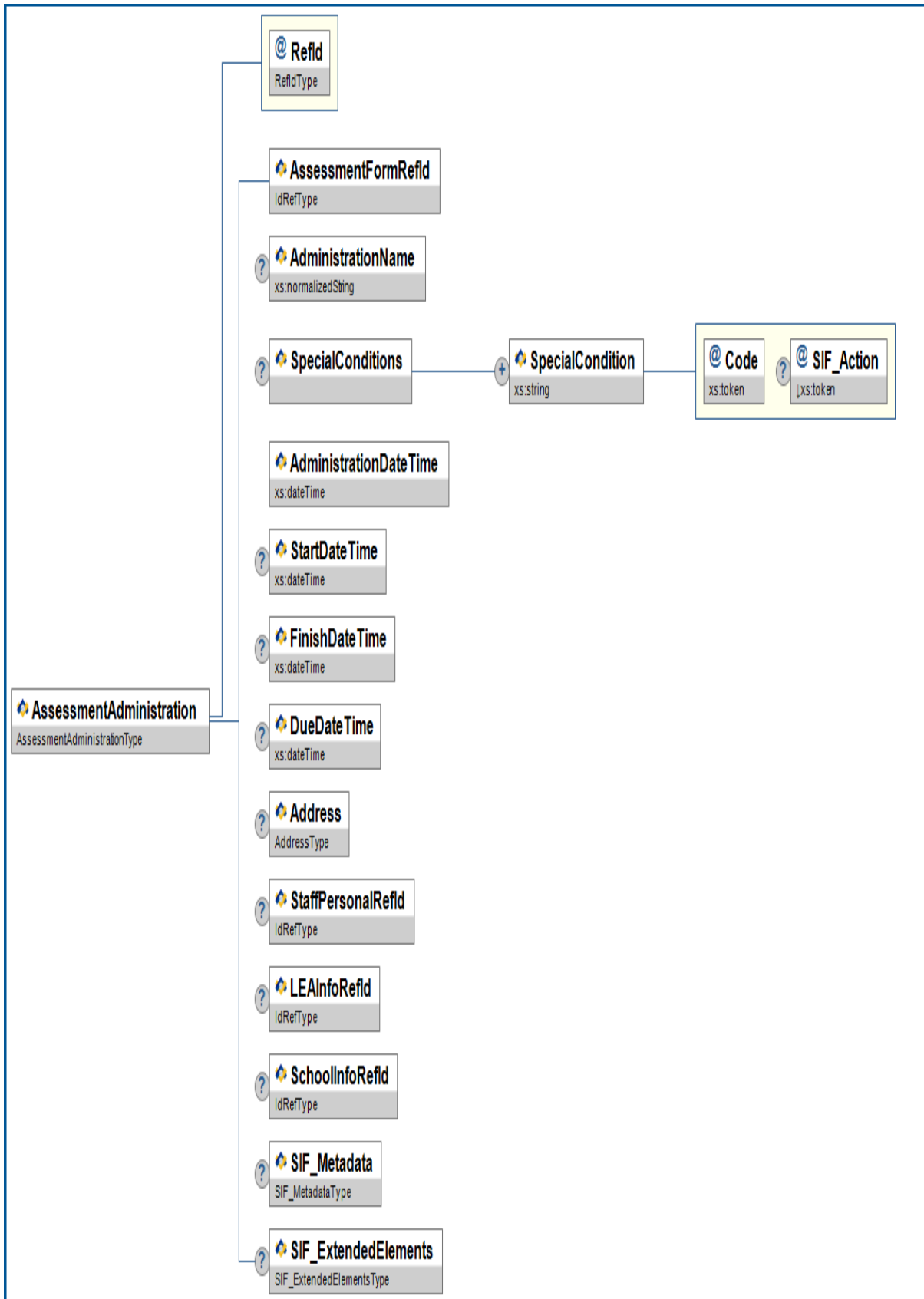
Figure 6.3.5-1: AssessmentAdministration

	Element/@Attribute	Char	Description	Type
	AssessmentAdministration		This object represents an assessment event. It includes information related to the time of administration, place of administration, and unusual events related to the administration.	
@ 🔑	RefId	M	The GUID that uniquely identifies an instance of the object.	`RefIdType`
	AssessmentFormRefId	M	The RefId of the assessment form used in the assessment administration.	`IdRefType`
	AdministrationName	O		`xs:normalizedString`
	SpecialConditions	O	Special conditions or unusual events related to the administration event.	`ActionList (SpecialCondition/@Code)`

	SpecialConditions/SpecialCondition	MR	A text description of the special condition.
			
			Examples
			`Fire drill during test.`
			`Air conditioning broke during the request.`
			`Assessment was given over three days instead of in one sitting.`
				`xs:string`

@	Code	M	This is the primary key for the list of special conditions.	`xs:token`
@	SIF_Action	O	In a `Change` event, this flag can be used to indicate an element has been deleted from the parent list container. At a minimum the key for the list must also be present.	**values:** `Delete`
	AdministrationDateTime	M	Date and time the test is scheduled to be given.	`xs:dateTime`
	StartDateTime	O	Date and time testing begins.	`xs:dateTime`
	FinishDateTime	O	Date and time testing ends.	`xs:dateTime`
	DueDateTime	O	Date and time test is due.	`xs:dateTime`

	Element/@Attribute	Char	Description	Type
	Address	O	Address of the location where the administration takes place.	Address
	StaffPersonalRefId	O	Optional reference to a staff person associated with the administration.	IdRefType
	LEAInfoRefId	O	Optional reference to a school district associated with the administration.	IdRefType
	SchoolInfoRefId	O	Optional reference to a school associated with the administration.	IdRefType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.5-1: AssessmentAdministration

```
<AssessmentAdministration RefId="E2E8045FD8884745AC588F1DDDBEE864">
  <AssessmentFormRefId>78DA3F367AAE4E34995CE15530F531CC</AssessmentFormRefId>
  <SpecialConditions>
    <SpecialCondition Code="25B">Fire drill during test.</SpecialCondition>
  </SpecialConditions>
  <AdministrationDateTime>2006-03-06T14:30:00-05:00</AdministrationDateTime>
  <FinishDateTime>2006-03-06T15:30:00-05:00</FinishDateTime>
</AssessmentAdministration>
```

Example 6.3.5-1: AssessmentAdministration

6.3.6 AssessmentForm

Represents the unique set of questions or stimuli given to a set of test takers. A physical correlate of the assessment form is the test booklet given to students during an assessment. However, this object does not contain the questions, it only contains elements that describe the form for use in scoring the questions.

SIF_Events are not reported for this object.
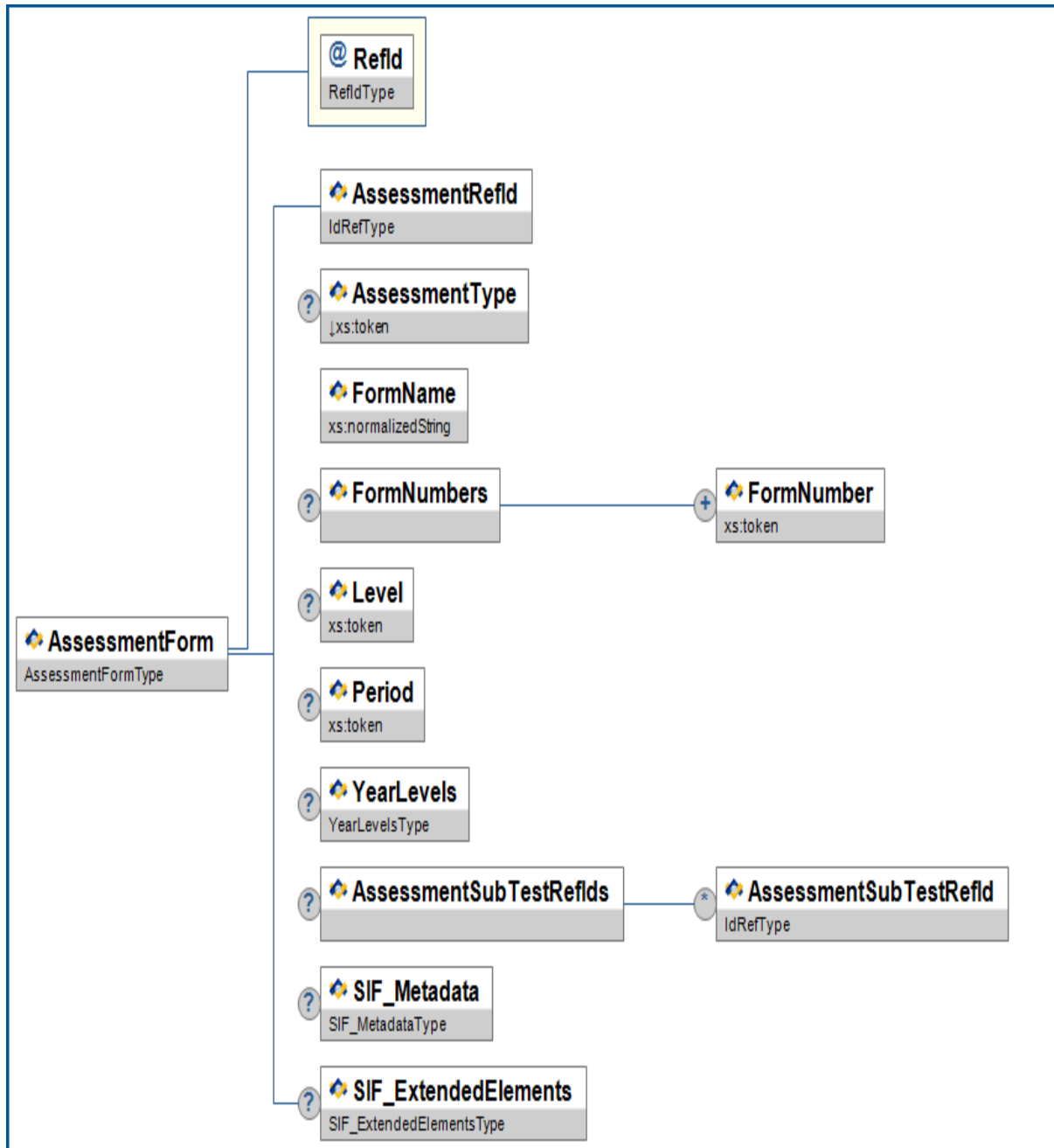
Figure 6.3.6-1: AssessmentForm

Element/@Attribute	Char	Description	Type
AssessmentForm		Represents the unique set of questions or stimuli given to a set of test takers. A physical correlate of the assessment form is the test booklet given to students during an assessment. However, this object does not contain the questions, it only contains elements that describe the form for use in scoring the questions.	
@ RefId	M	The GUID that uniquely identifies an instance of the object.	`RefIdType`

Element/@Attribute	Char	Description	Type
AssessmentRefId	M	The RefId of the assessment related to this form.	IdRefType
AssessmentType	O	Indicates whether this assessment (form) is a standard administration or alternate.	**values:** standard alternate
FormName	M	Text description for this particular arrangement of questions, etc.	xs:normalizedString
FormNumbers	O	Reference numbers for the form.	List
FormNumbers/FormNumber	MR	Reference number for the form.	xs:token
Level	O	Indicates the level of the form. **Examples** Year 3 Leveling System	xs:token
Period	O	The time period in which the form is intended to be administered.	xs:token
YearLevels	O	Year levels this assessment is designed to evaluate.	YearLevels
AssessmentSubTestRefIds	O	Associated subtests (score types). Each form can provide scores in one or more subtest areas.	List
AssessmentSubTestRefIds/AssessmentSubTestRefId	OR	A subtest identified by RefId.	IdRefType
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.6-1: AssessmentForm

```
<AssessmentForm RefId="13F3C7AFF8464EE1862B0622A010883E">
  <AssessmentRefId>77C5D8A7345B4BE883053228C9708512</AssessmentRefId>
  <AssessmentType>standard</AssessmentType>
  <FormName>Form A</FormName>
  <FormNumbers>
    <FormNumber>34</FormNumber>
  </FormNumbers>
  <Level>Year 3</Level>
  <Period>Spring</Period>
  <AssessmentSubTestRefIds>
    <AssessmentSubTestRefId>C356A7559EB144DE8B09097078A94F86</AssessmentSubTestRefId>
  </AssessmentSubTestRefIds>
</AssessmentForm>
```

Example 6.3.6-1: AssessmentForm

6.3.7 AssessmentItem

This object is designed to allow software systems to provide item detail information such as the stem of the item, the distractors, the stimuli, etc. This initial version of the object does not deal with presentation aspects of the item. Instead it focuses on the item content and characteristics needed to enable interoperability and the usage of item-level information in the improvement of learning and instruction.

SIF_Events are not reported for this object.
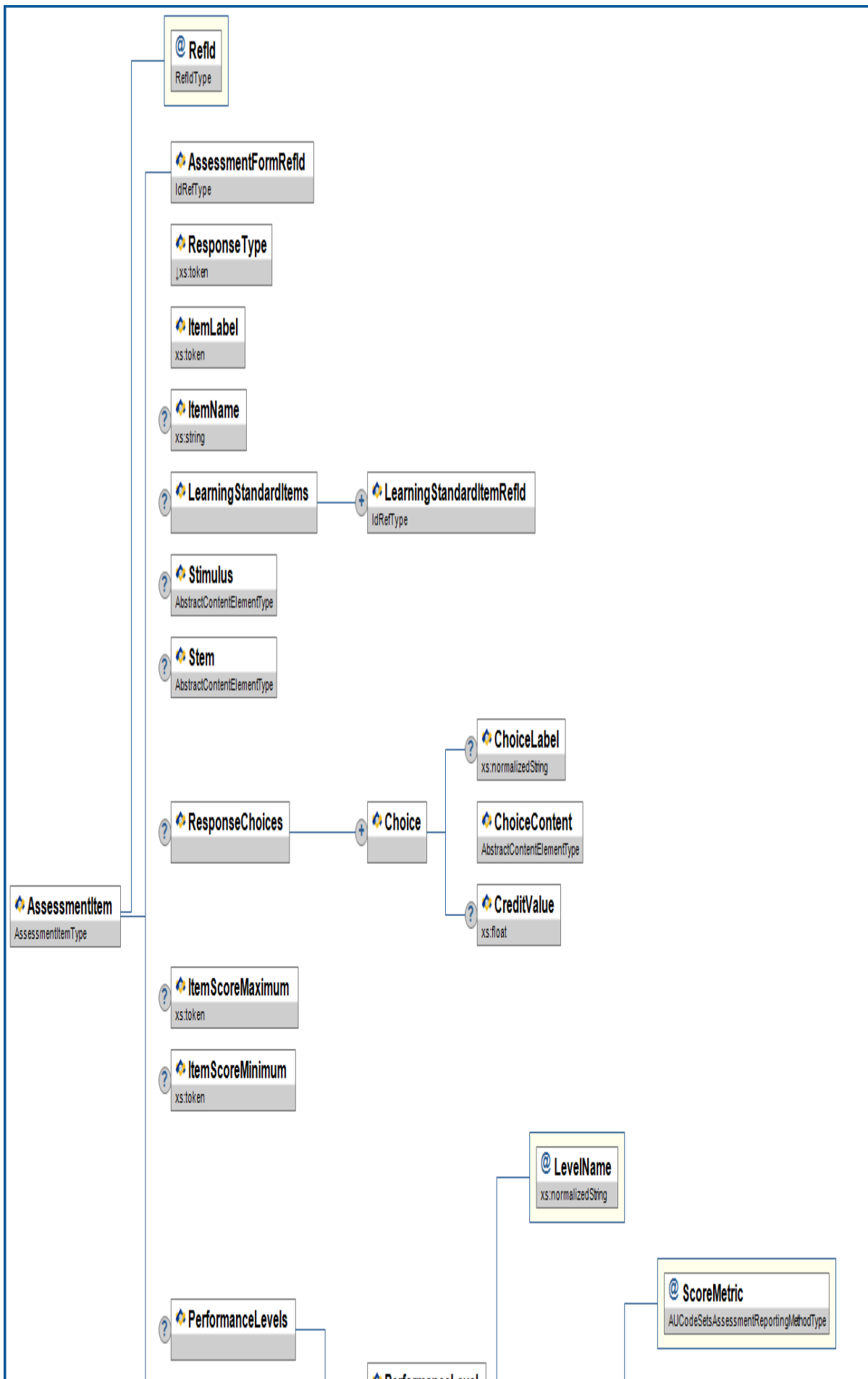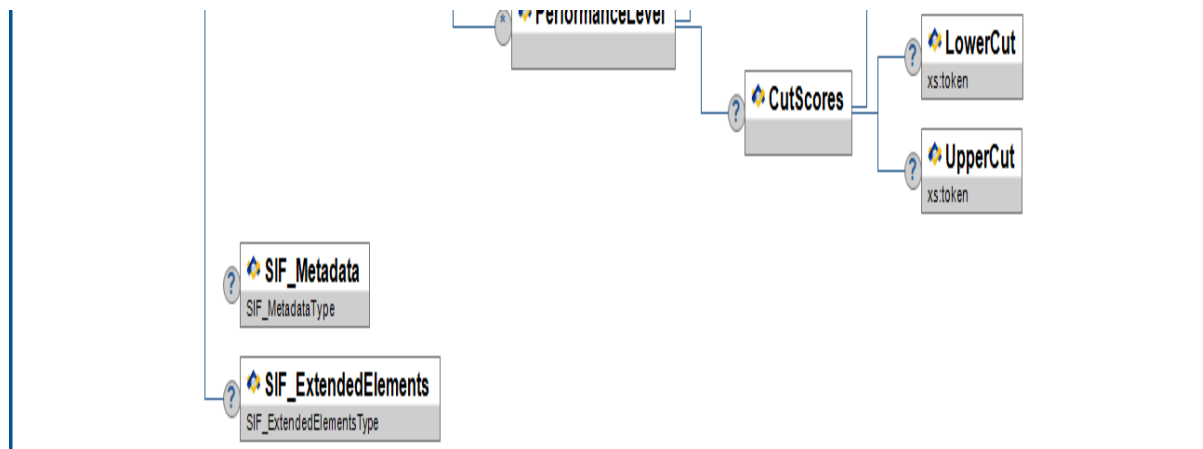
Figure 6.3.7-1: AssessmentItem

	Element/@Attribute	Char	Description	Type
	AssessmentItem		This object is designed to allow software systems to provide item detail information such as the stem of the item, the distractors, the stimuli, etc. This initial version of the object does not deal with presentation aspects of the item. Instead it focuses on the item content and characteristics needed to enable interoperability and the usage of item-level information in the improvement of learning and instruction.	
@ 🔑	RefId	M		RefIdType
	AssessmentFormRefId	M	This RefId points to the assessment form of which the item is a part.	IdRefType
	ResponseType	M	A value that indicates the response type for the item. Note: the multiple-multiple choice value means that there is a multiple choice question, for which more than one choice is acceptable.	**values:** multiple-choice multiple-multiple choice true-false fill-in-the-blank short-answer essay
	ItemLabel	M	An item number or other identifier for the item. It may be used to indicate the order or grouping of items.	xs:token

Element/@Attribute	Char	Description	Type
ItemName	O	Name or short description of the item.	xs:string
LearningStandardItems	O	This object contains information related to curriculum standards statements "standards" or "benchmarks" or the like within the document. Each LearningStandardItemRefId reflects an individual standard statement and may occur at several levels within a hierarchially structured document.	List
LearningStandardItems/LearningStandardItemRefId	MR		IdRefType
Stimulus	C	A piece of content to be used by the test taker in responding to the stem. Examples include a reading passage, a video, a diagram, or a picture. Note: The Stimulus element only is included when a Stem element exists.	AbstractContentElementType
Stem	O	The question, task, or statement that prompts a response from the test taker.	AbstractContentElementType
ResponseChoices	C	This complex element will not be included in the object if @ResponseType is: • fill-in-the-blank • short-answer • essay Other cases will be added in the future.	
ResponseChoices/Choice	MR		
ResponseChoices/Choice/ChoiceLabel	O	A choice number or other identifier for the choice. It may be used to indicate the order or grouping of the choices.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	ResponseChoices/Choice/ChoiceContent	M	The text of the choice, such as `true`, `27`, or `Important economic and social factors`.	`AbstractContentElementType`
	ResponseChoices/Choice/CreditValue	O	A numeric value that indicates the amount of credit awarded for choosing the choice.	`xs:float`
	ItemScoreMaximum	O	The maximum item score possible for this item.	`xs:token`
	ItemScoreMinimum	O	The minimum item score possible for this item.	`xs:token`
	PerformanceLevels	O	Performance Levels are an ordered set of categories that indicate the achievement level of a person on an assessment.	`List`
	PerformanceLevels/PerformanceLevel	OR	Defines cut scores for placing students in an appropriate performance level.	
@	LevelName	M	The name of the performance level.	`xs:normalizedString`
	PerformanceLevels/PerformanceLevel/ CutScores	O	Score bounds for the performance level.	
@	ScoreMetric	M	The metric or scale used to report the scores.	`AUCodeSetsAssessmentReportingMethodType`
	PerformanceLevels/PerformanceLevel/ CutScores/LowerCut	O	Lower bound for the performance level.	`xs:token`
	PerformanceLevels/PerformanceLevel/ CutScores/UpperCut	O	Upper bound for the performance level.	`xs:token`

Element/@Attribute	Char	Description	Type
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.7-1: AssessmentItem

```
<AssessmentItem RefId="C294F3E190F019AD8E1DFC8367537EC8">
  <AssessmentFormRefId>9372CB8EA910FF87D5672CAEF01387AA</AssessmentFormRefId>
  <ResponseType>multiple-choice</ResponseType>
  <ItemLabel>5</ItemLabel>
  <ItemName>Geometry diagnostic</ItemName>
  <LearningStandardItems>
    <LearningStandardItemRefId>DE072A87EFAD4B778AF9FAF83C94839E</LearningStandardItemRefId>
  </LearningStandardItems>
  <Stimulus>
    <Reference MIMEType="image/jpeg" Description="triangle_1">
      <URL>http://www.trianglezz.com/triangle.jpg</URL>
    </Reference>
  </Stimulus>
  <Stem>
    <TextData Description="Pythagorean Theorem">
        Express the length of side C in terms of A and B.
      </TextData>
  </Stem>
  <ResponseChoices>
    <Choice>
      <ChoiceLabel>A</ChoiceLabel>
      <ChoiceContent>
        <TextData>A + B</TextData>
      </ChoiceContent>
      <CreditValue>0.0</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>B</ChoiceLabel>
      <ChoiceContent>
        <TextData>3PI*R</TextData>
      </ChoiceContent>
      <CreditValue>-0.1</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>C</ChoiceLabel>
      <ChoiceContent>
        <TextData>SQRT(A2 + B2)</TextData>
      </ChoiceContent>
      <CreditValue>1.0</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>D</ChoiceLabel>
      <ChoiceContent>
        <TextData>A2 + B2</TextData>
      </ChoiceContent>
      <CreditValue>0.5</CreditValue>
    </Choice>
  </ResponseChoices>
</AssessmentItem>
```

Example 6.3.7-1: AssessmentItem - Example 1

```
<AssessmentItem RefId="C294F3E190F019AD8E1DFC8367537EC8">
  <AssessmentFormRefId>9372CB8EA910FF87D5672CAEF01387AA</AssessmentFormRefId>
  <ResponseType>multiple-choice</ResponseType>
  <ItemLabel>5</ItemLabel>
  <ItemName>Geometry diagnostic</ItemName>
  <LearningStandardItems>
    <LearningStandardItemRefId>DE072A87EFAD4B778AF9FAF83C94839E</LearningStandardItemRefId>
  </LearningStandardItems>
  <Stimulus>
    <Reference MIMEType="image/jpeg" Description="triangle_1">
      <URL>http://www.trianglezz.com/triangle.jpg</URL>
    </Reference>
  </Stimulus>
  <Stem>
    <TextData Description="Pythagorean Theorem">
        Express the length of side C in terms of A and B.
      </TextData>
  </Stem>
  <ResponseChoices>
    <Choice>
      <ChoiceLabel>A</ChoiceLabel>
      <ChoiceContent>
        <TextData>A + B</TextData>
      </ChoiceContent>
      <CreditValue>0.0</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>B</ChoiceLabel>
      <ChoiceContent>
        <TextData>3PI*R</TextData>
      </ChoiceContent>
      <CreditValue>-0.1</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>C</ChoiceLabel>
      <ChoiceContent>
        <TextData>SQRT(A2 + B2)</TextData>
      </ChoiceContent>
      <CreditValue>1.0</CreditValue>
    </Choice>
    <Choice>
      <ChoiceLabel>D</ChoiceLabel>
      <ChoiceContent>
        <TextData>A2 + B2</TextData>
      </ChoiceContent>
      <CreditValue>0.5</CreditValue>
    </Choice>
  </ResponseChoices>
  <ItemScoreMaximum>1.0</ItemScoreMaximum>
  <ItemScoreMinimum>-.1</ItemScoreMinimum>
  <PerformanceLevels>
    <PerformanceLevel LevelName="Pass">
      <CutScores ScoreMetric="0499">
        <LowerCut>0</LowerCut>
        <UpperCut>0.5</UpperCut>
      </CutScores>
    </PerformanceLevel>
  </PerformanceLevels>
</AssessmentItem>
```

Example 6.3.7-2: AssessmentItem - Example 2

6.3.8 AssessmentPackage

SIF_Events are not reported for this object.
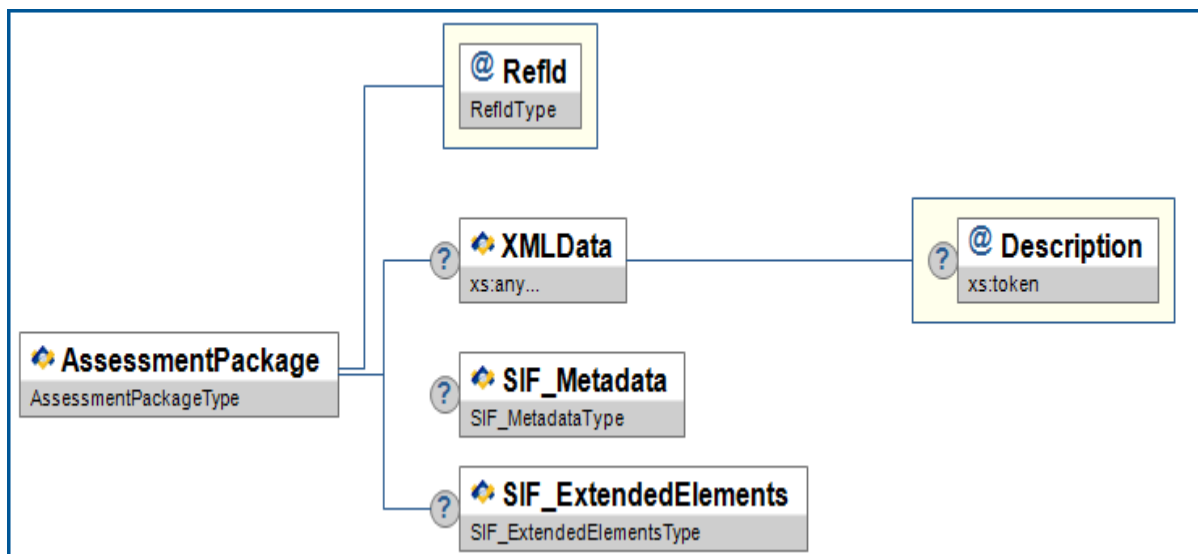
Figure 6.3.8-1: AssessmentPackage

Element/@Attribute	Char	Description	Type
AssessmentPackage		A wrapper for any external standard that can define or transmit the content of an assessment.	
@ RefId	M	The GUID that uniquely identifies an object instance in a zone.	RefIdType
XMLData	C	Contains an arbitary XML element, encoded in UTF-8.	`<xs:any processContents="lax" />`
@ Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD).	xs:token
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.8-1: AssessmentPackage

```
<AssessmentPackage RefId="495A00194CA340E3A33777B42E59C4F2">
  <XMLData Description="Assessment">...</XMLData>
</AssessmentPackage>
```

Example 6.3.8-1: AssessmentPackage

6.3.9 AssessmentRegistration

This object represents the assignment of a specific assessment to be taken by a student.

SIF_Events are reported for this object.
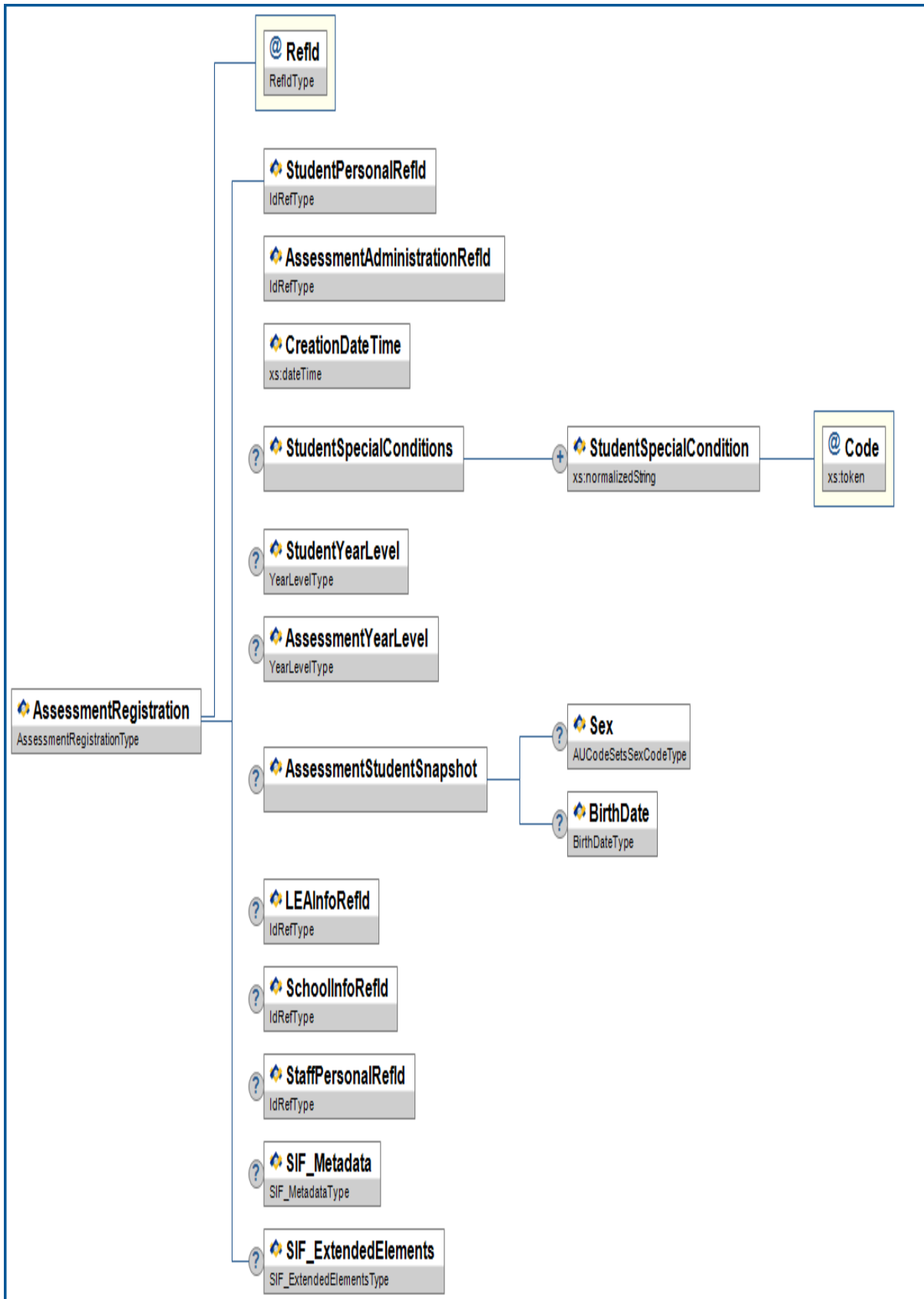
Figure 6.3.9-1: AssessmentRegistration

	Element/@Attribute	Char	Description	Type
	AssessmentRegistration		This object represents the assignment of a specific assessment to be taken by a student.	
@ 🔑	RefId	M	The GUID that uniquely identifies an instance of the object.	RefIdType
	StudentPersonalRefId	M	The student associated with the registration.	IdRefType
	AssessmentAdministrationRefId	M	The assessment administration associated with the registration.	IdRefType
	CreationDateTime	M	Date/time assignment is made.	xs:dateTime
	StudentSpecialConditions	O	Records student-specific special conditions during the test.	List
	StudentSpecialConditions/ StudentSpecialCondition	MR	A description of the special condition. Student special conditions are different from special conditions of the test.	xs:normalizedString
@	Code	M	A code indicating the type of special condition.	xs:token
	StudentYearLevel	O	Year level of the student at the time of testing.	YearLevel
	AssessmentYearLevel	O	The Year or level at which the student is to be tested. This element should be omitted unless the student is being tested out-of-level.	YearLevel
	AssessmentStudentSnapshot	O	The status of the student at the time of testing. The source of this information is meant to be the assessment system and not the student information system.	
	AssessmentStudentSnapshot/ Sex	O	Person's gender.	AUCodeSetsSexCodeType
	AssessmentStudentSnapshot/ BirthDate	O	The person's date of birth.	BirthDate

	Element/@Attribute	Char	Description	Type
	LEAInfoRefId	O	Optional reference to a district associated with the registration.	IdRefType
	SchoolInfoRefId	O	Optional reference to a school associated with the registration.	IdRefType
	StaffPersonalRefId	O	Optional reference to a staff person associated with the registration.	IdRefType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.9-1: AssessmentRegistration

```
<AssessmentRegistration RefId="84243B2716EA4A68889B57A07E3707C9">
  <StudentPersonalRefId>0D015F74DAB645FD92EFA8F43F2D79C3</StudentPersonalRefId>
  <AssessmentAdministrationRefId>6B08DF6E158941D9B8206D16E1FA6219</AssessmentAdministrationRefId>
  <CreationDateTime>2006-03-05T09:30:00-05:00</CreationDateTime>
  <StudentSpecialConditions>
    <StudentSpecialCondition Code="45C">Student became ill during test.</StudentSpecialCondition>
  </StudentSpecialConditions>
  <StudentYearLevel>
    <Code>4</Code>
  </StudentYearLevel>
  <AssessmentYearLevel>
    <Code>3</Code>
  </AssessmentYearLevel>
  <AssessmentStudentSnapshot>
    <Sex>2</Sex>
    <BirthDate>1996-09-12</BirthDate>
  </AssessmentStudentSnapshot>
  <LEAInfoRefId>325335F330A24BCD85E263E5C1EAAF89</LEAInfoRefId>
  <SchoolInfoRefId>0578B825250649DE930BF8916175BBAB</SchoolInfoRefId>
  <StaffPersonalRefId>3CD4A20CE2D64C27AE977F02D2CE24B3</StaffPersonalRefId>
</AssessmentRegistration>
```

Example 6.3.9-1: AssessmentRegistration

6.3.10 AssessmentSubTest

A psychological construct measured by the assessment. Operationally, a subtest is a class of scores on an assessment. Some assessments may have only one subtest or type of score but most assessments measure more than one psychological construct. The subtest can be based upon items in a section or items that are empirically related. Subtests can also be composites of other subtests that are combined using a particular algorithm. Examples of subtests of an assessment are math total, reading composite, total test, and English composition.

SIF_Events are not reported for this object.
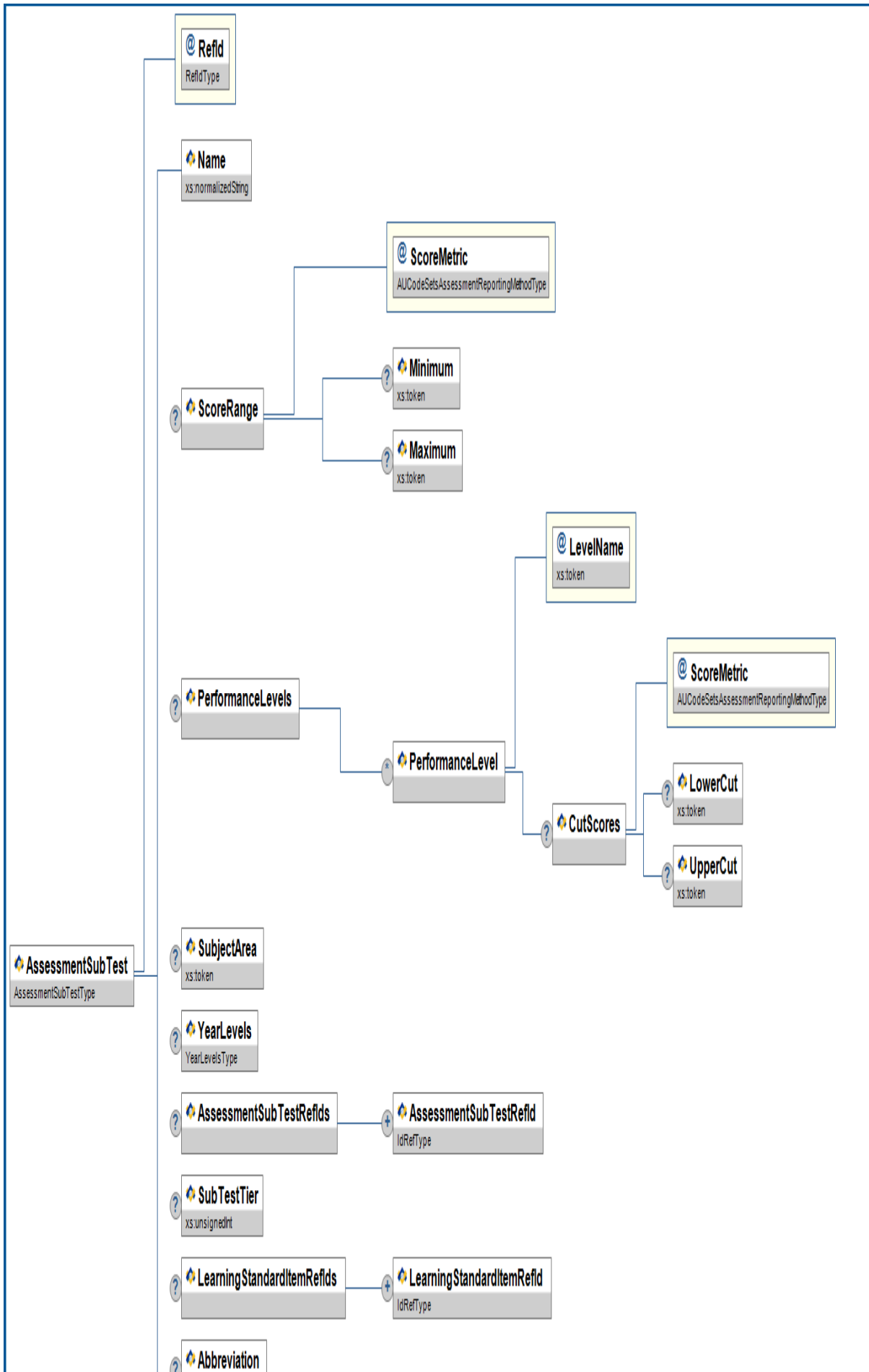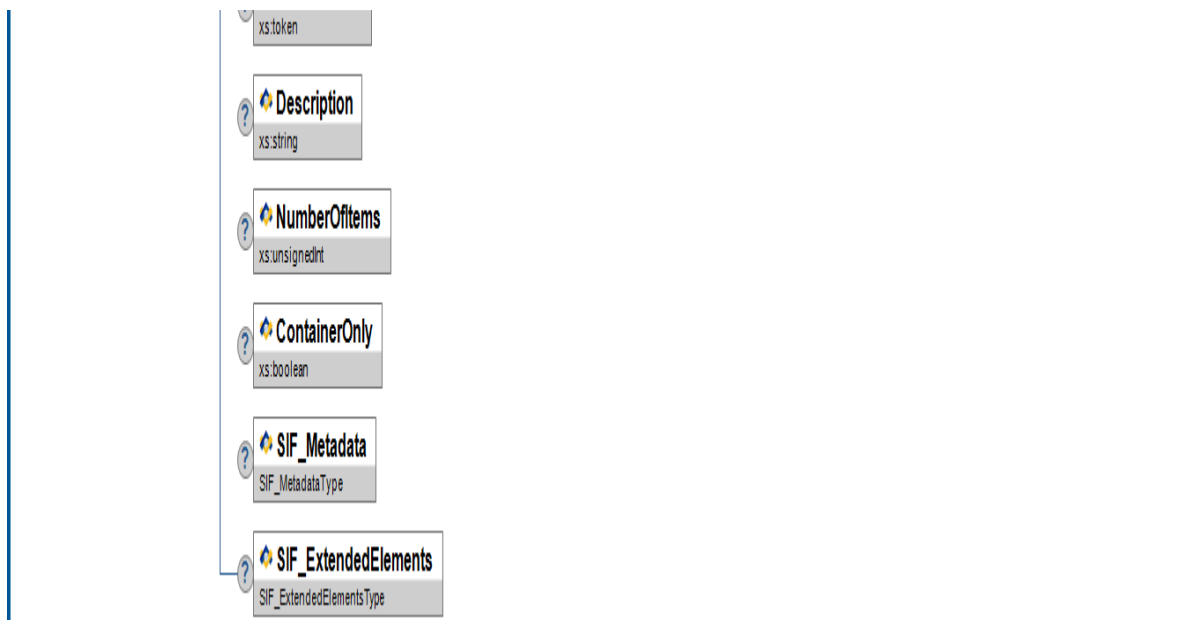
Figure 6.3.10-1: AssessmentSubTest

	Element/@Attribute	Char	Description	Type
	AssessmentSubTest		A psychological construct measured by the assessment. Operationally, a subtest is a class of scores on an assessment. Some assessments may have only one subtest or type of score but most assessments measure more than one psychological construct. The subtest can be based upon items in a section or items that are empirically related. Subtests can also be composites of other subtests that are combined using a particular algorithm. Examples of subtests of an assessment are math total, reading composite, total test, and English composition.	
@ 🔑	RefId	M	The GUID that uniquely identifies an instance of the object.	RefIdType
	Name	M	Text name of the subtest.	xs:normalizedString
	ScoreRange	O	The possible range of scores.	
@	ScoreMetric	M	The metric or scale used to report the scores.	AUCodeSetsAssessmentReportingMethodType

	Element/@Attribute	Char	Description	Type
	ScoreRange/Minimum	O	Lowest possible score value.	xs:token
	ScoreRange/Maximum	O	Highest possible score value.	xs:token
	PerformanceLevels	O	Container for performance level elements.	List
	PerformanceLevels/PerformanceLevel	OR	Defines cut scores for placing students in appropriate performance levels.	
@	LevelName	M	The name of the performance level.	xs:token
	PerformanceLevels/PerformanceLevel/ CutScores	O	Score bounds for the performance level.	
@	ScoreMetric	M	The metric or scale used to report the scores.	AUCodeSetsAssessmentReportingMethodType
	PerformanceLevels/PerformanceLevel/ CutScores/LowerCut	O	Lower bound for the performance level.	xs:token
	PerformanceLevels/PerformanceLevel/ CutScores/UpperCut	O	Upper bound for the performance level.	xs:token
	SubjectArea	O	Content area covered by the score.	xs:token
	YearLevels	O	Year levels for which the score is valid.	YearLevels

Element/@Attribute	Char	Description	Type
AssessmentSubTestRefIds	O	References (possibly recursive) to other SIF AssessmentSubTests. This enables subtests or scores to be composites of other scores. If any references are given here, the score is a composite score. The list must be unique.	List
AssessmentSubTestRefIds/AssessmentSubTestRefId	MR	A reference to an AssessmentSubTest by RefId.	IdRefType
SubTestTier	O	An integer that defines the level or tier of the score in a multi-level arrangement of composite scores. Zero indicates the highest or root level.	xs:unsignedInt
LearningStandardItemRefIds	O	References to LearningStandardItems. The list must be unique.	List
LearningStandardItemRefIds/ LearningStandardItemRefId	MR	A reference to a LearningStandardItem by RefId.	IdRefType
Abbreviation	O	This is the short version of the name of the assessment that is often used for quick reference and used in reports.	xs:token
Description	O	The description element provides an opportunity to pass additional information about the assessment and also be used for describing elements in a test hierarchy.	xs:string
NumberOfItems	O	This element records the number of items included on the assessment. This number may be different than the possible score.	xs:unsignedInt

	Element/@Attribute	Char	Description	Type
	ContainerOnly	O	Indicator describing the purpose of an AssessmentSubTest as being that of a container for the child AssessmentSubTests. There will be no scores within this subtest.	xs:boolean
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.10-1: AssessmentSubTest

```
<AssessmentSubTest RefId="90E298F70E094EE2B8B52DFD88006AF2">
  <Name>Reading Comprehension Subtest</Name>
  <ScoreRange ScoreMetric="0499">
    <Minimum>0</Minimum>
    <Maximum>110</Maximum>
  </ScoreRange>
  <PerformanceLevels>
    <PerformanceLevel LevelName="Basic">
      <CutScores ScoreMetric="0499">
        <LowerCut>25</LowerCut>
        <UpperCut>50</UpperCut>
      </CutScores>
    </PerformanceLevel>
  </PerformanceLevels>
  <SubjectArea>Reading Comprehension</SubjectArea>
  <YearLevels>
    <YearLevel>
      <Code>3</Code>
    </YearLevel>
  </YearLevels>
  <AssessmentSubTestRefIds>
    <AssessmentSubTestRefId>4710A15C428C48EBBC17CF320B6DCF25</AssessmentSubTestRefId>
  </AssessmentSubTestRefIds>
  <SubTestTier>0</SubTestTier>
  <LearningStandardItemRefIds>
    <LearningStandardItemRefId>3E4BEBCA14E54A118051DFA239A65990</LearningStandardItemRefId>
  </LearningStandardItemRefIds>
</AssessmentSubTest>
```

Example 6.3.10-1: AssessmentSubTest

6.3.11 CalendarDate

This object defines information related to a school calendar day in a given school calendar year. If both CalendarDate and CalendarSummary objects are supported, there must be an instance of this object for each date between CalendarSummary StartDate and EndDate, inclusive.

SIF_Events are reported for this object.
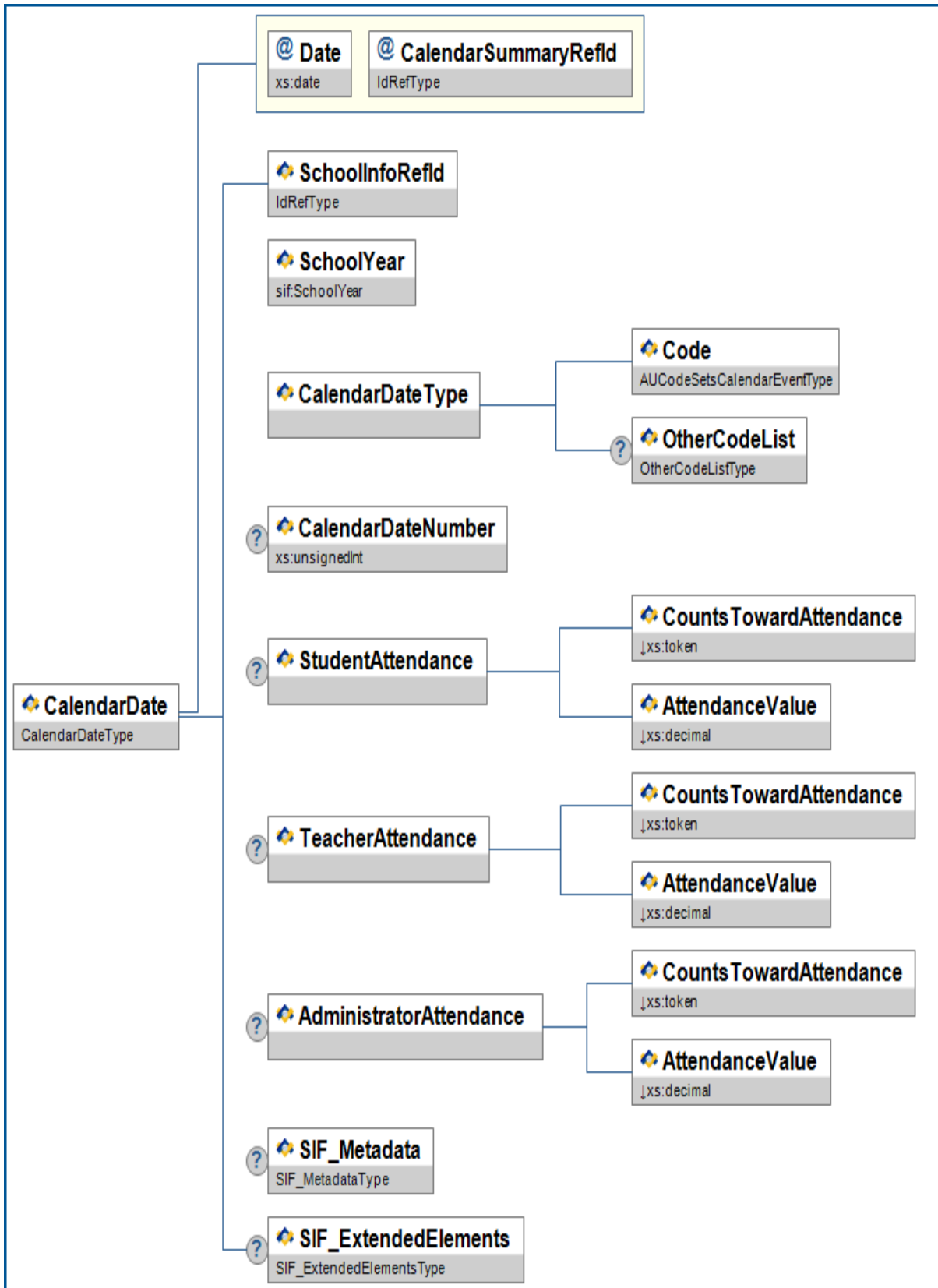
Figure 6.3.11-1: CalendarDate

	Element/@Attribute	Char	Description	Type
	CalendarDate		This object defines information related to a school calendar day in a given school calendar year. If both CalendarDate and CalendarSummary objects are supported, there must be an instance of this object for each date between CalendarSummary StartDate and EndDate, inclusive.	
@ 🔑	Date	M	A specific school day that occurs within the school year.	xs:date
@ 🔑	CalendarSummaryRefId	M	The ID (GUID) of the calendar summary in which this calendar date is.	IdRefType
	SchoolInfoRefId	M	The ID (GUID) of the school for which this calendar information is being reported.	IdRefType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
	CalendarDateType	M	Calendar date type information.	
	CalendarDateType/Code	M	Code indicating the type of school day.	AUCodeSetsCalendarEventType
	CalendarDateType/OtherCodeList	O		OtherCodeList
	CalendarDateNumber	O	Order in which the calendar date falls within the school calendar.	xs:unsignedInt
	StudentAttendance	O	Information describing how the day relates to student attendance.	
	StudentAttendance/CountsTowardAttendance	M	Designates whether this date should be counted toward student attendance.	**values:** Yes No

	Element/@Attribute	Char	Description	Type
	StudentAttendance/AttendanceValue	M	Amount of the school day in which the student should be in attendance (Format is x.x; a student who should be in attendance a full day would be represented as 1.0). If CountsTowardAttendance equals Yes then AttendanceValue must be greater than zero.	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 1
	TeacherAttendance	O	Information describing how the day relates to teacher attendance.	
	TeacherAttendance/CountsTowardAttendance	M	Designates whether this date should be counted toward teacher attendance.	**values:** Yes No
	TeacherAttendance/AttendanceValue	M	Amount of the school day in which the teacher should be in attendance (format is x.x; a teacher who should be in attendance a full day would be represented as 1.0).	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 1
	AdministratorAttendance	O	Information describing how the day relates to administrator attendance.	
	AdministratorAttendance/CountsTowardAttendance	M	Designates whether this date should be counted toward administrator attendance.	**values:** Yes No
	AdministratorAttendance/AttendanceValue	M	Amount of the school day in which the administrator should be in attendance (format is x.x; an administrator who should be in attendance a full day would be represented as 1.0).	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 1
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.11-1: CalendarDate

```
<CalendarDate Date="2007-08-31" CalendarSummaryRefId="B5739375800AC4CC63850BB2754114AA">
  <SchoolInfoRefId>B7A34E561C97345C0A4E11BB112B2753</SchoolInfoRefId>
  <SchoolYear>2007</SchoolYear>
  <CalendarDateType>
    <Code>INST</Code>
  </CalendarDateType>
  <StudentAttendance>
    <CountsTowardAttendance>Yes</CountsTowardAttendance>
    <AttendanceValue>1.0</AttendanceValue>
  </StudentAttendance>
  <TeacherAttendance>
    <CountsTowardAttendance>Yes</CountsTowardAttendance>
    <AttendanceValue>1.0</AttendanceValue>
  </TeacherAttendance>
</CalendarDate>
```

Example 6.3.11-1: CalendarDate

6.3.12 CalendarSummary

This object provides a summary of a school's calendar information for a given school year. A school may have more than one calendar per school year (e.g., one calendar for Kindergarten students, one for special education students, one for seniors, or one for each calendar track), and each may have different days in session, start and end dates, minutes per day, instructional minutes, etc.

SIF_Events are reported for this object.
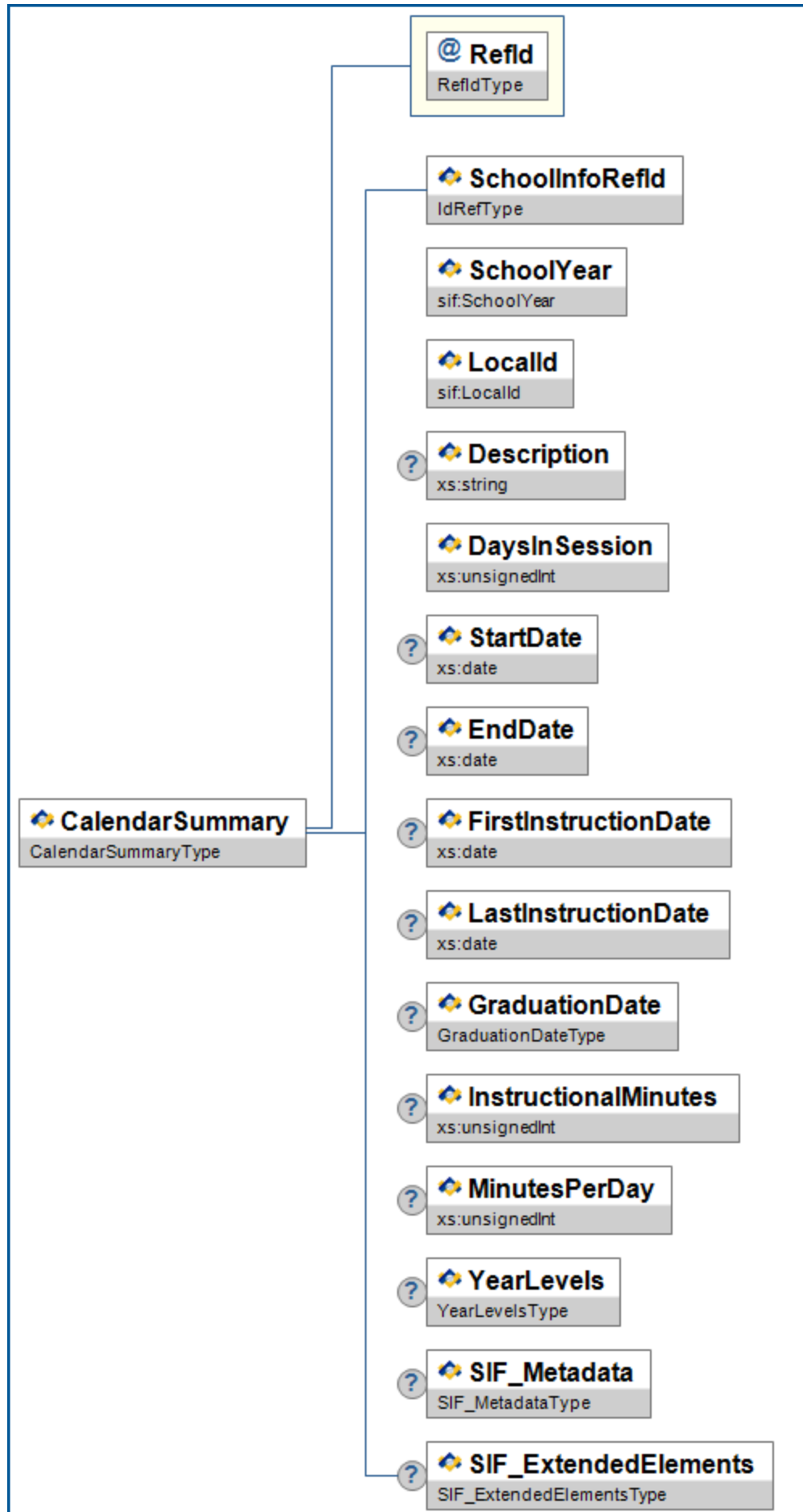
Figure 6.3.12-1: CalendarSummary

	Element/@Attribute	Char	Description	Type
	CalendarSummary		This object provides a summary of a school's calendar information for a given school year. A school may have more than one calendar per school year (e.g., one calendar for Kindergarten students, one for special education students, one for seniors, or one for each calendar track), and each may have different days in session, start and end dates, minutes per day, instructional minutes, etc.	
@ 🔑	RefId	M	The ID (GUID) of the calendar to which this information relates.	RefIdType
	SchoolInfoRefId	M	The ID (GUID) of the school for which this calendar information is being reported.	IdRefType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2007").	SchoolYear
	LocalId	M	The locally assigned identifier for this calendar.	LocalId
	Description	O	Textual description of the school calendar.	xs:string
	DaysInSession	M	The total number of days that the school was or is anticipated to be in session during the school year. Also included are days on which the education institution facility is closed and the student body as a whole is engaged in planned activities off-campus under the guidance and direction of staff members.	xs:unsignedInt
	StartDate	O	The first calendar date, whether or not instruction was provided. If both CalendarSummary and CalendarDate objects are supported, StartDate must be the date of the first chronological instance of CalendarDate for the school's calendar.	xs:date
	EndDate	O	The last calendar date, whether or not instruction was provided. If both CalendarSummary and CalendarDate objects are supported, EndDate must be the last chronological instance of CalendarDate for the school's calendar.	xs:date
	FirstInstructionDate	O	The first day of student instruction.	xs:date

Element/@Attribute	Char	Description	Type
LastInstructionDate	O	The last day of student instruction (including days or times that students are present for purposes of testing and/or evaluation, but not including whole or part-days whose sole purposes is for distribution of report cards).	xs:date
GraduationDate	O	Date of graduation ceremony.	GraduationDate
InstructionalMinutes	O	The total number of instructional minutes for this calendar for the school year.	xs:unsignedInt
MinutesPerDay	O	The number of minutes in the day in which the school is normally in session.	xs:unsignedInt
YearLevels	O	Collection of year levels applicable to this school calendar.	YearLevels
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.12-1: CalendarSummary

```
<CalendarSummary RefId="B5739375800AC4CC63850BB2754114AA">
  <SchoolInfoRefId>B7A34E561C97345C0A4E11BB112B2753</SchoolInfoRefId>
  <SchoolYear>2005</SchoolYear>
  <LocalId>123321A</LocalId>
  <Description>Elementary School Calendar</Description>
  <DaysInSession>180</DaysInSession>
  <StartDate>2009-01-01</StartDate>
  <EndDate>2009-12-31</EndDate>
  <FirstInstructionDate>2009-01-02</FirstInstructionDate>
  <LastInstructionDate>2009-12-20</LastInstructionDate>
  <GraduationDate>2009-12-10</GraduationDate>
  <InstructionalMinutes>64800</InstructionalMinutes>
  <MinutesPerDay>360</MinutesPerDay>
  <YearLevels>
    <YearLevel>
      <Code>10</Code>
    </YearLevel>
    <YearLevel>
      <Code>11</Code>
    </YearLevel>
    <YearLevel>
      <Code>12</Code>
    </YearLevel>
  </YearLevels>
</CalendarSummary>
```

Example 6.3.12-1: CalendarSummary

6.3.13 Identity

This object allows a system that stores network identities and/or passwords to share them with other applications through SIF. The provider of the Identity object may only support providing an identity or a password, or it may support both.

SIF_Events are reported for this object.
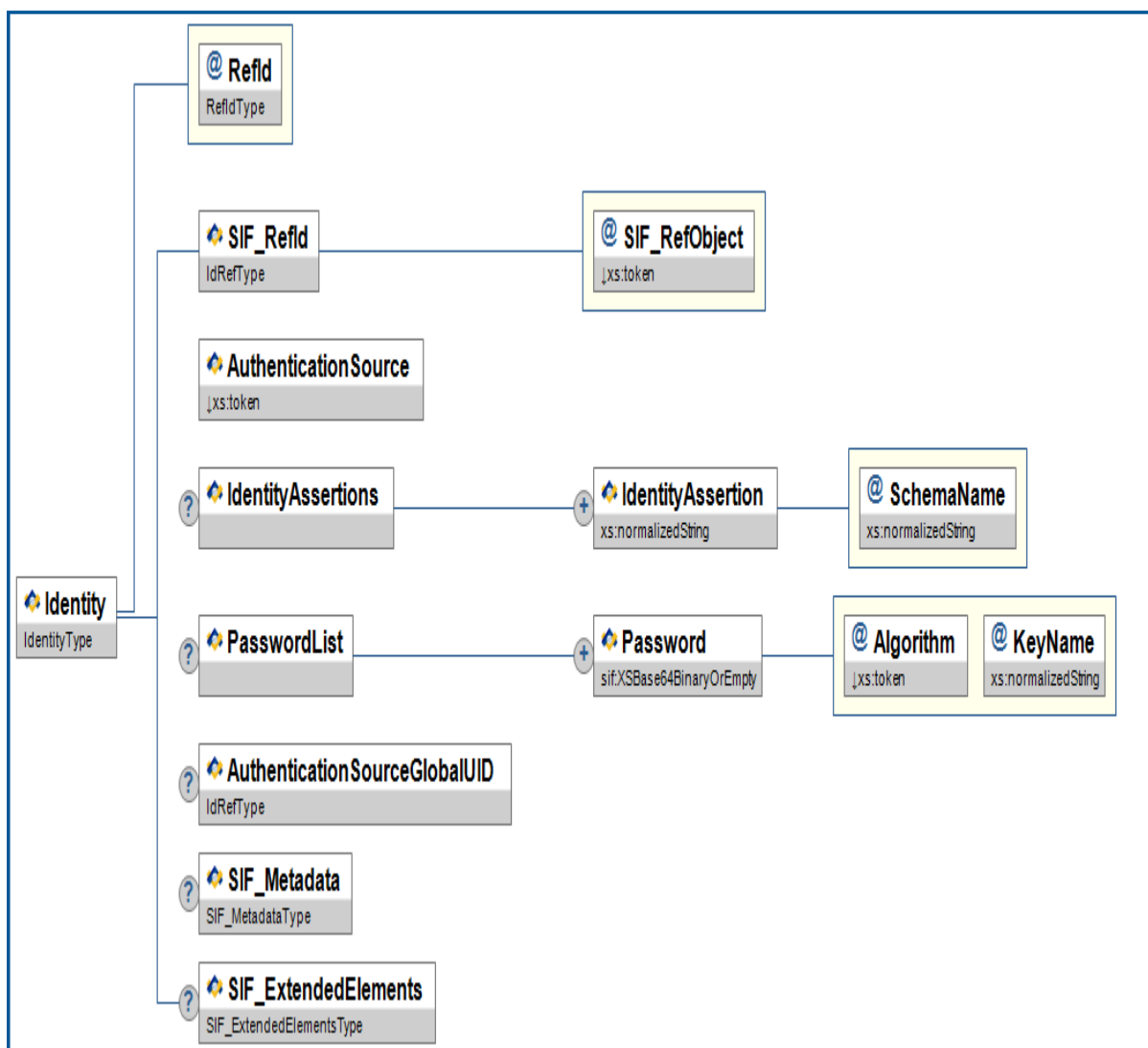
Figure 6.3.13-1: Identity

	Element/@Attribute	Char	Description	Type
	Identity		This object allows a system that stores network identities and/or passwords to share them with other applications through SIF. The provider of the `Identity` object may only support providing an identity or a password, or it may support both.	
@ 🔑	RefId	M	The SIF RefId that uniquely identifies this object.	`RefIdType`
	SIF_RefId	M	The SIF RefId of a StudentPersonal, StaffPersonal, or StudentContactPersonal object.	`IdRefType`

	Element/@Attribute	Char	Description	Type

@	SIF_RefObject	M	The type of SIF object that the `SIF_RefId` attribute identifies.	**values:**
				
				`StudentPersonal`
				`StaffPersonal`
				`StudentContactPersonal`

	AuthenticationSource	M	The type of source system that produced this `Identity` object.
			
			See implementation notes for provider requirements.
				values:
				
				`AUAccessShibboleth`
				`MSActiveDirectory`
				`NovellNDS`
				`OpenDirectory`
				`OpenID`
				`Other`

	IdentityAssertions	O	The list of identity assertions for this user.	`ActionList` `(IdentityAssertion/@SchemaName)`
	IdentityAssertions/IdentityAssertion	MR	The identification string for this user.	`xs:normalizedString`

@	SchemaName	M	The name of the field.
			
			See implementation notes for details on required schema elements.
			
			Examples
			`eduPersonPrincipalName`
			`sAmAccountName`
				`xs:normalizedString`

	PasswordList	O	Allows a provider or publisher to specify the same password using multiple algorithms, if supported.	`List`
	PasswordList/Password	MR	A representation of the user's password using the given algorithm.	`xs:base64Binary`

@	Algorithm	M	The method used to encrypt the user's password. See the implementation details below.	**values:**
				
				`MD5`
				`SHA1`
				`DES`
				`TripleDES`
				`RC2`
				`AES`
				`RSA`

@	KeyName	M	The name of the key to be used for decryption of the password. Left blank for hash algorithms (MD5 and SHA1).	`xs:normalizedString`
	AuthenticationSourceGlobalUID	O	The globally unique person identifier that links together separate Identity objects which reference the same Person.	`IdRefType`
	SIF_Metadata	O		`SIF_Metadata`

Element/@Attribute	Char	Description	Type
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.13-1: Identity

```
<Identity RefId="4286194F43ED43C18EE2F0A27C4BEF86">
  <SIF_RefId SIF_RefObject="StudentPersonal">23B08571E4D645C3B82A3E52E5349925</SIF_RefId>
  <AuthenticationSource>AUAccessShibboleth</AuthenticationSource>
  <IdentityAssertions>
    <IdentityAssertion SchemaName="eduPersonPrincipalName">john.doe@asdf.edu.au</IdentityAssertion>
  </IdentityAssertions>
  <AuthenticationSourceGlobalUID>A9A6CB2BC49344278C1FD6587D448B35</AuthenticationSourceGlobalUID>
</Identity>
```

Example 6.3.13-1: Identity published by an Access Federation Shibboleth Provider

```
<Identity RefId="4286194F43ED43C18EE2F0A27C4BEF86">
  <SIF_RefId SIF_RefObject="StudentPersonal">23B08571E4D645C3B82A3E52E5349925</SIF_RefId>
  <AuthenticationSource>MSActiveDirectory</AuthenticationSource>
  <IdentityAssertions>
    <IdentityAssertion SchemaName="sAmAccountName">user01</IdentityAssertion>
    <IdentityAssertion SchemaName="userPrincipalName">user01@asdf.edu.au</IdentityAssertion>
    <IdentityAssertion SchemaName="distinguishedName">cn=User01,cn=Users,dc=org</IdentityAssertion>
  </IdentityAssertions>
  <AuthenticationSourceGlobalUID>23A08571E4D645C3B82A3E52E5349925</AuthenticationSourceGlobalUID>
</Identity>
```

Example 6.3.13-2: Identity published by Microsoft Active Directory

```
<Identity RefId="4286194F43ED43C18EE2F0A27C4BEF86">
  <SIF_RefId SIF_RefObject="StudentPersonal">23B08571E4D645C3B82A3E52E5349925</SIF_RefId>
  <AuthenticationSource>OpenID</AuthenticationSource>
  <IdentityAssertions>
    <IdentityAssertion SchemaName="openid.identity">http://verisign.org/p/alice </IdentityAssertion>
    <IdentityAssertion SchemaName="openid.server">http://verisign.org </IdentityAssertion>
  </IdentityAssertions>
  <AuthenticationSourceGlobalUID>A9A6CB2BC49344278C1FD6587D448B35</AuthenticationSourceGlobalUID>
</Identity>
```

Example 6.3.13-3: Identity published by an OpenID provider

6.3.14 LEAInfo

This object contains information about a school district or other Local Educational Agency (LEA).

SIF_Events are reported for this object.

SIF_ExtendedElements
SIF_ExtendedElementsType
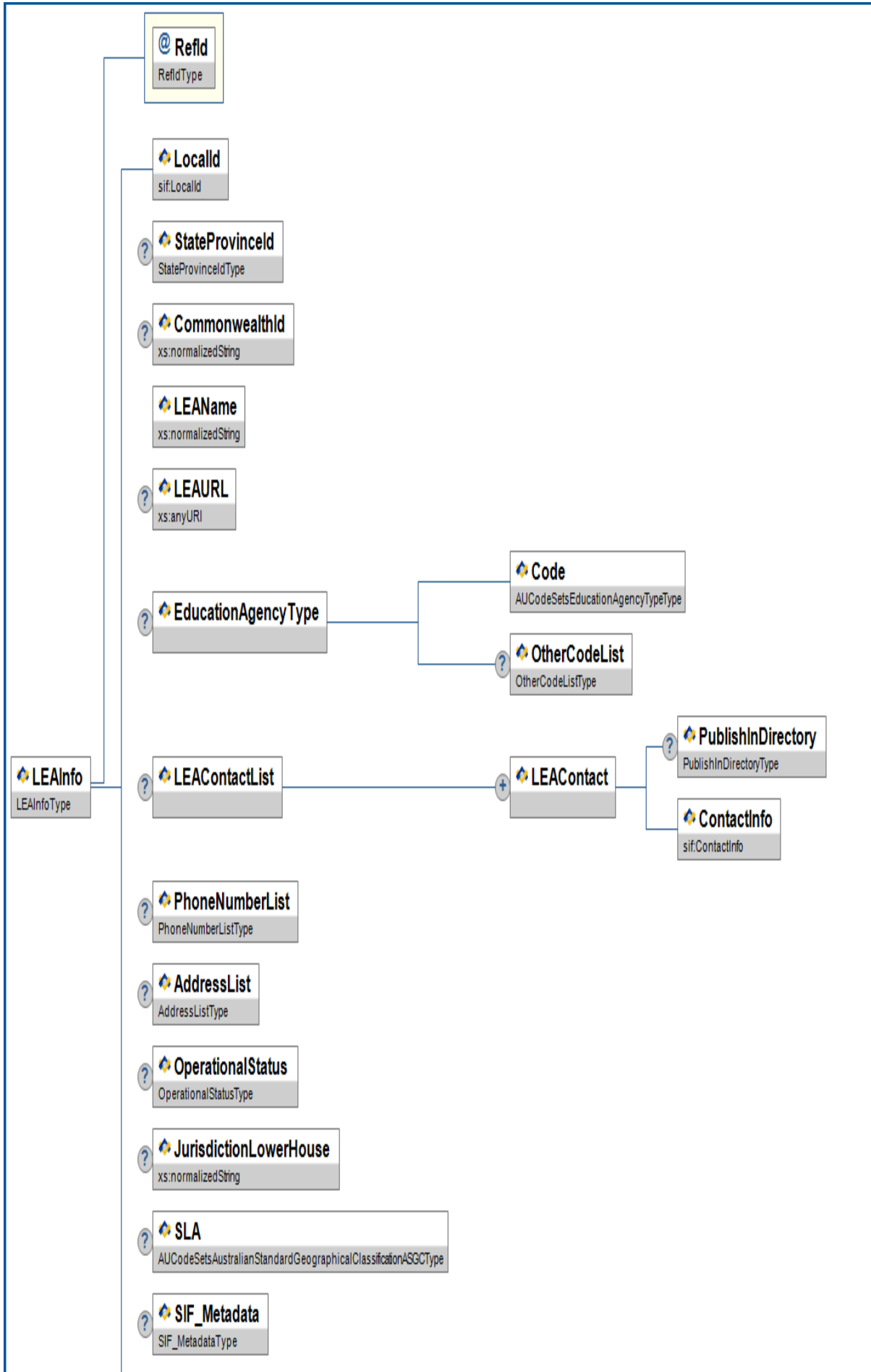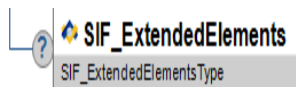
Figure 6.3.14-1: LEAInfo

	Element/@Attribute	Char	Description	Type
	LEAInfo		This object contains information about a school district or other Local Educational Agency (LEA).	
@ 🔑	RefId	M	The GUID of the LEA whose information this is.	RefIdType
	LocalId	M	The locally-assigned identifier for this LEA.	LocalId
	StateProvinceId	O	The state-assigned identifier for this LEA.	StateProvinceId
	CommonwealthId	O	Commonwealth Identifier for this District (LEA).	xs:normalizedString
	LEAName	M	Name of LEA.	xs:normalizedString
	LEAURL	O	URL for the LEA.	xs:anyURI
	EducationAgencyType	O	The classification of the education agency within the geographic boundaries of a state according to the level of administrative and operational control.	
	EducationAgencyType/Code	M	Code indicating the operational/administrative level.	AUCodeSetsEducationAgencyTypeType
	EducationAgencyType/OtherCodeList	O		OtherCodeList
	LEAContactList	O		List

	Element/@Attribute	Char	Description	Type
	LEAContactList/LEAContact	MR	Information on contact persons for this LEA.	
	LEAContactList/LEAContact/ PublishInDirectory	O	Indicates whether or not this LEA contact's information should be published in a directory of LEA information.	PublishInDirectory
	LEAContactList/LEAContact/ ContactInfo	M		ContactInfo
	PhoneNumberList	O	The LEA's phone number (s).	PhoneNumberList
	AddressList	O	The LEA's address(es).	AddressList
	OperationalStatus	O	Operational condition of a school.	OperationalStatus
	JurisdictionLowerHouse	O	Lower House area that the school/campus belongs to.	xs:normalizedString
	SLA	O	Statistical Local Area that the school/campus belongs to.	AUCodeSetsAustralianStandardGeographicalClassificationASG
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.14-1: LEAInfo

```
<LEAInfo RefId="D3E34B359D75101A8C3D00AA001A1652">
  <LocalId>EMR</LocalId>
  <StateProvinceId>EMR</StateProvinceId>
  <CommonwealthId>4215750</CommonwealthId>
  <LEAName>Eastern Metro School District</LEAName>
  <LEAURL>http://www.EMR.vic.edu.au</LEAURL>
  <EducationAgencyType>
    <Code>01</Code>
  </EducationAgencyType>
  <LEAContactList>
    <LEAContact>
      <PublishInDirectory>Y</PublishInDirectory>
      <ContactInfo>
        <Name Type="LGL">
          <FamilyName>Smith</FamilyName>
          <GivenName>Theo</GivenName>
          <FullName>Theo Smith</FullName>
        </Name>
        <PositionTitle>Superintendent</PositionTitle>
        <EmailList>
          <Email Type="01">drseuss@edumail.vic.edu.au</Email>
        </EmailList>
        <PhoneNumberList>
          <PhoneNumber Type="0096">
            <Number>(03) 9745 7455</Number>
          </PhoneNumber>
        </PhoneNumberList>
      </ContactInfo>
    </LEAContact>
  </LEAContactList>
  <PhoneNumberList>
    <PhoneNumber Type="0096">
      <Number>(03) 9745 7455</Number>
    </PhoneNumber>
  </PhoneNumberList>
  <OperationalStatus>O</OperationalStatus>
  <JurisdictionLowerHouse>Unknown</JurisdictionLowerHouse>
  <SLA>205801452</SLA>
</LEAInfo>
```

Example 6.3.14-1: LEAInfo

6.3.15 LearningResource

This object contains information related to learning resources that may be used in educational settings. These include textbooks, Internet content, educational software, videos and DVDs, supplemental print material, etc.

SIF_Events are reported for this object.
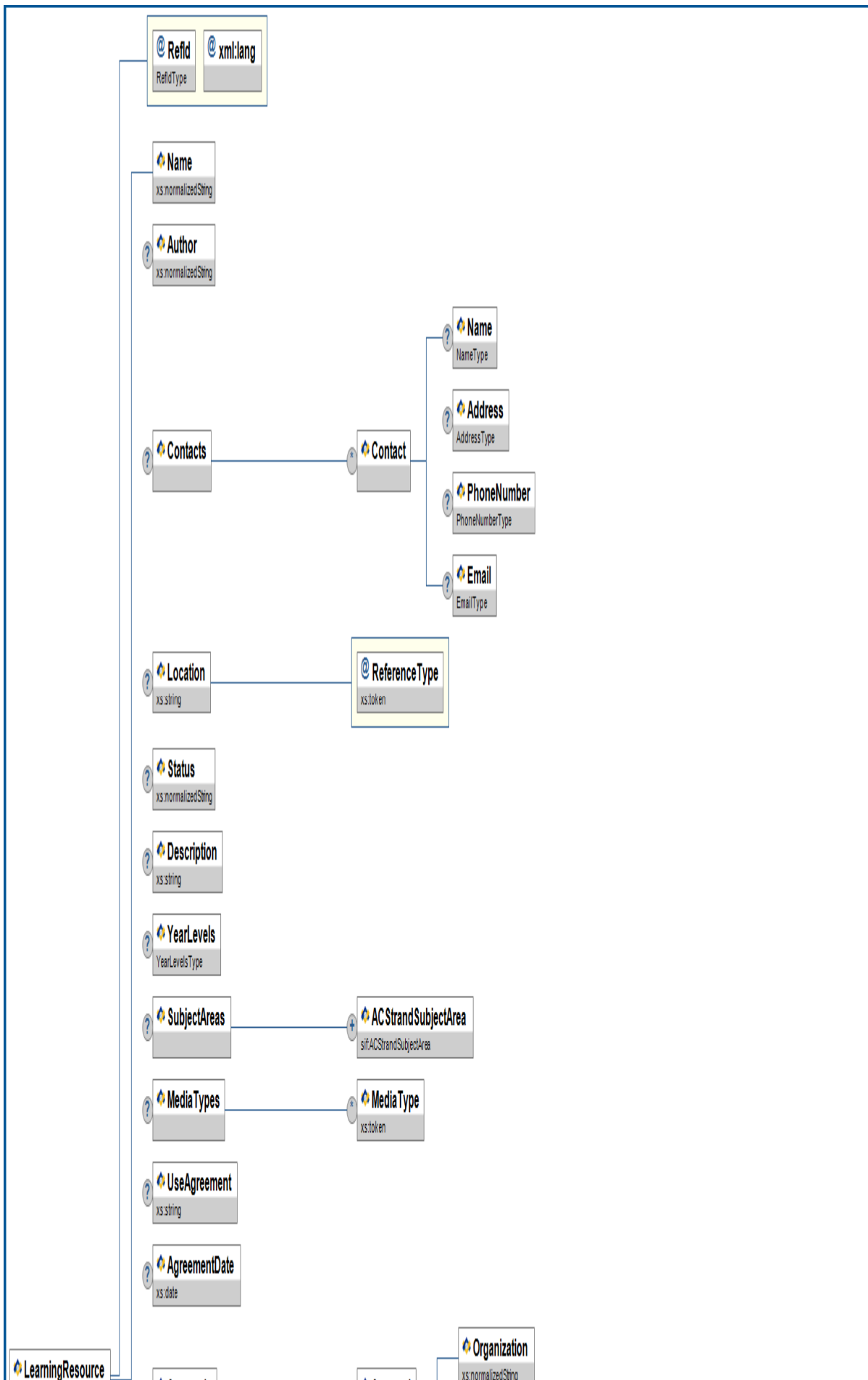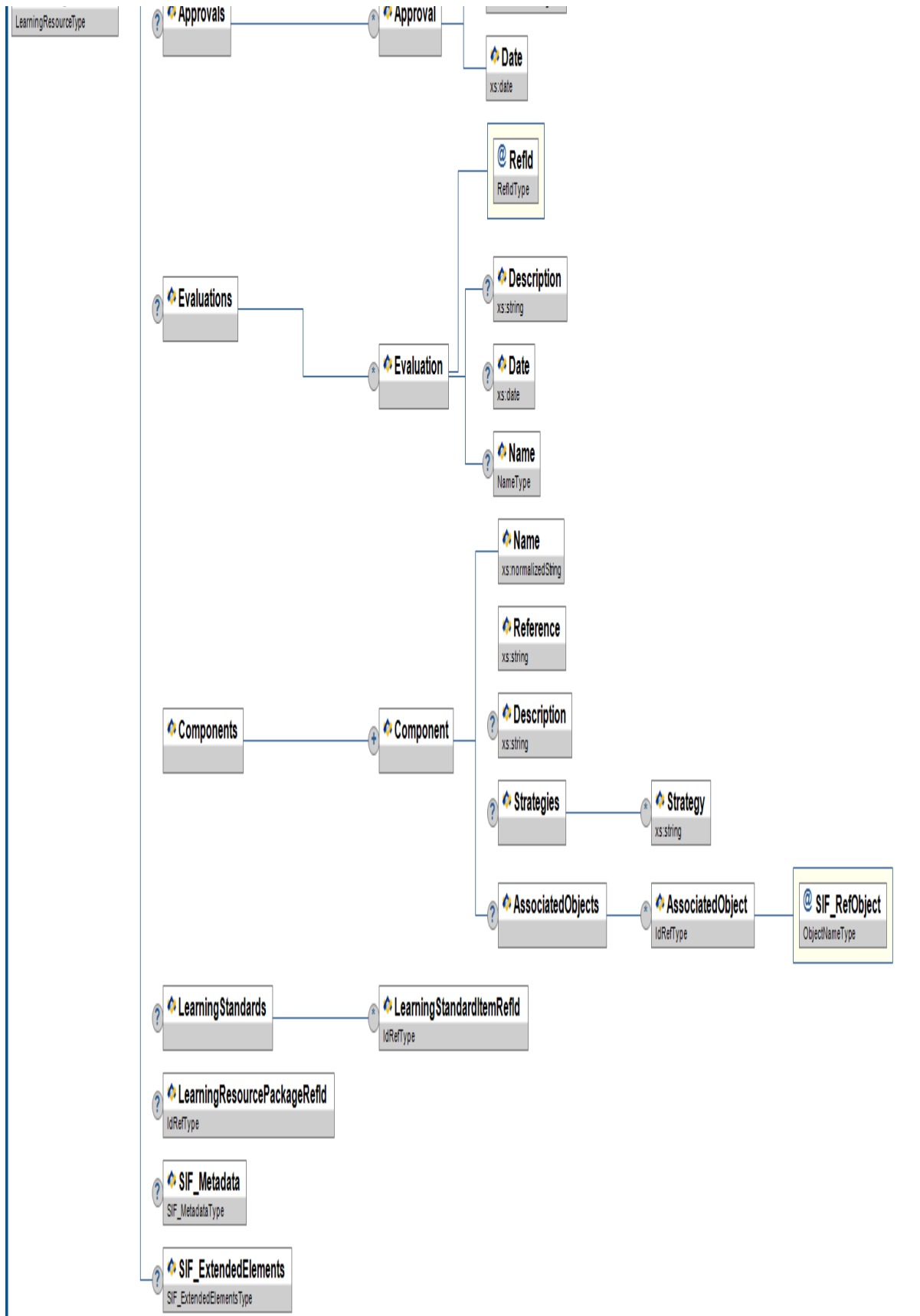
Figure 6.3.15-1: LearningResource

	Element/@Attribute	Char	Description	Type
	LearningResource		This object contains information related to learning resources that may be used in educational settings. These include textbooks, Internet content, educational software, videos and DVDs, supplemental print material, etc.	
@ 🔑	RefId	M	GUID assigned to this LearningResource.	RefIdType
@	xml:lang	M	The default language used in the LearningResource object.	
	Name	M	Name of learning resource.	xs:normalizedString
	Author	O	Name of organization or company that created the resource.	xs:normalizedString
	Contacts	O	Contains contact information about resource authors.	List
	Contacts/Contact	OR	Contains contact information about a resource author.	
	Contacts/Contact/Name	O	Name of contact person. Use the generic element Name.	Name
	Contacts/Contact/Address	O	Address of organization or company.	Address
	Contacts/Contact/PhoneNumber	O	Phone number of organization or company.	PhoneNumber
	Contacts/Contact/Email	O	The email of the organization or company.	Email
	Location	O	Description of location of resource, i.e. location in library or URL, community resource, outside resource supplier.	xs:string

	Element/@Attribute	Char	Description	Type
@	ReferenceType	M	A qualifying attribute for the Location payload. If ReferenceType is "URI", the payload contains a web address where the resource can be found.	xs:token
	Status	O	Describes availability status of resource, e.g. "checked out."	xs:normalizedString
	Description	O	Description of the resource, e.g., "This textbook is intended for year 4 social studies students and addresses..."	xs:string
	YearLevels	O		YearLevels
	SubjectAreas	O		List
	SubjectAreas/ACStrandSubjectArea	MR		ACStrandSubjectArea
	MediaTypes	O	Resource media types.	List
	MediaTypes/MediaType	OR	MIME type [MIME] based on IANA registration (see RFC2048) or 'non-digital'.	xs:token
	UseAgreement	O	Describes terms of use for resource.	xs:string
	AgreementDate	O	A date that defines the date of agreement.	xs:date
	Approvals	O	Authorizations to use this resource. For example, this resource may be included as part of the district's standard curriculum model.	List
	Approvals/Approval	OR	A sub-element containing an authorization to use this resource. For example, this resource may be included as part of the district's standard curriculum model.	
	Approvals/Approval/Organization	M	Name of agency that approved use of resource.	xs:normalizedString
	Approvals/Approval/Date	M	Date resource was approved.	xs:date

	Element/@Attribute	Char	Description	Type
	Evaluations	O	Evaluations/review of the resource.	List
	Evaluations/Evaluation	OR	Evaluation/review of resource.	
@	RefId	M	GUID assigned to an evaluation.	RefIdType
	Evaluations/Evaluation/Description	O	Description of evaluation of resource.	xs:string
	Evaluations/Evaluation/Date	O	Date evaluation was performed	xs:date
	Evaluations/Evaluation/Name	O	Name of individual who submitted evaluation.	Name
	Components	M	Lesson or activity-sized portions of a resource.	List
	Components/Component	MR	A lesson or activity-sized portion of a resource.	
	Components/Component/Name	M	Name of learning resource component within the resource, i.e. "Chapter 1, Section 4.	xs:normalizedString
	Components/Component/Reference	M	Description of where ResourceComponent is located within resource or in general, i.e. "Section 4, pages 32-38," or URL string, or whatever locator is appropriate for media.	xs:string
	Components/Component/Description	O	Description of ResourceComponent, i.e. "Discover how changing the scale of a map can either increase or decrease the level of detail you see."	xs:string
	Components/Component/Strategies	O	Teaching/learning strategies used in the learning resource.	List
	Components/Component/Strategies/ Strategy	OR	Teaching/learning strategy used in the learning resource. One per element.	xs:string

	Element/@Attribute	Char	Description	Type
	Components/Component/AssociatedObjects	O	References from component to associated elements within another SIF object.	List
	Components/Component/AssociatedObjects/ AssociatedObject	OR	Reference from component to associated elements within another SIF object.	IdRefType
@	SIF_RefObject	M	Attribute that identifies the type of SIF object being referenced.	ObjectNameType
	LearningStandards	O	References to LearningStandardItems.	List
	LearningStandards/LearningStandardItemRefId	OR	Reference to a LearningStandardItem.	IdRefType
	LearningResourcePackageRefId	O	Reference to a LearningResourcePackage, a transport envelope for teaching and learning object files.	IdRefType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.15-1: LearningResource

```xml
<LearningResource RefId="6938D88F82A37EFD88892429EC6AB1B5" xml:lang="en">
  <Name>A World of Music (Teacher Reference Sheet)</Name>
  <Author>The Queensland Performing Arts Edge</Author>
  <Contacts>
    <Contact>
      <Address Type="0123" Role="012A">
        <Street>
          <Line1>QPAC</Line1>
          <Line2>Southbank</Line2>
        </Street>
        <City>Brisbane</City>
        <StateProvince>QLD</StateProvince>
        <Country>1101</Country>
        <PostalCode>4002</PostalCode>
      </Address>
      <PhoneNumber Type="0096">
        <Number>(555) 555-1234</Number>
        <ListedStatus>Y</ListedStatus>
      </PhoneNumber>
      <Email Type="01">info@QPAC.edu.au</Email>
    </Contact>
  </Contacts>
  <Location ReferenceType="URI">http://www.artsedge/QPAC/curric/86_u_dreams/489_words.pdf</Location>
  <Status>Available</Status>
  <Description>Teacher Reference Sheet</Description>
  <YearLevels>
    <YearLevel>
      <Code>3</Code>
    </YearLevel>
    <YearLevel>
      <Code>4</Code>
    </YearLevel>
    <YearLevel>
      <Code>5</Code>
    </YearLevel>
  </YearLevels>
  <SubjectAreas>
    <ACStrandSubjectArea>
      <ACStrand>NPA</ACStrand>
      <SubjectArea>
        <Code>Hist</Code>
        <OtherCodeList>
          <OtherCode Codeset="Text">PerformingArts</OtherCode>
        </OtherCodeList>
      </SubjectArea>
    </ACStrandSubjectArea>
  </SubjectAreas>
  <MediaTypes>
    <MediaType>x-application/pdf</MediaType>
  </MediaTypes>
  <UseAgreement>see http://www.artsedge.QPAC/teaching_materials/using/artsedge.html for the user aggreement</UseAg
  <AgreementDate>2002-06-05</AgreementDate>
  <Approvals>
    <Approval>
      <Organization>QLD DET</Organization>
      <Date>2002-03-15</Date>
    </Approval>
  </Approvals>
  <Evaluations>
    <Evaluation RefId="F1BC63DFD02CCED654EF558E84904E01">
      <Description>This resource references QLD curriculum standards</Description>
      <Date>2001-06-15</Date>
      <Name Type="LGL">
        <FamilyName>Doe</FamilyName>
        <GivenName>Joan</GivenName>
      </Name>
    </Evaluation>
  </Evaluations>
  <Components>
    <Component>
      <Name>Vocabulary</Name>
      <Reference>http://www.artsedge.QPAC.org/teaching_materials/curricula/curric/86_u_dreams/489_vocab.html</Refe
      <Description>Students learn about social contexts such as nationality, culture, etc.</Description>
      <Strategies>
        <Strategy>Inquiry</Strategy>
      </Strategies>
      <AssociatedObjects>
        <AssociatedObject SIF_RefObject="LearningResource">667A87E21B4B9470CE61568576DF921E</AssociatedObject>
      </AssociatedObjects>
    </Component>
  </Components>
  <LearningStandards>
    <LearningStandardItemRefId>D56D76D40F0B96916DA4CA2E230494E8</LearningStandardItemRefId>
```

```
    <LearningStandardItemRefId>DBCE64060B47E555A64AF7FCE6C1A4A9</LearningStandardItemRefId>
  </LearningStandards>
  <LearningResourcePackageRefId>6D254047C5E542CBB7921D03ED3BD894</LearningResourcePackageRefId>
</LearningResource>
```

Example 6.3.15-1: LearningResource

6.3.16 LearningResourcePackage

Many instructional applications in a SIF zone need to share teaching and learning objects. Curriculum planning applications, content repositories, learning management systems, etc.—all of these systems need to share instructional content utilizing the `LearningResource` object.

The `LearningResourcePackage` object provides a transport envelope to move these files across the SIF zone.

Note: With SIF Implementation Specification version 2.4 the choice element depicted in the diagram below has changed. In the XSD files, the choice element used to be rendered as a sequence of optional elements. Now, in the XSD files, the choice element is rendered as an xs:choice. This may cause problems with agents that treat the choice element as two optional elements rather than a choice of one and only one of the choices.

SIF_Events are not reported for this object.
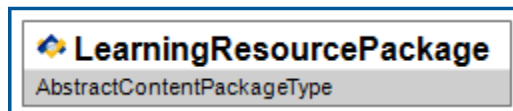
Figure 6.3.16-1: LearningResourcePackage

Element/@Attribute	Char	Description	Type
LearningResourcePackage		A wrapper for any external learning content to be transmitted across a SIF Zone.	AbstractContentPackageType

Table 6.3.16-1: LearningResourcePackage

```
<LearningResourcePackage RefId="C7DE86685968459FBF9FED22A0E1EA6E">
  <BinaryData MIMEType="text/html;charset=utf-16">...</BinaryData>
</LearningResourcePackage>
```

Example 6.3.16-1: LearningResourcePackage

6.3.17 LearningStandardDocument

A curriculum standards document or the like published by a national, state, district, school site, professional association or other interested party. The LearningStandardDocument reflects an expectation of student work.

SIF_Events are reported for this object.
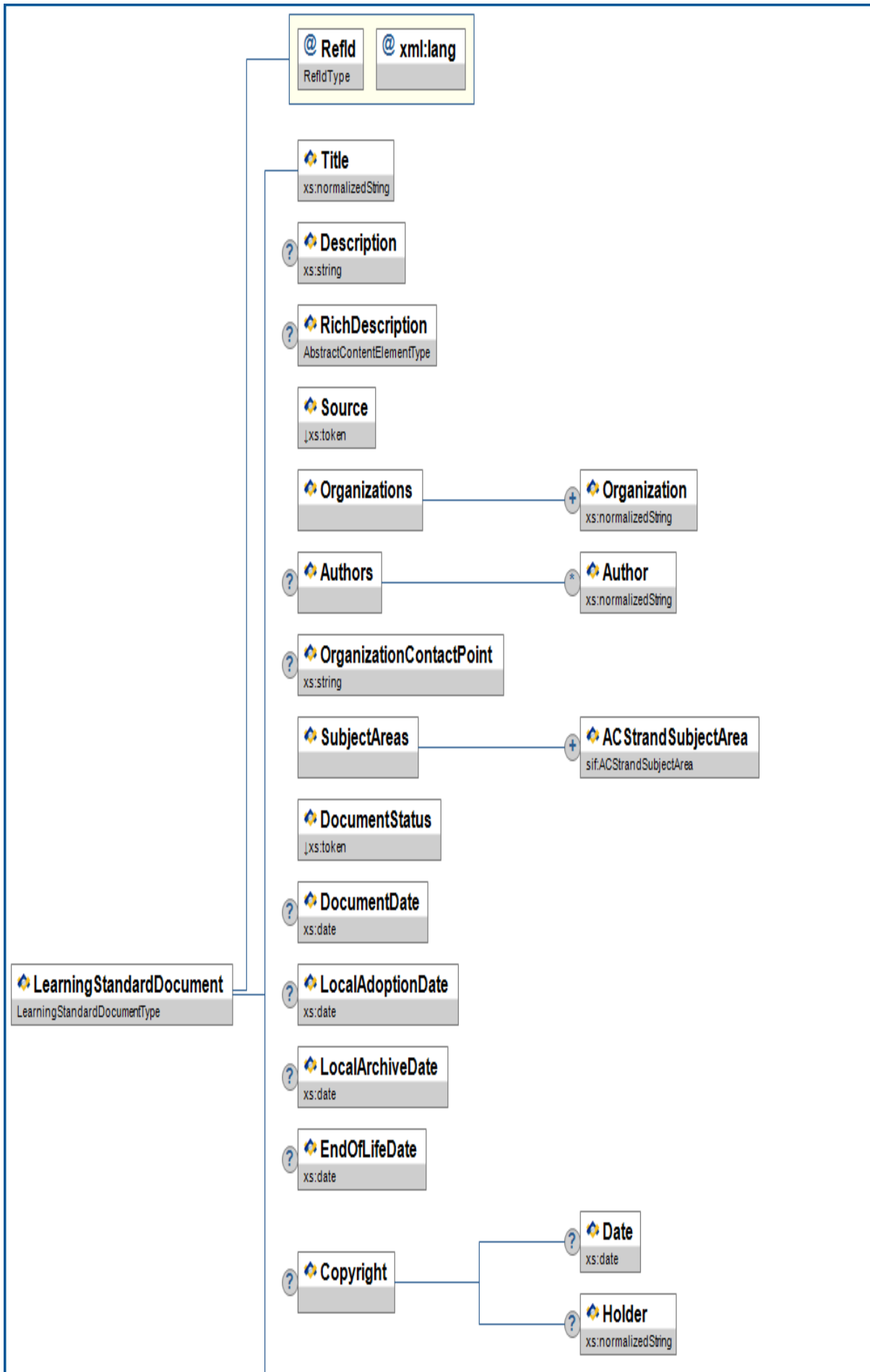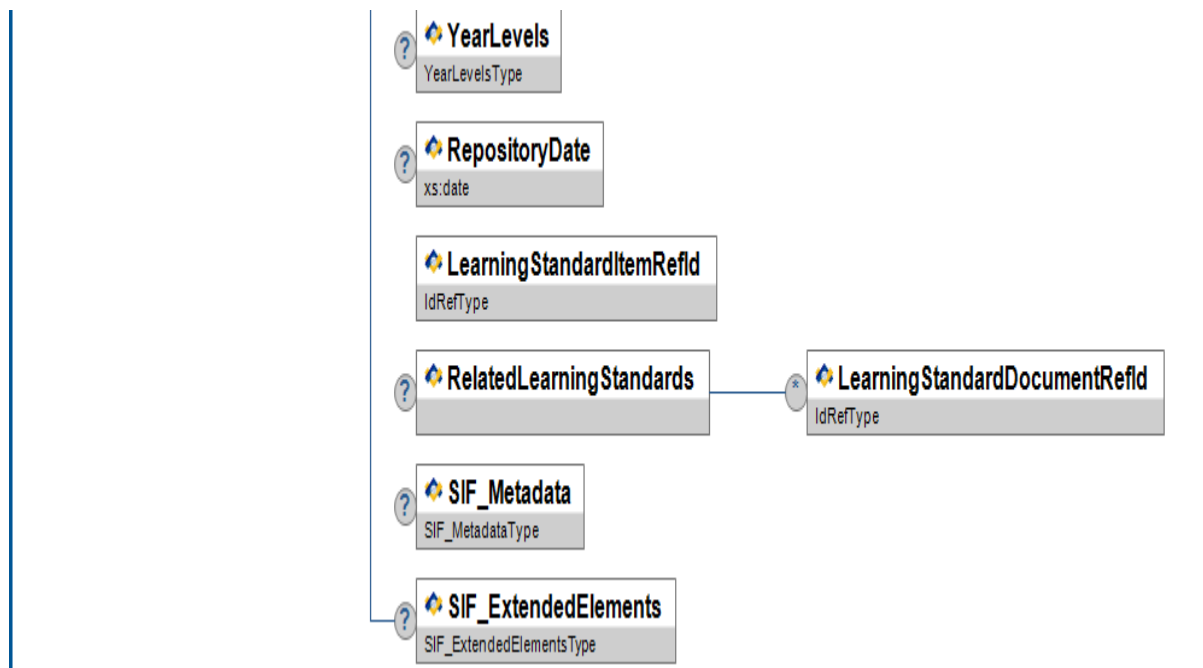
Figure 6.3.17-1: LearningStandardDocument

	Element/@Attribute	Char	Description	Type
	LearningStandardDocument		A curriculum standards document or the like published by a national, state, district, school site, professional association or other interested party. The LearningStandardDocument reflects an expectation of student work.	
@ 🔑	RefId	M	Id for the standards document	RefIdType
@	xml:lang	M	The default language of the text used for the content in the learning standard document.	
	Title	M	Name of curriculum document, i.e., "NSW History Curriculum K-10."	xs:normalizedString
	Description	O	Description of the standards document.	xs:string
	RichDescription	O	Description of the curriculum document that allows pictures as well as text..	AbstractContentElementType
	Source	M	Defines source of standard document. This is the descriptive type of the organization listed in Organization. It serves to describe the type of the standards contained within the document.	**values:** National State Regional District Site Classroom Publisher

Element/@Attribute	Char	Description	Type
Organizations	M		List
Organizations/Organization	MR	Name of organization represented by the document, i.e., "National Council of Teachers of Mathematics (NCTM)," "ACARA"," NSW DET".	xs:normalizedString
Authors	O		List
Authors/Author	OR	Name of the organization that authored the curriculum document, i.e. "ACARA May be the same as "Organization" above.	xs:normalizedString
OrganizationContactPoint	O	A brief description of how to contact the organization maintaining the standards. It could be a phone number, email address, or URL.	xs:string
SubjectAreas	M		List
SubjectAreas/ACStrandSubjectArea	MR		ACStrandSubjectArea
DocumentStatus	M		**values:** Draft Adopted Archived Unknown
DocumentDate	O	The date the current status was achieved.	xs:date
LocalAdoptionDate	O	The date the local organization adopted this standard document	xs:date
LocalArchiveDate	O	The date the local organization stopped using this standard document and superseded by a new document.	xs:date
EndOfLifeDate	O	This is the date that the governing organization retired this document.	xs:date
Copyright	O	Copyright for document.	
Copyright/Date	C	Copyright date	xs:date

Element/@Attribute	Char	Description	Type
Copyright/Holder	C	Name of the copyright holder	xs:normalizedString
YearLevels	O	SIF common YearLevels element	YearLevels
RepositoryDate	O	Date document data was added to the repository	xs:date
LearningStandardItemRefId	M	Link to the first/top LearningStandardItem in the standard hierarchy	IdRefType
RelatedLearningStandards	O		List
RelatedLearningStandards/ LearningStandardDocumentRefId	OR	Links to related LearningStandardDocument	IdRefType
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.17-1: LearningStandardDocument

```
<LearningStandardDocument RefId="A5A575C789175101B8E7F08ED123A823" xml:lang="en">
  <Title>Australian National Curriculum: History</Title>
  <Description>
           AIMS: The aim of the History curriculum is to instill in students an appreciation in the diversity of
RATIONALE: History is essential for an informed citizenry and has always been a cornerstone of education.
    </Description>
  <Source>National</Source>
  <Organizations>
    <Organization>ACARA</Organization>
  </Organizations>
  <Authors>
    <Author>Joe Bloggs</Author>
  </Authors>
  <OrganizationContactPoint>http://www.acara.edu.au</OrganizationContactPoint>
  <SubjectAreas>
    <ACStrandSubjectArea>
      <ACStrand>H</ACStrand>
      <SubjectArea>
        <Code>Hist</Code>
        <OtherCodeList>
          <OtherCode Codeset="Text">History</OtherCode>
        </OtherCodeList>
      </SubjectArea>
    </ACStrandSubjectArea>
  </SubjectAreas>
  <DocumentStatus>Adopted</DocumentStatus>
  <DocumentDate>2010-04-15</DocumentDate>
  <LocalAdoptionDate>2011-01-06</LocalAdoptionDate>
  <EndOfLifeDate>2011-04-15</EndOfLifeDate>
  <Copyright>
    <Date>2010-06-05</Date>
    <Holder>ACARA</Holder>
  </Copyright>
  <YearLevels>
    <YearLevel>
      <Code>11</Code>
    </YearLevel>
    <YearLevel>
      <Code>12</Code>
    </YearLevel>
  </YearLevels>
  <RepositoryDate>2011-04-15</RepositoryDate>
  <LearningStandardItemRefId>B7D26D789139214A8C7F08EA123A8234</LearningStandardItemRefId>
  <RelatedLearningStandards>
    <LearningStandardDocumentRefId>B216162FC98D202E62A64D53C991A25A</LearningStandardDocumentRefId>
  </RelatedLearningStandards>
</LearningStandardDocument>
```

Example 6.3.17-1: LearningStandardDocument

6.3.18 LearningStandardItem

This object contains information related to curriculum standards statements "standards" or "benchmarks" or the like within the document. Each LearningStandardItem reflects an individual standard statement and may occur at several levels within a hierarchially structured document.

SIF_Events are reported for this object.

@ RefId
RefIdType

@ xml:lang

Resources

LearningResourceRefId
IdRefType

@ ResourceType
xs:token

StandardSettingBody

Country
sif:Country

StateProvince
StateProvinceType

SettingBodyName
xs:normalizedString

StandardHierarchyLevel

Number
xs:unsignedInt

Description
xs:string

PredecessorItems

LearningStandardItemRefId
IdRefType

StatementCodes

StatementCode
xs:token

Statements

Statement
xs:string

YearLevels
sif:YearLevels

ACStrandSubjectArea
ACStrandSubjectAreaType

YearCreated
xs:gYear

ACStrandSubjectArea
sif:ACStrandSubjectArea

StandardNumber
xs:normalizedString

YearLevels
sif:YearLevels

LearningStandardItem
LearningStandardItemType

Figure 6.3.18-1: LearningStandardItem

	Element/@Attribute	Char	Description	Type
	LearningStandardItem		This object contains information related to curriculum standards statements "standards" or "benchmarks" or the like within the document. Each LearningStandardItem reflects an individual standard statement and may occur at several levels within a hierarchially structured document.	
@	RefId	M	GUID assigned to each statement at each level within the document hierarchy	RefIdType

	Element/@Attribute	Char	Description	Type
@	xml:lang	M	The default language of the text used for the content in the LearningStandardItem.	
	Resources	O	Container for related resources.	List
	Resources/LearningResourceRefId	OR	A relationship between the item and an attached resource (e.g. learning resource, work sample).	IdRefType
@	ResourceType	M	Type of Resource.	**values:** LearningResource WorkSample AnnotatedWorkSample Other
	StandardSettingBody	O	The name of the state or organization that authored and manages updates to the curriculum document (i.e., ACARA, NSW DET).	
	StandardSettingBody/Country	M		Country
	StandardSettingBody/StateProvince	O		StateProvince
	StandardSettingBody/SettingBodyName	O	This is the text version of the organization's name.	xs:normalizedString
	StandardHierarchyLevel	M	Description of hierarchical level within standards tree.	
	StandardHierarchyLevel/Number	M	Integer assigned to each hierarchical level within standards tree. The top level is "1".	xs:unsignedInt

	Element/@Attribute	Char	Description	Type
	StandardHierarchyLevel/Description	M	Used to describe what role this item is serving in the structure. Some documents describe their levels in terms of standard, strands, and topics. Others use standards, benchmarks, and indicators. In Australia, this is typically in terms of Course or Unit, Year Level, Outcomes. This attribute names the level of the item.	xs:string
	PredecessorItems	O		List
	PredecessorItems/LearningStandardItemRefId	OR	GUID assigned to the LearningStandardItem directly above it in the hierarchy tree. This is a repeatable element because a single granular item may relate to multiple parent levels of the hierarchy. If the object has no parent, the ParentRefId should be the same as the object's RefId. The RefId in LearningStandardDocumentRefId will always point to the parent's LearningStandardDocument object.	IdRefType
	StatementCodes	O		List
	StatementCodes/StatementCode	OR	An alphanumeric Id code as defined by the organization to identify the statement.	xs:token
	Statements	O		List
	Statements/Statement	MR	The text of the "outcome", "standard", or other element within the structured curriculum document	xs:string
	YearLevels	M		YearLevels
	ACStrandSubjectArea	O		ACStrandSubjectArea
	StandardIdentifier	O	This element describes the unique identifier for each LearningStandard.	

	Element/@Attribute	Char	Description	Type
	StandardIdentifier/YearCreated	M	This represents the year that this specific learning standard was created. This is important to indicate as standards are updated to reflect the appropriate year it was created. This would be assigned and unique to the standard setting body.	xs:gYear
	StandardIdentifier/ACStrandSubjectArea	M	This represents the subject or content area this curriculum item addresses. This would be assigned and unique to the curriculum setting body.	ACStrandSubjectArea
	StandardIdentifier/StandardNumber	M	This is the specific number of the standard. For example, if the subject is mathematics and this standard is Patterns, Functions and Algebra, this would be StandardNumber 1. This would be assigned and unique to the standard setting body.	xs:normalizedString
	StandardIdentifier/YearLevels	M	This represents the grade level(s) this specific learning standard will address. This may be addressed in different ways. Some states have a grade level that covers several grades and others have just one grade. This would be assigned and unique to the standard setting body.	YearLevels
	StandardIdentifier/Benchmark	O	This is the next level within the hierarchy of the learning standard. For example, if the subject is mathematics and the standard is algebra, this would be the next delineation - Represent an unknown quantity as a variable using a symbol, including letters. This would be assigned and unique to the standard setting body.	xs:normalizedString

Element/@Attribute	Char	Description	Type
StandardIdentifier/YearLevel	O	This is the specific year level. This is to be utilized if the YearLevel covers several years. This would be assigned and unique to the standard setting body.	YearLevel
StandardIdentifier/IndicatorNumber	O	This would be the most granular level of the learning standard associated with the grade level. Following the same example, an indicator for Algebra YearLevel 5-7, the indicator for the benchmark above at Year 6 would be to Evaluate simple expressions by replacing variables with given values, and use formulas in problem-solving situations. This would be assigned and unique to the standard setting body.	xs:normalizedString
StandardIdentifier/AlternateIdentificationCodes	O	This element is for an organization to utilize for an internal code. This may be used for an alignment schema or other purposes that are only internal for the organization.	List
StandardIdentifier/AlternateIdentificationCodes/ AlternateIdentificationCode	MR	An alphanumeric Id code as defined by the organization to identify the statement.	xs:normalizedString
StandardIdentifier/Organization	M	Name of organization represented by the document, i.e., "National Council of Teachers of Mathematics (NCTM)," "NSW," "ACARA." This is the name of the organization that has this AlternateIdentificationCode. This should be a text field.	xs:normalizedString
LearningStandardDocumentRefId	M	The RefId of the item's parent LearningStandardDocument.	IdRefType

	Element/@Attribute	Char	Description	Type
	RelatedLearningStandardItems	O	Container for external relationships.	List
	RelatedLearningStandardItems/ LearningStandardItemRefId	OR	A relationship between the current standard item and another standard item.	IdRefType
@	RelationshipType	M	Type of the relationship between the current standard and the target standard. The value identifies the type of standard of the target item. The purpose of this information is to allow applications to sort/display these relationships in the appropriate context.	**union of:** AUCodeSetsLearningStandardItemRelationshipTy xs:token
	Level4	O	This is the second to most granular level of the learning or performance standard associated with the grade level.	xs:normalizedString
	Level5	O	This is the most granular level of the learning or performance standard associated with the grade level.	xs:normalizedString
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.18-1: LearningStandardItem

```
<LearningStandardItem RefId="A5D75F789175101B8C7E08EA123A8234" xml:lang="en">
  <StandardSettingBody>
    <Country>1101</Country>
    <StateProvince>VIC</StateProvince>
    <SettingBodyName>DEECD</SettingBodyName>
  </StandardSettingBody>
  <StandardHierarchyLevel>
    <Number>3</Number>
    <Description>AchievementStandard</Description>
  </StandardHierarchyLevel>
  <PredecessorItems>
    <LearningStandardItemRefId>DE072A87EFAD4B778AF9FAF83C94839E</LearningStandardItemRefId>
  </PredecessorItems>
  <StatementCodes>
    <StatementCode>Mathematics.2.03.a</StatementCode>
  </StatementCodes>
  <Statements>
    <Statement>Counting from 0 to 100 using whole numbers</Statement>
  </Statements>
  <YearLevels>
    <YearLevel>
      <Code>4</Code>
    </YearLevel>
    <YearLevel>
      <Code>5</Code>
    </YearLevel>
  </YearLevels>
  <ACStrandSubjectArea>
    <ACStrand>M</ACStrand>
    <SubjectArea>
      <Code>Maths</Code>
      <OtherCodeList>
        <OtherCode Codeset="Text">Mathematics</OtherCode>
      </OtherCodeList>
    </SubjectArea>
  </ACStrandSubjectArea>
  <StandardIdentifier>
    <YearCreated>2003</YearCreated>
    <ACStrandSubjectArea>
      <ACStrand>M</ACStrand>
      <SubjectArea>
        <Code>Maths</Code>
        <OtherCodeList>
          <OtherCode Codeset="Text">Mathematics</OtherCode>
        </OtherCodeList>
      </SubjectArea>
    </ACStrandSubjectArea>
    <StandardNumber>04</StandardNumber>
    <YearLevels>
      <YearLevel>
        <Code>5</Code>
      </YearLevel>
      <YearLevel>
        <Code>6</Code>
      </YearLevel>
      <YearLevel>
        <Code>7</Code>
      </YearLevel>
    </YearLevels>
    <Organization>DEECD VIC</Organization>
  </StandardIdentifier>
  <LearningStandardDocumentRefId>8454189F6BBC26C6B97DDB4B6D0E3AC8</LearningStandardDocumentRefId>
  <RelatedLearningStandardItems>
    <LearningStandardItemRefId RelationshipType="Content">869670E8540A43509515AFB767FADD9A</LearningStandardItemRe
    <LearningStandardItemRefId RelationshipType="State">B14FDAB437CA4565A9765A5B824545C4</LearningStandardItemRefI
    <LearningStandardItemRefId RelationshipType="ContentElaboration">D5440A11F5A44AC1920261ECBE5A29F6</LearningSta
  </RelatedLearningStandardItems>
</LearningStandardItem>
```

Example 6.3.18-1: LearningStandardItem

6.3.19 PersonPicture

This object contains information about the person's picture.

SIF_Events are reported for this object.
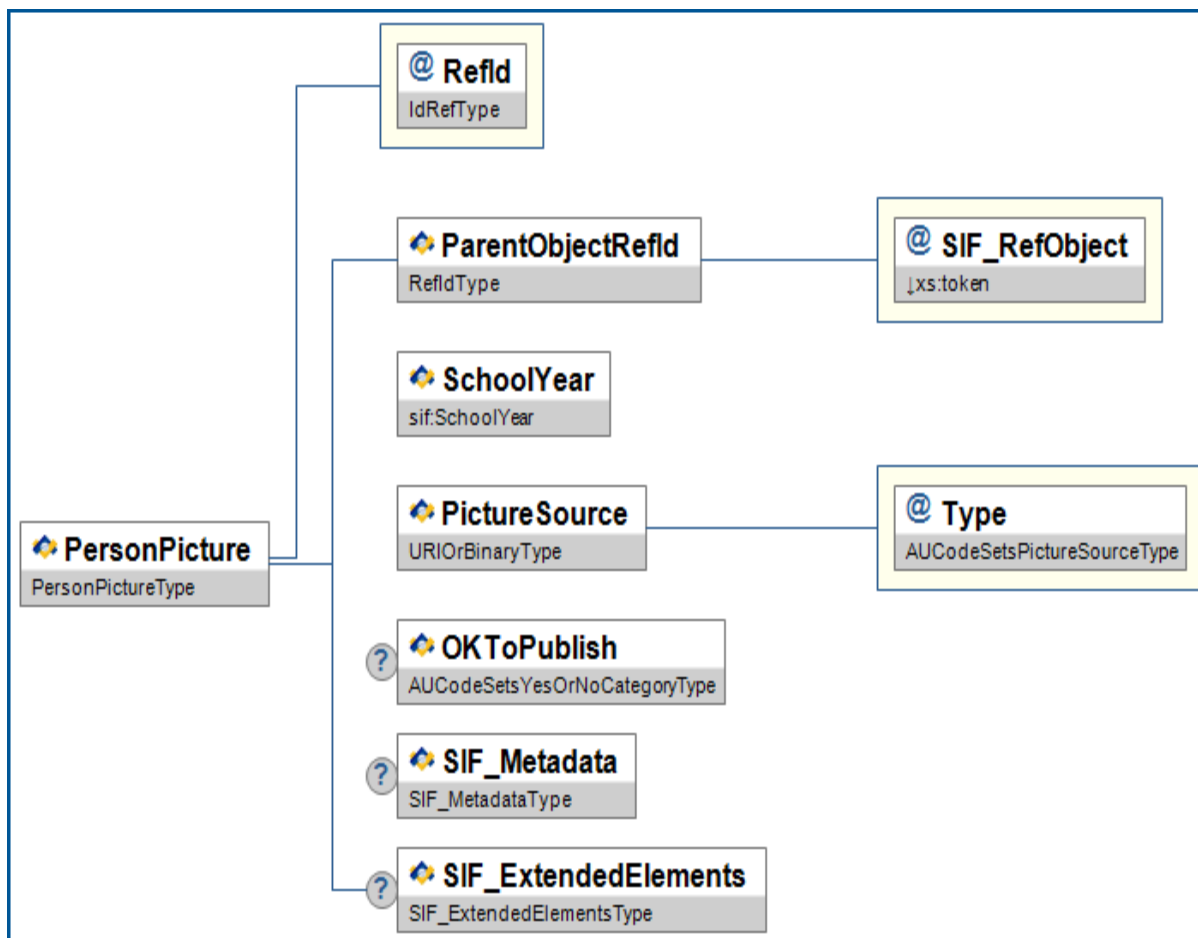
Figure 6.3.19-1: PersonPicture

Element/@Attribute	Char	Description	Type
PersonPicture		This object contains information about the person's picture.	
@ RefId	M	The ID (GUID) that uniquely identifies the picture.	IdRefType
ParentObjectRefId	M	The GUID of the personal object to which this picture is linked	RefIdType
@ SIF_RefObject	M	The name of the object reference.	**values:** StudentPersonal StaffPersonal StudentContactPersonal
SchoolYear	M	School year for which this enrollment is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007).	SchoolYear

	Element/@Attribute	Char	Description	Type
	PictureSource	M	This element defines the picture. If the Type attribute is URL, this is the location of the picture in [JPEG] format; if Type is JPEG, this is the [JPEG] image data encoded using the Base64 Content-Transfer-Encoding defined in Section 6.8 of [RFC 2045].	URIOrBinaryType
@	Type	M	The way the picture is specified.	AUCodeSetsPictureSourceType
	OKToPublish	O	Can the picture be published?	AUCodeSetsYesOrNoCategoryType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.19-1: PersonPicture

```
<PersonPicture RefId="D3E34B359D75101A8C3D00AA001A1652">
  <ParentObjectRefId SIF_RefObject="StudentPersonal">AA648462888624AA5294BC638017320B</ParentObjectRefId>
  <SchoolYear>2007</SchoolYear>
  <PictureSource Type="01">http://www.schoolsite.com/pictures/2007/1234.jpg </PictureSource>
  <OKToPublish>Y</OKToPublish>
</PersonPicture>
```

Example 6.3.19-1: PersonPicture

6.3.20 ReportAuthorityInfo

This object contains information on authorities that provide ReportManifest objects and/or collect SIF_ReportObject objects, such as state departments of education, regional service agencies, or other report collecting agencies.

SIF_Events are reported for this object.
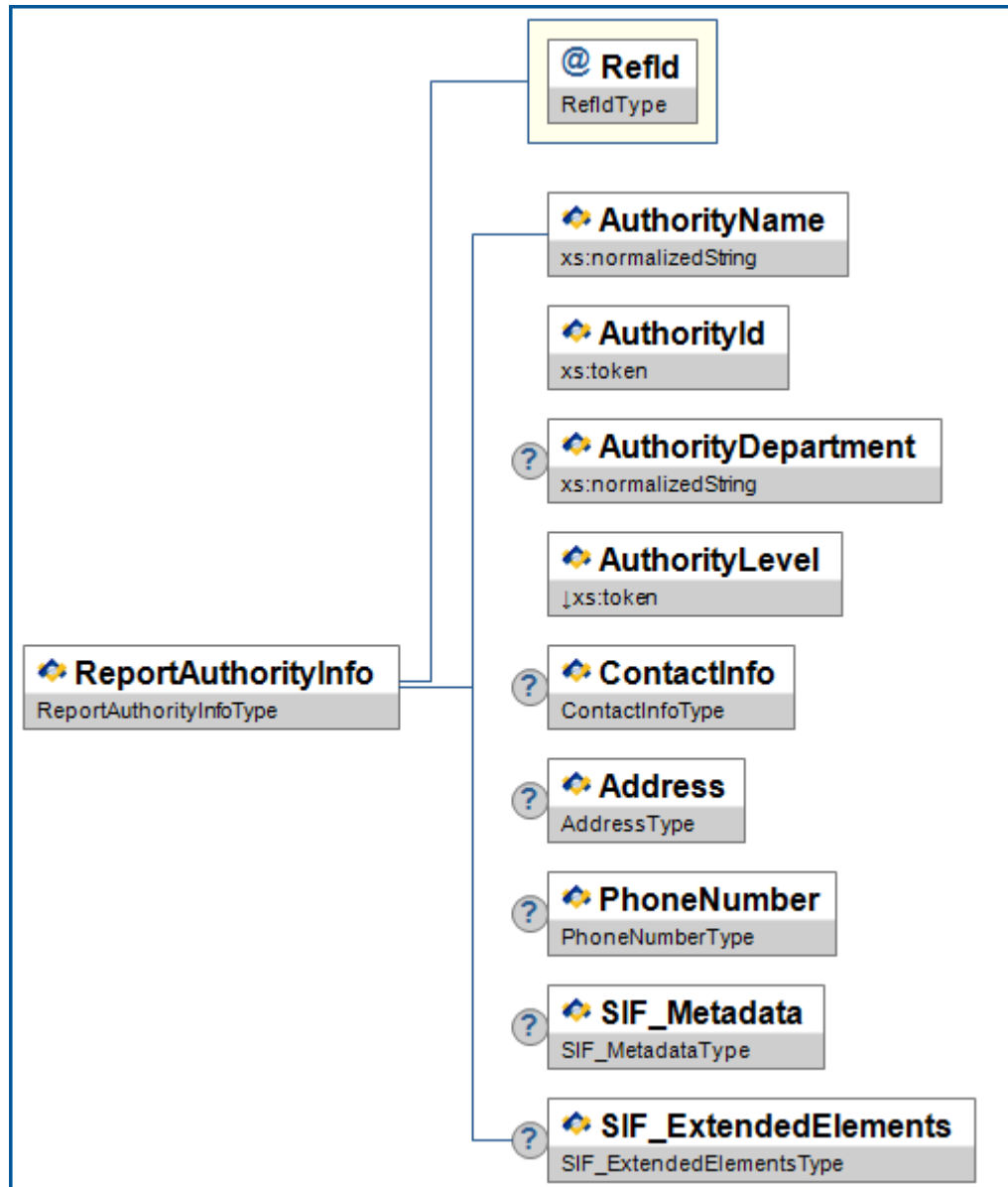
Figure 6.3.20-1: ReportAuthorityInfo

	Element/@Attribute	Char	Description	Type
	ReportAuthorityInfo		This object contains information on authorities that provide ReportManifest objects and/or collect SIF_ReportObject objects, such as state departments of education, regional service agencies, or other report collecting agencies.	
@ 🔑	RefId	M	The unique identifier for this agency/report authority.	RefIdType
	AuthorityName	M	Name of the agency/report authority.	xs:normalizedString

Element/@Attribute	Char	Description	Type
AuthorityId	M	The zone unique case-sensitive identifier for the authority. This will be the contents of the SIF_SourceId element in the header of requests for reports.	xs:token
AuthorityDepartment	O	Department, office, or subdivision of the agency/report authority.	xs:normalizedString
AuthorityLevel	M	Level of the authority.	**values:** Federal State LEA School Other
ContactInfo	O	Information on the contact person in this agency.	ContactInfo
Address	O		Address
PhoneNumber	O		PhoneNumber
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.20-1: ReportAuthorityInfo

```
<ReportAuthorityInfo RefId="9746375937BB2A10AAB2758C46A12001">
  <AuthorityName>XX State Department of Education</AuthorityName>
  <AuthorityId>StateDOEDataWarehouse</AuthorityId>
  <AuthorityDepartment>Bureau of Special Education</AuthorityDepartment>
  <AuthorityLevel>State</AuthorityLevel>
  <ContactInfo>
    <Name Type="LGL">
      <Title>Mr</Title>
      <FamilyName>Miller</FamilyName>
      <GivenName>James</GivenName>
      <MiddleName>Frank</MiddleName>
      <Suffix>Jr.</Suffix>
      <FullName>Mr James Frank Miller Jr.</FullName>
    </Name>
    <PositionTitle>Business Manager</PositionTitle>
    <Role>School Information Contact Point</Role>
    <Address Type="0123" Role="012B">
      <Street>
        <Line1>23 Nicholson Street</Line1>
      </Street>
      <City>Carnegie</City>
      <StateProvince>VIC</StateProvince>
      <Country>1101</Country>
      <PostalCode>3004</PostalCode>
      <GridLocation>
        <Latitude>23.9876</Latitude>
        <Longitude>-98.8765</Longitude>
      </GridLocation>
    </Address>
    <EmailList>
      <Email Type="01">jmiller@lsc.vic.edu.au</Email>
      <Email Type="02">jmiller@yahoo.com.au</Email>
    </EmailList>
    <PhoneNumberList>
      <PhoneNumber Type="0096">
        <Number>03 9637-2000</Number>
        <Extension>72345</Extension>
        <ListedStatus>Y</ListedStatus>
      </PhoneNumber>
    </PhoneNumberList>
  </ContactInfo>
  <Address Type="0123" Role="2382">
    <Street>
      <Line1>6799 33rd Ave.</Line1>
      <StreetNumber>6799</StreetNumber>
      <StreetName>33rd</StreetName>
      <StreetType>Ave.</StreetType>
    </Street>
    <City>Chicago</City>
    <StateProvince>IL</StateProvince>
    <Country>1101</Country>
    <PostalCode>60660</PostalCode>
  </Address>
  <PhoneNumber Type="0096">
    <Number>(555) 555-0000</Number>
  </PhoneNumber>
</ReportAuthorityInfo>
```

Example 6.3.20-1: ReportAuthorityInfo

6.3.21 ReportManifest

This object provides a way to define a report within a SIF zone. It contains metadata about the report. This object represents a mutual agreement between senders and receivers of the report.

SIF_Events are reported for this object.
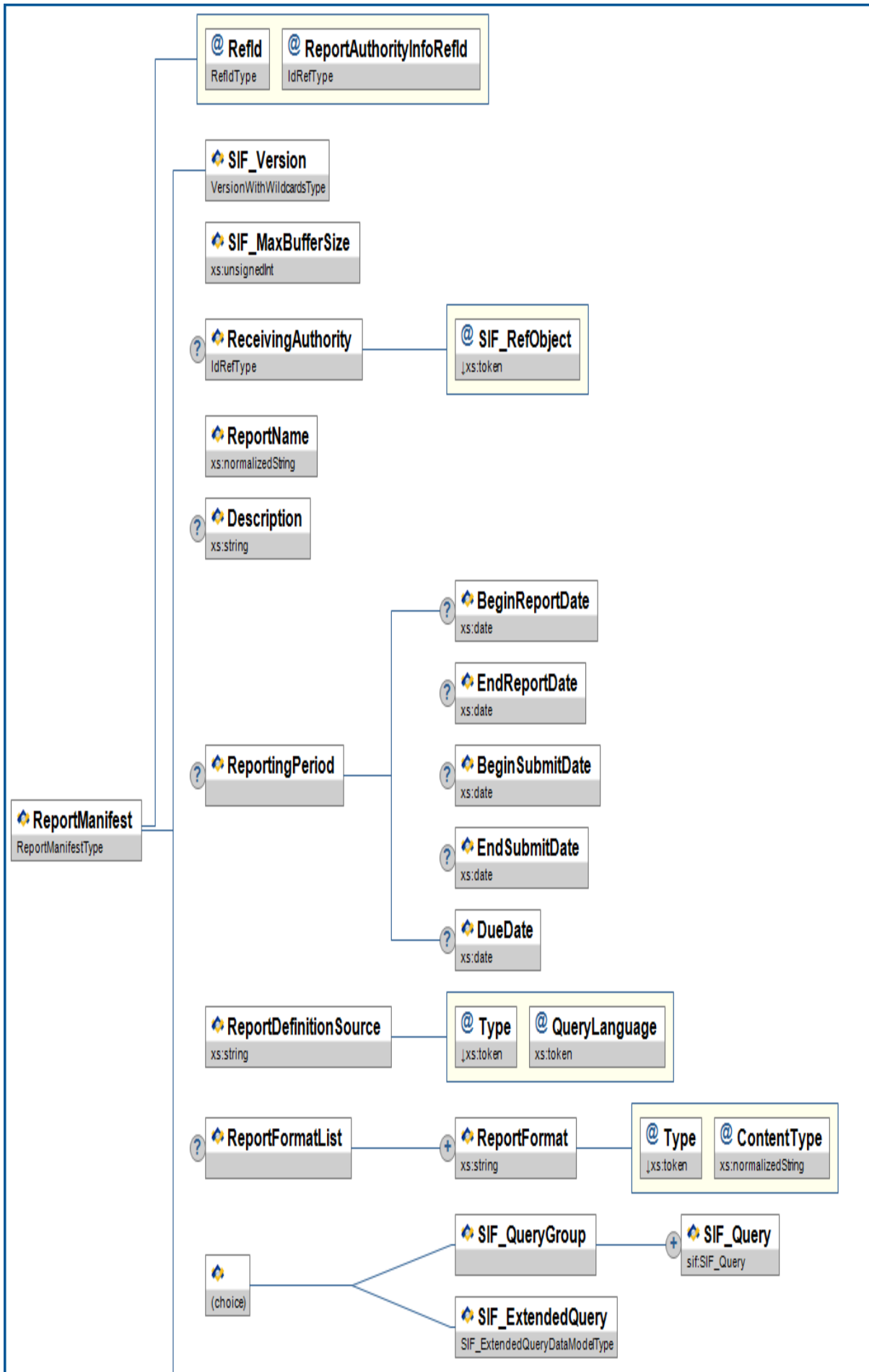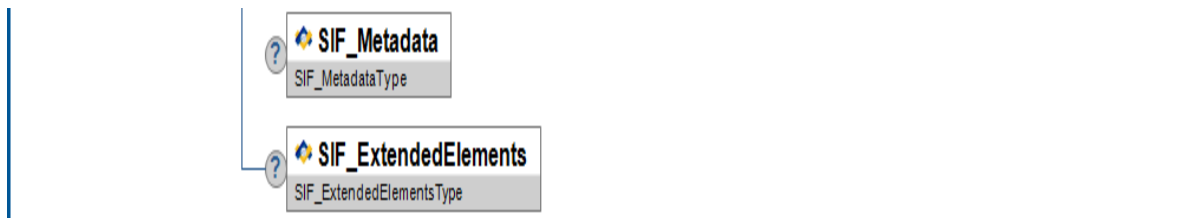
Figure 6.3.21-1: ReportManifest

	Element/@Attribute	Char	Description	Type
	ReportManifest		This object provides a way to define a report within a SIF zone. It contains metadata about the report. This object represents a mutual agreement between senders and receivers of the report.	
@ 🔑	RefId	M	The unique identifier for this report manifest.	RefIdType
@	ReportAuthorityInfoRefId	M	ID (GUID) of the authority providing this manifest.	IdRefType
	SIF_Version	M	Specifies which SIF Implementation Specification version should be used when returning the report data; wildcards are allowed. When a wildcard is specified, the responding agent SHOULD attempt to return the report data in the version specified by SIF_Message/@Version, if that version matches the wildcard version. If not, the responding agent can return the data in any version it chooses that matches the wildcard version.	VersionWithWildcardsType
	SIF_MaxBufferSize	M	Specifies the maximum size of a packet to be returned to the report authority.	xs:unsignedInt
	ReceivingAuthority	O	The GUID of the authority for whom the report is intended, usually the same authority that defines this manifest.	IdRefType
@	SIF_RefObject	M	The name of the object referenced.	**values:** ReportAuthorityInfo
	ReportName	M	The authority's accepted name for the report.	xs:normalizedString
	Description	O	The description for the report.	xs:string
	ReportingPeriod	O	Information on the period of time over which the report spans.	

	Element/@Attribute	Char	Description	Type
	ReportingPeriod/BeginReportDate	O	The first date for which the report contains information.	`xs:date`
	ReportingPeriod/EndReportDate	O	The last date for which the report contains information. May be the same as BeginReportDate for snapshot-type reports.	`xs:date`
	ReportingPeriod/BeginSubmitDate	O	The first date on which the report may be submitted to the authority.	`xs:date`
	ReportingPeriod/EndSubmitDate	O	The last date on which the report may be submitted to the authority.	`xs:date`
	ReportingPeriod/DueDate	O	The official due date of the report.	`xs:date`
	ReportDefinitionSource	M	Indicates where the report definition can be found. If Type is `Embedded` or `Base64Binary`, this element's value contains the report definition. If Type is `URL`, this element's value is the location of the external definition. A Type value of `SIF_Query` indicates that the SIF_QueryGroup element contains the definition.	`xs:string`

@	Type	M	This attribute indicates the source of the report definition.	**values:**
				
				`URL`
				`Embedded`
				`Base64Binary`
				`SIF_Query`
				`SIF_ExtendedQuery`

@	QueryLanguage	M	The vendor-defined query language used in the report definition (e.g. `SQL`, `ExampleObject`, `Description`, `com.vendor.format`, etc.). If the `Type` attribute is `SIF_Query`, then `QueryLanguage` should also be `SIF_Query`. If the `Type` attribute is `SIF_ExtendedQuery`, then `QueryLanguage` should also be `SIF_ExtendedQuery`.	`xs:token`
	ReportFormatList	O	An optional list of one or more third-party formats that describe the visual representation of the report data. If more than one report format is associated with a manifest, the implementation can choose the most applicable format by examining the ContentType attribute.	`List`
	ReportFormatList/ReportFormat	MR	A third-party format that describes the visual representation of the report data.	`xs:string`

	Element/@Attribute	Char	Description	Type
@	Type	M	This attribute indicates the encoding of the format reference.	**values:** URL Embedded Base64Binary
@	ContentType	M	The vendor-defined content type (e.g. `com.vendor.format`, `PDF`, etc.	xs:normalizedString
	SIF_QueryGroup	C	Parent element containing the querying criteria for extracting the report information if `ReportDefinitionSource/@Type` is `SIF_Query`.	List
	SIF_QueryGroup/SIF_Query	MR		SIF_Query
	SIF_ExtendedQuery	C	Query criteria for extracting the report information if `ReportDefinitionSource/@Type` is `SIF_ExtendedQuery`.	SIF_ExtendedQuery
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.21-1: ReportManifest

```
<ReportManifest RefId="C234516384746B387459000F84723A00" ReportAuthorityInfoRefId="8475637364574636373848484848483
    <SIF_Version>2.3</SIF_Version>
    <SIF_MaxBufferSize>102400000</SIF_MaxBufferSize>
    <ReceivingAuthority SIF_RefObject="ReportAuthorityInfo">8475637364574636373848484848484812</ReceivingAuthority>
    <ReportName>December 1 IDEA Students</ReportName>
    <Description>
          A report of all IDEA-eligible students receiving services on
          December 1
        </Description>
    <ReportingPeriod>
      <BeginReportDate>2003-12-01</BeginReportDate>
      <EndReportDate>2003-12-01</EndReportDate>
      <BeginSubmitDate>2003-12-02</BeginSubmitDate>
      <EndSubmitDate>2004-01-15</EndSubmitDate>
      <DueDate>2004-01-15</DueDate>
    </ReportingPeriod>
    <ReportDefinitionSource Type="URL" QueryLanguage="Description">http://www.state.edu/IDEAEligible.html</ReportDef
    <SIF_QueryGroup>
      <SIF_Query>
        <SIF_QueryObject ObjectName="StudentPersonal" />
      </SIF_Query>
      <SIF_Query>
        <SIF_QueryObject ObjectName="StudentSchoolEnrollment" />
        <SIF_ConditionGroup Type="And">
          <SIF_Conditions Type="None">
            <SIF_Condition>
              <SIF_Element>EntryDate</SIF_Element>
              <SIF_Operator>LE</SIF_Operator>
              <SIF_Value>20031201</SIF_Value>
            </SIF_Condition>
          </SIF_Conditions>
          <SIF_Conditions Type="Or">
            <SIF_Condition>
              <SIF_Element>ExitDate</SIF_Element>
              <SIF_Operator>EQ</SIF_Operator>
              <SIF_Value>20040530</SIF_Value>
            </SIF_Condition>
            <SIF_Condition>
              <SIF_Element>ExitDate</SIF_Element>
              <SIF_Operator>GE</SIF_Operator>
              <SIF_Value>20031201</SIF_Value>
            </SIF_Condition>
          </SIF_Conditions>
        </SIF_ConditionGroup>
      </SIF_Query>
      <SIF_Query>
        <SIF_QueryObject ObjectName="StudentParticipation" />
        <SIF_ConditionGroup Type="And">
          <SIF_Conditions Type="None">
            <SIF_Condition>
              <SIF_Element>@Type</SIF_Element>
              <SIF_Operator>EQ</SIF_Operator>
              <SIF_Value>IDEA</SIF_Value>
            </SIF_Condition>
          </SIF_Conditions>
          <SIF_Conditions Type="None">
            <SIF_Condition>
              <SIF_Element>ProgramPlacementDate</SIF_Element>
              <SIF_Operator>LE</SIF_Operator>
              <SIF_Value>20031201</SIF_Value>
            </SIF_Condition>
          </SIF_Conditions>
          <SIF_Conditions Type="Or">
            <SIF_Condition>
              <SIF_Element>ProgramExitDate</SIF_Element>
              <SIF_Operator>EQ</SIF_Operator>
              <SIF_Value />
            </SIF_Condition>
            <SIF_Condition>
              <SIF_Element>ProgramExitDate</SIF_Element>
              <SIF_Operator>GE</SIF_Operator>
              <SIF_Value>20031201</SIF_Value>
            </SIF_Condition>
          </SIF_Conditions>
        </SIF_ConditionGroup>
      </SIF_Query>
    </SIF_QueryGroup>
  </ReportManifest>
```

Example 6.3.21-1: ReportManifest

6.3.22 RoomInfo

This object contains all of the information about a school's room. This object may contain a reference to a room type so that it may represent anything from a gym, cafeteria, to a standard classroom. The StaffList element usually contains the homeroom teacher.

SIF_Events are reported for this object.
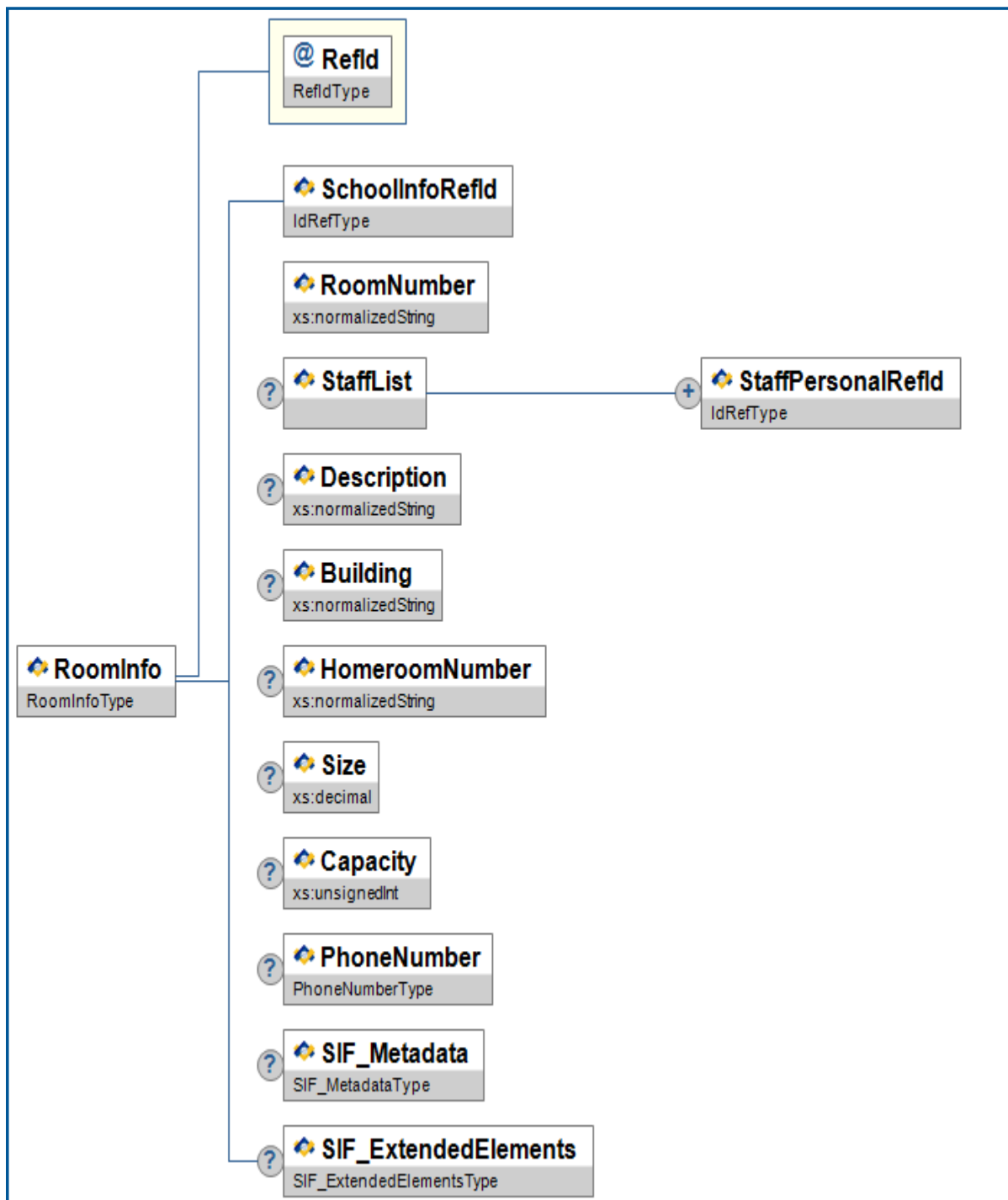
Figure 6.3.22-1: RoomInfo

	Element/@Attribute	Char	Description	Type
	RoomInfo		This object contains all of the information about a school's room. This object may contain a reference to a room type so that it may represent anything from a gym, cafeteria, to a standard classroom. The StaffList element usually contains the homeroom teacher.	
@ 🔑	RefId	M	GUID that identifies this room.	RefIdType
	SchoolInfoRefId	M	GUID that identifies the school that this room belongs to.	IdRefType
	RoomNumber	M	Room number as presented to the user/application.	xs:normalizedString
	StaffList	O		List
	StaffList/StaffPersonalRefId	MR	GUID that identifies the staff person assigned to this room (e.g. the homeroom teacher).	IdRefType
	Description	O	Friendly name that can be assigned to the room (e.g. Staff Cafeteria).	xs:normalizedString
	Building	O	Extra building information. In the future Building could become its own object in which case this element will need to be changed to a RefId. Currently it is only required as a free text field.	xs:normalizedString
	HomeroomNumber	O	When a room is designated as a homeroom it may have a different number. Usually blank when room is not a homeroom.	xs:normalizedString
	Size	O	Size in square meters.	xs:decimal
	Capacity	O	Number of persons (usually students) that this room can hold.	xs:unsignedInt
	PhoneNumber	O	Phone number for the room	PhoneNumber
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.22-1: RoomInfo

```
<RoomInfo RefId="D3E34B359D75101A8C3D00AA001A1652">
  <SchoolInfoRefId>A2E35B359D75101A8C3D00AA001A0000</SchoolInfoRefId>
  <RoomNumber>101</RoomNumber>
  <StaffList>
    <StaffPersonalRefId>A8C3A2E35B359D75101D00AA001A0000</StaffPersonalRefId>
  </StaffList>
  <Description>Room 101</Description>
  <Building>Main A</Building>
  <HomeroomNumber>10-HR-A</HomeroomNumber>
  <Size>400</Size>
  <Capacity>35</Capacity>
  <PhoneNumber Type="0096">
    <Number>(02) 9555-1234</Number>
  </PhoneNumber>
</RoomInfo>
```

Example 6.3.22-1: RoomInfo

6.3.23 SchoolCourseInfo

This object is for course information.

All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.

SIF_Events are reported for this object.

Figure 6.3.23-1: SchoolCourseInfo

	Element/@Attribute	Char	Description	Type
	SchoolCourseInfo		This object is for course information. All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies the school course.	RefIdType
	SchoolInfoRefId	M	The ID (GUID) that identifies the school where the course is offered.	IdRefType
	SchoolLocalId	O	The locally-assigned identifier for this school/campus.	LocalId
	SchoolYear	C	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007).	SchoolYear
	TermInfoRefId	C	The ID (GUID) that uniquely identifies this TermInfo (reportable time period). Either SchoolYear or TermInfoRefId must be provided.	IdRefType
	CourseCode	M	School-defined local code for the course.	xs:normalizedString

Element/@Attribute	Char	Description	Type
StateCourseCode	O	State-defined standard course code used to report information about courses.	xs:normalizedString
DistrictCourseCode	O	The corresponding district course code.	xs:normalizedString
SubjectAreaList	O	Subject matter areas.	SubjectAreaList
CourseTitle	M	Title of the course.	xs:normalizedString
Description	O	Textual description of the course.	xs:normalizedString
InstructionalLevel	O	An indication of the general nature and difficulty of instruction provided.	xs:normalizedString
CourseCredits	O	The number of credits awarded upon course completion.	xs:normalizedString
CoreAcademicCourse	O	Does the course meet the state definition of a core academic course?	AUCodeSetsYesOrNoCategoryType
GraduationRequirement	O	Does the state require that the course be completed for graduation?	AUCodeSetsYesOrNoCategoryType
Department	O	Department with jurisdiction over this course.	xs:normalizedString
CourseContent	O	Description of course content.	xs:normalizedString
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.23-1: SchoolCourseInfo

```
<SchoolCourseInfo RefId="9D75101A8C3D00AA001A0000A2E35B35">
  <SchoolInfoRefId>101A8C3D00AA001A0000A2E35B359D75</SchoolInfoRefId>
  <SchoolYear>2006</SchoolYear>
  <CourseCode>CS101</CourseCode>
  <StateCourseCode>08-001</StateCourseCode>
  <DistrictCourseCode>CS101</DistrictCourseCode>
  <SubjectAreaList>
    <SubjectArea>
      <Code>Graphic Arts</Code>
    </SubjectArea>
  </SubjectAreaList>
  <CourseTitle>Gif, JPeg, or Png: What's the Difference?</CourseTitle>
  <Description>Explore the various types of files related to graphic arts.</Description>
  <InstructionalLevel>0571</InstructionalLevel>
  <CourseCredits>2</CourseCredits>
  <CoreAcademicCourse>N</CoreAcademicCourse>
  <GraduationRequirement>N</GraduationRequirement>
</SchoolCourseInfo>
```

Example 6.3.23-1: SchoolCourseInfo

6.3.24 SchoolInfo

This object contains information about the school.

SIF_Events are reported for this object.

SchoolInfo
SchoolInfoType

SessionType
AUCodeSetsSessionTypeType

YearLevels
YearLevelsType

ARIA
xs:decimal

OperationalStatus
OperationalStatusType

FederalElectorate
AUCodeSetsFederalElectorateType

Campus

SchoolCampusId
xs:normalizedString

CampusType
AUCodeSetsSchoolLevelType

AdminStatus
AUCodeSetsYesOrNoCategoryType

SchoolSector
AUCodeSetsSchoolSectorCodeType

IndependentSchool
AUCodeSetsYesOrNoCategoryType

NonGovSystemicStatus
AUCodeSetsSystemicStatusType

System
AUCodeSetsSchoolSystemType

ReligiousAffiliation
AUCodeSetsAustralianStandardClassificationOfReligiousGroupsASCRGType

SchoolGeographicLocation
AUCodeSetsSchoolLocationType

LocalGovernmentArea
xs:normalizedString

JurisdictionLowerHouse
xs:normalizedString

SLA

Figure 6.3.24-1: SchoolInfo

Element/@Attribute	Char	Description	Type
SchoolInfo		This object contains information about the school.	
@🔑 RefId	M	The GUID that identifies this school.	RefIdType
LocalId	O	The locally-assigned identifier for this school.	LocalId
StateProvinceId	O	The state-assigned identifier for this school.	StateProvinceId
CommonwealthId	O	Commonwealth identifier for this school/campus.	xs:normalizedString
SchoolName	M	Name of school/campus.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	LEAInfoRefId	O	The ID (GUID) that references the school district of which this school is a member.	RefIdType
	OtherLEA	O	The ID (GUID) of another related education agency, such as a regional service agency.	RefIdType
@	SIF_RefObject	M	The name of the object reference.	**values:** LEAInfo
	SchoolDistrict	O	The school district of which this school/campus is a member. Equivalent to DEECD Region.	xs:normalizedString
	SchoolDistrictLocalId	O	The school district Local ID. This should be the same as the LocalId in the LEAInfo if LEAInfo details are supplied.	LocalId
	SchoolType	O	An indication of the level of the educational institution.	AUCodeSetsSchoolLevelType
	SchoolFocusList	O	List containing the education focus codes of the campus/school.	List
	SchoolFocusList/SchoolFocus	MR	The type of educational institution as classified by its focus.	AUCodeSetsSchoolFocusCodeType
	SchoolURL	O	URL for the school.	SchoolURL

Element/@Attribute	Char	Description	Type
PrincipalInfo	O	Information about the campus or school principal.	PrincipalInfo
SchoolContactList	O	A list of contact persons associated with a school.	SchoolContactList
AddressList	O	The school's addresses.	AddressList
PhoneNumberList	O	The school's phone numbers.	PhoneNumberList
SessionType	O	Code that specifies the session type.	AUCodeSetsSessionTypeType
YearLevels	O	List of year levels offered by the school.	YearLevels
ARIA	O	Accessibility/Remoteness Indicator of Australia.	xs:decimal
OperationalStatus	O	Operational condition of a school.	OperationalStatus
FederalElectorate	O	Australian Federal Electorate.	AUCodeSetsFederalElectorateType
Campus	O	Optional campus details.	
Campus/SchoolCampusId	M	Campus ID - Needs to be considered as part of school. Different campus' have different addresses.	xs:normalizedString
Campus/CampusType	O	Type of campus.	AUCodeSetsSchoolLevelType
Element/@Attribute	Char	Description	Type

Element/@Attribute	Char	Description	Type
Campus/AdminStatus	M	Is this campus the Admin Campus?	AUCodeSetsYesOrNoCategoryType
SchoolSector	M	(Government, or Non-Government).	AUCodeSetsSchoolSectorCodeType
IndependentSchool	O	Indicator as to whether school is an independent school (as opposed to government or catholic school).	AUCodeSetsYesOrNoCategoryType
NonGovSystemicStatus	O	Used to clarify a non-government school's systemic status. Either Systemic or Non-Systemic.	AUCodeSetsSystemicStatusType
System	O	System if a systemic school.	AUCodeSetsSchoolSystemType
ReligiousAffiliation	O	Religious affiliation (if any).	AUCodeSetsAustralianStandardClassificationOfReligiousGroupsASC
SchoolGeographicLocation	O	School Location from MCEETCYA.	AUCodeSetsSchoolLocationType
LocalGovernmentArea	O	LocalGovernmentArea that that school/campus is located in.	xs:normalizedString
JurisdictionLowerHouse	O	Lower House area that the school/campus belongs to.	xs:normalizedString
SLA	O	Statistical Local Area that the school/campus belongs to.	AUCodeSetsAustralianStandardGeographicalClassificationASGCType
Element/@Attribute	Char	Description	Type

	Element/@Attribute	Char	Description	Type
	SchoolCoEdStatus	O	Gender of student population.	AUCodeSetsSchoolCoEdStatusType
	BoardingSchoolStatus	O	Is this school a Boarding School?	AUCodeSetsYesOrNoCategoryType
	Entity_Open	O	Opening date of entity.	xs:date
	Entity_Close	O	Closing date of entity. This element is allowed to be omitted and/or null.	xs:date
	SchoolGroupList	O		List
	SchoolGroupList/SchoolGroup	MR	Repeatable element containing a local identifier to identify a loosely connected group of schools. eg. YarraValley Cluster	LocalId
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.24-1: SchoolInfo

```
<SchoolInfo RefId="D3E34B359D75101A8C3D00AA001A1652">
  <LocalId>01011234</LocalId>
  <StateProvinceId>01011234</StateProvinceId>
  <CommonwealthId>012345</CommonwealthId>
  <SchoolName>Lincoln Secondary College</SchoolName>
  <LEAInfoRefId>73648462888624AA5294BC6380173276</LEAInfoRefId>
  <OtherLEA SIF_RefObject="LEAInfo">AA648462888624AA5294BC638017320B</OtherLEA>
  <SchoolDistrict> Southern Metropolitan Region</SchoolDistrict>
  <SchoolType>Pri/Sec</SchoolType>
  <SchoolFocusList>
    <SchoolFocus>01</SchoolFocus>
    <SchoolFocus>03</SchoolFocus>
  </SchoolFocusList>
  <SchoolURL>http://www.lincolnsc.edu.vic.au</SchoolURL>
  <PrincipalInfo>
    <ContactName Type="LGL">
      <Title>Mr</Title>
      <FamilyName>Mason</FamilyName>
      <GivenName>Francis</GivenName>
      <MiddleName>Frank</MiddleName>
      <Suffix>Jr.</Suffix>
      <FullName>Mr Frank Mason Jr.</FullName>
    </ContactName>
    <ContactTitle>Senior School Principal</ContactTitle>
  </PrincipalInfo>
  <SchoolContactList>
    <SchoolContact>
      <PublishInDirectory>Y</PublishInDirectory>
      <ContactInfo>
        <Name Type="LGL">
          <Title>Mr</Title>
          <FamilyName>Miller</FamilyName>
          <GivenName>James</GivenName>
          <MiddleName>Mark</MiddleName>
          <Suffix>Jr.</Suffix>
          <FullName>Mr James Mark Miller Jr.</FullName>
        </Name>
        <PositionTitle>Business Manager</PositionTitle>
        <Role>School Information Contact Point</Role>
        <Address Type="0123" Role="012B">
          <Street>
            <Line1>23 Nicholson Street</Line1>
          </Street>
          <City>Carnegie</City>
          <StateProvince>VIC</StateProvince>
          <Country>1101</Country>
          <PostalCode>3004</PostalCode>
          <GridLocation>
            <Latitude>23.9876</Latitude>
            <Longitude>-98.8765</Longitude>
          </GridLocation>
        </Address>
        <EmailList>
          <Email Type="01">jmiller@lsc.vic.edu.au</Email>
          <Email Type="02">jmiller@yahoo.com.au</Email>
        </EmailList>
        <PhoneNumberList>
          <PhoneNumber Type="0096">
            <Number>03 9637-2000</Number>
            <Extension>72345</Extension>
            <ListedStatus>Y</ListedStatus>
          </PhoneNumber>
        </PhoneNumberList>
      </ContactInfo>
    </SchoolContact>
  </SchoolContactList>
  <PhoneNumberList>
    <PhoneNumber Type="0096">
      <Number>03 9637-2000</Number>
    </PhoneNumber>
  </PhoneNumberList>
  <SessionType>0827</SessionType>
  <YearLevels>
    <YearLevel>
      <Code>6</Code>
    </YearLevel>
    <YearLevel>
      <Code>7</Code>
    </YearLevel>
    <YearLevel>
      <Code>8</Code>
    </YearLevel>
    <YearLevel>
```

```
      <Code>9</Code>
    </YearLevel>
    <YearLevel>
      <Code>10</Code>
    </YearLevel>
    <YearLevel>
      <Code>11</Code>
    </YearLevel>
    <YearLevel>
      <Code>12</Code>
    </YearLevel>
  </YearLevels>
  <ARIA>1.0</ARIA>
  <OperationalStatus>O</OperationalStatus>
  <FederalElectorate>216</FederalElectorate>
  <Campus>
    <SchoolCampusId>01</SchoolCampusId>
    <CampusType>Camp</CampusType>
    <AdminStatus>Y</AdminStatus>
  </Campus>
  <SchoolSector>NG</SchoolSector>
  <IndependentSchool>Y</IndependentSchool>
  <NonGovSystemicStatus>S</NonGovSystemicStatus>
  <System>0003</System>
  <ReligiousAffiliation>2171</ReligiousAffiliation>
  <SchoolGeographicLocation>1</SchoolGeographicLocation>
  <LocalGovernmentArea>Cardinia</LocalGovernmentArea>
  <JurisdictionLowerHouse>Unknown</JurisdictionLowerHouse>
  <SLA>205801452</SLA>
  <SchoolCoEdStatus>C</SchoolCoEdStatus>
  <SchoolGroupList>
    <SchoolGroup>YVC</SchoolGroup>
    <SchoolGroup>EastSec01</SchoolGroup>
  </SchoolGroupList>
</SchoolInfo>
```

Example 6.3.24-1: SchoolInfo

6.3.25 SchoolPrograms

This object contains information about Programs offered by a school.

SIF_Events are reported for this object.
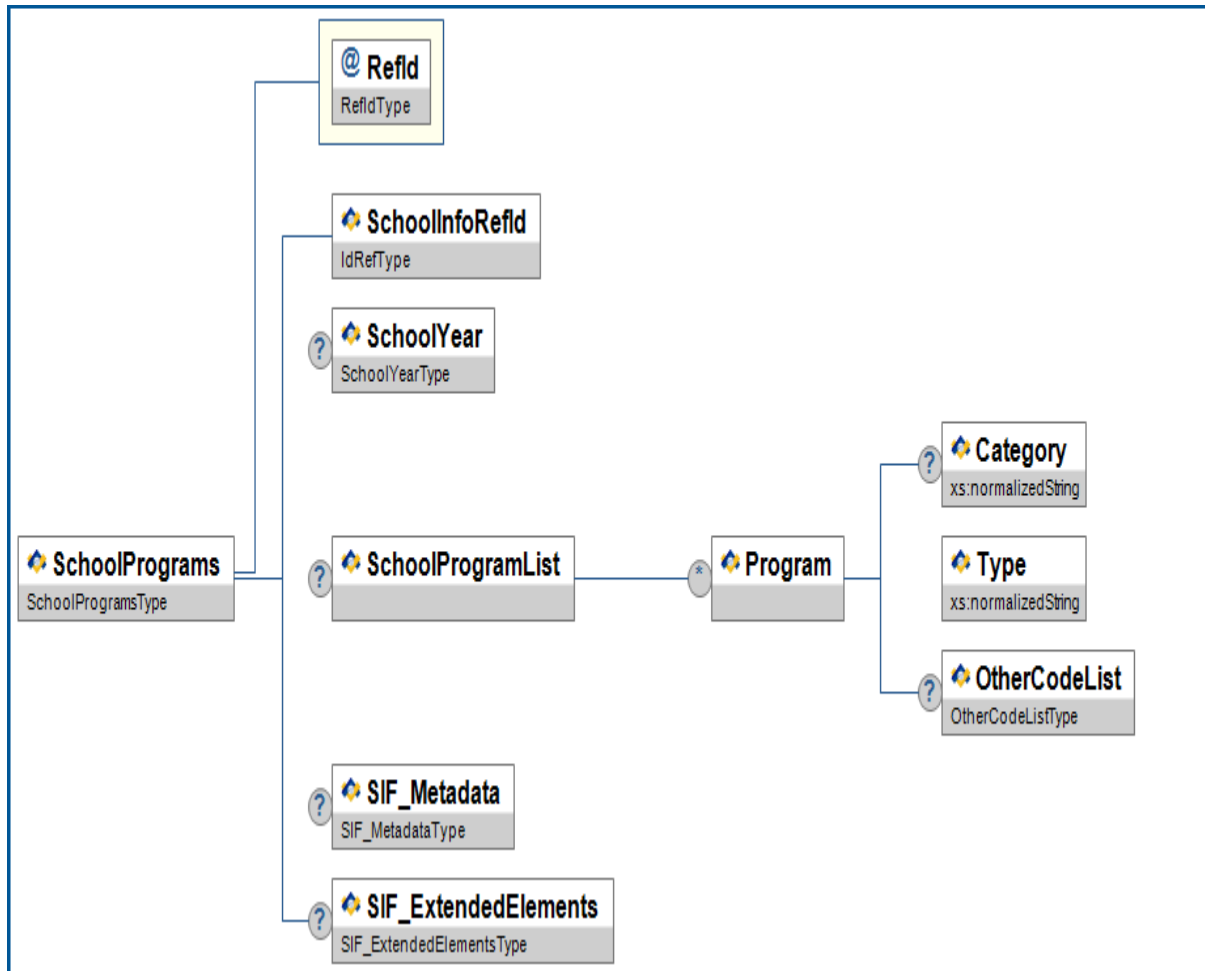
Figure 6.3.25-1: SchoolPrograms

Element/@Attribute	Char	Description	Type
SchoolPrograms		This object contains information about Programs offered by a school.	
@ RefId	M	GUID that uniquely identifies this instance of the object.	RefIdType
SchoolInfoRefId	M	GUID that identifies the school offering this program.	IdRefType
SchoolYear	O	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
SchoolProgramList	O	List of School Programs	List
SchoolProgramList/Program	OR		
SchoolProgramList/Program/ Category	O	Program Category	xs:normalizedString
SchoolProgramList/Program/ Type	M	Program Type	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	SchoolProgramList/Program/ OtherCodeList	O		OtherCodeList
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.25-1: SchoolPrograms

```
<SchoolPrograms RefId="D3E34B359D75101A8C3D00AA001A1652">
  <SchoolInfoRefId>73648462888624AA5294BC6380173276</SchoolInfoRefId>
  <SchoolYear>2009</SchoolYear>
  <SchoolProgramList>
    <Program>
      <Category>01</Category>
      <Type>Steiner program</Type>
    </Program>
    <Program>
      <Category>01</Category>
      <Type>Tournament of minds</Type>
    </Program>
  </SchoolProgramList>
</SchoolPrograms>
```

Example 6.3.25-1: SchoolPrograms

6.3.26 SessionInfo

This object provides the link between Period Attendance and the school's timetable. It allows subject and teaching group information to be communicated to/from the attendance system.

This object provides information about the session the specific instance of a timetable cell for against which the attendance is recorded. (Please note, the TimeTableCell object represents a session scheduled in a timetable. There may be many SessionInfo objects for the same TimeTableCell each for a different week/fortnight, depending on the length of the timetable schedule. Attendance is recorded against the SessionInfo object.

SIF_Events are reported for this object.
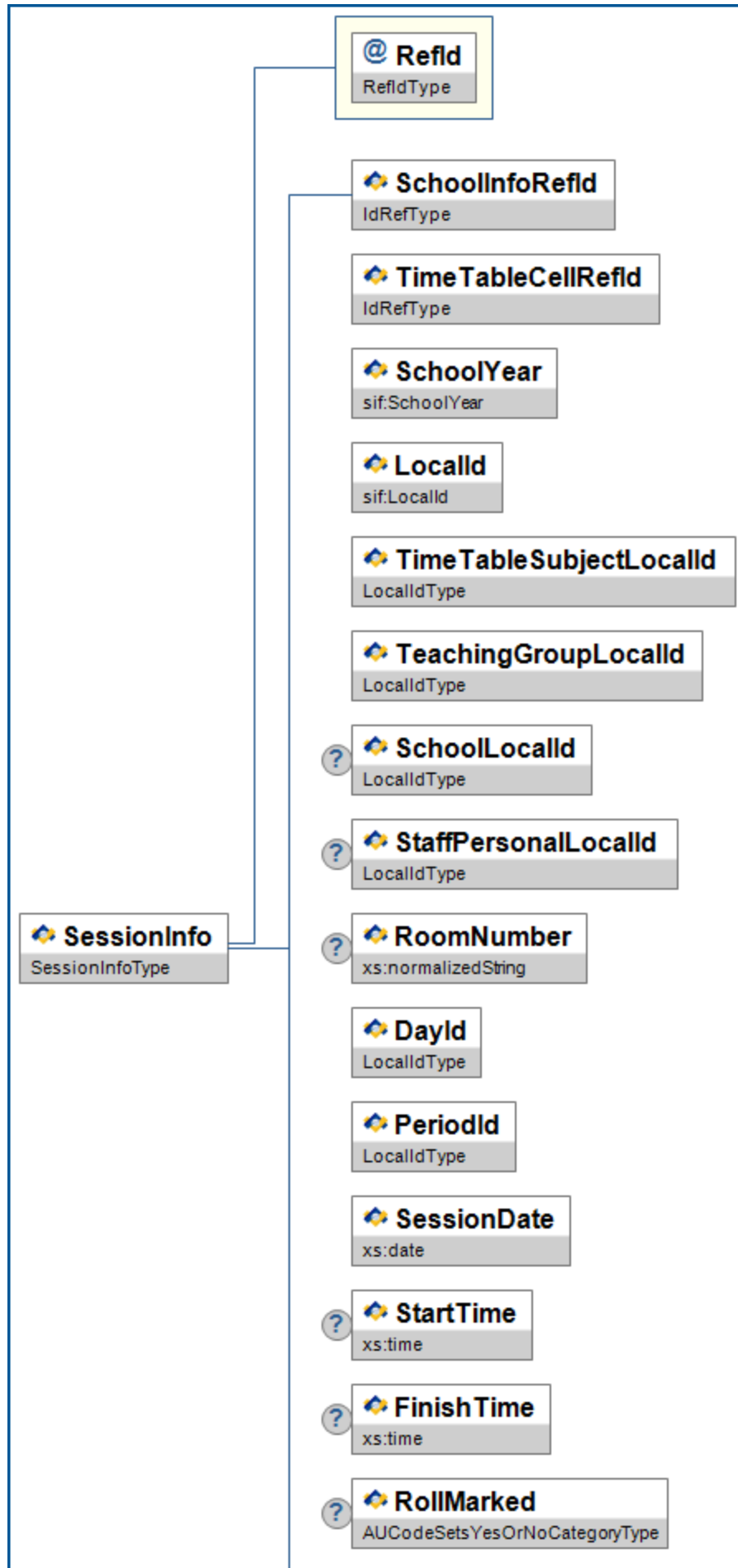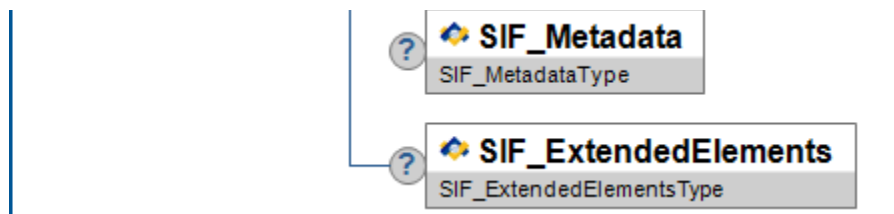
Figure 6.3.26-1: SessionInfo

	Element/@Attribute	Char	Description	Type
	SessionInfo		This object provides the link between Period Attendance and the school's timetable. It allows subject and teaching group information to be communicated to/from the attendance system.	
			This object provides information about the session the specific instance of a timetable cell for against which the attendance is recorded. (Please note, the TimeTableCell object represents a session scheduled in a timetable. There may be many SessionInfo objects for the same TimeTableCell each for a different week/fortnight, depending on the length of the timetable schedule. Attendance is recorded against the SessionInfo object.	
@ 🔑	RefId	M	The GUID of the Object	RefIdType
	SchoolInfoRefId	M	The ID (GUID) of the school for which this attendance information is being reported.	IdRefType
	TimeTableCellRefId	M	The (GUID) of the piece of Curriculum (TT Grid) scheduled	IdRefType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2007").	SchoolYear
	LocalId	M	Session Local Identifier	LocalId
	TimeTableSubjectLocalId	M	TimeTableSubject Local Identifier	LocalId
	TeachingGroupLocalId	M	Teaching Group Local Identifier	LocalId
	SchoolLocalId	O	School Local Identifier	LocalId

Element/@Attribute	Char	Description	Type
StaffPersonalLocalId	O	Staff Local Identifier	LocalId
RoomNumber	C	Room number as presented to the user or application. Needs to be provided if changed from TimeTableCell.	xs:normalizedString
DayId	M	Day Id	LocalId
PeriodId	M	Period Id within the Day Id	LocalId
SessionDate	M	Date of Session	xs:date
StartTime	O	Optional Start Time	xs:time
FinishTime	O	Optional End Time	xs:time
RollMarked	O	Was the Roll Marked for this Period?	AUCodeSetsYesOrNoCategoryType
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.26-1: SessionInfo

```
<SessionInfo RefId="98157AA013BA8C3D00AA012B359D7512">
  <SchoolInfoRefId>11737EA4301CADCA75C87214A7C46BDB</SchoolInfoRefId>
  <TimeTableCellRefId>A75A00101A8C301D02E3A05B359D0A00</TimeTableCellRefId>
  <SchoolYear>2008</SchoolYear>
  <LocalId>2</LocalId>
  <TimeTableSubjectLocalId>10MA1</TimeTableSubjectLocalId>
  <SchoolLocalId>01991</SchoolLocalId>
  <StaffPersonalLocalId>SMI009</StaffPersonalLocalId>
  <RoomNumber>R08</RoomNumber>
  <DayId>1</DayId>
  <PeriodId>5</PeriodId>
  <SessionDate>2008-10-10</SessionDate>
  <StartTime>12:05:00</StartTime>
  <FinishTime>13:30:00</FinishTime>
  <RollMarked>Y</RollMarked>
</SessionInfo>
```

Example 6.3.26-1: SessionInfo

6.3.27 SIF_ReportObject

This object is an envelope used to send other data objects, typically reports, to authorities such as state departments of education, district offices, other schools, etc. It is also used to signal a data collector agent that a report is compiled and ready to be requested. SIF_ReportObject contains a data object, which is either complete or partial (a partial data object is one that contains a subset of the elements for the data object). One or a series of SIF_ReportObjects contained within one or a series of related SIF_Response messages makes up a complete report.

SIF_Events are reported for this object.
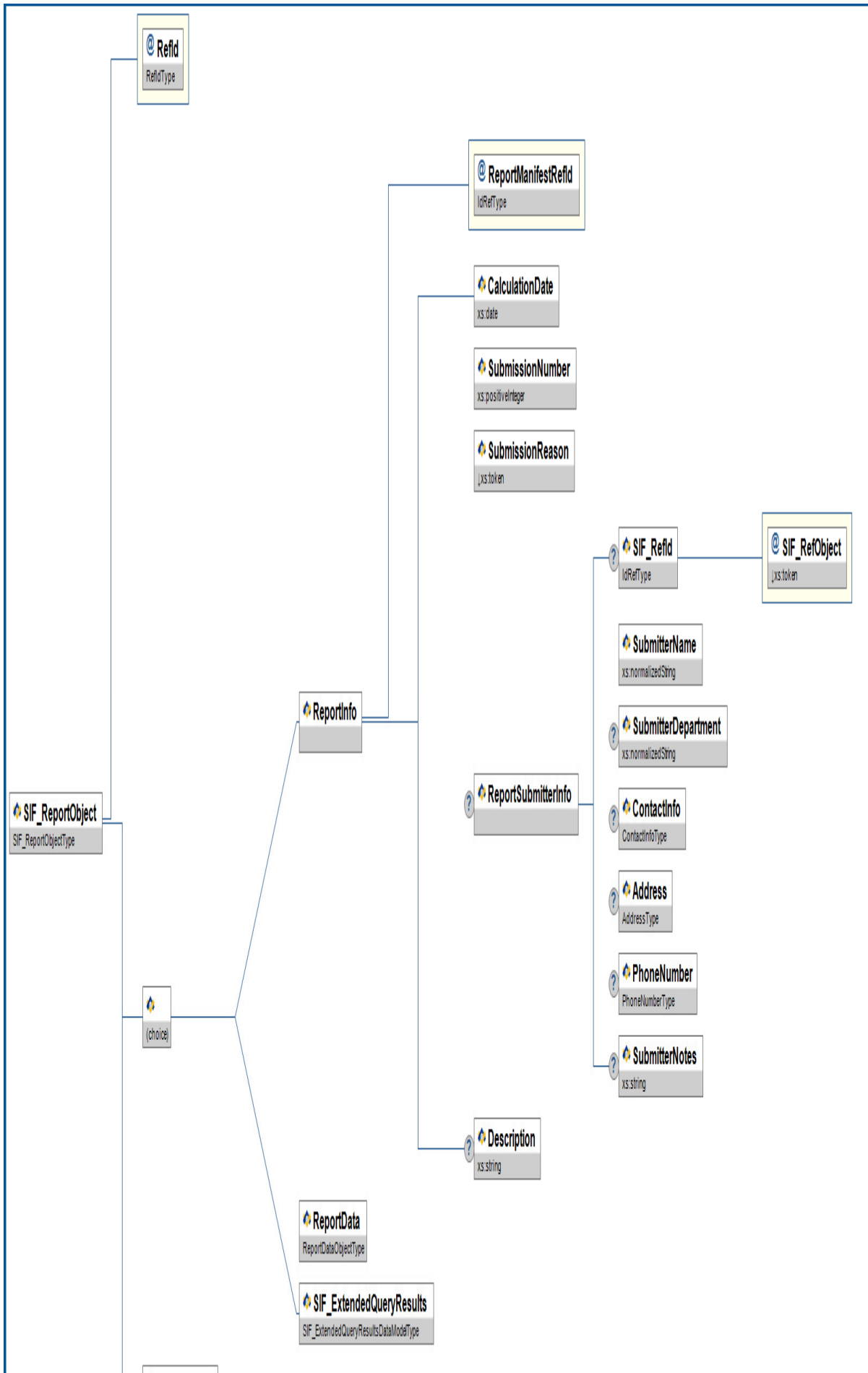
Figure 6.3.27-1: SIF_ReportObject

	Element/@Attribute	Char	Description	Type
	SIF_ReportObject		This object is an envelope used to send other data objects, typically reports, to authorities such as state departments of education, district offices, other schools, etc. It is also used to signal a data collector agent that a report is compiled and ready to be requested. SIF_ReportObject contains a data object, which is either complete or partial (a partial data object is one that contains a subset of the elements for the data object). One or a series of SIF_ReportObjects contained within one or a series of related SIF_Response messages makes up a complete report.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies this instance of a report.	RefIdType
	ReportInfo	C	Identifies the manifest for the report and characteristics of the submission. This element is a conditional element. This element, the ReportData element, or the SIF_ExtendedQueryResults element is included but never more than one at the same time within an instance of this object. See examples of the usage of the object below.	
@	ReportManifestRefId	M	The report manifest corresponding to this report.	IdRefType
	ReportInfo/CalculationDate	M	The date on which the report was calculated.	xs:date
	ReportInfo/SubmissionNumber	M	A number that identifies the submission; beginning at 1 and incremented each time a submission is done for a particular report; used to indicate resubmission(s).	xs:positiveInteger
	ReportInfo/SubmissionReason	M	Reason for the report submission.	**values:** Initial Correction Revision Addition

	Element/@Attribute	Char	Description	Type
	ReportInfo/ReportSubmitterInfo	C	Identifies the submitter of the report. This element is conditional depending on the context in which the SIF_ReportObject is used. It must be present in the ReportInfo element when a SIF_ReportObject is sent to a report authority in a SIF_Event message. However, its presence is optional in SIF_ReportObject packets delivered to report authorities in SIF_Response messages.	
	ReportInfo/ReportSubmitterInfo/ SIF_RefId	O	If the submitter is described by another SIF data object such as a SchoolInfo or LEAInfo instance, this element references that object by RefId.	IdRefType
@	SIF_RefObject	M	The name of a SIF data object. When used in the context of ReportSubmitterInfo, this attribute must have one of the following values.	**values:** LEAInfo The submitter of the SIF_ReportObject is the district or other agency referenced by a LEAInfo object SchoolInfo The submitter of the SIF_ReportObject is the school referenced by a SchoolInfo object
	ReportInfo/ReportSubmitterInfo/ SubmitterName	M	Name of the report submitter. This is a descriptive string that names the entity submitting the SIF_ReportObject to the report authority. It could be the name of an agency, a district, a school, the SIF_SourceId of the submitting agent, or any other string that a report authority could use to identify the submitter of a report. This element may be present regardless of the presence of the SIF_RefId and SIF_RefObject elements. When those elements are used, it is recommended that collector agents reproduce the name of the LEA or school here.	xs:normalizedString
	ReportInfo/ReportSubmitterInfo/ SubmitterDepartment	O	Department, office, or subdivision of the agency submitting the report.	xs:normalizedString
	ReportInfo/ReportSubmitterInfo/ ContactInfo	O	Information on the contact person in this agency submitting the report.	ContactInfo
	ReportInfo/ReportSubmitterInfo/ Address	O		Address
	ReportInfo/ReportSubmitterInfo/ PhoneNumber	O		PhoneNumber

	Element/@Attribute	Char	Description	Type
	ReportInfo/ReportSubmitterInfo/ SubmitterNotes	O	Optional notes for the report authority, such as information about a district's reporting policies and procedures, instructions for contacting the district for technical support, etc.	xs:string
	ReportInfo/Description	O		xs:string
	ReportData	C	Container element for the report content; one valid SIF object can occur as a child here. This element is conditional. This element or ReportInfo or SIF_ExtendedQueryResults is included but never at the same time. See examples of the usage of the object below.	ReportDataObjectType
	SIF_ExtendedQueryResults	C	The report content resulting from a SIF_ExtendedQuery-based report. This element is conditional. This element or ReportInfo or ReportData is included but never at the same time.	SIF_ExtendedQueryResults
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.27-1: SIF_ReportObject

```xml
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>FAE9D90A38F84B729C92F868CB63C9F3</SIF_MsgId>
      <SIF_Timestamp>2006-10-15T09:23:26-05:00</SIF_Timestamp>
      <SIF_SourceId>XXXX Agent</SIF_SourceId>
      <SIF_DestinationId>STATE</SIF_DestinationId>
    </SIF_Header>
    <SIF_RequestMsgId>EB79C3D1FF1911D785138B604A511DAD</SIF_RequestMsgId>
    <SIF_PacketNumber>1</SIF_PacketNumber>
    <SIF_MorePackets>No</SIF_MorePackets>
    <SIF_ObjectData>
      <SIF_ReportObject RefId="B234516384746B387459000F84723A00">
        <ReportInfo ReportManifestRefId="B234516384746B387459000F84723A00">
          <CalculationDate>2003-08-19</CalculationDate>
          <SubmissionNumber>1</SubmissionNumber>
          <SubmissionReason>Initial</SubmissionReason>
          <ReportSubmitterInfo>
            <SubmitterName>Wasatch School District 441</SubmitterName>
            <SubmitterDepartment>Central Data Services Center</SubmitterDepartment>
            <ContactInfo>
              <Name Type="LGL">
                <Title>Mr</Title>
                <FamilyName>Miller</FamilyName>
                <GivenName>James</GivenName>
                <MiddleName>Frank</MiddleName>
                <Suffix>Jr.</Suffix>
                <FullName>Mr James Frank Miller Jr.</FullName>
              </Name>
              <PositionTitle>Business Manager</PositionTitle>
              <Role>School Information Contact Point</Role>
              <Address Type="0123" Role="012B">
                <Street>
                  <Line1>23 Nicholson Street</Line1>
                </Street>
                <City>Carnegie</City>
                <StateProvince>VIC</StateProvince>
                <Country>1101</Country>
                <PostalCode>3004</PostalCode>
                <GridLocation>
                  <Latitude>23.9876</Latitude>
                  <Longitude>-98.8765</Longitude>
                </GridLocation>
              </Address>
              <EmailList>
                <Email Type="01">jmiller@lsc.vic.edu.au</Email>
                <Email Type="02">jmiller@yahoo.com.au</Email>
              </EmailList>
              <PhoneNumberList>
                <PhoneNumber Type="0096">
                  <Number>03 9637-2000</Number>
                  <Extension>72345</Extension>
                  <ListedStatus>Y</ListedStatus>
                </PhoneNumber>
              </PhoneNumberList>
            </ContactInfo>
            <PhoneNumber Type="0096">
              <Number>(555) 555-1010</Number>
            </PhoneNumber>
            <SubmitterNotes>Wasatch School District's Vertical Reporting policies can be found on-line at http://w
          </ReportSubmitterInfo>
        </ReportInfo>
      </SIF_ReportObject>
      <SIF_ReportObject RefId="B234516384746B387459000F84723A00">
        <ReportData>
          <StudentPersonal RefId="5D1F2390F33F11D7B64CD17E020C45AB" />
        </ReportData>
      </SIF_ReportObject>
      <SIF_ReportObject RefId="B234516384746B387459000F84723A00">
        <ReportData>
          <StudentSchoolEnrollment RefId="5DF9A510F33F11D7B64C970DE3494F35" />
        </ReportData>
      </SIF_ReportObject>
      <SIF_ReportObject RefId="B234516384746B387459000F84723A00">
        <ReportData>
          <SchoolInfo RefId="56E86900F33F11D7B64CBCCE0CB2E03A" />
        </ReportData>
      </SIF_ReportObject>
    </SIF_ObjectData>
  </SIF_Response>
</SIF_Message>
```

Example 6.3.27-1: SIF_ReportObject

6.3.28 StaffAssignment

This object defines information related to a staff member's assignment(s); commonly, this will be a school assignment.

SIF_Events are reported for this object.
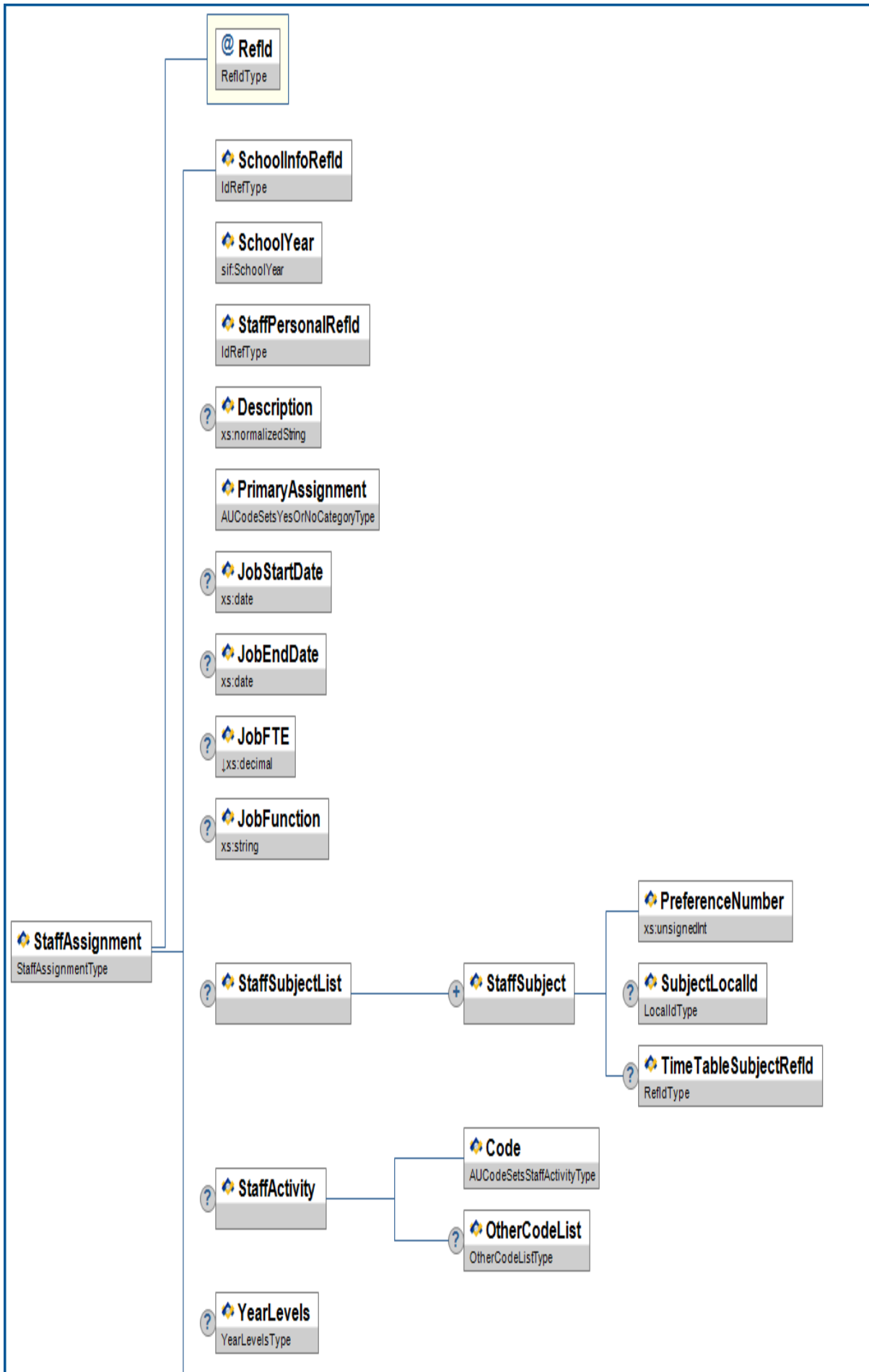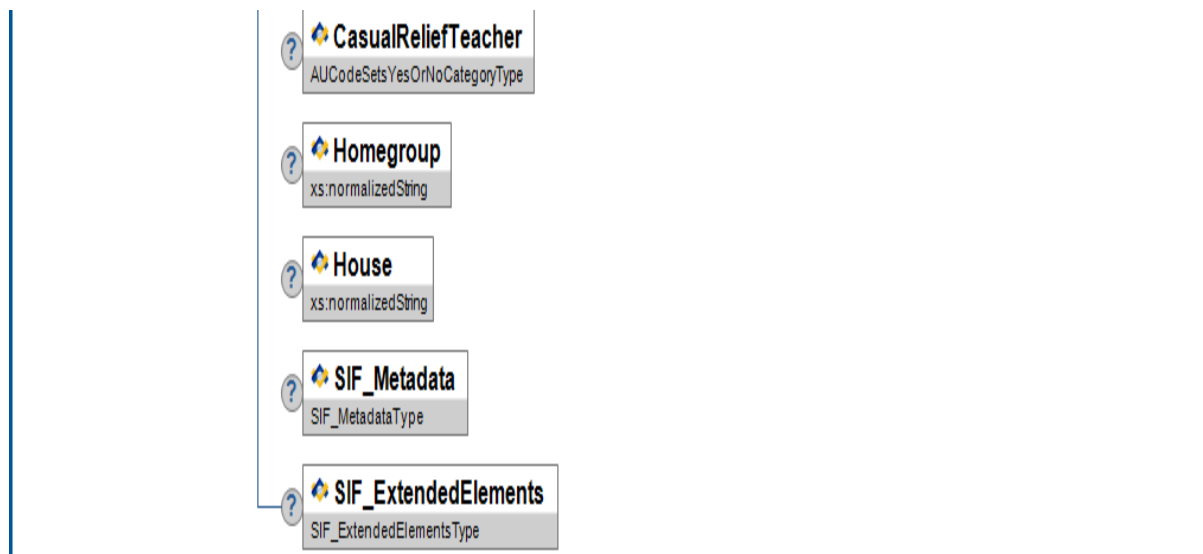
Figure 6.3.28-1: StaffAssignment

Element/@Attribute	Char	Description	Type
StaffAssignment		This object defines information related to a staff member's assignment(s); commonly, this will be a school assignment.	
@ 🔑 RefId	M	The GUID that uniquely identifies a particular staff assignment.	RefIdType
SchoolInfoRefId	M	The ID (GUID) that identifies the school where the staff member is assigned.	IdRefType
SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., 2007).	SchoolYear
StaffPersonalRefId	M	ID (GUID) of this staff member, as represented in the StaffPersonal object.	IdRefType
Description	O	Short assignment description	xs:normalizedString
PrimaryAssignment	M	Is this the staff member's primary assignment? Note: There must be one and only one instance of the object with a Yes value in this element per school year.	AUCodeSetsYesOrNoCategoryType
JobStartDate	O	This is the date from which the staff assignment is valid (inclusive).	xs:date

Element/@Attribute	Char	Description	Type
JobEndDate	O	This is the date through which the staff assignment is valid (inclusive).	xs:date
JobFTE	O	Full-time job equivalent ratio for this assignment. (Format is x.xx; an employee who is full-time and who is 50% of their time on this assignment would be represented as 0.50)	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 2
JobFunction	O	The purpose of the activities as related to students.	xs:string
StaffSubjectList	O	Subject(s) Staff member is eligible to teach.	List
StaffSubjectList/StaffSubject	MR	This element contains Staff subjects they are eligible to teach together with the teaching preference.	
StaffSubjectList/StaffSubject/ PreferenceNumber	M	Priority of Subject to Teach.	xs:unsignedInt
StaffSubjectList/StaffSubject/ SubjectLocalId	O	Local Subject Id	LocalId
StaffSubjectList/StaffSubject/ TimeTableSubjectRefId	O	RefId of TimeTableSubject	RefIdType
StaffActivity	O	The purpose of the Teacher's role as related to students. Equivalent to 'JobFunction' in US Object.	
StaffActivity/Code	M	Code representing the type of staff activity undertaken.	AUCodeSetsStaffActivityType
StaffActivity/OtherCodeList	O		OtherCodeList
YearLevels	O	Year level(s) that the teacher is allowed to teach.	YearLevels
CasualReliefTeacher	O	Is this teacher a casual relief teacher CRT?	AUCodeSetsYesOrNoCategoryType
Homegroup	O	The name of the homegroup the staff member is assigned to.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	House	O	The name of the house the staff member is assigned to.	`xs:normalizedString`
	SIF_Metadata	O		`SIF_Metadata`
	SIF_ExtendedElements	O		`SIF_ExtendedElements`

Table 6.3.28-1: StaffAssignment

```
<StaffAssignment RefId="D3E34B359D75101A8C3D00AA001A1652">
  <SchoolInfoRefId>A8C3D3E34B359D75101D00AA001A1652</SchoolInfoRefId>
  <SchoolYear>2008</SchoolYear>
  <StaffPersonalRefId>D3E34B359D75101A8C3D00AA001A1651</StaffPersonalRefId>
  <Description>VCE English Teacher</Description>
  <PrimaryAssignment>Y</PrimaryAssignment>
  <JobStartDate>2000-09-05</JobStartDate>
  <JobEndDate>2001-06-25</JobEndDate>
  <JobFTE>1.00</JobFTE>
  <JobFunction>Teacher</JobFunction>
  <StaffSubjectList>
    <StaffSubject>
      <PreferenceNumber>1</PreferenceNumber>
      <SubjectLocalId>English</SubjectLocalId>
    </StaffSubject>
    <StaffSubject>
      <PreferenceNumber>2</PreferenceNumber>
      <SubjectLocalId>Mathematics</SubjectLocalId>
    </StaffSubject>
    <StaffSubject>
      <PreferenceNumber>3</PreferenceNumber>
      <SubjectLocalId>Science</SubjectLocalId>
    </StaffSubject>
  </StaffSubjectList>
  <YearLevels>
    <YearLevel>
      <Code>11</Code>
    </YearLevel>
    <YearLevel>
      <Code>12</Code>
    </YearLevel>
  </YearLevels>
  <CasualReliefTeacher>N</CasualReliefTeacher>
</StaffAssignment>
```

Example 6.3.28-1: StaffAssignment

6.3.29 StaffPersonal

This object contains all the personal information relating to a staff member, who might be a teacher or other employee of the school or district.

SIF_Events are reported for this object.
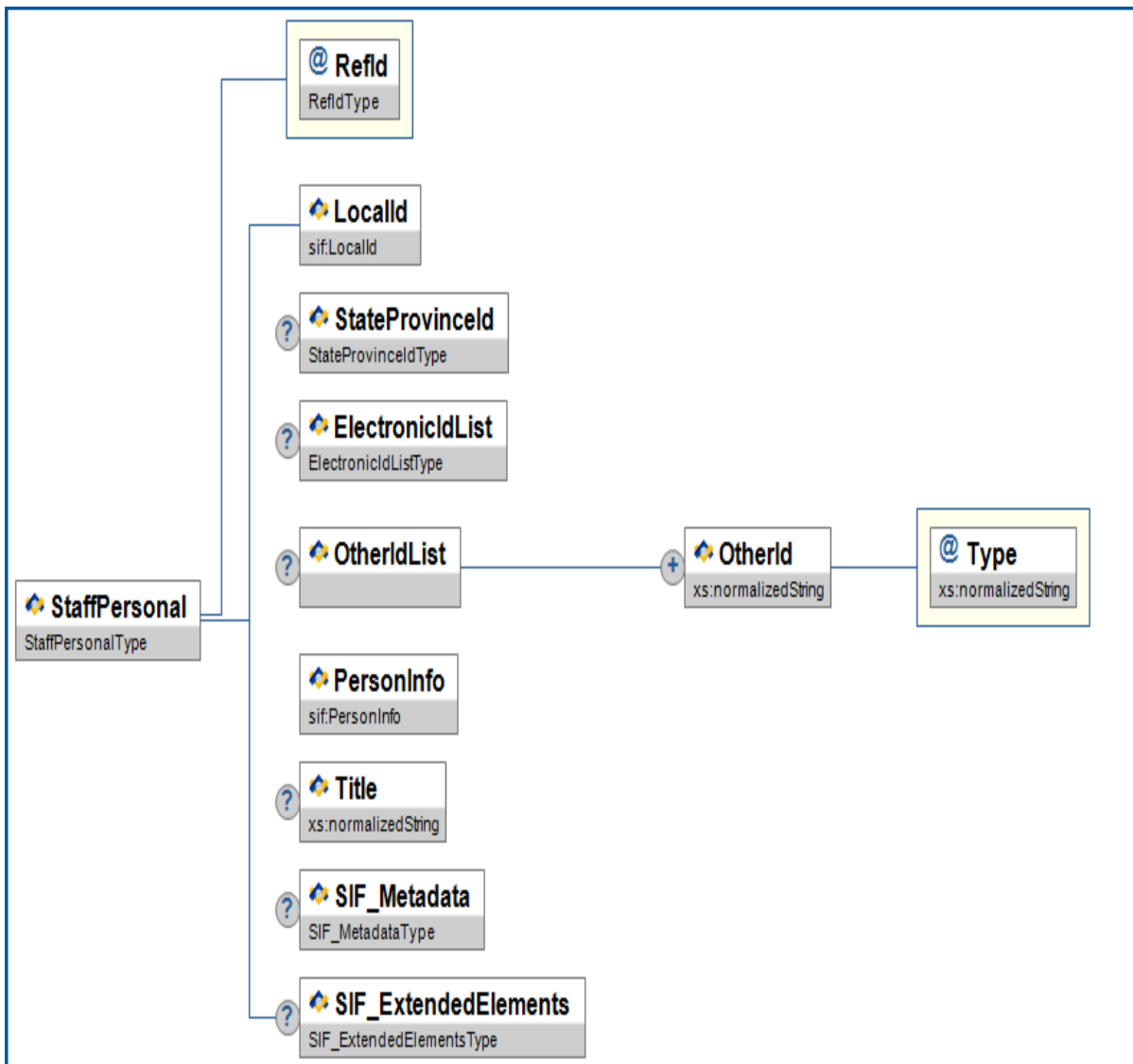
Figure 6.3.29-1: StaffPersonal

	Element/@Attribute	Char	Description	Type
	StaffPersonal		This object contains all the personal information relating to a staff member, who might be a teacher or other employee of the school or district.	
@ 🔑	RefId	M	The GUID of the staff member.	RefIdType
	LocalId	M	The locally-assigned identifier for this staff member.	LocalId
	StateProvinceId	O	The state-assigned identifier for this staff member.	StateProvinceId

	Element/@Attribute	Char	Description	Type
	ElectronicIdList	O	Electronic identifier(s) associated with this entity.	ElectronicIdList
	OtherIdList	O	Lists all "other" identifiers associated with the staff member.	List
	OtherIdList/OtherId	MR	Lists an "other" identifier associated with the staff member.	xs:normalizedString
@	Type	M	Code that defines the type of this other ID.	xs:normalizedString
	PersonInfo	M	Personal Information	PersonInfo
	Title	O	The staff member's title.	xs:normalizedString
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.29-1: StaffPersonal

```xml
<StaffPersonal RefId="D3E34F419D75101A8C3D00AA001A1652">
  <LocalId>946379881</LocalId>
  <StateProvinceId>C2345681</StateProvinceId>
  <ElectronicIdList>
    <ElectronicId Type="01">206655</ElectronicId>
  </ElectronicIdList>
  <OtherIdList>
    <OtherId Type="0004">333333333</OtherId>
  </OtherIdList>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Smith</FamilyName>
      <GivenName>Fred</GivenName>
      <FullName>Fred Smith</FullName>
    </Name>
    <OtherNames>
      <Name Type="AKA">
        <FamilyName>Anderson</FamilyName>
        <GivenName>Samuel</GivenName>
        <FullName>Samuel Anderson</FullName>
      </Name>
      <Name Type="PRF">
        <FamilyName>Rowinski</FamilyName>
        <GivenName>Sam</GivenName>
        <FullName>Sam Rowinski </FullName>
      </Name>
    </OtherNames>
    <Demographics>
      <IndigenousStatus>3</IndigenousStatus>
      <Sex>1</Sex>
      <BirthDate>1990-09-26</BirthDate>
      <BirthDateVerification>1004</BirthDateVerification>
      <PlaceOfBirth>Clayton</PlaceOfBirth>
      <StateOfBirth>VIC</StateOfBirth>
      <CountryOfBirth>1101</CountryOfBirth>
      <CountriesOfCitizenship>
        <CountryOfCitizenship>8104</CountryOfCitizenship>
        <CountryOfCitizenship>1101</CountryOfCitizenship>
      </CountriesOfCitizenship>
      <CountriesOfResidency>
        <CountryOfResidency>8104</CountryOfResidency>
        <CountryOfResidency>1101</CountryOfResidency>
      </CountriesOfResidency>
      <CountryArrivalDate>1990-09-26</CountryArrivalDate>
      <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
      <EnglishProficiency>
        <Code>1</Code>
      </EnglishProficiency>
      <LanguageList>
        <Language>
          <Code>0001</Code>
          <LanguageType>1</LanguageType>
        </Language>
      </LanguageList>
      <DwellingArrangement>
        <Code>1671</Code>
      </DwellingArrangement>
      <Religion>
        <Code>2013</Code>
      </Religion>
      <ReligiousEventList>
        <ReligiousEvent>
          <Type>Baptism</Type>
          <Date>2000-09-01</Date>
        </ReligiousEvent>
        <ReligiousEvent>
          <Type>Christmas</Type>
          <Date>2009-12-24</Date>
        </ReligiousEvent>
      </ReligiousEventList>
      <ReligiousRegion>The Religion Region</ReligiousRegion>
      <PermanentResident>P</PermanentResident>
      <VisaSubClass>101</VisaSubClass>
      <VisaStatisticalCode>05</VisaStatisticalCode>
    </Demographics>
    <AddressList>
      <Address Type="0123" Role="012A">
        <Street>
          <Line1>Unit1/10</Line1>
          <Line2>Barkley Street</Line2>
        </Street>
        <City>Yarra Glenn</City>
        <StateProvince>VIC</StateProvince>
```

```
          <Country>1101</Country>
          <PostalCode>9999</PostalCode>
        </Address>
        <Address Type="0123A" Role="1073">
          <Street>
            <Line1>34 Term Address Street</Line1>
          </Street>
          <City>Home Town</City>
          <StateProvince>WA</StateProvince>
          <Country>1101</Country>
          <PostalCode>9999</PostalCode>
        </Address>
      </AddressList>
      <PhoneNumberList>
        <PhoneNumber Type="0096">
          <Number>03 9637-2289</Number>
          <Extension>72289</Extension>
          <ListedStatus>Y</ListedStatus>
        </PhoneNumber>
        <PhoneNumber Type="0888">
          <Number>0437-765-234</Number>
          <ListedStatus>N</ListedStatus>
        </PhoneNumber>
      </PhoneNumberList>
      <EmailList>
        <Email Type="01">fsmith@yahoo.com</Email>
        <Email Type="02">freddy@gmail.com</Email>
      </EmailList>
    </PersonInfo>
    <Title>Principal</Title>
</StaffPersonal>
```

Example 6.3.29-1: StaffPersonal

6.3.30 StudentActivityInfo

Co-curricular or extra-curricular activities (e.g., student organizations, inter-school sports, athletics, publications, band, orchestra, and service activities) in which students may participate.

SIF_Events are reported for this object.
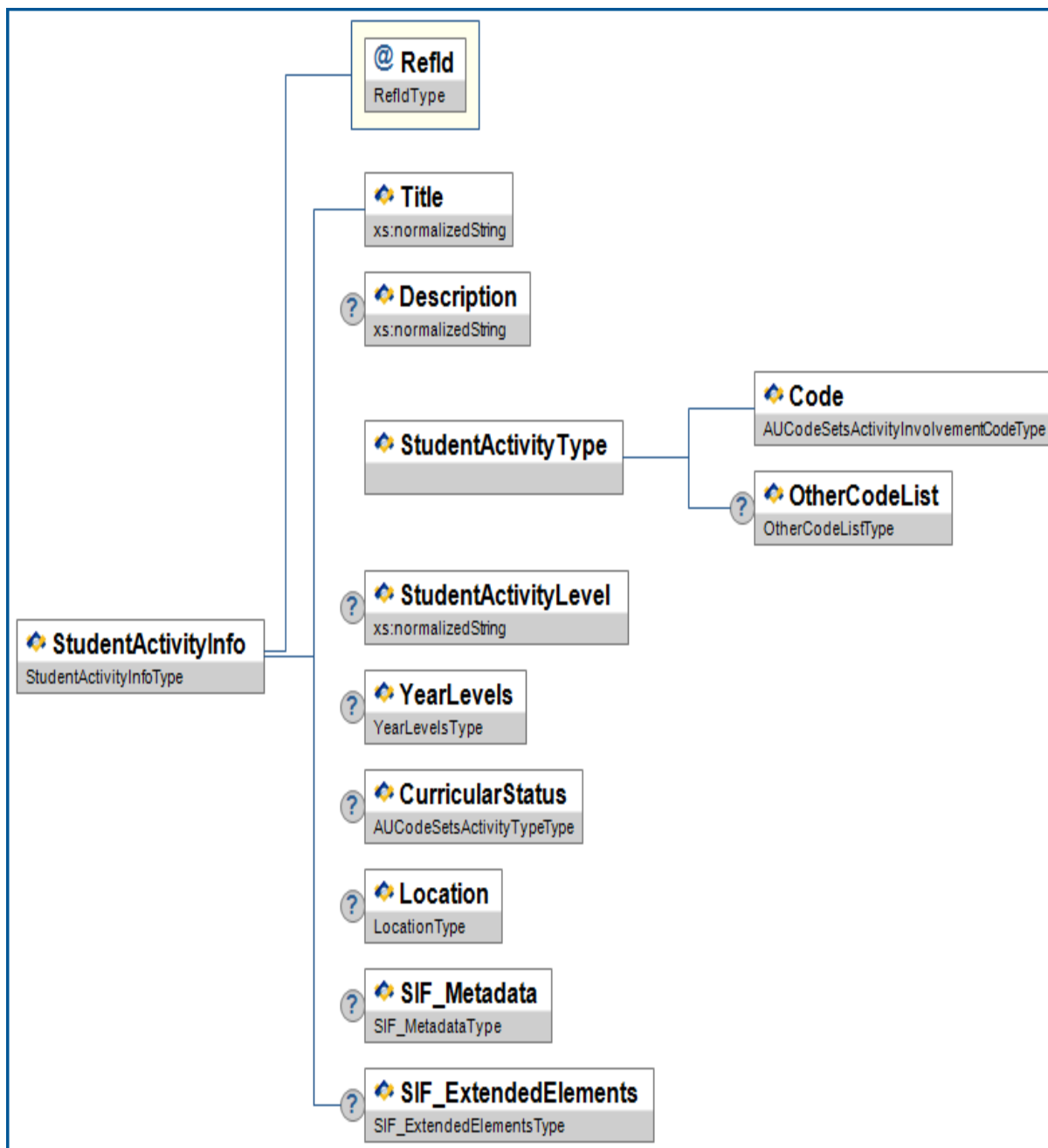
Figure 6.3.30-1: StudentActivityInfo

	Element/@Attribute	Char	Description	Type
	StudentActivityInfo		Co-curricular or extra-curricular activities (e.g., student organizations, inter-school sports, athletics, publications, band, orchestra, and service activities) in which students may participate.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies the instance of the object.	RefIdType
	Title	M	Name of the co-curricular or extra-curricular activity.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
	Description	O	The description of the co-curricular or extra-curricular activity.	xs:normalizedString
	StudentActivityType	M	Information regarding the co-curricular or extra-curricular activity.	
	StudentActivityType/Code	M	Code identifying the co-curricular or extra-curricular activity.	AUCodeSetsActivityInvolvementCodeType
	StudentActivityType/OtherCodeList	O		OtherCodeList
	StudentActivityLevel	O	A description of the separation of level in the activity (e.g.,House, Inter-school, Club, State, National).	xs:normalizedString
	YearLevels	O	Collection of grade levels applicable to this co-curricular or extra-curricular activity.	YearLevels
	CurricularStatus	O	An indication of the degree to which an activity is related to a student's curriculum.	AUCodeSetsActivityTypeType
	Location	O	Location where the activity takes place.	Location
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.30-1: StudentActivityInfo

```
<StudentActivityInfo RefId="6472B2610947583A463DBB345291B001">
  <Title>Book Club</Title>
  <Description>Group of middle school students promoting reading</Description>
  <StudentActivityType>
    <Code>6011</Code>
    <OtherCodeList>
      <OtherCode Codeset="Local">MBook</OtherCode>
    </OtherCodeList>
  </StudentActivityType>
  <StudentActivityLevel>Middle School</StudentActivityLevel>
  <YearLevels>
    <YearLevel>
      <Code>5</Code>
    </YearLevel>
    <YearLevel>
      <Code>6</Code>
    </YearLevel>
    <YearLevel>
      <Code>7</Code>
    </YearLevel>
    <YearLevel>
      <Code>8</Code>
    </YearLevel>
  </YearLevels>
  <CurricularStatus>0750</CurricularStatus>
  <Location Type="Classroom">
    <LocationName>Beaconhills Middle School Library</LocationName>
    <LocationRefId SIF_RefObject="RoomInfo">947582610947583ACEB2BB345291BAAA</LocationRefId>
  </Location>
</StudentActivityInfo>
```

Example 6.3.30-1: StudentActivityInfo

6.3.31 StudentActivityParticipation

This object provides information on a co-curricular or extra-curricular activity in which a student participates during a given school year.

SIF_Events are reported for this object.
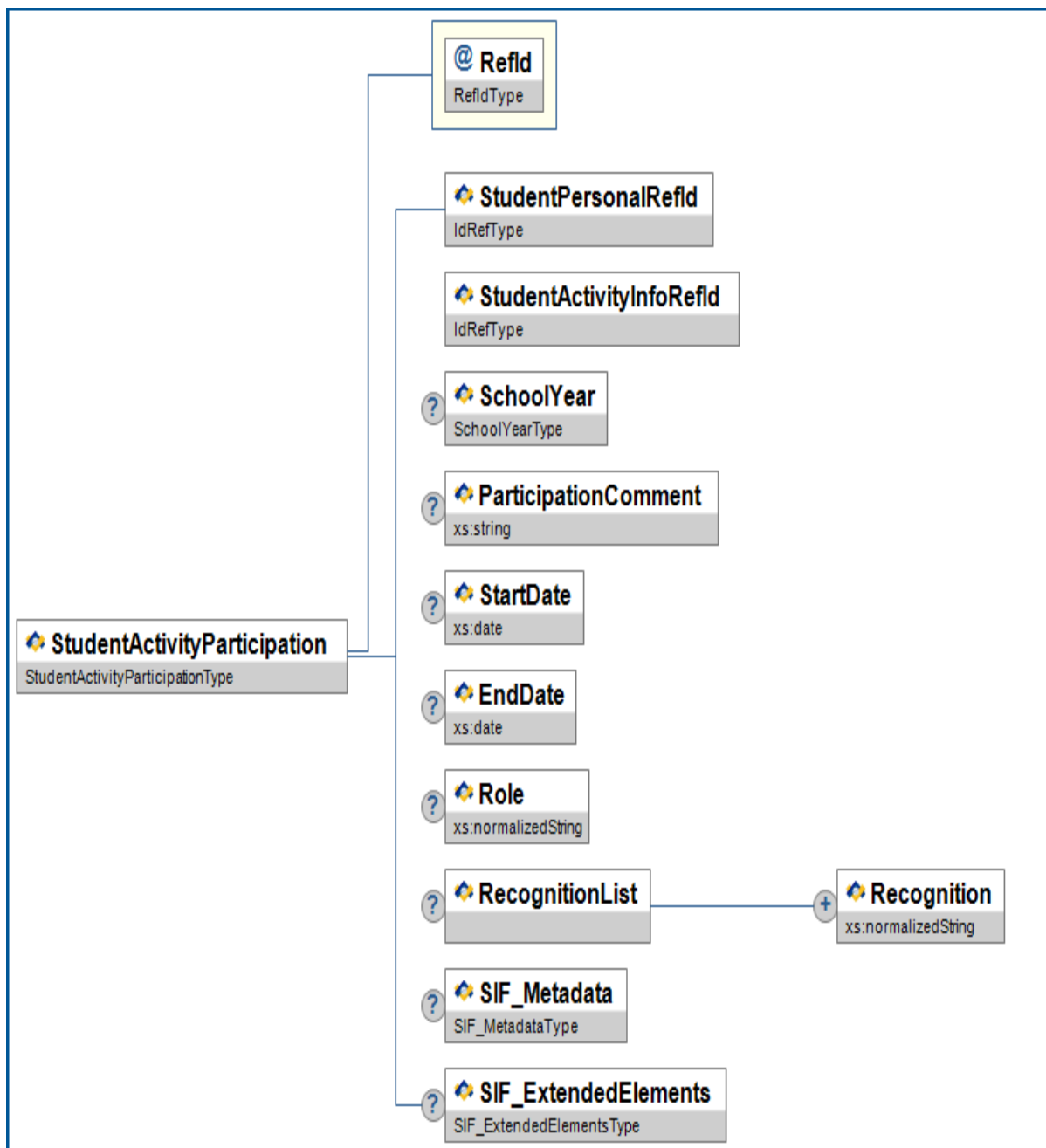
Figure 6.3.31-1: StudentActivityParticipation

	Element/@Attribute	Char	Description	Type
	StudentActivityParticipation		This object provides information on a co-curricular or extra-curricular activity in which a student participates during a given school year.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies the instance of the object.	RefIdType
	StudentPersonalRefId	M	GUID that identifies the student participating in the activity.	IdRefType
	StudentActivityInfoRefId	M	GUID that identifies the activity in which the student participates.	IdRefType

Element/@Attribute	Char	Description	Type
SchoolYear	O	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
ParticipationComment	O	Comment related to the student's participation in the activity.	xs:string
StartDate	O	This is the date which the activity participation is valid (inclusive).	xs:date
EndDate	O	This is the date through which the activity participation is valid (inclusive). If element is supported by the publisher/responder, should contain a date if the student withdraws from the activity before the end of the school year.	xs:date
Role	O	Specific role the student plays in the activity (e.g., band leader, student body president).	xs:normalizedString
RecognitionList	O	List of awards and other types of recognition given to the student for this activity.	List
RecognitionList/Recognition	MR	The nature of recognition given to the student for the successful completion of work in a co-curricular or extra-curricular activity.	xs:normalizedString
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.31-1: StudentActivityParticipation

```
<StudentActivityParticipation RefId="9ECC96830E02406F926C1C4D3542D122">
  <StudentPersonalRefId>646C5D4AC8294886A02B971695C7BC06</StudentPersonalRefId>
  <StudentActivityInfoRefId>6472B2610947583A463DBB345291B001</StudentActivityInfoRefId>
  <SchoolYear>2009</SchoolYear>
  <ParticipationComment>First year of participation</ParticipationComment>
  <StartDate>2008-09-01</StartDate>
  <Role>Team member</Role>
  <RecognitionList>
    <Recognition>0750</Recognition>
  </RecognitionList>
</StudentActivityParticipation>
```

Example 6.3.31-1: StudentActivityParticipation

6.3.32 StudentAttendanceSummary

This object provides a summary of a student's daily attendance and membership information for a given school during the time period between the StartDate and EndDate, inclusive. As such, there may be multiple instances of this object for a student in a school over the course of a school year.

SIF_Events are not reported for this object.
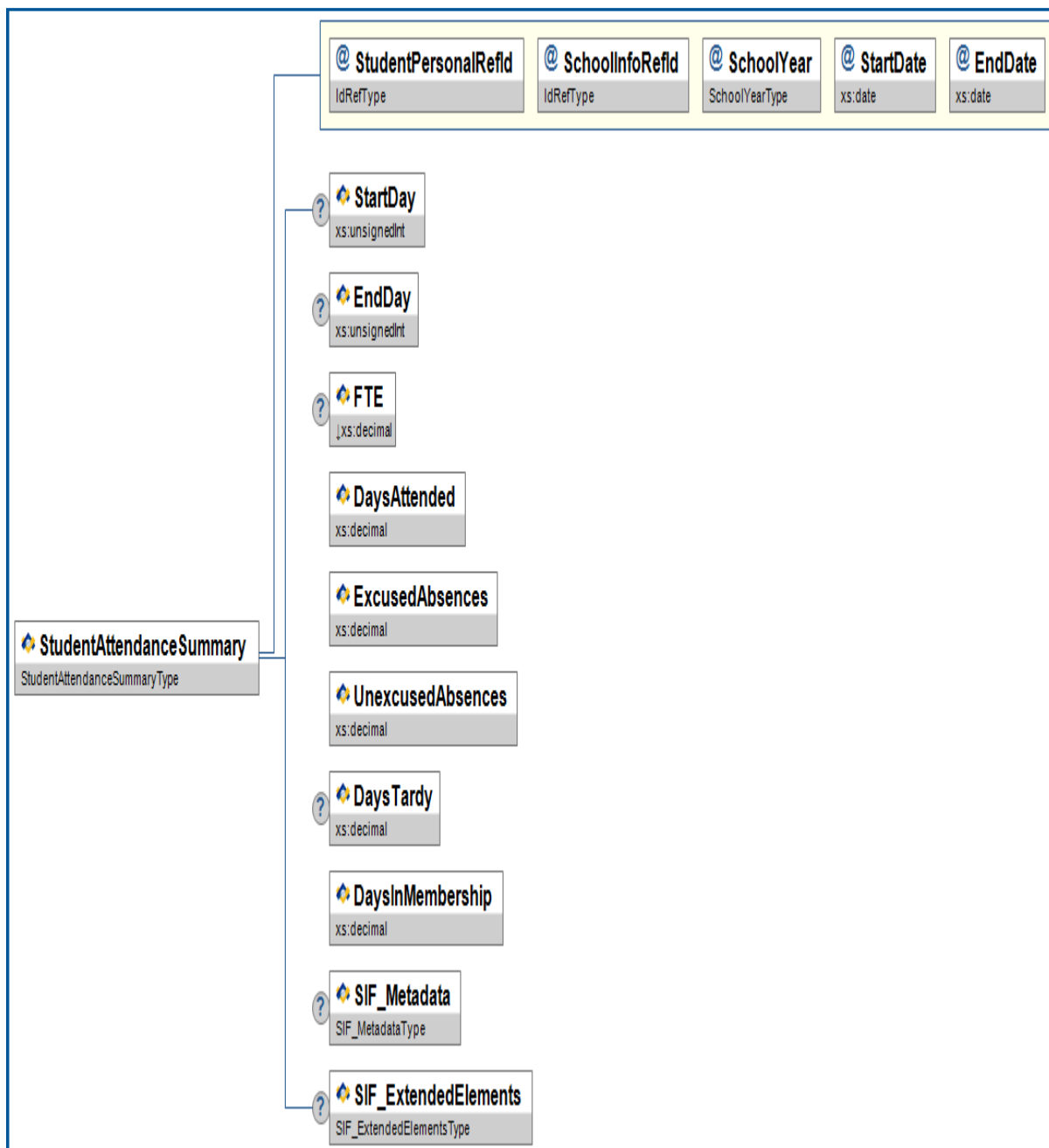
Figure 6.3.32-1: StudentAttendanceSummary

	Element/@Attribute	Char	Description	Type
	StudentAttendanceSummary		This object provides a summary of a student's daily attendance and membership information for a given school during the time period between the StartDate and EndDate, inclusive. As such, there may be multiple instances of this object for a student in a school over the course of a school year.	
@ 🔑	StudentPersonalRefId	M	The ID (GUID) of the student for whom this attendance information is being reported.	IdRefType

	Element/@Attribute	Char	Description	Type
@ 🔑	SchoolInfoRefId	M	The ID (GUID) of the school for which this attendance information is being reported.	IdRefType
@ 🔑	SchoolYear	M	School year for which the information is applicable.	SchoolYear
@ 🔑	StartDate	M	Starting date of this attendance reporting period.	xs:date
@ 🔑	EndDate	M	Ending date of this attendance reporting period.	xs:date
	StartDay	O	Number of the school day represented in StartDate.	xs:unsignedInt
	EndDay	O	Number of the school day represented in EndDate.	xs:unsignedInt
	FTE	O	Full time equivalent numeric value of the student's course load during this attendance period, expressed in decimal form, where 1.00 represents a full time enrollment.	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 2
	DaysAttended	M	The number of days the student attended school when school was in session between the StartDate and EndDate, inclusive.	xs:decimal
	ExcusedAbsences	M	The number of days the student was absent from school with a valid excuse when school was in session between the StartDate and EndDate, inclusive.	xs:decimal
	UnexcusedAbsences	M	The number of days the student was absent from school without a valid excuse when school was in session between the StartDate and EndDate, inclusive.	xs:decimal
	DaysTardy	O	The number of days the student was tardy when school was in session between the StartDate and EndDate, inclusive.	xs:decimal
	DaysInMembership	M	The number of days the student was present plus the number of days the student was absent when school was in session during the period between the StartDate and EndDate, inclusive.	xs:decimal

Element/@Attribute	Char	Description	Type
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.32-1: StudentAttendanceSummary

```
<StudentAttendanceSummary StudentPersonalRefId="D3476FAE8647384BDA2431EDA3583211" SchoolInfoRefId="CA285746359D751
  <StartDay>1</StartDay>
  <EndDay>180</EndDay>
  <FTE>1.00</FTE>
  <DaysAttended>178</DaysAttended>
  <ExcusedAbsences>2</ExcusedAbsences>
  <UnexcusedAbsences>0</UnexcusedAbsences>
  <DaysTardy>3</DaysTardy>
  <DaysInMembership>180</DaysInMembership>
</StudentAttendanceSummary>
```

Example 6.3.32-1: StudentAttendanceSummary

6.3.33 StudentContactPersonal

This object contains information about the people who are referenced as student contacts.

SIF_Events are reported for this object.

Figure 6.3.33-1: StudentContactPersonal

	Element/@Attribute	Char	Description	Type
	StudentContactPersonal		This object contains information about the people who are referenced as student contacts.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies the instance of the object.	RefIdType
	LocalId	O	The locally-assigned identifier for this person. Note: LocalId may be used as a unique person identifier rather than a unique contact identifier. In this case there may be more than one StudentContactPersonal instance with the same LocalId.	LocalId
	OtherIdList	O	Lists all "other" identifiers associated with the student.	List
	OtherIdList/OtherId	MR	Lists an "other" identifier associated with the student.	xs:normalizedString

	Element/@Attribute	Char	Description	Type
@	Type	M	Code that defines the type of this other ID.	xs:normalizedString
	PersonInfo	M	Personal Information	PersonInfo
	EmploymentType	O	Code that defines employment type. This is compulsory for Parents or Guardians of the Student.	AUCodeSetsEmploymentTypeType
	SchoolEducationalLevel	O	The highest level of education completed by the contact person.	EducationalLevel
	NonSchoolEducation	O	This reflects the level of the Contact's Non-School Education.	AUCodeSetsNonSchoolEducationType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.33-1: StudentContactPersonal

```xml
<StudentContactPersonal RefId="7C834EA9EDA12090347F83297E1C290F">
  <LocalId>P1234567</LocalId>
  <OtherIdList>
    <OtherId Type="Health Care Card">098765</OtherId>
    <OtherId Type="Seniors Card">123456789</OtherId>
  </OtherIdList>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Smith</FamilyName>
      <GivenName>Fred</GivenName>
      <FullName>Fred Smith</FullName>
    </Name>
    <OtherNames>
      <Name Type="AKA">
        <FamilyName>Anderson</FamilyName>
        <GivenName>Samuel</GivenName>
        <FullName>Samuel Anderson</FullName>
      </Name>
      <Name Type="PRF">
        <FamilyName>Rowinski</FamilyName>
        <GivenName>Sam</GivenName>
        <FullName>Sam Rowinski </FullName>
      </Name>
    </OtherNames>
    <Demographics>
      <IndigenousStatus>3</IndigenousStatus>
      <Sex>1</Sex>
      <BirthDate>1990-09-26</BirthDate>
      <BirthDateVerification>1004</BirthDateVerification>
      <PlaceOfBirth>Clayton</PlaceOfBirth>
      <StateOfBirth>VIC</StateOfBirth>
      <CountryOfBirth>1101</CountryOfBirth>
      <CountriesOfCitizenship>
        <CountryOfCitizenship>8104</CountryOfCitizenship>
        <CountryOfCitizenship>1101</CountryOfCitizenship>
      </CountriesOfCitizenship>
      <CountriesOfResidency>
        <CountryOfResidency>8104</CountryOfResidency>
        <CountryOfResidency>1101</CountryOfResidency>
      </CountriesOfResidency>
      <CountryArrivalDate>1990-09-26</CountryArrivalDate>
      <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
      <EnglishProficiency>
        <Code>1</Code>
      </EnglishProficiency>
      <LanguageList>
        <Language>
          <Code>0001</Code>
          <LanguageType>1</LanguageType>
        </Language>
      </LanguageList>
      <DwellingArrangement>
        <Code>1671</Code>
      </DwellingArrangement>
      <Religion>
        <Code>2013</Code>
      </Religion>
      <ReligiousEventList>
        <ReligiousEvent>
          <Type>Baptism</Type>
          <Date>2000-09-01</Date>
        </ReligiousEvent>
        <ReligiousEvent>
          <Type>Christmas</Type>
          <Date>2009-12-24</Date>
        </ReligiousEvent>
      </ReligiousEventList>
      <ReligiousRegion>The Religion Region</ReligiousRegion>
      <PermanentResident>P</PermanentResident>
      <VisaSubClass>101</VisaSubClass>
      <VisaStatisticalCode>05</VisaStatisticalCode>
    </Demographics>
    <AddressList>
      <Address Type="0123" Role="012B">
        <Street>
          <Line1>Unit1/10</Line1>
          <Line2>Barkley Street</Line2>
        </Street>
        <City>Yarra Glenn</City>
        <StateProvince>VIC</StateProvince>
        <Country>1101</Country>
        <PostalCode>9999</PostalCode>
      </Address>
```

```
      <Address Type="0123A" Role="013A">
        <Street>
          <Line1>34 Term Address Street</Line1>
        </Street>
        <City>Home Town</City>
        <StateProvince>WA</StateProvince>
        <Country>1101</Country>
        <PostalCode>9999</PostalCode>
      </Address>
    </AddressList>
    <PhoneNumberList>
      <PhoneNumber Type="0096">
        <Number>03 9637-2289</Number>
        <Extension>72289</Extension>
        <ListedStatus>Y</ListedStatus>
      </PhoneNumber>
      <PhoneNumber Type="0888">
        <Number>0437-765-234</Number>
        <ListedStatus>N</ListedStatus>
      </PhoneNumber>
    </PhoneNumberList>
    <EmailList>
      <Email Type="01">fsmith@yahoo.com</Email>
      <Email Type="02">freddy@gmail.com</Email>
    </EmailList>
  </PersonInfo>
  <EmploymentType>4</EmploymentType>
  <SchoolEducationalLevel>3</SchoolEducationalLevel>
  <NonSchoolEducation>6</NonSchoolEducation>
</StudentContactPersonal>
```
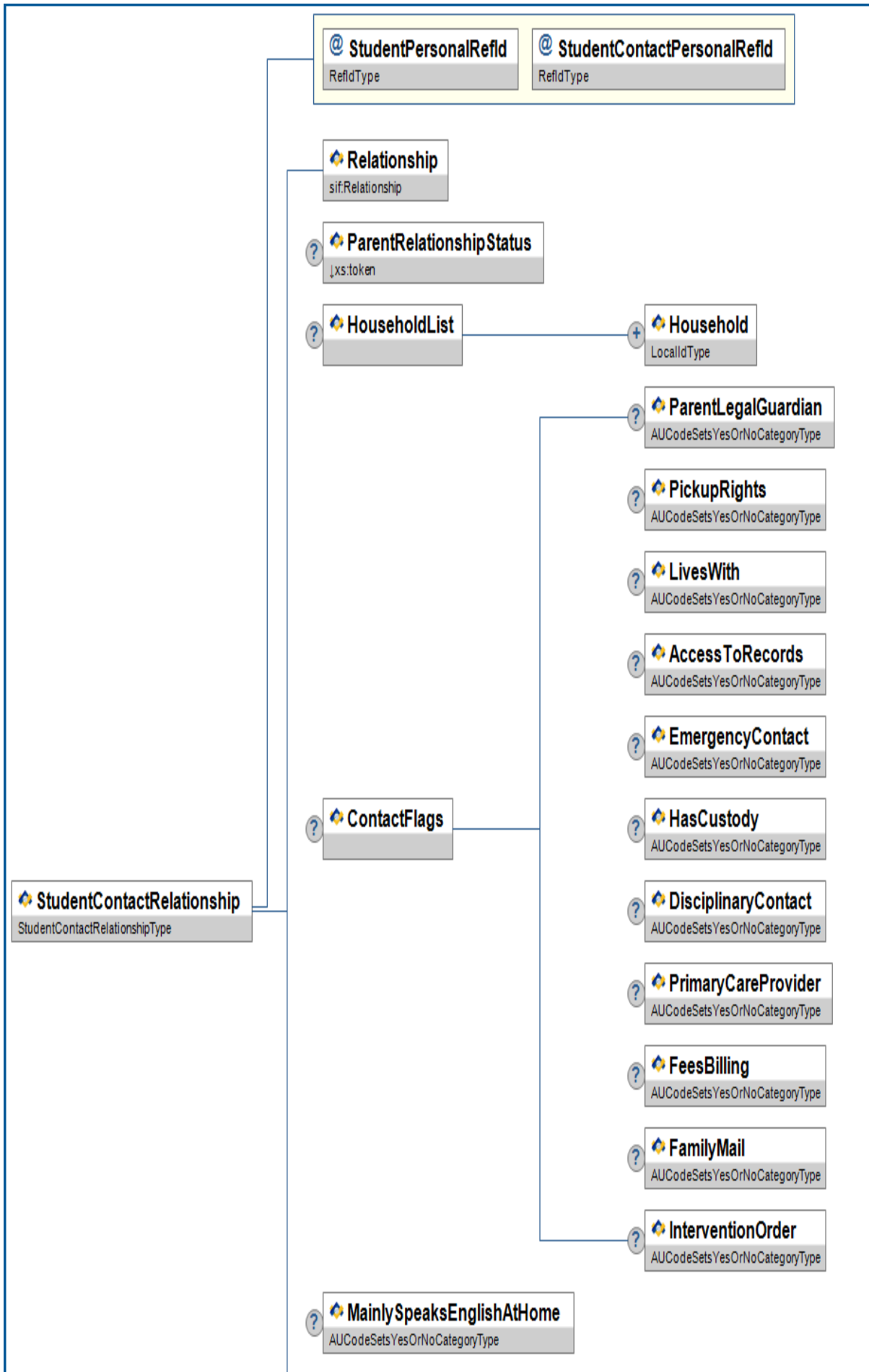
Example 6.3.33-1: StudentContactPersonal

6.3.34 StudentContactRelationship

This object defines a relationship between a contact person and a student.
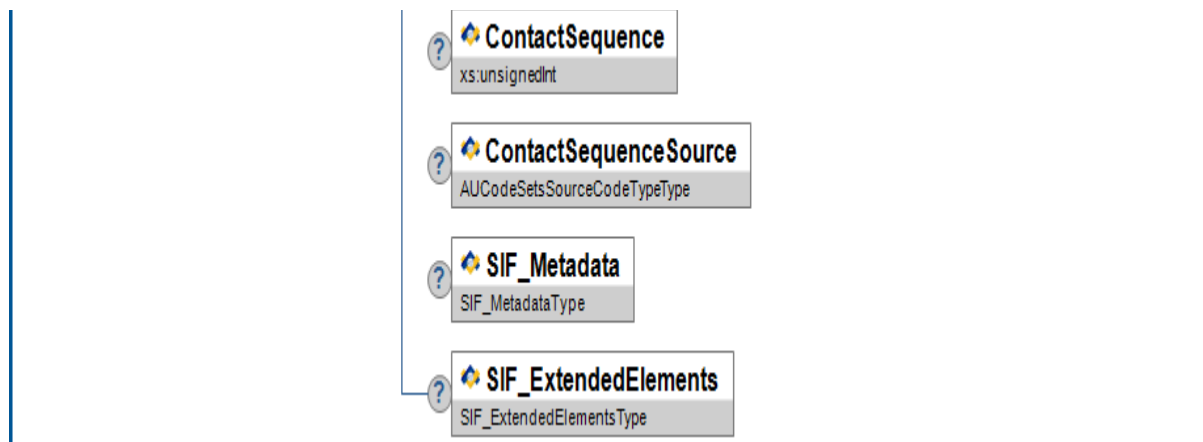
SIF_Events are reported for this object.

Figure 6.3.34-1: StudentContactRelationship

	Element/@Attribute	Char	Description	Type
	StudentContactRelationship		This object defines a relationship between a contact person and a student.	
@ 🔑	StudentPersonalRefId	M	GUID that identifies the student for the relationship.	`RefIdType`
@ 🔑	StudentContactPersonalRefId	M	GUID that identifies the contact person for the relationship.	`RefIdType`
	Relationship	M	Defines the relationship of the contact to the student.	`Relationship`

	ParentRelationshipStatus	O	Confirms whether or not this contact defined in the relationship is to be tracked for MCEEDYCA Data Implementation Manual Reporting.	**values:**
				
				`Parent1`
				`Parent2`
				`NotForReporting`

	HouseholdList	O		`List`
	HouseholdList/Household	MR	Repeatable element containing the ID of a household.	`LocalId`
	ContactFlags	C	Contains Yes/No characteristics of the contact person's role. Provide a `Yes` value for all that apply. At least one of the child elements of `ContactFlags` must have a `Yes` value. Do not publish the `StudentContactRelationship` instance if one of the child elements does not have a `Yes` value.	
	ContactFlags/ParentLegalGuardian	C	Does the individual have parental or legal guardianship responsibility for the student?	`AUCodeSetsYesOrNoCategoryType`
	ContactFlags/PickupRights	C	This element tells whether or not the contact has pickup rights.	`AUCodeSetsYesOrNoCategoryType`

	Element/@Attribute	Char	Description	Type
	ContactFlags/LivesWith	C	Does the student live with this contact?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/AccessToRecords	C	Does this contact have access to the student's records?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/EmergencyContact	C	Should this contact be notified in case of emergency?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/HasCustody	C	Does this contact have or share custody of the student?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/DisciplinaryContact	C	Is this person to be contacted in case of disciplinary action?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/PrimaryCareProvider	C	Does this person provide daily living or personal assistance to the student?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/FeesBilling	C	Is this the contact responsible for Payment of Fees?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/FamilyMail	C	Does this person receive family mail?	AUCodeSetsYesOrNoCategoryType
	ContactFlags/InterventionOrder	C	Is there an Intervention Order against this Contact?	AUCodeSetsYesOrNoCategoryType
	MainlySpeaksEnglishAtHome	O	Is English the main language spoken at home?	AUCodeSetsYesOrNoCategoryType
	ContactSequence	O	Number indicating the order in which the person should be contacted.	xs:unsignedInt
	ContactSequenceSource	O	Indicates the source who provided the contact sequence order.	AUCodeSetsSourceCodeTypeType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.34-1: StudentContactRelationship

```
<StudentContactRelationship StudentPersonalRefId="DEE34B359D75101A8C3D00AA001A1652" StudentContactPersonalRefId="6
  <Relationship>
    <Code>01</Code>
  </Relationship>
  <HouseholdList>
    <Household>FamilyA</Household>
    <Household>FamilyB</Household>
  </HouseholdList>
  <ContactFlags>
    <ParentLegalGuardian>Y</ParentLegalGuardian>
    <PickupRights>Y</PickupRights>
    <LivesWith>N</LivesWith>
    <AccessToRecords>U</AccessToRecords>
    <EmergencyContact>Y</EmergencyContact>
    <HasCustody>N</HasCustody>
    <DisciplinaryContact>N</DisciplinaryContact>
    <PrimaryCareProvider>U</PrimaryCareProvider>
    <FeesBilling>Y</FeesBilling>
    <FamilyMail>Y</FamilyMail>
    <InterventionOrder>N</InterventionOrder>
  </ContactFlags>
  <MainlySpeaksEnglishAtHome>U</MainlySpeaksEnglishAtHome>
  <ContactSequence>1</ContactSequence>
  <ContactSequenceSource>P</ContactSequenceSource>
</StudentContactRelationship>
```

Example 6.3.34-1: StudentContactRelationship

6.3.35 StudentDailyAttendance

This object provides daily attendance information for a particular student in a particular school on a particular date.
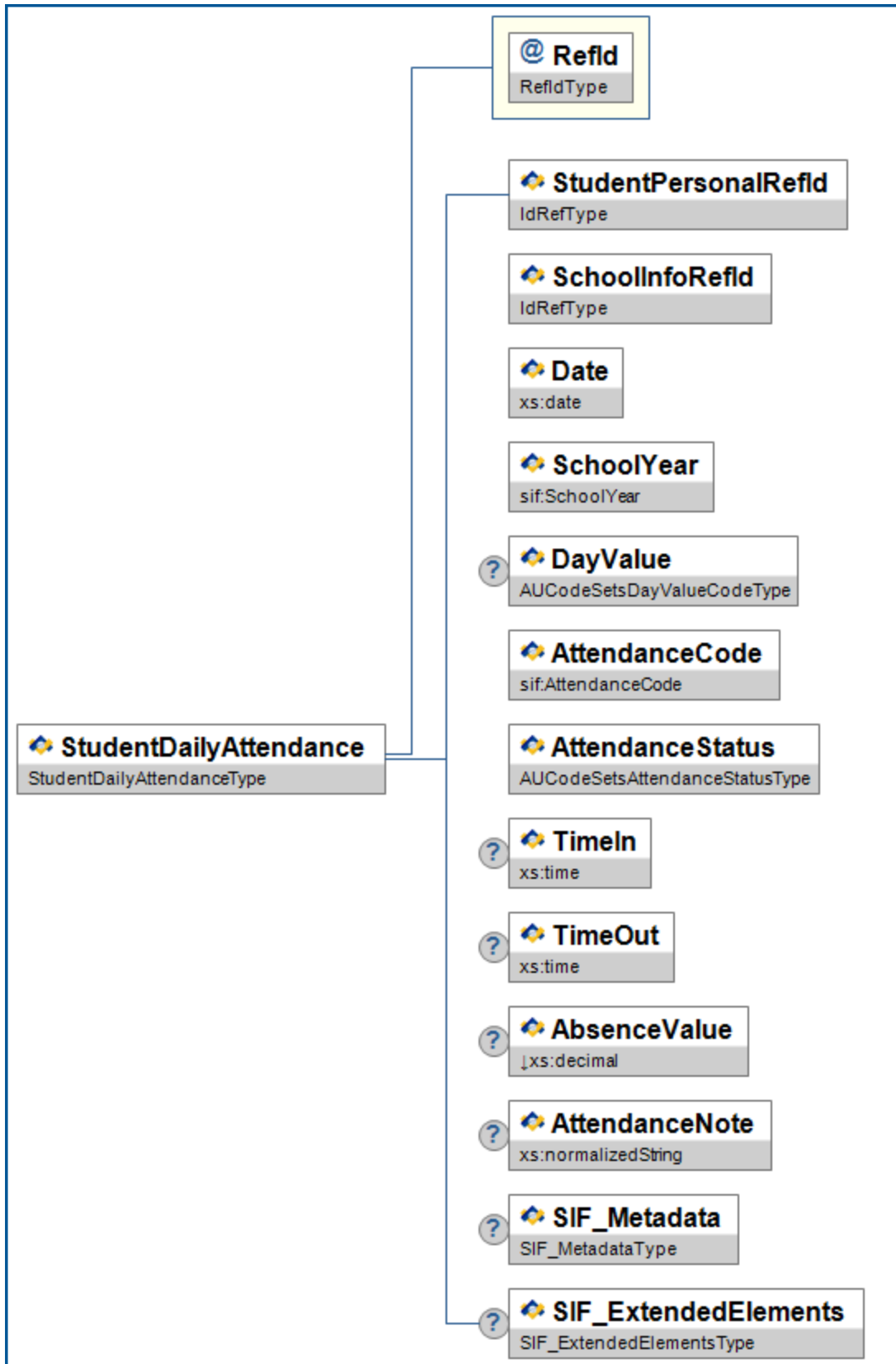
SIF_Events are reported for this object.

Figure 6.3.35-1: StudentDailyAttendance

	Element/@Attribute	Char	Description	Type
	StudentDailyAttendance		This object provides daily attendance information for a particular student in a particular school on a particular date.	
@ 🔑	RefId	M	The ID (GUID) assigned to uniquely identify this attendance record.	RefIdType
	StudentPersonalRefId	M	The ID (GUID) of the student for whom this attendance information is being reported.	IdRefType
	SchoolInfoRefId	M	The ID (GUID) of the school for which this attendance information is being reported.	IdRefType
	Date	M	The calendar date to which this attendance information relates.	xs:date
	SchoolYear	M	School year for which this enrollment is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007).	SchoolYear
	DayValue	O	Value of a day this instance, represents.	AUCodeSetsDayValueCodeType
	AttendanceCode	M	Locally defined code for attendance.	AttendanceCode
	AttendanceStatus	M	Approved or Unapproved status of this attendance code.	AUCodeSetsAttendanceStatusType
	TimeIn	C	The time the student entered or returned to school. Must be provided if 'Partial' chosen for DayValue.	xs:time
	TimeOut	C	The time the student left school. Must be provided if 'Partial' chosen for DayValue..	xs:time
	AbsenceValue	C	Must be provided if the DayValue is "Partial" or "Other". The amount of absence represented by AttendanceCode, up to three decimal places.	xs:decimal xs:minInclusive 0 xs:maxInclusive 1

Element/@Attribute	Char	Description	Type
AttendanceNote	O	Note related to this particular attendance.	xs:normalizedString
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.35-1: StudentDailyAttendance

```
<StudentDailyAttendance RefId="2FFB63B4CFEF48208501E7D1E54555CB">
  <StudentPersonalRefId>D3E34B359D75101A8C3D00AA001A1652</StudentPersonalRefId>
  <SchoolInfoRefId>CA285746359D75101A8C36432A901A16</SchoolInfoRefId>
  <Date>2002-11-01</Date>
  <SchoolYear>2003</SchoolYear>
  <DayValue>Partial</DayValue>
  <AttendanceCode>
    <Code>200</Code>
    <OtherCodeList>
      <OtherCode Codeset="Local">S</OtherCode>
      <OtherCode Codeset="Text">C</OtherCode>
    </OtherCodeList>
  </AttendanceCode>
  <AttendanceStatus>01</AttendanceStatus>
  <TimeIn>13:30:00</TimeIn>
  <TimeOut>12:05:00</TimeOut>
  <AttendanceNote>Left for Orthodontist appt. and returned to school afterward</AttendanceNote>
</StudentDailyAttendance>
```
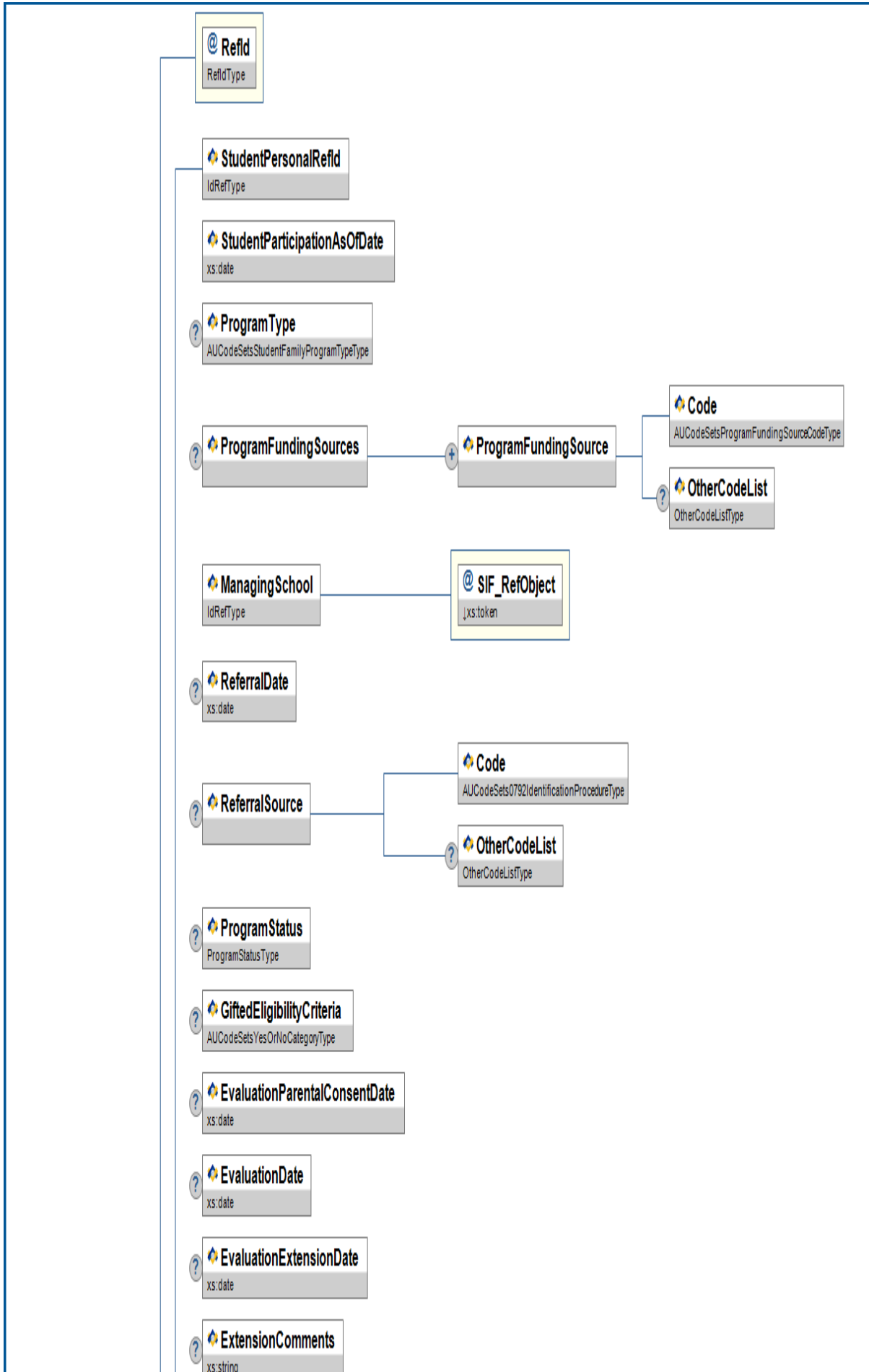
Example 6.3.35-1: StudentDailyAttendance

6.3.36 StudentParticipation

This object contains information pertaining to student eligibility for and participation in an individualized special program such as special education, ESL, etc.

Multiple instances of this object may be transmitted for a particular student because the student may participate in multiple programs and because the details of a student's participation in a given program may change over time. A separate instance of this object must be generated for each program in which the student participates, and the ProgramType element is used to identify the particular program. In addition, each time the student's participation profile changes for a particular program, a new instance of this object must be generated with the appropriate value in the ProgramType element, the effective date of the new profile in StudentParticipationAsOfDate, and a new RefId.
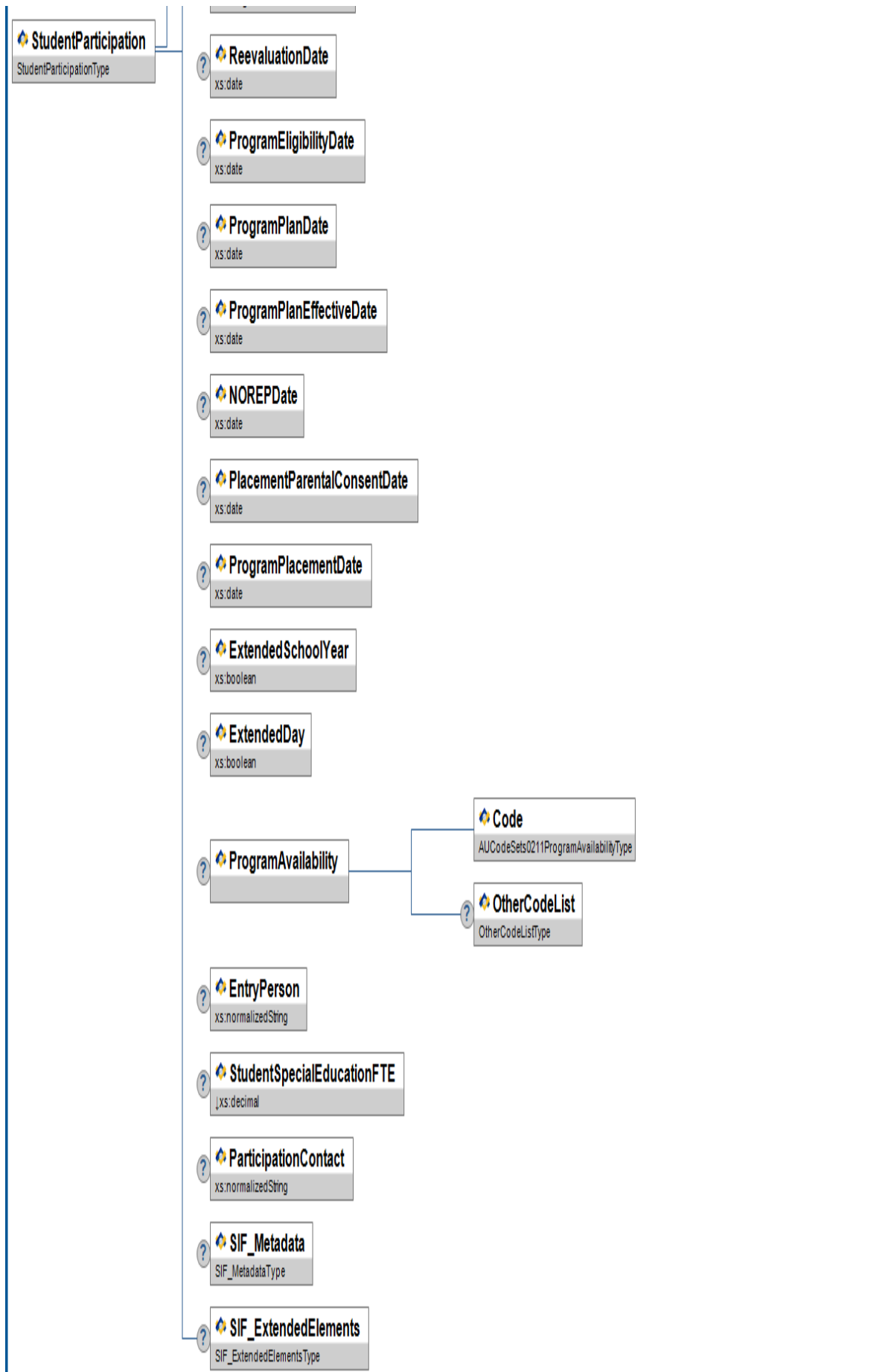
SIF_Events are reported for this object.

Figure 6.3.36-1: StudentParticipation

	Element/@Attribute	Char	Description	Type
	StudentParticipation		This object contains information pertaining to student eligibility for and participation in an individualized special program such as special education, ESL, etc. Multiple instances of this object may be transmitted for a particular student because the student may participate in multiple programs and because the details of a student's participation in a given program may change over time. A separate instance of this object must be generated for each program in which the student participates, and the `ProgramType` element is used to identify the particular program. In addition, each time the student's participation profile changes for a particular program, a new instance of this object must be generated with the appropriate value in the `ProgramType` element, the effective date of the new profile in `StudentParticipationAsOfDate`, and a new `RefId`.	
@ 🔑	RefId	M	This is the unique identification code	RefIdType
	StudentPersonalRefId	M	The GUID of the student that this object is linked to.	IdRefType
	StudentParticipationAsOfDate	M	Effective date (NOT the entry date) of this `StudentParticipation` instance for the identified student and program. Each time there is a change to the student's program participation profile, a new instance of this object is to be generated with the appropriate `StudentParticipationAsOfDate` and a new `RefId`.	xs:date

	Element/@Attribute	Char	Description	Type
	ProgramType	O	Identifies the individualised program for which the student's participation is described in this instance	AUCodeSetsStudentFamilyProgramTypeType
	ProgramFundingSources	O	List of funding sources	List
	ProgramFundingSources/ProgramFundingSource	MR	Funding source of the special program	
	ProgramFundingSources/ProgramFundingSource/ Code	M	Funding source for the program, may be more than one.	AUCodeSetsProgramFundingSourceCodeType
	ProgramFundingSources/ProgramFundingSource/ OtherCodeList	O		OtherCodeList
	ManagingSchool	M	The GUID of the school responsible for coordinating the student's program participation.	IdRefType
@	SIF_RefObject	M		**values:** SchoolInfo
	ReferralDate	O	Date student was referred for evaluation/program participation.	xs:date
	ReferralSource	O		
	ReferralSource/Code	M	The method by which a student was identified for referral to a particular program.	AUCodeSets0792IdentificationProcedureType
	ReferralSource/OtherCodeList	O		OtherCodeList
	ProgramStatus	O		ProgramStatus
	GiftedEligibilityCriteria	O	Eligible for Gifted / Talented program?	AUCodeSetsYesOrNoCategoryType
	EvaluationParentalConsentDate	O	Date parent(s) consented to completion of evaluation of child for program participation.	xs:date
	EvaluationDate	O	Date the evaluation/assessment process for student was completed.	xs:date

	Element/@Attribute	Char	Description	Type
	EvaluationExtensionDate	O	Actual date by which evaluation must be completed (for state use in determining timeliness in event that parent and LEA agreed to an extension beyond normal state deadline).	`xs:date`
	ExtensionComments	O	Contains any comments on the extension. Optional even if an EvaluationExtensionDate is present.	`xs:string`
	ReevaluationDate	O	Date students will be reevaluated for continued placement in a support program (s).	`xs:date`
	ProgramEligibilityDate	O	Date student is eligible for beginning the support program (s).	`xs:date`
	ProgramPlanDate	O	Date the most recent program plan was completed and approved by the team responsible for developing it. The date the parent consented to placement is NOREPDate.	`xs:date`
	ProgramPlanEffectiveDate	O	Date by which the plan must be implemented for the student.	`xs:date`
	NOREPDate	O	Date the Notice of Recommended Educational Placement was signed and approved by the parent / guardian of the student.	`xs:date`
	PlacementParentalConsentDate	O	Date the parent(s) consented to the proposed placement.	`xs:date`
	ProgramPlacementDate	O	Date student began the support program.	`xs:date`

	Element/@Attribute	Char	Description	Type
	ExtendedSchoolYear	O	For special education, indicates whether Extended School Year (ESY) / summer services have been determined as necessary	`xs:boolean`
	ExtendedDay	O	For special education, indicates whether Extended School Day (ESD) services have been determined as necessary.	`xs:boolean`
	ProgramAvailability	O		
	ProgramAvailability/Code	M	Describes the availability of the program.	`AUCodeSets0211ProgramAvailabilityType`
	ProgramAvailability/OtherCodeList	O		`OtherCodeList`
	EntryPerson	O	Identification / name of the person who created the transaction that led to the creation of this instance of the object.	`xs:normalizedString`
	StudentSpecialEducationFTE	O	Calculated ratio of time the student is in a special ed setting. Values range from 0.00 to 1.00. If the student is in a special ed setting 25% of the time, the value is .25; if 100% of the time, the value is 1.00.	`xs:decimal` `xs:minInclusive` 0 `xs:maxInclusive` 1 `xs:fractionDigits` 2
	ParticipationContact	O	Primary contact for this record.	`xs:normalizedString`
	SIF_Metadata	O		`SIF_Metadata`
	SIF_ExtendedElements	O		`SIF_ExtendedElements`

Table 6.3.36-1: StudentParticipation

```
<StudentParticipation RefId="D3E34B359D75101A8C3D00AA001A1652">
  <StudentPersonalRefId>A2E34F59A742C1A4B3D11CC002B163A2</StudentPersonalRefId>
  <StudentParticipationAsOfDate>2006-07-13</StudentParticipationAsOfDate>
  <ProgramType>0240</ProgramType>
  <ProgramFundingSources>
    <ProgramFundingSource>
      <Code>1</Code>
    </ProgramFundingSource>
  </ProgramFundingSources>
  <ManagingSchool SIF_RefObject="SchoolInfo">D93F4D183A42C1A4B3D11CC002B163A2</ManagingSchool>
  <ParticipationContact>John Mason</ParticipationContact>
</StudentParticipation>
```

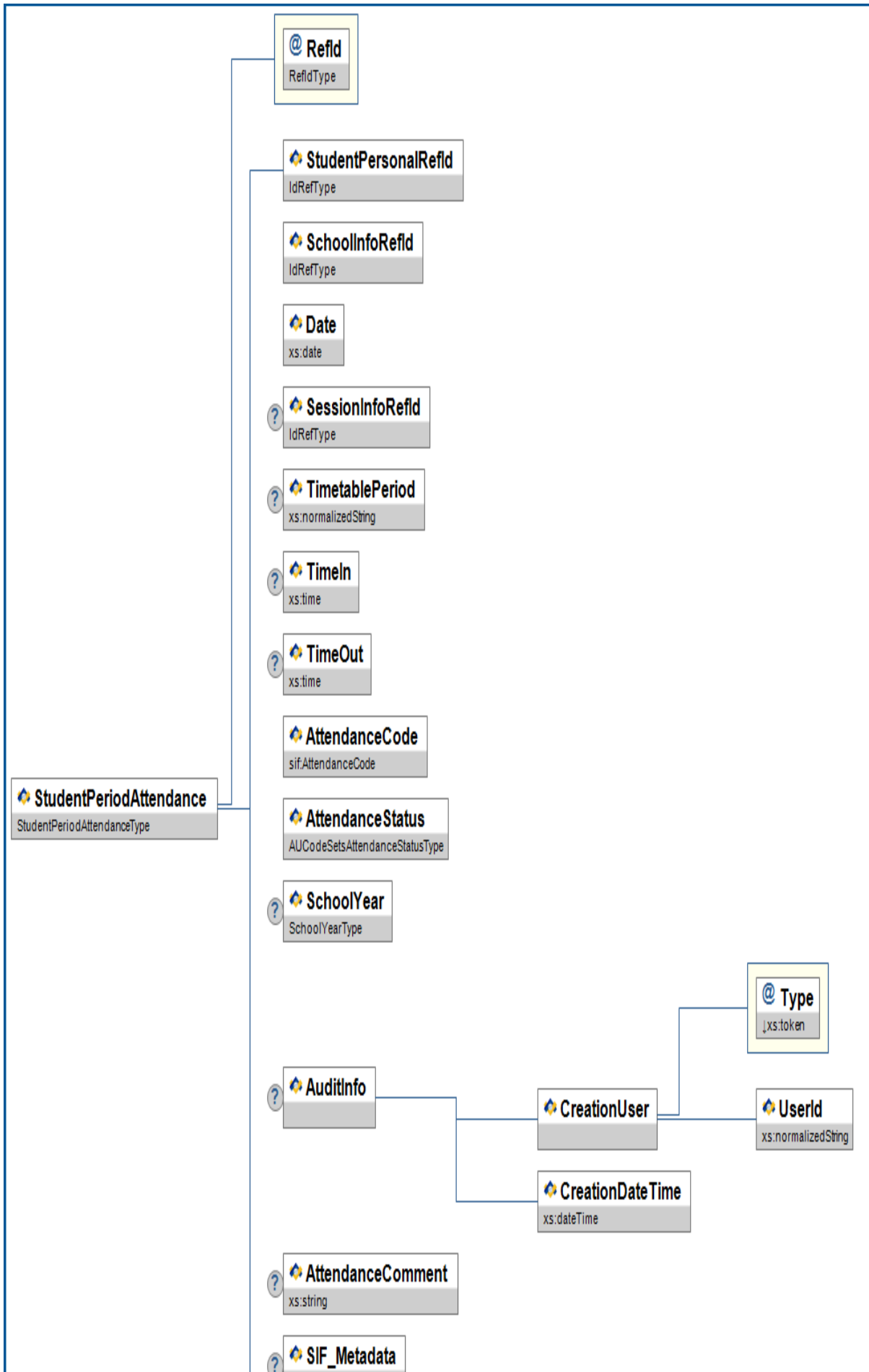*Example 6.3.36-1: StudentParticipation*

6.3.37 StudentPeriodAttendance

This object allows recording of period level attendance a student. The Australian StudentPeriodAttendance object differs to the US StudentPeriodAttendance object in the following ways:

Student Period Attendance object is usually linked to a SessionInfo object (see below), but it is possible, for simple period attendance packages, to not link period attendance to a session or timetable.

There will be one provider of the StudentPeriodAttendance within a SIF Zone in Australia. The US, in contrast, has specified objects and events to allow for multiple providers of the StudentPeriodAttendance object in a zone.
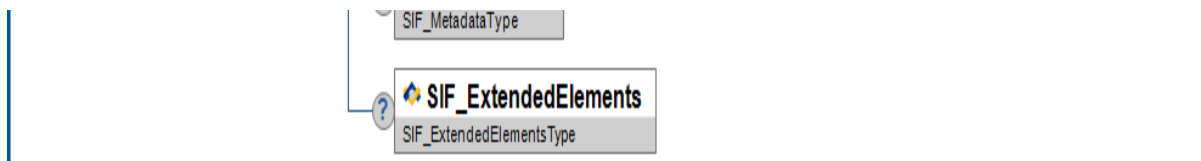
SIF_Events are reported for this object.

Figure 6.3.37-1: StudentPeriodAttendance

	Element/@Attribute	Char	Description	Type
	StudentPeriodAttendance		This object allows recording of period level attendance a student. The Australian StudentPeriodAttendance object differs to the US StudentPeriodAttendance object in the following ways: • Student Period Attendance object is usually linked to a SessionInfo object (see below), but it is possible, for simple period attendance packages, to not link period attendance to a session or timetable. • There will be one provider of the StudentPeriodAttendance within a SIF Zone in Australia. The US, in contrast, has specified objects and events to allow for multiple providers of the StudentPeriodAttendance object in a zone.	
@ 🔑	RefId	M	The ID (GUID) assigned to uniquely identify this attendance record.	RefIdType
	StudentPersonalRefId	M	The GUID of the student that this attendance applies to.	IdRefType
	SchoolInfoRefId	M	The school where the attendance was recorded. Somewhat redundant, needed for requests.	IdRefType
	Date	M	The date of the attendance event.	xs:date
	SessionInfoRefId	O	The GUID of the session that this attendance applies to.	IdRefType
	TimetablePeriod	O	The period within which attendance is being reported, e.g. "4D".	xs:normalizedString
	TimeIn	O	The time the student entered or returned to this class.	xs:time
	TimeOut	O	The time the student left this class.	xs:time

	Element/@Attribute	Char	Description	Type
	AttendanceCode	M	Code that describes the absence or attendance	AttendanceCode
	AttendanceStatus	M	Approved or Unapproved status of this attendance code.	AUCodeSetsAttendanceStatusType
	SchoolYear	O	School year for which this enrollment is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007).	SchoolYear
	AuditInfo	O	An audit trail to help determine who entered this attendance event and when.	
	AuditInfo/CreationUser	M	Information about which staff member created this attendance record.	
@	Type	M	The role of the staff member for that created this attendance record.	**values:** Office Staff School Admin Parent Nurse Teacher Other
	AuditInfo/CreationUser/UserId	M	Unique identifier of the user that created the attendance record. This will depend on the user and the source. The preferred identifier would be a RefId for a StaffPersonal, StudentContact, or StudentPersonal Object. However, the user may not be associated with any of these SIF objects. In that case a unique Id given by the source should be used.	xs:normalizedString
	AuditInfo/CreationDateTime	M	The date and time of this attendance record was created.	xs:dateTime
	AttendanceComment	O	This element contains the comments that are relevant to this attendance record.	xs:string
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.37-1: StudentPeriodAttendance

```
<StudentPeriodAttendance RefId="98157AA013BA8C3D00AA012B359D7512">
  <StudentPersonalRefId>A75A00101A8C301D02E3A05B359D0A00</StudentPersonalRefId>
  <SchoolInfoRefId>11737EA4301CADCA75C87214A7C46BDB</SchoolInfoRefId>
  <Date>2001-03-05</Date>
  <TimetablePeriod>P4</TimetablePeriod>
  <AttendanceCode>
    <Code>802</Code>
  </AttendanceCode>
  <AttendanceStatus>01</AttendanceStatus>
</StudentPeriodAttendance>
```
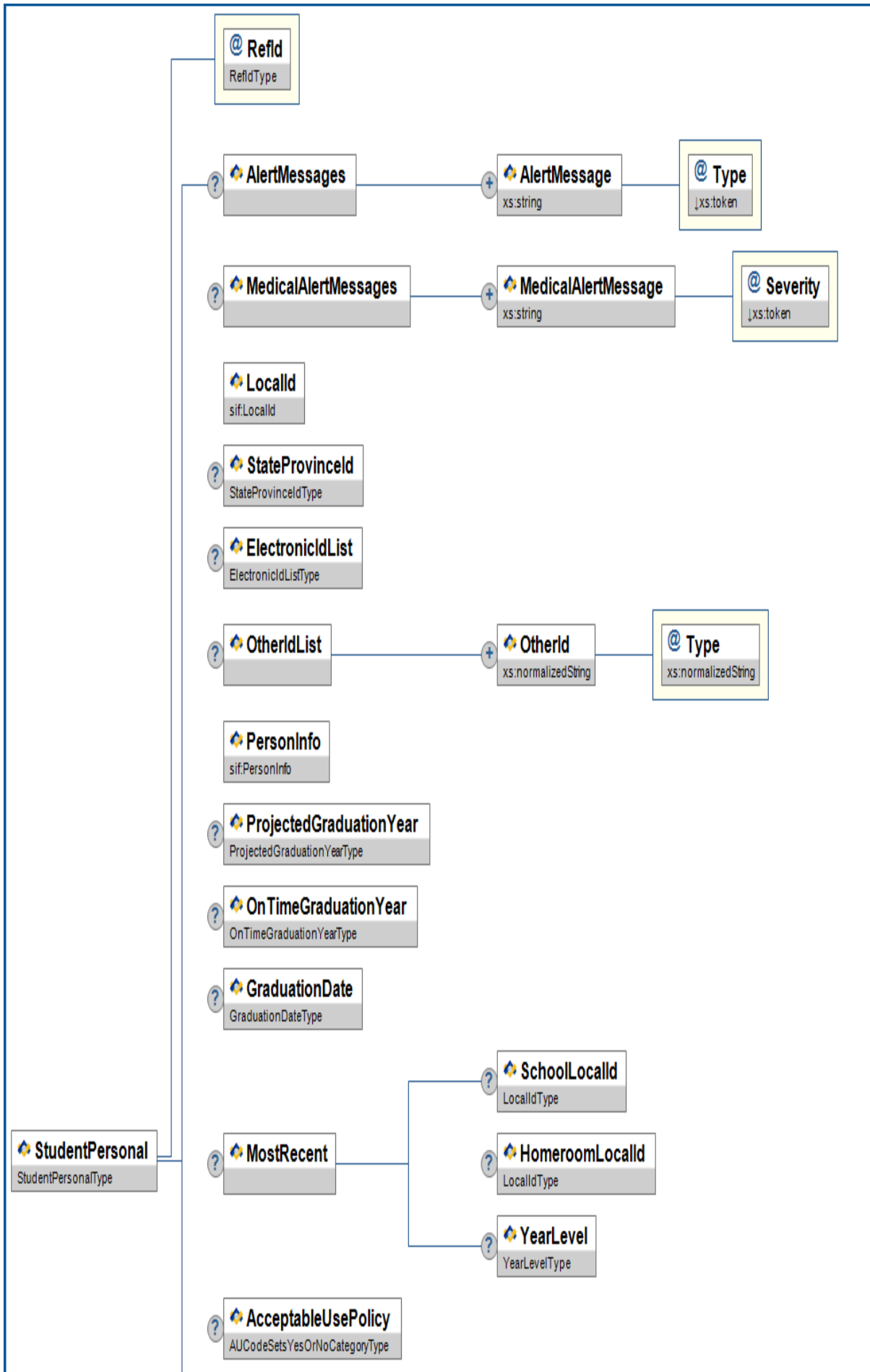
Example 6.3.37-1: StudentPeriodAttendance

6.3.38 StudentPersonal

This object contains all the personal information related to the student.

SIF_Events are reported for this object.
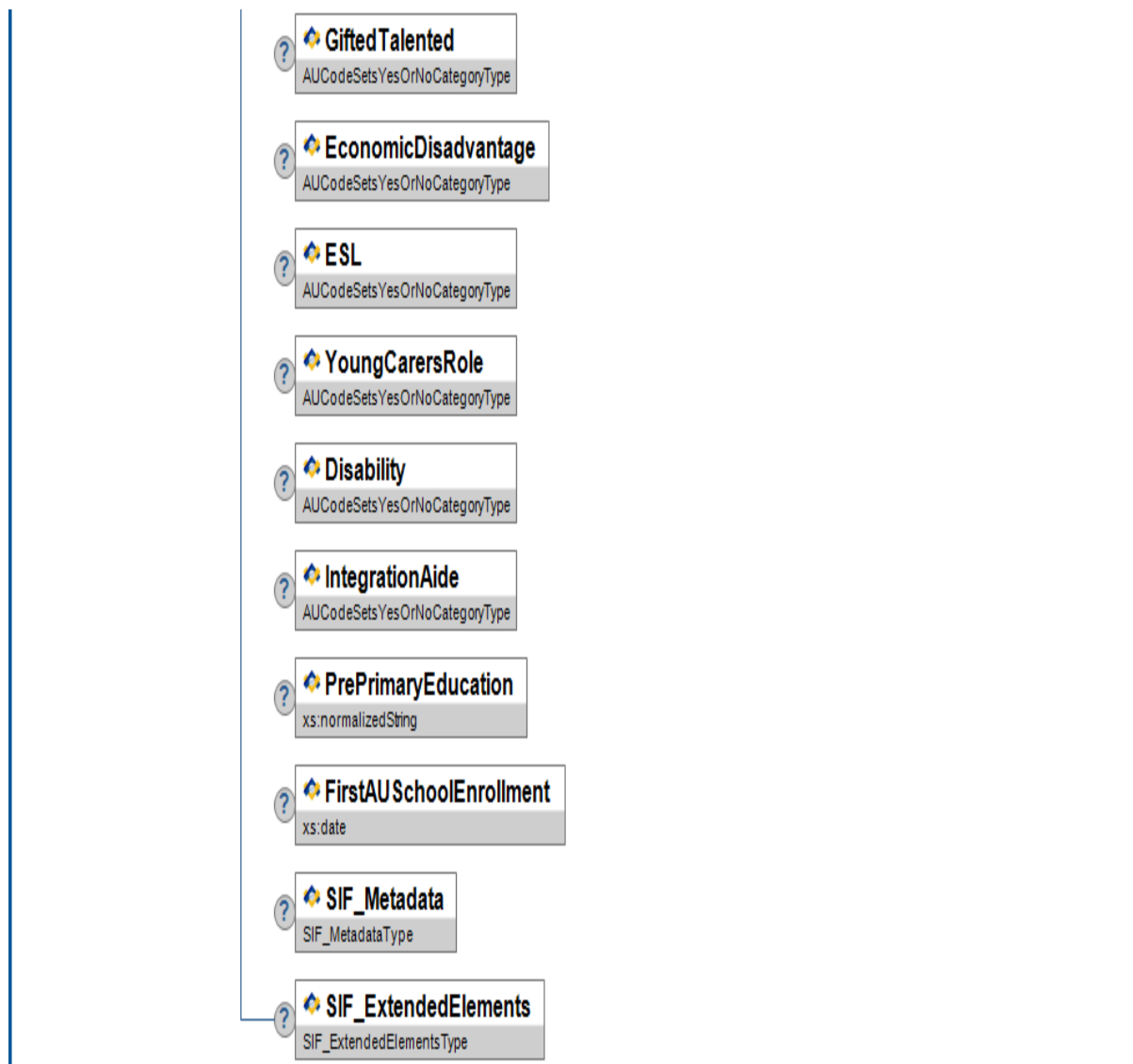
Figure 6.3.38-1: StudentPersonal

Element/@Attribute	Char	Description	Type
StudentPersonal		This object contains all the personal information related to the student.	
@ RefId	M	The GUID of the student.	RefIdType
AlertMessages	O		List
AlertMessages/AlertMessage	MR	This is an alert message that is associated with the student.	xs:string

	Element/@Attribute	Char	Description	Type

@	Type	M	This attribute specifies what type of alert message this is.	**values:**
				
				Legal
				      Custody, guardian, court orders (e.g. must attend school), lawsuits, etc.
				Discipline
				      Student is suspended, expelled, on probation, etc.
				Educational
				      academic probation, etc.
				Other

	MedicalAlertMessages	O		List
	MedicalAlertMessages/MedicalAlertMessage	MR	Medical alert associated with the student.	xs:string
@	Severity	M	The level of severity of this medical alert.	**values:** Low Moderate High Severe Unknown
	LocalId	M	The locally-assigned identifier for this student.	LocalId
	StateProvinceId	O	The state-assigned identifier for this student.	StateProvinceId
	ElectronicIdList	O	Electronic identifier(s) associated with this entity.	ElectronicIdList
	OtherIdList	O	Lists all "other" identifiers associated with the student.	List
	OtherIdList/OtherId	MR	Lists an "other" identifier associated with the student.	xs:normalizedString
@	Type	M	Code that defines the type of this other ID.	xs:normalizedString
	PersonInfo	M	Personal Information	PersonInfo
	ProjectedGraduationYear	O	Currently projected graduation year.	ProjectedGraduationYear

Element/@Attribute	Char	Description	Type
OnTimeGraduationYear	O	First projected graduation year, usually determined when student is accepted into 9th grade.	OnTimeGraduationYear
GraduationDate	O	Date student officially graduated from secondary education.	GraduationDate
MostRecent	O	Container for elements reflecting the most recent enrollment of a student. If the student is currently enrolled in the district, the elements contain current information.	
MostRecent/SchoolLocalId	O	Local identifier representing the school in which the student is or was most recently enrolled in the district.	LocalId
MostRecent/HomeroomLocalId	O	Local identifier representing the current or most recent homeroom in which the student is or was most recently assigned in the district. Use the value from RoomInfo/HomeroomNumber if supported. If not supported, use the value from RoomInfo/RoomNumber. If neither is supported, use the most appropriate value from the agent's application.	LocalId
MostRecent/YearLevel	O	The current or most recent grade level of the student in the district.	YearLevel
AcceptableUsePolicy	O	Does the student have a current signed Acceptable Use Policy document for system access?	AUCodeSetsYesOrNoCategoryType
GiftedTalented	O		AUCodeSetsYesOrNoCategoryType
EconomicDisadvantage	O	Does the student meet the State criteria for classification as having an economic disadvantage?	AUCodeSetsYesOrNoCategoryType
ESL	O	Does the student meet 'English as a Second Language Criteria'?	AUCodeSetsYesOrNoCategoryType
YoungCarersRole	O	Is the student a carer of other family members?	AUCodeSetsYesOrNoCategoryType

	Element/@Attribute	Char	Description	Type
	Disability	O	Does the student have funding for disability?	AUCodeSetsYesOrNoCategoryType
	IntegrationAide	O	Does the Student require an Integration Aide?	AUCodeSetsYesOrNoCategoryType
	PrePrimaryEducation	O	Care prior to kinder enrolment (eg. Family day care/home/extended care etc).	xs:normalizedString
	FirstAUSchoolEnrollment	O	Date of the first enrolment in an Australian School	xs:date
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.38-1: StudentPersonal

```xml
<StudentPersonal RefId="7C834EA9EDA12090347F83297E1C290C">
  <AlertMessages>
    <AlertMessage Type="Legal">Mother is legal guardian</AlertMessage>
  </AlertMessages>
  <MedicalAlertMessages>
    <MedicalAlertMessage Severity="Severe">Student has Peanut Allergy</MedicalAlertMessage>
    <MedicalAlertMessage Severity="Moderate">Student has Diabetes</MedicalAlertMessage>
  </MedicalAlertMessages>
  <LocalId>S1234567</LocalId>
  <StateProvinceId>ABC1234</StateProvinceId>
  <ElectronicIdList>
    <ElectronicId Type="03">ZZZZZZ21</ElectronicId>
    <ElectronicId Type="03">ZZZZZZ22</ElectronicId>
  </ElectronicIdList>
  <OtherIdList>
    <OtherId Type="freetext">888rdgf</OtherId>
    <OtherId Type="Disability ID">1234</OtherId>
  </OtherIdList>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Smith</FamilyName>
      <GivenName>Fred</GivenName>
      <FullName>Fred Smith</FullName>
    </Name>
    <OtherNames>
      <Name Type="AKA">
        <FamilyName>Anderson</FamilyName>
        <GivenName>Samuel</GivenName>
        <FullName>Samuel Anderson</FullName>
      </Name>
      <Name Type="PRF">
        <FamilyName>Rowinski</FamilyName>
        <GivenName>Sam</GivenName>
        <FullName>Sam Rowinski </FullName>
      </Name>
    </OtherNames>
    <Demographics>
      <IndigenousStatus>3</IndigenousStatus>
      <Sex>1</Sex>
      <BirthDate>1990-09-26</BirthDate>
      <BirthDateVerification>1004</BirthDateVerification>
      <PlaceOfBirth>Clayton</PlaceOfBirth>
      <StateOfBirth>VIC</StateOfBirth>
      <CountryOfBirth>1101</CountryOfBirth>
      <CountriesOfCitizenship>
        <CountryOfCitizenship>8104</CountryOfCitizenship>
        <CountryOfCitizenship>1101</CountryOfCitizenship>
      </CountriesOfCitizenship>
      <CountriesOfResidency>
        <CountryOfResidency>8104</CountryOfResidency>
        <CountryOfResidency>1101</CountryOfResidency>
      </CountriesOfResidency>
      <CountryArrivalDate>1990-09-26</CountryArrivalDate>
      <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
      <EnglishProficiency>
        <Code>1</Code>
      </EnglishProficiency>
      <LanguageList>
        <Language>
          <Code>0001</Code>
          <LanguageType>1</LanguageType>
        </Language>
      </LanguageList>
      <DwellingArrangement>
        <Code>1671</Code>
      </DwellingArrangement>
      <Religion>
        <Code>2013</Code>
      </Religion>
      <ReligiousEventList>
        <ReligiousEvent>
          <Type>Baptism</Type>
          <Date>2000-09-01</Date>
        </ReligiousEvent>
        <ReligiousEvent>
          <Type>Christmas</Type>
          <Date>2009-12-24</Date>
        </ReligiousEvent>
      </ReligiousEventList>
      <ReligiousRegion>The Religion Region</ReligiousRegion>
      <PermanentResident>P</PermanentResident>
      <VisaSubClass>101</VisaSubClass>
      <VisaStatisticalCode>05</VisaStatisticalCode>
```

```
        </Demographics>
        <AddressList>
          <Address Type="0123" Role="2382">
            <Street>
              <Line1>Unit1/10</Line1>
              <Line2>Barkley Street</Line2>
            </Street>
            <City>Yarra Glenn</City>
            <StateProvince>VIC</StateProvince>
            <Country>1101</Country>
            <PostalCode>9999</PostalCode>
          </Address>
          <Address Type="0123A" Role="013A">
            <Street>
              <Line1>34 Term Address Street</Line1>
            </Street>
            <City>Home Town</City>
            <StateProvince>WA</StateProvince>
            <Country>1101</Country>
            <PostalCode>9999</PostalCode>
          </Address>
        </AddressList>
        <PhoneNumberList>
          <PhoneNumber Type="0096">
            <Number>03 9637-2289</Number>
            <Extension>72289</Extension>
            <ListedStatus>Y</ListedStatus>
          </PhoneNumber>
          <PhoneNumber Type="0888">
            <Number>0437-765-234</Number>
            <ListedStatus>N</ListedStatus>
          </PhoneNumber>
        </PhoneNumberList>
        <EmailList>
          <Email Type="01">fsmith@yahoo.com</Email>
          <Email Type="02">freddy@gmail.com</Email>
        </EmailList>
      </PersonInfo>
      <ProjectedGraduationYear>2014</ProjectedGraduationYear>
      <OnTimeGraduationYear>2012</OnTimeGraduationYear>
      <MostRecent>
        <SchoolLocalId>S1234567</SchoolLocalId>
        <HomeroomLocalId>hr12345</HomeroomLocalId>
        <YearLevel>
          <Code>P</Code>
        </YearLevel>
      </MostRecent>
      <AcceptableUsePolicy>Y</AcceptableUsePolicy>
      <EconomicDisadvantage>N</EconomicDisadvantage>
      <ESL>U</ESL>
      <YoungCarersRole>N</YoungCarersRole>
      <Disability>N</Disability>
      <IntegrationAide>N</IntegrationAide>
    </StudentPersonal>
```

Example 6.3.38-1: StudentPersonal
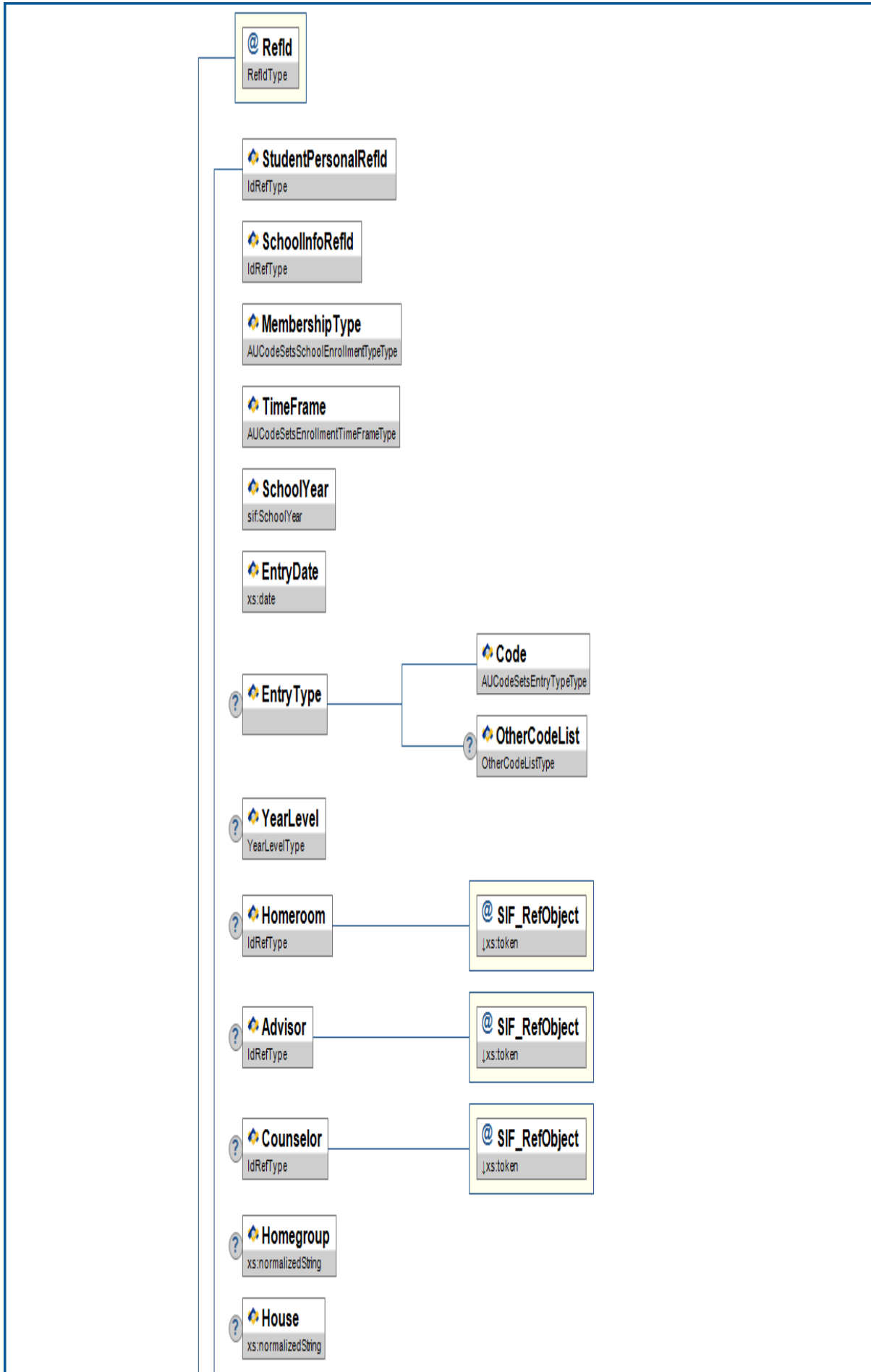
6.3.39 StudentSchoolEnrollment

This object defines information related to a student's enrollment. StudentSchoolEnrollment instances must not span multiple school years.
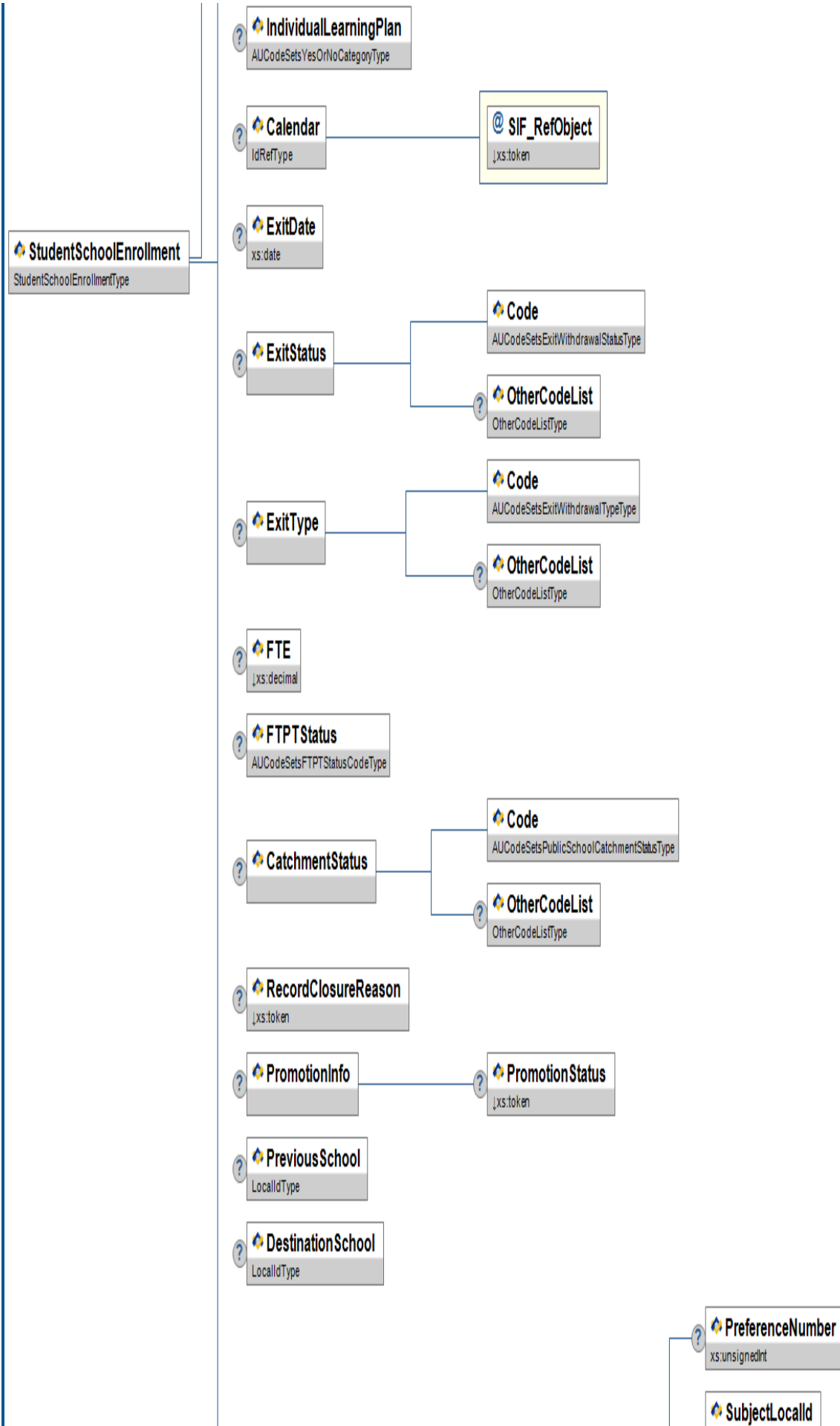
Note there is only one current home enrollment at a time per student. Only one instance of the `StudentSchoolEnrollment` object must exist for a given student with `MembershipType=01` (Home School) and `TimeFrame=C` (Current) for the time interval between `EntryDate` and `ExitDate`, inclusive.

Agents are required to re-publish a `StudentSchoolEnrollment` object `Change` event when the `TimeFrame` attribute changes, regardless of when the data entry is done. This is in addition to the practice of publishing the object `Change` event at the time the data changes in the corresponding application.

When the object is re-published, it must contain all the data in the object that is supported by the publisher.
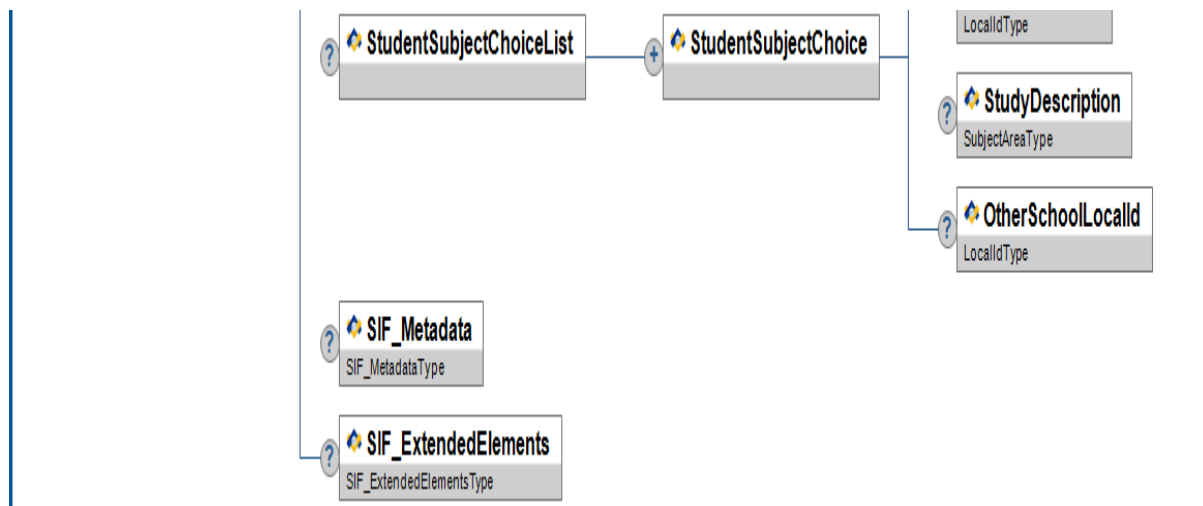
SIF_Events are reported for this object.

IndividualLearningPlan
AUCodeSetsYesOrNoCategoryType

Calendar
IdRefType

@ SIF_RefObject
↓xs:token

StudentSchoolEnrollment
StudentSchoolEnrollmentType

ExitDate
xs:date

ExitStatus

Code
AUCodeSetsExitWithdrawalStatusType

OtherCodeList
OtherCodeListType

ExitType

Code
AUCodeSetsExitWithdrawalTypeType

OtherCodeList
OtherCodeListType

FTE
↓xs:decimal

FTPTStatus
AUCodeSetsFTPTStatusCodeType

CatchmentStatus

Code
AUCodeSetsPublicSchoolCatchmentStatusType

OtherCodeList
OtherCodeListType

RecordClosureReason
↓xs:token

PromotionInfo

PromotionStatus
↓xs:token

PreviousSchool
LocalIdType

DestinationSchool
LocalIdType

PreferenceNumber
xs:unsignedInt

SubjectLocalId

Figure 6.3.39-1: StudentSchoolEnrollment

	Element/@Attribute	Char	Description	Type
	StudentSchoolEnrollment		This object defines information related to a student's enrollment. StudentSchoolEnrollment instances must not span multiple school years.	
			Note there is only one current home enrollment at a time per student. Only one instance of the `StudentSchoolEnrollment` object must exist for a given student with `MembershipType`=01 (Home School) and `TimeFrame`=C (Current) for the time interval between `EntryDate` and `ExitDate`, inclusive.	
			Agents are required to re-publish a `StudentSchoolEnrollment` object `Change` event when the `TimeFrame` attribute changes, regardless of when the data entry is done. This is in addition to the practice of publishing the object `Change` event at the time the data changes in the corresponding application.	
			When the object is re-published, it must contain all the data in the object that is supported by the publisher.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies a particular enrollment.	RefIdType
	StudentPersonalRefId	M	The ID (GUID) of the student to whom this information is linked.	IdRefType

	Element/@Attribute	Char	Description	Type
	SchoolInfoRefId	M	The ID (GUID) of the school to which this enrollment applies.	IdRefType
	MembershipType	M	The type of this enrollment as it relates to the school identified in SchoolInfoRefId.	AUCodeSetsSchoolEnrollmentTypeType
	TimeFrame	M	The timeframe of the enrollment based on the SIF_Date in the SIF_Header of the message. For events, it is determined as of the date the event is generated. For requests and responses, it is calculated based on the date of the request.	AUCodeSetsEnrollmentTimeFrameType
	SchoolYear	M	School year for which this enrollment is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007). StudentSchoolEnrollment instances must not span multiple school years.	SchoolYear
	EntryDate	M	The date from when this enrollment is valid.	xs:date
	EntryType	O	Container elements for EntryType information	
	EntryType/Code	M	Code indicating the type of entry for this enrollment	AUCodeSetsEntryTypeType
	EntryType/OtherCodeList	O	List of other codes or strings that crosswalk to or serve as translations of the Code element paired with this common element. If Code changes and OtherCodes are supported, both Code and all associated OtherCode elements must be present.	OtherCodeList
	YearLevel	O	Year or academic level of student.	YearLevel
	Homeroom	O	Homeroom for this enrollment.	IdRefType

	Element/@Attribute	Char	Description	Type
@	SIF_RefObject	M	The name of the object referenced.	**values:** `RoomInfo`
	Advisor	O	Staff member assigned as an advisor.	`IdRefType`
@	SIF_RefObject	M	The name of the object referenced.	**values:** `StaffPersonal`
	Counselor	O	Staff member assigned as an advisor.	`IdRefType`
@	SIF_RefObject	M	The name of the object referenced.	**values:** `StaffPersonal`
	Homegroup	O	The name of the homegroup the student enrollment belongs to.	`xs:normalizedString`
	House	O	The name of the house the student belongs to.	`xs:normalizedString`
	IndividualLearningPlan	O	Does this student have an individual learning plan in place?	`AUCodeSetsYesOrNoCategoryType`
	Calendar	O	The calendar assigned to this enrollment.	`IdRefType`
@	SIF_RefObject	M	The name of the object referenced.	**values:** `CalendarSummary`
	ExitDate	C	The last school calendar day of this enrollment. If the student has exited the school or the enrollment has a `RecordClosureReason`, `ExitDate` must have a value.	`xs:date`
	ExitStatus	O	Container element for exit status codes.	

	Element/@Attribute	Char	Description	Type
	ExitStatus/Code	M	Code indicating the closure status for this enrollment.	AUCodeSetsExitWithdrawalStatusType
	ExitStatus/OtherCodeList	O		OtherCodeList
	ExitType	O		
	ExitType/Code	M	Code indicating the type of exit for this enrollment.	AUCodeSetsExitWithdrawalTypeType
	ExitType/OtherCodeList	O		OtherCodeList
	FTE	O	Full-time equivalent numeric value of the student's course load during this enrollment, expressed in decimal form, where 1.00 represents a full-time enrollment.	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 2
	FTPTStatus	O	An indication of whether the student is enrolled full time or part time.	AUCodeSetsFTPTStatusCodeType
	CatchmentStatus	O	Container element for location of an individual's legal residence relative to (within or outside) the boundaries of the school for this enrolment. Enrolment Catchment Status.	
	CatchmentStatus/Code	M	Code indicating the residency status for this enrollment. Code indicating Enrollment Catchment Status.	AUCodeSetsPublicSchoolCatchmentStatusType
	CatchmentStatus/OtherCodeList	O	List of other codes or strings that crosswalk to or serve as translations of the Code element paired with this common element. If Code changes and OtherCodes are supported, both Code and all associated OtherCode elements must be present.	OtherCodeList
	RecordClosureReason	O	The reason why this enrollment was closed. The EndOfYear option must be used to convey status change due to rollover activity.	**values:** SchoolExit TimeDependentDataChange EndOfYear

Element/@Attribute	Char	Description	Type
PromotionInfo	O	Information on a student's promotion, retention, or demotion related to this enrollment instance.	
PromotionInfo/PromotionStatus	O	This value should be set if this enrollment instance is closed for an end-of-year closeout or a mid-year promotion or demotion. A value other than NA should be specified when the enrollment instance represents an end-of-year closeout or mid-year promotion/demotion.	**values:** Promoted Demoted Retained NA
PreviousSchool	O	If the student has previously been enrolled at a school, i.e. student is transferring, the previous school number.	LocalId
DestinationSchool	O	If the student has exited the school, the local id of the school to which the student has transferred to.	LocalId
StudentSubjectChoiceList	O	List of Student Subject Choices where available.	List
StudentSubjectChoiceList/ StudentSubjectChoice	MR	Subjects Students Choose	
StudentSubjectChoiceList/ StudentSubjectChoice/PreferenceNumber	O	Subject Priority	xs:unsignedInt
StudentSubjectChoiceList/ StudentSubjectChoice/SubjectLocalId	M	Local Subject Id	LocalId
StudentSubjectChoiceList/ StudentSubjectChoice/StudyDescription	O	Description about Study Mode.	SubjectArea
StudentSubjectChoiceList/ StudentSubjectChoice/OtherSchoolLocalId	O	Localid of a school where the student studies this subject if not at the home school.	LocalId
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.39-1: StudentSchoolEnrollment

```
<StudentSchoolEnrollment RefId="A8C3D3E34B359D75101D00AA001A1652">
  <StudentPersonalRefId>D3E34B359D75101A8C3D00AA001A1652</StudentPersonalRefId>
  <SchoolInfoRefId>D3E34B359D75101A8C3D00AA001A1651</SchoolInfoRefId>
  <MembershipType>01</MembershipType>
  <TimeFrame>C</TimeFrame>
  <SchoolYear>2004</SchoolYear>
  <EntryDate>2004-01-29</EntryDate>
  <EntryType>
    <Code>1838</Code>
  </EntryType>
  <YearLevel>
    <Code>10</Code>
  </YearLevel>
  <Homeroom SIF_RefObject="RoomInfo">D7510D3E34B3591A8C3D00AA001A1651</Homeroom>
  <Advisor SIF_RefObject="StaffPersonal">B359D3E34D75101A8C3D00AA001A1652</Advisor>
  <FTE>1.00</FTE>
  <FTPTStatus>01</FTPTStatus>
</StudentSchoolEnrollment>
```

Example 6.3.39-1: StudentSchoolEnrollment

6.3.40 StudentScoreSet

The scored results from an assessment.

SIF_Events are reported for this object.
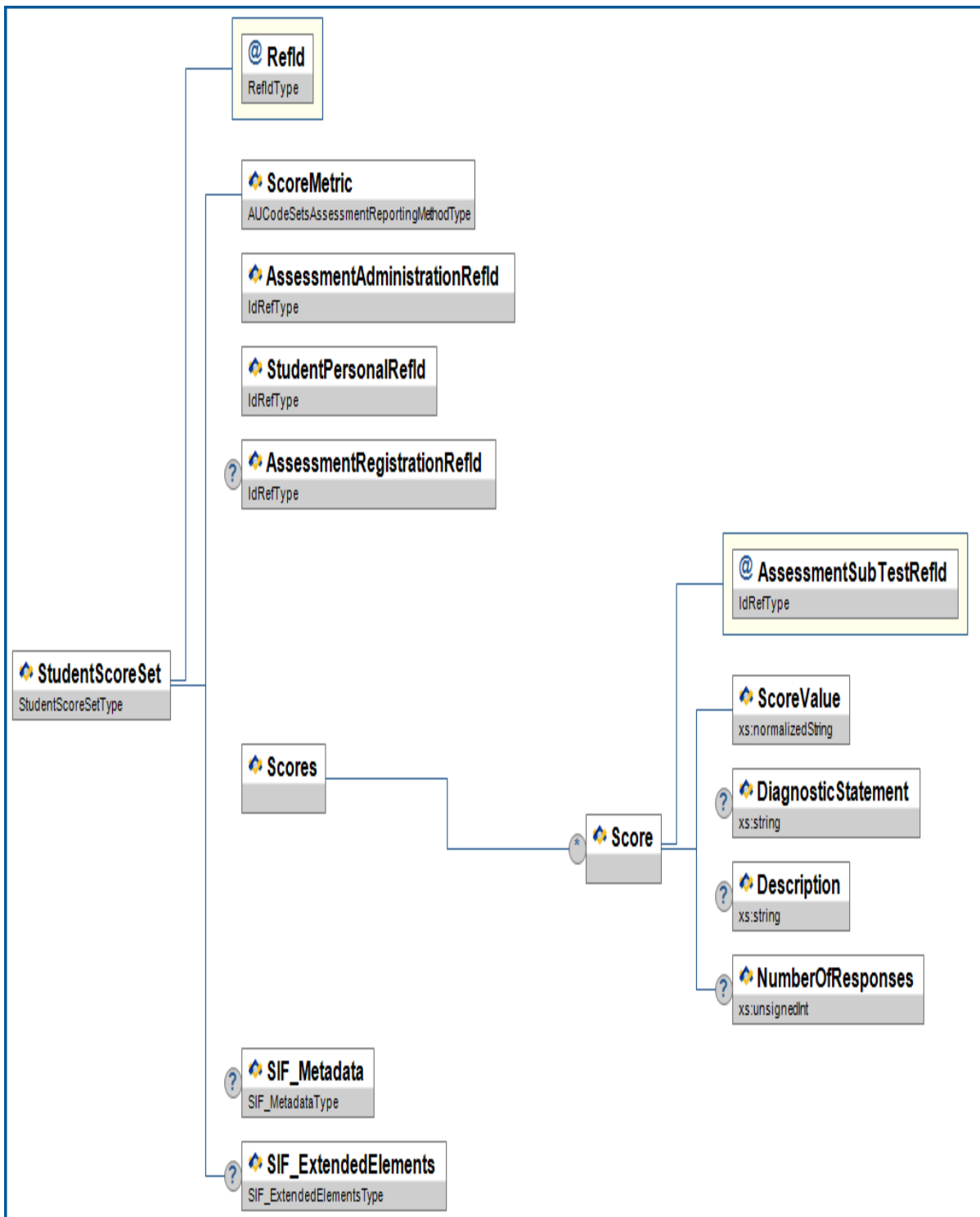
Figure 6.3.40-1: StudentScoreSet

	Element/@Attribute	Char	Description	Type
	StudentScoreSet		The scored results from an assessment.	
@ 🔑	RefId	M	The GUID that uniquely identifies an instance of the object.	RefIdType

	Element/@Attribute	Char	Description	Type
	ScoreMetric	M	The metric or scale used to report the score.	AUCodeSetsAssessmentReportingMethodType
	AssessmentAdministrationRefId	M	The administration associated with this score set.	IdRefType
	StudentPersonalRefId	M	The student associated with this score set.	IdRefType
	AssessmentRegistrationRefId	O	The registration associated with this score set.	IdRefType
	Scores	M	Container for score elements.	List
	Scores/Score	OR	The score with other information related to the score.	
@	AssessmentSubTestRefId	M	References the AssessmentSubTest that defines the score.	IdRefType
	Scores/Score/ScoreValue	M	The value of the score.	xs:normalizedString
	Scores/Score/DiagnosticStatement	O	Comment created by any logical analysis of this score.	xs:string
	Scores/Score/Description	O	This is further qualification of a Student Score.	xs:string
	Scores/Score/NumberOfResponses	O	This is the number of responses that are included with the StudentScoreSet.	xs:unsignedInt
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.40-1: StudentScoreSet

```
<StudentScoreSet RefId="5810E283E928459CBBA76EFE1963F784">
  <ScoreMetric>0512</ScoreMetric>
  <AssessmentAdministrationRefId>1F971F3D414E4146932566638290E6C1</AssessmentAdministrationRefId>
  <StudentPersonalRefId>8F0934CC2F0448F8BBD788AA1ADE691B</StudentPersonalRefId>
  <Scores>
    <Score AssessmentSubTestRefId="E5EDAE63A04D47E49D0224A32956B074">
      <ScoreValue>25</ScoreValue>
      <DiagnosticStatement>Shows ability to identify symmetry.</DiagnosticStatement>
    </Score>
  </Scores>
</StudentScoreSet>
```
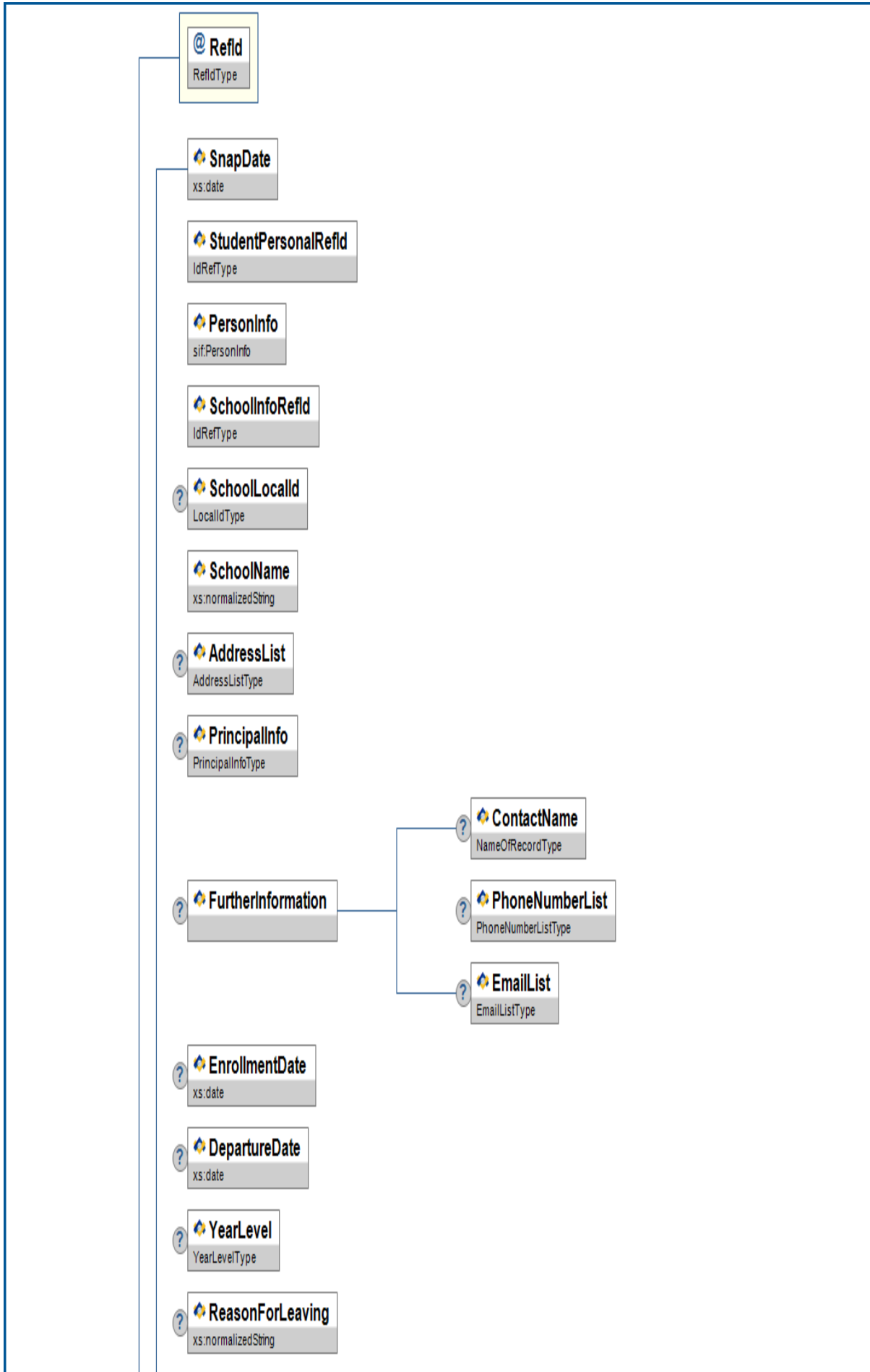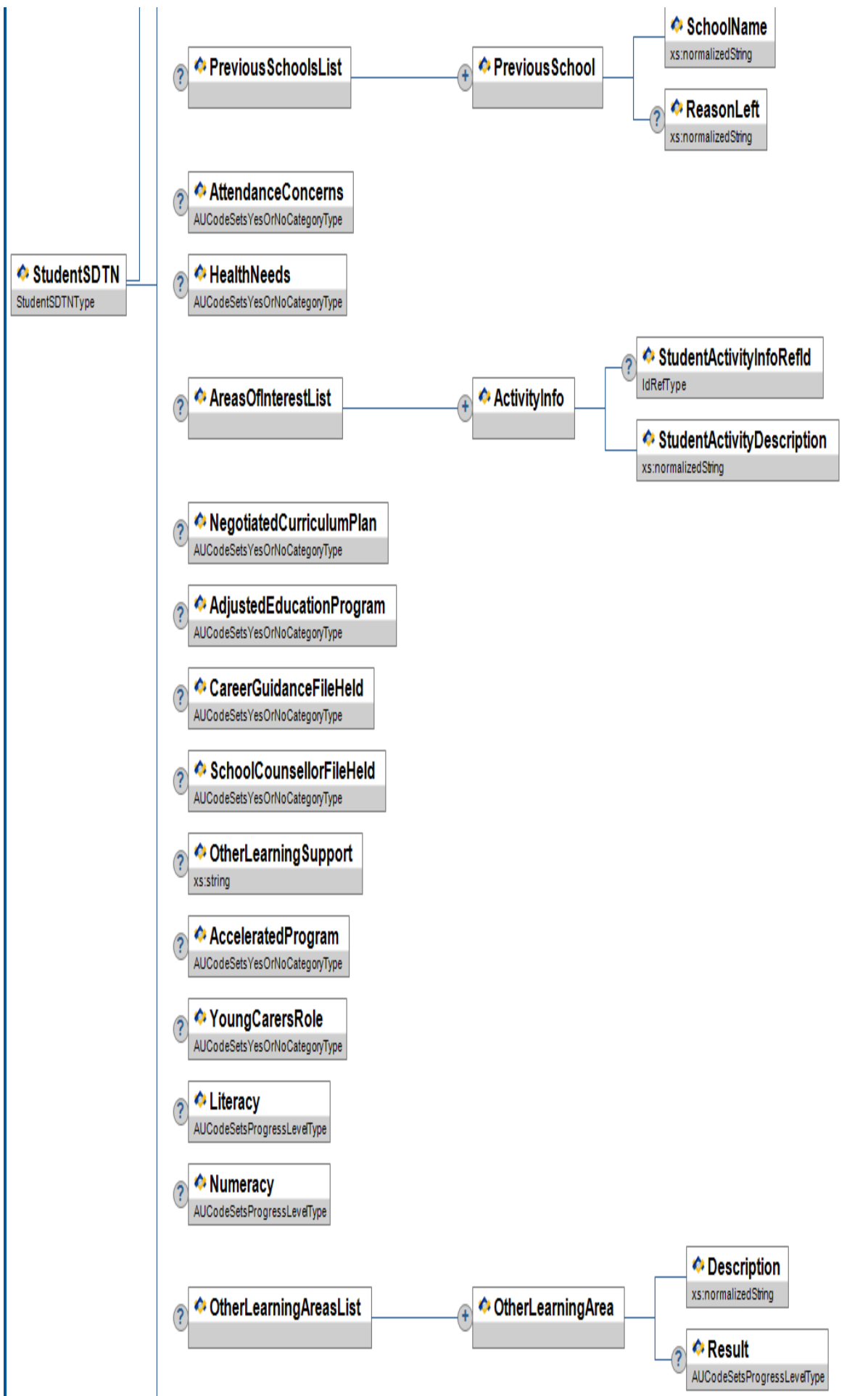
Example 6.3.40-1: StudentScoreSet

6.3.41 StudentSDTN

This object has been developed to cater for the SDTN – Student Data Transfer Note.
http://www.mceecdya.edu.au/verve/_resources/ISDTN_Form_3_Transfer_Note_Oct_06.pdf The elements in this object have been developed to support the LIMF recommendations and allow two or more jurisdictions to exchange this data.
http://www.aictec.edu.au/aictec/go/home/about/pid/289

SIF_Events are reported for this object.
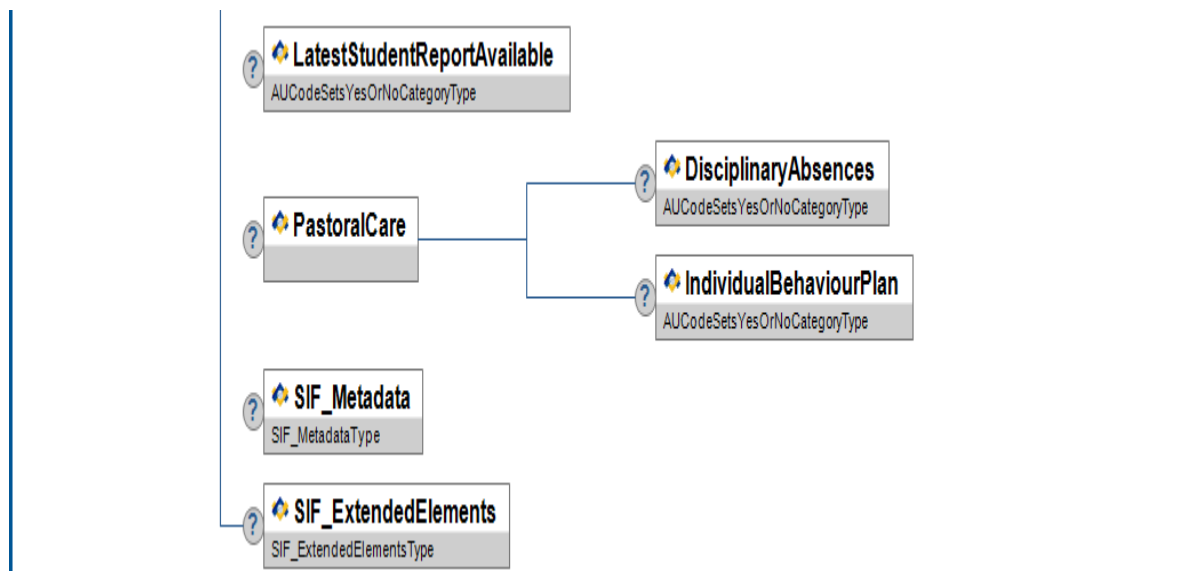
Figure 6.3.41-1: StudentSDTN

	Element/@Attribute	Char	Description
	StudentSDTN		This object has been developed to cater for the SDTN – Student Data Transfer Note. http://www.mceecdya.edu.au/verve/_resources/ISDTN_Form_3_Transfer_Note_Oct_(The elements in this object have been developed to support the LIMF recommendation allow two or more jurisdictions to exchange this data. http://www.aictec.edu.au/aictec/go/home/about/pid/289
@ 🔑	RefId	M	The GUID that uniquely identifies this SDTN Object.
	SnapDate	M	The date that this object was sent.
	StudentPersonalRefId	M	The RefId of the StudentPersonal object at the sending school.
	PersonInfo	M	Personal Information.
	SchoolInfoRefId	M	GUID that identifies the school that provided the SDTN.
	SchoolLocalId	O	The locally-assigned identifier for the school in the original database (sender)
	SchoolName	M	Name of school/campus.
	AddressList	O	The school's addresses.

	Element/@Attribute	Char	Description
	PrincipalInfo	O	Information about the campus or school principal.
	FurtherInformation	O	
	FurtherInformation/ContactName	O	The name of the person to contact for further information on this student.
	FurtherInformation/PhoneNumberList	O	The further contact person's phone number(s).
	FurtherInformation/EmailList	O	The further contact person's e-mail address(es).
	EnrollmentDate	O	The date when the student first attended the school.
	DepartureDate	O	The last school calendar day the student attended or sign-out date if departure is before of school year.
	YearLevel	O	School Year or academic level of student at departure date.
	ReasonForLeaving	O	
	PreviousSchoolsList	O	List of Previous Schools if known (other than the provider school)
	PreviousSchoolsList/PreviousSchool	MR	Repeatable element of previous schools information if known. (other than the provider school)
	PreviousSchoolsList/PreviousSchool/ SchoolName	M	Previous School Name
	PreviousSchoolsList/PreviousSchool/ ReasonLeft	O	Reason for leaving previous school if known.
	AttendanceConcerns	O	Indicator of whether the Student had attendance concerns worth noting.

	Element/@Attribute	Char	Description
	HealthNeeds	O	Indicator of whether the Student has any Health Care Needs.
	AreasOfInterestList	O	
	AreasOfInterestList/ActivityInfo	MR	Repeatable element containing activities student has an interest in or participates in.
	AreasOfInterestList/ActivityInfo/ StudentActivityInfoRefId	O	GUID that identifies the activity in which the student participates.
	AreasOfInterestList/ActivityInfo/ StudentActivityDescription	M	Description of Activity Info in the Previous Schools' zone.
	NegotiatedCurriculumPlan	O	Does the student have a negotiated curriculum plan?
	AdjustedEducationProgram	O	Does the student have an adjusted education program?
	CareerGuidanceFileHeld	O	Does the student have a career guidance file?
	SchoolCounsellorFileHeld	O	Is there a School counsellor/psychologist file held?
	OtherLearningSupport	O	Comments describing any other required learning support, eg ESL needs.
	AcceleratedProgram	O	Did the student participate in an accelerated learning program?
	YoungCarersRole	O	Is the student a carer of other family members?
	Literacy	O	Progress in Literacy or English according to the National Standard.
	Numeracy	O	Progress in Numeracy or Maths according to the National Standard.
	OtherLearningAreasList	O	

	Element/@Attribute	Char	Description
	OtherLearningAreasList/OtherLearningArea	MR	Repeatable element of progress in other learning areas.
	OtherLearningAreasList/OtherLearningArea/ Description	M	Description of Other Learning Area.
	OtherLearningAreasList/OtherLearningArea/ Result	O	Progress in other learning area according to the National Standard.
	LatestStudentReportAvailable	O	Is the latest student report available?
	PastoralCare	O	Pastoral care and behaviour management
	PastoralCare/DisciplinaryAbsences	O	Have there been any school disciplinary absences (in or out of school) in the last 12 mo
	PastoralCare/IndividualBehaviourPlan	O	Is there an individual behaviour management plan
	SIF_Metadata	O	
	SIF_ExtendedElements	O	

Table 6.3.41-1: StudentSDTN

```xml
<StudentSDTN RefId="9ECC96830E02406F926C1C4D3542D122">
  <SnapDate>2009-03-01</SnapDate>
  <StudentPersonalRefId>646C5D4AC8294886A02B971695C7BC06</StudentPersonalRefId>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Smith</FamilyName>
      <GivenName>Fred</GivenName>
      <FullName>Fred Smith</FullName>
    </Name>
    <OtherNames>
      <Name Type="AKA">
        <FamilyName>Anderson</FamilyName>
        <GivenName>Samuel</GivenName>
        <FullName>Samuel Anderson</FullName>
      </Name>
      <Name Type="PRF">
        <FamilyName>Rowinski</FamilyName>
        <GivenName>Sam</GivenName>
        <FullName>Sam Rowinski </FullName>
      </Name>
    </OtherNames>
    <Demographics>
      <Sex>1</Sex>
      <BirthDate>1995-09-26</BirthDate>
      <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
    </Demographics>
  </PersonInfo>
  <SchoolInfoRefId>476C5D4AC8294886A02B971695C7BC06</SchoolInfoRefId>
  <SchoolLocalId>01011234</SchoolLocalId>
  <SchoolName>Lincoln Secondary College</SchoolName>
  <AddressList>
    <Address Type="0123" Role="012B">
      <Street>
        <Line1>23 Nicholson Street</Line1>
      </Street>
      <City>Carnegie</City>
      <StateProvince>VIC</StateProvince>
      <Country>1101</Country>
      <PostalCode>3004</PostalCode>
      <GridLocation>
        <Latitude>23.9876</Latitude>
        <Longitude>-98.8765</Longitude>
      </GridLocation>
    </Address>
  </AddressList>
  <PrincipalInfo>
    <ContactName Type="LGL">
      <Title>Mr</Title>
      <FamilyName>Miller</FamilyName>
      <GivenName>James</GivenName>
      <MiddleName>Frank</MiddleName>
      <Suffix>Jr.</Suffix>
      <FullName>Mr James Frank Miller Jr.</FullName>
    </ContactName>
    <ContactTitle>School Principal</ContactTitle>
    <PhoneNumberList>
      <PhoneNumber Type="0096">
        <Number>03 9637-2000</Number>
        <Extension>72345</Extension>
        <ListedStatus>Y</ListedStatus>
      </PhoneNumber>
    </PhoneNumberList>
    <EmailList>
      <Email Type="01">jmiller@lsc.vic.edu.au</Email>
      <Email Type="02">jmiller@yahoo.com.au</Email>
    </EmailList>
  </PrincipalInfo>
  <FurtherInformation>
    <ContactName Type="LGL">
      <Title>Mr</Title>
      <FamilyName>Knudson</FamilyName>
      <GivenName>Raymond</GivenName>
      <FullName>Mr Raymond Knudson</FullName>
    </ContactName>
    <PhoneNumberList>
      <PhoneNumber Type="0096">
        <Number>03 9637-2200</Number>
        <Extension>72348</Extension>
        <ListedStatus>Y</ListedStatus>
      </PhoneNumber>
      <PhoneNumber Type="0888">
        <Number>0416 123 785</Number>
        <ListedStatus>N</ListedStatus>
```

```
        </PhoneNumber>
      </PhoneNumberList>
      <EmailList>
        <Email Type="01">rknudson@lsc.vic.edu.au</Email>
        <Email Type="02">rknudson@hotmail.com</Email>
      </EmailList>
    </FurtherInformation>
    <EnrollmentDate>2005-01-31</EnrollmentDate>
    <DepartureDate>2008-12-18</DepartureDate>
    <YearLevel>
      <Code>7</Code>
    </YearLevel>
    <ReasonForLeaving>Family re-location</ReasonForLeaving>
    <PreviousSchoolsList>
      <PreviousSchool>
        <SchoolName>Lincoln Primary School</SchoolName>
        <ReasonLeft>Graduated</ReasonLeft>
      </PreviousSchool>
    </PreviousSchoolsList>
    <AttendanceConcerns>N</AttendanceConcerns>
    <HealthNeeds>N</HealthNeeds>
    <AreasOfInterestList>
      <ActivityInfo>
        <StudentActivityInfoRefId>6472B2610947583A463DBB345291B001</StudentActivityInfoRefId>
        <StudentActivityDescription>Athletics</StudentActivityDescription>
      </ActivityInfo>
    </AreasOfInterestList>
    <NegotiatedCurriculumPlan>N</NegotiatedCurriculumPlan>
    <AdjustedEducationProgram>N</AdjustedEducationProgram>
    <CareerGuidanceFileHeld>N</CareerGuidanceFileHeld>
    <SchoolCounsellorFileHeld>N</SchoolCounsellorFileHeld>
    <OtherLearningSupport>ESL Support Given</OtherLearningSupport>
    <AcceleratedProgram>N</AcceleratedProgram>
    <YoungCarersRole>N</YoungCarersRole>
    <Literacy>Below</Literacy>
    <Numeracy>At</Numeracy>
    <OtherLearningAreasList>
      <OtherLearningArea>
        <Description>Language</Description>
        <Result>At</Result>
      </OtherLearningArea>
    </OtherLearningAreasList>
    <LatestStudentReportAvailable>Y</LatestStudentReportAvailable>
    <PastoralCare>
      <DisciplinaryAbsences>N</DisciplinaryAbsences>
      <IndividualBehaviourPlan>N</IndividualBehaviourPlan>
    </PastoralCare>
  </StudentSDTN>
```

Example 6.3.41-1: StudentSDTN

6.3.42 StudentSnapshot

This object provides a snapshot of a student's record on a given day. All information reported in the object is reported as it appeared in the responding system on the date specified in SnapDate. It can be used for synching data across applications, for periodically loading a data warehouse, or for vertical reporting of data to a requesting authority, such as a state department of education.
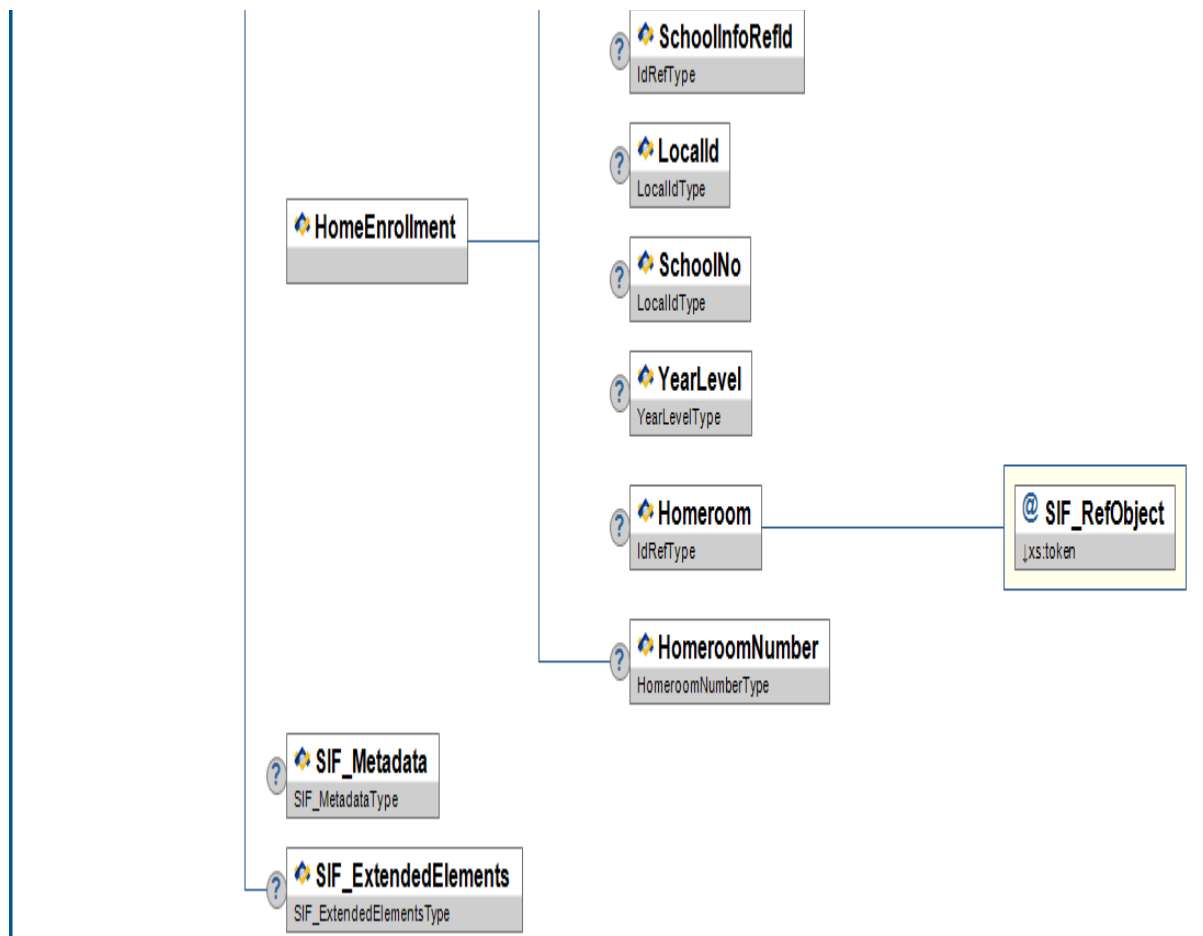
SIF_Events are not reported for this object.
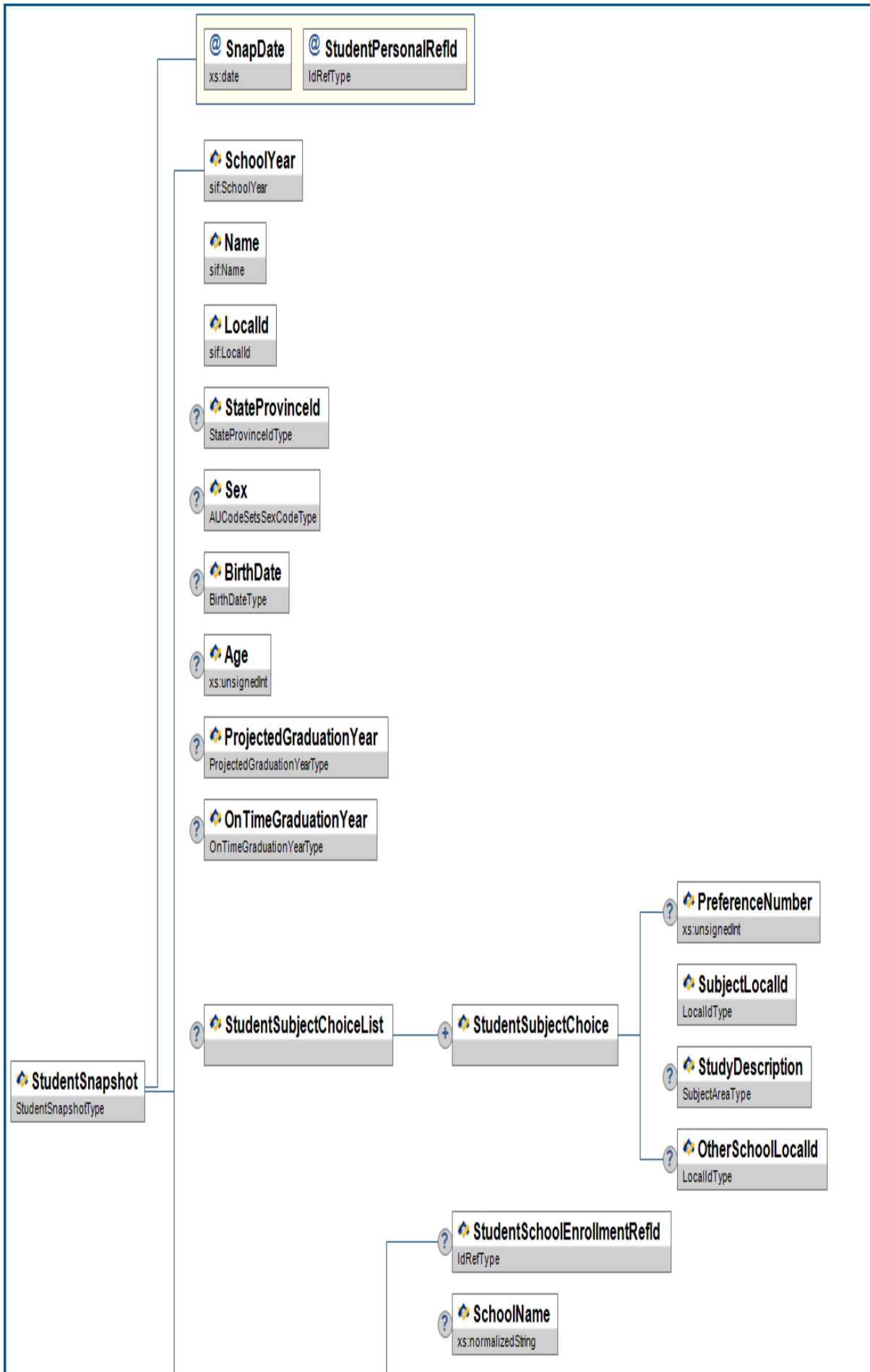
Figure 6.3.42-1: StudentSnapshot

	Element/@Attribute	Char	Description	Type
	StudentSnapshot		This object provides a snapshot of a student's record on a given day. All information reported in the object is reported as it appeared in the responding system on the date specified in SnapDate. It can be used for synching data across applications, for periodically loading a data warehouse, or for vertical reporting of data to a requesting authority, such as a state department of education.	
@ 🔑	SnapDate	M	The date the data snapshot was taken. Some elements are provided/calculated as of the SnapDate, and some are provided as of the date the object is requested (i.e., some can be historical and some will represent the last information available/last known value). In a SIS the following elements are provided/calculated as of the SnapDate: Age, HomeEnrollment and all its child elements. Other applications (e.g., data warehouses) may be able to provide values for other elements on various snap dates.	xs:date
@ 🔑	StudentPersonalRefId	M	The ID (GUID) of the student to whom this information relates.	IdRefType

Element/@Attribute	Char	Description	Type
SchoolYear	M	School year in which the SnapDate falls, and for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g. 2007).	SchoolYear
Name	M	The name of the student.	Name
LocalId	M	The locally-defined identifier for this student.	LocalId
StateProvinceId	O	The state-assigned identifier for this student.	StateProvinceId
Sex	O	'Sex' is the distinction 'male' and 'female', as reported by the person.	AUCodeSetsSexCodeType
BirthDate	O	The person's date of birth.	BirthDate
Age	O	The age (in years) of the student on the date in SnapDate.	xs:unsignedInt
ProjectedGraduationYear	O	Currently projected graduation year.	ProjectedGraduationYear
OnTimeGraduationYear	O	First projected graduation year, usually determined when student is accepted into ninth grade.	OnTimeGraduationYear
StudentSubjectChoiceList	O	List of Student Subject Choices where available.	List
StudentSubjectChoiceList/ StudentSubjectChoice	MR	Subjects Students Choose	
StudentSubjectChoiceList/ StudentSubjectChoice/PreferenceNumber	O	Subject Priority	xs:unsignedInt
StudentSubjectChoiceList/ StudentSubjectChoice/SubjectLocalId	M	Local Subject Id	LocalId

	Element/@Attribute	Char	Description	Type
	StudentSubjectChoiceList/ StudentSubjectChoice/StudyDescription	O	Description about Study Mode.	SubjectArea
	StudentSubjectChoiceList/ StudentSubjectChoice/OtherSchoolLocalId	O	LocalId of a school where the student studies this subject if not at the home school.	LocalId
	HomeEnrollment	M	Enrollment-related information for the school that is responsible for reporting the student's membership/child accounting information. This is most likely the primary enrollment site for the student.	
	HomeEnrollment/StudentSchoolEnrollmentRefId	O	The ID (GUID) of the StudentSchoolEnrollment object from which the enrollment information is derived.	IdRefType
	HomeEnrollment/SchoolName	O	Name of the school.	xs:normalizedString
	HomeEnrollment/SchoolInfoRefId	C	The ID (GUID) of the school. Provide both the HomeEnrollment/SchoolInfoRefId and HomeEnrollment/LocalId elements if possible. If not, one or the other must be provided.	IdRefType
	HomeEnrollment/LocalId	C	The locally-defined identifier for this school. Provide both the HomeEnrollment/LocalId and HomeEnrollment/SchoolId elements if possible. If not, one or the other must be provided.	LocalId
	HomeEnrollment/SchoolNo	O	The state or province defined identifier for this school.	LocalId
	HomeEnrollment/YearLevel	O	Year or academic level of student.	YearLevel
	HomeEnrollment/Homeroom	O	HomeGroup this student belongs to	IdRefType
@	SIF_RefObject	M	The name of the SIF object referenced.	**values:** RoomInfo
	HomeEnrollment/HomeroomNumber	O	The locally-defined identifier of that room	HomeroomNumber

	Element/@Attribute	Char	Description	Type
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.42-1: StudentSnapshot

```
<StudentSnapshot SnapDate="2003-10-01" StudentPersonalRefId="A15484ED564995254A4568EFFC5100BD">
  <SchoolYear>2004</SchoolYear>
  <Name Type="LGL">
    <FamilyName>Woodall</FamilyName>
    <GivenName>Charles</GivenName>
    <MiddleName>William</MiddleName>
  </Name>
  <LocalId>1089543</LocalId>
  <StateProvinceId>A50321</StateProvinceId>
  <Sex>1</Sex>
  <BirthDate>1988-03-02</BirthDate>
  <Age>15</Age>
  <ProjectedGraduationYear>2007</ProjectedGraduationYear>
  <OnTimeGraduationYear>2006</OnTimeGraduationYear>
  <HomeEnrollment>
    <StudentSchoolEnrollmentRefId>0847987235489729AAA73011BB365EC3</StudentSchoolEnrollmentRefId>
    <SchoolName>Academy HS</SchoolName>
    <SchoolInfoRefId>834787627836AC74B05EE3066ABC9231</SchoolInfoRefId>
    <LocalId>ACAD</LocalId>
    <YearLevel>
      <Code>9</Code>
    </YearLevel>
    <Homeroom SIF_RefObject="RoomInfo">9475683579BA648E0548DDA8365700F4</Homeroom>
    <HomeroomNumber>B024</HomeroomNumber>
  </HomeEnrollment>
</StudentSnapshot>
```

Example 6.3.42-1: StudentSnapshot

6.3.43 SummaryEnrollmentInfo

A key Australian business requirement is the ability to publish a complete student status update on demand. This status may include multiple school enrolments.

This object supports the publishing of a consolidated student update containing all school enrollments and the student's classes at each school.

SIF_Events are reported for this object.
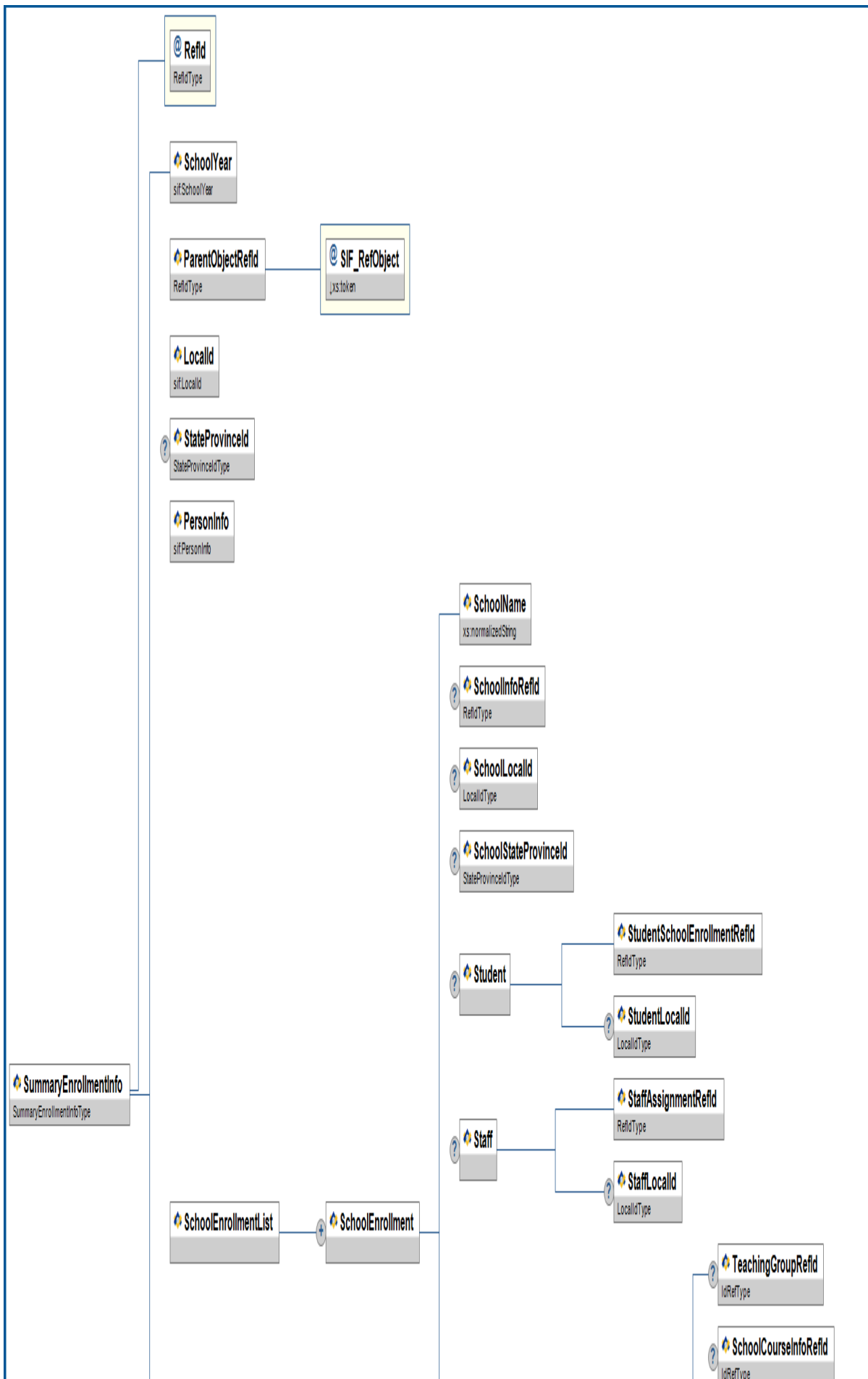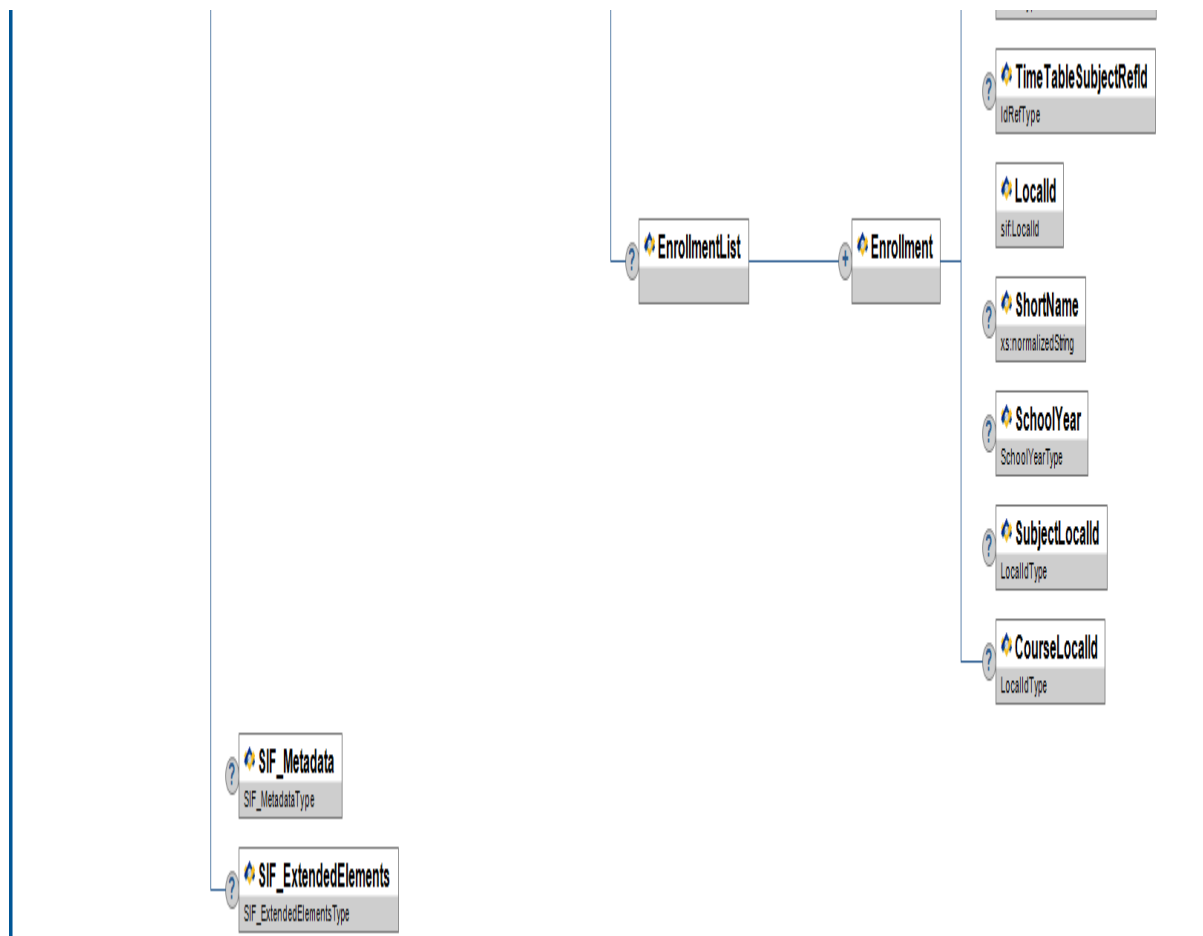
Figure 6.3.43-1: SummaryEnrollmentInfo

	Element/@Attribute	Char	Description	Type
	SummaryEnrollmentInfo		A key Australian business requirement is the ability to publish a complete student status update on demand. This status may include multiple school enrolments. This object supports the publishing of a consolidated student update containing all school enrollments and the student's classes at each school.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies the enrollment.	RefIdType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
	ParentObjectRefId	M	The GUID of the related parent object	RefIdType
@	SIF_RefObject	M		**values:** StudentPersonal StaffPersonal

	Element/@Attribute	Char	Description	Type
	LocalId	M	The locally-defined identifier for this student/teacher.	LocalId
	StateProvinceId	O	The state-assigned identifier for this student/teacher.	StateProvinceId
	PersonInfo	M	Personal Information.	PersonInfo
	SchoolEnrollmentList	M	List of school enrollments for a Student or assignments for a Staff member. There must be at least one.	List
	SchoolEnrollmentList/SchoolEnrollment	MR	School information for the Student enrollment or Staff assignment. There must be at least one.	
	SchoolEnrollmentList/SchoolEnrollment/ SchoolName	M	Name of school/campus.	xs:normalizedString
	SchoolEnrollmentList/SchoolEnrollment/ SchoolInfoRefId	C	The ID (GUID) of the school. Provide both the SchoolInfo RefId and LocalId elements if possible. If not, one or the other must be provided.	RefIdType
	SchoolEnrollmentList/SchoolEnrollment/ SchoolLocalId	C	The locally-defined identifier for this school. Provide both the LocalId and SchoolId elements if possible. If not, one or the other must be provided.	LocalId
	SchoolEnrollmentList/SchoolEnrollment/ SchoolStateProvinceId	O	The state or province defined identifier for this school.	StateProvinceId
	SchoolEnrollmentList/SchoolEnrollment/ Student	C	Either the Staff or Student must be provided.	
	SchoolEnrollmentList/SchoolEnrollment/ Student/StudentSchoolEnrollmentRefId	M	The ID (GUID) of the StudentSchoolEnrollment object from which the enrollment information is derived.	RefIdType
	SchoolEnrollmentList/SchoolEnrollment/ Student/StudentLocalId	O	The locally-defined identifier for this Student.	LocalId
	SchoolEnrollmentList/SchoolEnrollment/ Staff	C	Either the Staff or Student must be provided.	

	Element/@Attribute	Char	Description	Type
	SchoolEnrollmentList/SchoolEnrollment/ Staff/StaffAssignmentRefId	M	The ID (GUID) of the StaffAssignment object from which the enrollment information is derived.	RefIdType
	SchoolEnrollmentList/SchoolEnrollment/ Staff/StaffLocalId	O	The locally-defined identifier for this Staff.	LocalId
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList	O	A List of enrolments. Note these are enrolments at a class level rather than at a school level.	List
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment	MR	Enrollment at the class level.	
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ TeachingGroupRefId	O	GUID that identifies this Class as a Teaching Group.	IdRefType
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ SchoolCourseInfoRefId	O	GUID that identifies this Course for this class.	IdRefType
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ TimeTableSubjectRefId	O	GUID that identifies this Subject/Offering for this class.	IdRefType
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ LocalId	M	Local Class ID for this enrolment. Should be the same as the LocalId in the TeachingGroup	LocalId
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ ShortName	O	Short free format label that describes the class. Should be the same as the ShortName in the TeachingGroup	xs:normalizedString
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ SchoolYear	O	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ SubjectLocalId	O	The local subject/offering code for this class.	LocalId
	SchoolEnrollmentList/SchoolEnrollment/ EnrollmentList/Enrollment/ CourseLocalId	O	The local course code for this class.	LocalId
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.43-1: SummaryEnrollmentInfo

```
<SummaryEnrollmentInfo RefId="9ECC96830E02406F926C1C4D3542D122">
  <SchoolYear>2009</SchoolYear>
  <ParentObjectRefId SIF_RefObject="StudentPersonal">646C5D4AC8294886A02B971695C7BC06</ParentObjectRefId>
  <LocalId>01011234</LocalId>
  <StateProvinceId>012456M</StateProvinceId>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Smith</FamilyName>
      <GivenName>Fred</GivenName>
      <FullName>Fred Smith</FullName>
    </Name>
    <OtherNames>
      <Name Type="PRF">
        <FamilyName>Smith</FamilyName>
        <GivenName>Sam</GivenName>
        <FullName>Sam Smith</FullName>
      </Name>
    </OtherNames>
    <Demographics>
      <Sex>1</Sex>
      <BirthDate>1995-09-26</BirthDate>
      <AustralianCitizenshipStatus>1</AustralianCitizenshipStatus>
    </Demographics>
  </PersonInfo>
  <SchoolEnrollmentList>
    <SchoolEnrollment>
      <SchoolName>Lilyput High School</SchoolName>
      <SchoolInfoRefId>9ECC96830E02406F926C1C4D3542D124</SchoolInfoRefId>
      <SchoolLocalId>012359</SchoolLocalId>
      <Student>
        <StudentSchoolEnrollmentRefId>99F3CC9B5CCE49EEBDEBA82CE52AC4FB</StudentSchoolEnrollmentRefId>
        <StudentLocalId>SMI00123</StudentLocalId>
      </Student>
      <EnrollmentList>
        <Enrollment>
          <TeachingGroupRefId>B1A081420BBB486590ABC919447C4379</TeachingGroupRefId>
          <LocalId>YR10 Commerce</LocalId>
        </Enrollment>
        <Enrollment>
          <TeachingGroupRefId>7B5542C664D94DB4B3386B3B4A8EACF3</TeachingGroupRefId>
          <LocalId>YR10 Core</LocalId>
          <SchoolYear>2009</SchoolYear>
        </Enrollment>
      </EnrollmentList>
    </SchoolEnrollment>
    <SchoolEnrollment>
      <SchoolName>Lily Language School</SchoolName>
      <SchoolInfoRefId>9DCC94830E02406F926C1C4D3542D124</SchoolInfoRefId>
      <SchoolLocalId>012345</SchoolLocalId>
      <Student>
        <StudentSchoolEnrollmentRefId>CC0ACB4FAD6E485FBAC07EAD8BE5E38F</StudentSchoolEnrollmentRefId>
        <StudentLocalId>SMI00456</StudentLocalId>
      </Student>
      <EnrollmentList>
        <Enrollment>
          <TeachingGroupRefId>74557C466A524E8D9085EB215B80865D</TeachingGroupRefId>
          <LocalId>YR10 French</LocalId>
        </Enrollment>
      </EnrollmentList>
    </SchoolEnrollment>
  </SchoolEnrollmentList>
</SummaryEnrollmentInfo>
```

Example 6.3.43-1: SummaryEnrollmentInfo

6.3.44 SystemRole

The SystemRole Object defines the systems that a user has access to, the roles they perform within those systems, and the scope of those roles within the particular system.

The RoleScopeList is used to list the entities over which the user has access rights.

SIF_Events are reported for this object.
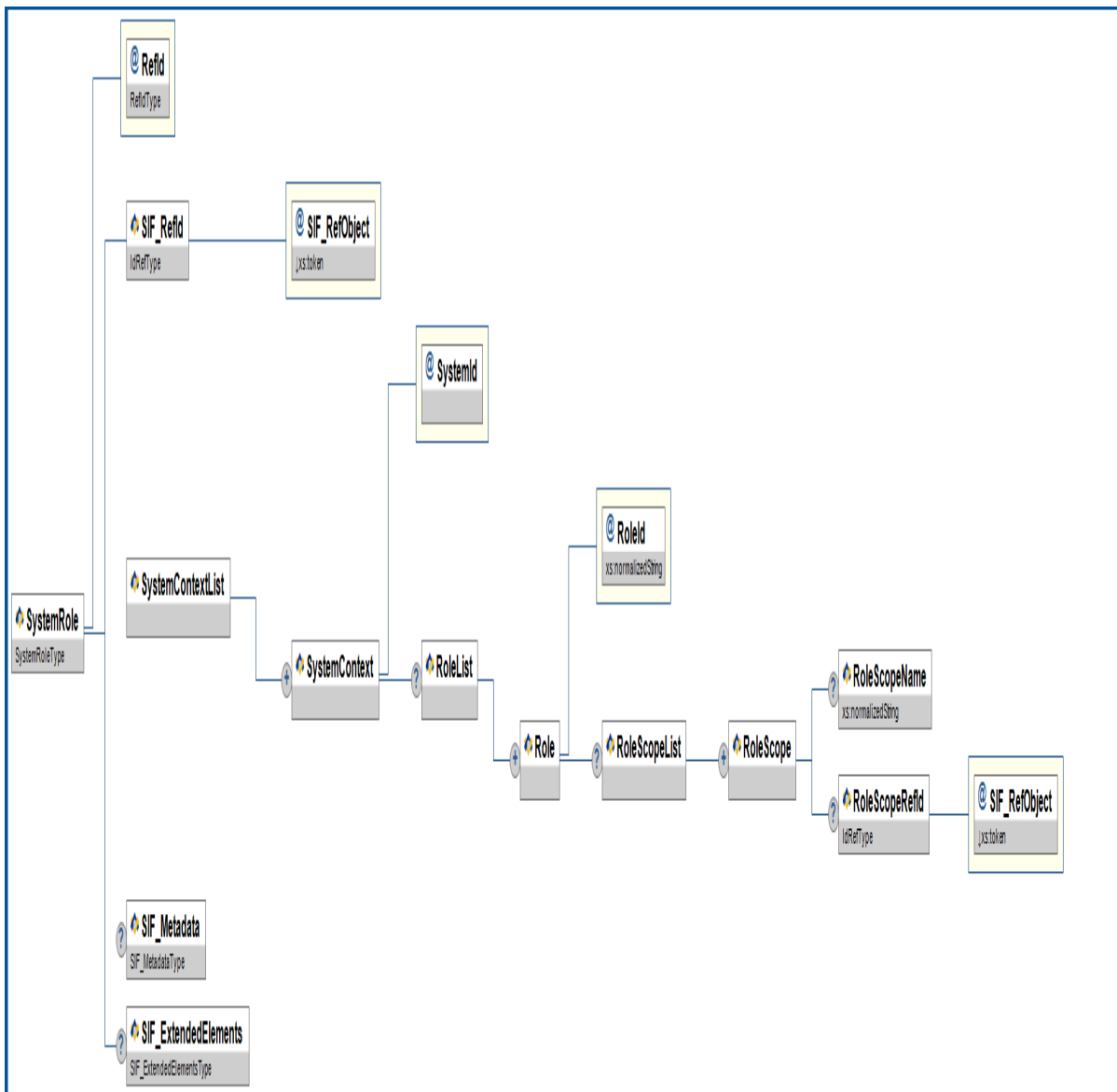
Figure 6.3.44-1: SystemRole

	Element/@Attribute	Char	Description	Type
	SystemRole		The SystemRole Object defines the systems that a user has access to, the roles they perform within those systems, and the scope of those roles within the particular system. The RoleScopeList is used to list the entities over which the user has access rights.	
@ 🔑	RefId	M	The SIF RefId that uniquely identifies this object.	RefIdType
	SIF_RefId	M	The SIF RefId that provides the source Object for this SystemRole Object.	IdRefType
@	SIF_RefObject	M	The type of SIF object that the SIF_RefId attribute identifies.	**values:** Identity StudentPersonal StaffPersonal StudentContactPersonal

	Element/@Attribute	Char	Description	Type
	SystemContextList	M	At least one SystemContext must be provided.	List
	SystemContextList/SystemContext	MR	Details about enterprise roles for an Identity/Personal Object for subscribing systems	
@	SystemId	M	Id of the system that this SystemContext relates to.	
	SystemContextList/SystemContext/ RoleList	O	List of Roles.	List
	SystemContextList/SystemContext/ RoleList/Role	MR	Role of the entity this object describes in the SystemContext.	

@	RoleId	M	Role of the entity this object describes in the SystemContext.
			
			Examples
			`Admin`
			`User`
				xs:normalizedString

	SystemContextList/SystemContext/ RoleList/Role/RoleScopeList	O		List
	SystemContextList/SystemContext/ RoleList/Role/RoleScopeList/ RoleScope	MR	Container	
	SystemContextList/SystemContext/ RoleList/Role/RoleScopeList/ RoleScope/RoleScopeName	C	The group/OU this role is applicable to. One of RoleScopeName or associated RefId must be provided.	xs:normalizedString
	SystemContextList/SystemContext/ RoleList/Role/RoleScopeList/ RoleScope/RoleScopeRefId	C	The SIF_RefId that provides the source Object for this RoleScope. One of RoleScopeName or associated RefId must be provided.	IdRefType

@	SIF_RefObject	M	The type of SIF object that the SIF_RefId attribute identifies.	**values:**
				
				`SchoolInfo`
				`TeachingGroup`
				`StudentActivityParticipation`

	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.44-1: SystemRole

```
<SystemRole RefId="4286194F43ED43C18EE2F0A27C4BEF86">
  <SIF_RefId SIF_RefObject="Identity">23B08571E4D645C3B82A3E52E5349925</SIF_RefId>
  <SystemContextList>
    <SystemContext SystemId="LearningPlatformSystem1">
      <RoleList>
        <Role RoleId="Admin">
          <RoleScopeList>
            <RoleScope>
              <RoleScopeName>SchoolGroupName1</RoleScopeName>
              <RoleScopeRefId SIF_RefObject="SchoolInfo">23B08571E4D645C3B82A3E52E5349912</RoleScopeRefId>
            </RoleScope>
            <RoleScope>
              <RoleScopeName>ClassName1</RoleScopeName>
              <RoleScopeRefId SIF_RefObject="TeachingGroup">23B08571E4D645C3B82A3E52E5349945</RoleScopeRefId>
            </RoleScope>
          </RoleScopeList>
        </Role>
      </RoleList>
    </SystemContext>
    <SystemContext SystemId="ContentManagement">
      <RoleList>
        <Role RoleId="User">
          <RoleScopeList>
            <RoleScope>
              <RoleScopeName>SchoolName1</RoleScopeName>
              <RoleScopeRefId SIF_RefObject="StudentActivityParticipation">23B08571E4D645C3B82A3E52E5349923</RoleS
            </RoleScope>
          </RoleScopeList>
        </Role>
      </RoleList>
    </SystemContext>
  </SystemContextList>
</SystemRole>
```

Example 6.3.44-1: SystemRole

6.3.45 TeachingGroup

This object identifies a particular Teaching Group or class in a particular a time table.

The proposed object is based on the UK B1: TeachingGroup object. For the Australian object, a subject being taught at any one year level can have more than one teaching group in any one time table. Also a teaching group can be brought together for more than one subject.

All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.

SIF_Events are reported for this object.

Figure 6.3.45-1: TeachingGroup

Element/@Attribute	Char	Description	Type
TeachingGroup		This object identifies a particular Teaching Group or class in a particular a time table. The proposed object is based on the UK B1: TeachingGroup object. For the Australian object, a subject being taught at any one year level can have more than one teaching group in any one time table. Also a teaching group can be brought together for more than one subject. All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.	

	Element/@Attribute	Char	Description	Type
@ 🔑	RefId	M	The GUID of the TeachingGroup	RefIdType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2007").	SchoolYear
	LocalId	M	LocalId of the Teaching Group (previously ClassIndicator).	LocalId
	ShortName	M	Short free format label that describes the group.	xs:normalizedString
	LongName	O	Longer description of required	xs:normalizedString
	Set	O	Set Number (UK)	xs:normalizedString
	Block	O	Block (UK)	xs:normalizedString
	CurriculumLevel	O	Assessment Stage eg VELS Level	xs:normalizedString
	SchoolInfoRefId	O	GUID of SchoolInfo object this teaching group belongs to.	RefIdType
	SchoolLocalId	O	Local School Id.	LocalId
	SchoolCourseInfoRefId	O	GUID of SchoolCourseInfo object this teaching group is part of.	RefIdType
	SchoolCourseLocalId	O	Local Course Id.	LocalId
	TimeTableSubjectRefId	O	GUID of TimeTableSubject object this teaching group belongs to.	RefIdType
	TimeTableSubjectLocalId	O	Local subject Id.	LocalId

Element/@Attribute	Char	Description	Type
StudentList	O	List of Students in this Teaching Group	List
StudentList/TeachingGroupStudent	MR	Students who belong to the TeachingGroup	
StudentList/TeachingGroupStudent/ StudentPersonalRefId	O	GUID from the StudentPersonal or StudentSnapshot Object (if known), that identifies the student.	IdRefType
StudentList/TeachingGroupStudent/ StudentLocalId	M	Local Id of the Student	LocalId
StudentList/TeachingGroupStudent/ Name	M	Name of student	NameOfRecordType
TeacherList	O	A List of teachers associated with the group – may or maynot include the teacher timetabled in the schedule.	List
TeacherList/TeachingGroupTeacher	MR	Teacher associated with the Teaching group – may or may not be the teacher timetabled in the schedule	
TeacherList/TeachingGroupTeacher/ StaffPersonalRefId	O	GUID from the StaffPersonal Object that identifies the Staff member	IdRefType
TeacherList/TeachingGroupTeacher/ StaffLocalId	M	LocalId of the Staff member	LocalId
TeacherList/TeachingGroupTeacher/ Name	M		NameOfRecordType
TeacherList/TeachingGroupTeacher/ Association	M	Association with the Teaching Group (free format for this release)	xs:normalizedString
MinClassSize	O	Minimum class size.	xs:integer
MaxClassSize	O	Maximum class size	xs:integer
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.45-1: TeachingGroup

```
<TeachingGroup RefId="64A309DA063A2E35B359D75101A8C3D1">
  <SchoolYear>2008</SchoolYear>
  <LocalId>20087ASPN</LocalId>
  <ShortName>7A SPN</ShortName>
  <LongName>Year 7A Maths - Space and Numbers</LongName>
  <Set>4</Set>
  <Block>6</Block>
  <CurriculumLevel>VELS Level 5</CurriculumLevel>
  <StudentList>
    <TeachingGroupStudent>
      <StudentPersonalRefId>9897466F200E4BC1B9AED1507DA15CEF</StudentPersonalRefId>
      <StudentLocalId>SMI001</StudentLocalId>
      <Name Type="LGL">
        <FamilyName>Smith</FamilyName>
        <GivenName>Peter</GivenName>
      </Name>
    </TeachingGroupStudent>
    <TeachingGroupStudent>
      <StudentPersonalRefId>7C834EA9EDA12090347F83297E1C290D</StudentPersonalRefId>
      <StudentLocalId>SMI002</StudentLocalId>
      <Name Type="LGL">
        <FamilyName>Smith</FamilyName>
        <GivenName>Jennifer</GivenName>
      </Name>
    </TeachingGroupStudent>
    <TeachingGroupStudent>
      <StudentPersonalRefId>7C834EA9EDA12090347F83297E1C290E</StudentPersonalRefId>
      <StudentLocalId>SMI003</StudentLocalId>
      <Name Type="LGL">
        <FamilyName>Smith</FamilyName>
        <GivenName>Terence</GivenName>
      </Name>
    </TeachingGroupStudent>
  </StudentList>
  <TeacherList>
    <TeachingGroupTeacher>
      <StaffPersonalRefId>A8C3A2E35B359D75101D00AA001A0000</StaffPersonalRefId>
      <StaffLocalId>SMI1</StaffLocalId>
      <Name Type="LGL">
        <FamilyName>Smith</FamilyName>
        <GivenName>Thomas</GivenName>
      </Name>
      <Association>Class Teacher</Association>
    </TeachingGroupTeacher>
    <TeachingGroupTeacher>
      <StaffPersonalRefId>A8CCCCE35B359D75101D00AA001A0000</StaffPersonalRefId>
      <StaffLocalId>LONG2</StaffLocalId>
      <Name Type="LGL">
        <FamilyName>Long</FamilyName>
        <GivenName>Tamara</GivenName>
      </Name>
      <Association>Integration Aide</Association>
    </TeachingGroupTeacher>
  </TeacherList>
</TeachingGroup>
```

Example 6.3.45-1: TeachingGroup

6.3.46 TermInfo

This object provides information about a term; i.e., a reportable period of time.

SIF_Events are reported for this object.
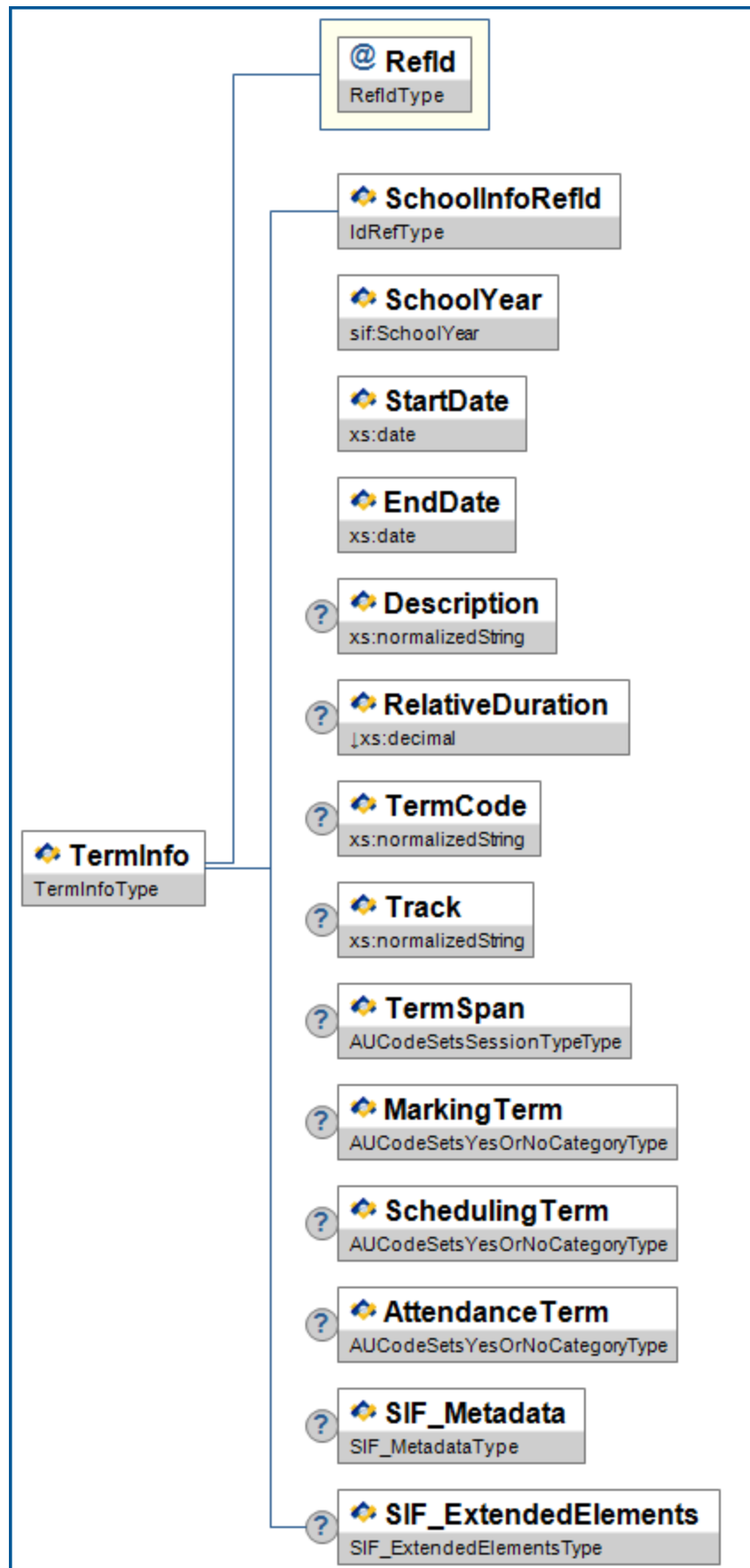
Figure 6.3.46-1: TermInfo

	Element/@Attribute	Char	Description	Type
	TermInfo		This object provides information about a term; i.e., a reportable period of time.	
@ 🔑	RefId	M	The ID (GUID) that uniquely identifies this TermInfo entity.	RefIdType
	SchoolInfoRefId	M	The ID (GUID) that identifies the school where the term is used.	IdRefType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2009").	SchoolYear
	StartDate	M	Starting date of the term.	xs:date
	EndDate	M	Ending date of the term.	xs:date
	Description	O	Text-based description of the term.	xs:normalizedString
	RelativeDuration	O	Portion of the school year represented by this term, expressed in decimal form precise to 4 decimal places (e.g., 0.1333).	xs:decimal xs:minInclusive 0 xs:maxInclusive 1 xs:fractionDigits 4
	TermCode	O	Locally-defined code.	xs:normalizedString
	Track	O	The name, description, or code of the track that contains this term. This is used when there are multiple tracks within a school. For instance, kindergarten commonly has a different set of terms than other grades within the school.	xs:normalizedString
	TermSpan	O	What sort of Session this TermSpan equates to.	AUCodeSetsSessionTypeType
	MarkingTerm	O	Does this TermInfo represent a marking period?	AUCodeSetsYesOrNoCategoryType
	SchedulingTerm	O	Does this TermInfo represent a scheduling term?	AUCodeSetsYesOrNoCategoryType

	Element/@Attribute	Char	Description	Type
	AttendanceTerm	O	Does this TermInfo represent an attendance term?	AUCodeSetsYesOrNoCategoryType
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.46-1: TermInfo

```
<TermInfo RefId="7E59D75101A80A70016375DE097A0726">
  <SchoolInfoRefId>A2E35B359D75101A8C3D00AA001A0000</SchoolInfoRefId>
  <SchoolYear>2004</SchoolYear>
  <StartDate>2003-01-05</StartDate>
  <EndDate>2004-04-01</EndDate>
  <Description>Spring Semester 2004</Description>
  <RelativeDuration>0.1333</RelativeDuration>
  <TermCode>Sp2004</TermCode>
  <Track>PreK</Track>
  <TermSpan>0833</TermSpan>
</TermInfo>
```

Example 6.3.46-1: TermInfo

6.3.47 TimeTable

The purpose of this object is to define a schedule or Time Table structure/skeleton for the school. The Time Table is produced by the Time Tabling software. Once the Time Table is produced, the time tabling software creates the schedule based on business rules and constraints to fit into the time table structure.

The proposed Time Table object is based on a combination of the proposed UK B6 – Timetable Cycle Object and Timetable Scope Object.

The Time Table is identified uniquely in the SIF Zone by its' GUID, School and School Year. A Time Table is linked to a particular school.

All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.

SIF_Events are reported for this object.

Figure 6.3.47-1: TimeTable

	Element/@Attribute	Char	Description	Type
	TimeTable		The purpose of this object is to define a schedule or Time Table structure/skeleton for the school. The Time Table is produced by the Time Tabling software. Once the Time Table is produced, the time tabling software creates the schedule based on business rules and constraints to fit into the time table structure. The proposed Time Table object is based on a combination of the proposed UK B6 – Timetable Cycle Object and Timetable Scope Object. The Time Table is identified uniquely in the SIF Zone by its' GUID, School and School Year. A Time Table is linked to a particular school. All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.	
@	RefId	M	GUID that identifies this TimeTable object.	RefIdType
	SchoolInfoRefId	O	Optional the GUID of the SchoolInfo Object if this object is known in the zone.	IdRefType
	SchoolYear	M	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2007").	SchoolYear

Element/@Attribute	Char	Description	Type
LocalId	O	Local TimeTable ID	LocalId
Title	M	Unique Name of the proposed Time Table	xs:normalizedString
DaysPerCycle	M	Max Number of days per Time Table cycle	xs:unsignedInt
PeriodsPerDay	M	Max Number of periods per Time Table Day	xs:unsignedInt
TeachingPeriodsPerDay	O	Teaching periods per day if different to PeriodsPerDay	xs:unsignedInt
SchoolLocalId	O	Optional Local School Id	LocalId
SchoolName	O	The school name in plain text.	xs:normalizedString
TimeTableCreationDate	O	Date Schedule was created or last edited.	xs:date
StartDate	O	First day of TimeTable.	xs:date
EndDate	O	Last day of the TimeTable.	xs:date
TimeTableDayList	M	Container for TimeTableDays in Schedule	List
TimeTableDayList/TimeTableDay	MR	This element identifies a 'day' in a TimeTable.	
TimeTableDayList/TimeTableDay/ DayId	M	Local Time Table Identifier	LocalId
TimeTableDayList/TimeTableDay/ DayTitle	M		xs:normalizedString
TimeTableDayList/TimeTableDay/ TimeTablePeriodList	M	Title of Day eg. Monday or Day 1	List

Element/@Attribute	Char	Description	Type
TimeTableDayList/TimeTableDay/ TimeTablePeriodList/TimeTablePeriod	MR	Container for TimeTablePeriods in a Time Table Day	
TimeTableDayList/TimeTableDay/ TimeTablePeriodList/TimeTablePeriod/ PeriodId	M	Period in Day Identifier	LocalId
TimeTableDayList/TimeTableDay/ TimeTablePeriodList/TimeTablePeriod/ PeriodTitle	M	Title of Period eg. Session 1 or Period 1	xs:normalizedString
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.47-1: TimeTable

```xml
<TimeTable RefId="64A309DA063A2E35B359D75101A8C3D0">
  <SchoolInfoRefId>F2256EE2B67F47D6AB4794D4DEE0D0AD</SchoolInfoRefId>
  <SchoolYear>2008</SchoolYear>
  <LocalId>2008S1</LocalId>
  <Title>2008 Semester 1</Title>
  <DaysPerCycle>5</DaysPerCycle>
  <PeriodsPerDay>6</PeriodsPerDay>
  <TeachingPeriodsPerDay>5</TeachingPeriodsPerDay>
  <SchoolLocalId>01011234</SchoolLocalId>
  <SchoolName>Newest Secondary College</SchoolName>
  <TimeTableCreationDate>2008-02-01</TimeTableCreationDate>
  <StartDate>2008-01-30</StartDate>
  <EndDate>2008-06-20</EndDate>
  <TimeTableDayList>
    <TimeTableDay>
      <DayId>1</DayId>
      <DayTitle>Monday</DayTitle>
      <TimeTablePeriodList>
        <TimeTablePeriod>
          <PeriodId>1</PeriodId>
          <PeriodTitle>P1</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>2</PeriodId>
          <PeriodTitle>P2</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>3</PeriodId>
          <PeriodTitle>P3</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>4</PeriodId>
          <PeriodTitle>P4</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>5</PeriodId>
          <PeriodTitle>P5</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>6</PeriodId>
          <PeriodTitle>P6</PeriodTitle>
        </TimeTablePeriod>
      </TimeTablePeriodList>
    </TimeTableDay>
    <TimeTableDay>
      <DayId>2</DayId>
      <DayTitle>Tuesday</DayTitle>
      <TimeTablePeriodList>
        <TimeTablePeriod>
          <PeriodId>1</PeriodId>
          <PeriodTitle>P1</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>2</PeriodId>
          <PeriodTitle>P2</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>3</PeriodId>
          <PeriodTitle>P3</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>4</PeriodId>
          <PeriodTitle>P4</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>5</PeriodId>
          <PeriodTitle>P5</PeriodTitle>
        </TimeTablePeriod>
        <TimeTablePeriod>
          <PeriodId>6</PeriodId>
          <PeriodTitle>P6</PeriodTitle>
        </TimeTablePeriod>
      </TimeTablePeriodList>
    </TimeTableDay>
  </TimeTableDayList>
</TimeTable>
```

Example 6.3.47-1: TimeTable

6.3.48 TimeTableCell

The purpose of this object is to identify a specific cell within a particular TimeTable. A time table is a structure that represents all the available days and times (periods) for which a particular teaching group, or subject can be scheduled.

A TimeTableCell is uniquely identified in the ZIF zone by its' GUID.

And the following must be provided at object creation:

> the timetable it belongs to,
>
> the subject that is being scheduled,
>
> the teaching group (representing the students, teachers and subject),
>
> the room that is allocated,
>
> the allocated teacher.

All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.
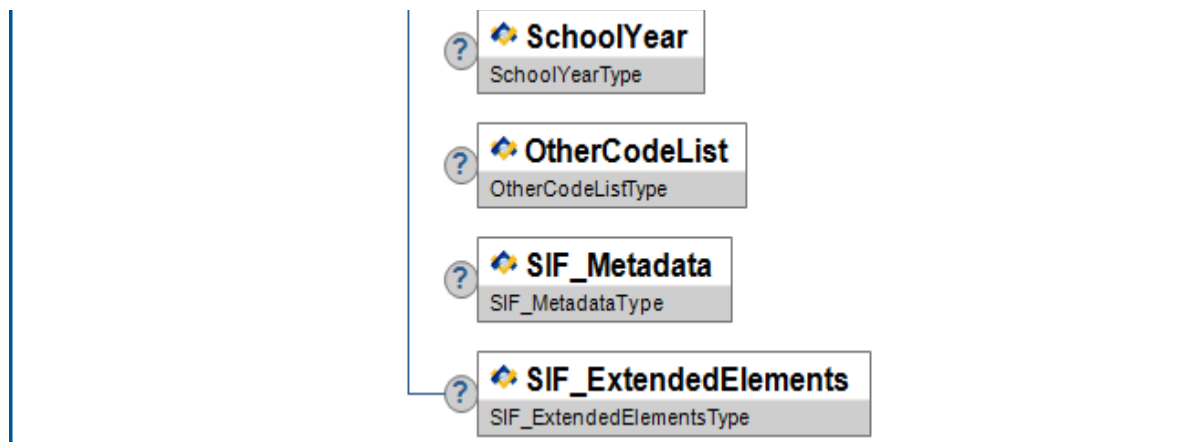
SIF_Events are reported for this object.

Figure 6.3.48-1: TimeTableCell

	Element/@Attribute	Char	Description	Type
	TimeTableCell		The purpose of this object is to identify a specific cell within a particular TimeTable. A time table is a structure that represents all the available days and times (periods) for which a particular teaching group, or subject can be scheduled. A TimeTableCell is uniquely identified in the ZIF zone by its' GUID. And the following must be provided at object creation: • the timetable it belongs to, • the subject that is being scheduled, • the teaching group (representing the students, teachers and subject), • the room that is allocated, • the allocated teacher. All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.	
@ 🔑	RefId	M	The GUID of the TimeTableCell	RefIdType
	TimeTableRefId	M	The GUID of the TimeTable to which this Cell belongs	IdRefType
	TimeTableSubjectRefId	M	The GUID of the Subject that this Cell is scheduling	IdRefType
	TeachingGroupRefId	M	The GUID of the TeachingGroup being scheduled	IdRefType
	RoomInfoRefId	M	The GUID of the Resource being Scheduled	IdRefType

Element/@Attribute	Char	Description	Type
StaffPersonalRefId	M	The GUID of the Staff Member being Scheduled	IdRefType
TimeTableLocalId	O	Time Table Local Identifier	LocalId
SubjectLocalId	O	Subject Local Id	LocalId
TeachingGroupLocalId	O	Teaching Group	LocalId
RoomNumber	M	Room number as presented to the user/application.	HomeroomNumber
StaffLocalId	O	Staff LocalId	LocalId
DayId	M	Day Id	LocalId
PeriodId	M	Period Id within the Day Id	LocalId
CellType	M	Type of Lesson/Session eg Teaching, Lunch etc	xs:normalizedString
SchoolInfoRefId	O	Optional the GUID of the SchoolInfo Object if this object is known in the zone	IdRefType
SchoolLocalId	O	Optional Local School Id	LocalId
SIF_Metadata	O		SIF_Metadata
SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.48-1: TimeTableCell

```
<TimeTableCell RefId="64A309DA063A2E35B359D75101A8C3D1">
  <TimeTableRefId>64A309DA063A2E35B359D75101A8C3D0</TimeTableRefId>
  <TimeTableSubjectRefId>22860091719245B4AB0CF5B9DC19DE5C</TimeTableSubjectRefId>
  <TeachingGroupRefId>64A309DA063A2E35B359D75101A8C3D1</TeachingGroupRefId>
  <RoomInfoRefId>D3E34B359D75101A8C3D00AA001A1652</RoomInfoRefId>
  <StaffPersonalRefId>D3E34F419D75101A8C3D00AA001A1652</StaffPersonalRefId>
  <TimeTableLocalId>2008S1</TimeTableLocalId>
  <SubjectLocalId>07AR</SubjectLocalId>
  <TeachingGroupLocalId>20087ASPN 2008S1</TeachingGroupLocalId>
  <RoomNumber>101</RoomNumber>
  <StaffLocalId>946379881</StaffLocalId>
  <DayId>1</DayId>
  <PeriodId>1</PeriodId>
  <CellType>T</CellType>
  <SchoolInfoRefId>D3E34B359D75101A8C3D00AA001A1652</SchoolInfoRefId>
  <SchoolLocalId>01011234</SchoolLocalId>
</TimeTableCell>
```

Example 6.3.48-1: TimeTableCell

6.3.49 TimeTableSubject

This purpose of this object is to define and communicate the subject or distinct piece of curriculum that needs to be scheduled by the time table generator. This is a new object proposed to meet SIF-AU needs. Reviews of the existing specifications identified two relevant objects – SchoolCourseInfo, defined in SIF US 2.2 specification and SchoolGroup, defined within the SIF UK 1.1 specification. These objects appear to have some similar context but seem overly complex considering that Australian requirements, which are limited to the Student Administration System or Curriculum Delivery System providing base information to the Time Tabling application about what curriculum offerings are being proposed. When this data is sent in a Request/Response only those subjects that are relevant to be scheduled (or active), should be sent to the TimeTabling application.

All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.

SIF_Events are reported for this object.

Figure 6.3.49-1: TimeTableSubject

Element/@Attribute	Char	Description	Type
TimeTableSubject		This purpose of this object is to define and communicate the subject or distinct piece of curriculum that needs to be scheduled by the time table generator. This is a new object proposed to meet SIF-AU needs. Reviews of the existing specifications identified two relevant objects – SchoolCourseInfo, defined in SIF US 2.2 specification and SchoolGroup, defined within the SIF UK 1.1 specification. These objects appear to have some similar context but seem overly complex considering that Australian requirements, which are limited to the Student Administration System or Curriculum Delivery System providing base information to the Time Tabling application about what curriculum offerings are being proposed. When this data is sent in a Request/Response only those subjects that are relevant to be scheduled (or active), should be sent to the TimeTabling application. All local ids in non-authoritative objects are optional. It is therefore up to the provider and the actual agent's design and choreography to determine whether or not to use or local ids from parent objects. There are cases in some subscribing systems where it might not possible to add RefId columns and therefore the RefId of related objects cannot be stored. For example a target system that listens to TimeTableSubject events and updates them may not be able to store the associated SchoolCourseInfoRefId with that object. The only way it can link the TimeTableSubject object with the appropriate course might be through its local course id. Having local ids that link the parent objects with the child object can simplify the agent design. Generally it is suggested to use the appropriate RefIds whenever possible and only use local ids if there is no other way to use RefIds.	
@ 🔑 RefId	M	GUID that identifies this TimeTableSubject.	RefIdType
SubjectLocalId	M	SubjectLocalID - Distinct piece of curriculum that is to be scheduled.	LocalId
AcademicYear	C	Subject Year Level. Either AcademicYear or AcademicYearRange must be provided.	YearLevel

Element/@Attribute	Char	Description	Type
AcademicYearRange	C	Range of Academic Years subject spans. Either AcademicYear or AcademicYearRange must be provided.	
AcademicYearRange/Start	M	Lowest year in range.	YearLevel
AcademicYearRange/End	M	Highest year in range	YearLevel
CourseLocalId	O	Local Course Id, if associated with a Course.	LocalId
SchoolCourseInfoRefId	O	The GUID of the SchoolCourseInfo object.	RefIdType
Faculty	O	Faculty	xs:normalizedString
SubjectShortName	O	SubjectShortName	xs:normalizedString
SubjectLongName	M	SubjectLongName	xs:normalizedString
SubjectType	O	Core or Elective or ?	xs:normalizedString
ProposedMaxClassSize	O	Suggested maximum class size for this subject.	xs:decimal
ProposedMinClassSize	O	Suggested minimum class size for this subject.	xs:decimal
SchoolInfoRefId	O	Optional the GUID of the SchoolInfo Object if this object is known in the zone.	IdRefType
SchoolLocalId	O	Optional Local School Id	LocalId
Semester	O	Semester, Term, or Quarter subject offered.	xs:unsignedInt

	Element/@Attribute	Char	Description	Type
	SchoolYear	O	School year for which the information is applicable, expressed as the four-digit year in which the school year ends (e.g., "2007").	SchoolYear
	OtherCodeList	O	Any other codes this subject is known by; eg VASS code for VCE in Vic.	OtherCodeList
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table 6.3.49-1: TimeTableSubject

```
<TimeTableSubject RefId="D3E34B359D75101A8C3D00AA001A1652">
  <SubjectLocalId>07AR</SubjectLocalId>
  <AcademicYear>
    <Code>7</Code>
  </AcademicYear>
  <SubjectShortName>7 ART</SubjectShortName>
  <SubjectLongName>Year 7 Art</SubjectLongName>
  <SubjectType>E</SubjectType>
  <SchoolYear>2009</SchoolYear>
</TimeTableSubject>
```

Example 6.3.49-1: TimeTableSubject

Appendix A: Common Types

Common and supporting types referenced in this specification are included here as a reference.

A.1 AbstractContentElementType

`AbstractContentPackageType` used as an element rather than an object, omitting `RefId`, `SIF_Metadata` and `SIF_ExtendedElements`.
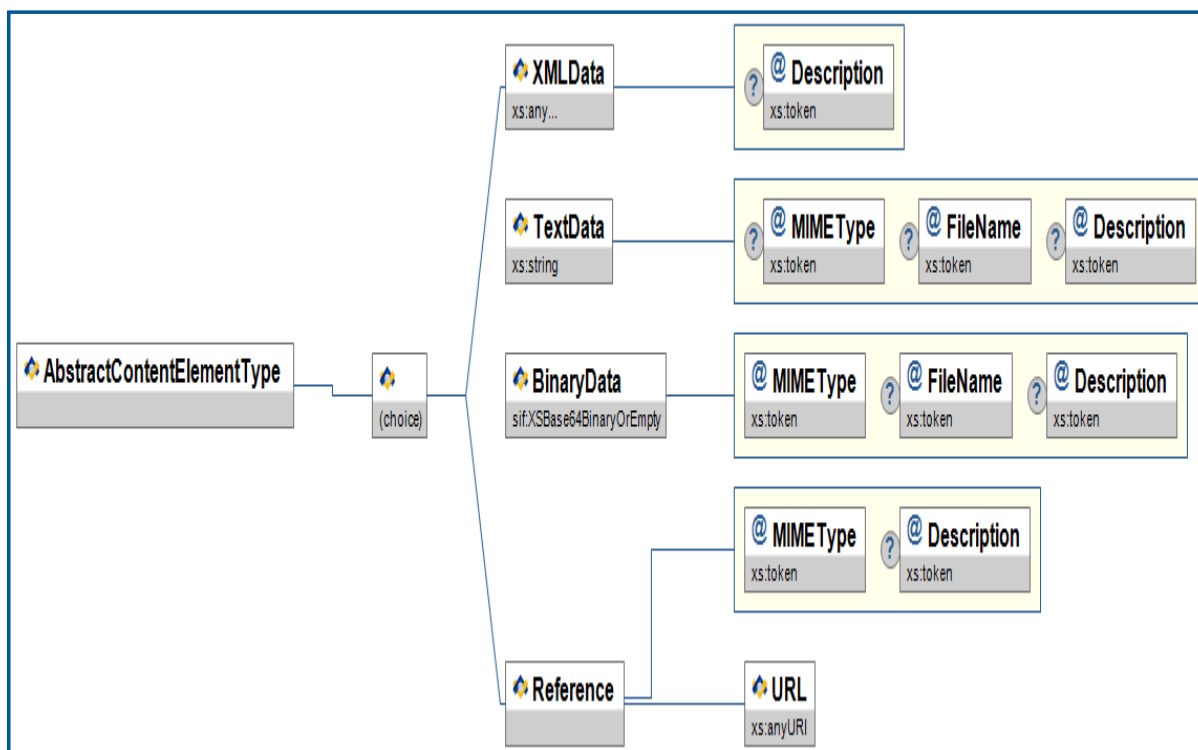
Figure A.1-1: AbstractContentElementType

	Element/@Attribute	Char	Description	Type
	AbstractContentElementType		`AbstractContentPackageType` used as an element rather than an object, omitting `RefId`, `SIF_Metadata` and `SIF_ExtendedElements`.	
	XMLData	C	Contains an arbitary XML element, encoded in UTF-8.	`<xs:any processContents="lax" />`
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the `AbstractContentPackageType` pattern.	`xs:token`

	Element/@Attribute	Char	Description	Type
	TextData	C	Contains arbitrary text, encoded in UTF-8.	xs:string
@	MIMEType	O	Optional MIME type to specifically indicate the text type. Otherwise text/plain can be assumed.	xs:token
@	FileName	O	Optional file name to indicate the file from which the content originated, or to suggest a name to use when saving the content.	xs:token
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the AbstractContentPackageType pattern.	xs:token
	BinaryData	C	Contains the base64Binary encoding of binary or text data not encoded in UTF-8.	xs:base64Binary
@	MIMEType	M	MIME type to indicate the content type.	xs:token
@	FileName	O	Optional file name to indicate the file from which the content originated, or to suggest a name to use when saving the content.	xs:token
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the AbstractContentPackageType pattern.	xs:token
	Reference	C	References external content via a URL.	
@	MIMEType	M	MIME type to indicate the content type to be expected when retrieving the external content.	xs:token

	Element/@Attribute	Char	Description	Type
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the `AbstractContentPackageType` pattern.	`xs:token`
	Reference/URL	M	Location of external content.	`xs:anyURI`

Table A.1-1: AbstractContentElementType

A.2 AbstractContentPackageType

An abstract type for derived content package types, elements and objects. This structure may be used verbatim, optionally extending with additional attributes, or may be redefined to include only a subset of child elements and/or to add validation to XML contained in `XMLData`. Only one instance of `XMLData`, `TextData`, `BinaryData` or `Reference` can occur in a single instance.
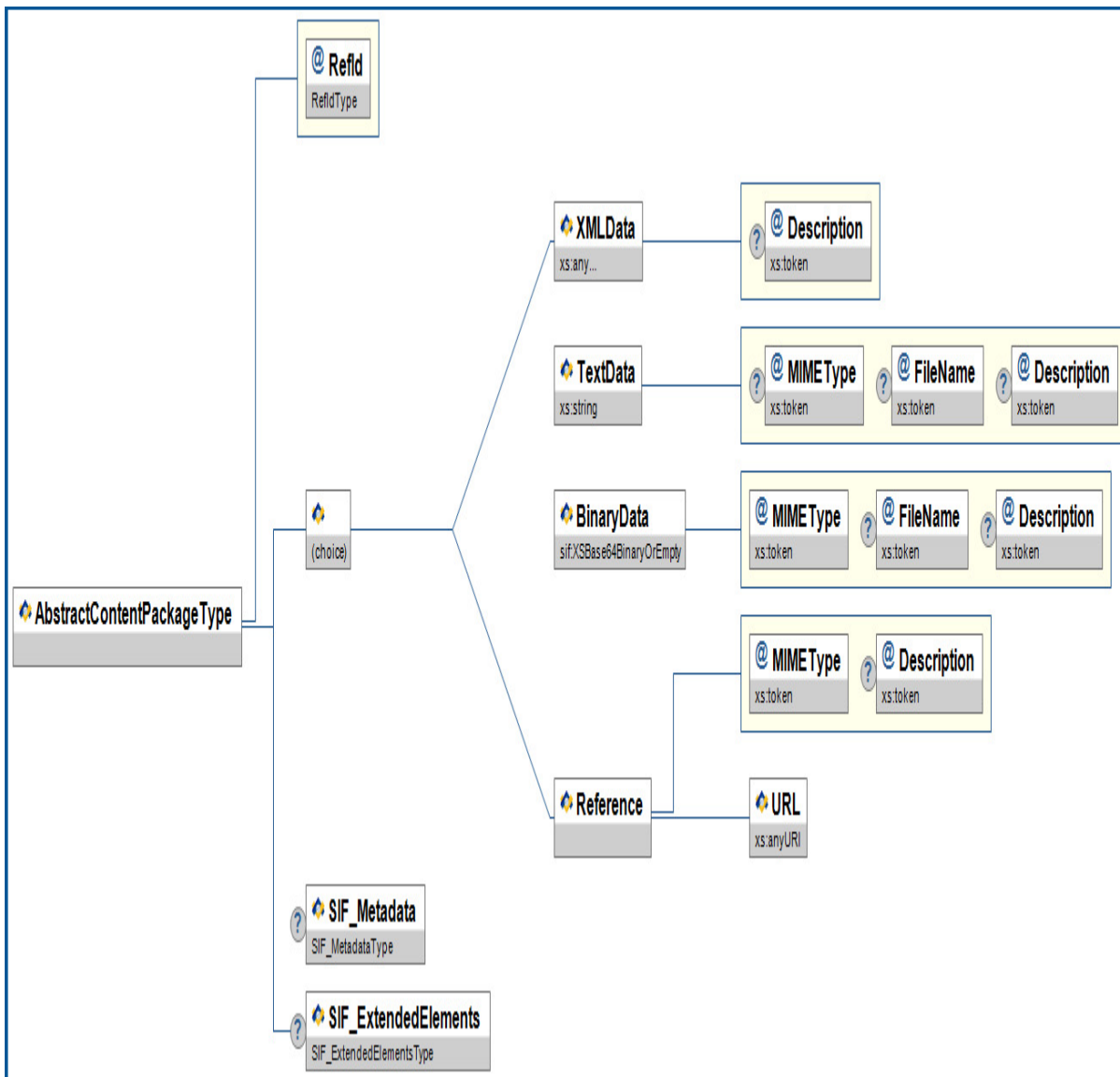
Figure A.2-1: AbstractContentPackageType

	Element/@Attribute	Char	Description	Type
	AbstractContentPackageType		An abstract type for derived content package types, elements and objects. This structure may be used verbatim, optionally extending with additional attributes, or may be redefined to include only a subset of child elements and/or to add validation to XML contained in `XMLData`. Only one instance of `XMLData`, `TextData`, `BinaryData` or `Reference` can occur in a single instance.	
@ 🔑	RefId	M	The GUID that uniquely identifies an instance of the package.	`RefIdType`

	Element/@Attribute	Char	Description	Type
	XMLData	C	Contains an arbitary XML element, encoded in UTF-8.	`<xs:any processContents="lax" />`
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the `AbstractContentPackageType` pattern.	`xs:token`
	TextData	C	Contains arbitrary text, encoded in UTF-8.	`xs:string`
@	MIMEType	O	Optional MIME type to specifically indicate the text type. Otherwise `text/plain` can be assumed.	`xs:token`
@	FileName	O	Optional file name to indicate the file from which the content originated, or to suggest a name to use when saving the content.	`xs:token`
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the `AbstractContentPackageType` pattern.	`xs:token`
	BinaryData	C	Contains the base64Binary encoding of binary or text data not encoded in UTF-8.	`xs:base64Binary`
@	MIMEType	M	MIME type to indicate the content type.	`xs:token`
@	FileName	O	Optional file name to indicate the file from which the content originated, or to suggest a name to use when saving the content.	`xs:token`
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the `AbstractContentPackageType` pattern.	`xs:token`

	Element/@Attribute	Char	Description	Type
	Reference	C	References external content via a URL.	
@	MIMEType	M	MIME type to indicate the content type to be expected when retrieving the external content.	xs:token
@	Description	O	Contains an optional description of the content or a processing hint with regard to its structure (e.g. named standard, file layout or XSD). Contents may be mandated in instances of this type, or types that follow the AbstractContentPackageType pattern.	xs:token
	Reference/URL	M	Location of external content.	xs:anyURI
	SIF_Metadata	O		SIF_Metadata
	SIF_ExtendedElements	O		SIF_ExtendedElements

Table A.2-1: AbstractContentPackageType

A.3 BaseNameType

Base type, without attributes, for Name elements, primarily to allow structure to be leveraged with different Type attribute values.
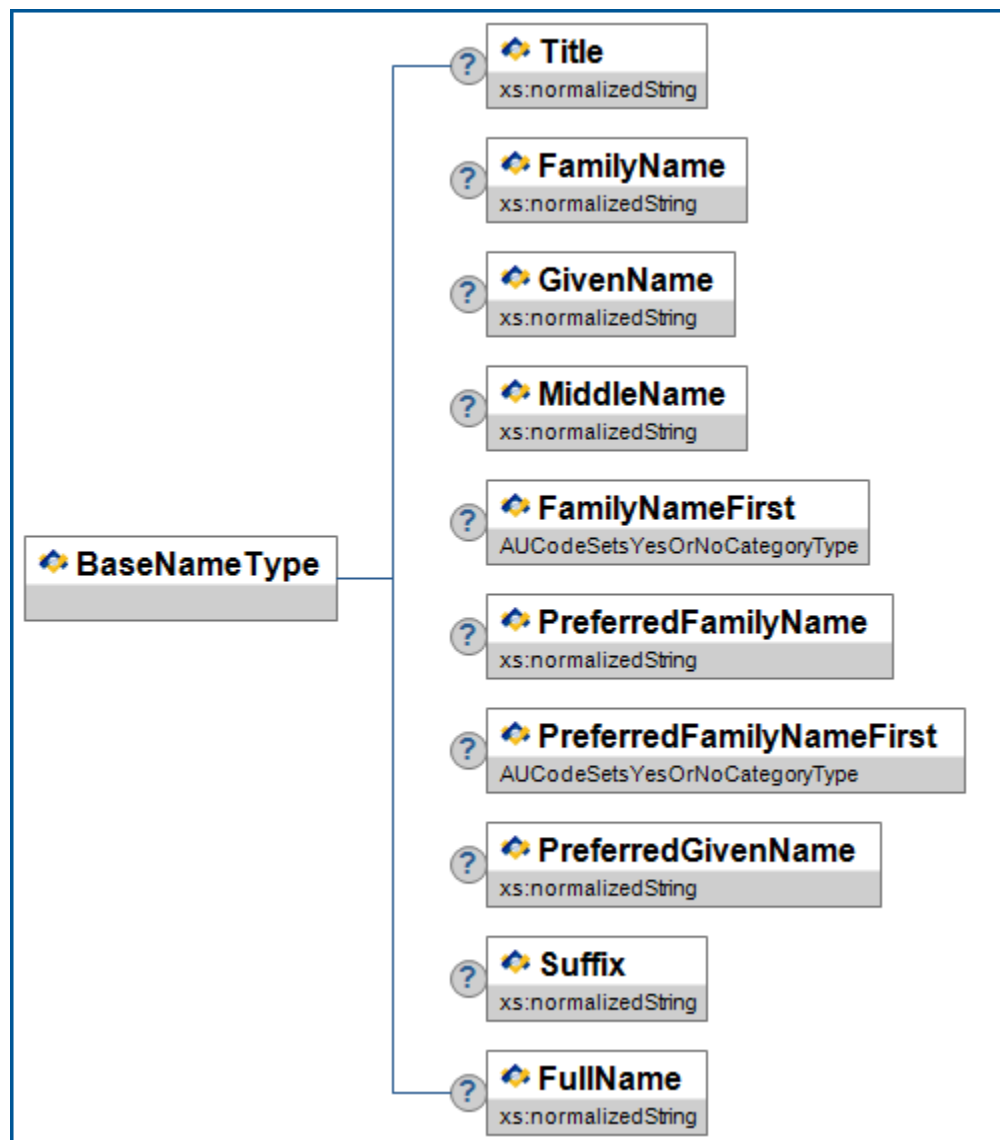
Figure A.3-1: BaseNameType

Element/@Attribute	Char	Description	Type
BaseNameType		Base type, without attributes, for Name elements, primarily to allow structure to be leveraged with different Type attribute values.	
Title	O	A title or prefix associated with the name. If any of: Mr, Mrs, Ms, Miss, Rev, Fr, Dr, Prof, Hon, Sir, Lord, Lady - these must be as shown, otherwise free text. Note that title is not applicable to learners.	xs:normalizedString
FamilyName	C	Family name. That part of the person's name which is used to describe family, clan, tribal group, or marital association. Note that this element is required when known. However, it may not be possible to know the family name in which case you should add the available information to the FullName element.	xs:normalizedString

Element/@Attribute	Char	Description	Type
GivenName	C	Given name of the person. Note that this element is required if known. However, it may not be possible to know the given name in which case you should add the available information to the FullName element.	xs:normalizedString
MiddleName	O	All other given or middle names, each separated with a single space character.	xs:normalizedString
FamilyNameFirst	O	An indicator used to identify the naming conventions used by some predominantly non-European, ethnic or language groups and related to the display nature of a name.	AUCodeSetsYesOrNoCategoryType
PreferredFamilyName	O	The family name preferred most by the person (as written).	xs:normalizedString
PreferredFamilyNameFirst	O	An indicator used to identify the naming conventions used by some predominantly non-European, ethnic or language groups and related to the display nature of a name.	AUCodeSetsYesOrNoCategoryType
PreferredGivenName	O	The given name preferred most by the person (as written).	xs:normalizedString
Suffix	O	Textual suffix like PHD, JP, BSc.	xs:normalizedString
FullName	C	A free text field for the complete name for display purposes. If this is associated with a StudentPersonal,StaffPersonal or StudentContactPersonal record and the FamilyName and GivenName are not both specified, then this becomes mandatory.	xs:normalizedString

Table A.3-1: BaseNameType

```
<Name Type="LGL">
   <FamilyName>Wesson</FamilyName>
   <GivenName>Melanie</GivenName>
   <MiddleName>Joan</MiddleName>
   <FamilyNameFirst>N</FamilyNameFirst>
   <PreferredFamilyName>Wesson</PreferredFamilyName>
   <PreferredFamilyNameFirst>N</PreferredFamilyNameFirst>
   <PreferredGivenName>Mel</PreferredGivenName>
</Name>
```

Example A.3-1: BaseNameType

A.4 DefinedProtocolsType

The transport protocols defined in SIF.
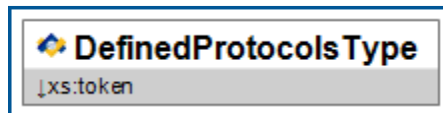
Figure A.4-1: DefinedProtocolsType

Element/@Attribute	Char	Description	Type
DefinedProtocolsType		The transport protocols defined in SIF.	**values:** HTTPS HTTP

Table A.4-1: DefinedProtocolsType

A.5 ExtendedContentType

Allows for any mixed XML in an element.

Figure A.5-1: ExtendedContentType

Element/@Attribute	Char	Description	Type

ExtendedContentType		Allows for any mixed XML in an element.	`<xs:complexContent mixed="true">`
			`  <xs:restriction base="xs:anyType">`
			`    <xs:sequence>`
			`      <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded" />`
			`    </xs:sequence>`
			`  </xs:restriction>`
			`</xs:complexContent>`

Table A.5-1: ExtendedContentType

A.6 GUIDType

SIF format for a GUID.

Figure A.6-1: GUIDType

Element/@Attribute	Char	Description	Type
GUIDType		SIF format for a GUID.	xs:token xs:pattern [0-9A-F]{32}

Table A.6-1: GUIDType

A.7 IdRefType

A reference to a RefId.
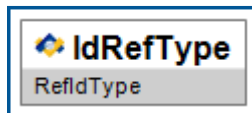
Figure A.7-1: IdRefType

Element/@Attribute	Char	Description	Type
IdRefType		A reference to a RefId.	RefIdType

Table A.7-1: IdRefType

A.8 MonetaryAmountType
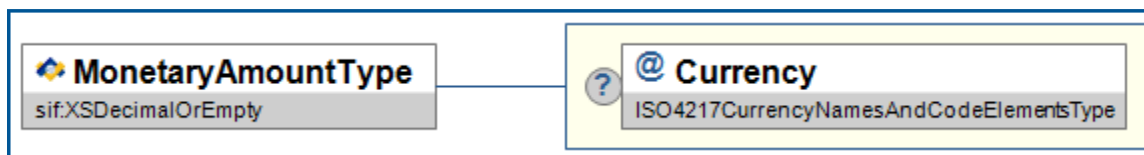
A monetary amount.

Figure A.8-1: MonetaryAmountType

Element/@Attribute	Char	Description	Type
MonetaryAmountType		A monetary amount.	xs:decimal
@ Currency	O	Currency code. Where omitted, defaults to implementation-defined local currency, typically USD in the United States.	ISO4217CurrencyNamesAndCodeElementsType

Table A.8-1: MonetaryAmountType

A.9 MsgIdType

A message identifier.
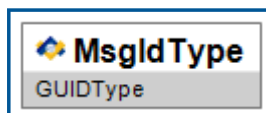
Figure A.9-1: MsgIdType

Element/@Attribute	Char	Description	Type
MsgIdType		A message identifier.	GUIDType

Table A.9-1: MsgIdType

A.10 NameOfRecordType

Extends BaseNameType to allow for one Type attribute value, indicating the name is the name of record; serves as the primary name in some SIF objects, including StudentPersonal.
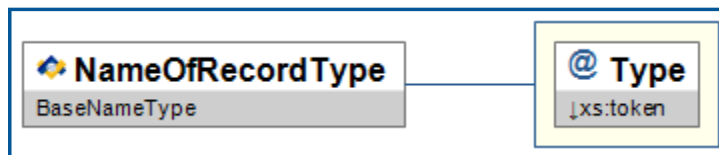
Figure A.10-1: NameOfRecordType

	Element/@Attribute	Char	Description	Type
	NameOfRecordType		Extends BaseNameType to allow for one Type attribute value, indicating the name is the name of record; serves as the primary name in some SIF objects, including StudentPersonal.	BaseNameType
@	Type	M	Code that specifies what type of name this is. Note that type "LGL" must be used here.	**values:** LGL Name of Record

Table A.10-1: NameOfRecordType

A.11 ObjectNameType

An unenumerated SIF object name.

Figure A.11-1: ObjectNameType

Element/@Attribute	Char	Description	Type
ObjectNameType		An unenumerated SIF object name.	xs:NCName xs:maxLength 64

Table A.11-1: ObjectNameType

A.12 OtherNameType

Extends BaseNameType to allow for Type attribute values excluding "name of record." Used for other names to be included in addition to the name of record in objects.
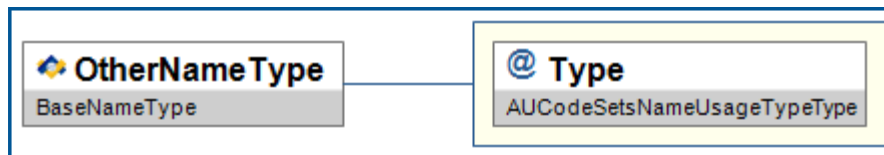
Figure A.12-1: OtherNameType

Element/@Attribute	Char	Description	Type
OtherNameType		Extends BaseNameType to allow for Type attribute values excluding "name of record." Used for other names to be included in addition to the name of record in objects.	BaseNameType
@ Type	M	Code that specifies what type of name this is. Note that type "LGL" is NOT to be used here.	AUCodeSetsNameUsageTypeType

Table A.12-1: OtherNameType

A.13 PartialDateType

A year, with an optional month/day, or an optional month by itself.
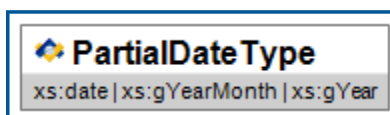
Figure A.13-1: PartialDateType

Element/@Attribute	Char	Description	Type
PartialDateType		A year, with an optional month/day, or an optional month by itself.	**union of:** xs:date xs:gYearMonth xs:gYear

Table A.13-1: PartialDateType

A.14 RefIdType

An object or element identifier.

Figure A.14-1: RefIdType

Element/@Attribute	Char	Description	Type
RefIdType		An object or element identifier.	GUIDType

Table A.14-1: RefIdType

A.15 ReportDataObjectType

The SIF objects that can be included in `SIF_ReportObject/ReportData`, plus `ReportPackage`. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.

AggregateCharacteristicInfo
AggregateCharacteristicInfo

AggregateStatisticFact
AggregateStatisticFact

AggregateStatisticInfo
AggregateStatisticInfo

Assessment
Assessment

AssessmentAdministration
AssessmentAdministration

AssessmentForm
AssessmentForm

AssessmentItem
AssessmentItem

AssessmentPackage
AssessmentPackage

AssessmentRegistration
AssessmentRegistration

AssessmentSubTest
AssessmentSubTest

CalendarDate
CalendarDate

CalendarSummary
CalendarSummary

Identity
Identity

LEAInfo
LEAInfo

LearningResource
LearningResource

LearningResourcePackage
LearningResourcePackage

LearningStandardDocument

LearningStandardDocument

LearningStandardItem
LearningStandardItem

PersonPicture
PersonPicture

ReportAuthorityInfo
ReportAuthorityInfo

ReportManifest
ReportManifest

RoomInfo
RoomInfo

SchoolCourseInfo
SchoolCourseInfo

SchoolInfo
SchoolInfo

SchoolPrograms
SchoolPrograms

SessionInfo
SessionInfo

ReportDataObjectType

SIF_AgentACL
SIF_AgentACL

SIF_LogEntry
SIF_LogEntry

SIF_ReportObject
SIF_ReportObject

SIF_ZoneStatus
SIF_ZoneStatus

StaffAssignment
StaffAssignment

StaffPersonal
StaffPersonal

StudentActivityInfo
StudentActivityInfo

StudentActivityParticipation

StudentActivityParticipation

StudentAttendanceSummary
StudentAttendanceSummary

StudentContactPersonal
StudentContactPersonal

StudentContactRelationship
StudentContactRelationship

StudentDailyAttendance
StudentDailyAttendance

StudentParticipation
StudentParticipation

StudentPeriodAttendance
StudentPeriodAttendance

StudentPersonal
StudentPersonal

StudentSchoolEnrollment
StudentSchoolEnrollment

StudentScoreSet
StudentScoreSet

StudentSDTN
StudentSDTN

StudentSnapshot
StudentSnapshot

SummaryEnrollmentInfo
SummaryEnrollmentInfo

SystemRole
SystemRole

TeachingGroup
TeachingGroup

TermInfo
TermInfo

TimeTable
TimeTable

TimeTableCell

Figure A.15-1: ReportDataObjectType

Element/@Attribute	Char	Description	Type

ReportDataObjectType		The SIF objects that can be included in `SIF_ReportObject/ReportData`, plus `ReportPackage`. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**choice of:**
			
			`AggregateCharacteristicInfo`
			`AggregateStatisticFact`
			`AggregateStatisticInfo`
			`Assessment`
			`AssessmentAdministration`
			`AssessmentForm`
			`AssessmentItem`
			`AssessmentPackage`
			`AssessmentRegistration`
			`AssessmentSubTest`
			`CalendarDate`
			`CalendarSummary`
			`Identity`
			`LEAInfo`
			`LearningResource`
			`LearningResourcePackage`
			`LearningStandardDocument`
			`LearningStandardItem`
			`PersonPicture`
			`ReportAuthorityInfo`
			`ReportManifest`
			`RoomInfo`
			`SchoolCourseInfo`
			`SchoolInfo`
			`SchoolPrograms`
			`SessionInfo`
			`SIF_AgentACL`
			`SIF_LogEntry`
			`SIF_ReportObject`
			`SIF_ZoneStatus`
			`StaffAssignment`
			`StaffPersonal`
			`StudentActivityInfo`
			`StudentActivityParticipation`
			`StudentAttendanceSummary`
			`StudentContactPersonal`
			`StudentContactRelationship`
			`StudentDailyAttendance`
			`StudentParticipation`
			`StudentPeriodAttendance`
			`StudentPersonal`
			`StudentSchoolEnrollment`
			`StudentScoreSet`
			`StudentSDTN`
			`StudentSnapshot`
			`SummaryEnrollmentInfo`
			`SystemRole`
			`TeachingGroup`
			`TermInfo`
			`TimeTable`
			`TimeTableCell`
			`TimeTableSubject`
			`ReportPackage`

Table A.15-1: ReportDataObjectType

A.16 ReportPackageType

This package has exactly the same structure as `AbstractContentPackageType`. `ReportPackage` can be used in addition to SIF objects specifically in reporting situations within `SIF_ReportObject`. At this time, it is not a SIF object. It cannot be requested via `SIF_Query` or `SIF_ExtendedQuery` in a `ReportManifest`. It may be included in `SIF_ReportObject` as part of an external report definition.

Figure A.16-1: ReportPackageType

Element/@Attribute	Char	Description	Type
ReportPackageType		This package has exactly the same structure as `AbstractContentPackageType`. `ReportPackage` can be used in addition to SIF objects specifically in reporting situations within `SIF_ReportObject`. At this time, it is not a SIF object. It cannot be requested via `SIF_Query` or `SIF_ExtendedQuery` in a `ReportManifest`. It may be included in `SIF_ReportObject` as part of an external report definition.	`AbstractContentPackageType`

Table A.16-1: ReportPackageType

A.17 SelectedContentType

Allows an XML fragment selected from an object to be used in an element with XML validation skipped.
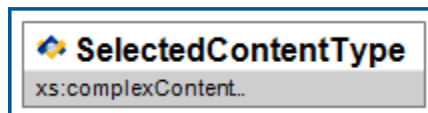

Figure A.17-1: SelectedContentType

Element/@Attribute	Char	Description	Type

SelectedContentType		Allows an XML fragment selected from an object to be used in an element with XML validation skipped.	`<xs:complexContent mixed="true">`
			`  <xs:restriction base="xs:anyType">`
			`    <xs:sequence>`
			`      <xs:any processContents="skip" minOccurs="0" maxOccurs="unbounded" />`
			`    </xs:sequence>`
			`  </xs:restriction>`
			`</xs:complexContent>`

Table A.17-1: SelectedContentType

A.18 SIF_EventObjectType

The SIF objects that can be included in a `SIF_Event` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.

AggregateCharacteristicInfo
AggregateCharacteristicInfo

AggregateStatisticFact
AggregateStatisticFact

AggregateStatisticInfo
AggregateStatisticInfo

AssessmentAdministration
AssessmentAdministration

AssessmentRegistration
AssessmentRegistration

CalendarDate
CalendarDate

CalendarSummary
CalendarSummary

Identity
Identity

LEAInfo
LEAInfo

LearningResource
LearningResource

LearningStandardDocument
LearningStandardDocument

LearningStandardItem
LearningStandardItem

PersonPicture
PersonPicture
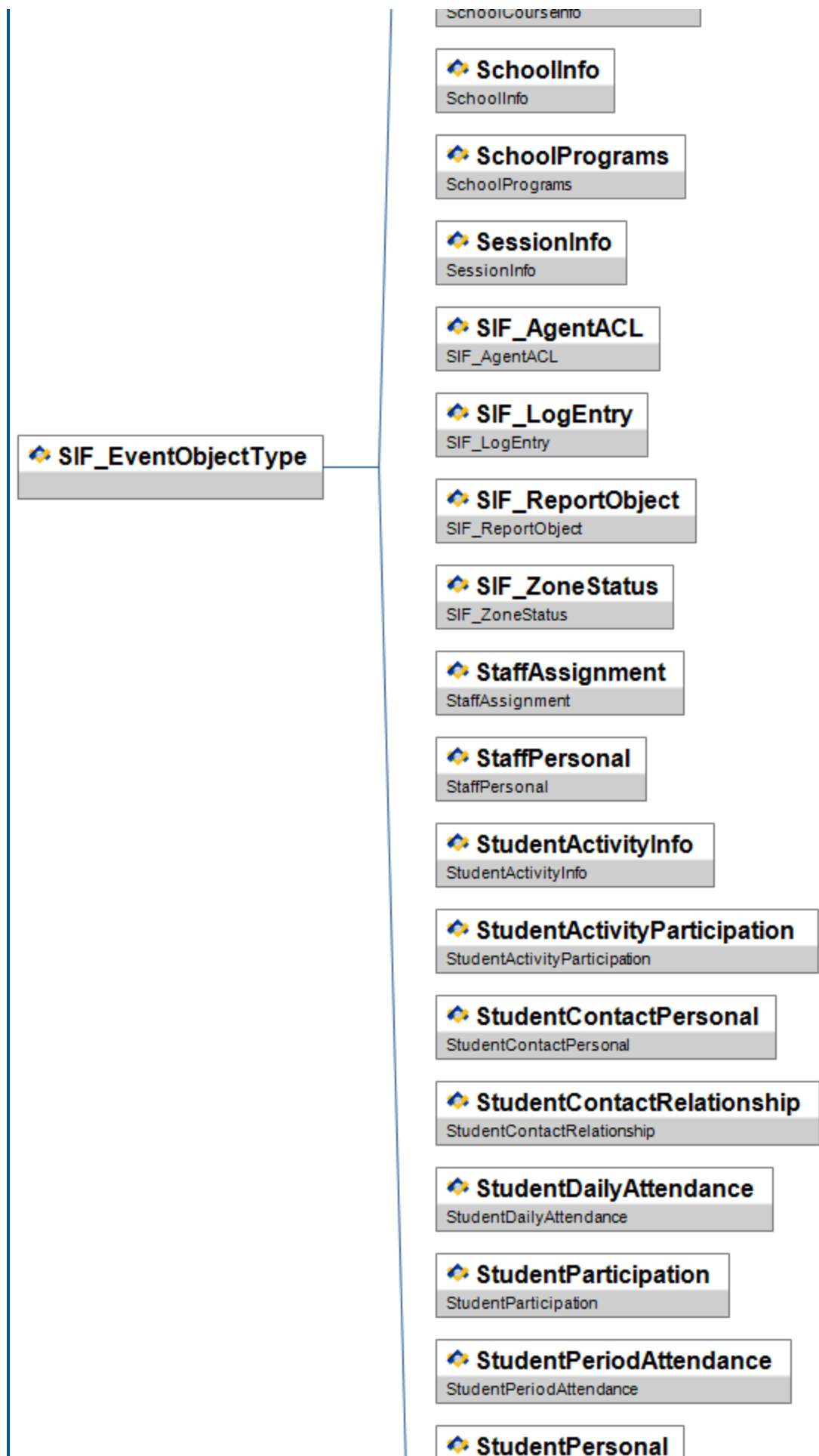
ReportAuthorityInfo
ReportAuthorityInfo

ReportManifest
ReportManifest

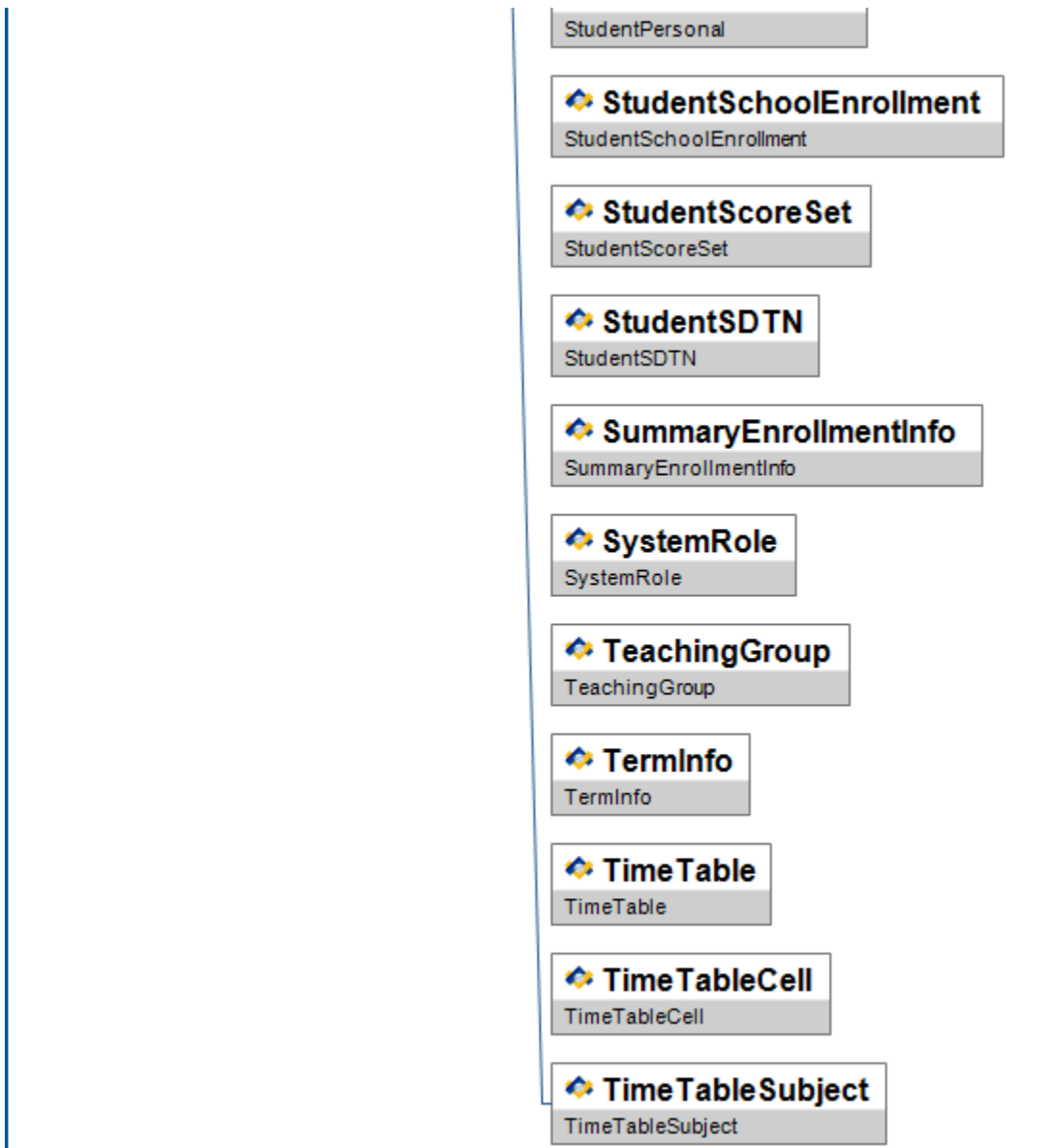**RoomInfo**
RoomInfo

SchoolCourseInfo

SchoolCourseInfo

SchoolInfo
SchoolInfo

SchoolPrograms
SchoolPrograms

SessionInfo
SessionInfo

SIF_AgentACL
SIF_AgentACL

SIF_LogEntry
SIF_LogEntry

SIF_EventObjectType

SIF_ReportObject
SIF_ReportObject

SIF_ZoneStatus
SIF_ZoneStatus

StaffAssignment
StaffAssignment

StaffPersonal
StaffPersonal

StudentActivityInfo
StudentActivityInfo

StudentActivityParticipation
StudentActivityParticipation

StudentContactPersonal
StudentContactPersonal

StudentContactRelationship
StudentContactRelationship

StudentDailyAttendance
StudentDailyAttendance

StudentParticipation
StudentParticipation

StudentPeriodAttendance
StudentPeriodAttendance

StudentPersonal

StudentPersonal

StudentSchoolEnrollment
StudentSchoolEnrollment

StudentScoreSet
StudentScoreSet

StudentSDTN
StudentSDTN

SummaryEnrollmentInfo
SummaryEnrollmentInfo

SystemRole
SystemRole

TeachingGroup
TeachingGroup

TermInfo
TermInfo

TimeTable
TimeTable

TimeTableCell
TimeTableCell

TimeTableSubject
TimeTableSubject

Figure A.18-1: SIF_EventObjectType

Element/@Attribute	Char	Description	Type

SIF_EventObjectType		The SIF objects that can be included in a `SIF_Event` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**choice of:**
			
			`AggregateCharacteristicInfo`
			`AggregateStatisticFact`
			`AggregateStatisticInfo`
			`AssessmentAdministration`
			`AssessmentRegistration`
			`CalendarDate`
			`CalendarSummary`
			`Identity`
			`LEAInfo`
			`LearningResource`
			`LearningStandardDocument`
			`LearningStandardItem`
			`PersonPicture`
			`ReportAuthorityInfo`
			`ReportManifest`
			`RoomInfo`
			`SchoolCourseInfo`
			`SchoolInfo`
			`SchoolPrograms`
			`SessionInfo`
			`SIF_AgentACL`
			`SIF_LogEntry`
			`SIF_ReportObject`
			`SIF_ZoneStatus`
			`StaffAssignment`
			`StaffPersonal`
			`StudentActivityInfo`
			`StudentActivityParticipation`
			`StudentContactPersonal`
			`StudentContactRelationship`
			`StudentDailyAttendance`
			`StudentParticipation`
			`StudentPeriodAttendance`
			`StudentPersonal`
			`StudentSchoolEnrollment`
			`StudentScoreSet`
			`StudentSDTN`
			`SummaryEnrollmentInfo`
			`SystemRole`
			`TeachingGroup`
			`TermInfo`
			`TimeTable`
			`TimeTableCell`
			`TimeTableSubject`

Table A.18-1: SIF_EventObjectType

A.19 SIF_ExampleObjectType

The SIF objects that can be included in `SIF_Query/SIF_Example`. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.
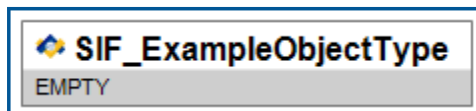
Figure A.19-1: SIF_ExampleObjectType

Element/@Attribute	Char	Description	Type
SIF_ExampleObjectType		The SIF objects that can be included in `SIF_Query/SIF_Example`. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	`EMPTY`

Table A.19-1: SIF_ExampleObjectType

A.20 SIF_LogEntryExtendedContentType

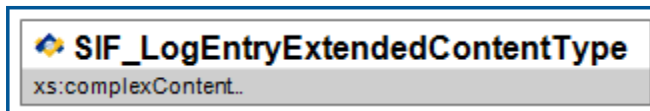Allows for any mixed XML in an element. XSD content processing is set to skip.

Figure A.20-1: SIF_LogEntryExtendedContentType

Element/@Attribute	Char	Description	Type

SIF_LogEntryExtendedContentType		Allows for any mixed XML in an element. XSD content processing is set to skip.	`<xs:complexContent mixed="true">`
			`  <xs:restriction base="xs:anyType">`
			`    <xs:sequence>`
			`      <xs:any processContents="skip" minOccurs="0" maxOccurs="unbou`
			`    </xs:sequence>`
			`  </xs:restriction>`
			`</xs:complexContent>`

Table A.20-1: SIF_LogEntryExtendedContentType

A.21 SIF_ProvideObjectNamesType

The SIF object names that can be specified in a `SIF_Provide` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.
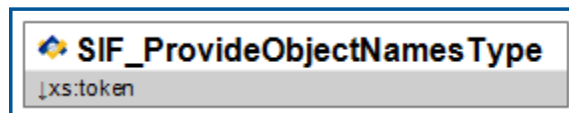

Figure A.21-1: SIF_ProvideObjectNamesType

Element/@Attribute	Char	Description	Type
SIF_ProvideObjectNamesType		The SIF object names that can be specified in a SIF_Provide message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**values:** AggregateCharacteristicInfo AggregateStatisticFact AggregateStatisticInfo Assessment AssessmentAdministration AssessmentForm AssessmentItem AssessmentPackage AssessmentRegistration AssessmentSubTest CalendarDate CalendarSummary Identity LEAInfo LearningResource LearningResourcePackage LearningStandardDocument LearningStandardItem PersonPicture ReportAuthorityInfo ReportManifest RoomInfo SchoolCourseInfo SchoolInfo SchoolPrograms SessionInfo SIF_LogEntry SIF_ReportObject StaffAssignment StaffPersonal StudentActivityInfo StudentActivityParticipation StudentAttendanceSummary StudentContactPersonal StudentContactRelationship StudentDailyAttendance StudentParticipation StudentPeriodAttendance StudentPersonal StudentSchoolEnrollment StudentScoreSet StudentSDTN StudentSnapshot SummaryEnrollmentInfo SystemRole TeachingGroup TermInfo TimeTable TimeTableCell TimeTableSubject

Table A.21-1: SIF_ProvideObjectNamesType

A.22 SIF_RequestObjectNamesType

The SIF object names that can be specified in a SIF_Request message, or every SIF object name. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.


SIF_RequestObjectNamesType
↓xs:token

Figure A.22-1: SIF_RequestObjectNamesType

Element/@Attribute	Char	Description	Type

SIF_RequestObjectNamesType		The SIF object names that can be specified in a `SIF_Request` message, or every SIF object name. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**values:**
			
			`AggregateCharacteristicInfo`
			`AggregateStatisticFact`
			`AggregateStatisticInfo`
			`Assessment`
			`AssessmentAdministration`
			`AssessmentForm`
			`AssessmentItem`
			`AssessmentPackage`
			`AssessmentRegistration`
			`AssessmentSubTest`
			`CalendarDate`
			`CalendarSummary`
			`Identity`
			`LEAInfo`
			`LearningResource`
			`LearningResourcePackage`
			`LearningStandardDocument`
			`LearningStandardItem`
			`PersonPicture`
			`ReportAuthorityInfo`
			`ReportManifest`
			`RoomInfo`
			`SchoolCourseInfo`
			`SchoolInfo`
			`SchoolPrograms`
			`SessionInfo`
			`SIF_AgentACL`
			`SIF_LogEntry`
			`SIF_ReportObject`
			`SIF_ZoneStatus`
			`StaffAssignment`
			`StaffPersonal`
			`StudentActivityInfo`
			`StudentActivityParticipation`
			`StudentAttendanceSummary`
			`StudentContactPersonal`
			`StudentContactRelationship`
			`StudentDailyAttendance`
			`StudentParticipation`
			`StudentPeriodAttendance`
			`StudentPersonal`
			`StudentSchoolEnrollment`
			`StudentScoreSet`
			`StudentSDTN`
			`StudentSnapshot`
			`SummaryEnrollmentInfo`
			`SystemRole`
			`TeachingGroup`
			`TermInfo`
			`TimeTable`
			`TimeTableCell`
			`TimeTableSubject`

Table A.22-1: SIF_RequestObjectNamesType

A.23 SIF_ResponseObjectsType

The SIF objects that can be included, repeated, in a `SIF_Response` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.
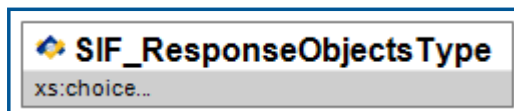
Figure A.23-1: SIF_ResponseObjectsType

Element/@Attribute	Char	Description	Type

SIF_ResponseObjectsType	The SIF objects that can be included, repeated, in a `SIF_Response` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	

```
<xs:choice minOccurs="0">
  <xs:sequence>
    <xs:element ref="sif:AggregateCharacteristicInfo" maxOccurs="unbounded
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AggregateStatisticFact" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AggregateStatisticInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:Assessment" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentAdministration" maxOccurs="unbounded" /
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentForm" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentItem" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentPackage" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentRegistration" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:AssessmentSubTest" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:CalendarDate" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:CalendarSummary" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:Identity" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:LEAInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:LearningResource" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:LearningResourcePackage" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:LearningStandardDocument" maxOccurs="unbounded" /
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:LearningStandardItem" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:PersonPicture" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:ReportAuthorityInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:ReportManifest" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:RoomInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SchoolCourseInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SchoolInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SchoolPrograms" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SessionInfo" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SIF_AgentACL" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:sequence>
    <xs:element ref="sif:SIF_LogEntry" maxOccurs="unbounded" />
```

Table A.23-1: SIF_ResponseObjectsType

A.24 SIF_ResponseObjectType

The SIF objects that can be included in a SIF_Response message, or every SIF object. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.

AggregateCharacteristicInfo
AggregateCharacteristicInfo

AggregateStatisticFact
AggregateStatisticFact

AggregateStatisticInfo
AggregateStatisticInfo

Assessment
Assessment

AssessmentAdministration
AssessmentAdministration

AssessmentForm
AssessmentForm

AssessmentItem
AssessmentItem

AssessmentPackage
AssessmentPackage

AssessmentRegistration
AssessmentRegistration

AssessmentSubTest
AssessmentSubTest

CalendarDate
CalendarDate

CalendarSummary
CalendarSummary

Identity
Identity

LEAInfo
LEAInfo

LearningResource
LearningResource

LearningResourcePackage
LearningResourcePackage

LearningStandardDocument

LearningStandardDocument

LearningStandardItem
LearningStandardItem

PersonPicture
PersonPicture

ReportAuthorityInfo
ReportAuthorityInfo

ReportManifest
ReportManifest

RoomInfo
RoomInfo

SchoolCourseInfo
SchoolCourseInfo

SchoolInfo
SchoolInfo

SchoolPrograms
SchoolPrograms

SessionInfo
SessionInfo

SIF_ResponseObjectType

SIF_AgentACL
SIF_AgentACL

SIF_LogEntry
SIF_LogEntry

SIF_ReportObject
SIF_ReportObject

SIF_ZoneStatus
SIF_ZoneStatus

StaffAssignment
StaffAssignment

StaffPersonal
StaffPersonal

StudentActivityInfo
StudentActivityInfo

StudentActivityParticipation

StudentActivityParticipation

StudentAttendanceSummary
StudentAttendanceSummary

StudentContactPersonal
StudentContactPersonal

StudentContactRelationship
StudentContactRelationship

StudentDailyAttendance
StudentDailyAttendance

StudentParticipation
StudentParticipation

StudentPeriodAttendance
StudentPeriodAttendance

StudentPersonal
StudentPersonal

StudentSchoolEnrollment
StudentSchoolEnrollment

StudentScoreSet
StudentScoreSet

StudentSDTN
StudentSDTN

StudentSnapshot
StudentSnapshot

SummaryEnrollmentInfo
SummaryEnrollmentInfo

SystemRole
SystemRole

TeachingGroup
TeachingGroup

TermInfo
TermInfo

TimeTable
TimeTable

TimeTableCell

TimeTableCell

TimeTableSubject
TimeTableSubject

Figure A.24-1: SIF_ResponseObjectType

Element/@Attribute	Char	Description	Type

SIF_ResponseObjectType		The SIF objects that can be included in a `SIF_Response` message, or every SIF object. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**choice of:**
			
			`AggregateCharacteristicInfo`
			`AggregateStatisticFact`
			`AggregateStatisticInfo`
			`Assessment`
			`AssessmentAdministration`
			`AssessmentForm`
			`AssessmentItem`
			`AssessmentPackage`
			`AssessmentRegistration`
			`AssessmentSubTest`
			`CalendarDate`
			`CalendarSummary`
			`Identity`
			`LEAInfo`
			`LearningResource`
			`LearningResourcePackage`
			`LearningStandardDocument`
			`LearningStandardItem`
			`PersonPicture`
			`ReportAuthorityInfo`
			`ReportManifest`
			`RoomInfo`
			`SchoolCourseInfo`
			`SchoolInfo`
			`SchoolPrograms`
			`SessionInfo`
			`SIF_AgentACL`
			`SIF_LogEntry`
			`SIF_ReportObject`
			`SIF_ZoneStatus`
			`StaffAssignment`
			`StaffPersonal`
			`StudentActivityInfo`
			`StudentActivityParticipation`
			`StudentAttendanceSummary`
			`StudentContactPersonal`
			`StudentContactRelationship`
			`StudentDailyAttendance`
			`StudentParticipation`
			`StudentPeriodAttendance`
			`StudentPersonal`
			`StudentSchoolEnrollment`
			`StudentScoreSet`
			`StudentSDTN`
			`StudentSnapshot`
			`SummaryEnrollmentInfo`
			`SystemRole`
			`TeachingGroup`
			`TermInfo`
			`TimeTable`
			`TimeTableCell`
			`TimeTableSubject`

Table A.24-1: SIF_ResponseObjectType

A.25 SIF_SubscribeObjectNamesType

The SIF object names that can be specified in a `SIF_Subscribe` message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.

Figure A.25-1: SIF_SubscribeObjectNamesType

	Element/@Attribute	Char	Description	Type
	SIF_SubscribeObjectNamesType		The SIF object names that can be specified in a SIF_Subscribe message. When this infrastructure type is implemented with a data model, the enumeration will contain the appropriate objects from that data model.	**values:** AggregateCharacteristicInfo AggregateStatisticFact AggregateStatisticInfo AssessmentAdministration AssessmentRegistration CalendarDate CalendarSummary Identity LEAInfo LearningResource LearningStandardDocument LearningStandardItem PersonPicture ReportAuthorityInfo ReportManifest RoomInfo SchoolCourseInfo SchoolInfo SchoolPrograms SessionInfo SIF_AgentACL SIF_LogEntry SIF_ReportObject SIF_ZoneStatus StaffAssignment StaffPersonal StudentActivityInfo StudentActivityParticipation StudentContactPersonal StudentContactRelationship StudentDailyAttendance StudentParticipation StudentPeriodAttendance StudentPersonal StudentSchoolEnrollment StudentScoreSet StudentSDTN SummaryEnrollmentInfo SystemRole TeachingGroup TermInfo TimeTable TimeTableCell TimeTableSubject

Table A.25-1: SIF_SubscribeObjectNamesType

A.26 URIOrBinaryType

Allows for a URL or a Base-64 encoding.

Figure A.26-1: URIOrBinaryType

Element/@Attribute	Char	Description	Type

URIOrBinaryType		Allows for a URL or a Base-64 encoding.	**union of:**
			
			`xs:anyURI`
			`xs:base64Binary`

Table A.26-1: URIOrBinaryType

A.27 VersionType

A SIF version number.

Figure A.27-1: VersionType

Element/@Attribute	Char	Description	Type

VersionType		A SIF version number.	`xs:token`
			
			`xs:pattern` | `[0-9]+[.][0-9]+(r[0-9]+)?`
			`xs:maxLength` | `12`

Table A.27-1: VersionType

A.28 VersionWithWildcardsType

A SIF version number, with wildcards for matching multiple versions.

Figure A.28-1: VersionWithWildcardsType

Element/@Attribute	Char	Description	Type

VersionWithWildcardsType		A SIF version number, with wildcards for matching multiple versions.	`xs:token`
			
			`xs:pattern` | `\*|([0-9]+[.]\*)|([0-9]+[.][0-9]+r\*)|([0-9]+[.][0-9]+(r[0-9]+)?)`
			`xs:maxLength` | `12`

Table A.28-1: VersionWithWildcardsType

Appendix B: Code Sets

Select shared and named code sets defined in SIF are included here for reference.

AU Code Sets

0211 Program Availability

0231	During school
0234	Weekend
0235	Before school
0236	After school
0237	Summer Holidays
0238	In-school service day
0239	Evenings
9998	Other School Holidays
9999	Other

0792 Identification Procedure

2147	Education assessment
2148	Health assessment/screening
2149	Parent/guardian referral
2151	Self-report/survey
2152	Special education assessment/evaluation
2153	Teacher referral
9999	Other

ACStrand

E	English
G	Geography
H	History
M	Mathematics
NPA	Arts
NPL	Languages other than English
NPP	Health and Physical Education
NPT	Technology
NPV	Studies of society and environment
S	Science

Activity Involvement Code

1010	Exercise, n.f.d.

1011	Exercise biking
1012	Fitness centre activities
1013	Gymnasium workouts
1014	Aerobics/exercising (other)
1015	Circuits
1020	Air sports, n.f.d.
1021	Aerobatics
1022	Ballooning
1023	Gliding
1024	Gyroplane flying
1025	Hang gliding
1026	Ultralight flying
1027	Air sport (other)
1031	Aquarobics
1041	Archery
1051	Athletics, track & field
1061	Australian rules football
1071	Badminton
1081	Baseball
1091	Basketball (indoor & outdoor)
1101	Beach volleyball
1110	Cue Sports, n.f.d.
1111	Billiards
1112	Pool
1113	Snooker
1121	Bocce
1122	Boules
1123	Petanque
1131	Boxing
1141	Bush walking
1151	Canoeing
1152	Kayaking
1161	Carpet bowls
1171	Cricket (Indoor)
1181	Cricket (Outdoor)
1191	Croquet
1201	Cross country running
1210	Bike sports, n.f.d.
1211	Bike riding
1212	Cycling
1213	BMXing
1214	Mountain biking
1220	Dance Sports, n.f.d.
1221	Boot scooting

1222	Classical Ballet
1223	Jazz Ballet
1224	Ballroom Dancing
1225	Dance team
1229	Dancing (other)
1231	Darts
1241	Dog racing
1250	Dog competitions, n.f.d.
1251	Dog shows
1252	Sheepdog trials
1261	Fencing
1271	Angling
1272	Fishing
1280	Throwing, n.f.d.
1281	Ultimate frisbee
1282	Boomerang throwing
1291	Gaelic football
1301	Golf
1311	Gridiron (USA football)
1321	Gymnastics
1322	Circus acrobatics
1323	Callisthenics
1324	Trampolining
1331	Handball
1341	Harness racing/Trotting
1351	Hockey (Indoor)
1352	Hockey (Outdoor)
1362	Horse racing
1371	Horse riding/Equestrian activities
1372	Polo
1373	Polo cross
1374	Show jumping
1380	Ice/Snow Sports, n.f.d.
1381	Ice hockey
1383	Ice/Snow sport (other)
1384	Snow skiing
1385	Snow boarding
1391	Korfball
1392	Ice skating
1401	Lacrosse
1402	Softcrosse
1411	Lawn bowls
1421	Marching
1430	Martial arts, n.f.d.

1431	Chi Kung
1432	Judo/Jujitsu
1433	Karate
1434	Kickboxing
1435	Taekwondo
1436	Tai Chi
1439	Martial arts (other)
1441	Minigolf
1442	Putt-putt golf
1450	Motor sports, n.f.d.
1451	Go-Karting (motor sports)
1452	Track motor sport
1459	Motor sport (other)
1461	Netball (Indoor and outdoor)
1471	Orienteering
1472	Rogaining
1481	Pilates
1490	Outdoor rock activities, n.f.d.
1491	Abseiling
1492	Caving
1493	Rock climbing
1501	Rodeos
1510	Roller sports, n.f.d.
1511	Roller-blading
1512	Skateboarding
1513	Inline hockey
1514	Roller sport (other)
1521	Rowing
1531	Royal Tennis
1541	Rugby league (football)
1551	Rugby union (football)
1561	Jogging
1562	Running
1571	Sailing
1581	Scuba diving
1590	Shooting sports, n.f.d.
1591	Hunting
1592	Paintball shooting
1593	Pistol shooting
1594	Shooting sport (other)
1595	Target shooting
1601	Soccer (Indoor)
1612	Soccer (Outdoor)
1621	Softball

1622	Tee ball (T ball)
1631	Squash
1632	Racquet ball
1641	Surf Lifesaving/Royal Lifesaving
1651	Surfing
1652	Surf sport (other)
1660	Indoor water sports, n.f.d.
1661	Diving (board)
1662	Swimming
1663	Synchronized Swimming
1671	Table tennis
1681	Tennis (Indoor and outdoor)
1691	Tenpin bowling
1701	Touch football
1711	Trail biking (motor sports)
1712	Dirt bike riding (motor sports)
1721	Triathlons
1731	Volleyball (Indoor and outdoor)
1741	Walking for exercise
1751	Water polo
1760	Motorised water sports, n.f.d.
1761	Jet skiing
1762	Powerboating
1763	Water-skiing
1770	Non-motorised outdoor water sports, n.f.d.
1771	Canoe polo
1772	Water volleyball
1773	Underwater hockey
1774	White water rafting
1781	Competition weight-lifting
1791	Bodybuilding
1792	Weight training (for fitness - other)
1800	Board sports, n.f.d.
1801	Wind surfing
1802	Sailboarding
1811	Wood chopping
1821	Wrestling
1831	Yoga
1840	Other sporting activities, n.f.d.
1841	Pigeon racing
1842	Playing
1843	Multidisciplinary events
1844	Radio controlled model car/boat/plane racing
1845	Cheerleading

1849	Other sporting activities
2010	Leadership Actvities
2011	Team captain
2012	Student representative council president
2013	Class captain
2014	Class officer
2015	Student representative council officer
2016	School captain
2017	Duke of Edinburugh Award
2019	Other student leadership
3010	Youth Development, n.f.d.
3011	Army Cadets
3012	Airforce Cadets
3013	Other Cadets
3014	Boy Scouts
3015	Girl Scouts
3019	Other youth development group
4011	Music - vocal
4012	Choir
4019	Other vocal ensemble
4021	Music - instrumental
4022	Concert Band
4023	Orchestra
4024	Jazz ensemble
4025	Chamber ensemble
4029	Other instrumental ensemble
4031	Music - theory and composition
4039	Other Music
4041	Theatre/drama
4042	Eisteddfod
4043	Annual music production
4044	Other performing arts
5010	Arts activites, n.f.d.
5011	Art and graphic design
5012	Painting
5013	Embroidery
5019	Other arts activity
5020	Communications, nf.d.
5021	Journalism
5022	Broadcasting
5023	School Year book
5024	Literary publications
5025	Speech/debate
5029	Other communications

6011	Book Club
6012	Drama club
6013	Language club
6014	Art club
6019	Other Cultural club
6021	Technology Students
6022	Computer club
6023	Science Club
6029	Other Technology Club
6031	Health Occupations Students
6032	Chess club
6039	Other club or organization
7011	Peer counseling
7012	Tutoring
7013	Formal/Social/Debutante Ball
7019	Other general activity

Activity Type

0750	Co-curricular activity
0751	Extra-curricular Activity
9999	Other

Address Role

012A	Term Address
012B	Home Address
012C	Home Stay Address
013A	Overseas Address
1073	Other home address
1074	Employer's address
1075	Employment address
2382	Other organisation address
9999	Other Address

Address Type

0123	Mailing address
0123A	Alternate Mailing address
0124	Shipping address
0124A	Alternate Shipping address
0765	Physical location address
0765A	Alternate Physical location address
9999	Other
9999A	Alternate Other address

Assessment Reporting Method

0144	Letter grade/mark
0490	Age score
0492	Tertiary admission examination score
0493	Year equivalent or year-level indicator
0497	Normal curve equivalent
0498	Normalized standard score
0499	Number score
0500	Pass-fail
0502	Percentile rank
0503	Proficiency level
0504	Ranking
0506	Standard age score
0512	Achievement/proficiency level
0513	Mastery level
3473	Graduation score
3474	Growth/value-added/indexing
3475	International Baccalaureate score
3476	Percentile
3478	Raw score
3479	Scale score
3480	Workplace readiness score
9999	Other

Assessment Type

0075	Achievement test
0076	Advanced placement test
0077	Alternate assessment/year-level standards
0079	Attitudinal test
0081	Cognitive and perceptual skills test
0082	Developmental observation
0083	Interest inventory
0084	Language proficiency test
0087	Manual dexterity test
0088	Mental ability (intelligence) test
0089	Performance assessment
0090	Personality test
0092	Portfolio assessment
0093	Psychological test
0094	Psychomotor test
0095	Reading readiness test
3461	Alternatve assessment/modified standards

3462	Alternate assessment/ELL
3463	Aptitude test
9999	Other

Attendance Code

0	Not Marked
100	Present
101	Absent - General
111	Late arrival at School
112	Early departure from School
113	Late arrival unexplained
114	Early departure unexplained
116	Late arrival to Class
117	Early leaver from Class
118	Late Class Unexplained
119	Early Class Unexplained
200	Medical
201	Illness
202	Accident
203	Counselling
204	Sick Bay
205	Medical Appointment
206	Hospitalised
207	Quarantine
208	Refusal
209	Dentist
210	Medical/Welfare
211	Bereavement
300	Truancy
400	Suspension
401	Suspension - External
500	Unexplained
600	Educational
601	Group Activity
602	Community Service
603	Duty Student
604	Excursion
605	Special Event
606	Camp
607	Other Educational Activity
608	Off-Site Learning Program (eg. TAFE)
609	Work Experience
610	School Production

611	Sports
612	Study Leave
700	Flags
701	Exit
702	Transferred
800	Parent Choice
801	Parental Arrangement
802	Exempt
803	Parental Acknowledgement
804	Extended Family Holidays
805	Religious/Cultural Observance
900	School Choice
901	Industrial Action
902	Facility Damage
903	Weather
904	Staff Meeting
999	Other

Attendance Status

01	Excused
02	Unexcused
99	Unknown
NA	Not Applicable

Australian Citizenship Status

1	Australian Citizen
2	New Zealand Citizen
3	Permanent Resident
4	Temporary Entry Permit
5	Other Overseas
8	Permanent Humanitarian Visa
X	Not Provided

Australian Standard Classification of Cultural and Ethnic Groups (ASCCEG)

ABS 1249.0 - Australian Standard Classification of Cultural and Ethnic Groups (ASCCEG), 2005-06

0000	Inadequately described
0001	Not stated
0901	Eurasian, so described
0902	Asian, so described
0903	African, so described
0904	European, so described

0905	Caucasian, so described
0906	Creole, so described
1000	Oceanian, n.f.d.
1100	Australian Peoples, n.f.d.
1101	Australian
1102	Australian Aboriginal
1103	Australian South Sea Islander
1104	Torres Strait Islander
1200	New Zealand Peoples, n.f.d.
1201	Maori
1202	New Zealander
1300	Melanesian and Papuan, n.f.d.
1301	New Caledonian
1302	Ni-Vanuatu
1303	Papua New Guinean
1304	Solomon Islander
1399	Melanesian and Papuan, n.e.c. (includes Bisorio, Bougainvillian, Huli)
1400	Micronesian, n.f.d.
1401	I-Kiribati
1402	Nauruan
1499	Micronesian, n.e.c. (includes Marianas Islander, Marshallese, Palauan)
1500	Polynesian, n.f.d.
1501	Cook Islander
1502	Fijian
1503	Niuean
1504	Samoan
1505	Tongan
1506	Hawaiian
1507	Tahitian
1508	Tokelauan
1511	Tuvaluan
1599	Polynesian, n.e.c. (includes French Polynesian, Pitcairn Islander, Wallisian)
2000	North-West European, n.f.d.
2100	British, n.f.d.
2101	English
2102	Scottish
2103	Welsh
2104	Channel Islander
2105	Manx
2199	British, n.e.c. (includes Falkland Islander)
2201	Irish
2300	Western European, n.f.d.
2301	Austrian
2303	Dutch

2304	Flemish
2305	French
2306	German
2307	Swiss
2311	Belgian
2312	Frisian
2313	Luxembourg
2399	Western European, n.e.c. (includes Alsatian, Breton, Walloon)
2400	Northern European, n.f.d.
2401	Danish
2402	Finnish
2403	Icelandic
2404	Norwegian
2405	Swedish
2499	Northern European, n.e.c. (includes Faeroese, Greenlandic, Saami)
3000	Southern and Eastern European, n.f.d.
3100	Southern European, n.f.d.
3101	Basque
3102	Catalan
3103	Italian
3104	Maltese
3105	Portuguese
3106	Spanish
3107	Gibraltarian
3199	Southern European, n.e.c. (includes Andorran, Galician, Ladin)
3200	South Eastern European, n.f.d.
3201	Albanian
3202	Bosnian
3203	Bulgarian
3204	Croatian
3205	Greek
3206	Macedonian
3207	Moldovan
3208	Montenegrin
3211	Romanian
3212	Roma/Gypsy
3213	Serbian
3214	Slovene
3215	Cypriot
3216	Vlach
3299	South Eastern European, n.e.c. (includes Aromani, Karakachani)
3300	Eastern European, n.f.d.
3301	Belarusan
3302	Czech

3303	Estonian
3304	Hungarian
3305	Latvian
3306	Lithuanian
3307	Polish
3308	Russian
3311	Slovak
3312	Ukrainian
3313	Sorb/Wend
3399	Eastern European, n.e.c. (includes Adygei, Khanty, Nenets)
4000	North African and Middle Eastern, n.f.d.
4100	Arab, n.f.d.
4101	Algerian
4102	Egyptian
4103	Iraqi
4104	Jordanian
4105	Kuwaiti
4106	Lebanese
4107	Libyan
4108	Moroccan
4111	Palestinian
4112	Saudi Arabian
4113	Syrian
4114	Tunisian
4115	Yemeni
4199	Arab, n.e.c. (includes Baggara, Bedouin, Omani)
4201	Jewish
4900	Other North African and Middle Eastern, n.f.d.
4901	Assyrian/Chaldean
4902	Berber
4903	Coptic
4904	Iranian
4905	Kurdish
4906	Sudanese
4907	Turkish
4999	Other North African and Middle Eastern, n.e.c. (includes Azande, Madi, Nubian)
5000	South-East Asian, n.f.d.
5100	Mainland South-East Asian, n.f.d.
5101	Anglo-Burmese
5102	Burmese
5103	Hmong
5104	Khmer
5105	Lao
5106	Thai

5107	Vietnamese
5108	Karen
5111	Mon
5199	Mainland South-East Asian, n.e.c. (includes Arakanese, Chin, Shan)
5200	Maritime South-East Asian, n.f.d.
5201	Filipino
5202	Indonesian
5203	Javanese
5204	Madurese
5205	Malay
5206	Sundanese
5207	Timorese
5208	Acehnese
5211	Balinese
5212	Bruneian
5213	Kadazan
5214	Singaporean
5215	Temoq
5299	Maritime South-East Asian, n.e.c. (includes Iban, Irian Jayan, Sumatran)
6000	North-East Asian, n.f.d.
6100	Chinese Asian, n.f.d.
6101	Chinese
6102	Taiwanese
6199	Chinese Asian, n.e.c. (includes Hui, Manchu, Yi)
6900	Other North-East Asian, n.f.d.
6901	Japanese
6902	Korean
6903	Mongolian
6904	Tibetan
6999	Other North-East Asian, n.e.c. (includes Ainu, Menba, Xiareba)
7000	Southern and Central Asian, n.f.d.
7100	Southern Asian, n.f.d.
7101	Anglo-Indian
7102	Bengali
7103	Burgher
7104	Gujarati
7106	Indian
7107	Malayali
7111	Nepalese
7112	Pakistani
7113	Punjabi
7114	Sikh
7115	Sinhalese
7116	Tamil

7117	Maldivian
7199	Southern Asian, n.e.c. (includes Gurkha, Kashmiri, Marathi)
7200	Central Asian, n.f.d.
7201	Afghan
7202	Armenian
7203	Georgian
7204	Kazakh
7205	Pathan
7206	Uzbek
7207	Azeri
7208	Hazara
7211	Tajik
7212	Tatar
7213	Turkmen
7214	Uighur
7299	Central Asian, n.e.c. (includes Chechen, Circassian, Ingush)
8000	People of the Americas, n.f.d.
8100	North American, n.f.d.
8101	African American
8102	American
8103	Canadian
8104	French Canadian
8105	Hispanic (North American)
8106	Native North American Indian
8107	Bermudan
8199	North American, n.e.c. (includes Aleut, Inuit, Metis)
8200	South American, n.f.d.
8201	Argentinian
8202	Bolivian
8203	Brazilian
8204	Chilean
8205	Colombian
8206	Ecuadorian
8207	Guyanese
8208	Peruvian
8211	Uruguayan
8212	Venezuelan
8213	Paraguayan
8299	South American, n.e.c. (includes Arawak, Carib, Surinamese)
8300	Central American, n.f.d.
8301	Mexican
8302	Nicaraguan
8303	Salvadoran
8304	Costa Rican

8305	Guatemalan
8306	Mayan
8399	Central American, n.e.c. (includes Belizean, Honduran, Panamanian)
8400	Caribbean Islander, n.f.d.
8401	Cuban
8402	Jamaican
8403	Trinidadian (Tobagonian)
8404	Barbadian
8405	Puerto Rican
8499	Caribbean Islander, n.e.c. (includes Bahamian, Grenadian, Haitian)
9000	Sub-Saharan African, n.f.d.
9100	Central and West African, n.f.d.
9101	Akan
9103	Ghanaian
9104	Nigerian
9105	Yoruba
9106	Ivorean
9107	Liberian
9108	Sierra Leonean
9199	Central and West African, n.e.c. (includes Fang, Fulani, Kongo)
9200	Southern and East African, n.f.d.
9201	Afrikaner
9202	Angolan
9203	Eritrean
9204	Ethiopian
9205	Kenyan
9206	Malawian
9207	Mauritian
9208	Mozambican
9212	Oromo
9213	Seychellois
9214	Somali
9215	South African
9216	Tanzanian
9217	Ugandan
9218	Zambian
9221	Zimbabwean
9222	Amhara
9223	Batswana
9224	Dinka
9225	Hutu
9226	Masai
9227	Nuer
9228	Tigrayan

9231	Tigre
9232	Zulu
9299	Southern and East African, n.e.c. (includes Afar, Namibian, Tutsi)

Australian Standard Classification of Languages (ASCL)

ABS 1267.0 - Australian Standard Classification of Languages (ASCL), 2005-06

0000	Inadequately Described
0	Not Stated
0001	Non Verbal, so described
0002	Not Stated
0003	Swiss, so described
0004	Cypriot, so described
0005	Creole, nfd
0006	French Creole, nfd
0007	Spanish Creole, nfd
0008	Portuguese Creole, nfd
0009	Pidgin, nfd
1000	Northern European Languages, nfd
1100	Celtic, nfd
1101	Gaelic (Scotland)
1102	Irish
1103	Welsh
1199	Celtic, nec
1201	English
1300	German and Related Languages, nfd
1301	German
1302	Letzeburgish
1303	Yiddish
1400	Dutch and Related Languages, nfd
1401	Dutch
1402	Frisian
1403	Afrikaans
1500	Scandinavian, nfd
1501	Danish
1502	Icelandic
1503	Norwegian
1504	Swedish
1599	Scandinavian, nec
1600	Finnish and Related Languages, nfd
1601	Estonian
1602	Finnish
1699	Finnish and Related Languages, nec
2000	Southern European Languages, nfd

2101	French
2201	Greek
2300	Iberian Romance, nfd
2301	Catalan
2302	Portuguese
2303	Spanish
2399	Iberian Romance, nec
2401	Italian
2501	Maltese
2900	Other Southern European Languages, nfd
2901	Basque
2902	Latin
2999	Other Southern European Languages, nec
3000	Eastern European Languages, nfd
3100	Baltic, nfd
3101	Latvian
3102	Lithuanian
3301	Hungarian
3400	East Slavic, nfd
3401	Belorussian
3402	Russian
3403	Ukrainian
3500	South Slavic, nfd
3501	Bosnian
3502	Bulgarian
3503	Croatian
3504	Macedonian
3505	Serbian
3506	Slovene
3507	Serbo-Croatian/Yugoslavian, so described
3600	West Slavic, nfd
3601	Czech
3602	Polish
3603	Slovak
3900	Other Eastern European Languages, nfd
3901	Albanian
3903	Aromunian (Macedo-Romanian)
3904	Romanian
3905	Romany
3999	Other Eastern European Languages, nec
4000	Southwest and Central Asian Languages, nfd
4100	Iranic, nfd
4101	Kurdish
4102	Pashto

4104	Balochi
4105	Dari
4106	Persian (excluding Dari)
4199	Iranic, nec
4200	Middle Eastern Semitic Languages, nfd
4202	Arabic
4203	Assyrian
4204	Hebrew
4299	Middle Eastern Semitic Languages, nec
4300	Turkic, nfd
4301	Turkish
4302	Azeri
4303	Tatar
4304	Turkmen
4305	Uygur
4306	Uzbek
4399	Turkic, nec
4900	Other Southwest and Central Asian Languages, nfd
4901	Armenian
4902	Georgian
4999	Other Southwest and Central Asian Languages, nec
5000	Southern Asian Languages, nfd
5100	Dravidian, nfd
5101	Kannada
5102	Malayalam
5103	Tamil
5104	Telugu
5105	Tulu
5199	Dravidian, nec
5200	Indo-Aryan, nfd
5201	Bengali
5202	Gujarati
5203	Hindi
5204	Konkani
5205	Marathi
5206	Nepali
5207	Punjabi
5208	Sindhi
5211	Sinhalese
5212	Urdu
5213	Assamese
5214	Dhivehi
5215	Kashmiri
5216	Oriya

5299	Indo-Aryan, nec
5999	Other Southern Asian Languages
6000	Southeast Asian Languages, nfd
6100	Burmese and Related Languages, nfd
6101	Burmese
6102	Haka
6103	Karen
6199	Burmese and Related Languages, nec
6200	Hmong-Mien, nfd
6201	Hmong
6299	Hmong-Mien, nec
6300	Mon-Khmer, nfd
6301	Khmer
6302	Vietnamese
6303	Mon
6399	Mon-Khmer, nec
6400	Tai, nfd
6401	Lao
6402	Thai
6499	Tai, nec
6500	Southeast Asian Austronesian Languages, nfd
6501	Bisaya
6502	Cebuano
6503	IIokano
6504	Indonesian
6505	Malay
6507	Tetum
6508	Timorese
6511	Tagalog
6512	Filipino
6513	Acehnese
6514	Balinese
6515	Bikol
6516	Iban
6517	Ilonggo (Hiligaynon)
6518	Javanese
6521	Pampangan
6599	Southeast Asian Austronesian Languages, nec
6999	Other Southeast Asian Languages
7000	Eastern Asian Languages, nfd
7100	Chinese, nfd
7101	Cantonese
7102	Hakka
7103	Hokkien

7104	Mandarin
7105	Teochew
7106	Wu
7199	Chinese, nec
7201	Japanese
7301	Korean
7900	Other Eastern Asian Languages, nfd
7901	Tibetan
7902	Mongolian
7999	Other Eastern Asian Languages, nec
8000	Australian Indigenous Languages, nfd
8100	Arnhem Land and Daly River Region Languages, nfd
8101	Anindilyakwa
8102	Burarra
8108	Kunwinjku
8111	Maung
8113	Ngan'gikurunggurr
8114	Nunggubuyu
8115	Rembarrnga
8117	Tiwi
8121	Alawa
8122	Dalabon
8123	Gudanji
8124	Gundjeihmi
8125	Gun-nartpa
8126	Gurr-goni
8127	Iwaidja
8128	Jaminjung
8131	Jawoyn
8132	Jingulu
8133	Kunbarlang
8134	Kune
8135	Kuninjku
8136	Larrakiya
8137	Malak Malak
8138	Mangarrayi
8141	Maringarr
8142	Marra
8143	Marrithiyel
8144	Matngala
8145	Mayali
8146	Murrinh Patha
8147	Na-kara
8148	Ndjébbana (Gunavidji)

8151	Ngalakgan
8152	Ngaliwurru
8153	Nungali
8154	Wambaya
8155	Wardaman
8199	Arnhem Land and Daly River Region Languages, nec
8200	Yongu Matha, nfd
8210	Dhangu, nfd
8211	Galpu
8212	Golumala
8213	Wangurri
8219	Dhangu, nec
8220	Dhay'yi, nfd
8221	Dhalwangu
8222	Djarrwark
8229	Dhay'yi, nec
8230	Dhuwal, nfd
8231	Djambarrpuyngu
8232	Djapu
8233	Daatiwuy
8234	Marrangu
8235	Liyagalawumirr
8239	Dhuwal, nec
8240	Dhuwala, nfd
8241	Dhuwaya
8242	Gumatj
8243	Gupapuyngu
8244	Guyamirrilili
8245	Madarrpa
8246	Manggalili
8247	Wubulkarra
8249	Dhuwala, nec
8250	Djinang, nfd
8251	Wurlaki
8259	Djinang, nec
8260	Djinba, nfd
8261	Ganalbingu
8269	Djinba, nec
8270	Yakuy, nfd
8271	Ritharrngu
8279	Yakuy, nec
8281	Nhangu
8299	Other Yolngu Matha
8300	Cape York Peninsula Languages, nfd

8301	Kuku Yalanji
8302	Guugu Yimidhirr
8303	Kuuku-Ya'u
8304	Wik Mungkan
8305	Djabugay
8306	Dyirbal
8307	Girramay
8308	Koko-Bera
8311	Kuuk Thayorre
8312	Lamalama
8313	Yidiny
8314	Wik Ngathan
8399	Cape York Peninsula Languages, nec
8400	Torres Strait Island Languages, nfd
8401	Kalaw Kawaw Ya/Kalaw Lagaw Ya
8402	Meriam Mir
8403	Torres Strait Creole
8500	Northern Desert Fringe Area Languages, nfd
8504	Bilinarra
8505	Gurindji
8506	Gurindji Kriol
8507	Jaru
8508	Light Warlpiri
8511	Malngin
8512	Mudburra
8513	Ngandi
8514	Ngardi
8515	Ngarinyman
8516	Walmajarri
8517	Wanyjirra
8518	Warlmanpa
8521	Warlpiri
8522	Warumungu
8599	Northern Desert Fringe Area Languages, nec
8600	Arandic, nfd
8603	Alyawarr
8604	Anmatyerr
8605	Arrernte
8606	Kaytetye
8699	Arandic, nec
8700	Western Desert Language, nfd
8703	Antikarinya
8704	Kartujarra
8705	Kukatha

8706	Kukatja
8707	Luritja
8708	Manyjilyjarra
8711	Martu Wangka
8712	Ngaanyatjarra
8713	Pintupi
8714	Pitjantjatjara
8715	Wangkajunga
8716	Wangkatha
8717	Warnman
8718	Yankunytjatjara
8721	Yulparija
8799	Western Desert Language, nec
8800	Kimberley Area Languages, nfd
8801	Bardi
8802	Bunuba
8803	Gooniyandi
8804	Miriwoong
8805	Ngarinyin
8806	Nyikina
8807	Worla
8808	Worrorra
8811	Wunambal
8812	Yawuru
8899	Kimberley Area Languages, nec
8900	Other Australian Indigenous Languages, nfd
8901	Adnymathanha
8902	Arabana
8903	Bandjalang
8904	Banyjima
8905	Batjala
8906	Bidjara
8907	Dhanggatti
8908	Diyari
8911	Gamilaraay
8912	Garrwa
8913	Garuwali
8914	Githabul
8915	Gumbaynggir
8916	Kanai
8917	Karajarri
8918	Kariyarra
8921	Kaurna
8922	Kayardild

8923	Kija
8924	Kriol
8925	Lardil
8926	Mangala
8927	Muruwari
8928	Narungga
8931	Ngarluma
8932	Ngarrindjeri
8933	Nyamal
8934	Nyangumarta
8935	Nyungar
8936	Paakantyi
8937	Palyku/Nyiyaparli
8938	Wajarri
8941	Wiradjuri
8942	Yanyuwa
8943	Yindjibarndi
8944	Yinhawangka
8945	Yorta Yorta
8998	Aboriginal English, so described
8999	Other Australian Indigenous Languages, nec
9000	Other Languages, nfd
9101	American Languages
9200	African Languages, nfd
9201	Acholi
9203	Akan
9205	Mauritian Creole
9206	Oromo
9207	Shona
9208	Somali
9211	Swahili
9212	Yoruba
9213	Zulu
9214	Amharic
9215	Bemba
9216	Dinka
9217	Ewe
9218	Ga
9221	Harari
9222	Hausa
9223	Igbo
9224	Kikuyu
9225	Krio
9226	Luganda

9227	Luo
9228	Ndebele
9231	Nuer
9232	Nyanja (Chichewa)
9233	Shilluk
9234	Tigré
9235	Tigrinya
9236	Tswana
9237	Xhosa
9238	Seychelles Creole
9299	African Languages, nec
9300	Pacific Austronesian Languages, nfd
9301	Fijian
9302	Gilbertese
9303	Maori (Cook Island)
9304	Maori (New Zealand)
9305	Motu
9306	Nauruan
9307	Niue
9308	Samoan
9311	Tongan
9312	Rotuman
9313	Tokelauan
9314	Tuvaluan
9315	Yapese
9399	Pacific Austronesian Languages, nec
9400	Oceanian Pidgins and Creoles, nfd
9401	Tok Pisin
9402	Bislama
9403	Hawaiian English
9404	Pitcairnese
9405	Solomon Islands Pijin
9499	Oceanian Pidgins and Creoles, nec
9500	Papua New Guinea Papuan Languages, nfd
9502	Kiwai
9599	Papua New Guinea Papuan Languages, nec
9601	Invented Languages
9700	Sign Languages, nfd
9701	Auslan
9702	Makaton
9799	Sign Languages, nec

Australian Standard Classification of Religious Groups (ASCRG)

ABS 1266.0 - Australian Standard Classification of Religious Groups, 2005

0001	Not Stated
0002	Religious Belief, nfd
0003	Not Defined
0004	New Age, so described
0005	Theism
1011	Buddhism
2000	Christian, nfd
2001	Apostolic Church, so described
2002	Church of God, so described
2003	Australian Christian Churches, so described
2004	New Church Alliance, so described
2010	Anglican, nfd
2012	Anglican Church of Australia
2013	Anglican Catholic Church
2031	Baptist
2051	Brethren
2071	Western Catholic
2072	Maronite Catholic
2073	Melkite Catholic
2074	Ukrainian Catholic
2075	Chaldean Catholic
2079	Catholic, nec
2110	Churches of Christ, nfd
2111	Churches of Christ (Conference)
2112	Church of Christ (Nondenominational)
2113	International Church of Christ
2131	Jehovah's Witnesses
2150	Church of Jesus Christ of Latter Day Saints, nfd
2151	Church of Jesus Christ of LDS (Mormons)
2152	Community of Christ
2171	Lutheran
2210	Oriental Orthodox, nfd
2212	Armenian Apostolic
2214	Coptic Orthodox Church
2215	Syrian Orthodox Church
2216	Ethiopian Orthodox Church
2219	Oriental Orthodox, nec
2220	Assyrian Apostolic, nfd
2221	Assyrian Church of the East
2222	Ancient Church of the East
2229	Assyrian Apostolic, nec

2230	Eastern Orthodox, nfd
2231	Albanian Orthodox
2232	Antiochian Orthodox
2233	Greek Orthodox
2234	Macedonian Orthodox
2235	Romanian Orthodox
2236	Russian Orthodox
2237	Serbian Orthodox
2238	Ukrainian Orthodox
2239	Eastern Orthodox, nec
2250	Presbyterian and Reformed, nfd
2251	Presbyterian
2252	Reformed
2253	Free Reformed
2271	Salvation Army
2311	Seventh-day Adventist
2331	Uniting Church
2400	Pentecostal, nfd
2401	Apostolic Church (Australia)
2402	Assemblies of God
2403	Bethesda Churches
2404	Christian City Church
2405	Christian Life Churches International
2406	Christian Outreach Centres
2407	Christian Revival Crusade
2408	Faith Churches
2411	Foursquare Gospel Church
2412	Full Gospel Church
2413	Revival Centres
2414	Rhema Family Church
2415	United Pentecostal
2499	Pentecostal, nec
2800	Other Protestant, nfd
2801	Aboriginal Evangelical Missions
2802	Born Again Christian
2803	Christian and Missionary Alliance
2804	Church of the Nazarene
2805	Congregational
2806	Ethnic Evangelical Churches
2807	Independent Evangelical Churches
2808	Wesleyan Methodist Church
2899	Other Protestant, nec
2900	Other Christian, nfd
2901	Apostolic Church of Queensland

2902	Christadelphians
2903	Christian Science
2904	Gnostic Christians
2905	Liberal Catholic Church
2906	New Apostolic Church
2907	New Churches (Swedenborgian)
2908	Ratana (Maori)
2911	Religious Science
2912	Religious Society of Friends (Quakers)
2913	Temple Society
2914	Unitarian
2915	Worldwide Church of God
2999	Other Christian, nec
3011	Hinduism
4011	Islam
5011	Judaism
6011	Australian Aboriginal Traditional Religions
6031	Baha'i
6050	Chinese Religions, nfd
6051	Ancestor Veneration
6052	Confucianism
6053	Taoism
6059	Chinese Religions, nec
6071	Druse
6110	Japanese Religions, nfd
6111	Shinto
6112	Sukyo Mahikari
6113	Tenrikyo
6119	Japanese Religions, nec
6130	Nature Religions, nfd
6131	Animism
6132	Druidism
6133	Paganism
6134	Pantheism
6135	Wiccan/Witchcraft
6139	Nature Religions, nec
6151	Sikhism
6171	Spiritualism
6991	Caodaism
6992	Church of Scientology
6993	Eckankar
6994	Rastafarianism
6995	Satanism
6996	Theosophy

6997	Jainism
6998	Zoroastrianism
6999	Religious Groups, nec
7010	No Religion, nfd
7011	Agnosticism
7012	Atheism
7013	Humanism
7014	Rationalism

Australian Standard Geographical Classification (ASGC)

ABS 1216.0 - Australian Standard Geographical Classification (ASGC), Jul 2008

Statistical Local Area (from ASGC)

105051100	Botany Bay (C)
105054800	Leichhardt (A)
105055200	Marrickville (A)
105057201	Sydney (C) - Inner
105057204	Sydney (C) - East
105057205	Sydney (C) - South
105057206	Sydney (C) - West
105106550	Randwick (C)
105108050	Waverley (A)
105108500	Woollahra (A)
105154150	Hurstville (C)
105154450	Kogarah (A)
105156650	Rockdale (C)
105157151	Sutherland Shire (A) - East
105157152	Sutherland Shire (A) - West
105200351	Bankstown (C) - North-East
105200353	Bankstown (C) - North-West
105200355	Bankstown (C) - South
105201550	Canterbury (C)
105252851	Fairfield (C) - East
105252854	Fairfield (C) - West
105254901	Liverpool (C) - East
105254904	Liverpool (C) - West
105301450	Camden (A)
105301501	Campbelltown (C) - North
105301504	Campbelltown (C) - South
105308400	Wollondilly (A)
105350150	Ashfield (A)
105351300	Burwood (A)
105351521	Canada Bay (A) - Concord

105351524	Canada Bay (A) - Drummoyne
105357100	Strathfield (A)
105400200	Auburn (A)
105403950	Holroyd (C)
105406251	Parramatta (C) - Inner
105406252	Parramatta (C) - North-East
105406253	Parramatta (C) - North-West
105406254	Parramatta (C) - South
105450900	Blue Mountains (C)
105453800	Hawkesbury (C)
105456351	Penrith (C) - East
105456354	Penrith (C) - West
105530751	Blacktown (C) - North
105530752	Blacktown (C) - South-East
105530753	Blacktown (C) - South-West
105554100	Hunters Hill (A)
105554700	Lane Cove (A)
105555350	Mosman (A)
105555950	North Sydney (A)
105556700	Ryde (C)
105558250	Willoughby (C)
105600501	Baulkham Hills (A) - Central
105600503	Baulkham Hills (A) - North
105600505	Baulkham Hills (A) - South
105604001	Hornsby (A) - North
105604004	Hornsby (A) - South
105604500	Ku-ring-gai (A)
105655150	Manly (A)
105656370	Pittwater (A)
105658000	Warringah (A)
105703101	Gosford (C) - East
105703104	Gosford (C) - West
105708551	Wyong (A) - North-East
105708554	Wyong (A) - South and West
110051720	Cessnock (C)
110054651	Lake Macquarie (C) - East
110054653	Lake Macquarie (C) - North
110054655	Lake Macquarie (C) - West
110055050	Maitland (C)
110055903	Newcastle (C) - Inner City
110055904	Newcastle (C) - Outer West
110055905	Newcastle (C) - Throsby
110056400	Port Stephens (A)
110102700	Dungog (A)

110103050	Gloucester (A)
110103400	Great Lakes (A)
110105650	Muswellbrook (A)
110107000	Singleton (A)
110107620	Upper Hunter Shire (A)
115054400	Kiama (A)
115056900	Shellharbour (C)
115058451	Wollongong (C) - Inner
115058454	Wollongong (C) Bal
115076951	Shoalhaven (C) - Pt A
115106952	Shoalhaven (C) - Pt B
115108350	Wingecarribee (A)
120057554	Tweed (A) - Tweed-Heads
120057556	Tweed (A) - Tweed Coast
120074851	Lismore (C) - Pt A
120100250	Ballina (A)
120101350	Byron (A)
120104550	Kyogle (A)
120104854	Lismore (C) - Pt B
120106611	Richmond Valley (A) - Casino
120106612	Richmond Valley (A) Bal
120107558	Tweed (A) - Pt B
125011801	Coffs Harbour (C) - Pt A
125036381	Port Macquarie-Hastings (A) - Pt A
125050600	Bellingen (A)
125051736	Clarence Valley (A) - Coast
125051737	Clarence Valley (A) - Grafton
125051738	Clarence Valley (A) Bal
125051804	Coffs Harbour (C) - Pt B
125055700	Nambucca (A)
125103350	Greater Taree (C)
125104350	Kempsey (A)
125106385	Port Macquarie-Hastings (A) - Pt B
125108859	Lord Howe Island
130057311	Tamworth Regional (A) - Pt A
130103550	Gunnedah (A)
130103660	Gwydir (A)
130104201	Inverell (A) - Pt A
130104920	Liverpool Plains (A)
130107314	Tamworth Regional (A) - Pt B
130150111	Armidale Dumaresq (A) - City
130150112	Armidale Dumaresq (A) Bal
130153010	Glen Innes Severn (A)
130153650	Guyra (A)

130154202	Inverell (A) - Pt B
130157400	Tenterfield (A)
130157650	Uralla (A)
130157850	Walcha (A)
130205300	Moree Plains (A)
130205750	Narrabri (A)
135012601	Dubbo (C) - Pt A
135052604	Dubbo (C) - Pt B
135052950	Gilgandra (A)
135055271	Mid-Western Regional (A) - Pt A
135055850	Narromine (A)
135058020	Warrumbungle Shire (A)
135058150	Wellington (A)
135100950	Bogan (A)
135102150	Coonamble (A)
135107900	Walgett (A)
135107950	Warren (A)
135151150	Bourke (A)
135151200	Brewarrina (A)
135151750	Cobar (A)
140030471	Bathurst Regional (A) - Pt A
140070473	Bathurst Regional (A) - Pt B
140070850	Blayney (A)
140071400	Cabonne (A)
140074870	Lithgow (C)
140075274	Mid-Western Regional (A) - Pt B
140076100	Oberon (A)
140150800	Bland (A)
140152350	Cowra (A)
140152900	Forbes (A)
140154600	Lachlan (A)
140156200	Parkes (A)
140158100	Weddin (A)
140206150	Orange (C)
145056181	Palerang (A) - Pt A
145056470	Queanbeyan (C)
145101050	Boorowa (A)
145103311	Goulburn Mulwaree (A) - Goulburn
145103314	Goulburn Mulwaree (A) Bal
145103700	Harden (A)
145106184	Palerang (A) - Pt B
145107640	Upper Lachlan Shire (A)
145108710	Yass Valley (A)
145108750	Young (A)

145150550	Bega Valley (A)
145152750	Eurobodalla (A)
145201000	Bombala (A)
145202050	Cooma-Monaro (A)
145207050	Snowy River (A)
150057751	Wagga Wagga (C) - Pt A
150102000	Coolamon (A)
150102200	Cootamundra (A)
150103500	Gundagai (A)
150104300	Junee (A)
150104950	Lockhart (A)
150105800	Narrandera (A)
150107350	Temora (A)
150107500	Tumut Shire (A)
150107754	Wagga Wagga (C) - Pt B
150151600	Carrathool (A)
150153450	Griffith (C)
150153850	Hay (A)
150154750	Leeton (A)
150155550	Murrumbidgee (A)
155050050	Albury (C)
155053371	Greater Hume Shire (A) - Pt A
155102300	Corowa Shire (A)
155103374	Greater Hume Shire (A) - Pt B
155107450	Tumbarumba (A)
155107700	Urana (A)
155150650	Berrigan (A)
155151860	Conargo (A)
155152500	Deniliquin (A)
155154250	Jerilderie (A)
155155500	Murray (A)
155157800	Wakool (A)
155200300	Balranald (A)
155208200	Wentworth (A)
160101250	Broken Hill (C)
160101700	Central Darling (A)
160108809	Unincorp. Far West
185019779	Off-Shore Areas and Migratory
205054601	Melbourne (C) - Inner
205054605	Melbourne (C) - S'bank-D'lands
205054608	Melbourne (C) - Remainder
205055901	Port Phillip (C) - St Kilda
205055902	Port Phillip (C) - West
205056351	Stonnington (C) - Prahran

205057351	Yarra (C) - North
205057352	Yarra (C) - Richmond
205101181	Brimbank (C) - Keilor
205101182	Brimbank (C) - Sunshine
205103111	Hobsons Bay (C) - Altona
205103112	Hobsons Bay (C) - Williamstown
205104330	Maribyrnong (C)
205105063	Moonee Valley (C) - Essendon
205105065	Moonee Valley (C) - West
205204651	Melton (S) - East
205204654	Melton (S) Bal
205207261	Wyndham (C) - North
205207264	Wyndham (C) - South
205207267	Wyndham (C) - West
205255251	Moreland (C) - Brunswick
205255252	Moreland (C) - Coburg
205255253	Moreland (C) - North
205300661	Banyule (C) - Heidelberg
205300662	Banyule (C) - North
205301891	Darebin (C) - Northcote
205301892	Darebin (C) - Preston
205353271	Hume (C) - Broadmeadows
205353274	Hume (C) - Craigieburn
205353275	Hume (C) - Sunbury
205405713	Nillumbik (S) - South
205405715	Nillumbik (S) - South-West
205405718	Nillumbik (S) Bal
205407071	Whittlesea (C) - North
205407075	Whittlesea (C) - South-East
205407076	Whittlesea (C) - South-West
205451111	Boroondara (C) - Camberwell N.
205451112	Boroondara (C) - Camberwell S.
205451113	Boroondara (C) - Hawthorn
205451114	Boroondara (C) - Kew
205504211	Manningham (C) - East
205504214	Manningham (C) - West
205504971	Monash (C) - South-West
205504974	Monash (C) - Waverley East
205504975	Monash (C) - Waverley West
205506981	Whitehorse (C) - Box Hill
205506984	Whitehorse (C) - Nunawading E.
205506985	Whitehorse (C) - Nunawading W.
205553672	Knox (C) - North-East
205553673	Knox (C) - North-West

205553674	Knox (C) - South
205554411	Maroondah (C) - Croydon
205554412	Maroondah (C) - Ringwood
205607451	Yarra Ranges (S) - Central
205607452	Yarra Ranges (S) - Dandenongs
205607453	Yarra Ranges (S) - Lilydale
205607454	Yarra Ranges (S) - North
205607456	Yarra Ranges (S) - Seville
205650911	Bayside (C) - Brighton
205650912	Bayside (C) - South
205652311	Glen Eira (C) - Caulfield
205652314	Glen Eira (C) - South
205653431	Kingston (C) - North
205653434	Kingston (C) - South
205656352	Stonnington (C) - Malvern
205752671	Gr. Dandenong (C) - Dandenong
205752674	Gr. Dandenong (C) Bal
205801452	Cardinia (S) - North
205801453	Cardinia (S) - Pakenham
205801454	Cardinia (S) - South
205801612	Casey (C) - Berwick
205801613	Casey (C) - Cranbourne
205801616	Casey (C) - Hallam
205801618	Casey (C) - South
205852171	Frankston (C) - East
205852174	Frankston (C) - West
205905341	Mornington P'sula (S) - East
205905344	Mornington P'sula (S) - South
205905345	Mornington P'sula (S) - West
210052751	Bellarine - Inner
210052752	Corio - Inner
210052753	Geelong
210052754	Geelong West
210052755	Newtown
210052756	South Barwon - Inner
210102757	Greater Geelong (C) - Pt B
210106080	Queenscliffe (B)
210106493	Surf Coast (S) - East
210106495	Surf Coast (S) - West
210151751	Colac-Otway (S) - Colac
210151754	Colac-Otway (S) - North
210151755	Colac-Otway (S) - South
210152491	Golden Plains (S) - North-West
210152492	Golden Plains (S) - South-East

210152758	Greater Geelong (C) - Pt C
215016730	Warrnambool (C)
215051831	Corangamite (S) - North
215051832	Corangamite (S) - South
215055491	Moyne (S) - North-East
215055493	Moyne (S) - North-West
215055496	Moyne (S) - South
215058469	Lady Julia Percy Island
215102411	Glenelg (S) - Heywood
215102412	Glenelg (S) - North
215102413	Glenelg (S) - Portland
215106261	S. Grampians (S) - Hamilton
215106264	S. Grampians (S) - Wannon
215106265	S. Grampians (S) Bal
220050571	Ballarat (C) - Central
220050572	Ballarat (C) - Inner North
220050573	Ballarat (C) - North
220050574	Ballarat (C) - South
220102911	Hepburn (S) - East
220102912	Hepburn (S) - West
220105151	Moorabool (S) - Bacchus Marsh
220105154	Moorabool (S) - Ballan
220105155	Moorabool (S) - West
220150260	Ararat (RC)
220155991	Pyrenees (S) - North
220155994	Pyrenees (S) - South
225053191	Horsham (RC) - Central
225053194	Horsham (RC) Bal
225055811	N. Grampians (S) - St Arnaud
225055814	N. Grampians (S) - Stawell
225056890	West Wimmera (S)
225102980	Hindmarsh (S)
225107631	Yarriambiack (S) - North
225107632	Yarriambiack (S) - South
230054781	Mildura (RC) - Pt A
230101271	Buloke (S) - North
230101272	Buloke (S) - South
230104782	Mildura (RC) - Pt B
230152250	Gannawarra (S)
230156611	Swan Hill (RC) - Central
230156614	Swan Hill (RC) - Robinvale
230156616	Swan Hill (RC) Bal
235052621	Gr. Bendigo (C) - Central
235052622	Gr. Bendigo (C) - Eaglehawk

235052623	Gr. Bendigo (C) - Inner East
235052624	Gr. Bendigo (C) - Inner North
235052625	Gr. Bendigo (C) - Inner West
235052626	Gr. Bendigo (C) - S'saye
235101671	C. Goldfields (S) - M'borough
235101674	C. Goldfields (S) Bal
235102628	Gr. Bendigo (C) - Pt B
235103943	Loddon (S) - North
235103945	Loddon (S) - South
235105431	Mount Alexander (S) - C'maine
235105434	Mount Alexander (S) Bal
235204131	Macedon Ranges (S) - Kyneton
235204134	Macedon Ranges (S) - Romsey
235204135	Macedon Ranges (S) Bal
240052831	Gr. Shepparton (C) - Pt A
240101371	Campaspe (S) - Echuca
240101374	Campaspe (S) - Kyabram
240101375	Campaspe (S) - Rochester
240101376	Campaspe (S) - South
240102834	Gr. Shepparton (C) - Pt B East
240102835	Gr. Shepparton (C) - Pt B West
240104901	Moira (S) - East
240104904	Moira (S) - West
240151011	Benalla (RC) - Benalla
240151014	Benalla (RC) Bal
240154250	Mansfield (S)
240156430	Strathbogie (S)
240158249	Mount Buller Alpine Resort
240158349	Mount Stirling Alpine Resort
240204851	Mitchell (S) - North
240204854	Mitchell (S) - South
240205621	Murrindindi (S) - East
240205622	Murrindindi (S) - West
240208149	Lake Mountain Alpine Resort
245053351	Indigo (S) - Pt A
245056671	Towong (S) - Pt A
245057170	Wodonga (RC)
245103352	Indigo (S) - Pt B
245106701	Wangaratta (RC) - Central
245106704	Wangaratta (RC) - North
245106705	Wangaratta (RC) - South
245150111	Alpine (S) - East
245150112	Alpine (S) - West
245156672	Towong (S) - Pt B

245158109	Falls Creek Alpine Resort
245158309	Mount Hotham Alpine Resort
250052111	E. Gippsland (S) - Bairnsdale
250052113	E. Gippsland (S) - Orbost
250052115	E. Gippsland (S) - South-West
250052117	E. Gippsland (S) Bal
250156811	Wellington (S) - Alberton
250156812	Wellington (S) - Avon
250156813	Wellington (S) - Maffra
250156814	Wellington (S) - Rosedale
250156815	Wellington (S) - Sale
255050831	Baw Baw (S) - Pt A
255053811	Latrobe (C) - Moe
255053814	Latrobe (C) - Morwell
255053815	Latrobe (C) - Traralgon
255053818	Latrobe (C) Bal
255100834	Baw Baw (S) - Pt B East
255100835	Baw Baw (S) - Pt B West
255107458	Yarra Ranges (S) - Pt B
255108209	Mount Baw Baw Alpine Resort
255200741	Bass Coast (S) - Phillip Is.
255200744	Bass Coast (S) Bal
255206171	South Gippsland (S) - Central
255206174	South Gippsland (S) - East
255206175	South Gippsland (S) - West
255208529	French Island
255208649	Bass Strait Islands
285019779	Off-Shore Areas and Migratory
305011067	Bowen Hills
305011143	City - Inner
305011146	City - Remainder
305011187	Dutton Park
305011227	Fortitude Valley
305011274	Herston
305011277	Highgate Hill
305011304	Kangaroo Point
305011315	Kelvin Grove
305011378	Milton
305011421	New Farm
305011427	Newstead
305011454	Paddington
305011481	Red Hill
305011525	South Brisbane
305011528	Spring Hill

305011607	West End
305011631	Woolloongabba
305031004	Albion
305031007	Alderley
305031026	Ascot
305031031	Ashgrove
305031048	Bardon
305031132	Chelmer
305031151	Clayfield
305031162	Corinda
305031206	Enoggera
305031241	Graceville
305031244	Grange
305031255	Hamilton
305031271	Hendra
305031293	Indooroopilly
305031312	Kedron
305031345	Lutwyche
305031424	Newmarket
305031446	Nundah
305031506	St Lucia
305031522	Sherwood
305031533	Stafford
305031536	Stafford Heights
305031558	Taringa
305031574	Toowong
305031618	Wilston
305031623	Windsor
305031634	Wooloowin
305071018	Anstead
305071034	Aspley
305071037	Bald Hills
305071045	Banyo
305071053	Bellbowrie
305071064	Boondall
305071072	Bracken Ridge
305071075	Bridgeman Downs
305071078	Brighton
305071084	Brookfield (incl. Brisbane Forest Park)
305071121	Carseldine
305071127	Chapel Hill
305071135	Chermside
305071138	Chermside West
305071167	Darra-Sumner

305071173	Deagon
305071176	Doolandella-Forest Lake
305071184	Durack
305071203	Ellen Grove
305071211	Everton Park
305071217	Ferny Grove
305071222	Fig Tree Pocket
305071236	Geebung
305071288	Inala
305071296	Jamboree Heights
305071301	Jindalee
305071306	Karana Downs-Lake Manchester
305071318	Kenmore
305071323	Kenmore Hills
305071326	Keperra
305071353	McDowall
305071375	Middle Park
305071383	Mitchelton
305071386	Moggill
305071408	Mount Ommaney
305071435	Northgate
305071442	Nudgee
305071451	Oxley
305071465	Pinjarra Hills
305071467	Pinkenba-Eagle Farm
305071473	Pullenvale
305071484	Richlands
305071487	Riverhills
305071514	Sandgate
305071517	Seventeen Mile Rocks
305071556	Taigum-Fitzgibbon
305071567	The Gap
305071585	Upper Kedron
305071593	Virginia
305071596	Wacol
305071604	Wavell Heights
305071612	Westlake
305071653	Zillmere
305091015	Annerley
305091042	Balmoral
305091086	Bulimba
305091097	Camp Hill
305091102	Cannon Hill
305091108	Carindale

305091113	Carina
305091116	Carina Heights
305091157	Coorparoo
305091195	East Brisbane
305091214	Fairfield
305091247	Greenslopes
305091258	Hawthorne
305091282	Holland Park
305091285	Holland Park West
305091391	Moorooka
305091397	Morningside
305091432	Norman Park
305091563	Tarragindi
305091645	Yeerongpilly
305091648	Yeronga
305111001	Acacia Ridge
305111012	Algester
305111023	Archerfield
305111057	Belmont-Mackenzie
305111091	Burbank
305111094	Calamvale
305111123	Chandler-Capalaba West
305111154	Coopers Plains
305111198	Eight Mile Plains
305111251	Gumdale-Ransome
305111265	Hemmant-Lytton
305111331	Kuraby
305111337	Lota
305111356	MacGregor
305111364	Manly
305111367	Manly West
305111372	Mansfield
305111394	Moreton Island
305111402	Mount Gravatt
305111405	Mount Gravatt East
305111413	Murarrie
305111416	Nathan
305111456	Pallara-Heathwood-Larapinta
305111463	Parkinson-Drewvale
305111492	Robertson
305111495	Rochedale
305111498	Rocklea
305111503	Runcorn
305111511	Salisbury

305111541	Stretton-Karawatha
305111547	Sunnybank
305111552	Sunnybank Hills
305111571	Tingalpa
305111588	Upper Mount Gravatt
305111601	Wakerley
305111615	Willawong
305111626	Wishart
305111637	Wynnum
305111642	Wynnum West
305205019	Bribie Island
305205021	Burpengary-Narangba
305205023	Caboolture Central
305205025	Caboolture East
305205027	Caboolture Hinterland
305205028	Caboolture Midwest
305205039	Deception Bay
305205056	Morayfield
305253962	Ipswich (C) - Central
305253965	Ipswich (C) - East
305253966	Ipswich (C) - North
305253971	Ipswich (C) - South-West
305253976	Ipswich (C) - West
305304595	Beenleigh
305304597	Bethania-Waterford
305304601	Browns Plains
305304603	Carbrook-Cornubia
305304605	Daisy Hill-Priestdale
305304606	Eagleby
305304607	Edens Landing-Holmview
305304608	Greenbank-Boronia Heights
305304611	Jimboomba-Logan Village
305304612	Kingston
305304615	Loganholme
305304618	Loganlea
305304623	Marsden
305304626	Mt Warren Park
305304627	Park Ridge-Logan Reserve
305304631	Rochedale South
305304634	Shailer Park
305304637	Slacks Creek
305304642	Springwood
305304645	Tanah Merah
305304651	Underwood

305304654	Waterford West
305304655	Wolffdene-Bahrs Scrub
305304656	Woodridge
305405013	Albany Creek
305405016	Bray Park
305405033	Central Pine West
305405037	Dakabin-Kallangur-M. Downs
305405043	Griffin-Mango Hill
305405047	Hills District
305405051	Lawnton
305405058	Petrie
305405067	Strathpine-Brendale
305405068	Moreton Bay (R) Bal
305455035	Clontarf
305455053	Margate-Woody Point
305455063	Redcliffe-Scarborough
305455065	Rothwell-Kippa-Ring
305506251	Alexandra Hills
305506254	Birkdale
305506257	Capalaba
305506262	Cleveland
305506264	Ormiston
305506265	Redland Bay
305506267	Sheldon-Mt Cotton
305506268	Thorneside
305506271	Thornlands
305506273	Victoria Point
305506276	Wellington Point
305506283	Redland (C) Bal
307103508	Biggera Waters-Labrador
307103511	Bilinga-Tugun
307103514	Broadbeach-Mermaid Beach
307103515	Broadbeach Waters
307103517	Bundall
307103521	Burleigh Heads
307103523	Burleigh Waters
307103527	Coolangatta
307103533	Currumbin
307103555	Main Beach-South Stradbroke
307103562	Mermaid Wtrs-Clear Is. Wtrs
307103563	Miami
307103573	Palm Beach
307103576	Paradise Point-Runaway Bay
307103585	Southport

307103587	Surfers Paradise
307153502	Ashmore-Benowa
307153525	Carrara-Merrimac
307153531	Coombabah
307153534	Currumbin Valley-Tallebudgera
307153535	Currumbin Waters
307153537	Elanora
307153543	Helensvale
307153547	Hope Island
307153552	Jacobs Well-Alberton
307153556	Kingsholme-Upper Coomera
307153564	Molendinar
307153566	Mudgeeraba-Reedy Creek
307153567	Nerang
307153568	Oxenford-Maudsland
307153572	Pacific Pines-Gaven
307153574	Ormeau-Yatala
307153578	Parkwood-Arundel
307153581	Pimpama-Coomera
307153582	Robina
307153592	Varsity Lakes
307153593	Worongary-Tallai
307203538	Guanaba-Springbrook
309056713	Buderim
309056718	Caloundra North
309056721	Caloundra South
309056723	Coolum-Mudjimba
309056728	Kawana
309056738	Maroochydore
309056744	Mooloolaba
309056748	Nambour
309056755	Noosa-Noosaville
309056761	Paynter-Petrie Creek
309056763	Sunshine-Peregian
309056772	Tewantin
309106716	Caloundra Hinterland
309106725	Glass House Country
309106733	Maroochy Hinterland
309106753	Noosa Hinterland
312056582	Somerset (R) - Esk
312056584	Somerset (R) - Kilcoy
312104582	Lockyer Valley (R) - Gatton
312104584	Lockyer Valley (R) - Laidley
312106512	Scenic Rim (R) - Beaudesert

312106514	Scenic Rim (R) - Boonah
312106516	Scenic Rim (R) - Tamborine-Canungra
315051822	Bundaberg (R) - Bundaberg
315051824	Bundaberg (R) - Burnett Pt A
315073222	Fraser Coast (R) - Hervey Bay Pt A
315101825	Bundaberg (R) - Burnett Pt B
315101827	Bundaberg (R) - Isis
315101828	Bundaberg (R) - Kolan
315102330	Cherbourg (S)
315103223	Fraser Coast (R) - Hervey Bay Pt B
315103225	Fraser Coast (R) - Maryborough
315103227	Fraser Coast (R) - Woocoo-Tiaro
315103622	Gympie (R) - Cooloola
315103624	Gympie (R) - Gympie
315103626	Gympie (R) - Kilkivan
315105761	North Burnett (R) - Biggenden
315105762	North Burnett (R) - Eidsvold
315105763	North Burnett (R) - Gayndah
315105764	North Burnett (R) - Monto
315105765	North Burnett (R) - Mundubbera
315105766	North Burnett (R) - Perry
315106632	South Burnett (R) - Kingaroy
315106634	South Burnett (R) - Murgon
315106636	South Burnett (R) - Nanango
315106638	South Burnett (R) - Wondai
320016912	Cambooya
320016921	Gowrie
320016926	Highfields
320016937	Toowoomba Central
320016941	Toowoomba North-East
320016943	Toowoomba North-West
320016945	Toowoomba South-East
320016946	Toowoomba West
320016947	Westbrook
320052662	Dalby (R) - Chinchilla
320052663	Dalby (R) - Dalby
320052665	Dalby (R) - Murilla-Wandoan
320052666	Dalby (R) - Tara
320052668	Dalby (R) - Wambo
320053612	Goondiwindi (R) - Goondiwindi
320053614	Goondiwindi (R) - Inglewood
320053616	Goondiwindi (R) - Waggamba
320056662	Southern Downs (R) - Allora
320056665	Southern Downs (R) - Killarney

320056666	Southern Downs (R) - Stanthorpe
320056667	Southern Downs (R) - Warwick
320056668	Southern Downs (R) - West
320056914	Clifton
320056916	Crow's Nest
320056923	Greenmount
320056928	Jondaryan
320056931	Millmerran
320056933	Pittsworth
320056935	Rosalie
325050300	Balonne (S)
325051750	Bulloo (S)
325055600	Murweh (S)
325055800	Paroo (S)
325056150	Quilpie (S)
325056412	Roma (R) - Bendemere
325056414	Roma (R) - Booringa
325056415	Roma (R) - Bungil
325056417	Roma (R) - Roma
325056418	Roma (R) - Warroo
330056362	Rockhampton (R) - Fitzroy Pt A
330056365	Rockhampton (R) - Livingstone Pt A
330056368	Rockhampton (R) - Rockhampton
330103362	Gladstone (R) - Calliope Pt A
330103366	Gladstone (R) - Gladstone
330150370	Banana (S)
330152272	Central Highlands (R) - Bauhinia
330152274	Central Highlands (R) - Duaringa
330152276	Central Highlands (R) - Emerald
330152278	Central Highlands (R) - Peak Downs
330153364	Gladstone (R) - Calliope Pt B
330153368	Gladstone (R) - Miriam Vale
330156363	Rockhampton (R) - Fitzroy Pt B
330156366	Rockhampton (R) - Livingstone Pt B
330156367	Rockhampton (R) - Mount Morgan
330157550	Woorabinda (S)
335050412	Barcaldine (R) - Aramac
335050416	Barcaldine (R) - Barcaldine
335050418	Barcaldine (R) - Jericho
335050450	Barcoo (S)
335050762	Blackall Tambo (R) - Blackall
335050765	Blackall Tambo (R) - Tambo
335050900	Boulia (S)
335052750	Diamantina (S)

335054712	Longreach (R) - Ilfracombe
335054714	Longreach (R) - Isisford
335054716	Longreach (R) - Longreach
335057400	Winton (S)
340054772	Mackay (R) - Mackay Pt A
340103982	Isaac (R) - Belyando
340103984	Isaac (R) - Broadsound
340103986	Isaac (R) - Nebo
340104773	Mackay (R) - Mackay Pt B
340104775	Mackay (R) - Mirani
340104777	Mackay (R) - Sarina
340107342	Whitsunday (R) - Bowen
340107345	Whitsunday (R) - Whitsunday
345057001	Aitkenvale
345057003	City
345057007	Cranbrook
345057012	Currajong
345057014	Douglas
345057015	Garbutt
345057018	Gulliver
345057023	Heatley
345057026	Hermit Park
345057027	Hyde Park-Mysterton
345057031	Magnetic Island
345057033	Mt Louisa-Mt St John-Bohle
345057034	Mundingburra
345057038	Murray
345057041	North Ward-Castle Hill
345057044	Oonoonba-Idalia-Cluden
345057047	Pallarenda-Shelley Beach
345057051	Pimlico
345057054	Railway Estate
345057058	Rosslea
345057062	Rowes Bay-Belgian Gardens
345057065	South Townsville
345057068	Stuart-Roseneath
345057071	Vincent
345057074	West End
345057078	Wulguru
345107005	Condon-Rasmussen-Bohle Basin
345107028	Kelso
345107030	Kirwan
345151900	Burdekin (S)
345152312	Charters Towers (R) - Charters Towers

345152314	Charters Towers (R) - Dalrymple
345153800	Hinchinbrook (S)
345155790	Palm Island (S)
345157043	Northern Beaches-Pinnacles
345157076	Woodstock-Cleveland-Ross
350052062	Cairns (R) - Barron
350052065	Cairns (R) - Central Suburbs
350052066	Cairns (R) - City
350052068	Cairns (R) - Mt Whitfield
350052072	Cairns (R) - Northern Suburbs
350052074	Cairns (R) - Trinity
350052076	Cairns (R) - Western Suburbs
350100250	Aurukun (S)
350102067	Cairns (R) - Douglas
350102078	Cairns (R) - Pt B
350102262	Cassowary Coast (R) - Cardwell
350102264	Cassowary Coast (R) - Johnstone
350102500	Cook (S)
350102600	Croydon (S)
350103100	Etheridge (S)
350103830	Hope Vale (S)
350104420	Kowanyama (S)
350104570	Lockhart River (S)
350104830	Mapoon (S)
350105670	Napranum (S)
350105781	Northern Peninsula Area (R) - Bamaga
350105783	Northern Peninsula Area (R) - Injinoo
350105784	Northern Peninsula Area (R) - New Mapoon
350105786	Northern Peninsula Area (R) - Seisia
350105788	Northern Peninsula Area (R) - Umagico
350106070	Pormpuraaw (S)
350106812	Tablelands (R) - Atherton
350106814	Tablelands (R) - Eacham
350106816	Tablelands (R) - Herberton
350106818	Tablelands (R) - Mareeba
350106950	Torres (S)
350106963	Torres Strait Island (R) - Badu
350106965	Torres Strait Island (R) - Boigu
350106968	Torres Strait Island (R) - Dauan
350106972	Torres Strait Island (R) - Erub
350106974	Torres Strait Island (R) - Hammond
350106976	Torres Strait Island (R) - Iama
350106978	Torres Strait Island (R) - Kubin
350106982	Torres Strait Island (R) - Mabuiag

350106984	Torres Strait Island (R) - Mer
350106986	Torres Strait Island (R) - Poruma
350106992	Torres Strait Island (R) - Saibai
350106993	Torres Strait Island (R) - St Pauls
350106995	Torres Strait Island (R) - Ugar
350106996	Torres Strait Island (R) - Warraber
350106998	Torres Strait Island (R) - Yorke
350107300	Weipa (T)
350107570	Wujal Wujal (S)
350107600	Yarrabah (S)
355051950	Burke (S)
355052250	Carpentaria (S)
355052450	Cloncurry (S)
355052770	Doomadgee (S)
355053200	Flinders (S)
355054800	McKinlay (S)
355055250	Mornington (S)
355055300	Mount Isa (C)
355056300	Richmond (S)
385019779	Off-Shore Areas and Migratory
405052030	Gawler (T)
405055681	Playford (C) - East Central
405055683	Playford (C) - Elizabeth
405055684	Playford (C) - Hills
405055686	Playford (C) - West
405055688	Playford (C) - West Central
405055891	Port Adel. Enfield (C) - East
405055894	Port Adel. Enfield (C) - Inner
405057141	Salisbury (C) - Central
405057143	Salisbury (C) - Inner North
405057144	Salisbury (C) - North-East
405057146	Salisbury (C) - South-East
405057148	Salisbury (C) Bal
405057701	Tea Tree Gully (C) - Central
405057704	Tea Tree Gully (C) - Hills
405057705	Tea Tree Gully (C) - North
405057708	Tea Tree Gully (C) - South
405101061	Charles Sturt (C) - Coastal
405101064	Charles Sturt (C) - Inner East
405101065	Charles Sturt (C) - Inner West
405101068	Charles Sturt (C) - North-East
405105895	Port Adel. Enfield (C) - Coast
405105896	Port Adel. Enfield (C) - Park
405105897	Port Adel. Enfield (C) - Port

405108411	West Torrens (C) - East
405108414	West Torrens (C) - West
405108899	Unincorp. Western
405150070	Adelaide (C)
405150121	Adelaide Hills (DC) - Central
405150124	Adelaide Hills (DC) - Ranges
405150701	Burnside (C) - North-East
405150704	Burnside (C) - South-West
405150911	Campbelltown (C) - East
405150914	Campbelltown (C) - West
405155291	Norw. P'ham St Ptrs (C) - East
405155294	Norw. P'ham St Ptrs (C) - West
405156510	Prospect (C)
405157981	Unley (C) - East
405157984	Unley (C) - West
405158260	Walkerville (M)
405202601	Holdfast Bay (C) - North
405202604	Holdfast Bay (C) - South
405204061	Marion (C) - Central
405204064	Marion (C) - North
405204065	Marion (C) - South
405204341	Mitcham (C) - Hills
405204344	Mitcham (C) - North-East
405204345	Mitcham (C) - West
405205341	Onkaparinga (C) - Hackham
405205342	Onkaparinga (C) - Hills
405205343	Onkaparinga (C) - Morphett
405205344	Onkaparinga (C) - North Coast
405205345	Onkaparinga (C) - Reservoir
405205346	Onkaparinga (C) - South Coast
405205347	Onkaparinga (C) - Woodcroft
410050311	Barossa (DC) - Angaston
410050314	Barossa (DC) - Barossa
410050315	Barossa (DC) - Tanunda
410053650	Light (RegC)
410053920	Mallala (DC)
410102750	Kangaroo Island (DC)
410150125	Adelaide Hills (DC) - North
410150128	Adelaide Hills (DC) Bal
410154551	Mount Barker (DC) - Central
410154554	Mount Barker (DC) Bal
410200221	Alexandrina (DC) - Coastal
410200224	Alexandrina (DC) - Strathalbyn
410208050	Victor Harbor (C)

410208750	Yankalilla (DC)
415050430	Barunga West (DC)
415051560	Copper Coast (DC)
415058831	Yorke Peninsula (DC) - North
415058834	Yorke Peninsula (DC) - South
415058969	Unincorp. Yorke
415101140	Clare and Gilbert Valleys (DC)
415102110	Goyder (DC)
415108130	Wakefield (DC)
420050521	Berri and Barmera (DC) - Barmera
420050524	Berri and Barmera (DC) - Berri
420053791	Loxton Waikerie (DC) - East
420053794	Loxton Waikerie (DC) - West
420054210	Mid Murray (DC)
420056671	Renmark Paringa (DC) - Paringa
420056674	Renmark Paringa (DC) - Renmark
420059039	Unincorp. Riverland
420103080	Karoonda East Murray (DC)
420105040	Murray Bridge (RC)
420107290	Southern Mallee (DC)
420107800	The Coorong (DC)
420109109	Unincorp. Murray Mallee
425053360	Kingston (DC)
425055090	Naracoorte and Lucindale (DC)
425056860	Robe (DC)
425057630	Tatiara (DC)
425102250	Grant (DC)
425104620	Mount Gambier (C)
425108341	Wattle Range (DC) - East
425108344	Wattle Range (DC) - West
430051190	Cleve (DC)
430051750	Elliston (DC)
430051960	Franklin Harbour (DC)
430053220	Kimba (DC)
430053570	Le Hunte (DC)
430053710	Lower Eyre Peninsula (DC)
430056300	Port Lincoln (C)
430057910	Tumby Bay (DC)
430059179	Unincorp. Lincoln
430101010	Ceduna (DC)
430107490	Streaky Bay (DC)
430109249	Unincorp. West Coast
435058540	Whyalla (C)
435059389	Unincorp. Whyalla

435155120	Northern Areas (DC)
435155400	Orroroo/Carrieton (DC)
435155540	Peterborough (DC)
435156451	Port Pirie C Dists (M) - City
435156454	Port Pirie C Dists (M) Bal
435159459	Unincorp. Pirie
435201830	Flinders Ranges (DC)
435204830	Mount Remarkable (DC)
435206090	Port Augusta (C)
435209529	Unincorp. Flinders Ranges
435250250	Anangu Pitjantjatjara (AC)
435251330	Coober Pedy (DC)
435254000	Maralinga Tjarutja (AC)
435256970	Roxby Downs (M)
435259589	Unincorp. Far North
485019779	Off-Shore Areas & Migratory
505051310	Cambridge (T)
505051750	Claremont (T)
505052170	Cottesloe (T)
505055740	Mosman Park (T)
505056580	Nedlands (C)
505056930	Peppermint Grove (S)
505057081	Perth (C) - Inner
505057082	Perth (C) - Remainder
505057980	Subiaco (C)
505058570	Vincent (T)
505100350	Bassendean (T)
505100420	Bayswater (C)
505104200	Kalamunda (S)
505106090	Mundaring (S)
505108050	Swan (C)
505154171	Joondalup (C) - North
505154174	Joondalup (C) - South
505157914	Stirling (C) - Central
505157915	Stirling (C) - Coastal
505157916	Stirling (C) - South-Eastern
505158761	Wanneroo (C) - North-East
505158764	Wanneroo (C) - North-West
505158767	Wanneroo (C) - South
505201820	Cockburn (C)
505203150	East Fremantle (T)
505203431	Fremantle (C) - Inner
505203432	Fremantle (C) - Remainder
505204830	Kwinana (T)

505205320	Melville (C)
505207490	Rockingham (C)
505250210	Armadale (C)
505250490	Belmont (C)
505251330	Canning (C)
505253780	Gosnells (C)
505257700	Serpentine-Jarrahdale (S)
505257840	South Perth (C)
505258510	Victoria Park (T)
510015110	Mandurah (C)
510016230	Murray (S)
510031190	Bunbury (C)
510031401	Capel (S) - Pt A
510032661	Dardanup (S) - Pt A
510033991	Harvey (S) - Pt A
510100630	Boddington (S)
510101404	Capel (S) - Pt B
510101890	Collie (S)
510102664	Dardanup (S) - Pt B
510102870	Donnybrook-Balingup (S)
510103994	Harvey (S) - Pt B
510108820	Waroona (S)
510150280	Augusta-Margaret River (S)
510151260	Busselton (S)
510200770	Boyup Brook (S)
510200840	Bridgetown-Greenbushes (S)
510205180	Manjimup (S)
510206300	Nannup (S)
515051080	Broomehill-Tambellup (S)
515053640	Gnowangerup (S)
515054130	Jerramungup (S)
515054340	Katanning (S)
515054480	Kent (S)
515054550	Kojonup (S)
515059380	Woodanilling (S)
515100081	Albany (C) - Central
515100084	Albany (C) Bal
515102240	Cranbrook (S)
515102730	Denmark (S)
515107210	Plantagenet (S)
520050910	Brookton (S)
520052310	Cuballing (S)
520053010	Dumbleyung (S)
520056440	Narrogin (T)

520056510	Narrogin (S)
520057140	Pingelly (S)
520058610	Wagin (S)
520058680	Wandering (S)
520058890	West Arthur (S)
520059100	Wickepin (S)
520059170	Williams (S)
520102100	Corrigin (S)
520104620	Kondinin (S)
520104760	Kulin (S)
520104900	Lake Grace (S)
525051680	Chittering (S)
525052590	Dandaragan (S)
525053570	Gingin (S)
525055600	Moora (S)
525058540	Victoria Plains (S)
525100560	Beverley (S)
525102450	Cunderdin (S)
525102520	Dalwallinu (S)
525102940	Dowerin (S)
525103710	Goomalling (S)
525104690	Koorda (S)
525106732	Northam
525106735	Northam Town
525107350	Quairading (S)
525108190	Tammin (S)
525108330	Toodyay (S)
525109310	Wongan-Ballidu (S)
525109450	Wyalkatchem (S)
525109730	York (S)
525151120	Bruce Rock (S)
525154410	Kellerberrin (S)
525155460	Merredin (S)
525155880	Mount Marshall (S)
525155950	Mukinbudin (S)
525156370	Narembeen (S)
525156860	Nungarin (S)
525158400	Trayning (S)
525159030	Westonia (S)
525159660	Yilgarn (S)
530014281	Kalgoorlie/Boulder (C) - Pt A
530051960	Coolgardie (S)
530054284	Kalgoorlie/Boulder (C) - Pt B
530054970	Laverton (S)

530055040	Leonora (S)
530055390	Menzies (S)
530056620	Ngaanyatjarraku (S)
530103080	Dundas (S)
530103290	Esperance (S)
530107420	Ravensthorpe (S)
535033522	Geraldton
535033524	Greenough - Pt A
535051540	Carnarvon (S)
535053360	Exmouth (S)
535057770	Shark Bay (S)
535058470	Upper Gascoyne (S)
535102380	Cue (S)
535105250	Meekatharra (S)
535105810	Mount Magnet (S)
535106160	Murchison (S)
535107630	Sandstone (S)
535109250	Wiluna (S)
535109590	Yalgoo (S)
535151470	Carnamah (S)
535151610	Chapman Valley (S)
535152030	Coorow (S)
535153526	Greenough - Pt B
535154060	Irwin (S)
535155530	Mingenew (S)
535155670	Morawa (S)
535156020	Mullewa (S)
535156790	Northampton (S)
535157000	Perenjori (S)
535158260	Three Springs (S)
540053220	East Pilbara (S)
540057280	Port Hedland (T)
540100250	Ashburton (S)
540107560	Roebourne (S)
545053920	Halls Creek (S)
545059520	Wyndham-East Kimberley (S)
545100980	Broome (S)
545102800	Derby-West Kimberley (S)
585019779	Off-Shore Areas & Migratory
605050410	Brighton (M)
605051410	Clarence (C)
605051511	Derwent Valley (M) - Pt A
605052610	Glenorchy (C)
605052811	Hobart (C) - Inner

605052812	Hobart (C) - Remainder
605053611	Kingborough (M) - Pt A
605054811	Sorell (M) - Pt A
610051010	Central Highlands (M)
610051512	Derwent Valley (M) - Pt B
610052410	Glamorgan/Spring Bay (M)
610053010	Huon Valley (M)
610053612	Kingborough (M) - Pt B
610054812	Sorell (M) - Pt B
610055010	Southern Midlands (M)
610055210	Tasman (M)
615052211	George Town (M) - Pt A
615054011	Launceston (C) - Inner
615054012	Launceston (C) - Pt B
615054211	Meander Valley (M) - Pt A
615054611	Northern Midlands (M) - Pt A
615055811	West Tamar (M) - Pt A
615102212	George Town (M) - Pt B
615104013	Launceston (C) - Pt C
615104212	Meander Valley (M) - Pt B
615104612	Northern Midlands (M) - Pt B
615105812	West Tamar (M) - Pt B
615150210	Break O'Day (M)
615151810	Dorset (M)
615152010	Flinders (M)
620050611	Burnie (C) - Pt A
620050811	Central Coast (M) - Pt A
620051610	Devonport (C)
620053811	Latrobe (M) - Pt A
620055411	Waratah/Wynyard (M) - Pt A
620100612	Burnie (C) - Pt B
620100812	Central Coast (M) - Pt B
620101210	Circular Head (M)
620103210	Kentish (M)
620103410	King Island (M)
620103812	Latrobe (M) - Pt B
620105412	Waratah/Wynyard (M) - Pt B
620155610	West Coast (M)
685019779	Off-Shore Areas & Migratory
705051004	Alawa
705051008	Anula
705051011	Bayview-Woolner
705051014	Brinkin
705051018	City - Inner

705051024	Coconut Grove
705051028	Fannie Bay
705051034	Jingili
705051038	Karama
705051044	Larrakeyah
705051048	Leanyer
705051052	Lee Point-Leanyer Swamp
705051054	Ludmilla
705051058	Malak
705051064	Marrara
705051068	Millner
705051074	Moil
705051078	Nakara
705051084	Narrows
705051088	Nightcliff
705051094	Parap
705051098	Rapid Creek
705051104	Stuart Park
705051108	The Gardens
705051114	Tiwi
705051118	Wagaman
705051124	Wanguri
705051128	Winnellie
705051134	Wulagi
705051138	City - Remainder
705101169	East Arm
705102802	Bakewell
705102804	Driver
705102806	Durack
705102808	Gray
705102811	Gunn-Palmerston City
705102814	Moulden
705102818	Woodroffe
705102824	Palmerston (C) Bal
705202304	Litchfield (S) - Pt A
705202308	Litchfield (S) - Pt B
710050540	Belyuen (S)
710050700	Coomalie (S)
710051509	Finniss-Mary
710054560	Wagait (S)
710104050	Tiwi Islands (S)
710154663	West Arnhem (S) - Jabiru
710154666	West Arnhem (S) Bal
710250419	Alyangula

710251300	East Arnhem (S)
710252409	Nhulunbuy
710302200	Katherine (T)
710303600	Roper Gulf (S)
710304505	Victoria-Daly (S) - Wadeye and OS
710304508	Victoria-Daly (S) Bal
710350422	Barkly (S) - Tennant Creek
710350425	Barkly (S) Bal
710400201	Alice Springs (T) - Charles
710400203	Alice Springs (T) - Heavitree
710400205	Alice Springs (T) - Larapinta
710400207	Alice Springs (T) - Ross
710400208	Alice Springs (T) - Stuart
710400620	Central Desert (S)
710402330	MacDonnell (S)
710406059	Yulara
785019779	Off-Shore Areas & Migratory
805050089	Acton
805050189	Ainslie
805050639	Braddon
805050909	Campbell
805051449	City
805051889	Dickson
805051989	Downer
805052169	Duntroon
805053609	Hackett
805055049	Kowen
805055229	Lyneham
805055769	Majura
805056389	O'Connor
805057209	Reid
805057479	Russell
805058289	Turner
805058559	Watson
805100279	Aranda
805100459	Belconnen Town Centre
805100549	Belconnen - SSD Bal
805100729	Bruce
805101179	Charnwood
805101629	Cook
805102139	Dunlop
805102259	Evatt
805102619	Florey
805102709	Flynn

805102889	Fraser
805103249	Giralang
805103879	Hawker
805103969	Higgins
805104149	Holt
805104779	Kaleen
805105139	Latham
805105409	McKellar
805105589	Macgregor
805105679	Macquarie
805105949	Melba
805106669	Page
805107569	Scullin
805107659	Spence
805108649	Weetangera
805151269	Chifley
805151719	Curtin
805152439	Farrer
805153069	Garran
805154239	Hughes
805154419	Isaacs
805155319	Lyons
805155859	Mawson
805156489	O'Malley
805156849	Pearce
805156939	Phillip
805158109	Torrens
805201089	Chapman
805202079	Duffy
805202529	Fisher
805204059	Holder
805207389	Rivett
805207749	Stirling
805207839	Stromlo
805208469	Waramanga
805208739	Weston
805208829	Weston Creek-Stromlo - SSD Bal
805250339	Banks
805250609	Bonython
805250819	Calwell
805251359	Chisholm
805251549	Conder
805252349	Fadden
805253159	Gilmore

805253289	Gordon
805253339	Gowrie
805253379	Greenway
805254509	Isabella Plains
805254869	Kambah
805255489	Macarthur
805256129	Monash
805256579	Oxley
805257289	Richardson
805258019	Theodore
805258189	Tuggeranong - SSD Bal
805258379	Wanniassa
805350369	Barton
805351809	Deakin
805352789	Forrest
805352979	Fyshwick
805353429	Griffith
805353789	Harman
805354329	Hume
805354589	Jerrabomberra
805354959	Kingston
805356219	Narrabundah
805356309	Oaks Estate
805356759	Parkes
805357029	Pialligo
805357119	Red Hill
805357929	Symonston
805358919	Yarralumla
805400239	Amaroo
805400589	Bonner
805400939	Casey
805401649	Crace
805402779	Forde
805402919	Franklin
805403519	Gungahlin
805403529	Gungahlin-Hall - SSD Bal
805403689	Hall
805403819	Harrison
805406039	Mitchell
805406249	Ngunnawal
805406279	Nicholls
805406719	Palmerston
810059009	Remainder of ACT
910051009	Jervis Bay Territory

910052009	Territory of Christmas Island
910053009	Territory of Cocos (Keeling) Islands
985019779	Off-Shore Areas & Migratory

Birthdate Verification

1004	Birth certificate
1006	Hospital certificate
1008	Passport
1009	Physician's certificate
1010	Previously verified school records
1011	State-issued ID
1012	Driver's license
1013	Immigration document/visa
3423	Other official document
3424	Other non-official document
9999	Other
N	Birthdate NOT Verified
Y	Documentation Sighted, type not recorded

Calendar Event

A code indicating the type of school day

0845	Teacher only day
0846	Holiday
0848	Student late arrival/early dismissal
0849	Emergency day
3421	Strike
9999	Other
INST	Instructional School Day
MKUP	Instructional day that is scheduled solely to make up for emergency days or early dismissal days.

Day Value Code

AM	Morning
Full	All Day
N/A	Not Applicable
Partial	Partial Day
PM	Afternoon

Dwelling Arrangement

1669	Boarding house
1670	Cooperative house
1671	Crisis shelter

1672	Disaster shelter
1673	Residential school/dormitory
1674	Family residence - Both Parents/Guardians
1675	Foster home
1676	Institution
1677	Prison or juvenile detention center
1678	Rooming house
1679	Transient shelter
167I	Independent
167o	Family residence - One Parent/Guardian
1680	No home (Homeless Youth)
1681	Other dormitory
168A	Arranged by State - Out of Home Care
3425	Group home/halfway house
4000	Boarder
9999	Other

Education Agency Type

01	Jurisdictional agency
02	Cross-jurisdictional agency
03	Intra-jurisdictional agency
99	Other

Electronic Id Type

01	Barcode
02	Magstripe
03	PIN
04	RFID

Email Type

01	Primary
02	Alternate 1
03	Alternate 2
04	Alternate 3
05	Alternate 4

Employment Type

1	Senior management in large business organisation, government administration and defence and qualified professionals.
2	Other business manages, arts/media/sportspersons and associate professionals
3	Tradsesmen/women, clerks and skilled office, sales and service staff
4	Machine Operators, hospitality staff, assistants, labourers and related workers

| 8 | Out of employed work for 12 months or more (If less use previous occupational group.) |
| 9 | Unknown |

English Proficiency

0	Not Stated/Inadequately described
1	Very well
2	Well
3	Not well
4	Not at all
9	Not Applicable - English is 'first language spoken' and do not 'speak a language other than English at home'.

Enrollment Time Frame

C	Current
F	Future
H	Historical

Entry Type

0998	Temporary enrolment
1821	Transfer from a public school in the same district
1822	Transfer from a public school in a different district in the same jurisdiction
1823	Transfer from a public school in a different jurisdication
1824	Transfer from a private, non-religiously-affiliated school in the same district
1825	Transfer from a private, non-religiously-affiliated school in a different district
1826	Transfer from a private, non-religiously-affiliated school in a different jurisdiction
1827	Transfer from a private, religiously-affiliated school in the same district
1828	Transfer from a private, religiously-affiliated school in a different district in the same jurisdiction
1829	Transfer from a private, religiously-affiliated school in a different jurisdiction
1830	Transfer from a school outside of the country
1831	Transfer from an institution
1833	Transfer from home schooling
1835	Re-entry from the same school with no interruption of schooling
1836	Re-entry after a voluntary withdrawal
1837	Re-entry after an involuntary withdrawal
1838	Original entry into an Australian school
1839	Original entry into an Australian school from a foreign country with no interruption in schooling
1840	Original entry into an Australian school from a foreign country with an interruption in schooling
9999	Other

Exit/Withdrawal Status

| 1905 | Permanent exit/withdrawal |
| 1906 | Temporary exit/withdrawal |

9999	Unknown

Exit/Withdrawal Type

1907	Student is in a different public school in the same district
1908	Transferred to a public school in a different local education agency in the same jurisdiction
1909	Transferred to a public school in a different jurisdiction
1910	Transferred to a private, non-religiously-affiliated school in the district
1911	Transferred to a private, non-religiously-affiliated school in a different district the same jurisdiction
1912	Transferred to a private, non-religiously-affiliated school in a different jurisdiction
1913	Transferred to a private, religiously-affiliated school in the same district
1914	Transferred to a private, religiously-affiliated school in a different district in the same jurisdiction
1915	Transferred to a private, religiously-affiliated school in a different jurisdiction
1916	Transferred to a school outside of the country
1917	Transferred to an institution
1918	Transferred to home schooling
1919	Transferred to a charter school
1921	Graduated with regular, advanced, International Baccalaureate, or other type of diploma
1922	Completed school with other credentials
1923	Died or is permanently incapacitated
1924	Withdrawn due to illness
1925	Expelled or involuntarily withdrawn
1926	Reached maximum age for services
1927	Discontinued schooling
1928	Completed grade 12, but did not meet all graduation requirements
1930	Enrolled in a postsecondary early admission program, eligible to return
1931	Not enrolled, unknown status
3499	Student is in the same local education agency and receiving education services, but is not assigned
3500	Enrolled in an adult education or training program
3501	Completed a state-recognized vocational education program
3502	Not enrolled, eligible to return
3503	Enrolled in a foreign exchange program, eligible to return
3504	Withdrawn from school, under the age for compulsory attendance; eligible to return
3505	Exited
3509	Completed with a state-recognized equivalency certificate
9999	Other

Federal Electorate

Federal Electorates from the Australian Electoral Commission

101	Banks
102	Barton
103	Bennelong
104	Berowra

105	Blaxland
106	Bradfield
107	Calare
108	Charlton
109	Chifley
110	Cook
111	Cowper
112	Cunningham
113	Dobell
114	Eden-Monaro
115	Farrer
116	Fowler
117	Gilmore
118	Grayndler
119	Greenway
120	Gwydir
121	Hughes
122	Hume
123	Hunter
124	Kingsford Smith
125	Lindsay
126	Lowe
127	Lyne
128	Macarthur
129	Mackellar
130	Macquarie
131	itchell
132	New England
133	Newcastle
134	North Sydney
135	Page
136	Parkes
137	Parramatta
138	Paterson
139	Prospect
140	Reid
141	Richmond
142	Riverina
143	Robertson
144	Shortland
145	Sydney
146	Throsby
147	Warringah
148	Watson

149	Wentworth
150	Werriwa
199	Not Applicable (NSW)
201	Aston
202	Ballarat
203	Batman
204	Bendigo
205	Bruce
206	Calwell
207	Casey
208	Chisholm
209	Corangamite
210	Corio
211	Deakin
212	Dunkley
213	Flinders
214	Gellibrand
215	Gippsland
216	Goldstein
217	Gorton
218	Higgins
219	Holt
220	Hotham
221	Indi
222	Isaacs
223	Jagajaga
224	Kooyong
225	La Trobe
226	Lalor
227	Mallee
228	Maribyrnong
229	McEwen
230	McMillan
231	Melbourne
232	Melbourne Ports
233	Menzies
234	Murray
235	Scullin
236	Wannon
237	Wills
299	Not Applicable (VIC)
301	Blair
302	Bonner
303	Bowman

304	Brisbane
305	Capricornia
306	Dawson
307	Dickson
308	Fadden
309	Fairfax
310	Fisher
311	Forde
312	Griffith
313	Groom
314	Herbert
315	Hinkler
316	Kennedy
317	Leichhardt
318	Lilley
319	Longman
320	Maranoa
321	McPherson
322	Moncrieff
323	Moreton
324	Oxley
325	Petrie
326	Rankin
327	Ryan
328	Wide Bay
399	Not Applicable (QLD)
401	Adelaide
402	Barker
403	Boothby
404	Grey
405	Hindmarsh
406	Kingston
407	Makin
408	Mayo
409	Port Adelaide
410	Sturt
411	Wakefield
499	Not Applicable (SA)
501	Brand
502	Canning
503	Cowan
504	Curtin
505	Forrest
506	Fremantle

507	Hasluck
508	Kalgoorlie
509	Moore
510	O'Connor
511	Pearce
512	Perth
513	Stirling
514	Swan
515	Tangney
599	Not Applicable (WA)
601	Bass
602	Braddon
603	Denison
604	Franklin
605	Lyons
699	Not Applicable (TAS)
701	Lingiari
702	Solomon
799	Not Applicable (NT)
801	Canberra
802	Fraser
899	Not Applicable (ACT)
999	Not Applicable

FTPT Status Code

| 01 | Full Time |
| 02 | Part Time |

Immunisation Certificate Status

C	Complete
I	Incomplete
N	Not Sighted

Indigenous Status

1	Aboriginal but not Torres Strait Islander Origin
2	Torres Strait Islander but Not Aboriginal Origin
3	Both Torres Strait and Aboriginal Origin
4	Neither Aboriginal or Torres Strait Origin
9	Not Stated/Unknown

Language Type

1	Main Language Spoken at Home
2	Main Language Other Than English Spoken at Home,
3	First Language Spoken
4	Language Spoken at Home
5	Language of Greatest Competency
6	Preferred Language
9	Other

LearningStandardItem Relationship Types

Content	A link to another state or school content standard.
PD	
State	A link to a standard from another state. The purpose of this is to express relationships between state standards.

Marital Status AIHW

MaritalStatus - AIHW

http://meteor.aihw.gov.au/content/index.phtml/itemId/291045

From Meteor – Australian Institute of Health and Welfare

1	Never Married
2	Widowed
3	Divorced
4	Separated
5	Married (registered and de facto)
6	Not stated/inadequately described

Name Usage Type

AKA	Also known as or alias
BTH	Name at Birth
LGL	Legal Name of the client as defined by the organisation which collects it (legal not defined in this standard)
MDN	Maiden Name
NEW	New born identification name
OTH	Non specific name usage type
PRF	Preferred name
PRV	Previous name
STG	Stage name
TRB	Tribal Name

Non-School Education

0	Not stated/Unknown
5	Certificate I to IV (including trade certificate)
6	Advanced diploma/Diploma

7	Bachelor degree or above
8	No non-school qualification

Operational Status

B	Building or Construction Started
C	Closed
O	Open
P	Pending
S	Site
U	Unstaffed

Permanent Resident Status

99	Unknown
N	Not a Resident
P	Permanent Resident
T	Temporary Resident

Picture Source

01	URL
02	JPG
03	Bitmap
04	Gif
05	PIF
06	PDF
09	Other
10	MIME

Program Funding Source Code

1	State/Jurisdiction
2	Commonwealth Initiative
3	School Source
4	Director's Discretion
5	Community Sponsored
9	Other

Progress Level

Above	Above level
At	At level
Below	Below level

Public School Catchment Status

1652	Resident of usual school catchment area
1653	Resident of another school catchment area
9999	Unknown

Relationship To Student

01	Parent
02	Step-Parent
03	Adoptive Parent
04	Foster Parent
05	Host Family
06	Relative
07	Friend
08	Self
09	Other
10	Sibling
11	Grandparent
12	Aunt/Uncle
13	Nephew/Niece
99	Not provided

School Co-Ed Status

C	Co-Educational
F	Female
M	Male

School Education Level Type

0	Not stated/Unknown
1	Year 9 or equivalent or below
2	Year 10 or equivalent
3	Year 11 or equivalent
4	Year 12 or equivalent

School Enrollment Type

01	Home School
02	Other School
03	Concurrent Enrolment

School Focus Code

01	Regular

02	Special Ed
03	Alternate
04	Vocational
98	Other
99	Not Provided

School Level

Camp	Camp
Commty	Community College
EarlyCh	Early Childhood
JunPri	Junior Primary
Kgarten	Kindergarten only
Kind	Preschool/Kindergarten
Lang	Language
MCH	Maternal Child Health Centre
Middle	Middle School
Other	Other
PreSch	PreSchool only
Pri/Sec	Primary/Seconday Combined
Prim	Primary
Sec	Secondary
Senior	Senior Secondary School
Special	Special
Specif	Specific Purpose
Supp	SupportCentre
Unknown	Unknown

School Location

1	Metropolitan Zone
1.1	State Capital regions - State Capitals (except Hobart, Darwin)
1.2	Major urban Statistical Districts (Pop >=100 000)
2	Provincial Zone
2.1.1	Provincial City Statistical Districts (Pop 50 000 - 99 999)
2.1.2	Provincial City Statistical Districts (Pop 25 000 - 49 999)
2.2.1	Inner Provincial areas (CD ARIA Plus score <= 2.4)
2.2.2	Outer Provincial areas (CD ARIA Plus score > 2.4 and <= 5.92)
3	Remote Zone
3.1	Remote areas (CD ARIA Plus score > 5.92 and <= 10.53)
3.2	Very Remote areas (CD ARIA Plus score > 10.53)

School Sector Code

Gov	Government School

NG	Non-Government School

School System

Codes provided by DEEWR

0001	Catholic
0002	Anglican
0003	Lutheran
0004	Seventh Day Adventist
9999	Other

Session Type

0827	Full school year
0828	Semester
0829	Trimester
0830	Quarter
0832	Mini-term
0833	Summer term
0837	Twelve month
9999	Other

Sex Code

1	Male
2	Female
9	Not Stated/Inadequately Described

Source Code Type

C	Provided by the child (ie pupil)
O	Other
P	Provided by the parent
S	Ascribed by the current school
T	Ascribed by a previous school

Staff Activity

Describes the Activity of a Staff Member in a StaffAssignment

Proposed by SIF AU for 1.1

1100	Teacher in school n.f.d.
1101	Primary Teacher
1102	Secondary teacher
1103	Principal
1104	Special School Teacher

1105	Assistant Principal
1106	Teacher Librarian
1199	Other Teacher In School
1200	Specialist support in school n.f.d.
1201	Nurse
1202	Physiotherapist
1203	Speech Therapist
1204	Guidance Officer
1205	Psychologist
1206	Social worker
1207	Student welfare worker
1208	Indigenous Education Worker
1299	Other Specialist support in school
1300	Administration and clerical in school n.f.d.
1301	Teacher Aide
1302	Librarian - in school Administration
1303	Office Manager
1304	Clerical/Administrative officer
1305	Clerical/Administrative assistant
1306	Laboratory assistant
1307	ICT Officer
1399	Other Administration and clerical in school
1400	Building in school n.f.d.
1401	Building maintenance worker - in school
1402	Gardener - in school
1403	Canteen assistant - in school
1404	Farm Worker - in school
1405	Bus Driver - in school
1406	Caretaker - in school
1499	Other Building Operations and general maintenance - In
1999	In School Staff out of scope
2100	Executive n.f.d.
2101	Chief Executive
2102	Deputy Chief Executive
2103	General Manager
2198	Prinicipal and other School Executive out of school
2199	Other Executive
2200	Specialist support out of scope n.f.d.
2201	Community Participation Officer
2202	Computer Support Officer
2203	Coordinator - out of school Specialist Support
2204	Curriculum Officer
2205	Curriculum Program Manager
2206	Education Officer - out of school Specialist Support

2207	Education Program Manager
2208	Home Liaison Officer
2209	Learning Support Leader
2210	Librarian - out of school Specialist Support
2211	Moderator
2212	Occupational Therapist
2213	On-line Education Officer
2214	Policy Officer - out of school Specialist Support
2215	Principal Education Officer
2216	Professional Services Officer
2217	Project Coordinator
2218	Registered Nurse
2219	Senior Education Officer
2220	Social Welfare Officer
2221	Speech Language Pathologist
2222	Sports Coordinator
2223	Staff Development Officer
2224	Training Officer - out of school Specialist Support
2298	Teachers - out of school Specialist Support
2299	Other specialist support out of school
2300	Administration and clerical out of school n.f.d.
2301	Accounts Certifying Officer
2302	Administrative and Clerical officer
2303	Administrative Assistant
2304	Administrative Officer
2305	Budget Officer
2306	Clerk
2307	Finance and Administration Officer
2308	Finance Officer
2309	General Ledger Officer
2310	Receptionist
2311	Senior Auditor
2312	Services Clerk
2313	Aboriginal Education Coordinator
2314	Aboriginal Education Worker
2315	Assistant Manager
2316	Client Services Officer
2317	Coordinator - out of school Administration
2318	District Officer
2319	Education Officer - out of school Administration
2320	Enrolment Officer
2321	Examiner
2322	Liaison Officer
2323	Librarian - out of school Administration

2324	Library Technician
2325	Manager
2326	Operational Services Officer
2327	Professional Officers
2328	Program Coordinator
2329	Project Manager
2330	Project Officer
2331	Project Support Officer
2332	Public Servant
2333	School Services Officer
2334	School Support Officer
2335	Senior Investigator
2336	Senior Professional Officers
2337	Senior Project Officer/Project Officer
2338	Student Services co ordinator
2339	Student Support Officer
2340	Assistant Editor
2341	Communications Officer
2342	Corporate Services Officer
2343	Designer
2344	Desktop Publisher
2345	Editor
2346	Graphic Designer
2347	Journalist/Media and Marketing
2348	Photographer
2349	Printer
2350	Production Officer/Coordinator
2351	Public Relations Officer
2352	Advisor
2353	Executive Assistant
2354	Executive Officer
2355	Executive Secretary
2356	Personal Assistant
2357	Secretary
2358	Human Resources Services Officer
2359	Personnel (and Payroll) Officer
2360	Personnel Officer
2361	Recruitment Officer
2362	Training Officer - out of school Administration
2363	Workers Compensation Officer
2364	Workforce Management Officer
2365	Audio Visual Communications Program Officer
2366	Business Systems Analyst
2367	Computer Systems Officer

2368	Computer Technician
2369	Data Management Officer
2370	Information Analyst
2371	Information Manager
2372	Information Officer
2373	Information Technology Officers
2374	Network Administrator
2375	Policy Officer n.f.d.
2376	Performance Measurement Officer
2377	Policy Officer - out of school Administration
2378	Research Officer
2379	Review Officer
2380	Senior Research Officer/Research Officer
2381	Other policy officer
2382	Despatch Officer
2383	Driver
2384	Facilities Services Officer
2385	Housing and Transport Officer
2386	Indexer
2387	Legal Officer
2388	Store Person
2389	Store Supervisor
2390	Supply Officer
2391	Team Leader
2392	Technical Officer - out of school Administration
2393	Technician
2394	Transport Officer
2397	Public service officers n.f.d.
2398	Teachers - Out of School Administration
2399	Other Administration and clerical out of school
2400	Building out of school n.f.d.
2401	Building maintenance worker - out of school
2402	Bus Driver - out of school
2403	Canteen assistant - out of school
2404	Caretaker - out of school
2405	Cook
2406	Courier
2407	Farm Worker - out of school
2408	Gardener - out of school
2409	Greenkeeper
2410	Groundsman
2411	Handyman
2412	House Officer
2413	Janitor

2414	Kitchen Hand
2415	Maintenance Officer
2416	School Attendant
2417	Security Officer
2418	Technical Officer - out of school Building Operations
2499	Other Building Operations and general maintenance out of school
2999	Out of School Staff out of scope

Standard Australian Classification of Countries (SACC)

ABS 1269.0 - Standard Australian Classification of Countries (SACC), Second Edition

0000	Inadequately Described
0001	At Sea
0003	Not Stated
0911	Europe, nfd
0912	Former USSR, nfd
0913	Former Yugoslavia, nfd
0914	Former Czechoslovakia, nfd
0915	Kurdistan, nfd
0916	East Asia, nfd
0917	Asia, nfd
0918	Africa, nfd
0921	Serbia and Montenegro, nfd
0922	Channel Islands, nfd
0923	United Kingdom, nfd
1000	Oceania and Antarctica, nfd
1100	Australia (includes External Territories), nfd
1101	Australia
1102	Norfolk Island
1199	Australian External Territories, nec
1201	New Zealand
1300	Melanesia, nfd
1301	New Caledonia
1302	Papua New Guinea
1303	Solomon Islands
1304	Vanuatu
1400	Micronesia, nfd
1401	Guam
1402	Kiribati
1403	Marshall Islands
1404	Micronesia, Federated States of
1405	Nauru
1406	Northern Mariana Islands
1407	Palau

1500	Polynesia (excludes Hawaii), nfd
1501	Cook Islands
1502	Fiji
1503	French Polynesia
1504	Niue
1505	Samoa
1506	Samoa, American
1507	Tokelau
1508	Tonga
1511	Tuvalu
1512	Wallis and Futuna
1513	Pitcairn Islands
1599	Polynesia (excludes Hawaii), nec
1600	Antarctica, nfd
1601	Adélie Land (France)
1602	Argentinian Antarctic Territory
1603	Australian Antarctic Territory
1604	British Antarctic Territory
1605	Chilean Antarctic Territory
1606	Queen Maud Land (Norway)
1607	Ross Dependency (New Zealand)
2000	North-West Europe, nfd
2100	United Kingdom, Channel Islands and Isle of Man, nfd
2102	England
2103	Isle of Man
2104	Northern Ireland
2105	Scotland
2106	Wales
2107	Guernsey
2108	Jersey
2201	Ireland
2300	Western Europe, nfd
2301	Austria
2302	Belgium
2303	France
2304	Germany
2305	Liechtenstein
2306	Luxembourg
2307	Monaco
2308	Netherlands
2311	Switzerland
2400	Northern Europe, nfd
2401	Denmark
2402	Faroe Islands

2403	Finland
2404	Greenland
2405	Iceland
2406	Norway
2407	Sweden
2408	Aland Islands
3000	Southern and Eastern Europe, nfd
3100	Southern Europe, nfd
3101	Andorra
3102	Gibraltar
3103	Holy See
3104	Italy
3105	Malta
3106	Portugal
3107	San Marino
3108	Spain
3200	South Eastern Europe, nfd
3201	Albania
3202	Bosnia and Herzegovina
3203	Bulgaria
3204	Croatia
3205	Cyprus
3206	Former Yugoslav Republic of Macedonia (FYROM)
3207	Greece
3208	Moldova
3211	Romania
3212	Slovenia
3214	Montenegro
3215	Serbia
3216	Kosovo
3300	Eastern Europe, nfd
3301	Belarus
3302	Czech Republic
3303	Estonia
3304	Hungary
3305	Latvia
3306	Lithuania
3307	Poland
3308	Russian Federation
3311	Slovakia
3312	Ukraine
4000	North Africa and the Middle East, nfd
4100	North Africa, nfd
4101	Algeria

4102	Egypt
4103	Libya
4104	Morocco
4105	Sudan
4106	Tunisia
4107	Western Sahara
4108	Spanish North Africa
4200	Middle East, nfd
4201	Bahrain
4202	Gaza Strip and West Bank
4203	Iran
4204	Iraq
4205	Israel
4206	Jordan
4207	Kuwait
4208	Lebanon
4211	Oman
4212	Qatar
4213	Saudi Arabia
4214	Syria
4215	Turkey
4216	United Arab Emirates
4217	Yemen
5000	South-East Asia, nfd
5100	Mainland South-East Asia, nfd
5101	Burma (Myanmar)
5102	Cambodia
5103	Laos
5104	Thailand
5105	Vietnam
5200	Maritime South-East Asia, nfd
5201	Brunei Darussalam
5202	Indonesia
5203	Malaysia
5204	Philippines
5205	Singapore
5206	East Timor
6000	North-East Asia, nfd
6100	Chinese Asia (includes Mongolia), nfd
6101	China (excludes SARs and Taiwan)
6102	Hong Kong (SAR of China)
6103	Macau (SAR of China)
6104	Mongolia
6105	Taiwan

6200	Japan and the Koreas, nfd
6201	Japan
6202	Korea, Democratic People's Republic of (North)
6203	Korea, Republic of (South)
7000	Southern and Central Asia, nfd
7100	Southern Asia, nfd
7101	Bangladesh
7102	Bhutan
7103	India
7104	Maldives
7105	Nepal
7106	Pakistan
7107	Sri Lanka
7200	Central Asia, nfd
7201	Afghanistan
7202	Armenia
7203	Azerbaijan
7204	Georgia
7205	Kazakhstan
7206	Kyrgyzstan
7207	Tajikistan
7208	Turkmenistan
7211	Uzbekistan
8000	Americas, nfd
8100	Northern America, nfd
8101	Bermuda
8102	Canada
8103	St Pierre and Miquelon
8104	United States of America
8200	South America, nfd
8201	Argentina
8202	Bolivia
8203	Brazil
8204	Chile
8205	Colombia
8206	Ecuador
8207	Falkland Islands
8208	French Guiana
8211	Guyana
8212	Paraguay
8213	Peru
8214	Suriname
8215	Uruguay
8216	Venezuela

8299	South America, nec
8300	Central America, nfd
8301	Belize
8302	Costa Rica
8303	El Salvador
8304	Guatemala
8305	Honduras
8306	Mexico
8307	Nicaragua
8308	Panama
8400	Caribbean, nfd
8401	Anguilla
8402	Antigua and Barbuda
8403	Aruba
8404	Bahamas
8405	Barbados
8406	Cayman Islands
8407	Cuba
8408	Dominica
8411	Dominican Republic
8412	Grenada
8413	Guadeloupe
8414	Haiti
8415	Jamaica
8416	Martinique
8417	Montserrat
8418	Netherlands Antilles
8421	Puerto Rico
8422	St Kitts and Nevis
8423	St Lucia
8424	St Vincent and the Grenadines
8425	Trinidad and Tobago
8426	Turks and Caicos Islands
8427	Virgin Islands, British
8428	Virgin Islands, United States
8431	St Barthelemy
8432	St Martin (French part)
9000	Sub-Saharan Africa, nfd
9100	Central and West Africa, nfd
9101	Benin
9102	Burkina Faso
9103	Cameroon
9104	Cape Verde
9105	Central African Republic

9106	Chad
9107	Congo
9108	Congo, Democratic Republic of
9111	Côte d'Ivoire
9112	Equatorial Guinea
9113	Gabon
9114	Gambia
9115	Ghana
9116	Guinea
9117	Guinea-Bissau
9118	Liberia
9121	Mali
9122	Mauritania
9123	Niger
9124	Nigeria
9125	Sao Tomé and Principe
9126	Senegal
9127	Sierra Leone
9128	Togo
9200	Southern and East Africa, nfd
9201	Angola
9202	Botswana
9203	Burundi
9204	Comoros
9205	Djibouti
9206	Eritrea
9207	Ethiopia
9208	Kenya
9211	Lesotho
9212	Madagascar
9213	Malawi
9214	Mauritius
9215	Mayotte
9216	Mozambique
9217	Namibia
9218	Réunion
9221	Rwanda
9222	St Helena
9223	Seychelles
9224	Somalia
9225	South Africa
9226	Swaziland
9227	Tanzania
9228	Uganda

9231	Zambia
9232	Zimbabwe
9299	Southern and East Africa, nec

State Territory Code

ACT	Australian Capital Teritory
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	Western Australia
XXX	Not Provided

Student/Family Program Type

0100	Agricultural
0240	Regular prekindergarten program
0241	Infant and toddlers program
0242	Special education services for Birth-Age 2
0244	Special education services for preschoolers
0245	Migrant early childhood program
0246	Head Start
0247	Day care
0248	After school child care
0249	Alternative education program
0250	Before school child care
0251	Bilingual education
0252	Community service projects
0253	Compensatory education
0255	Counseling
0256	English as a second language
0257	Free and reduced price school meals programs
0260	Hearing or vision screening
0261	Higher order thinking skills
0262	Medical services
0263	Programs for migrants during the school year
0265	Programs for migrants during the summer
0267	Reading/literacy
0268	School supplies
0269	Services for out-of-school youth
0270	Special education program

0271	Special (one-time) events
0272	Student assistance programs such as counseling, mentoring, identification and referral
0273	Summer child care
0277	Transportation
0278	Tutoring/remedial instruction
0279	Academic/instructional program in regular education
0280	Adult basic education/remedial instruction
0281	Child care so that parents can attend school meetings
0282	Continuing professional education
0283	Health or social services
0284	Literacy
0285	Occupational education
0286	Orientation to school setting for new families
0287	Parent training/involvement
0288	Parenting education
0289	Recreational/advocational program
0342	Technology
0875	After school enrichment
0876	Before school enrichment
2381	Gifted and talented (Accelerated)
2389	Even Start
2393	Magnet program
9999	Other

Systemic Status

Codes provided by DEEWR

N	Non-Systemic
S	Systemic

Telephone Number Type

0096	Main telephone number
0350	Alternate telephone number
0359	Answering service
0370	Beeper number
0400	Appointment telephone number
0426	Telex number
0437	Telemail
0448	Voice mail
0478	Instant messaging number
0486	Media conferencing number
0888	Mobile
2364	Facsimile number

Visa Sub Class

10	Bridging Visa Class A
20	Bridging Visa Class B
30	Bridging Visa Class C
40	Bridging Visa (Prospective Applicant)
41	Bridging Visa (Non-Applicant)
42	Bridging Visa Class A
50	Bridging Visa (General)
51	Bridging Visa (Protection Visa Applicant)
70	Removal Pending Bridging Visa
100	Spouse
101	Child
102	Adoption
103	Parent
104	Preferential family
105	Skilled - Australian Linked
106	Regional-linked
110	Interdependency
113	Aged Parent
114	Aged Dependent Relative
115	Remaining Relative
116	Carer
117	Orphan Relative
118	Designated Parent
119	Regional Sponsored Migration Scheme
120	Labour Agreement
121	Employer nomination
124	Distinguished talent
125	Distinguished talent and special service - independent
126	Independent
127	Business Owner (No longer issued)
128	Senior Executive (No longer issued)
129	State/Territory sponsored business owner (NLI)
130	State/Territory Sponsored Senior Executive (NLI)
131	Investment-linked (No longer issued)
132	Business Talent (No longer issued)
134	Skill Matching
135	State/Territory nominated independent
136	Skilled - Independent
137	Skilled - State/Territory nominated independent
138	Skilled - Australian sponsored
139	Skilled Designated Area-sponsored (No longer issued)
143	Contributory Parent

150	Former citizen
151	Former resident
152	Family of NZ citizen
154	Resident Return
155	Five year resident return
156	One Year Resident Return (No longer Issued)
157	Three month resident return
159	Provisional resident return
160	Business Owner (Provisional)
161	Senior Executive (Provisional)
162	Investor (Provisional)
163	State/Territory Sponsored Business Owner (Prov.)
164	State/Territory Sponsored Senior Executive (Prov.)
165	State/Territory Sponsored Investor (Provisional)
173	Contributory Parent (Temporary)
175	Skilled - independent
176	Skilled - sponsored
200	Refugee
201	In-country special humanitarian
202	Global special humanitarian
203	Emergency rescue
204	Woman at risk
205	Camp clearance
208	East Timorese in Portugal,Macau or Mozambique
209	Citizen of former Yugoslavia - displaced person
210	Minorities of former USSR
211	Burmese in Burma
212	Sudanese
213	Burmese in Thailand
214	Cambodian
215	Sri Lankan - special assistance
216	Ahmadi
217	Vietnamese
300	Prospective marriage
302	Emergency (Permanent Visa Applicant)
303	Emergency (Temporary Visa Applicant)
309	Spouse (provisional)
310	Interdependency (provisional)
410	Retirement
411	Exchange
412	Independent Executive
413	Business Executive
414	Business Specialist
415	Foreign government agency

416	Special program
417	Working holiday
418	Educational
419	Visiting academic
420	Entertainment
421	Sport
422	Medical practitioner
423	Media and film staff
424	Public lecturer
425	Family relationship
426	Domestic worker - diplomatic or consular
427	Domestic worker - executive
428	Religious worker
430	Supported dependant
432	Expatriate
435	Sri Lankan
442	Occupational Trainee
443	Citizens of former Yugoslavia
444	Special Category
445	Dependent Child
446	Confirmatory (Temporary)
447	Secondary Movement Offshore Entry (Temporary)
448	Kosovar Safe Haven
449	Humanitarian Stay (Temporary)
450	Resolution of Status - Family member (Temporary)
451	Secondary Movement Relocation (Temporary)
456	Business - Short Stay
457	Business - long stay
459	Sponsored Business Visitor (short stay)
461	New Zealand Citizen Family Relationship
462	Work and Holiday
470	Professional Development
471	Trade Skills Training
475	Skilled Regional Sponsored
485	Skilled - Graduate
487	Skilled - Regional Sponsored
495	Skilled Independent Regional (Temporary)
496	Skilled - Designated Area Sponsored (Provisional)
497	Graduate - Skilled
499	Olympic (Support) (No longer issued)
560	Student (No longer issued)
562	Iranian Postgraduate Student
563	Iranian Postgraduate Student Dependent
570	Student - ELICOS

571	Student - Schools
572	Student - VET
573	Student - Higher Education
574	Student - Masters & Doctorate
575	Student - Non-Award Foundation
576	Student - AusAID & Defence
580	Student Guardian Visa
675	Medical treatment - short stay
676	Tourist - short stay
679	Sponsored Family Visitor (short stay)
685	Medical treatment - Long Stay
686	Tourist - Long Stay
695	Temporary Provisional - Pending return
771	Transit
773	Border
785	Temporary Protection
786	Temporary (Humanitarian Concern)
800	Territorial Asylum
801	Spouse
802	Child
804	Aged Parent
805	Skilled
806	Family
808	Confirmatory Residence
814	Interdependency
819	Aged Parent
820	Spouse
826	Interdependency
831	Prospective marriage spouse
832	Close Ties
833	Certain unlawful non-citizens
834	Permanent resident of Norfolk Island
835	Remaining Relative
836	Carer
837	Orphan Relative
838	Aged Dependant Relative
840	Business Owner
841	Senior Executive
842	State/Territory sponsored business owner
843	State/Territory sponsored senior executive
844	Investment-linked
845	Established Business in Australia
846	State/Territory Sponsored Regional Established Busin
850	Resolution Status (Temporary)

851	Resolution of Status
852	Witness Protection
855	Labour Agreement
856	Employer Nomination Scheme
857	Regional Sponsored Migration Scheme
858	Distinguished Talent
859	Designated Parent
861	Skilled - Onshore Independent New Zealand Citizen
862	Skilled Australian-sponsored New Zealand Citizen
863	Skilled Designated Area-sponsored N. Zealand Citizen
864	Contributory Aged Parent (Residence)
866	Protection
880	Skilled - Independent Overseas Student
881	Skilled - Australian-sponsored Overseas Student
882	Skilled - Designated Area-sponsored Overseas Student
883	Skilled Designated Area Sponsored (Residence) visa
884	Contributory Aged Parent (Temporary)
885	Skilled - Independent
886	Skilled - Sponsored
887	Skilled - Regional
890	Business Owner
891	Investor
892	State/Territory sponsored business owner
893	State/Territory sponsored senior executive
956	Electronic Travel Authority - Business - Long
976	Electronic Travel Authority - Visitor
977	Electronic Travel Authority - Business - Short
995	Diplomatic (Temporary)
998	Declaratory

Year Level Code

1	Year 1
2	Year 2
3	Year 3
4	Year 4
5	Year 5
6	Year 6
7	Year 7
8	Year 8
9	Year 9
10	Year 10
11	Year 11
12	Year 12

13	Year 13
K	Kindergarten
P	Prep
PS	Pre-School
UG	Ungraded

Yes Or No Category

N	No
U	Unknown
X	Not Provided
Y	Yes

Infrastructure

Status Code

0	Success (ZIS ONLY). SIF_Status/SIF_Data may contain additional data.
1	Immediate SIF_Ack (AGENT ONLY). Message is persisted or processing is complete. Discard the referenced message.
2	Intermediate SIF_Ack (AGENT ONLY). Only valid in response to SIF_Event delivery. Invokes Selective Message Blocking. The event referenced must still be persisted, and no other events must be delivered, until the agent sends a "Final" SIF_Ack at a later time.
3	Final SIF_Ack (AGENT ONLY). Sent (a SIF_Ack with this value is never returned by an agent in response to a delivered message) by an agent to the ZIS to end Selective Message Blocking. Discard the referenced event and allow for delivery of other events.
7	Already have a message with this SIF_MsgId from you.
8	Receiver is sleeping.
9	No messages available. This is returned when an agent is trying to pull messages from a ZIS and there are no messages available.

Error Category

The following table describes the functional areas where an error may occur in SIF. When a SIF_Error element is returned within a SIF_Ack message, the SIF_Error/SIF_Category element MUST contain one of the values from the table.

The next tables present the error codes that must be used when constructing a SIF_Error element. The value of SIF_Error/SIF_Code must come from these lists unless the functional category is System where error codes not defined in these tables can be included.

0	Unknown (This should NEVER be used if possible)
1	XML Validation
2	Encryption
3	Authentication
4	Access and Permissions
5	Registration
6	Provision
7	Subscription
8	Request and Response
9	Event Reporting and Processing

10	Transport
11	System (OS, Database, Vendor localized, etc.)
12	Generic Message Handling
13	SMB Handling

XML Validation Error

1	Generic error
2	Message is not well-formed
3	Generic validation error
4	Invalid value for element/attribute
6	Missing mandatory element/attribute

Encryption Error

| 1 | Generic error |

Authentication Error

1	Generic error
2	Generic authentication error (with signature)
3	Missing sender's certificate
4	Invalid certificate
5	Sender's certificate is not trusted
6	Expired certificate
7	Invalid signature
8	Invalid encryption algorithm (only accepts MD4)
9	Missing public key of the receiver (when decrypting message)
10	Missing receiver's private key (when decrypting message)

Access and Permission Error

1	Generic error
2	No permission to register
3	No permission to provide this object
4	No permission to subscribe to this SIF_Event
5	No permission to request this object
6	No permission to respond to this object request
7	No permission to publish SIF_Event
8	No permission to administer policies
9	SIF_SourceId is not registered
10	No permission to publish SIF_Event Add
11	No permission to publish SIF_Event Change
12	No permission to publish SIF_Event Delete

Registration Error

1	Generic error
2	The SIF_SourceId is invalid
3	Requested transport protocol is unsupported
4	Requested SIF_Version(s) not supported.
6	Requested SIF_MaxBufferSize is too small
7	ZIS requires a secure transport
9	Agent is registered for push mode (returned when a push-mode agent sends a SIF_GetMessage).
10	ZIS does not support the requested Accept-Encoding value.

Provision Error

1	Generic error
3	Invalid object
4	Object already has a provider (SIF_Provide message)

Subscription Error

1	Generic error
3	Invalid object

Request and Response Error

1	Generic error
3	Invalid object
4	No provider
7	Responder does not support requested SIF_Version
8	Responder does not support requested SIF_MaxBufferSize
9	Unsupported query in request
10	Invalid SIF_RequestMsgId specified in SIF_Response
11	SIF_Response is larger than requested SIF_MaxBufferSize
12	SIF_PacketNumber is invalid in SIF_Response
13	SIF_Response does not match any SIF_Version from SIF_Request
14	SIF_DestinationId does not match SIF_SourceId from SIF_Request
15	No support for SIF_ExtendedQuery
16	SIF_RequestMsgId deleted from cache due to timeout
17	SIF_RequestMsgId deleted from cache by administrator
18	SIF_Request cancelled by requesting agent

Event Reporting and Processing Error

1	Generic error
3	Invalid event

Transport Error

1	Generic error
2	Requested protocol is not supported
3	Secure channel requested and no secure path exists
4	Unable to establish connection

System Error

1	Generic error

Generic Message Handling Error

1	Generic error
2	Message not supported
3	Version not supported
4	Context not supported
5	Protocol error
6	No such message (as identified by SIF_OriginalMsgId)
7	Multiple contexts not supported

SMB Error

1	Generic error
2	SMB can only be invoked during a SIF_Event acknowledgement
3	Final SIF_Ack expected from Push-Mode Agent
4	Incorrect SIF_MsgId in final SIF_Ack

SIF_LogEntry

Agent Error Condition

1	An exception has occurred in the agent (generic error)

Data Issues with Failure Result

1	Insufficient information in message
2	Cannot process change due to business rule
3	Related information unavailable

Data Issues with Success Result

1	Data was changed to complete request successfully
2	Data was added to complete request successfully

Success Category

1	Success

ZIS Error Condition

1	An exception has occurred in the ZIS (generic error)
2	Message could not be delivered due to buffer size limitations
3	Message could not be delivered due to minimum security requirements
4	Message could not be delivered due to destination agent not supporting SIF_Version
5	Message could not be delivered due to SIF_Response validation

Appendix C: External Code Sets

All code sets defined by external bodies and referenced within SIF are included here for reference. The left column in each table contains the individual code values that are used in SIF elements and attributes that reference these code sets. These sets of code values are closed and normative for a given version of this specification. Including codes not provided here in corresponding SIF elements and attributes can lead to XML validation errors in installations where the zone integration server or any agent is validating XML messages; the SIF data model allows for locally-defined codes, where deemed appropriate, in the

`OtherCodeList` element. The right column of each table may provide a textual equivalent or description of the corresponding code, and is provided for informational purposes only. The referenced sources for these code sets serve as the authorities for all descriptions and semantics, and for the definition and maintenance of the code set values themselves. In each release of this specification the SIF Association endeavors to synchronize referenced code sets with updates from external sources.

International Standards Organization (ISO)

4217 Currency names and code elements

AED	UAE Dirham
AFN	Afghani
ALL	Lek
AMD	Armenian Dram
ANG	Netherlands Antillian Guikder
AOA	Kwanza
ARS	Argentine Peso
AUD	Australian Dollar
AWG	Aruban Guilder
AZN	Azerbaijanian Manat
BAM	Convertible Marks
BBD	Barbados Dollar
BDT	Taka
BGN	Bulgarian Lev
BHD	Bahraini Dinar
BIF	Burundi Franc
BMD	Bermudian Dollar (customarily known as Bermuda Dollar)
BND	Brunei Dollar
BOB	Boliviano
BOV	Mvdol
BRL	Brazilian Real
BSD	Bahamian Dollar
BTN	Ngultrum
BWP	Pula
BYR	Belarussian Ruble
BZD	Belize Dollar
CAD	Canadian Dollar
CDF	Franc Congolais
CHE	WIR Euro

Code	Currency
CHF	Swiss Franc
CHW	WIR Franc
CLF	Unidades de formento
CLP	Chilean Peso
CNY	Yuan Renminbi
COP	Colombian Peso
COU	Unidad de Valor Real
CRC	Costa Rican Colon
CSD	Serbian Dinar
CUP	Cuban Peso
CVE	Cape Verde Escudo
CYP	Cyprus Pound
CZK	Czech Koruna
DJF	Djibouti Franc
DKK	Danish Krone
DOP	Dominican Peso
DZD	Algerian Dinar
EEK	Kroon
EGP	Egyptian Pound
ERN	Nakfa
ETB	Ethiopian Birr
EUR	Euro
FJD	Fiji Dollar
FKP	Falkland Islands Pound
GBP	Pound Sterling
GEL	Lari
GHC	Cedi
GIP	Gibraltar Pound
GMD	Dalasi
GNF	Guinea Franc
GTQ	Quetzal
GWP	Guinea-Bissau Peso
GYD	Guyana Dollar
HKD	Hong Kong Dollar
HNL	Lempira
HRK	Croatian Kuna
HTG	Gourde
HUF	Forint
IDR	Rupiah
ILS	New Israeli Sheqel
INR	Indian Rupee
IQD	Iraqi Dinar
IRR	Iranian Rial
ISK	Iceland Krona

JMD	Jamaican Dollar
JOD	Jordanian Dinar
JPY	Yen
KES	Kenyan Shilling
KGS	Som
KHR	Riel
KMF	Comoro Franc
KPW	North Korean Won
KRW	Won
KWD	Kuwaiti Dinar
KYD	Cayman Islands Dollar
KZT	Tenge
LAK	Kip
LBP	Lebanese Pound
LKR	Sri Lanka Rupee
LRD	Liberian Dollar
LSL	Loti
LTL	Lithuanian Litas
LVL	Latvian Lats
LYD	Libyan Dinar
MAD	Moroccan Dirham
MDL	Moldovan Leu
MGA	Malagascy Ariary
MKD	Denar
MMK	Kyat
MNT	Tugrik
MOP	Pataca
MRO	Ouguiya
MTL	Maltese Lira
MUR	Mauritius Rupee
MVR	Rufiyaa
MWK	Kwacha
MXN	Mexican Peso
MXV	Mexican Unidad de Inversion (UID)
MYR	Malaysian Ringgit
MZN	Metical
NAD	Namibian Dollar
NGN	Naira
NIO	Cordoba Oro
NOK	Norwegian Krone
NPR	Nepalese Rupee
NZD	New Zealand Dollar
OMR	Rial Omani
PAB	Balboa

PEN	Nuevo Sol
PGK	Kina
PHP	Philippine Peso
PKR	Pakistan Rupee
PLN	Zloty
PYG	Guarani
QAR	Qatari Rial
ROL	Old Leu
RON	New Leu
RUB	Russian Ruble
RWF	Rwanda Franc
SAR	Saudi Riyal
SBD	Solomon Islands Dollar
SCR	Seychelles Rupee
SDD	Sudanese Dinar
SEK	Swedish Krona
SGD	Singapore Dollar
SHP	Saint Helena Pound
SIT	Tolar
SKK	Slovak Koruna
SLL	Leone
SOS	Somali Shilling
SRD	Surinam Dollar
STD	Dobra
SVC	El Salvador Colon
SYP	Syrian Pound
SZL	Lilangeni
THB	Baht
TJS	Somoni
TMM	Manat
TND	Tunisian Dinar
TOP	Pa'anga
TRY	New Turkish Lira
TTD	Trinidad and Tobago Dollar
TWD	New Taiwan Dollar
TZS	Tanzanian Shilling
UAH	Hryvnia
UGX	Uganda Shilling
USD	US Dollar
USN	US Dollar (Next day)
USS	US Dollar (Same day)
UYU	Peso Uruguayo
UZS	Uzbekistan Sum
VEB	Bolivar

VND	Dong
VUV	Vatu
WST	Tala
XAF	CFA Franc BEAC
XAG	Silver
XAU	Gold
XBA	Bond Markets Units European Composite Unit (EURCO)
XBB	European Monetary Unit (E.M.U.-6)
XBC	European Unit of Account 9 (E.U.A.-9)
XBD	European Unit of Account 17 (E.U.A.-17)
XCD	East Caribbean Dollar
XDR	SDR
XFO	Gold-Franc
XFU	UIC-Franc
XOF	CFA Franc BCEAO
XPD	Palladium
XPF	CFP Franc
XPT	Platinum
XTS	Code specifically reserved for testing purposes
XXX	Code assigned for transactions where no currency is involved
YER	Yemeni Rial
ZAR	Rand
ZMK	Kwacha
ZWN	Zimbabwe Dollar

Appendix D: Notes on Related Technologies

This partially normative appendix highlights technologies leveraged within SIF or related to SIF, either in their entirety or as a subset. It points out specifics casual readers of referenced documents on these technologies must not ignore when implementing SIF Zone Integration Servers and Agents.

D.1 SIF and HTTP(S)

SIF uses a small subset of HTTP 1.1 (SIF HTTP), as defined in

Infrastructure Transport Layer , to promote interoperability. This section also defines a secure transport for SIF HTTP, SIF HTTPS, the required and default transport layer for use in SIF.

D.2 SIF and URLs

Zone Integration Servers and Push-mode Agents, when using SIF HTTPS or SIF HTTP, are addressable by an `http` or `https` Uniform Resource Locator (URL). As far as HTTP is concerned, these are simply formatted strings; no assumptions should be made about their format (e.g. that all ZIS URLs consist of a host, port and Zone ID, or that all agent URLs consist of a host, port and Agent ID) beyond the `http` and `https` schemes and the consituent parts from the generic URI (Uniform Resource Identifier) syntax

[RFC 2396].

`http://`*host*[`:`*port*][*abs_path*[`?`*query*]]
`http://`*host*[`:`*port*][*abs_path*[`?`*query*]]

Just because one Zone Integration Server seems to follow a certain convention with regard to its URLs, e.g.:

`http://www.YourZIS.com/YourZone`

does not imply another Zone Integration Server will not have a completely different format for a URL, for instance:

`http://www.ZISesAreUs.com:8080/applications/ZIS;version=2.3.1?zone=ZoneA&cust=2A9823B2`

or that a vendor's product might not change its URL conventions.

The same applies to URLs that address Push-mode Agents; conventions for URLs, within the general formatting that applies to URLs, can and do vary widely.

Zone Integration Servers and Agents MUST treat SIF HTTPS and SIF HTTP URLs as whole strings, whose only format rules stem from associated standards. This promotes interoperability as Zone administrators deploy Zone Integration Servers and Agents with different Zone configurations and products from different vendors.

D.3 SIF and XML

With its use in both Infrastructure and the SIF Data Model, SIF is greatly dependent on the structure and syntax of XML 1.0

[XML]. SIF excludes the use of the `doctypedecl` syntax from the optional `prolog` with which every XML document may begin. This implies that Zone Integration Servers and Agents MUST NOT reference an external DTD or internal DTD subset using the `doctypedecl` production (e.g. `<!DOCTYPE SIF_Message ... !>`).

This should not be construed to imply that the rest of the XML `prolog` may not preface a SIF message, even though it never occurs in examples within this specification, being superfluous within SIF. As SIF mandates the use of XML 1.0, the character encoding of `UTF-8` (contained in the HTTP `Content-Type` header), and all SIF messages are `standalone` due to the exclusion of `doctypedecl` above, the values that can be communicated in the XML `prolog` are fixed within SIF. This implies that if a Zone Integration Server or Agent includes an XML `prolog` before a SIF message, it MUST take one of the following or equivalent forms (equivalent including case-insensitive character encoding names, XML's choice with regard to single or double quotes and optional spacing):

```
<?xml version="1.0"?>
<?xml version="1.0" encoding="UTF-8"?>
<?xml version="1.0" standalone="yes"?>
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
```

D.4 SIF and Unicode

The character set supported in XML 1.0 is Unicode/ISO 10646, a character set designed to be universal in nature with regard to its support for previously used character sets in the computer industry, ability to represent most human languages, numbers, commonly used symbols, etc. Thus the character set supported in SIF is Unicode/ISO 10646. If a Zone Integration Server or SIF-enabled application does not support Unicode/ISO 10646 internally, it MUST map Unicode/ISO 10646 to its local character set upon receipt of a SIF message and MUST map its local character set to Unicode/ISO 10646 when sending or responding to a SIF message. To promote interoperability and prevent loss of data in these conversions, it is RECOMMENDED that all Zone Integration Servers and SIF-enabled applications support Unicode/ISO 10646.

SIF HTTP further requires that the Unicode/ISO 10646 character set be encoded using the UTF-8 character encoding; Zone Integration Servers and Agents MUST encode SIF XML messages using UTF-8. To further promote interoperability, when the SIF Infrastructure or Data Model specifies that an octet/byte-based transformation of a text/string value be stored in a given element or attribute (e.g. Base64 encoding, hash value, encrypted form), Zone Integration Servers and Agents MUST convert the local character set of the value to Unicode/ISO 10646 if necessary, encode the resulting value using UTF-8, then apply the specified transformation.

D.5 SIF and XPath

SIF uses a small subset of XPath 1.0

[XPATH] in its own path syntax for referencing elements/attributes. This is defined in SIF_Element Syntax. This document may often use the same notation in referring to nested elements and/or attributes (e.g. Name/FirstName, Name/@Type), though it may include an object as the root element whereas the SIF_Element syntax does not (e.g. StudentPersonal/Name/FirstName, StudentPersonal/@RefId).

D.6 SIF and XML Schema

The SIF Association hosts and provides XML Schemas

[SCHEMA] for validating SIF messages, should Zone Integration Servers or Agents choose to perform message validation. These schemas leverage basic data types and structures as defined in that document. When these types and structures are referenced in this document they are prefixed with xs:.

Note that due to the ability of Zone Integration Servers and Agents to omit elements from data objects in the SIF Request/Response and SIF Event models, all elements defined as mandatory for SIF data objects in Infrastructure or Data Model and referenced common elements are defined as optional in the schema for validating any SIF_Message. The SIF Association hosts and provides alternate schemas that allow for validation of these data objects where mandatory elements cannot be omitted (e.g. in a Add event or in a SIF_Response where the SIF_Request did not specify a specific subset of elements to be returned from matching objects).

Notes on specific XML Schema types follow:

D.6.1 xs:boolean

Agents and Zone Integration servers SHOULD send values of true or false, but must understand equivalent 1 and 0 values.

D.6.2 xs:time

Agents and Zone Integration Servers MUST specify a time zone offset from UTC or indicate that the time is UTC unless the time zone is apparent locally from other elements/attributes per supplied documentation.

D.6.3 xs:date

Agents and Zone Integration Servers MAY specify a time zone offset or indicate UTC for dates, but in most cases do not need to do so unless zone activity spans great international distances.

D.6.4 xs:dateTime

Agents and Zone Integration Servers MUST specify a time zone offset from UTC or indicate that the time is UTC unless the time zone is apparent locally from other elements/attributes per supplied documentation.

Though use of a combined xs:dateTime may seem a natural fit for specifying a point in time, some SIF Association working groups and task forces prefer to separate xs:dateTime into element/attribute pairs of xs:date and xs:time per their object design/usage goals and/or for simplified quering. Applications wishing to query the date or time portion of xs:dateTime values may use comparison and boolean operators to do so.

D.7 SIF and XML Namespaces

Namespaces allow XML elements and attributes to be organized into units that allow for the separation of a set of names from others, effectively allowing the integration of XML defined from various sources to be included in the same XML document without risk of name/definition collisions. SIF has since its initial release used the default namespace attribute xmlns

[XMLNS] in the SIF_Message element. To a namespace-aware parser, the effective names of the elements in:

```
<SIF_Message Version="1.5r1" xmlns="http://www.sifinfo.org/infrastructure/1.x">
  <SIF_Event>...</SIF_Event>
</SIF_Message>
```

Example D.7-1: SIF_Message Namespace

are conceptually:

```
http://www.sifinfo.org/infrastructure/1.x:SIF_Message

http://www.sifinfo.org/infrastructure/1.x:SIF_Event
```

with the local names:

```
SIF_Message

SIF_Event
```

To a namespace-aware parser, the effective names of these same elements in the SIF 2.x namespace:

```
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/infrastructure/2.x">
  <SIF_Event>...</SIF_Event>
</SIF_Message>
```

Example D.7-2: SIF_Message Namespace

are conceptually:

```
http://www.sifinfo.org/infrastructure/2.x:SIF_Message

http://www.sifinfo.org/infrastructure/2.x:SIF_Event
```

with the local names:

```
SIF_Message

SIF_Event
```

A namespace-unaware parser simply interprets elements by their local names, and SIF 1.x and SIF 2.x elements are considered equivalent. If the local name is prefixed, a namespace-unaware parser considers the prefix and colon part of the name. To a namespace-unaware parser, `xml:lang` is named just that. To a namespace-aware parser, this is effectively `http://www.w3.org/XML/1998/namespace:lang` (the `xml` prefix is reserved in XML 1.0 and is always bound to this namespace in

[XMLNS]) with a local name of `lang`.

Given the timing of the first release of SIF and the release of Namespaces in XML [XMLNS] it was never mandated in SIF that Zone Integration Servers and Agents be namespace-aware. Given the number of Zone Integration Servers and Agents that may at this point be namespace-unaware, it is not yet mandated that these components be namespace-aware, but this requirement may arise in a future major release of this specification. To allow for namespace-unaware parsers to reliably process SIF-defined XML by local names only, SIF messages MUST define the namespace for the corresponding SIF version as the default namespace of `SIF_Message` as documented in `SIF_Message`.

Furthermore, given the gradual proliferation of XML defined in other namespaces appearing in SIF XML, the following prefix-to-namespace mappings MUST be used should elements from these namespaces occur in SIF messages, to allow namespace-unaware parsers to reliably interpret names in these namespaces by local name:

Prefix	Namespace	Declaration
xml	`http://www.w3.org/XML/1998/namespace`	This is bound and fixed by default without declaration.
xsi	`http://www.w3.org/2001/XMLSchema-instance`	`xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"`
xs	`http://www.w3.org/2001/XMLSchema`	`xmlns:xs="http://www.w3.org/2001/XMLSchema"`

It is RECOMMENDED that other namespaces occuring in SIF messages (e.g. XML from outside SIF included in assessments, exchange of student records, etc.) have fixed prefix mappings, but it is not required. Affected elements MAY locally change the default namespace as desired, given that the default namespace for the `SIF_Message` as a whole remains the namespace for the corresponding SIF version.

When a fixed prefix is not defined for a given namespace, a namespace-unaware agent will be unable to reliably process these elements by name when prefixes vary, and must become namespace-aware to do so. XML not defined by SIF that in turn contains SIF-defined XML MAY reference SIF XML by its own prefix mapping rather than specifying the namespace of the corresponding SIF version as the default namespace using `xmlns`.

It is RECOMMENDED that as Zone Integration Servers and Agents are updated in their release schedules, they use namespace-aware parsers or parser options if they are not doing so already.

D.8 SIF and UUIDs/GUIDs

SIF leverages Universally Unique Identifiers (UUIDs), or Globally Unique Identifiers (GUIDs), as message and object identifiers, or primary keys, and occasionally for element identifiers internal to objects, per

[RFC 4122]. Note that SIF defines its own textual representation for GUIDs, uppercase and un-hyphenated (e.g. `F81D4FAE7DEC11D0A76500A0C91E6BF6` vs. `f81d4fae-7dec-11d0-a765-00a0c91e6bf6`). It should also be noted with SIF being a distributed system, to avoid the possibility of GUID collisions, especially in the SIF data model, systems generating GUIDs SHOULD use version 1 GUIDs which are unique in space as well as time when an IEEE 802 MAC address is available. Systems MAY use version 4 GUIDs which use a (pseudo-)random number-based algorithm if an IEEE 802 MAC address is unavailable or if the inclusion of that address in a GUID poses a compromising security risk.

D.9 SIF and Web Services

SIF is a web service, "a software system designed to support interoperable machine-to-machine interaction over a network

[WSARCH]." It is not a Web Service, as it lacks "an interface described in a machine-processable format (specifically WSDL) [WSARCH]." To meet this requirement and produce the Web Services Definition Language (WSDL) definition for SIF is a trivial exercise, creating a WSDL HTTP POST binding for the `SIF_Message`-in/`SIF_Message`-out exchange that describes the SIF HTTP(S) transport layer between Agents and ZIS, and between ZIS and Push-mode Agents. But the binding would be just that, a simple `SIF_Message`-in/`SIF_Message`-out exchange that doesn't capture the richness of the SIF infrastructure or necessarily provide the interoperability resulting from the precise definition of SIF HTTP(S). To do so and to meet the final requirement of a Web Service per [WSARCH], the use of SOAP messages, would require redefinition of much of SIF using SOAP messages. The SIF Association's Web Services Task Force has determined that this exercise has little value currently, given SIF's precisely defined

transport layer and installed base. The task force has left it as a future task how to best leverage Web Services in the future of SIF's infrastructure, if at all. In the meantime, the task force has, however, decided to provide a Web Services interface that provides external systems access to the rich amount of data available in SIF Zones via its own specification [SIF Reporting WS]. Future opportunities to provide additional services may be identified.

Appendix E: Wildcard Version Support Implementation Notes

Agents that register the ability to receive `SIF_Message`s defined by any number of different SIF Implementation Specification versions by using

version wildcards in `SIF_Register/SIF_Version` and `SIF_Request/SIF_Version` may receive messages defined by specification versions that did not exist at the time of agent implementation. This support can maximize agent communication in zones supporting multiple SIF versions; agent developers that design this support should be aware of the following implementation notes. These notes focus on wildcard support for releases **within a given major release lifecycle** and do not address agents that register support for `*`, indicating the ability to receive ANY version `SIF_Message`. These messages can be very different structurally across major version boundaries and an agent may require more sophisticated capabilities to successfully process any `SIF_Message`, regardless of the SIF version that defines it.

E.1 XML Parsing

The message handling protocols documented in this specification are written from the perspective of having a well-formed and—optionally—valid XML document and the ability to randomly access element and attribute values within the document in performing the message handling steps as documented. While some agent implementations have this ability, there do exist agent implementations that may process SIF XML using a streaming interface (e.g. SAX), processing an XML document node by node, to perform equivalent functionality. When these agents declare the ability to receive a `SIF_Message` defined by any minor release within a major release lifecycle, they cannot assume in processing a message that one element follows another without any intervening elements, as new minor releases of this specification can introduce optional elements into the SIF Data Model. An agent written at the time of SIF Implementation Specification 1.1 to support `1.*` and to expect `OtherId` to follow `AlertMsg` might encounter difficulties with processing a `1.5r1 StudentPersonal` if it were not designed to ignore new intervening 1.5r1 elements before `OtherId` unknown at the time of implementation, including `LocalId`, as shown here, not to mention `StatePrId` and `ElectronicId`, which were also both introduced in SIF Implementation Specification 1.5r1.

```
<StudentPersonal RefId="D3E34B359D75101A8C3D00AA001A1652">
  <AlertMessages>
    <AlertMessage Type="Legal">A legal alert for Joe Student.</AlertMessage>
  </AlertMessages>
  <OtherIdList>
    <OtherId Type="EMA">P00001</OtherId>
  </OtherIdList>
  <PersonInfo>
    <Name Type="LGL">
      <FamilyName>Student</FamilyName>
      <GivenName>Joe</GivenName>
    </Name>
  </PersonInfo>
</StudentPersonal>
```

Example E.1-1: StudentPersonal from SIF Implementation Specification 1.1

Agents that parse XML on a node-by-node basis and that wish to support wildcard versions must be able to read and skip XML elements not of interest until an expected element of interest is reached.

E.2 XML Validation

Though minor releases within a major version lifecycle of this specification are designed to be supersets of previous minor releases, agents supporting wildcard versions and performing XML validation should take into consideration that messages from a higher minor version in a major version lifecycle will not validate against schemas designed for a lower version, given the potential introduction of new objects, and new optional elements into existing data objects. Agents that do perform XML validation should skip validation of received `SIF_Message`s that are defined by a higher version, unless they have dynamic Internet access to hosted schemas where `SIF_Message/@Version` can be used to access schemas for new specification releases. These agents can, of course, still establish that received `SIF_Message` XML is well-formed and process that XML to access elements/attributes of interest to the agent implementation.

While `SIF_Message`s defined by lower minor versions in a major version lifecyle may validate against a higher-version schema in that lifecyle, it is recommended also that higher-version agents skip XML validation of lower-version `SIF_Message`s unless they have local access to schemas corresponding to the version in question, in which case the appropriate schema should be used for validation, or unless they have dynamic Internet access to hosted schemas where `SIF_Message/@Version` can be used to access schemas for other specification releases. This recommendation is made particularly because external code sets may be brought up to date with external sources with each release of this specification and a previously valid code set value may become invalid in a new specification.

Note that schemas hosted by the SIF Association are available at well-known URLs and can be used to dynamically access schemas for older/newer specification versions using `SIF_Message/@Version`, should agents with Internet access require them for XML validation:

`http://www.sifinfo.org/infrastructure/<value of SIF_Message/@Version>/DTD/SIF_Message.dtd` (for SIF 1.x—`XSD/SIF_Message.xsd` also available)
`http://specification.sifinfo.org/Implementation/<value of SIF_Message/@Version>/XSD/SIF_Message.xsd` (for SIF 2.x)

E.3 SIF_Message Handling

While this is defined in the

SIF_Message Agent Message Handling Protocol, it bears repeating in this section that agents receiving an unexpected message from the ZIS respond according to protocol, acknowledging receipt of the message with a `SIF_Ack` including the `SIF_Error` element with a `SIF_Category` of `12` (Generic Message Handling) and a `SIF_Code` of `2` (message not supported). This allows an agent with wildcard version support to successfully ignore `SIF_Message`s that may be introduced with the addition of optional infrastructure functionality into new minor releases of this specification, including new `SIF_SystemControl` messages.

Appendix F: Selective Message Blocking (SMB) Example

F.1 Example

A detailed example of Selective Message Blocking (SMB) follows. The table below represents the agent's message queue as maintained by the ZIS. The message at the top represents the oldest message in the queue and is the message that is currently being processed by the agent as the example begins.

Agent Message Queue
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add.
SIF_Event message containing a StudentPersonal object with an Action of Add.
SIF_Request message for a StudentPersonal object from another agent.
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add.

Table F.1-1: Agent Message Queue - Example 1

When processing the StudentSchoolEnrollment event, the agent requires data from a SchoolInfo object that it doesn't have locally. It would like to request the SchoolInfo object without needing to process subsequent events. To do so, the agent acknowledges the StudentSchoolEnrollment event with an "Intermediate" SIF_Ack indicating that the ZIS will be contacted later to resume delivery of events. It then opens a channel to the ZIS and submits a SIF_Request for the SchoolInfo object.

Upon receipt of the "Intermediate" SIF_Ack, the ZIS freezes the delivery of any SIF_Event messages to this agent until the agent sends a final SIF_Ack releasing the original event. The current state of the queue is now:

Agent Message Queue
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add. (blocked)
SIF_Event message containing a StudentPersonal object with an Action of Add. (frozen)
SIF_Request message for a StudentPersonal object from another agent.
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add. (frozen)

Table F.1-2: Agent Message Queue - Example 2

The next message available for delivery to the agent is the SIF_Request for a StudentPersonal object. For our example, the agent will accept the SIF_Request by returning an "Immediate" SIF_Ack indicating that processing is complete and the agent will hand the SIF_Request off to another part of the agent for handling.

Meanwhile, the ZIS has deposited the SIF_Response from the SchoolInfo provider's agent into the queue. The queue now looks like this:

Agent Message Queue
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add. (blocked)
SIF_Event message containing a StudentPersonal object with an Action of Add. (frozen)
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add. (frozen)
SIF_Response message containing the SchoolInfo object previously requested.

Table F.1-3: Agent Message Queue - Example 3

The next message the agent receives is the SIF_Response. The agent takes the SIF_Response and uses the information from it along with the data in the original StudentSchoolEnrollment event to update its database. The agent returns (Pull-Mode) or sends (Push-Mode) an "Immediate" SIF_Ack telling the ZIS to discard the SIF_Response message.

The agent has now completed processing of the StudentSchoolEnrollment event and opens a channel to the ZIS and sends a "Final" SIF_Ack with the message identifier for the StudentSchoolEnrollment event. The SIF_Ack says that the agent has completed processing and the ZIS removes the event from the agent queue. The freeze on SIF_Event messages is lifted and the next message to be sent to the agent is the SIF_Event for a StudentPersonal Add:

Agent Message Queue
SIF_Event message containing a StudentPersonal object with an Action of Add.
SIF_Event message containing a StudentSchoolEnrollment object with an Action of Add.

Table F.1-4: Agent Message Queue - Example 4

"Immediate" SIF_Ack

The "Immediate" SIF_Ack is a SIF_Ack message with status code of 1. This type of SIF_Ack is returned as a response to a message sent by the ZIS and indicates that the agent has persisted or has processed the message and the ZIS must remove the message from its queue.

```
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>ABCD10580EF250789012AC0554321EA2</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>10580EF2ABCD50789012AC05EA6C71B3</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>1</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example F.1-1: "Immediate" SIF_Ack

"Intermediate" SIF_Ack

The "Intermediate" SIF_Ack is a SIF_Ack message with status code of 2. This type of SIF_Ack is returned as a response to an event message delivered by the ZIS and indicates that the agent has not completed processing of the event and the ZIS must not remove the event message from its queue. The agent will send a "Final" SIF_Ack to the ZIS in the future to signal that the ZIS can discard the event message. An "Intermediate" SIF_Ack message must not be returned by agents in response to messages other than SIF_Event.

```
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>ABCD10580EF250789012AC0554321EA3</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>10580EF2ABCD50789012AC05EA6C71B3</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>2</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example F.1-2: "Intermediate" SIF_Ack

"Final" SIF_Ack

A "Final" SIF_Ack is a message with status code of 3. The agent sends this type of SIF_Ack to the ZIS after the agent has completely processed a SIF_Event where it previously sent an "Intermediate" SIF_Ack. When the ZIS receives this message, it must discard the SIF_Event message referenced in the SIF_Ack upon successfully acknowledging the "Final" SIF_Ack.

```
<SIF_Message Version="2.3" xmlns="http://www.sifinfo.org/au/infrastructure/2.x">
  <SIF_Ack>
    <SIF_Header>
      <SIF_MsgId>ABCD10580EF250789012AC0554321EA4</SIF_MsgId>
      <SIF_Timestamp>2006-02-18T08:39:40-08:00</SIF_Timestamp>
      <SIF_SourceId>RamseyLIB</SIF_SourceId>
    </SIF_Header>
    <SIF_OriginalSourceId>RamseySIS</SIF_OriginalSourceId>
    <SIF_OriginalMsgId>10580EF2ABCD50789012AC05EA6C71B3</SIF_OriginalMsgId>
    <SIF_Status>
      <SIF_Code>3</SIF_Code>
    </SIF_Status>
  </SIF_Ack>
</SIF_Message>
```

Example F.1-3: "Final" SIF_Ack

Appendix G: Background/Supplementary Documentation (non-normative)

This appendix supplies background/supplementary documentation from working groups and task forces for interested readers, including but not limited to object plans, business/use cases, test plans, test results, background and best practice documentation. Last modified dates are included in parentheses.

SIF AU

DSWG_V1.1_ChangeProposal_CalendarDate.doc (12/13/2010)

DSWG_V1.1_ChangeProposal_demographics_and_languagelist.doc (12/13/2010)

DSWG_V1.1_ChangeProposal_Identity.doc (12/13/2010)

DSWG_V1.1_ChangeProposal_StaffAssignment.doc (12/13/2010)

DSWG_V1.1_ChangeProposal_StudentParticipation.doc (12/13/2010)

DSWG_V1.1_ChangeProposal_StudentPeriodAttendance.doc (12/14/2010)

DSWG_V1.1_ChangeProposal_StudentPersonal.doc (12/13/2010)

DSWG_V1.1_Object_Proposal_Plan_Assessment.doc (12/22/2010)

DSWG_V1.1_Object_Proposal_Plan_LearningStandards.doc (12/22/2010)

DSWG_V1.1_Object_Proposal_Plan_SystemRole.doc (12/22/2010)

Highlighted Additions and Changes 1.1.docx (12/22/2010)

Appendix H: Index of Tables

Appendix I: Index of Examples

Example 2.2.3−1	Examples Convention
Example 3.3.6.6.2−1	The "Pull" Model - SIF_Status/SIF_Code of 0
Example 3.3.6.6.2−2	The "Pull" Model - SIF_Status/SIF_Code of 9
Example 3.3.7.1.2−1	SIF HTTPS Request
Example 3.3.7.1.3−1	SIF HTTPS Response
Example 3.3.7.3−1	SIF client requesting compression of response
Example 3.3.7.3−2	SIF server returning compressed SIF_Ack
Example 3.3.7.3−3	SIF client sending compressed SIF_Message
Example 3.3.7.3−4	SIF client sending compressed SIF_Message and requesting compression of response
Example 3.3.7.4−1	SIF_Protocol with Accept-Encoding indicating acceptance of gzip (and identity)
Example 3.3.7.4−2	SIF_Protocol with Accept-Encoding indicating no acceptance of encodings other than gzip or identity, gzip preferred over identity
Example 5.1.1−1	SIF_Message
Example 5.1.2−1	SIF_Header
Example 5.1.2−2	SIF_Header
Example 5.1.10.1−1	
Example 5.1.10.1−2	
Example 5.1.10.1−3	SIF_ConditionGroup querying into an object
Example 5.1.10.2−1	
Example 5.1.10.2−2	
Example 5.1.11−1	Selecting all StudentPersonal objects
Example 5.1.11−2	Selecting all attributes and immediate child elements of StudentPersonal as columns from all StudentPersonal objects
Example 5.1.11−4	Selecting specific attributes and elements from all StudentPersonal objects
Example 5.1.11−5	Selecting StudentPersonal objects along with each student's EntryDate from StudentSchoolEnrollment for a specific school, school year and other StudentSchoolEnrollment values, sorted by student's last name
Example 5.1.11−6	Selecting a specific StudentPersonal's StudentSchoolEnrollment objects, along with the corresponding school name for each enrollment
Example 5.1.11.1−1	Input SIF_Query
Example 5.1.11.1−2	Corresponding SIF_ExtendedQuery
Example 5.1.12−1	SIF_ExtendedQueryResults
Example 5.2.1−1	SIF_Ack Status Message
Example 5.2.1−2	SIF_Ack Status Message
Example 5.2.1−3	SIF_Ack Error Message
Example 5.2.2−1	SIF_Event Message with StudentPersonal changes
Example 5.2.3−1	SIF_Provide
Example 5.2.4−1	SIF_Provision Example
Example 5.2.5−1	SIF_Register
Example 5.2.6−1	SIF_Request
Example 5.2.6−2	SIF_Request
Example 5.2.7−1	Sample single-packet SIF_Response to a SIF_Request for the Name element from a StudentPersonal object
Example 5.2.7−2	SIF_Response (first packet)
Example 5.2.7−3	SIF_Response (second packet)
Example 5.2.7−4	SIF_Response with no matching objects
Example 5.2.8−1	SIF_Subscribe
Example 5.2.9−1	SIF_SystemControl
Example 5.2.10−1	SIF_Ping
Example 5.2.10−2	SIF_SystemControl—SIF_Ping ("Okay" status)
Example 5.2.10−3	SIF_SystemControl—SIF_Ping ("Receiver is sleeping" status)
Example 5.2.10−4	SIF_SystemControl—SIF_Ping (Transport error returned)
Example 5.2.11−1	SIF_Sleep
Example 5.2.11−2	SIF_Ack with "Okay" status in response to SIF_Sleep

<div style="border:2px solid #1a3a6b; padding:10px;">

Appendix J: Index of Figures

</div>

Appendix K: Index of Objects

AggregateCharacteristicInfo	6.3.1
AggregateStatisticFact	6.3.2
AggregateStatisticInfo	6.3.3
Assessment	6.3.4
AssessmentAdministration	6.3.5
AssessmentForm	6.3.6
AssessmentItem	6.3.7
AssessmentPackage	6.3.8
AssessmentRegistration	6.3.9
AssessmentSubTest	6.3.10
CalendarDate	6.3.11
CalendarSummary	6.3.12
Identity	6.3.13
LEAInfo	6.3.14
LearningResource	6.3.15
LearningResourcePackage	6.3.16
LearningStandardDocument	6.3.17
LearningStandardItem	6.3.18
PersonPicture	6.3.19
ReportAuthorityInfo	6.3.20
ReportManifest	6.3.21
RoomInfo	6.3.22
SchoolCourseInfo	6.3.23
SchoolInfo	6.3.24
SchoolPrograms	6.3.25
SessionInfo	6.3.26
SIF_AgentACL	5.3.1
SIF_LogEntry	5.3.2
SIF_ReportObject	6.3.27
SIF_ZoneStatus	5.3.3
StaffAssignment	6.3.28
StaffPersonal	6.3.29
StudentActivityInfo	6.3.30
StudentActivityParticipation	6.3.31
StudentAttendanceSummary	6.3.32
StudentContactPersonal	6.3.33
StudentContactRelationship	6.3.34
StudentDailyAttendance	6.3.35
StudentParticipation	6.3.36
StudentPeriodAttendance	6.3.37
StudentPersonal	6.3.38
StudentSchoolEnrollment	6.3.39
StudentScoreSet	6.3.40
StudentSDTN	6.3.41
StudentSnapshot	6.3.42
SummaryEnrollmentInfo	6.3.43
SystemRole	6.3.44
TeachingGroup	6.3.45
TermInfo	6.3.46

52 Total

<div style="border:2px solid #1a5276; padding:10px;">

Appendix L: Index of Common Elements

</div>

SIF_Protocol	5.1.7
SIF_Query	5.1.10
SIF_Status	5.1.8
StateProvince	6.2.41
StateProvinceId	6.2.42
SubjectArea	6.2.43
SubjectAreaList	6.2.44
TimeElement	6.2.45
YearLevel	6.2.46
YearLevels	6.2.47

59 Total

Appendix M: Index of Common Types

AbstractContentElementType	A.1
AbstractContentPackageType	A.2
BaseNameType	A.3
DefinedProtocolsType	A.4
ExtendedContentType	A.5
GUIDType	A.6
IdRefType	A.7
MonetaryAmountType	A.8
MsgIdType	A.9
NameOfRecordType	A.10
ObjectNameType	A.11
OtherNameType	A.12
PartialDateType	A.13
RefIdType	A.14
ReportDataObjectType	A.15
ReportPackageType	A.16
SelectedContentType	A.17
SIF_EventObjectType	A.18
SIF_ExampleObjectType	A.19
SIF_LogEntryExtendedContentType	A.20
SIF_ProvideObjectNamesType	A.21
SIF_RequestObjectNamesType	A.22
SIF_ResponseObjectsType	A.23
SIF_ResponseObjectType	A.24
SIF_SubscribeObjectNamesType	A.25
URIOrBinaryType	A.26
VersionType	A.27
VersionWithWildcardsType	A.28

28 Total

Appendix N: Index of Elements

CurriculumLevel	6.3.45−1.9
CutScores	6.3.7−1.21, 6.3.10−1.11
Date	6.2.8−1.26, 6.3.15−1.26, 6.3.15−1.31, 6.3.17−1.21, 6.3.35−1.5, 6.3.37−1.5
DateTime	6.2.20−1.3, 6.2.20−1.11
DayId	6.3.26−1.12, 6.3.47−1.17, 6.3.48−1.13
DaysAttended	6.3.32−1.10
DaysInMembership	6.3.32−1.14
DaysInSession	6.3.12−1.7
DaysPerCycle	6.3.47−1.7
DaysTardy	6.3.32−1.13
DayTitle	6.3.47−1.18
DayValue	6.3.35−1.7
DefinedProtocolsType	A.4−1.1
Definition	6.3.1−1.4
Demographics	6.2.8−1.1, 6.2.28−1.4
Department	6.3.23−1.17
DepartureDate	6.3.41−1.16
Description	6.2.20−1.12, 6.3.1−1.3, 6.3.10−1.23, 6.3.12−1.6, 6.3.15−1.15, 6.3.15−1.30, 6.3.15−1.37, 6.3.17−1.5, 6.3.18−1.13, 6.3.21−1.9, 6.3.22−1.7, 6.3.23−1.12, 6.3.27−1.17, 6.3.28−1.6, 6.3.30−1.4, 6.3.40−1.12, 6.3.41−1.40, 6.3.46−1.7
DestinationSchool	6.3.39−1.40
DiagnosticStatement	6.3.40−1.11
Dialect	6.2.19−1.6
Disability	6.3.38−1.28
DisciplinaryAbsences	6.3.41−1.44
DisciplinaryContact	6.3.34−1.15
DiscontinueDate	6.3.3−1.13
DistrictCourseCode	6.3.23−1.9
DocumentDate	6.3.17−1.16
DocumentStatus	6.3.17−1.15
DueDate	6.3.21−1.15
DueDateTime	6.3.5−1.12
DwellingArrangement	6.2.8−1.17
EconomicDisadvantage	6.3.38−1.25
EducationAgencyType	6.3.14−1.8
EducationalLevel	6.2.9−1.1
EducationFilter	6.2.10−1.1, 6.2.40−1.5
EffectiveDate	6.3.3−1.12
ElectronicId	6.2.11−1.1, 6.2.12−1.2
ElectronicIdList	6.2.12−1.1, 6.3.29−1.5, 6.3.38−1.11
ElementName	6.3.1−1.5
Email	6.2.13−1.1, 6.2.14−1.2, 6.3.15−1.11
EmailList	6.2.6−1.6, 6.2.14−1.1, 6.2.28−1.7, 6.2.31−1.5, 6.3.41−1.14
EmergencyContact	6.3.34−1.13
EmploymentType	6.3.33−1.8
End	6.3.49−1.7
EndDate	6.3.12−1.9, 6.3.31−1.8, 6.3.46−1.6, 6.3.47−1.14
EndDateTime	6.2.45−1.7, 6.2.45−1.15
EndDay	6.3.32−1.8
EndOfLifeDate	6.3.17−1.19
EndReportDate	6.3.21−1.12
EndSubmitDate	6.3.21−1.14
EnglishProficiency	6.2.8−1.15, 6.2.15−1.1
Enrollment	6.3.43−1.22

LearningStandardItemRefId	6.2.10−1.3, 6.3.7−1.8, 6.3.10−1.21, 6.3.15−1.44, 6.3.17−1.25, 6.3.18−1.15, 6.3.18−1.35
LearningStandardItemRefIds	6.3.10−1.20
LearningStandardItems	6.2.10−1.2, 6.3.7−1.7
LearningStandards	6.3.15−1.43
LEAURL	6.3.14−1.7
Level	6.3.6−1.8
Level4	6.3.18−1.37
Level5	6.3.18−1.38
LifeCycle	6.2.20−1.1, 6.2.40−1.4
Line1	6.2.2−1.5
Line2	6.2.2−1.6
Line3	6.2.2−1.7
ListedStatus	6.2.29−1.5
Literacy	6.3.41−1.36
LivesWith	6.3.34−1.11
LocalAdoptionDate	6.3.17−1.17
LocalArchiveDate	6.3.17−1.18
LocalGovernmentArea	6.3.24−1.35
LocalId	6.2.2−1.29, 6.2.21−1.1, 6.3.12−1.5, 6.3.14−1.3, 6.3.24−1.3, 6.3.26−1.6, 6.3.29−1.3, 6.3.33−1.3, 6.3.38−1.9, 6.3.42−1.6, 6.3.42−1.23, 6.3.43−1.6, 6.3.43−1.26, 6.3.45−1.4, 6.3.47−1.5
Location	6.2.22−1.1, 6.3.3−1.14, 6.3.15−1.12, 6.3.30−1.11
LocationName	6.2.22−1.3
LocationRefId	6.2.22−1.4
Longitude	6.2.17−1.3
LongName	6.3.45−1.6
LowerCut	6.3.7−1.23, 6.3.10−1.13
MainlySpeaksEnglishAtHome	6.3.34−1.20
ManagingSchool	6.3.36−1.10
MapReference	6.2.2−1.23
MaritalStatus	6.2.8−1.34
MarkingTerm	6.3.46−1.12
MaxClassSize	6.3.45−1.28
Maximum	6.3.10−1.7
Measure	6.3.3−1.15
MediaType	6.3.15−1.20
MediaTypes	6.3.15−1.19
MedicalAlertMessage	6.3.38−1.7
MedicalAlertMessages	6.3.38−1.6
MembershipType	6.3.39−1.5
MiddleName	A.3−1.5
MinClassSize	6.3.45−1.27
Minimum	6.3.10−1.6
MinutesPerDay	6.3.12−1.14
ModificationHistory	6.2.20−1.8
Modified	6.2.20−1.9
MonetaryAmountType	A.8−1.1
MostRecent	6.3.38−1.19
MsgIdType	A.9−1.1
Name	6.2.6−1.2, 6.2.20−1.6, 6.2.23−1.1, 6.2.27−1.2, 6.2.28−1.2, 6.2.45−1.4, 6.2.45−1.12, 6.3.4−1.3, 6.3.10−1.3, 6.3.15−1.4, 6.3.15−1.8, 6.3.15−1.32, 6.3.15−1.35, 6.3.42−1.5, 6.3.45−1.20, 6.3.45−1.25
NameOfRecordType	A.10−1.1
NegotiatedCurriculumPlan	6.3.41−1.29
NonGovSystemicStatus	6.3.24−1.31

ReportFormat	6.3.21−1.20
ReportFormatList	6.3.21−1.19
ReportInfo	6.3.27−1.3
ReportingPeriod	6.3.21−1.10
ReportManifest	6.3.21−1.1
ReportName	6.3.21−1.8
ReportPackageType	A.16−1.1
ReportSubmitterInfo	6.3.27−1.8
RepositoryDate	6.3.17−1.24
Resources	6.3.18−1.4
ResponseChoices	6.3.7−1.11
ResponseType	6.3.7−1.4
Result	6.3.41−1.41
RichDescription	6.3.17−1.6
Role	6.2.6−1.4, 6.3.31−1.9, 6.3.44−1.9
RoleList	6.3.44−1.8
RoleScope	6.3.44−1.12
RoleScopeList	6.3.44−1.11
RoleScopeName	6.3.44−1.13
RoleScopeRefId	6.3.44−1.14
RollMarked	6.3.26−1.17
RoomInfo	6.3.22−1.1
RoomInfoRefId	6.3.48−1.6
RoomNumber	6.3.22−1.4, 6.3.26−1.11, 6.3.48−1.11
SchedulingTerm	6.3.46−1.13
SchoolCampusId	6.3.24−1.26
SchoolCoEdStatus	6.3.24−1.38
SchoolContact	6.2.36−1.2
SchoolContactList	6.2.36−1.1, 6.3.24−1.17
SchoolCounsellorFileHeld	6.3.41−1.32
SchoolCourseInfo	6.3.23−1.1
SchoolCourseInfoRefId	6.3.43−1.24, 6.3.45−1.12, 6.3.49−1.9
SchoolCourseLocalId	6.3.45−1.13
SchoolDistrict	6.3.24−1.10
SchoolDistrictLocalId	6.3.24−1.11
SchoolEducationalLevel	6.3.33−1.9
SchoolEnrollment	6.3.43−1.10
SchoolEnrollmentList	6.3.43−1.9
SchoolFocus	6.3.24−1.14
SchoolFocusList	6.3.24−1.13
SchoolGeographicLocation	6.3.24−1.34
SchoolGroup	6.3.24−1.43
SchoolGroupList	6.3.24−1.42
SchoolInfo	6.3.24−1.1
SchoolInfoRefId	6.3.5−1.16, 6.3.9−1.15, 6.3.11−1.4, 6.3.12−1.3, 6.3.22−1.3, 6.3.23−1.3, 6.3.25−1.3, 6.3.26−1.3, 6.3.28−1.3, 6.3.35−1.4, 6.3.37−1.4, 6.3.39−1.4, 6.3.41−1.6, 6.3.42−1.22, 6.3.43−1.12, 6.3.45−1.10, 6.3.46−1.3, 6.3.47−1.3, 6.3.48−1.16, 6.3.49−1.16
SchoolLocalId	6.3.23−1.4, 6.3.26−1.9, 6.3.38−1.20, 6.3.41−1.7, 6.3.43−1.13, 6.3.45−1.11, 6.3.47−1.10, 6.3.48−1.17, 6.3.49−1.17
SchoolName	6.3.24−1.6, 6.3.41−1.8, 6.3.41−1.21, 6.3.42−1.21, 6.3.43−1.11, 6.3.47−1.11
SchoolNo	6.3.42−1.24
SchoolProgramList	6.3.25−1.5
SchoolPrograms	6.3.25−1.1
SchoolSector	6.3.24−1.29
SchoolStateProvinceId	6.3.43−1.14

SchoolType	6.3.24−1.12
SchoolURL	6.2.37−1.1, 6.3.24−1.15
SchoolYear	6.2.38−1.1, 6.3.11−1.5, 6.3.12−1.4, 6.3.19−1.5, 6.3.23−1.5, 6.3.25−1.4, 6.3.26−1.5, 6.3.28−1.4, 6.3.31−1.5, 6.3.35−1.6, 6.3.37−1.12, 6.3.39−1.7, 6.3.42−1.4, 6.3.43−1.3, 6.3.43−1.28, 6.3.45−1.3, 6.3.46−1.4, 6.3.47−1.4, 6.3.49−1.19
Score	6.3.40−1.8
ScoreMetric	6.3.40−1.3
ScoreRange	6.3.10−1.4
Scores	6.3.40−1.7
ScoreValue	6.3.40−1.10
SelectedContentType	A.17−1.1
Semester	6.3.49−1.18
SessionDate	6.3.26−1.14
SessionInfo	6.3.26−1.1
SessionInfoRefId	6.3.37−1.6
SessionType	6.3.24−1.20
Set	6.3.45−1.7
SettingBodyName	6.3.18−1.10
Sex	6.2.8−1.3, 6.3.9−1.12, 6.3.42−1.8
ShortName	6.3.43−1.27, 6.3.45−1.5
SIF_Ack	5.2.1−1.1
SIF_AddPublishers	5.3.3−1.24
SIF_AdministrationURL	5.3.3−1.87
SIF_AgentACL	5.3.1−1.1
SIF_Application	5.2.5−1.10, 5.3.3−1.68
SIF_ApplicationCode	5.3.2−1.10
SIF_AuthenticationLevel	5.1.2−1.6, 5.1.4−1.1, 5.3.3−1.77
SIF_CancelRequests	5.2.16−1.1
SIF_Category	5.1.9−1.2, 5.3.2−1.8
SIF_ChangePublishers	5.3.3−1.31
SIF_Code	5.1.8−1.2, 5.1.9−1.3, 5.3.2−1.9
SIF_ColumnHeaders	5.1.12−1.2
SIF_Condition	5.1.10−1.9, 5.1.11−1.23
SIF_ConditionGroup	5.1.10−1.5, 5.1.11−1.19
SIF_Conditions	5.1.10−1.7, 5.1.11−1.21
SIF_Context	5.1.5−1.2, 5.1.6−1.1
SIF_Contexts	5.1.2−1.10, 5.1.5−1.1, 5.2.3−1.6, 5.2.4−1.7, 5.2.4−1.11, 5.2.4−1.15, 5.2.4−1.19, 5.2.4−1.23, 5.2.4−1.28, 5.2.4−1.33, 5.2.8−1.5, 5.2.17−1.5, 5.2.19−1.5, 5.3.1−1.5, 5.3.1−1.9, 5.3.1−1.13, 5.3.1−1.17, 5.3.1−1.21, 5.3.1−1.25, 5.3.1−1.29, 5.3.3−1.16, 5.3.3−1.23, 5.3.3−1.30, 5.3.3−1.37, 5.3.3−1.44, 5.3.3−1.52, 5.3.3−1.60, 5.3.3−1.88
SIF_Data	5.1.8−1.4
SIF_DeletePublishers	5.3.3−1.38
SIF_Desc	5.1.8−1.3, 5.1.9−1.4, 5.3.2−1.11
SIF_DestinationId	5.1.2−1.9
SIF_DestinationProvider	5.1.11−1.2
SIF_Element	5.1.10−1.4, 5.1.10−1.10, 5.1.11−1.6, 5.1.11−1.24, 5.1.11−1.29, 5.1.12−1.3
SIF_EncryptionLevel	5.1.2−1.7, 5.1.3−1.1, 5.3.3−1.78
SIF_Error	5.1.9−1.1, 5.2.1−1.6, 5.2.7−1.6
SIF_Event	5.2.2−1.1
SIF_EventObject	5.2.2−1.4
SIF_EventObjectType	A.18−1.1
SIF_Example	5.1.10−1.13
SIF_ExampleObjectType	A.19−1.1
SIF_ExtendedDesc	5.1.9−1.5, 5.3.2−1.12
SIF_ExtendedElement	6.2.39−1.2

SIF_ExtendedElements	5.3.1−1.31, 5.3.2−1.17, 5.3.3−1.90, 6.2.39−1.1, 6.3.1−1.7, 6.3.2−1.9, 6.3.3−1.17, 6.3.4−1.9, 6.3.5−1.18, 6.3.6−1.14, 6.3.7−1.26, 6.3.8−1.6, 6.3.9−1.18, 6.3.10−1.27, 6.3.11−1.20, 6.3.12−1.17, 6.3.13−1.15, 6.3.14−1.21, 6.3.15−1.47, 6.3.17−1.29, 6.3.18−1.40, 6.3.19−1.10, 6.3.20−1.11, 6.3.21−1.27, 6.3.22−1.14, 6.3.23−1.20, 6.3.24−1.45, 6.3.25−1.11, 6.3.26−1.19, 6.3.27−1.21, 6.3.28−1.25, 6.3.29−1.12, 6.3.30−1.13, 6.3.31−1.13, 6.3.32−1.16, 6.3.33−1.12, 6.3.34−1.24, 6.3.35−1.15, 6.3.36−1.38, 6.3.37−1.20, 6.3.38−1.33, 6.3.39−1.48, 6.3.40−1.15, 6.3.41−1.47, 6.3.42−1.30, 6.3.43−1.32, 6.3.44−1.17, 6.3.45−1.30, 6.3.46−1.16, 6.3.47−1.24, 6.3.48−1.19, 6.3.49−1.22, A.2−1.18
SIF_ExtendedQuery	5.1.11−1.1, 5.2.6−1.6, 6.3.21−1.25
SIF_ExtendedQueryResults	5.1.12−1.1, 5.2.7−1.8, 6.3.27−1.19
SIF_ExtendedQuerySupport	5.2.3−1.5, 5.2.4−1.6, 5.2.4−1.27, 5.2.4−1.32, 5.3.3−1.15, 5.3.3−1.51, 5.3.3−1.59
SIF_From	5.1.11−1.9
SIF_GetAgentACL	5.2.15−1.1
SIF_GetMessage	5.2.13−1.1
SIF_GetZoneStatus	5.2.14−1.1
SIF_Header	5.1.2−1.1, 5.2.1−1.2, 5.2.2−1.2, 5.2.3−1.2, 5.2.4−1.2, 5.2.5−1.2, 5.2.6−1.2, 5.2.7−1.2, 5.2.8−1.2, 5.2.9−1.2, 5.2.17−1.2, 5.2.18−1.2, 5.2.19−1.2, 5.3.2−1.5, 5.3.2−1.7
SIF_Icon	5.2.5−1.14, 5.3.3−1.4, 5.3.3−1.65
SIF_Join	5.1.11−1.11
SIF_JoinOn	5.1.11−1.13
SIF_LeftElement	5.1.11−1.14
SIF_LogEntry	5.3.2−1.1
SIF_LogEntryExtendedContentType	A.20−1.1
SIF_LogEntryHeader	5.3.2−1.4
SIF_LogObject	5.3.2−1.14
SIF_LogObjects	5.3.2−1.13
SIF_MaxBufferSize	5.2.5−1.5, 5.2.6−1.4, 5.3.3−1.79, 6.3.21−1.5
SIF_Message	5.1.1−1.1
SIF_Metadata	5.3.1−1.30, 5.3.2−1.16, 5.3.3−1.89, 6.2.40−1.1, 6.3.1−1.6, 6.3.2−1.8, 6.3.3−1.16, 6.3.4−1.8, 6.3.5−1.17, 6.3.6−1.13, 6.3.7−1.25, 6.3.8−1.5, 6.3.9−1.17, 6.3.10−1.26, 6.3.11−1.19, 6.3.12−1.16, 6.3.13−1.14, 6.3.14−1.20, 6.3.15−1.46, 6.3.17−1.28, 6.3.18−1.39, 6.3.19−1.9, 6.3.20−1.10, 6.3.21−1.26, 6.3.22−1.13, 6.3.23−1.19, 6.3.24−1.44, 6.3.25−1.10, 6.3.26−1.18, 6.3.27−1.20, 6.3.28−1.24, 6.3.29−1.11, 6.3.30−1.12, 6.3.31−1.12, 6.3.32−1.15, 6.3.33−1.11, 6.3.34−1.23, 6.3.35−1.14, 6.3.36−1.37, 6.3.37−1.19, 6.3.38−1.32, 6.3.39−1.47, 6.3.40−1.14, 6.3.41−1.46, 6.3.42−1.29, 6.3.43−1.31, 6.3.44−1.16, 6.3.45−1.29, 6.3.46−1.15, 6.3.47−1.23, 6.3.48−1.18, 6.3.49−1.21, A.2−1.17
SIF_Mode	5.2.5−1.6, 5.3.3−1.73
SIF_MorePackets	5.2.7−1.5
SIF_MsgId	5.1.2−1.2
SIF_Name	5.1.7−1.6, 5.2.5−1.3, 5.3.3−1.3, 5.3.3−1.6, 5.3.3−1.64
SIF_NodeVendor	5.2.5−1.8, 5.3.3−1.66
SIF_NodeVersion	5.2.5−1.9, 5.3.3−1.67
SIF_NotificationType	5.2.16−1.2
SIF_Object	5.2.3−1.3, 5.2.4−1.4, 5.2.4−1.9, 5.2.4−1.13, 5.2.4−1.17, 5.2.4−1.21, 5.2.4−1.25, 5.2.4−1.30, 5.2.8−1.3, 5.2.17−1.3, 5.2.19−1.3, 5.3.1−1.3, 5.3.1−1.7, 5.3.1−1.11, 5.3.1−1.15, 5.3.1−1.19, 5.3.1−1.23, 5.3.1−1.27, 5.3.3−1.13, 5.3.3−1.21, 5.3.3−1.28, 5.3.3−1.35, 5.3.3−1.42, 5.3.3−1.49, 5.3.3−1.57
SIF_ObjectData	5.2.2−1.3, 5.2.7−1.7
SIF_ObjectList	5.3.3−1.12, 5.3.3−1.20, 5.3.3−1.27, 5.3.3−1.34, 5.3.3−1.41, 5.3.3−1.48, 5.3.3−1.56
SIF_Operator	5.1.10−1.11, 5.1.11−1.26
SIF_OrderBy	5.1.11−1.28
SIF_OriginalHeader	5.3.2−1.6
SIF_OriginalMsgId	5.2.1−1.4
SIF_OriginalSourceId	5.2.1−1.3
SIF_PacketNumber	5.2.7−1.4
SIF_Ping	5.2.10−1.1
SIF_Product	5.2.5−1.12, 5.3.3−1.7, 5.3.3−1.70
SIF_Property	5.1.7−1.5
SIF_Protocol	5.1.7−1.1, 5.2.5−1.7, 5.3.3−1.74, 5.3.3−1.84
SIF_ProtocolName	5.3.3−1.82
SIF_Provide	5.2.3−1.1
SIF_ProvideAccess	5.3.1−1.2

SIF_ProvideObjectNamesType	A.21−1.1
SIF_ProvideObjects	5.2.4−1.3
SIF_Provider	5.3.3−1.10
SIF_Providers	5.3.3−1.9
SIF_Provision	5.2.4−1.1
SIF_PublishAddAccess	5.3.1−1.10
SIF_PublishAddObjects	5.2.4−1.12
SIF_PublishChangeAccess	5.3.1−1.14
SIF_PublishChangeObjects	5.2.4−1.16
SIF_PublishDeleteAccess	5.3.1−1.18
SIF_PublishDeleteObjects	5.2.4−1.20
SIF_Publisher	5.3.3−1.25, 5.3.3−1.32, 5.3.3−1.39
SIF_Query	5.1.10−1.1, 5.2.6−1.5, 6.3.21−1.24
SIF_QueryGroup	6.3.21−1.23
SIF_QueryObject	5.1.10−1.2
SIF_RefId	6.3.13−1.3, 6.3.27−1.9, 6.3.44−1.3
SIF_Register	5.2.5−1.1
SIF_ReportObject	6.3.27−1.1
SIF_Request	5.2.6−1.1
SIF_RequestAccess	5.3.1−1.22
SIF_Requester	5.3.3−1.54
SIF_Requesters	5.3.3−1.53
SIF_RequestMsgId	5.2.7−1.3, 5.2.16−1.4
SIF_RequestMsgIds	5.2.16−1.3
SIF_RequestObjectNamesType	A.22−1.1
SIF_RequestObjects	5.2.4−1.24
SIF_RespondAccess	5.3.1−1.26
SIF_Responder	5.3.3−1.46
SIF_Responders	5.3.3−1.45
SIF_RespondObjects	5.2.4−1.29
SIF_Response	5.2.7−1.1
SIF_ResponseObjectsType	A.23−1.1
SIF_ResponseObjectType	A.24−1.1
SIF_RightElement	5.1.11−1.16
SIF_Rows	5.1.12−1.7
SIF_SecureChannel	5.1.2−1.5
SIF_Security	5.1.2−1.4
SIF_Select	5.1.11−1.3
SIF_SIFNode	5.3.3−1.62
SIF_SIFNodes	5.3.3−1.61
SIF_Sleep	5.2.11−1.1
SIF_Sleeping	5.3.3−1.80
SIF_SourceId	5.1.2−1.8, 5.3.3−1.72
SIF_Status	5.1.8−1.1, 5.2.1−1.5
SIF_Subscribe	5.2.8−1.1
SIF_SubscribeAccess	5.3.1−1.6
SIF_SubscribeObjectNamesType	A.25−1.1
SIF_SubscribeObjects	5.2.4−1.8
SIF_Subscriber	5.3.3−1.18
SIF_Subscribers	5.3.3−1.17
SIF_SupportedAuthentication	5.3.3−1.81
SIF_SupportedProtocols	5.3.3−1.83

SIF_SupportedVersions	5.3.3−1.85
SIF_SystemControl	5.2.9−1.1
SIF_SystemControlData	5.2.9−1.3
SIF_Timestamp	5.1.2−1.3
SIF_Unprovide	5.2.17−1.1
SIF_Unregister	5.2.18−1.1
SIF_Unsubscribe	5.2.19−1.1
SIF_URL	5.1.7−1.4
SIF_Value	5.1.7−1.7, 5.1.10−1.12, 5.1.11−1.27
SIF_Vendor	5.2.5−1.11, 5.3.3−1.5, 5.3.3−1.69
SIF_Version	5.2.5−1.4, 5.2.5−1.13, 5.2.6−1.3, 5.3.3−1.8, 5.3.3−1.71, 5.3.3−1.76, 5.3.3−1.86, 6.3.21−1.4
SIF_VersionList	5.3.3−1.75
SIF_Wakeup	5.2.12−1.1
SIF_Where	5.1.11−1.18
SIF_ZoneStatus	5.3.3−1.1
Size	6.3.22−1.10
SLA	6.3.14−1.19, 6.3.24−1.37
SnapDate	6.3.41−1.3
Source	6.3.3−1.11, 6.3.17−1.7
SpanGap	6.2.45−1.9
SpanGaps	6.2.45−1.8
SpecialCondition	6.3.5−1.6
SpecialConditions	6.3.5−1.5
Staff	6.3.43−1.18
StaffActivity	6.3.28−1.17
StaffAssignment	6.3.28−1.1
StaffAssignmentRefId	6.3.43−1.19
StaffList	6.3.22−1.5
StaffLocalId	6.3.43−1.20, 6.3.45−1.24, 6.3.48−1.12
StaffPersonal	6.3.29−1.1
StaffPersonalLocalId	6.3.26−1.10
StaffPersonalRefId	6.3.5−1.14, 6.3.9−1.16, 6.3.22−1.6, 6.3.28−1.5, 6.3.45−1.23, 6.3.48−1.7
StaffSubject	6.3.28−1.13
StaffSubjectList	6.3.28−1.12
StandardHierarchyLevel	6.3.18−1.11
StandardIdentifier	6.3.18−1.22
StandardNumber	6.3.18−1.25
StandardSettingBody	6.3.18−1.7
Start	6.3.49−1.6
StartDate	6.3.12−1.8, 6.3.31−1.7, 6.3.46−1.5, 6.3.47−1.13
StartDateTime	6.2.45−1.6, 6.2.45−1.14, 6.3.5−1.10
StartDay	6.3.32−1.7
StartTime	6.3.26−1.15
StateCourseCode	6.3.23−1.8
Statement	6.3.18−1.19
StatementCode	6.3.18−1.17
StatementCodes	6.3.18−1.16
Statements	6.3.18−1.18
StateOfBirth	6.2.8−1.7
StateProvince	6.2.2−1.19, 6.2.41−1.1, 6.3.18−1.9
StateProvinceId	6.2.42−1.1, 6.3.14−1.4, 6.3.24−1.4, 6.3.29−1.4, 6.3.38−1.10, 6.3.42−1.7, 6.3.43−1.7
StatisticName	6.3.3−1.3

VersionWithWildcardsType	A.28−1.1
VisaExpiryDate	6.2.8−1.31
VisaStatisticalCode	6.2.8−1.30
VisaSubClass	6.2.8−1.29
XCoordinate	6.2.2−1.25
XMLData	6.3.8−1.3, A.1−1.2, A.2−1.3
YCoordinate	6.2.2−1.26
YearCreated	6.3.18−1.23
YearLevel	6.2.46−1.1, 6.2.47−1.2, 6.3.18−1.28, 6.3.38−1.22, 6.3.39−1.12, 6.3.41−1.17, 6.3.42−1.25
YearLevels	6.2.47−1.1, 6.3.6−1.10, 6.3.10−1.16, 6.3.12−1.15, 6.3.15−1.16, 6.3.17−1.23, 6.3.18−1.20, 6.3.18−1.26, 6.3.24−1.21, 6.3.28−1.20, 6.3.30−1.9
YoungCarersRole	6.3.38−1.27, 6.3.41−1.35

1448 Total

<div style="border:1px solid">

Appendix O: Index of Attributes

</div>

Action	5.2.2−1.6
Algorithm	6.3.13−1.11
Alias	5.1.11−1.7, 5.1.12−1.5
AssessmentSubTestRefId	6.3.40−1.9
CalendarSummaryRefId	6.3.11−1.3
Code	6.3.5−1.7, 6.3.9−1.8
Codeset	6.2.26−1.3
ContentType	6.3.21−1.22
Currency	A.8−1.2
Date	6.3.11−1.2
Description	6.3.8−1.4, A.1−1.3, A.1−1.7, A.1−1.11, A.1−1.14, A.2−1.4, A.2−1.8, A.2−1.12, A.2−1.15
Distinct	5.1.11−1.4
EndDate	6.3.32−1.6
FileName	A.1−1.6, A.1−1.10, A.2−1.7, A.2−1.11
KeyName	6.3.13−1.12
LevelName	6.3.7−1.20, 6.3.10−1.10
LogLevel	5.3.2−1.3
MIMEType	A.1−1.5, A.1−1.9, A.1−1.13, A.2−1.6, A.2−1.10, A.2−1.14
Name	6.2.39−1.3
ObjectName	5.1.10−1.3, 5.1.11−1.8, 5.1.11−1.10, 5.1.11−1.15, 5.1.11−1.17, 5.1.11−1.25, 5.1.11−1.30, 5.1.12−1.4, 5.2.2−1.5, 5.2.3−1.4, 5.2.4−1.5, 5.2.4−1.10, 5.2.4−1.14, 5.2.4−1.18, 5.2.4−1.22, 5.2.4−1.26, 5.2.4−1.31, 5.2.8−1.4, 5.2.17−1.4, 5.2.19−1.4, 5.3.1−1.4, 5.3.1−1.8, 5.3.1−1.12, 5.3.1−1.16, 5.3.1−1.20, 5.3.1−1.24, 5.3.1−1.28, 5.3.2−1.15, 5.3.3−1.14, 5.3.3−1.22, 5.3.3−1.29, 5.3.3−1.36, 5.3.3−1.43, 5.3.3−1.50, 5.3.3−1.58
Ordering	5.1.11−1.31
QueryLanguage	6.3.21−1.18
ReferenceType	6.3.15−1.13
RefId	6.3.1−1.2, 6.3.2−1.2, 6.3.3−1.2, 6.3.4−1.2, 6.3.5−1.2, 6.3.6−1.2, 6.3.7−1.2, 6.3.8−1.2, 6.3.9−1.2, 6.3.10−1.2, 6.3.12−1.2, 6.3.13−1.2, 6.3.14−1.2, 6.3.15−1.2, 6.3.15−1.29, 6.3.17−1.2, 6.3.18−1.2, 6.3.19−1.2, 6.3.20−1.2, 6.3.21−1.2, 6.3.22−1.2, 6.3.23−1.2, 6.3.24−1.2, 6.3.25−1.2, 6.3.26−1.2, 6.3.27−1.2, 6.3.28−1.2, 6.3.29−1.2, 6.3.30−1.2, 6.3.31−1.2, 6.3.33−1.2, 6.3.35−1.2, 6.3.36−1.2, 6.3.37−1.2, 6.3.38−1.2, 6.3.39−1.2, 6.3.40−1.2, 6.3.41−1.2, 6.3.43−1.2, 6.3.44−1.2, 6.3.45−1.2, 6.3.46−1.2, 6.3.47−1.2, 6.3.48−1.2, 6.3.49−1.2, A.2−1.2
RelationshipType	6.3.18−1.36
ReportAuthorityInfoRefId	6.3.21−1.3
ReportManifestRefId	6.3.27−1.4
ResourceType	6.3.18−1.6
Role	6.2.2−1.3
RoleId	6.3.44−1.10
RowCount	5.1.11−1.5
SchemaName	6.3.13−1.8
SchoolInfoRefId	6.3.32−1.3
SchoolYear	6.3.32−1.4
ScoreMetric	6.3.7−1.22, 6.3.10−1.5, 6.3.10−1.12
Secure	5.1.7−1.3
Severity	6.3.38−1.8
SIF_Action	6.2.3−1.3, 6.2.14−1.3, 6.2.27−1.3, 6.2.30−1.3, 6.2.39−1.5, 6.3.5−1.8
SIF_RefObject	6.2.22−1.5, 6.3.13−1.4, 6.3.15−1.42, 6.3.19−1.4, 6.3.21−1.7, 6.3.24−1.9, 6.3.27−1.10, 6.3.36−1.11, 6.3.39−1.14, 6.3.39−1.16, 6.3.39−1.18, 6.3.39−1.23, 6.3.42−1.27, 6.3.43−1.5, 6.3.44−1.4, 6.3.44−1.15
SnapDate	6.3.42−1.2
Source	5.3.2−1.2
SourceId	5.3.3−1.11, 5.3.3−1.19, 5.3.3−1.26, 5.3.3−1.33, 5.3.3−1.40, 5.3.3−1.47, 5.3.3−1.55
StartDate	6.3.32−1.5
StudentContactPersonalRefId	6.3.34−1.3

StudentPersonalRefId	6.3.32−1.2, 6.3.34−1.2, 6.3.42−1.3
SystemId	6.3.44−1.7
Type	5.1.7−1.2, 5.1.10−1.6, 5.1.10−1.8, 5.1.11−1.12, 5.1.11−1.20, 5.1.11−1.22, 5.3.3−1.63, 6.2.2−1.2, 6.2.2−1.24, 6.2.11−1.2, 6.2.13−1.2, 6.2.22−1.2, 6.2.23−1.2, 6.2.29−1.2, 6.3.3−1.5, 6.3.3−1.10, 6.3.19−1.7, 6.3.21−1.17, 6.3.21−1.21, 6.3.29−1.8, 6.3.33−1.6, 6.3.37−1.15, 6.3.38−1.5, 6.3.38−1.14, A.10−1.2, A.12−1.2
Version	5.1.1−1.3
xml:lang	6.3.15−1.3, 6.3.17−1.3, 6.3.18−1.3
xmlns	5.1.1−1.2
xsi:type	5.1.12−1.6, 6.2.39−1.4
ZoneId	5.3.3−1.2

208 Total

Appendix P: References

Architecture/Infrastructure

Key	Citation
EXPORT	U.S. Bureau of Industry and Security. Commercial Encryption Export Controls. 6 July 2006 <http://www.bis.doc.gov/Encryption/>.
FAVICON	·icon - Wikepedia, the free encyclopedia. 6 July 2006 <http://en.wikipedia.org/wiki/Favicon>.
MIME	IETF (Internet Engineering Task Force). RFC 2048: Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures. 1996 November. 6 July 2006 <http://www.ietf.org/rfc/rfc2048.txt>.
RFC 2045	IETF (Internet Engineering Task Force). RFC 2045: Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies. 6 July 2006 <http://www.ietf.org/rfc/rfc2045.txt>.
RFC 2046	IETF (Internet Engineering Task Force). RFC 2046: Multipurpose Internet Mail Extensions (MIME) Part Two: Med Types. 6 July 2006 <http://www.ietf.org/rfc/rfc2046.txt>.
RFC 2119	IETF (Internet Engineering Task Force). RFC 2119: Key words for use in RFCs to Indicate Requirement Levels. 11 December 2008 <http://www.ietf.org/rfc/rfc2119.txt>.
RFC 2246	IETF (Internet Engineering Task Force). RFC 2246: The TLS Protocol: Version 1.0. 6 July 2006 <http://www.ietf.org/rfc/rfc2246.txt>.
RFC 2376	IETF (Internet Engineering Task Force): RFC 2376: XML Media Types. 6 July 2006 <http://www.ietf.org/rfc/rfc2376.txt>.
RFC 2396	IETF (Internet Engineering Task Force): RFC 2396: Uniform Resource Identifiers (URI): Generic Syntax. 13 July 2006 <http://www.ietf.org/rfc/rfc2396.txt>.
RFC 2518	IETF (Internet Engineering Task Force). RFC 2518: HTTP Extensions for Distributed Authority—WEBDAV. 6 July 2006 <http://www.ietf.org/rfc/rfc2518.txt>.
RFC 2616	IETF (Internet Engineering Task Force). RFC 2616: Hypertext Transport Protocol—HTTP 1.1. 6 July 2006 <http://www.ietf.org/rfc/rfc2616.txt>.
RFC 4122	IETF (Internet Engineering Task Force). A Universally Unique IDentifier (UUID) URN Namespace. 3 July 2006 <http://www.ietf.org/rfc/rfc4122.txt>.

Key	Citation
SCHEMA	World Wide Web Consortium (W3C). XML Schema Part 1: Structures. 6 July 2006 <http://www.w3.org/TR/xmlschema-1/>. World Wide Web Consortium (W3C). XML Schema Part 2: Datatypes. 6 July 2006 <http://www.w3.org/TR/xmlschema-2/>. A non-normative primer on XML Schema is also available: World Wide Web Consortium (W3C). XML Schema Part 0: Primer. 6 July 2006 <http://www.w3.org/TR/xmlschema-0/>.
Schneier	Schneier, Bruce. Applied Cryptography: Protocols, Algorithms, and Source Code in C (Second Edition). John Wiley & Sons, 1995.
SIF Certification	Schools Interoperability Framework Association (SIF Association). SIF Certification - Product Standards. 23 May 2007 <http://certification.sifinfo.org/docs/prodstandards.tpl>.
SIF Reporting WS	Schools Interoperability Framework Association (SIF Association). Schools Interoperability Framework™ Reporting Web Service 1.0. 28 September 2006 <http://specification.sifinfo.org/WebServices/Reporting/1.0>.
SSL2	Netscape. SSL 2.0 Protocol Specification. 6 July 2006 <http://wp.netscape.com/eng/security/SSL_2.html>.
SSL3	Netscape. The SSL Protocol Version 3.0. 6 July 2006 <http://wp.netscape.com/eng/ssl3/draft302.txt>.
WSARCH	World Wide Web Consortium (W3C). Web Services Architecture. 16 July 2006 <http://www.w3.org/TR/ws-arch/>.
XML	W3C (World Wide Web Consortium). Extensible Markup Language (XML) 1.0 (Third Edition). 6 July 2006 <http://www.w3.org/TR/2004/REC-xml-20040204>.
XMLINTRO	W3C (World Wide Web Consortium). XML in 10 Points. 13 July 2006 <http://www.w3.org/XML/1999/XML-in-10-points.html>.
XMLNS	W3C (World Wide Web Consortium). Namespaces in XML. 6 July 2006 <http://www.w3.org/TR/REC-xml-names/>.
XPath	W3C (World Wide Web Consortium). XML Path Language (XPath) Version 1.0. 6 July 2006 <http://www.w3.org/TR/xpath>.

Data Model

Key	Citation
CanadaPost	Canada Post. Canada Postal Guide. 6 July 2006 <http://www.canadapost.ca/personal/tools/pg/manual/b03-e.asp>.
ABS	Australian Bureau of Statistics <http://www.abs.gov.au/>.

Key	Citation
CNDB	USDA (United States Department of Agriculture). Child Nutrition Database (CNDB). 6 July 2006 <http://riley.nal.usda.gov/nal_display/index.php?info_center=14&tax_level=2&tax_subject=234&topic_id=1210>
DES	FIPS (Federal Information Processing Standards). Publication 46-3: Data Encryption Standard (DES). 25 October 1999. 06 July 2006 <http://csrc.nist.gov/publications/fips/fips46-3/fips46-3.pdf>.
DSS	FIPS (Federal Information Processing Standards). Publication 186-2: Digital Signature Standard (DSS). 27 January 2000. 6 July 2006 <http://csrc.nist.gov/publications/fips/fips186-2/fips186-2-change1.pdf>.
EDEN	U.S. Department of Education. File Specifications — Performance-Based Data Management Initiative (PBDMI). 7 September 2006 <http://www.ed.gov/about/inits/ed/pbdmi/file-specifications.html>.
FAVICON	Favicon - Wikepedia, the free encyclopedia. 6 July 2006 <http://en.wikipedia.org/wiki/Favicon>.
IRSTIN	IRS (Internal Revenue Service) ITIN and ATIN definitions. Publication 1915: Understanding Your IRS Individual Taxpayer Identification Number (Rev. 2-2004). 2004 February. 6 July 2006 <http://www.irs.gov/pub/irs-pdf/p1915.pdf>
ISO 3166/MA	ISO (International Standards Organization). ISO 3166 Maintenance agency (ISO 3166/MA). 6 July 2006 <http://www.iso.org/iso/en/prods-services/iso3166ma/index.html>.
ISO 3166-1	ISO (International Standards Organization). English country names and code elements. 6 July 2006 <http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/list-en1.html>.
ISO 3166-3	ISO (International Standards Organization). ISO 3166-3:1999—Codes for the representation of names of countries and their subdivisions—Part 3:Codes for formerly used names of countries.
ISO 6709	ISO (International Standards Organization). ISO 6709-1983 (E)—Standard representation of latitude, longitude and altitude for geographic point locations (First edition—1983-05-15). International Organization for Standardization 1983
JPEG	IJG (Independent JPEG Group). JPEG File Interchange Format Version 1.02. 6 July 2006 <http://www.w3.org/Graphics/JPEG/jfif3.pdf>.
LOM	IEEE (Institute of Electrical and Electronics Engineers, Inc.). IEEE LTSC	WG12. 10 July 2006 <http://ltsc.ieee.org/wg12/>.
MD5	IETF (Internet Engineering Task Force). RFC 1321: The MD5 Message-Digest Algorithm. 1992 April. 6 July 2006 <http://www.ietf.org/rfc/rfc1321.txt>.
NCES	NCES (National Center for Education Statistics). NCES Handbooks Online. 6 July 2006 <http://nces.ed.gov/programs/handbook/toc.asp>.

Key	Citation
RC2	IETF (Internet Engineering Task Force). RFC 2268: A Description of the RC2 Encryption Algorithm. 1998 March. 6 July 2006 <http://www.ietf.org/rfc/rfc2268.txt>.
RSA	IETF (Internet Engineering Task Force). RFC 2313: PKCS #1: RSA Encryption. 1998 March. 6 July 2006 <http://www.ietf.org/rfc/rfc2313.txt>.
SAFETY	NCES (National Center for Education Statistics). Safety in Numbers: Collecting and Using Crime, Violence and Discipline Incident Data to Make a Difference in Schools. 13 July 2006 <http://nces.ed.gov/pubs2002/safety/chapter4.asp>.
SCED	National Center for Education Statistics. Secondary School Course Classification System: School Codes for the Exchange of Data. 23 May 2007 <http://nces.ed.gov/pubs2007/2007341.pdf>.
SHA1	FIPS (Federal Information Processing Standards). Publication 180-1: Secure Hash Standard (SHS). 17 April 1995. 6 July 2006 <http://www.itl.nist.gov/fipspubs/fip180-1.htm>.
USPS	United States Postal Services (USPS). Abbreviations. 6 July 2006 <http://www.usps.com/ncsc/lookups/usps_abbreviations.html>.
Z39.53	NISO (National Information Standards Organization). ANSI/NISO Z39.53-2001: Codes for the Representation of Languages for Information Interchange. NISO Press, 2001. 6 July 2006 <http://www.niso.org/standards/resources/Z39-53.pdf>.
Z39.53/MA	Library of Congress (Z39.53 Maintenance Agency). MARC Code List for Languages. 6 July 2006 <http://lcweb.loc.gov/marc/languages/>.
ABS 1269.0	Australian Bureau of Statistics - 1269.0 - Standard Australian Classification of Countries (SACC), Second Edition. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1269.0Second%20Edition?OpenDocument>.
ABS 1249.0	Australian Bureau of Statistics - 1249.0 - Australian Standard Classification of Cultural and Ethnic Groups (ASCCEG), 2005-06. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1249.02005-06?OpenDocument>.
ABS 1267.0	Australian Bureau of Statistics - 1267.0 - Australian Standard Classification of Languages (ASCL), 2005-06. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1267.02005-06?OpenDocument>.
ABS 1266.0	Australian Bureau of Statistics - 1266.0 - Australian Standard Classification of Religious Groups, 2005. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1266.02005?OpenDocument>.
ABS 1216.0	Australian Bureau of Statistics - 1216.0 - Australian Standard Geographical Classification (ASGC), Jul 2008. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1216.0Jul%202008?OpenDocument>.
MCEECDYA	The Ministerial Council for Education, Early Childhood Development and Youth Affairs. <http://www.mceetya.edu.au/mceecdya/>.

Key	Citation
DEEWR	Department of Education, Employment and Workplace Relations. <http://www.deewr.gov.au/Pages/default.aspx>.