**SIF Data Model Extension Proposal Template**

*This template should be used by individuals or Project Teams to submit (and later track the progress of) proposed extensions to the SIF Data Model. These extensions can either be new data objects or revisions to the schema defining elements and / or attributes in existing ones.*

*It is designed to be a “living document” and contains two “status tracking” sections which should be maintained and updated as the change approval process for this extension evolves.*

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| --- | --- | --- | --- |
| Extension Proposal Version Control | | | |
| Version | Date: | Author/Organization: | Comments |
| V1.0 | 2.17.2011 | Tom Ngo | First draft using this template. We should review as a group to see if it is missing anything before giving it to Vince and Jim to present to tech board etc. |
| V1.1 | 3.11.2011 | Tom Ngo | Design of the object specification for correlated classes. |
| V1.2 | 4.12.2011 | Tom Ngo | Group design and requirement discussion of specification. |
| V1.3 | 4.21.2011 | Tom Ngo | Group design specification. |
| V1.4 | 5.19.2011 | Tom Ngo | Updated the design specification section. |
| V1.6 | 6.16.2011 | Tom Ngo | Review this doc with group and see if we can this over to tech board for review. |
| V1.7 | 11.9.2011 | John Lovell | Moved proposal to new template and added XML example. |
| V1.8 | 11.10.2011 | Tom Ngo | Review the doc and fill in missing holes under the new template. |
| V1.9 | 01.09.2012 | Tom Ngo | Webinar review, add changes and updates. |
| V1.10 | 01.18.2012 | Tom Ngo | SIF annual conference review, add changes and updates. |
| V1.11 | 01.24.2012 | Claudia Roberts | Minor edits (e.g. corrected grammatical errors, sentence structure , etc.).  Clarified the explanations in the Rationale and Business Case(s).  Added a Project Team Resolution to the “Issues” section. |
| V1.12 | 02.19.2012 | Claudia Roberts | Added row above CorrelationType/Code in the Object Table for “CorrelationType”, which is the standard way that SIF represents an element that requires a code.  Changed the Char for the code of CorrelationType/Code from “O” to “M”. The CorrelationType remains Optional. It is the Code that is Mandatory, as is the standard way that SIF represents the Char.  Corrected the spelling of CorrelationSectionList/  CorrelationSection |

# **1 Identification**

|  |  |
| --- | --- |
| Proposed Extension Name |  |
| Submitted by (Project Team or Individual) | Student Data Model Requests Project Team |
| Date of initial submittal | 6.16.2011 |
|  |  |
| What is the base SIF Data Model release? | 2.6 |
| What is the base SIF Infrastructure release? | NA |
|  |  |
| What existing SIF object(s) if any will be affected? | SchoolCourseInfo,  StudentSchoolEnrollment |
| What is the name of any new object(s)? | SectionCorrelation |
|  |  |
| DM Extension ID (to be assigned when submitted) |  |

**Status Tracker Phase 1: Documentation and Approval**

*The steps in this initial phase document the proposed extensions to the SIF Data Model to the point where they can be reviewed and approved by the Tech Board as deserving of further effort. Completion of the detailed design and evaluation of the dependencies and migration impacts are left until Phase II.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Template Section** | **Draft Completed**  **(Owner / Date)** | **Reviewed (R) or Accepted (A)**  **(Owner / Date)** | **Comments** |
| Rationale and Business Case | Champion  **Date:** | Tech Board (A)  **Date:** | Assign to relevant Project Team(s) |
| Use Case(s) | Champion / Project Team  **Date:** | Project Team (R)  **Date:** |  |
| Proposal approval | Project Team  **Date:** | Tech Board (A)  **Date:** | Placed in Fast Track or Object Pipeline |

# **2. Proposal**

*This section should be completed by the “Proposal Champion”. A champion is usually one of the authors of the business case (although it may be SIF staff). This individual is responsible for driving the proposal through the qualification and acceptance cycle.*

*The following two subsections must be completed before the process can begin.*

## 2.1 Rationale for Extension

*Explain the rationale for the proposed extension to the SIF Data Model:*

* *What are the problems / limitations to be addressed?*
* *What is the additional information required?*
* *<If applicable>* Why should this proposal be a Fast Track request?

***2.1.1 The Rationale for the new SIF object: SectionCorrelation***

In the case where the association or correlation of a CTE course(s) and the Anchor Lab(s) is done at the state level, not at the district level (in an SIS) there needs to be a way to represent these relationships via SIF elements for the purpose of state reporting.

The reason why this information is important is because the state uses this information to determine the level of funding a school will get for each CTE course program. For instance, an entity such as a Joint Vocational School District (JVSD) is made up of many programs and in order to determine the funding, the state looks at which classes are associated with that CTE course program. This DMEP addresses this rationale by proposing a new object.

***2.1.2 The Rationale for the new elements on SchoolCourseInfo and StudentSectionEnrollment***

There are several states that have requested, for purposes of state reporting or student record exchange using the SIS objects, an indicator on courses for which college credit can be awarded and and/or courses that are part of a CTE program.

In some cases, the indicator is required on the student’s section level, as an override to the course master.

This DMEP proposes four new elements:

SchoolCourseInfo/CTEConcentrator,

SchoolCourseInfo/DualCredit,

StudentSectionEnrollment/CTEConcentrator,

StudentSectionEnrollment/DualCredit.

## 2.2 Business Case

*Provide a specific example of an example where the additional information defined in this proposal will be used in one or more educational processes*

*It should focus exclusively on the business problem to be solved and avoid proposing solutions.*

Below are two scenarios that inspired the new SectionCorrelation object:

1. There is no standard way of correlating two classes that have different Section IDs (aka Local Classroom Codes) and which, for the purposes of state reporting, are essentially the same class. For instance, states such as Ohio have records pertaining to Career Technical Education Correlated Classes (aka CTE Courses). Separate classes can be taken by juniors or seniors in a high school . From the state perspective, these classes are related (State Id for these courses are different).
2. There is no standard way of correlating CTE classes that have a one-to-many, or many-to-many, relationship. For instance, states such as Ohio have CTE programs with several classes that are associated with each other. Some CTE classes can be associated with more than one Anchor Lab. And, one Anchor Lab can be associated with one or more classes. The state does not make this correlation until it is reported by the LEA.

Below are scenarios which inspired the new elements:

1. There is no indicator on SchoolCourseInfo for flagging a course that can be used for college credit and/or high school credit.
2. There is no indicator on SchoolCourseInfo for flagging a course that is part of a CTE curriculum (aka a CTE Concentrator course).
3. There is no indicator on StudentSectionEnrollment for overriding a course taken by a student, for which the student can be awarded dual credit for college and/or high school, and for which the Course Master (SchoolCourseInfo) has or does not have this indicator.
4. There is no indicator on StudentSectionEnrollment for overriding a course taken by a student, for which the student can claim this course as a CTE Concentrator course when the Course Master (SchoolCourseInfo) has or does not have this indicator.

# **3. Use Cases**

*The proposal champion or the assigned project team must provide one or more high-level use cases illustrating the interactions between “actors” (typically applications) that become possible if this proposal is adopted and successfully implemented. Use one copy of the form below for each.*

**Use Case Title: SectionCorrelation new SIF object**

|  |  |
| --- | --- |
| **Summary Description** | A state reporting system needs to correlate a set of CTE classes; a single class can be correlated to one or more courses with an Anchor CTE Lab. Anchor CTE Lab can be associated with many CTE classes. This will require a new object that references SectionInfo. |
| **Actors and types:**  **One or more of:**   * **Requestor** * **Provider** * **Publisher** * **Subscriber** | Requestor - State reporting  Provider – Student Information System |
| **Preconditions** | Something in the course, a curriculum identifier for course, indicates that the course is an anchor for a particular program. |
| **Main Sequence of Events / Action Steps** | A course is marked and identified as being an anchor to a program(s). |
| **Alternative Sequence of Events / Action Steps** |  |
| **Post Conditions** | SectionCorrelation is associated with all necessary SectionInfo objects. |
| **SIF Mandatory Objects** | SectionInfo Object |
| **SIF Optional Objects** | n/a |
| **Open Issues** | n/a |

**Use Case Title: CTEConcentrator and DualCredit new elements**

|  |  |
| --- | --- |
| **Summary Description** | Two flags are required on SchoolCourseInfo object. One is to indicate a course is a CTE credited course, the other is to indicate whether it’s a dual credited course.  StudentSectionEnrollment object needs these two elements as well, to allow student at a section level to override the course level. |
| **Actors and types:**  **One or more of:**   * **Requestor** * **Provider** * **Publisher** * **Subscriber** | Requestor – State Reporting  Provider – Student Information System |
| **Preconditions** | The student information system contains course level dual credit indicator and/or CTE concentrator indicator on the course; or it could also have the dual credit and/or CTE concentrator indicator at the student course level. |
| **Main Sequence of Events / Action Steps** | A course (on SchoolCourse Info) is marked with an indicator for dual credit and/or CTE concentrator.  A student in a course can be marked with dual credit and/or CTE concentrator that override the course level indicator (via StudentSectionEnrollment). |
| **Alternative Sequence of Events / Action Steps** | A course is not marked with an indicator for dual credit and/or CTE concentrator. A student in a course is marked with dual credit and/or CTE concentrator indicator. |
| **Post Conditions** | The course is associated with the dual credit and/or CTE concentrator indicator. A student in a course can also be associated with the dual credit and/or CTE concentrator indicator that overrides the course level dual credit/CTE concentrator indicator. |
| **SIF Mandatory Objects** | n/a |
| **SIF Optional Objects** | SchoolCourseInfo and StudentSectionEnrollment. |
| **Open Issues** | n/a |

**Status Tracker Phase 2: Execution of Proposed Changes**

*At this point the initial Data Model extension proposal has been accepted by the Tech Board and is either in the object pipeline, or being fast-tracked. The following sections have to be completed and (where indicated) reviewed and approved before this proposal can be reflected in the SIF specification.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Template Section** | **Draft Completed**  **(Owner / Date)** | **Reviewed (R) or Accepted (A)**  **(Owner / Date)** | **Comments** |
| Dependencies | Project Team / Staff  **Date:** | Internal Project Team review |  |
| Object Definition Table | Project Team  **Date:** | Tech Board (R)  **Date:** |  |
| Migration Plan | Staff / Project Team  **Date:** | Tech Board (A)  **Date:** | TB Approval is part of SIF Release cycle |
| Sample XML | Staff / Project Team  **Date:** | Optional | Generally provided as part of published specification |

# **4. Impact Assessment**

*This section is the first to consider the actual implementation which will address the use cases previously identified. It requires assessing the impacts to both the existing objects and infrastructure, and to previously deployed applications. It would normally be produced by the Project Team (new or existing) assigned to this data model extension by the Tech Board at the time this proposal was approved.*

*In cases where a legacy object (one with no owning Project Team), is being changed, the task of assessing impact may be assigned to a Staff member to drive its completion.*

*The following two subsections must be completed.*

## 4.1 External Object Dependencies and Relation Map

*Identify any dependencies on existing XML entities in other SIF objects*

|  |  |  |
| --- | --- | --- |
| **Proposed new Element or Attribute** | **Object & XML Entity dependency**  **(Element, Attribute, Type)** | **Relationship / Reason** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## 4.2 Infrastructure / International Dependencies and Relation Map

*Identify any dependencies on infrastructure technologies and / or deliverables from the International Technical Board (ITB) which are planned for a future release.*

*This could include requiring or relying on specific functionality from one or more of the following:*

* *Transport (ex: SOAP conventions)*
* *SIS Functional Profiles*
* *Identity Management Profiles*
* *Global Data Model Metadata*
* *Central Administration or Smart Zone*
* *Zone Services (ex: Assessment)*

|  |  |  |
| --- | --- | --- |
| **Proposed new Object, Element or Attribute** | **Infrastructure or International technology dependency** | **Specifics of dependency** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# **5 Detailed Design**

*Place the detailed element by element, attribute by attribute breakdown of the Data Model Extension here. This work is normally done by members of the assigned Project Team.*

*The possible values of the “Char” column include*

*One of the following primary (and mutually exclusive) characteristics:*

* ***M – Mandatory****. Item must appear in every Add Event and, where not excluded in a conditional Request, in every Response message for the object*
* ***Q – ReQuired****. Item must either appear in an Add Event or eventually be included in a Change Event, and once added is returned in all corresponding queries.*
* ***S – Supported****. Item may or may not appear in any message relating to the object. However if its value is supplied / available to the sender, the item is provided in Event and Response messages as if it were Mandatory.*
* ***O – Optional****. Item may or may not appear in any message relating to the object. It need not be supported by the sender*

Plus one or more of the following characteristics if applicable:

* ***C******– Conditional.*** *Item is treated as the accompanying primary characteristic if the specified conditions are satisfied*
* ***I –******Immutable.*** *Item value cannot be changed once supplied.*
* ***U –******Unique.*** *Item value is unique from all other objects containing that item (ex: RefId)*
* ***N –******Non-Queryable****. Item is often calculated (ex: an aggregate), and can’t be used as a search key in a conditional Request.*

Plus the following characteristic if applicable:

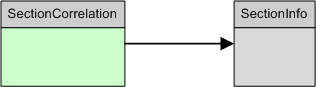
* ***R ­– Repeatable.*** *Item may appear more than one time.*

*The “type” of each item is either an XML type (ex: integer) or a named SIF Global Type.*

*XML Facets can help to further define the value of an item. These can include length, range, and per-type value restrictions. They should be specified if known.*

*Fill out a separate copy of the following table for each affected new or existing SIF object.*

**Object Name: SectionCorrelation**



SIF Request/Response only

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element or**  **@Attribute Name** | **Char** | **Type** | **Description** | **Other Comments** |
| SectionCorrelation |  |  | The classes being correlated for some program purpose, for example, career tech or team scheduling. |  |
| @RefId | M | RefIdType | The unique identifier (GUID) of this correlation. |  |
| CorrelationName | O | xs:normalizedString | A Meaningful name for the correlation. |  |
| CorrelationType | O |  | The type of correlation. |  |
| CorrelationType/Code | M | xs:normalizedString  Allowed values:  C – career technical  T – teaching teams  O – other | The code for the type of correlation. |  |
| CorrelationType/  OtherCodeList | O | OtherCodeList | List of other codes type. |  |
| CorrelationSectionList | M | List | The list of SectionInfo objects being correlated. |  |
| CorrelationSectionList/  CorrelationSection | MR |  | The correlated SectionInfo object . |  |
| @SectionInfoRefId | M | IdRefType | Reference to a SectionInfo object to be correlated. |  |
| CorrelationSectionList/ CorrelationSection/ Primary | M | Values:  Yes  No | Indicate whether a SectionInfo is primary. Only one SectionInfo in the CorrelationSectionList can be primary. |  |

**Object Name: SchoolCourseInfo**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element or**  **@Attribute Name** | **Char** | **Type** | **Description** | **Other Comments** |
| DualCredit | O | Values:  Yes  No | Indicate whether this course is applicable in having dual credits. |  |
| CTEConcentrator | O | Values:  Yes  No | Indicate whether this is a CTE concentrator for this course. |  |

**Object Name: StudentSectionEnrollment**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element or**  **@Attribute Name** | **Char** | **Type** | **Description** | **Other Comments** |
| DualCredit | O | Values:  Yes  No | Indicate whether this course is applicable in having dual credits. This value overrides the SchoolCourseInfo DualCredit value at the student section level. |  |
| CTEConcentrator | O | Values:  Yes  No | Indicate whether this is a CTE concentrator for this course. This value overrides the SchoolCourseInfo CTEConcentrator value at the student section level. |  |

# **6 Migration Plan (for proposed changes to existing objects only)**

*One of the mandatory components of every Data Model Change proposal is the Migration Plan. This section describes the impact of the proposed change to legacy SIF Zones and the techniques, best practices and deployment guidelines designed to minimize that impact. It is normally filled out in coordination with SIF Staff or an experienced SIF Data Modeler.*

*All migration plans have the same overarching goal: allow an existing SIF Zone to migrate to the new change incrementally ... by changing only one component at a time while maintaining at least the previous level of functionality, and “breaking” nothing in the process.*

*Several common strategies (in order of desirability) are:*

***1. Add new elements rather than modify old ones***

*This places a requirement on new agents to support duplicate entries in order to maintain backwards compatibility with agents conforming to earlier versions of the standard. To use this strategy, there must be a clear mapping provided for agent writers to utilize. This would include mapping any new code set values to the collection of previously existing ones.*

***2. Constrain the impact to the ZIS***

*In this case the ZIS will transparently “bridge” between agents supporting this change and earlier versions. To use this strategy, there must be a clear mapping provided for ZIS vendors to utilize, and at least two vendors must “sign off” on this section of the proposal.*

***3. Reduce the impact***

*This approach is effective for changing only those parts of the SIF specification which have been minimally adopted. Start by mapping the set of changed elements against the CSQ matrices to determine the number of existing SIF-certified applications that will be affected. Work with SIF Staff to alert impacted vendors (those with certified, and where known, uncertified products) and identify the number of sites which will be affected. Depending upon the size of the impact, the change may be accepted for a minor release.*

***4. Extended Elements***

*Use the extended element construct to add the new changes. This has the advantage that it standardizes how the functionality will be introduced, but suffers from the disadvantage that conformance to the changes cannot be easily verified, and a further change will be required when moving forward to the next major release. It is the least desirable way to introduce changes into a minor release, and a strong justification for this approach should be prepared.*

***5. Wait until the next major release***

*Defer the proposed change until the next major release because a clear incremental migration strategy for it cannot be constructed.*

**Migration Plan:**

*Using the above techniques or alternative ones, specify the recommended series of incremental component upgrades or deployments (of application, agent or ZIS) which must be performed before the data model changes introduced by this proposal can be successfully incorporated into an existing SIF Zone.*

As far as the SIS State Data Request Project Team could tell, there are no breaking changes proposed in this DMEP, therefore no requirement for a migration plan.

All the proposed added elements in this DMEP are Optional.

The proposed new object is Optional. As well, it is an object that is supported by Request/Response and not by SIF\_Events.

|  |  |  |
| --- | --- | --- |
| **Component Replaced** | **Increased Functionality (if any)** | **Effect on Legacy components (if any)** |
|  | N/A |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# **7 Issues**

*List any issues surrounding this proposal which the reviewers or approvers may need to consider.*

Do we need a list of values for CorrelationType/Code? What are the possibilities? Is there an appropriate NCES (CEDS) code set?

**Issues RESOLUTION from the Project Team:**

* We decided again referencing an NCES or CEDS code set.
* We included a list of four possible text values for the CorrelationType, including “Other”. In addition, we included an OtherCodeList/OtherCode SIF Common Element, as an alternative to the CorrelationType/Code.

# **8 XML Example(s)**

*One or more examples of XML instances representing the items in the proposed extension should be placed here, as part of work done during the detailed design process.*

<SectionCorrelation RefId="FE886483013210003FFF002500F11F4E">

<CorrelationName>ComputerizedMilling</CorrelationName>

<CorrelationType>

<Code>C</Code>

<OtherCodeList>

<OtherCode Codeset="Other">CM1</OtherCode>

</OtherCodeList>

</CorrelationType>

<CorrelationSectionList>

<CorrelationSection @SectionInfoRefId=” FE886483013210000FFF002500F11F4E”>

<Primary>Yes</Primary>

</CorrelationSection>

<CorrelationSection @SectionInfoRefId=” AE886483013210001F4F002500F11F41”>

<Primary> No</Primary>

</CorrelationSection>

<CorrelationSection @SectionInfoRefId=” EE886483013210001F1F002500F11F49”>

<Primary>No</Primary>

</CorrelationSection>

</CorrelationSectionList>

</SectionCorrelation>

<SchoolCourseInfo RefId="9D75101A8C3D00AA001A0000A2E35B35" SchoolInfoRefId="101A8C3D00AA001A0000A2E35B359D75" SchoolYear="2006">

<CourseCode>CS101</CourseCode>

<StateCourseCode>08-001</StateCourseCode>

<DistrictCourseCode>CS101</DistrictCourseCode>

<SubjectAreaList>

<SubjectArea>

<Code>05</Code>

<OtherCodeList>

<OtherCode Codeset="Text">Graphic Arts</OtherCode>

</OtherCodeList>

</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>

<Code>0571</Code>

</InstructionalLevel>

<CourseCredits Type="0585">2</CourseCredits>

<CoreAcademicCourse>No</CoreAcademicCourse>

<GraduationRequirement>No</GraduationRequirement>

<DualCredit>Yes</DualCredit>

<CTEConcentrator>Yes</CTEConcentrator>

</SchoolCourseInfo>

<StudentSectionEnrollment RefId="983AC16598793002C3D00AA00456789D" StudentPersonalRefId="CAE293165987101A8C3D00AA00456789" SectionInfoRefId="9076AB23E386112B7EA2256100BB3312" SchoolYear="2002">

<EntryDate>2001-09-05</EntryDate>

<ExitDate>2002-03-01</ExitDate>

<ScheduleInfoOverrideList>

<ScheduleInfoOverride Override="Yes" TermInfoRefId="099BBC3227490063E97403434C5C2207">

<MeetingTimeList>

<MeetingTime>

<TimetableDay>M</TimetableDay>

<TimetablePeriod>6</TimetablePeriod>

</MeetingTime>

<MeetingTime>

<TimetableDay>W</TimetableDay>

<TimetablePeriod>6</TimetablePeriod>

</MeetingTime>

<MeetingTime>

<TimetableDay>F</TimetableDay>

<TimetablePeriod>6</TimetablePeriod>

</MeetingTime>

</MeetingTimeList>

</ScheduleInfoOverride>

<ScheduleInfoOverride Override="Yes" TermInfoRefId="A2334007263E97403434C5C220798765">

<MeetingTimeList>

<MeetingTime>

<TimetableDay>M</TimetableDay>

<TimetablePeriod>4</TimetablePeriod>

</MeetingTime>

<MeetingTime>

<TimetableDay>W</TimetableDay>

<TimetablePeriod>4</TimetablePeriod>

</MeetingTime>

<MeetingTime>

<TimetableDay>F</TimetableDay>

<TimetablePeriod>4</TimetablePeriod>

</MeetingTime>

</MeetingTimeList>

</ScheduleInfoOverride>

</ScheduleInfoOverrideList>

<CreditsAttempted Type="0588">1</CreditsAttempted>

<DualCredit>No</DualCredit>

<CTEConcentrator>No</CTEConcentrator>

</StudentSectionEnrollment>