



SCHOOLS INTEROPERABILITY FRAMEWORK

Vertical Reporting Task Force

Best Practice Document

Version 1.0
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1	Introduction	4
1.1	References	4
1.2	Terms	4
2	Overview	5
2.1	Business Case	5
2.1.1	Business Case Overview	5
2.1.2	Federal Reporting	5
2.2	Vertical Reporting Defined	8
2.3	Vertical Reporting Helper Objects	9
2.3.1	Manifest Object	9
2.3.2	Report Container Object	10
2.3.3	Report Authority Object	10
2.3.4	Report Collectors and Report Generators	10
2.3.5	Object Relation Diagram	12
2.3.6	Best Practice Communication Choreography	13
3	Communication Choreography	14
3.1	Publish Manifest Objects	14
3.2	Request Manifest Objects	15
3.3	Send a Report	16
3.3.1	Event Noise	17
4	Object Usage: SIF_ReportObject	18
4.1	Report Container Details	18
4.2	XML Example	18
4.3	ReportSubmitterInfo Element	20
5	Use Cases: ReportManifest	22
5.1	Overview	22
5.2	Use Case: Request report manifests from a designated agent in the zone	22
5.2.1	Scenario 1 – District Report Publishing System Requests a List of Available Report Manifests From a State Data Collector	23
5.3	Use Case: Notify data publishing system of change in available report manifests	24
5.3.1	Scenario 1 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been added	25
5.3.2	Scenario 2 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has changed	26
5.3.3	Scenario 3 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been removed	27
6	Use Cases: SIF_ReportObject	28
6.1	Overview	28
6.2	Use Case: Request report data from a designated agent in the zone	28
6.2.1	Scenario 1 – State Data Collector Requests a Report from a District Report Publishing System	29
6.3	Use Case: Notify data collection system of change in available reports	30
6.3.1	Scenario 1 – District Report Publishing System Notifies a State Data Collection System that a Report has been added	31
6.3.2	Scenario 2 – District Report Publishing System Notifies a State Data Collection System that a Report has been changed	31

6.3.3	Scenario 3 – District Report Publishing System Notifies a State Data Collection System that a Report has been removed.....	33
7	Use Cases: ReportAuthorityInfo	34
7.1	Overview	34
7.2	Use Case: Request reporting authorities from a designated agent in the zone 34	
7.2.1	Scenario 1 – District Report Publishing System Requests a List of Available Report Authorities From a State Data Collector.....	35
7.3	Use Case: Notify data publishing system of change in available report authorities	36
7.3.1	Scenario 1 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has been added	37
7.3.2	Scenario 2 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has changed.....	38
7.3.3	Scenario 3 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has been removed.....	39

1 Introduction

This document describes three objects developed by the Vertical Reporting Task Force: the ReportManifest object, the ReportAuthorityInfo object, and the SIF_ReportObject object. See the SIF specification for more detail on these objects. Objects other than these may be described in other best practice documents.

1.1 References

Vertical Reporting Defined: VerticalReportingDefined.doc in the SIF_VR Yahoo Groups files section.

SIF and No Child Left Behind: SIF_NCLB_White_Paper.doc in the SIF_VR Yahoo Groups files sections in the background folder.

Vertical Reporting Business Case: SIF_VR_BusinessCase_v1_01.doc in the SIF_VR Yahoo Groups files section.

1.2 Terms

Collector Agent – The agent that receives or collects reports.

Report Collector – A software system representing the reporting authority that mandates or collects reports. This system receives reports and integrates the information into its database.

Report Generator – The software system that harvests data and creates reports, most likely through interfaces with other systems.

Reporter Agent – The agent that sends reports.

Vertical Interoperability – The same as the current interoperability paradigm except that information is exchanged among different education entities and possibly among multiple zones.

Vertical Reporting – Moving large, prespecified data structures on a periodic basis from one education entity to another.

2 Overview

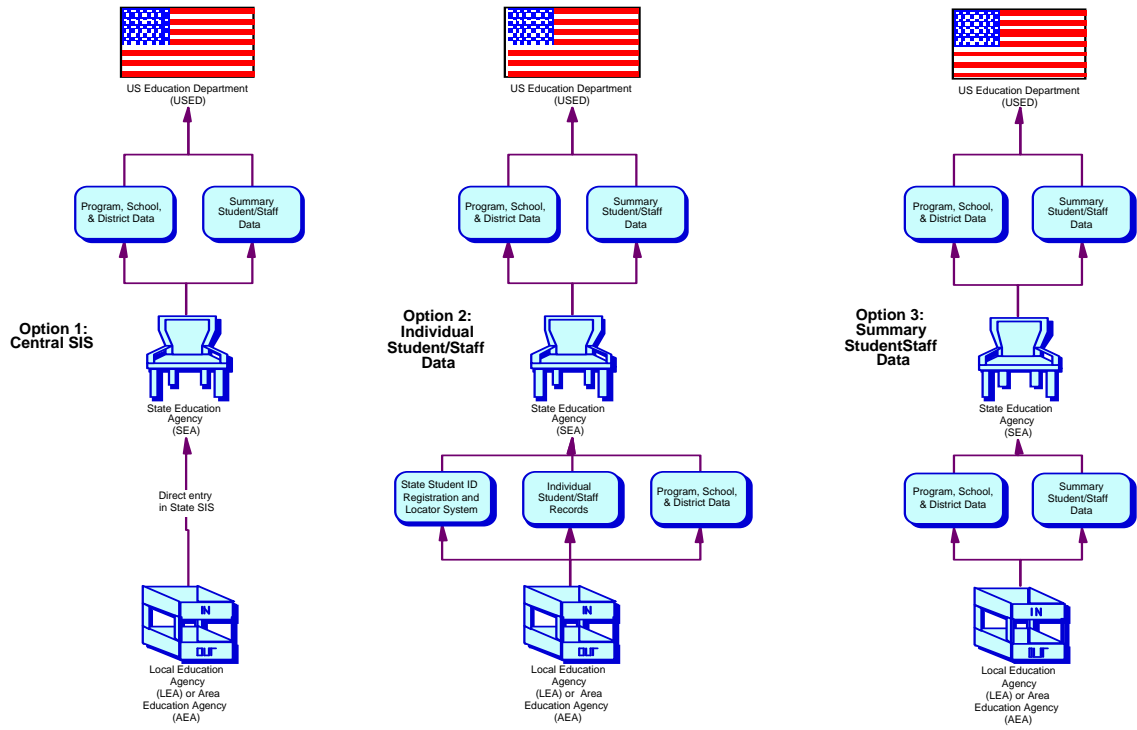
2.1 Business Case

2.1.1 Business Case Overview

Schools, districts, and state departments need to report data to higher authorities. Report metadata is required as part of the reporting process. Examples of this include submission details such as the report is a correction or resubmission, references to a report definition, due date of the report, etc. This type of information exchange is less transactional in nature than previous uses of SIF. "Reporting" involves the movement of data which are transmitted via multiple SIF objects that are related in such a way as to constitute a report. More than one software application may be involved in constructing the report but a single agent does the reporting. This is done in a periodic often pre-scheduled fashion rather than as a dynamically generated transaction. In addition, metadata related to the report needs to be part of the information exchange.

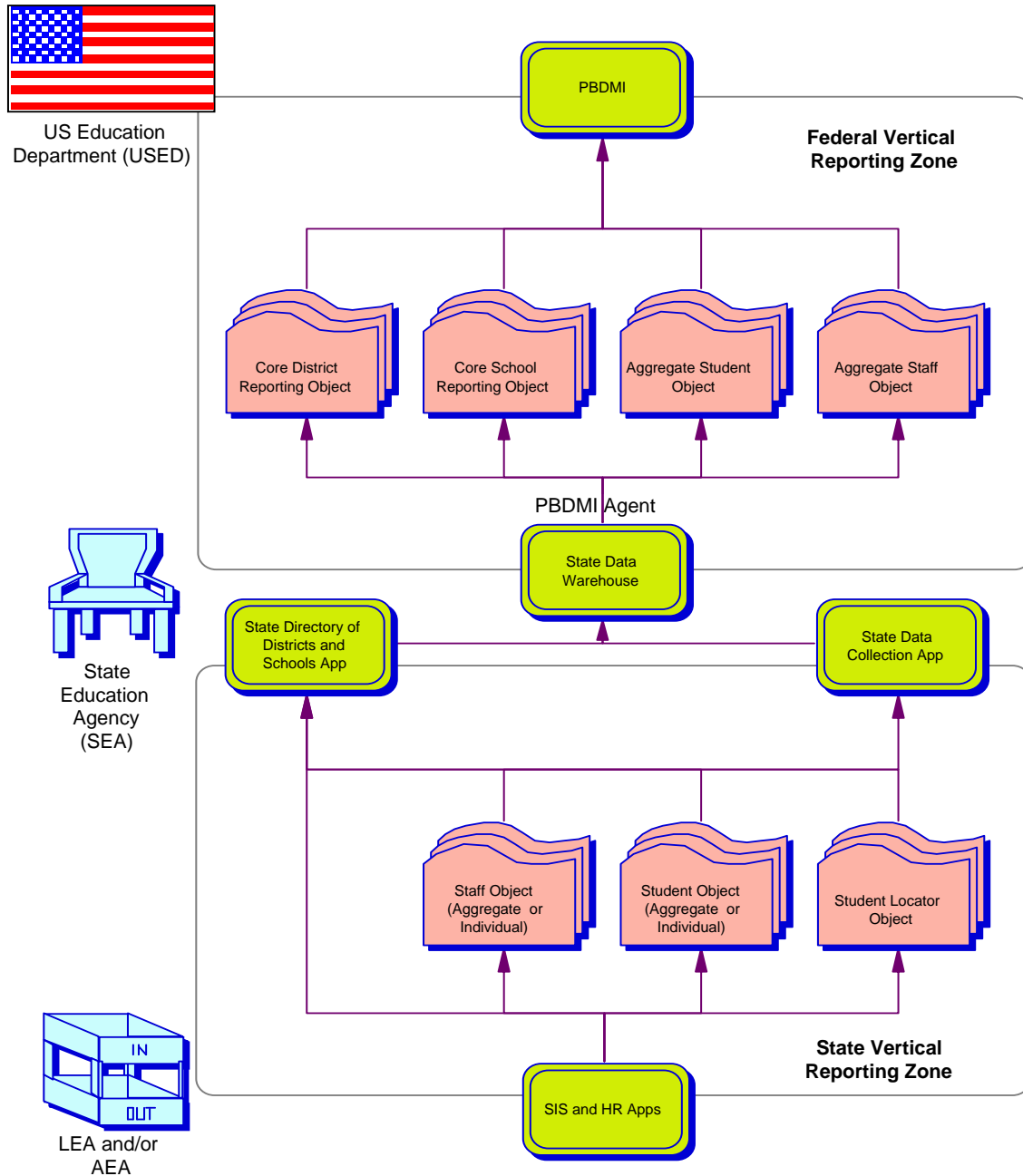
2.1.2 Federal Reporting

School districts (LEAs) and their regional area education agencies (AEAs) transmit data to SEAs one of two ways. In Option 1, the state provides a single student information system that all districts are required to use. The only business case for interoperability here is from the SEA to USED through PBDMI. Few states will proceed down this path. In Option 2, a state assigned unique ID enables the state to collect disaggregated individual student records and to make the calculations for summary data reported to USED. There is a clear business case for SIF interoperability standards for several object types in this model. Most states are expected to move towards this type of system. In Option 3, student data is summarized at the local level and transmitted to the SEA. SIF standards would facilitate this process as well.



Three Approaches to Vertical Data Flow

Vertical Reporting Business Case for Interoperability Objects



States that collect individual student data may deploy a statewide system to assign and manage a unique ID for each student. Such systems typically enable LEA/AEAs to assign a new or pre-existing state ID to students either individually or in groups. Eventually, LEAs will want to access the state ID assignment service at registration point within their SIS. SIF has developed a StudentLocator object to support this flow of information.

2.2 Vertical Reporting Defined

Vertical Interoperability:

Initially, a SIF zone was conceived and implemented as existing within a school, where different software packages within the school cooperate in sharing common information. Now, the concept of SIF interoperability is being expanded to include communication among different levels of education entities. There is the desire that the zone or the framework be scaled to accommodate this new kind of communication – Vertical Interoperability.

Vertical interoperability is a situation in which SIF agents at different levels of an organization communicate using a SIF zone. Vertical interoperability involves data collection from multiple agents (upward) or publishing of information to multiple agents (downward). For example, a state department data warehouse may listen for changes in district level data warehouses and update its database on a regular basis. Or, a state department may wish to publish teacher certification data to districts.

Vertical “Reporting”:

Vertical reporting using SIF is a special case of vertical interoperability. It is distinguished by the movement of pre-specified (and possibly large) packages of data at designated or predictable intervals. The SIF objects that are contained in the report may be any SIF data objects, representing either aggregate information or granular information. The set of data objects help define the report. Other things that define the report are the date the report is to be submitted, the time period the report applies to, and the mandate that the report fulfills.

Vertical Reporting using SIF is different from other uses of SIF (including Vertical Interoperability) in two crucial ways. First, the exchange of information in a reporting situation is more periodic than other more transactional uses of SIF. In reporting situations, well defined and large amounts of information are moved at usually pre-specified times. This is in contrast to a transactional situation in which software applications get information as needed or when new information is published.

A second crucial difference is that report data almost always flows using a many-to-one paradigm. In other types of interoperability using the Schools Interoperability Framework, information is either published (one-to-many) or requested (one-to-one). This raises a collation issue for collector agents. Since collector agents are receiving the same set of data objects many times over from multiple reporter agents, a way is needed for the collector agent to assemble the objects into a coherent report set.

2.3 Vertical Reporting Helper Objects

The vertical reporting helper objects seek to provide, within the current SIF infrastructure, a way to accomplish reporting tasks in an easily automated and elegant fashion. Besides making reporting using SIF easier, the desire is to provide a reporting environment that leverages existing SIF features and capabilities, and is a better alternative to monolithic, single vendor systems or a patch-work of technologies. For example, the helper objects leverage the broadcasting abilities of the Zone Integration Server. Issues such as readiness to send a report, readiness to receive a report, reporting deadlines, and others are taken into account. Also, inherent advantages of SIF such as encryption and security add to the motivation to implement a reporting system using the Framework.

Three new data objects have been developed. One object defines the report and provides other important report metadata. Another object is at the same time a container for the report and a data object that signals readiness to send a report. A third object defines authorities in a zone that will define and receive reports.

Also, a communication choreography that requires special reporting behavior from both the reporter agent and the collector agent is outlined. This choreography is a best practice guide and is the preferred method among several in which vertical reporting objects may be used.

2.3.1 Manifest Object

In a periodic reporting situation report metadata is crucial information needed by reporter agents as well as collector agents. Report metadata helps create the contract between the reporter and the collector. Reporter agents need this information in order to construct a report in the proper form with the proper contents, and to send the report at the appropriate time.

The manifest object defines a report in one of two ways:

1. By providing reference to a report specification external to SIF. In this situation the reporter agents know the structure of the report by mutual agreement or because the structure and contents has been defined by a mandating authority.
2. By providing a query structure to be used by the reporter agents in constructing the form and contents of the report.

Other report metadata provided by the Manifest object includes:

- Date/Time that receiver report will begin accepting submissions.
- Date/Time that the receiver of the report will end accepting submissions.
- Time period that the report applies to.
- Mandating authority for the report.

2.3.2 Report Container Object

This object is called SIF_ReportObject. In the future, this object may become a SIF message type and could be renamed SIF_Report. The SIF_ReportObject contains multiple other SIF data objects. It also includes a reference to a Manifest object so that the report collector can collate and process the information contained in SIF_ReportObject.

2.3.3 Report Authority Object

This object is called ReportAuthorityInfo. The object defines a potential collector of reports as well as the mandating authority of the report. It includes important details such as the name of the authority and contact information. Each Manifest object contains a reference to a report authority. Agents could use this object to validate requests for reports.

2.3.4 Report Collectors and Report Generators

Who or what can send and receive reports? In the use cases to follow and possibly elsewhere in this document the district to state reporting case is used. This is a common reporting scenario but there are many other scenarios in which reporting can take place. Although the term "vertical" is used throughout this document, reporting may take place not only among different entities in a vertical arrangement, but may also take place in a horizontal manner among peer entities or software systems.

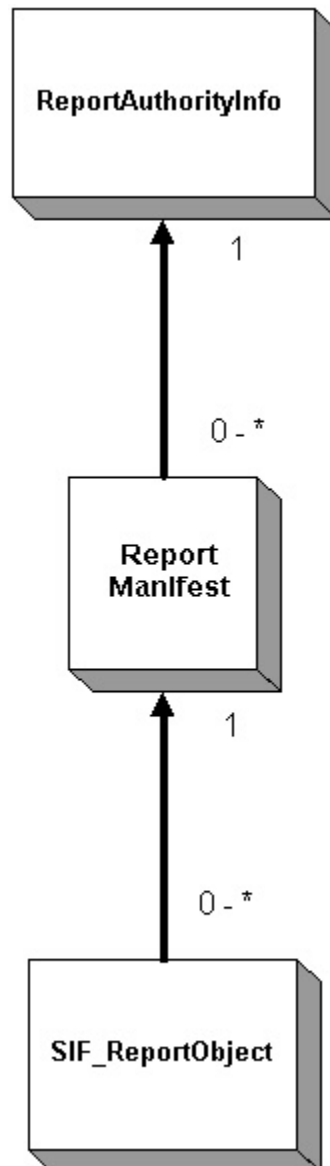
Report collector and report generator systems could be software systems of almost any type and could be associated with education entities of any type. For example, the state may send reports to districts, schools could receive reports from the state and district, or a regional service center could collect send reports. Any SIF enabled software system may choose send and receive information via the vertical reporting objects if the reporting scenario and conditions described above fit the situation. Besides accountability reports that are common in the district to state reporting scenario, other examples of reports include edit reports and verification reports that contain information about the correctness of other reports, publication of comparison statistics, publication of official statistics, transfer of student transcripts, and any other type of information appropriate to the constraints and advantages offered by vertical reporting.

It should also be pointed out that the vertical reporting scheme laid out in this document not only defines objects, agent behavior, and a communication choreography, but also indirectly defines report collector functionality and report generator functionality. The report generator must harvest data, probably in an automated fashion and probably utilizing SIF, from other sources. It must then construct the report in a form readable by the vertical reporting agent to be sent to the zone. On the other end, the report collector must be able to process the information received via its vertical reporting agent.

In a SIF environment the choice to use vertical reporting instead of direct interoperability has to do with a desire to leave in the hands of the reporter control over what information is sent and when. If this is the case, then a report must be constructed rather than leaving information to be exchanged in the background by machines with no human intervention or audit capability.

2.3.5 Object Relation Diagram

This diagram illustrates the relations among the three objects.



2.3.6 Best Practice Communication Choreography

The best practice communication choreography is in two parts:

1. Synchronization of Manifest information among participants in the zone using either the publish/subscribe mechanism or the request/response mechanism.
2. Initiation and completion of the reporting process.

Section 3.1 below describes the synchronization process accomplished by publishing Manifest objects. Section 3.2 describes the synchronization process by requesting a Manifest object. Finally, section 3.3 describes how a reporter agent initiates the reporting process and the report exchange is completed.

3 Communication Choreography

3.1 Publish Manifest Objects

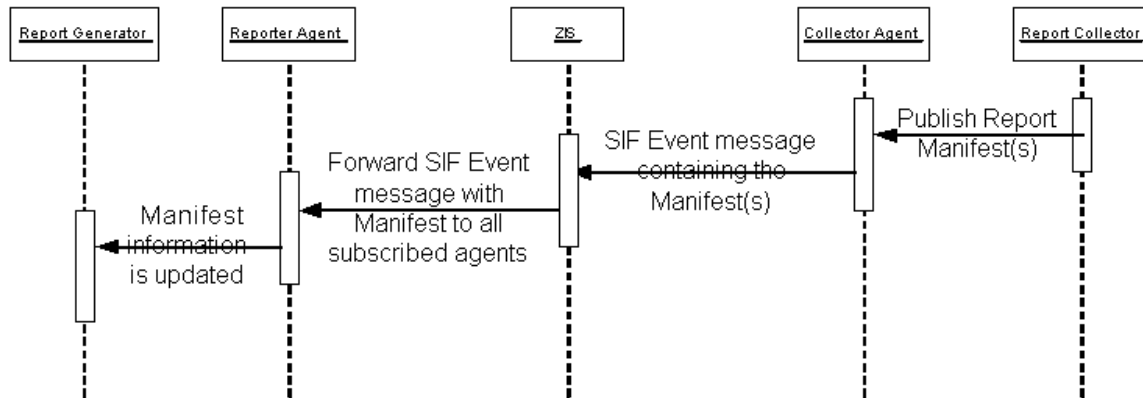


Figure 1

When a new report is added, changed or deleted an event is generated. All agents subscribed to the Manifest object update their systems in response to the event.

The publisher of the Manifest object event may not necessarily be the collector agent. That is, reports may be directed to agents other than the agent that publishes the Manifest object.

3.2 Request Manifest Objects

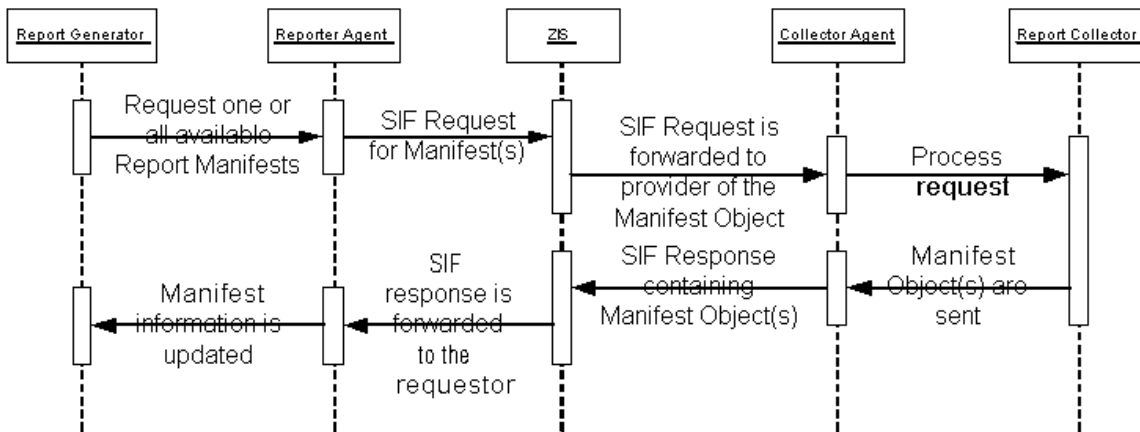


Figure 2

This scenario assumes that the reporter agent knows the collector agent from which to request Manifest objects or that an agent is registered in the zone as the provider of the Manifest object. When a report agent wants to update its Manifest objects (e.g. the beginning of the school year) it request Manifests from a particular collector agent or leaves the SIF_DestinationId blank (in which case the ZIS routes the message to the provider of the object). The reporter agent receives a response with the requested information and updates its database.

3.3 Send a Report

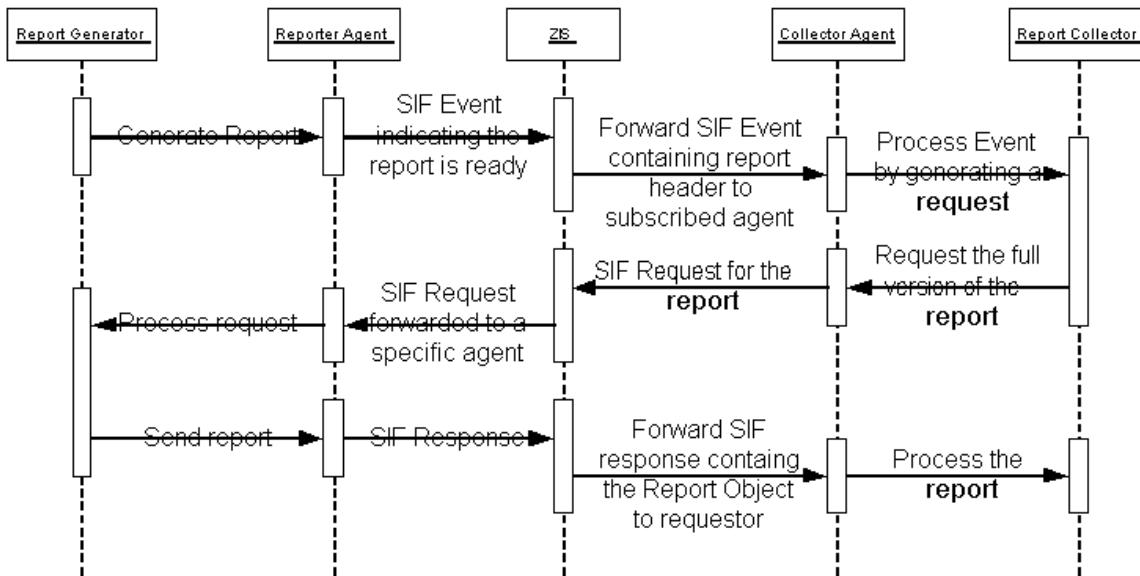


Figure 3

Following are the steps to accomplish reporting using the report objects. These steps assume that the Collector Agent is subscribed to the SIF_ReportObject object and that both the Report Agent and the Collector Agent have the latest Manifest objects.

Steps:

1. When a report is ready the Reporter Agent publishes an Add event on the SIF_ReportObject data object. This add event (SIF_Event) does not include the full report. It only includes header information in SIF_ReportObject necessary to identify the report. This event is meant to signal to the Collector Agent readiness to send the report.
2. Since the Collector Agent is subscribed to SIF_ReportObject the ZIS forwards the event to these agents.
3. The Report Collector receives the event. Using the RefId of the Manifest object contained in the report header, the Report Collector looks up the Manifest object for the report. If the Manifest indicates that this report is one that the Report Collector is authorized for, then...
4. The Report Collector software system reacts to the SIF_Event by generating a SIF_Request message for the full SIF_ReportObject. The Collector Agent uses the RefId of the SIF_ReportObject object and the SIF_SourceId of the SIF_Event to construct a request.
5. The ZIS forwards the request to the Reporter Agent addressed in the SIF_Request.

6. Optionally, the Reporter Agent looks up the Manifest associated with the requested SIF_ReportObject object. If the request is from an appropriate authority then...
7. The Reporter Agent responds to the SIF_Request by sending a SIF_Response. Inside the SIF_Response are the SIF_ReportObjects.

3.3.1 Event Noise

It should be noted that any agent subscribed to the SIF_ReportObject object will receive many SIF_ReportObject events – every time a reporter agent sends the ready signal via an event on SIF_ReportObject. This only becomes a problem if we have more than one agent subscribing to SIF_ReportObject in a zone. In this case, many events will need to be processed to some extent but ignored because that agent is not the appropriate collection agent.

4 Object Usage: SIF_ReportObject

4.1 Report Container Details

After a report is requested (see the previous sections on report communication choreography), the communication choreography requires that all data objects in the SIF_Response be wrapped inside a SIF_ReportObject. The SIF_ReportObject is repeated in the SIF_Response. This will allow an agent to “chunk” or “packetize” the SIF_Response in the same way as is currently done by agents.

The SIF_Response can now contain any number of different data object types because they are wrapped in a single object type, i.e., SIF_ReportObject. This enables reports to be constructed in a manner that makes it easier for a Report Collector to reconstitute the report if there are dependencies among the data objects.

It is further suggested that ACL checking only be done on SIF_ReportObject and not the payload.

The example in the next section shows how a report (or part of a report) is transmitted inside of a SIF_Message. The SIF_ReportObject acts as an envelope for the regular data objects. The SIF_ReportObject also contains a reference to a report manifest so that the data objects can be associated with a report and the Report Collector can reconstitute multiple SIF_ReportObjects into a whole report. It is also important to note that the first occurrence of the SIF_ReportObject in the SIF_Response should contain the ReportInfo element. All other occurrences contain the ReportData element.

4.2 XML Example

```
<!-- Example showing SIF_ReportObject inside a SIF_Message -->
<SIF_Message xmlns="http://www.sifinfo.org/infrastructure/1.x">
  <SIF_Response>
    <SIF_Header>
      <SIF_MsgId>FAE9D90A38F84B729C92F868CB63C9F3</SIF_MsgId>
      <SIF_Date>20031015</SIF_Date>
      <SIF_Time Zone="UTC-05:00">09:23:26</SIF_Time>
      <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>>08192003</CalculationDate>
          <SubmissionNumber>1</SubmissionNumber>
          <SubmissionReason>Initial</SubmissionReason>
        </ReportInfo>
      </SIF_ReportObject>
    </SIF_ObjectData>
  </SIF_Response>
</SIF_Message>
```

```

<SIF_ReportObject RefId="B234516384746B387459000F84723A00">
  <ReportData>
    <StudentPersonal RefId="5D1F2390F33F11D7B64CD17E020C45AB">
      <OtherId Type="06">703E3A60FE8911D78513F9EBB6EE9A19</OtherId>
      <Name Type="01">
        <LastName>Gedzyk</LastName>
        <FirstName>David</FirstName>
      </Name>
      <Email Type="Primary">DavidGedzyk@sifinfo.org</Email>
      <GradYear Type="Original">2005</GradYear>
      <Demographics>
        <Gender>M</Gender>
        <PlaceOfBirth>West Allis</PlaceOfBirth>
        <CountyOfBirth>Milwaukee</CountyOfBirth>
        <StateOfBirth Code="WI" />
        <CountryOfBirth Code="US" />
        <CountryOfCitizenship Code="US" />
        <CountryOfResidency Code="US" />
        <CitizenshipStatus>04</CitizenshipStatus>
        <EnglishProficiency Code="01" />
      </Demographics>
      <StudentAddress DayOfWeek="TuTh" PickupOrDropoff="NA">
        <Address Type="01">
          <Street>
            <Line1>6799 33rd Ave.</Line1>
            <Line2>West Allis, WI 53219</Line2>
            <StreetNumber>6799</StreetNumber>
            <StreetName>33rd</StreetName>
            <StreetType>Ave.</StreetType>
          </Street>
          <City>West Allis</City>
          <County>Milwaukee</County>
          <StatePr Code="WI" />
          <Country Code="US" />
          <PostalCode>53219</PostalCode>
        </Address>
      </StudentAddress>
      <PhoneNumber Format="FF" Type="18">(414) 775-9644</PhoneNumber>
    </StudentPersonal>
  </ReportData>
</SIF_ReportObject>
<SIF_ReportObject RefId="B234516384746B387459000F84723A00">
  <ReportData>
    <StudentSchoolEnrollment RefId="5DF9A510F33F11D7B64C970DE3494F35"
    StudentPersonalRefId="5D1F2390F33F11D7B64CD17E020C45AB"
    SchoolInfoRefId="56E86900F33F11D7B64CBCCE0CB2E03A" MembershipType="Home"
    TimeFrame="Current">
      <EnrollStatus Code="B30" />
      <EntryDate>20020902</EntryDate>
      <EntryType Code="01" />
      <GradeLevel Code="12" />
      <Homeroom RoomInfoRefId="5A9BD410F33F11D7B64CB911AF996C9B" />
      <StaffAssigned Type="Advisor"
    StaffPersonalRefId="59B1E940F33F11D7B64CB2D1D11E84A2" />
      <FTE>1.00</FTE>
      <FTPTStatus>FullTime</FTPTStatus>
    </StudentSchoolEnrollment>
  </ReportData>
</SIF_ReportObject>
<SIF_ReportObject RefId="B234516384746B387459000F84723A00">
  <ReportData>
    <SchoolInfo RefId="56E86900F33F11D7B64CBCCE0CB2E03A">
      <SchoolName>John Tyler High</SchoolName>
      <SchoolJurisdiction Code="SS" />
      <SchoolType Code="HS" />
    </SchoolInfo>
    <SchoolURL>http://207.95.37.147:8080/sifcompliance/SchoolURL.jsp?SchoolName=JohnTylerHigh
  </SchoolURL>
    <PrincipalInfo>
      <ContactName>Barbara Riedy</ContactName>
    </PrincipalInfo>
  </ReportData>
</SIF_ReportObject>

```

```

<PhoneNumber Format="FF" Type="18">(561) 702-7199</PhoneNumber>
<Address Type="04">
  <Street>
    <Line1>14604 31st Ave.</Line1>
    <Line2>Boca Raton, FL 33486</Line2>
    <StreetNumber>14604</StreetNumber>
    <StreetName>31st</StreetName>
    <StreetType>Ave.</StreetType>
  </Street><City>Boca Raton</City>
  <County>Palm Beach</County>
  <StatePr Code="FL" />
  <Country Code="US" />
  <PostalCode>33486</PostalCode>
</Address>
<IdentificationInfo Code="18">00126</IdentificationInfo>
<SessionType Code="04" />
<LowGradeLevel>09</LowGradeLevel>
<HighGradeLevel>12</HighGradeLevel>
</SchoolInfo>
</ReportData>
</SIF_ReportObject>
</SIF_ObjectData>
</SIF_Response>
</SIF_Message>

```

4.3 ReportSubmitterInfo Element

The SIF_ReportObject object encapsulates an instance of a report manifest. The first data element of this object is always a ReportInfo element that references the report manifest and report authority, and provides information about the report such as submission number, submission reason, and calculation date. When a report or data collection agent wishes to notify a report authority about the existence of a new report instance, it prepares a SIF_ReportObject and ReportInfo element and send that object to the report authority in a SIF_Event message. The report authority then issues a SIF_Request back to the collector agent to retrieve all of the SIF_ReportObject packets comprising the report.

Throughout this process, collector agents can learn about the report authorities they interact with, including the authority's name, department, contact and phone number information, etc. When a collector agent is working with many authorities, this information is very helpful in identifying to end-users the authorities they're engaged with. However, report authorities themselves cannot learn about the districts or agencies that are submitting reports. This becomes a problem when designing application interfaces because end-users at the report authority level (e.g. the state in a state reporting project) cannot easily determine the source of report submissions.

The original intent of the Vertical Reporting task force was to use the SourceId of the agent submitting a SIF_ReportObject to identify the submitter. In practice, this string is more useful to the underlying software for routing purposes and does not provide enough information about the submitter for use by administrators of report authority agents. In addition, the SourceId may in fact be the same string from submitter to submitter; in typical multi-zone deployments, the same SourceId is often used by an

agent across all zones it is connected to. The vertical reporting objects need a better way to describe the author or submitter of a report instance.

The ReportSubmitterInfo subelement of SIF_ReportObject/ReportInfo can be used to describe the submitter of a report. It may also reference a SchoolInfo or LEAInfo by RefId. In an effort to retain the current vertical reporting design and message choreography, this element is not represented as an independent top-level object and therefore cannot be requested by a report authority or reported in events. To avoid duplicating ReportSubmitterInfo data in all SIF_ReportObject packets, the new element is only required to be present when submitting reports to report authorities via SIF_Event messages.

Example that identifies the report submitter by a simple string name.

```
<ReportInfo ReportManifestRefId="750B3333B690B50F4D00B7837FB2F211">
  <CalculationDate>20031212</CalculationDate>
  <SubmissionNumber>1</SubmissionNumber>
  <SubmissionReason>Initial</SubmissionReason>
  <ReportSubmitterInfo>
    <SubmitterName>Wasatch School District</SubmitterName>
  </ReportSubmitterInfo>
</ReportInfo>
```

Example that identifies the report submitter by name and also provides contact information.

```
<ReportInfo ReportManifestRefId="750B3333B690B50F4D00B7837FB2F211">
  <CalculationDate>20031212</CalculationDate>
  <SubmissionNumber>1</SubmissionNumber>
  <SubmissionReason>Initial</SubmissionReason>
  <ReportSubmitterInfo>
    <SubmitterName>Wasatch School District 441</SubmitterName>
    <SubmitterDept>Central Data Services Center</SubmitterDept>
    <ContactInfo>
      <Name Type='02'>
        <LastName>Reynolds</LastName>
        <FirstName>Patricia</FirstName>
      </Name>
      <PhoneNumber Format='NA' Type='18'>(555) 555-1010</PhoneNumber>
    </ContactInfo>
    <PhoneNumber Format='NA' Type='18'>(555) 555-1010</PhoneNumber>
    <SubmitterNotes>
      Wasatch School District's Vertical Reporting policies can be found on-line
      at http://www.wasatchsif.org/policies/vr.html. Please contact
      Patricia Reynolds, Central Data Services Center, at (555) 555-1010
      for more information.
    </SubmitterNotes>
  </ReportSubmitterInfo>
</ReportInfo>
```

Example that identifies the report submitter by referring to an LEAInfo object.

```
<ReportInfo ReportManifestRefId="750B3333B690B50F4D00B7837FB2F211">
  <CalculationDate>20031212</CalculationDate>
  <SubmissionNumber>1</SubmissionNumber>
  <SubmissionReason>Initial</SubmissionReason>
  <ReportSubmitterInfo>
    <SifEntity ObjectName="LEAInfo"
RefId="CC2DDCDD223FED0C4301B7837FB2F211"></SifEntity>
    <SubmitterName>Wasatch School District 441</SubmitterName>
  </ReportSubmitterInfo>
</ReportInfo>
```

5 Use Cases: ReportManifest

5.1 Overview

Provides metadata on reports as defined by the State/Province. SIF_Events are reported.

5.2 Use Case: Request report manifests from a designated agent in the zone

USE CASE for Data Warehouse WG	Title: Request Manifests from Zone SIFObject: ReportManifest Use Case Number: DW_ RepMfst _Req History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	An application requests information about the report manifests available in a zone. The requested application (default provider or designated agent) responds with the manifest information that matches the query conditions specified.
Actors	Primary: Requesting Agent Secondary: Responding Agent
Preconditions*	The requesting agent is registered and authorized to request the ReportManifest object. The responding agent is registered and designated as the provider or authorized to send responses for ReportManifest objects.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, SIF_ReportObject, ReportAuthorityInfo
SIF Optional Objects*	
Open Issues	

5.2.1 Scenario 1 – District Report Publishing System Requests a List of Available Report Manifests From a State Data Collector.

Scenario # 1 for Use Case # DW_RepMfst_Req	Scenario Title: District Report Publishing System Requests a List of Available Report Manifests From a State Data Collector. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A district report publishing system requests the reports that the state report collection system tracks.
Actors	Primary: District Report Publishing system agent Secondary: State Data Collector agent
Preconditions*	The district report publisher agent has a designated state data collector from which it needs the list of available statistics.
Outcomes*	The district report publisher agent receives and processes the list of available report manifests for the state.
Action Steps	<ol style="list-style-type: none"> 1. This use case begins when a district report publisher agent needs a list of report manifests available in a state zone. 2. The District Report Publisher Agent sends a SIF_Request with an object name of ReportManifest and the appropriate query conditions and the SIF_DestinationID set to the name of the designated Data Collector Agent. 3. The District Report Publisher agent receives the SIF_Response from the designated Data Collector Agent with the matching report manifest objects. 4. The District Report Publisher agent processes the manifest objects.
Variations*	
Exceptions*	3. The SIF_Request times out, returns with a SIF_Error element or returns empty ObjectData.
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.
Open Issues	

5.3 Use Case: Notify data publishing system of change in available report manifests

USE CASE for Data Warehouse WG	Title: Notify application of change in available report manifests Use Case Number: DW_RefMnfst_Change History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A data collector system makes a change to the available report manifests. The change is sent to other applications in the zone.
Actors	Primary: Publishing Agent Secondary: Subscribing Agent
Preconditions*	The publishing agent is registered and authorized to publish Change events for the ReportManifest object. The subscribing agent is registered and authorized to subscribe to events for ReportManifest object.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, ReportAuthorityInfo, SIF_ReportObject
SIF Optional Objects*	
Open Issues	

5.3.1 Scenario 1 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been added

Scenario # 1 for Use Case # DW_RepMnfst_Change	Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been added. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report manifest has been added.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportManifest objects.
Outcomes*	The district report publishing agent receives an add event for a report manifest and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the state data collection agent adds a new report manifest and makes it available to the zone. 2. The state data collection agent publishes a SIF_Event with an event type of "Add" and an object type of "ReportManifest" to the zone. 3. The district report publishing agent receives the SIF_Event and records the new manifest.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

5.3.2 Scenario 2 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has changed

Scenario # 1 for Use Case # DW_RepMnfst_Change	Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Manifest has changed. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report manifest has been changed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportManifest objects.
Outcomes*	The district report publishing agent receives a change event for a report manifest and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the state data collection agent changes report manifest in the zone. 2. The state data collection agent publishes a SIF_Event with an event type of "Change" and an object type of "ReportManifest" to the zone. 3. The district report publishing agent receives the SIF_Event and records the changed manifest.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

5.3.3 Scenario 3 – State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been removed

Scenario # 1 for Use Case # DW_RepMnfst_Change	Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Manifest has been removed. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report manifest has been removed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportManifest objects.
Outcomes*	The district report publishing agent receives a delete event for a report manifest and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 4. The use case begins when the state data collection agent removes a report manifest from the zone. 5. The state data collection agent publishes a SIF_Event with an event type of "Delete" and an object type of "ReportManifest" to the zone. 6. The district report publishing agent receives the SIF_Event and records the deleted manifest.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

6 Use Cases: SIF_ReportObject

6.1 Overview

SIF_ReportObject is an envelope used to send other data objects, typically reports, to authorities such as state departments of education, district offices, other schools, etc. The 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). A series of SIF_ReportObjects makes up a complete report.

6.2 Use Case: Request report data from a designated agent in the zone

USE CASE for Data Warehouse WG	Title: Request Report Data from Zone SIFObject: SIF_ReportObject Use Case Number: DW_Report_Req History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	An application requests the contents of a report from the zone. The requested application (default provider or designated agent) responds with the report data that matches the query conditions specified.
Actors	Primary: Requesting Agent Secondary: Responding Agent
Preconditions*	The requesting agent is registered and authorized to request the SIF_ReportObject object. The responding agent is registered and designated as the provider or authorized to send responses for SIF_ReportObject objects.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, SIF_ReportObject, ReportAuthorityInfo
SIF Optional Objects*	
Open Issues	

6.2.1 Scenario 1 – State Data Collector Requests a Report from a District Report Publishing System.

Scenario # 1 for Use Case # DW_RepMfst_Req	Scenario Title: State Data Collector System Requests a Report from a District Report Publishing System. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A state data collection system requests a report from a district report publishing system.
Actors	Primary: State Data Collector agent Secondary: District Report Publishing system agent
Preconditions*	The state data collector agent has a designated district report publisher from which it needs a report.
Outcomes*	The state data collector agent receives and processes the report.
Action Steps	<ol style="list-style-type: none"> 1. This use case begins when a state data collector agent needs a report from the zone. 2. The State Data Collector Agent sends a SIF_Request with an object name of SIF_ReportObject and the appropriate query conditions and the SIF_DestinationID set to the name of the designated Report Publishing Agent. 3. The State Data Collector agent receives the SIF_Response from the designated Report Publishing Agent with the matching report objects. 4. The State Data Collector agent processes the report.
Variations*	
Exceptions*	3. The SIF_Request times out, returns with a SIF_Error element or returns empty ObjectData.
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.
Open Issues	

6.3 Use Case: Notify data collection system of change in available reports

USE CASE for Data Warehouse WG	Title: Notify application of change in available reports Use Case Number: DW_Rep_Change History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A data publishing system makes a change to the available reports. The change is sent to other applications in the zone.
Actors	Primary: Publishing Agent Secondary: Subscribing Agent
Preconditions*	The publishing agent is registered and authorized to publish Change events for the SIF_ReportObject object. The subscribing agent is registered and authorized to subscribe to events for SIF_ReportObject object.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, ReportAuthorityInfo, SIF_ReportObject
SIF Optional Objects*	
Open Issues	

6.3.1 Scenario 1 – District Report Publishing System Notifies a State Data Collection System that a Report has been added

Scenario # 1 for Use Case # DW_Rep_Change	Scenario Title: District Report Publishing System Notifies a State Data Collection System that a Report has been added. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	District Report Publishing system notifies a State Data Collection system that a report has been added.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for SIF_ReportObject objects.
Outcomes*	The state data collection agent receives an add event for a report and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the district report publishing agent adds a new report and makes it available to the zone. 2. The district report publishing agent publishes a SIF_Event with an event type of "Add" and an object type of "SIF_ReportObject" to the zone. 3. The state data collection agent receives the SIF_Event and records the new report.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

6.3.2 Scenario 2 – District Report Publishing System Notifies a State Data Collection System that a Report has been changed

Scenario # 1 for Use Case # DW_Rep_Change	Scenario Title: District Report Publishing System Notifies a State Data Collection System that a Report has been changed. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or	Mandatory

Optional)	
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	District Report Publishing system notifies a State Data Collection system that a report has been changed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for SIF_ReportObject objects.
Outcomes*	The state data collection agent receives a change event for a report and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the district report publishing agent changes a report in the zone. 2. The district report publishing agent publishes a SIF_Event with an event type of "Change" and an object type of "SIF_ReportObject" to the zone. 3. The state data collection agent receives the SIF_Event and records the changed report.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

6.3.3 Scenario 3 – District Report Publishing System Notifies a State Data Collection System that a Report has been removed

Scenario # 1 for Use Case # DW_Rep_Change	<p>Scenario Title: District Report Publishing System Notifies a State Data Collection System that a Report has been removed.</p> <p>Scenario History: 10/05/2003 drafted by Peter Waldschmidt</p>
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	District Report Publishing system notifies a State Data Collection system that a report has been removed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for SIF_ReportObject objects.
Outcomes*	The state data collection agent receives a delete event for a report and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the district report publishing agent removes a report in the zone. 2. The district report publishing agent publishes a SIF_Event with an event type of "Delete" and an object type of "SIF_ReportObject" to the zone. 3. The state data collection agent receives the SIF_Event and records the removed report.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

7 Use Cases: ReportAuthorityInfo

7.1 Overview

Provides 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.

7.2 Use Case: Request reporting authorities from a designated agent in the zone

USE CASE for Data Warehouse WG	Title: Request Report Authorities from Zone SIFObject: ReportAuthorityInfo Use Case Number: DW_RepAuth_Req History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	An application requests information about the reporting authorities available in a zone. The requested application (default provider or designated agent) responds with the authority information that matches the query conditions specified.
Actors	Primary: Requesting Agent Secondary: Responding Agent
Preconditions*	The requesting agent is registered and authorized to request the ReportAuthorityInfo object. The responding agent is registered and designated as the provider or authorized to send responses for ReportAuthorityInfo objects.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, SIF_ReportObject, ReportAuthorityInfo
SIF Optional Objects*	
Open Issues	

7.2.1 Scenario 1 – District Report Publishing System Requests a List of Available Report Authorities From a State Data Collector.

Scenario # 1 for Use Case # DW_RepMfst_Req	Scenario Title: District Report Publishing System Requests a List of Available Report Authorities From a State Data Collector. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A district report publishing system requests the authorities that the state report collection system tracks.
Actors	Primary: District Report Publishing system agent Secondary: State Data Collector agent
Preconditions*	The district report publisher agent has a designated state data collector from which it needs the list of available reporting authorities.
Outcomes*	The district report publisher agent receives and processes the list of available reporting authorities for the state.
Action Steps	<ol style="list-style-type: none"> 1. This use case begins when a district report publisher agent needs a list of reporting authorities available in a state zone. 2. The District Report Publisher Agent sends a SIF_Request with an object name of ReportAuthorityInfo and the appropriate query conditions and the SIF_DestinationID set to the name of the designated Data Collector Agent. 3. The District Report Publisher agent receives the SIF_Response from the designated Data Collector Agent with the matching reporting authority objects. 4. The District Report Publisher agent processes the authority objects.
Variations*	
Exceptions*	3. The SIF_Request times out, returns with a SIF_Error element or returns empty ObjectData.
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.
Open Issues	

7.3 Use Case: Notify data publishing system of change in available report authorities

USE CASE for Data Warehouse WG	Title: Notify application of change in available report authorities Use Case Number: DW_RepAuth_Change History: 10/05/2003 – initial draft by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Optional
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	A data collector system makes a change to the available report authorities. The change is sent to other applications in the zone.
Actors	Primary: Publishing Agent Secondary: Subscribing Agent
Preconditions*	The publishing agent is registered and authorized to publish Change events for the ReportAuthority object. The subscribing agent is registered and authorized to subscribe to events for ReportAuthority object.
Post Conditions*	
SIF Mandatory Objects*	ReportManifest, ReportAuthorityInfo, SIF_ReportObject
SIF Optional Objects*	
Open Issues	

7.3.1 Scenario 1 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has been added

Scenario # 1 for Use Case # DW_RepAuth_Change	Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Authority has been added. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report authority has been added.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportAuthority objects.
Outcomes*	The district report publishing agent receives an add event for a report authority and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the state data collection agent adds a new report authority and makes it available to the zone. 2. The state data collection agent publishes a SIF_Event with an event type of "Add" and an object type of "ReportAuthority" to the zone. 3. The district report publishing agent receives the SIF_Event and records the new authority.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

7.3.2 Scenario 2 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has changed

Scenario # 1 for Use Case # DW_RepAuth_Change	<p>Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Authority has changed.</p> <p>Scenario History: 10/05/2003 drafted by Peter Waldschmidt</p>
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report authority has been changed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportAuthority objects.
Outcomes*	The district report publishing agent receives a change event for a report authority and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the state data collection agent changes report authority in the zone. 2. The state data collection agent publishes a SIF_Event with an event type of "Change" and an object type of "ReportAuthority" to the zone. 3. The district report publishing agent receives the SIF_Event and records the changed authority.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.

7.3.3 Scenario 3 – State Data Collection System Notifies a District Report Publishing System that a Report Authority has been removed

Scenario # 1 for Use Case # DW_RepMnfst_Change	Scenario Title: State Data Collection System Notifies a District Report Publishing System that a Report Authority has been removed. Scenario History: 10/05/2003 drafted by Peter Waldschmidt
Use Case Type (Mandatory or Optional)	Mandatory
SIF Versions and References	SIF Implementation Specification 1.5 Draft Report Container, Report Authority and Manifest Objects Proposal (09/30/2003)
Summary	State Data Collection system notifies a District Report Publishing system that a report authority has been removed.
Actors	Primary: State data collection agent Secondary: Data Report Publishing Agent
Preconditions*	The state data collection system is synchronized with the district report publishing system for ReportAuthority objects.
Outcomes*	The district report publishing agent receives a delete event for a report authority and takes appropriate action.
Action Steps	<ol style="list-style-type: none"> 1. The use case begins when the state data collection agent removes a report authority from the zone. 2. The state data collection agent publishes a SIF_Event with an event type of "Delete" and an object type of "ReportAuthority" to the zone. 3. The district report publishing agent receives the SIF_Event and records the deleted authority.
Variations*	
Exceptions*	
SIF System Services*	ZIS, Agent, Report Publishing System, Data Collection System.