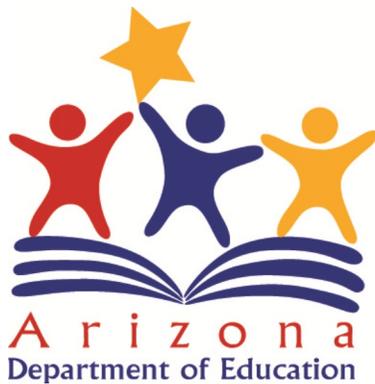


Arizona Department of Education



Student Accountability Information System

Student Database Transaction Requirements

Student Detail Data Interchange

Version 2.0

Last updated: December 28, 2011

Arizona Department of Education
Information Technology Department
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Table of Contents

Revisions.....	3
About This Document.....	4
Author.....	4
Contacts.....	4
Document References.....	4
Document Distribution / Postings.....	4
Document Filename.....	4
Introduction.....	5
Processing Methodology.....	5
Student Data Upload.....	6
Data Download Service.....	8
Downloadable File Format Definition.....	8
General Definitions.....	8
File Formats.....	8
File Naming Requirements.....	8
Internal File Structure Definition: Delimiters and Data Types.....	8
Description of Download Options.....	9
SAIS Student ID.....	9
System Status.....	9
Automated Download.....	12
Code Values.....	14
Activity Status Type.....	14
Transaction Status Type.....	14
Issues.....	16

Revisions

Below is an inventory of the revisions made to this document since publication of version 1.0. (The revisions made while this document was in Draft form are not included in this list.) Each time a revision is made the following sections, if included in this document, will also be updated: Table of Contents, List of Figures, List of Tables, Issues.

Table 1: 12/01/2011 Version 2.0 Published

Ver	New information	Old information	Source
2.0	Updated to DITA XML formatting <ul style="list-style-type: none"> • Updated "About This Document" • Added "Issues" • Deleted "List of Figures" 	Changes to match current standards	B Conlin
2.0	Deleted references to Student Membership Share		B Conlin

10/01/2002 Version 1.1

Contacts – Email address changed

Upload – Screen shot changed

Structure for System Activities - Added Reporting unit element

Automated download – Added Reporting unit element

07/20/2001 Version 1.0

XML Schema – The XML Schema supports the final recommendation by the W3C, instead of Microsoft's XML-Data Reduced (XDR).

Download Status – Changed data type for Severity field from Boolean to Integer

XML root – Changed root name to "root"

SelOption #2 – Changed download option #2

CTDS – Added a new field named CTDS as part of the result set for download option #2

03/14/2001 Version 1.0

Figure 3 – Figure was missing Failure Row elements.

Figure 4 – Removed field ActivityStatusDescription.

03/06/2001 Version 1.0

Contacts – SAIS project manager changed.

Automation – Added specification of the programmatic access to both Upload and Download services

About This Document

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Contacts

For comments, corrections, or other information about this document, contact the ADE IT Department at ADEsupport@azed.gov. Please provide the following information:

- In the "Subject" line of the email, type "ADE IT Document inquiry."
- In the body of the email:
 - the system name and document name (from the document's header)
 - the document's last updated date (from the document's footer)
 - the purpose of your inquiry
 - your identifying information:
 - your name
 - your district name and CTD, or school name and CTDS, or your company name
 - your contact email address (because the email will be forwarded when it reaches ADE)

Document References

The SAIS system is described in detail on ADE's main SAIS website, at <http://www.azed.gov/student-accountability/>.

Other related information, including those items referred to in this document, can be found at another ADE website at <http://www.azed.gov/student-accountability/sais-documents/>.

Document Distribution / Postings

Notification of updates to this document should be made to the following:

- all Student Management System vendors participating in the SAIS project
- all Arizona school district IT contacts
- all RTCs

This updated document will be posted on ADE's SAIS Design/Requirements Documents website: <http://www.azed.gov/student-accountability/sais-documents/>.

Document Filename

This document is stored at ADE with the filename SAIS Data Interchange.pdf.

Introduction

The Student Database System is being built by ADE to reduce the reporting burden from LEA and improve the accuracy and timeliness of Student counts required for state and federal funding and reporting. The system will allow Local Education Agencies to electronically submit raw student data based on real-time events rather than summary reports.

The document is organized as follows:

- Data upload and download services
- Code values

Processing Methodology

SAIS's processing methodology and rules are not included in this document. For specific technical processing, verification, and validation details, see the various Transaction Requirements documents, which are organized by subject matter:

- Transaction Requirements: Membership
- Transaction Requirements: Needs
- Transaction Requirements: Overview
- Transaction System Messages
- Transaction Code Values

Student Data Upload

SAIS Student Data Upload is a service that enables participating Vendors and LEA's to successfully upload student data to the ADE student database.

Files are submitted via one of two methods. The first method is via the web page. The web page acknowledges the submitting LEA's CTDS and places any submitted files into a specific directory, which is named for that CTDS. The second method is similar, but occurs through a utility to be used inside a local LEA SAIS interface.

Figure 1 shows the upload web page, which can be accessed from the main page of the Student Detail Data Interchange application (<https://www.ade.az.gov/CommonLogon/logon.aspx>).

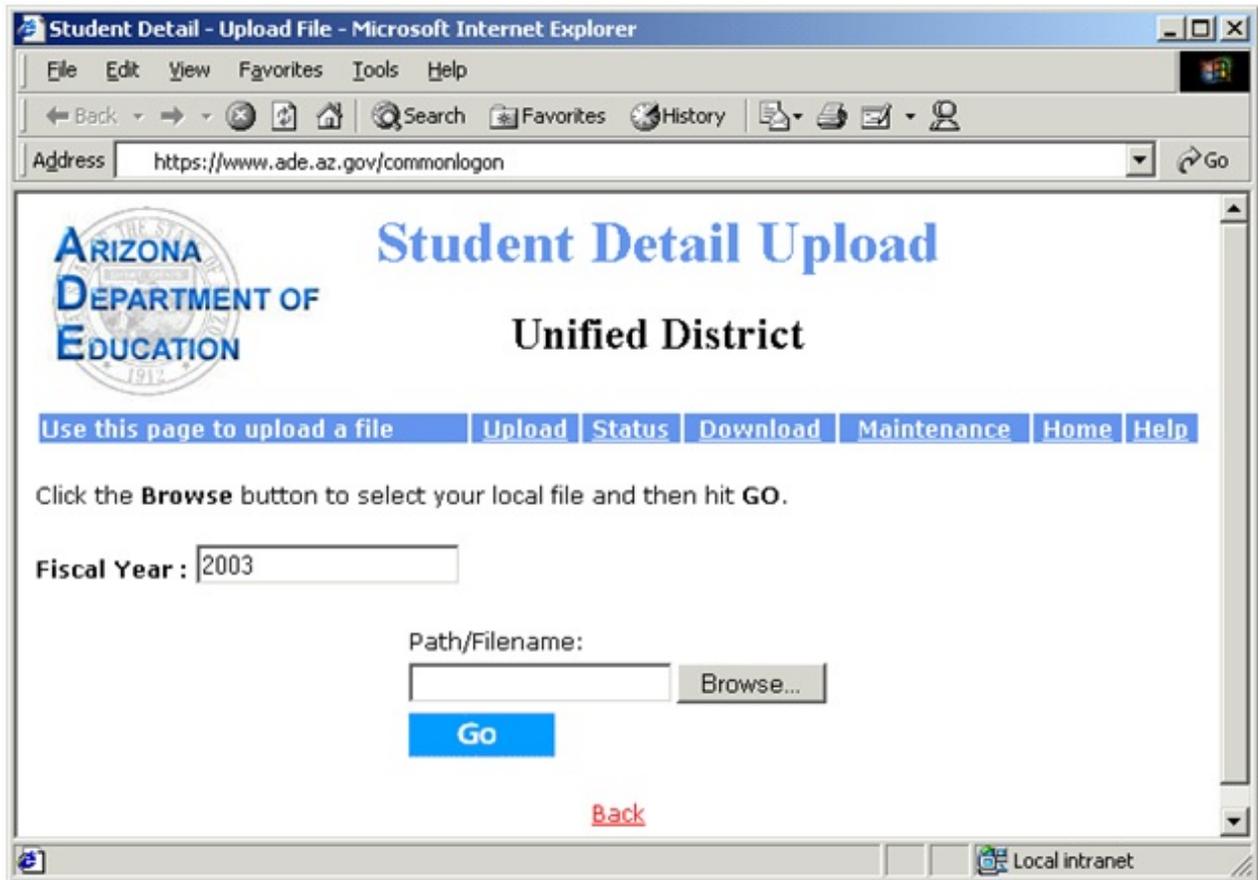


Figure 1: Upload Web Page

The second method of submission is for the LEA SAIS interface to send the submitted file programmatically, instead of using a web browser. This represents an automation opportunity, making the interaction with the ADE Student database more efficient and transparent.

If the LEA prefers to submit files programmatically, it must create and incorporate a utility into their local SAIS interface that provides automated functionality. The utility must be able to send a request using the HTTPS protocol to the following URL: <https://www.ade.az.gov/SDetail/upload/upload.asp>. The request must use the "POST" request method and stream the file content with it. In addition to the above reference, the following parameters must be appended to the URL:

- CTDS* – School identifier; CTDS code
- UserName* – User name provided by ADE

Password – Password provided by ADE

FileName – File name under which the streamed content will be saved at ADE

Data Download Service

SAIS Data Download Service is a service that enables participating Vendors and LEA's to successfully download information from the ADE web site. A subsection is dedicated to each download option, and contains brief description of its purpose, other relevant points of interest, how the download is intended to be used and a field-level definition of the data elements. The rest of the section is organized as follows:

- Downloadable File Definition
- Description of Download Options
- Automated Download

Downloadable File Format Definition

General Definitions

The file that contains downloaded data shall be referred to as **Downloaded File**.

Files are downloaded via one of two methods. The first method is via the web page. The web page acknowledges the requesting LEA's Entity ID when the user signs in. The second method is similar, but occurs through a utility to be used inside a local LEA SAIS interface (see [Automated Download](#) (page 12) subsection).

File Formats

Downloaded files are available in two text formats. The first format is XML, which is the universal format for structured documents and data on the web. The XML version is 1.0 and the base specification can be found at <http://www.w3.org/XML>. The second format is a pipe-delimited file. The second format shall be referred as **simple text** format.

File Naming Requirements

File naming requirements includes several terms: **filename string** is the complete name of the submitted file. It includes two portions: the **filename** and the **extension**. The last period (.) in the **filename string** separates these two portions.

LEAs are at liberty to assign the filename string to the downloaded files. However, XML files are recommended to have the extension xml, so that other systems and utilities know that that file follows an XML format.

Internal File Structure Definition: Delimiters and Data Types

Simple Text

The simple text file is divided into two sections: the header section and the data section. The header section is the first line in the file and indicates the field names that are part of each record. The rest of the lines are known as the data section, each line representing a record. Due to simplicity reasons, only those files containing flat data include the header. Files containing hierarchical data omit the header.

The simple text file uses the pipe symbol “|” as a delimiter. There is no pipe at the end of each record. Instead, a carriage-return followed by a line-feed comes next to the last field of each record. There is no distinction among data types, and no delimiters are used to differentiate them.

XML

The XML file follows the specifications for XML 1.0 documents, recommended by the World Wide Web Consortium (W3C).

The data types are indicated in the XML schema, which offers facilities for describing the structure and constraining the contents of XML 1.0 documents. The XML schema supports for the final XML Schema Recommendation released by the W3C on 2001-05-02

Description of Download Options

This section describes the following download options:

- SAIS Student ID
- System Status on submitted files

SAIS Student ID

The Student ID service allows LEAs to download the Student IDs assigned at ADE.

The following table describes the elements in this service.

Table 2: SAIS Student ID

Field name	Abbreviated name	Data type	Description
CTDS	CTDS	String	School identifier; CTDS code
Student ID	StudentID	Integer	ADE-generated student identifier
School Student ID	SCHLSTUID	String	School-generated student identifier

Simple Text

The following header would appear on a single line at the top of the downloaded file.

```
StudentID | SCHLSTUID
```

The following lines are a sample of the how the data section may appear.

```
55 | 90021
56 | 90001
57 | 90002
```

XML

The XML contains those fields indicated in the simple text section, and its contents are based in the ADO XML format as stated in the [Downloadable File Format Definition](#) (page 8) section. However, other fields may be included to increase clarity for the user of the web browser. The structure of the XML file is shown in [Figure 2: XML File Structure for SAIS Student ID](#) (page 9).

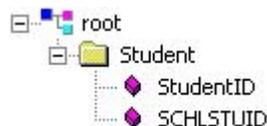


Figure 2: XML File Structure for SAIS Student ID

System Status

The System Status service allows LEAs to download the SAIS system activities. The downloaded file contains several fields presented in a hierarchical structure as shown in the [Figure 3: Hierarchical Structure for SAIS System Activities](#) (page 10).

An activity record is created for each submission file processed at ADE. Each activity record may have transaction records underneath, depending on the number of records contained in the submission file. Similarly, a transaction

record may have failure records underneath. However, if something were wrong with the submission file (wrong sequence number, bad header) then one or more file error records would appear and no transaction records would appear.

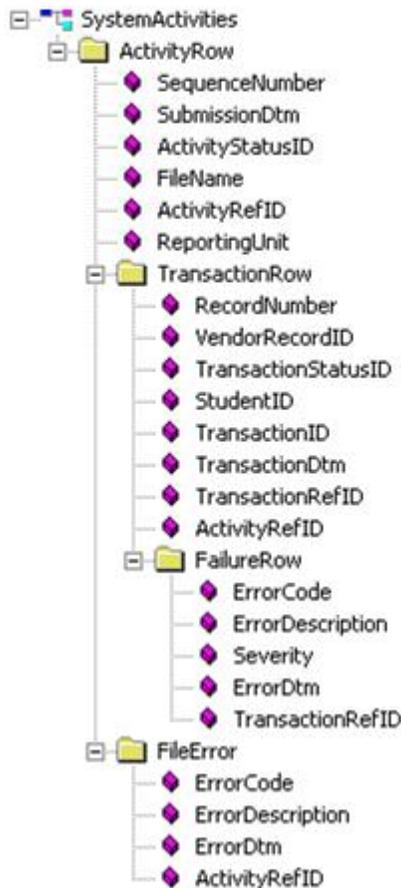


Figure 3: Hierarchical Structure for SAIS System Activities

The following table describes the elements in this service.

Table 3: System Status

Field name	Abbreviated name	Data type	Description
Sequence number	SequenceNumber	Integer	Submission file sequence number
Submission date	SubmissionDtm	String	School-generated student identifier
Activity status type	ActivityStatusID	Integer	See activity status codes
File name	FileName	String	Submission file
Activity reference ID	ActivityRefID	Integer	ADE-generated activity identifier
Reporting unit	ReportingUnit	String	LEA-assigned reporting unit to be combined with the sequence number, allowing each unit to have control over the sequence number
Record number	RecordNumber	Integer	Record number in the submission file

Field name	Abbreviated name	Data type	Description
Vendor Defined Field	VendorRecordID	String	Free field to be used for any purpose defined by the vendor or submitter (e.g., to hold a vendor-generated submission record identifier); this information will not be stored in SAIS
Transaction status type	TransactionStatusID	Integer	See transaction status codes
Student ID	StudentID	Integer	ADE-generated student identifier
Transaction ID	TransactionID	Integer	Transaction ID (e.g., 2=Readmission, 4=Absences)
Transaction Date	TransactionDtm	Dtm	Time when the transaction was processed
Transaction reference ID	TransactionRefID	Integer	ADE-generated transaction identifier
Error code	ErrorCode	Integer	Error number
Error description	ErrorDescription	String	Error description
Severity	Severity	Integer	1 = Failure, 0 = Warning
Error date	ErrorDtm	Dtm	Time when the error was generated

Simple Text

No header section is included in the file, since this service is delivering a hierarchical structure. The first line of the file becomes the data section, which follows the hierarchy indicated previously.

Consider the following four-row example:

```
1|10/12/00 2:23:47 PM|3|2237_10062000082728AM.SDF|4396|SPED
TransactionRow|18|362|2|18|1|2000-07-17T08:39:36|7|4396
FailureRow|-10005|Submitted FTE StartDate is not a valid|0|
2000-07-17T08:39:36|7
FileErrorRow|-9002|Invalid sequence number|2000-07-17T08:39:36|4396
```

Each row will be identified by the tags “TransactionRow”, “FileErrorRow”, “FailureRow” as the first element. The exception is the activity record, which has no tag associated with it.

The first row describes the system activity record (*Sequence #, Submission date, Activity status type, Filename, Activity reference ID and Reporting unit*¹).

The second row describes the transaction record (“TransactionRow”, *Record Number, Vendor field, Transaction status type, Student ID, Transaction ID, Transaction Date, Transaction Reference ID, Activity reference ID*). Notice that tag “TransactionRow” indicates that this is a transaction record.

The third row describes the failure record (“FailureRow”, *Error code, Error description, Severity, Error date, Transaction reference ID*). Notice that tag “FailureRow” indicates that this is a failure record.

The fourth row describes the file error record (“FileErrorRow”, *Error code, Error description, Date, Activity reference #*). Notice that “FileErrorRow” indicates that this is a file error record.

XML

The XML contains those fields indicated in the simple text section, and its contents are based in the ADO XML format as stated in the [Downloadable File Format Definition](#) (page 8) section. However, other fields may be included to increase clarity for the user of the web browser. The structure of the XML file and sample data are shown in [Figure 4: XML File Structure for System Status](#) (page 12).

¹ The Reporting Unit is an optional element that only appears if it was provided in the submission file.

SystemActivities	
ActivityRow	
SequenceNumber	174
SubmissionDtm	2001-01-23T12:25:35
ActivityStatusID	3
FileName	absence.sdf
ActivityRefID	5324
ReportingUnit	SPED
TransactionRow	
RecordNumber	1
VendorRecordID	vendor
TransactionStatusID	3
StudentID	165
TransactionID	4
TransactionDtm	2001-01-23T12:25:35
TransactionRefID	28945
ActivityRefID	5324
FailureRow	
ErrorCode	-9001
ErrorDescription	Missing required element: Operation ...
Severity	True
ErrorDtm	2001-01-23T12:25:35
TransactionRefID	28945
FileError	
ErrorCode	-10053
ErrorDescription	Footer Error: Footer not found
ErrorDtm	2001-01-23T12:25:35
ActivityRefID	5324

Figure 4: XML File Structure for System Status

Automated Download

Alternatively, the LEA SAIS interface can download files programmatically, instead of using a web browser. This represents an automation opportunity, making the interaction with the ADE Student database more efficient and transparent.

If the LEA prefers to download files programmatically, it must create and incorporate a utility into their local SAIS interface that provides that functionality. The utility must be able to send a request using the HTTP protocol to the following URL: <https://www.ade.az.gov/SDetail/download/download.asp>. The request must use the "GET" request method. In addition, the following parameters must be appended to the URL:

<i>CTDS</i> -	School identifier; CTDS code
<i>FiscalYear</i> -	Fiscal Year
<i>Format</i> -	File Format (Text or XML)
<i>SelOption</i> -	Download option
<i>UserName</i> -	User name provided by ADE
<i>Password</i> -	Password provided by ADE

The *SelOption* parameter represents the current available download options in the ADE system, and it is based on the following list:

- 1 – Get Students IDs

2 – Get Students IDs with CTDS (additionally, it returns the CTDS as part of the result set)

4 – Get the Status on the submitted files

Each of this download options can be accompanied of additional parameters to refine the output:

- Option 1:
 - *SchoolStudentID* (optional) - School student ID
 - *StudentID* (optional) - SAIS student ID
 - *Date* (optional) - School Date of inquiry
- Option 2:
 - *SchoolStudentID* (optional) - School student ID
 - *StudentID* (optional) - SAIS student ID
 - *Date* (optional) - School Date of inquiry
- Option 4:
 - *StartSequence* (optional) - Sequence number range
 - *EndSequence* (optional) - Sequence number range
 - *StartDate* (optional)- Submission date range
 - *EndDate* (optional)- Submission date range
 - *ReportingUnit* (optional)- Reporting unit

Code Values

This section describes the codes that will be included in the downloaded file.

The current list of these code values will be provided to vendors and LEAs in an electronic file when the vendor or LEA is ready to commence development of the LEA-ADE interface program.

Activity Status Type

Download option **System Status**; Element name **Activity Status Type**

Table 4: Activity Status Type Code Value

Code in file	Description
1	File is being processed
2	File processed with errors
3	File processed successfully
4	File rejected due to validation errors
5	File rejected due to invalid header
6	Integrity check is being processed
7	Integrity check processed with errors
8	Integrity check processed successfully
9	File is waiting to be processed
10	File processing failed due to a system failure. Re-submit at a later time
11	File processed, but contains transactions that will be retried
15	File processed, but contains transactions pending student matching

Transaction Status Type

Download option **System Status**; Element name **Transaction Status Type**

Table 5: Transaction Status Type Code Value

Code in file	Description
1	Record is being processed
2	Record rejected due to validation errors
3	Record processed successfully
4	Record is pending
5	Record is in Dead Letter Queue
6	Record failed due to validation errors, but will be retried
7	Record failed due to SAIS internal errors, but will be retried

Code in file	Description
8	Record failed due to validation errors, retry period expired
9	Record failed due to SAIS internal errors, retry period expired
10	Record requiring Student Matching will be processed shortly

Issues

This area is used to record new issues.