

PBISApps DataLink Technical Specification and Guidance

An Integration Solution for School Districts, Service Districts, Schools, and other Educational Organizations

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Introduction

PBISApps DataLink is an integration solution for exchanging data between the SWIS™ Suite and other data sources, primarily student information systems and district and state data management systems (SIS). Using DataLink eliminates the need for double entry while protecting data quality.

The SWIS Suite uses a single enterprise database, referred to in this document as the “PBISApps database”. **Organizations using DataLink will enter at least all student and staff data in their SIS. Schools have the option to include referral data as part of their DataLink integration, as well. Data flow, at regularly scheduled times, from the SIS to the PBISApps database for use in SWIS Suite applications.**

This document provides technical guidance on the use of DataLink to import student, staff, and referral records from any information system to the SWIS Suite.

The DataLink Setup Process

The process to setup DataLink has six steps, some of which require technical expertise:

Step 1: Mapping

The DataLink Technical Contact and someone with an understanding of category definitions map referral codes from your SIS to an appropriate SWIS code using the SWIS Mapping Template as a guide. This is a task to complete at start-up and any time there is a change to the SIS codes. Codes to map include:

- Problem Behavior
- Action Taken
- Location
- Motivation
- Others Involved
- Student Race/Ethnicity
- Student Gender

Step 2: Submit DataLink Forms

To move forward uploading data, complete and submit an Agency Profile Form and the district’s SWIS Mapping Template if using DataLink to integrate referral data. Documents should be submitted to support@pbisapps.org. You will receive an email when your account is activated. Refer to the DataLink User’s Manual on the PBISApps homepage for information related to completing your account setup and inviting schools to participate.

Step 3: Download SIS Files

The DataLink Technical Contact exports data files from the SIS according to the specifications defined in this technical guide. The three files include:

- Students
- Staff

- Referrals (Some districts/schools may opt out of sending referral data)

Step 4: Send SIS Data Files to Sandbox and Validate Data

Once formatted according to the specification, the district's IT personnel transfers files to the PBISApps database using a secure file transfer process. The file is tested and data validated in a sandbox environment. This step can take several attempts before files upload without error.

Step 5: Go Live

With validation complete, data files are used to update live SWIS accounts. The process continues every day to update accounts with the most current information.

Considerations for the School Opt-in Process

Schools must opt-in to their district's use of DataLink since their available resources and data for decision making needs vary. For example, schools may value having access to the perceived motivation behind student behavior. If motivation data is not collected in the district's SIS, this information will be lost by participating in DataLink. Because districts may send referral data in addition to student and staff data, it is possible for a school to opt-in to sending student and staff information while opting out of sending referrals. All schools opting to send referral information using DataLink must also opt-in to uploading student and staff data.

Schools opting in assume two responsibilities associated with DataLink startup

Authorize DataLink Usage

Schools use the DataLink Participation Manager app to opt into integrating data with DataLink. The opt-in process gives schools the option to select which data will be sent through DataLink. No data transfer into any school's account without completing this step. Please refer to the DataLink Participation Manager section of this guide for more information on how to authorize DataLink usage in your school.

Resolve Data Integrity Errors

Schools using SWIS to enter referral data prior to starting DataLink will need to correct all errors associated with students, staff, and referrals identified in the Data Integrity system in their SWIS account.

Use SIS Only to Enter Referrals

Schools participating in DataLink are required to enter all data included in the data upload process in their SIS. Schools opting to only upload student and staff data will be able to enter referrals directly into SWIS. Schools uploading both students and staff data plus referral data will only be able to generate reports. If minor referrals are not collected in the district SIS, all participating schools have the option to enter minors directly in SWIS.

Loss of Data for Decision Making

The data collected in your SIS may not match the required data entry fields in SWIS. If any of the SWIS required fields are missing in your SIS, sending referrals through DataLink means losing those data in

SWIS for decision making. For example, if perceived motivation is not collected in your SIS, teams will no longer have access to information about motivation for decision-making purposes.

Beyond the required fields, schools opting to integrate referral data using DataLink will lose the option to collect subcategory data related to harassment and weapon usage. Custom fields are also not available when integrating referral data using DataLink. If school teams depend on these data for decision making, discuss how losing this information might impact your process. Determine as a team whether opting into sending referrals through DataLink is a good fit.

On-going DataLink Support

Schools rely on accurate, real-time data for decision making. All schools participating in the upload process will need to be informed when uploads are scheduled to occur and who to contact if they identify errors in their data. Assign someone in your district or uploading agency as the local contact for DataLink support as questions come up from your schools. PBISApps is available to support the technical aspects of the upload process. As part of your DataLink participation, PBISApps is committed to supporting you in the times you are unable to resolve errors in the data upload process.

DataLink Accounts

There are two types of organizations that typically use DataLink – districts or agencies working on behalf of districts. To set up your DataLink accounts, complete the Agency Profile Form (See Appendix A) and submit it to support@pbisapps.org. You will receive a notification email when your account has been activated.

Agency Profile Form

This form indicates contact information for the uploading organization – mailing address, phone number, and people to contact related to DataLink integration.

- **Organization Name:** The name of the organization who will upload data on behalf of SWIS schools.
- **Organizational Account Username:** The username credential used to upload data. Both your organizational username and password are managed in Participation Manager.
- **Technical Contact Name:** This person completes the technical work to export data files and upload data to SWIS. The Technical Contact trouble-shoots errors and plays an active role in the integration.
- **Facilitator Contact:** The certified facilitator working with the SWIS schools. If there is more than one facilitator working with schools, provide the name of the facilitator taking the most active role in problem solving questions related to DataLink integration.
- **Districts to Include in Account:** The districts where the schools are located. If there is just one district, list the one. If there are many, list them each individually.

Participation Manager

Integrating SIS data with SWIS requires two authorizations. The district and each school must agree to send their data. These authorizations happen in an online application called Participation Manager. Once an uploader account is activated, the technical contact listed on the Agency Profile will receive an email notifying them of next steps to setting up their information in Participation Manager. For more information about that process, please refer to the DataLink User's Manual on the PBISApps homepage.

Accessing and Using DataLink

DataLink provides a web API interface for uploading data files. Each file type has its own secure **endpoint URL**:

- Students: "https://datalink.pbisapps.org/api/2/Students/File"
- Staff: "https://datalink.pbisapps.org/api/2/Educators/File"
- Referrals: "https://datalink.pbisapps.org/api/Referrals/File"

Using DataLink with cURL

We recommend using cURL, a free, widely-used open source utility, to post data files. Instructions for downloading and installing curl are available below. Once cURL is installed, posting data files to DataLink is simple:

How to Download and Install cURL

To download and setup cURL, follow these instructions:

1. Visit <http://bit.ly/DownloadCurl>.
2. Select the various options that pertain to your particular environment until you arrive at the download page titled "The Wizard recommends..."
3. Download the latest version labeled *SSL enabled*. **This is essential as DataLink uses SSL for secure transmission.**

To post a file to DataLink using cURL:

1. Open a command line prompt.
2. Change directory to the folder where the cURL executable is stored.
3. Run the following command (remove brackets and replace their content):

```
curl -i -F filedata=@"<file path and name>" -u<username>:<password> <endpoint URL>
```

The **file path and name** is the path to the data file that you want to upload to SWIS.

The **endpoint URL** is one of the endpoints listed above, beginning with "https".

Extensive documentation about cURL is available from the cURL site's documentation section:

<http://curl.haxx.se/docs/>.

To retrieve batch errors using cURL:

1. Open a command line prompt.
2. Change directory to the folder where the cURL executable is stored.

3. Run the following command (remove brackets and replace their content):

```
curl -I -u <username>:<password> http://datalink.pbisapps.org/api/2/Batch/<BatchId>/Errors
```

Using DataLink with .NET

Files can be posted to DataLink via a custom-written application using the Microsoft .NET Framework.

Below is an example code snippet of how to post a file to our API using .NET

```
const string RequestUri = "<endpoint URL>";
const string Filepath = "<file path"; //(e.g. c://temp//)
const string Filename = "<file name>";

using (var client = new HttpClient())
{
    using (var formDataContent = new MultipartFormDataContent())
    {
        var byteArray = Encoding.ASCII.GetBytes("<username>:<password>");
        client.DefaultRequestHeaders.Authorization = new
            AuthenticationHeaderValue("Basic", Convert.ToBase64String(byteArray));

        formDataContent.Add(
            new ByteArrayContent(
                System.IO.File.ReadAllBytes(Filepath + Filename)),
            "filedata",
            Filename);

        var result = client.PostAsync(RequestUri, formDataContent).Result;

        Console.WriteLine(result);
    }
}
```

Automating DataLink Usage

Commands used to post data files to DataLink can be embedded in scripts or code for automatic and scheduled execution. We recommend your organization determine a preferred data upload schedule, bearing in mind each type of data you upload (student or staff) may need its own schedule. Once these schedules have been adopted, automating DataLink usage ensures they are respected.

Upload Change Data, Not All Data

During DataLink startup, it may be necessary to upload all data, (i.e. all students currently enrolled). After the startup phase **only** change data should be uploaded during the school year. This is not a requirement - DataLink correctly updates records whose identifiers match those already in the PBISApps database. However, repeatedly uploading all data will slow down performance and is not a scalable approach to data integration.

Note: It is acceptable to resubmit a dataset with a mixture of originally correct rows alongside rows containing corrected values. Rows correct in the original dataset will, when resubmitted, result in no change; corrected rows will be processed.

Data File Maximum Size

The maximum size of a data file is 15 MB. This should be more than sufficient for even large data uploads. If you need to upload a larger file and partitioning the data is infeasible, please contact us.

Dataset Processing and Messaging

Datasets are automatically processed on a daily basis. DataLink performs extensive validation and verification actions on received datasets. Although a few types of errors, such as a missing field in the dataset, can result in an entire dataset failing, most errors affect individual rows or groups of rows. DataLink logs all errors as well as summary information about each dataset during processing and communicates this information to the technical point of contact via email. You may retrieve batch errors with cURL using the process outlined in the section “Retrieve Batch Errors Using cURL”.

There is no need to resubmit datasets already processed by DataLink; resubmitting individual rows or an entire dataset will produce the same result as when the original dataset or rows were processed. [See “Upload Change Data Not All Data for more information.”]

The Data File: Identifiers

DataLink depends on the use of identifiers to correctly match data exchanged between systems. If you need to use an identification system not mentioned in this document, please contact us.

There are several key requirements for the successful use of an identification system:

1. **Identifiers are required.** All students, staff, and referrals must have identifiers.
2. **Identifiers are unique.** All identifiers, over the entire period during which integrated data management is in effect, must be unique.
3. **Missing identifiers must be entered.** All existing records within the PBISApps database must have an identifier assigned. Records without identifiers must be resolved. Methods for doing so are described in the section below – “Entering Missing Identifiers at DataLink Startup.”

While not required, it is strongly recommended to merge any duplicate student and staff records inside of the SWIS application prior to starting DataLink. Duplicates are identified in each SWIS account through the Data Integrity System. Users with access to individual school accounts can correct duplicates manually through the SWIS user interface.

Entering Missing Identifiers at DataLink Startup

Prior to starting ongoing DataLink usage, there may be cases where student, staff, or referral identifiers are missing from the PBISApps database. Updating existing student and staff identifiers must occur manually through the SWIS Suite interface before data files are uploaded for that school/facility. Updating referral identifiers happens differently.

Updating Existing Student and Staff Identifiers Using DataLink

To use DataLink to update all student and staff rosters, you must provide two complete datasets: one including all students for each participating school, and another with all staff for each participating school. All records in each dataset must have at least one identifier from a supported identification system (see the “Supported Identifiers” section for more information). If a record is found with the same id from the dataset, the record in SWIS will be updated with the provided information. If no record is found with that identifier, a new record will be created.

Updating Referral Identifiers

All referrals sent from the SIS through DataLink must have an identifier. At DataLink startup, existing referrals in the SWIS Suite will not contain an identifier common to your SIS. For this reason, DataLink will only accept referrals dated after the most recent referral in the PBISApps database entered by a SWIS user. This ensures all referral identifiers managed through DataLink match with those in the PBISApps database. *Note: Referrals entered manually by SWIS users into the SWIS Suite cannot be updated through the DataLink process. All referrals imported through DataLink can be updated in subsequent dataset uploads.*

The Data File: Record Structures and Definitions

Record structures are provided for three record types:

- Staff
- Students
- Referrals

All possible data to be included for student, staff, and referral records are defined in the tables below. Any data collected in your SIS not collected in the PBISApps database should be excluded from the dataset sent to DataLink (i.e. Free and Reduced Lunch, medical history, witness/victim information, etc).

Required Data File Format for Uploaded

DataLink requires datasets for students, staff, and referrals to follow a specific structure and format.

- Files must be in .CSV format
- The delimiter must be a comma.
- All columns and column headers (column names) defined in this specification must be present in the file
- All datasets must follow the specific column order defined in this specification.
- The first line of each .CSV file must match the text strings below:

Student column headers:

DistrictAssignedStudentId, StateAssignedStudentId, DistrictAssignedSchoolId, StateAssignedSchoolId, SchoolNCESId, DistrictNCESId, StateFIPSIId, LastName, FirstName, GenderId, GradeId, OtherStudentInfo, IEP, Has504, DisabilityCategories, HispanicLatino, Races, Status, EnrollmentDate

Staff column headers

DistrictAssignedStaffId, DistrictAssignedSchoolId, StateAssignedSchoolId, SchoolNCESId, DistrictNCESId, StateFIPSIId, LastName, FirstName, HispanicLatino, Races, GenderId, OtherInfo, Status, Email

Referral column headers

VendorReferralId, DistrictAssignedStudentId, StateAssignedStudentId, DistrictAssignedStaffId, DistrictAssignedSchoolId, StateAssignedSchoolId, SchoolNCESId, DistrictNCESId, StateFIPSIId, GradeId, Date, Time, LocationId, ProblemBehaviorId, Motivat

ionId, OthersInvolvedId, AdminDecisionId, OtherInfo, IEP, Duration, SeclusionRestraintId, RecordDeleted

Additional Considerations for data files:

If a specific value in an uploaded dataset contains an embedded comma the entire value must be surrounded by double quotes (e.g., “Jones, Jr.”) in order for DataLink to treat the comma as text, and not as a column delimiter. Additionally, any double-quotes *inside* the text-string must be replaced with **double double-quotes** (e.g., Joseph “”Joe”” Sparks).

In the tables below, a required column is a column that must have a value (i.e., cannot be null). However, all columns must be present in the file, whether those columns contain values or not. It is acceptable either to provide the text “NULL” or leave the field blank for DataLink to consider the value as null. However, the proper number of comma delimiters must be present on each row of the dataset.

Record Properties

Each record structure consists of the following field properties:

Property	Definition
Column Name	Name of the field
Type	The accepted data type for the field
Required	Whether the field is required (Y) or not required (N) data
Default Value	The value inserted if a value is not provided with the dataset. <i>Required fields without a default value listed will cause the import to fail for that record if a value is missing.</i>
Multiple Values Accepted	If yes (Y), the field accepts multiple values delimited by the pipe symbol (“ ”, created by pressing Shift-\). If no (N), only one value is accepted for the field.
SWIS Mapping Required (Referral File Only)	If yes (Y), DataLink accepts optional values for the field as they exist in the SIS when using DataLink with referrals. To correctly integrate data containing values from your SIS, a SWIS Mapping Template is required. The map specifies to which corresponding SWIS value the SIS value should be converted in the PBISApps database. DataLink uses the mappings to automatically convert the data. If no (N), optional values are not allowed for the field when using DataLink with Referrals. <i>If using DataLink for person records only, the SWIS Mapping Template is not used.</i>

Supported Identifiers

Each structure includes a list of supported identifiers for managing records between the PBISApps database and your SIS. The intent of identity management for each record is to:

- Ensure accurate matching.

- Ensure records can be exchanged independently.
- Define a set of identifiers to uniquely identify each record within the school, district, and/or the United States.

The following identifiers are currently supported. Only one is required for each record type:

Identifier	Definition
DistrictAssignedStaffId	Staff identifiers issued by the district, expected to be unique across all district employees.
DistrictAssignedStudentId	Student identifiers issued by district, expected to be unique across all district students.
StateAssignedStudentId	Student identifiers issued by the state education agency, expected to be unique across all students in the state.
DistrictAssignedSchoolId	School identifier issued by its district expected to be unique across all schools in the district.
StateAssignedSchoolId	School identifier issued by a state education agency expected to be unique across all schools in the state.
SchoolNCESId*	School identifier issued by the National Center for Education Statistics via its Common Core of Data (CCD) datasets.
DistrictNCESId*	District identifiers issued by the National Center for Education Statistics.
StateFIPSIId	State identifier issued by the Federal Information Processing Standards Publication 5-2 .
VendorReferralId	Referral identifiers issued and managed by your SIS.
Note:	
* Due to delays and gaps in the issuance of NCES identifiers, they cannot be relied upon as an identifier all schools will be assigned at DataLink startup.	

Staff Record

Column Name	Type	Required	Default Value	Multiple Values Accepted
DistrictAssignedStaffId	string (100)	Y		
DistrictAssignedSchoolId	string (100)	One is required		
StateAssignedSchoolId	string (100)			
SchoolNCESId	string (12)			
DistrictNCESId	string (7)	Y		
StateFIPSIId	Integer	Y		
LastName	string (200)	Y		
FirstName	string (200)	Y		
HispanicLatino	Y/N	N		
Races¹	string (100)	N		Y ²
GenderId¹	string (100)	N		
OtherInfo	string (700)	N		
Status¹	integer	N	1	
Email	string (254)	N		

NOTES:

1. See Appendix B for values.
2. Use | (Shift-\) to delimit.

Student Record

Column Name	Type	Required	Default Value	Multiple Values Accepted
DistrictAssignedStudentId	string (100)	One is required		
StateAssignedStudentId	string (100)			
DistrictAssignedSchoolId	string (100)	One is required		
StateAssignedSchoolId	string (100)			
SchoolNCESId	string (12)			
DistrictNCESId	string (7)	Y		
StateFIPSid	Integer	Y		
LastName	string (200)	Y		
FirstName	string (200)	Y		
GenderId ¹	string (100)	Y		
GradeId ¹	string (100)	Y		
OtherStudentInfo	string (750)	N		
IEP ²	Y/N	N	N	
Has504	Y/N	N	N	
DisabilityCategories ¹	string(50)	Y ³	15 ⁴	Y ⁵
HispanicLatino	Y/N	Y		
Races ¹	string(100)	Y		Y ⁵
Status ¹	Integer	N	1	
EnrollmentDate	Date	Y		
IsLanguageLearner	Y/N	N	N	

NOTES:

- 1 See Appendix B for values
- 2 This field indicates whether the student is currently on an individualized education plan.
- 3 This field is required only if student is on an IEP.
- 4 Students on an IEP will be inserted into the PBISApps database with a Disability Category of "To Be Obtained" by default if a value is not provided in the record.
- 5 Use | (Shift-\) to delimit.

Student Race and Ethnicity

By U.S. federal law, race and ethnicity must be provided for each student as follows:

- Ethnicity: Is the student Hispanic/Latinx (Y/N)?
- Race: With which race(s) does the student identify? *Multi-racial is an available category in aggregate reporting only. Student records for multi-racial students should indicate each race with which the students identify.*

Referral Record

Column Name	Type	Required	Default Value	Multiple Values Accepted	SWIS Mapping Required
VendorReferralId	string (100)	Y			
DistrictAssignedStudentId	string (100)	One is required			
StateAssignedStudentId	string (100)				
DistrictAssignedStaffId	string (100)	Y			
DistrictAssignedSchoolId	string (100)	One is required			
StateAssignedSchoolId	string (100)				
SchoolNCESId	string (12)				
DistrictNCESId	string (7)	Y			
StateFIPsId	Integer	Y			
GradeId	string (100)	Y ¹			Y
Date	Date	Y			
Time	HH:MM	Y			
LocationId	string (100)	Y			Y
ProblemBehaviorId	string (100)	Y		Y ⁵	Y
MotivationId	string (100)	Y			Y
OthersInvolvedId	string (100)	Y			Y
AdminDecisionId	string (100)	Y		Y ⁵	Y
OtherInfo	string (2500)	N			
IEP	Y/N	Y			
Duration ⁴	Real	Y		Y ^{2,5}	
SeclusionRestraintId	string (100)	Y			Y
RecordDeleted	Y/N	N ³			

Notes:

1. Grade the student was in when the referral occurred.
2. The number of durations must exactly match the number of administrative decisions. If the administrative decision does not involve time away from instruction, enter "0".
3. 1 = referral record has been deleted from the SIS and should be deleted from the PBISApps database.
4. Duration should be in days.
5. Use | (Shift-\) to delimit.

Appendix A: DataLink Agency Profile

Agency Profile

Organization Name		
Mailing Address		
City	State	Zip
Phone		
Organizational Account Username		

Contacts

Technical Contact Name	Email
SWIS Facilitator Contact Name	Email

Districts to Include in Account

District Name

Appendix B: Student/Staff Lookup Values

Races

Race or Ethnicity	Code
American Indian/Alaskan Native	1
Asian	2
Black	4
White	5
Pacific Islander/Native Hawaiian	8

Grades

Grade	NCES Grade	Code
Pre K-A	PK	16
Pre K-B	PK	17
Pre K	PK	14
K	KG	15
1	01	1
2	02	2
3	03	3
4	04	4
5	05	5
6	06	6
7	07	7
8	08	8
9	09	9
10	10	10
11	11	11
12	12	12
Post 12	NULL	13

Genders

Gender	Code
Female	2
Male	1
Non-Binary/Transgender/Other	3

Note: Schools opting to include a third gender in SWIS may send the Non-Binary/Transgender/Other identifier in DataLink files. If the third gender option is disabled in SWIS, sending this value in DataLink files will result in an error.

Student Disabilities

Disability	Code
Autism	1
Deaf-Blindness	2
Deafness	3
Emotional Disturbance	4
Hearing Impairment	5
Intellectual Disability	6
Multiple Disabilities	7
Orthopedic Impairment	8
Other Health Impairment	9
Specific Learning Disability	10
Speech or Language Impairment	11
Traumatic Brain Injury	12
Visual Impairment	13
Developmental Delay	14
To Be Obtained	15
Non-Categorical	16

Staff and Student Status Values

Staff and student records can include an optional status indicator. The three possible status values are:

Status	Definition	Code
Active	The staff member is currently associated with the school.	1
Inactive	The staff member is not currently associated with the school, but may return.	2
Archived	The staff member is not currently associated with the school and will not return (e.g. retired staff).	3

*Note: Absent a provided status value, DataLink will set the person record status to active. **Only when the actual status is known to be other than active should a status value be provided.***