

Using DEX Cloud – Texas Ed-Fi

Updated Jan 12, 2024

Disclaimer

- 1) This document describes Texas DEX Cloud as of January 2024. Ongoing improvements and modifications to DEX Cloud may result in some discrepancies between this document and current implementation.
- 2) Screenshots are taken from developer instances using anonymized test databases, generally from previous years.
 - a) This will result in some minor discrepancies between screenshots and typical customer instances, such as school year, number of profiles, etc.
 - b) While test databases have been anonymized, some numeric identifiers might have been overlooked. For this reason, all numeric identifiers have been redacted in the screenshots.

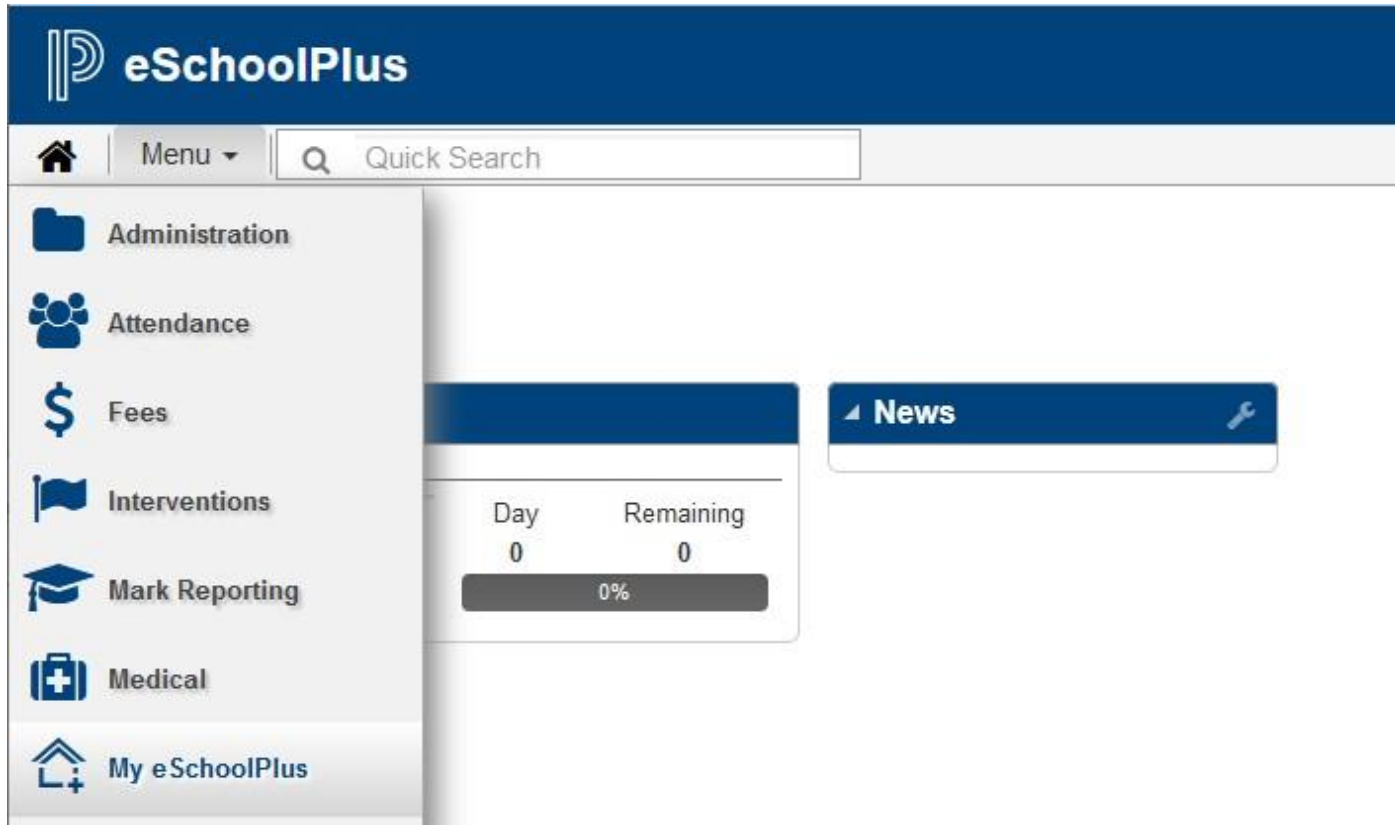
Contents

Prerequisites	2
Initial Configuration	6
Preparation for Publishing	11
Publishing Data	23
Reviewing Data	28
Initial Data Synchronization	34
Troubleshooting Common Errors and Dependencies	39
Appendix A – Dashboard Entity Names	41
Appendix B – Ed-Fi Response Codes	44

Prerequisites

Prior to following the guidance in this document, the following steps should already have been completed, detailed in ‘Onboarding New District DEX Cloud – TX’:

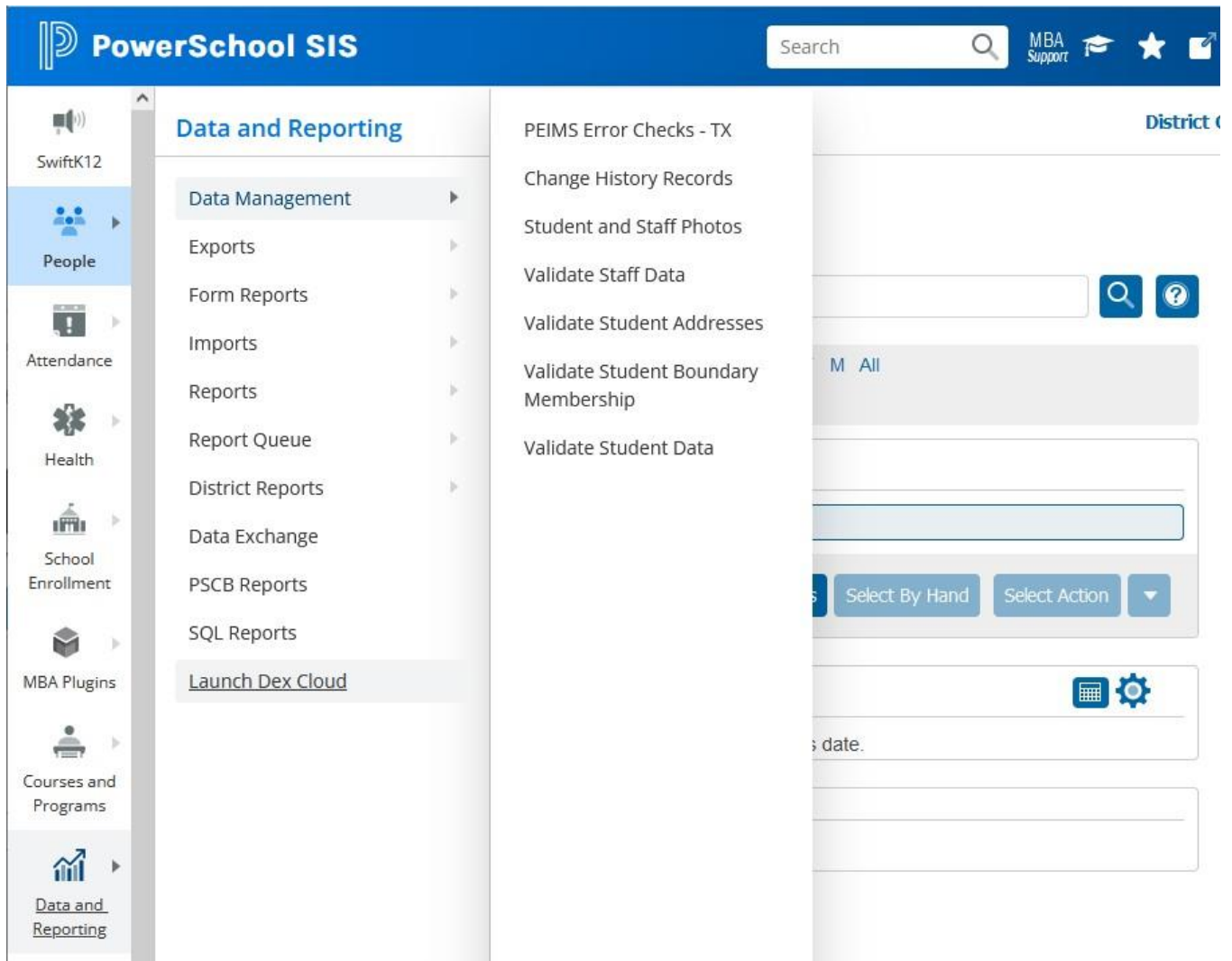
- 1) Replication is set up and working. District IT department coordinates with PowerSchool CloudOps to accomplish this.
- 2) DEX Cloud link is visible in the UI for authorized users. Display details vary by product.
 - a) eSchoolPlus – Under the home Menu select ‘My eSchoolPlus.’



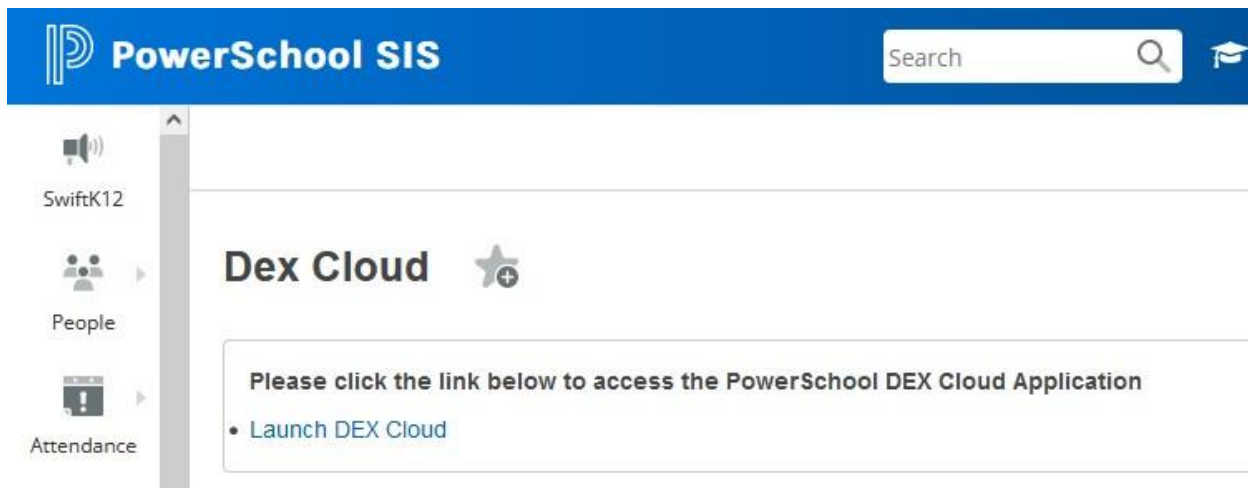
- i) Then select ‘DEX Cloud Launch’ under Product Links.



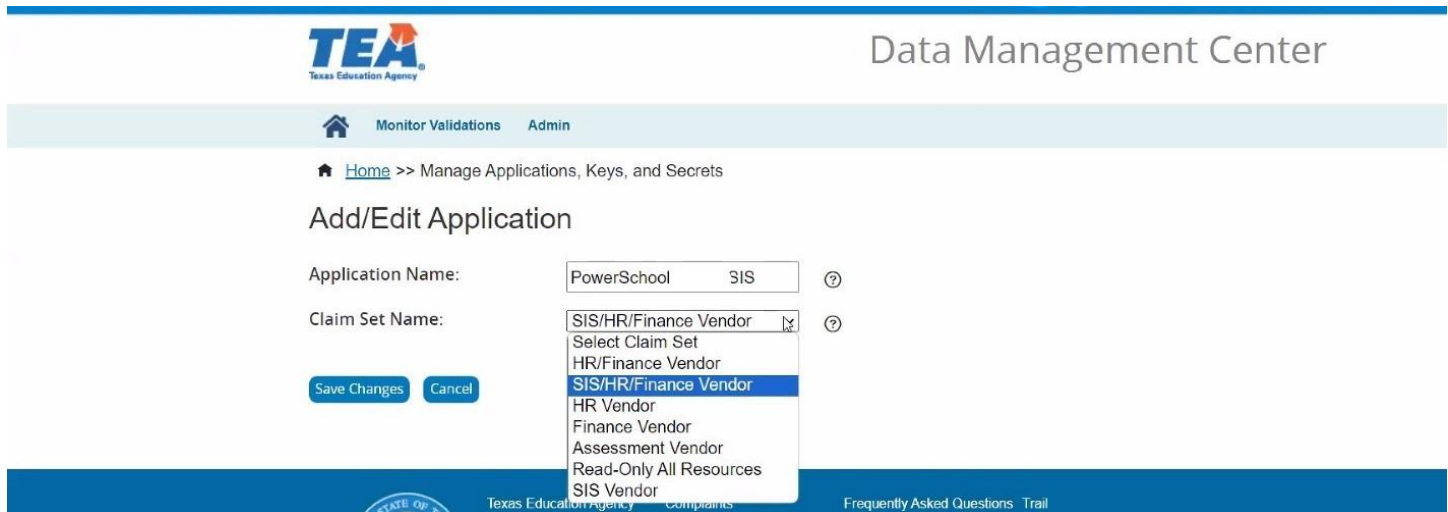
b) PowerSchool – Select ‘Data and Reporting’ from the left navigation panel, then select ‘Launch Dex Cloud’ at bottom of the list (not ‘Data Exchange’).



i) This displays a separate Dex Cloud page. Click ‘Launch DEX Cloud.’



- 3) Ed-Fi API URL and Ed-Fi Key and Secret with desired TEA Claim Set for local IODS have been obtained via TEA Data Management Center (DMC).
- a) TSDS Training Documents are located at: <https://www.texasstudentdatasystem.org/tsds/about/training-and-support/tsds-upgrade-project-training-materials>
- i) Part 1, 'Requesting Access' and part 2, 'Generate Keys and Secrets' both need to be completed as part of DEX setup prerequisites.
 - ii) Parts 3 - 5 relate to promoting data after publishing via DEX.
 - iii) Parts 6 - 8 are reference materials.
- b) When you request a key and secret, you provide an Application Name and specify a Claim Set.




The screenshot shows the TEA Data Management Center interface. At the top left is the TEA logo. The page title is 'Data Management Center'. Below the header, there are navigation links for 'Monitor Validations' and 'Admin'. The breadcrumb trail reads 'Home >> Manage Applications, Keys, and Secrets'. The main heading is 'Add/Edit Application'. The form contains two input fields: 'Application Name' with the value 'PowerSchool SIS' and 'Claim Set Name' with a dropdown menu open. The dropdown menu lists several options, with 'SIS/HR/Finance Vendor' highlighted. Below the form are 'Save Changes' and 'Cancel' buttons. At the bottom of the page, there is a footer with the Texas Education Agency logo and links for 'Complaints', 'Frequently Asked Questions', and 'Trail'.

- c) 'Application Name' is defined by the district.
- i) Enter a name that identifies the type of application within your district (e.g., 'PowerSchool SIS').
- d) 'Claim Set Name' determines which types of data TEA will allow you to publish using the returned key and secret.
- i) Select the 'SIS/HR/Finance Vendor' claim set for SIS profiles.
 - (1) Different from 'SIS Vendor' claim set recommended in TSDS Training Document part 2, 'Generating Keys and Secrets in the DMC'.
 - (2) You can publish fewer data types than the claim set allows, but you cannot publish data types that are not within the selected claim set.
 - (3) Some non-instructional Staff Responsibility records may be published by the SIS. Since these are a type of HR Staff data, the SIS/HR/Finance Vendor claim is needed.
 - (a) TEA will then accept any of those data types from the SIS.
 - (b) Settings in DEX specify which (if any) HR or Finance data types are published from the SIS.
 - ii) If you need to change your claim set later, you can do so in the DMC.

e) After saving changes, the generated key and secret are displayed, along with the API URL (screenshot from TEA Security Training, August 31, 2023).

Key and Secret





Application Name:	ABC SIS
Key:	fMJJa7GES72Yw
Secret:	SOYtEgzXkRg6qsSvMNyhKEpE
API URL:	https://odstst.tea.texas.gov/odsedfiapi2023

Note: For security purposes, this key and secret cannot be viewed again after you leave this page. You must communicate this key and secret to your vendor for them to be able to access your IODS.

Acknowledged

- i) Record the Key, Secret, and API URL for entry into DEX during configuration setup.
- ii) The API URL is used for both the Data Exchange URL and the Authentication URL in DEX setup.
- f) After clicking ‘Acknowledged,’ you can edit the Application Name or Claim Set without changing the key and secret, by clicking the pencil icon at the upper right (screenshot from TEA Security Training, August 31, 2023).

Application Name: ABC SIS Vendor  

Claim Set: SIS Vendor

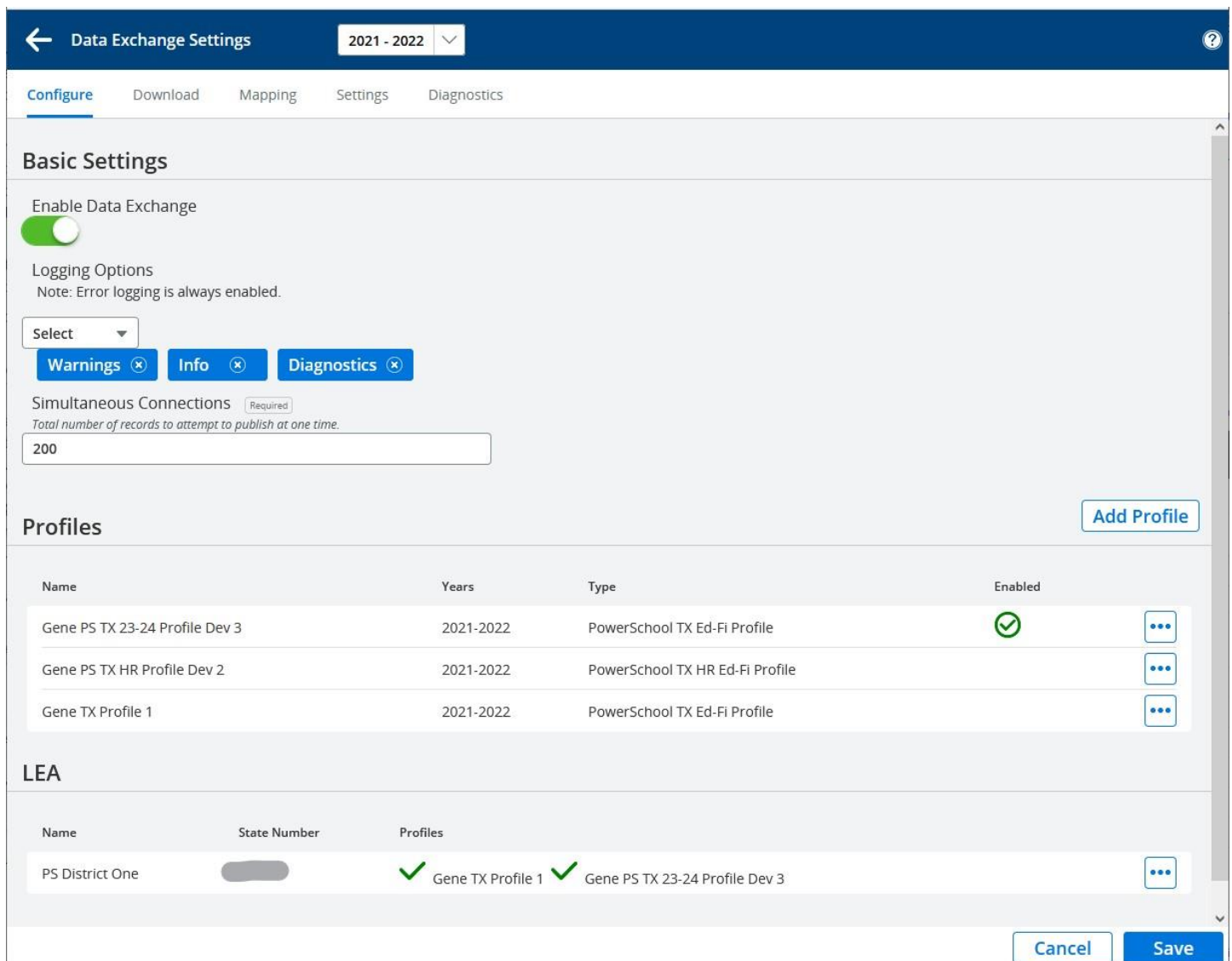
Key and Secret: You cannot view an existing key and secret. If you need a key and secret for this application, you must regenerate.

Regenerate

Once you have a key and secret and have the DEX Cloud link available with database replication working, you are ready to configure DEX Cloud and get started with Ed-Fi.

Initial Configuration

- 1) Launch DEX Cloud from SIS – DEX Cloud opens in new tab.
 - a) Known issue: DEX UI will timeout in approximately one hour, regardless of user activity.
 - b) For initial setup, DEX opens on the Configuration page:



Data Exchange Settings 2021 - 2022

Configure | Download | Mapping | Settings | Diagnostics

Basic Settings

Enable Data Exchange

Logging Options
Note: Error logging is always enabled.

Select

Warnings Info Diagnostics

Simultaneous Connections Required
Total number of records to attempt to publish at one time.

200

Profiles

Add Profile

Name	Years	Type	Enabled
Gene PS TX 23-24 Profile Dev 3	2021-2022	PowerSchool TX Ed-Fi Profile	<input checked="" type="checkbox"/>
Gene PS TX HR Profile Dev 2	2021-2022	PowerSchool TX HR Ed-Fi Profile	<input type="checkbox"/>
Gene TX Profile 1	2021-2022	PowerSchool TX Ed-Fi Profile	<input type="checkbox"/>

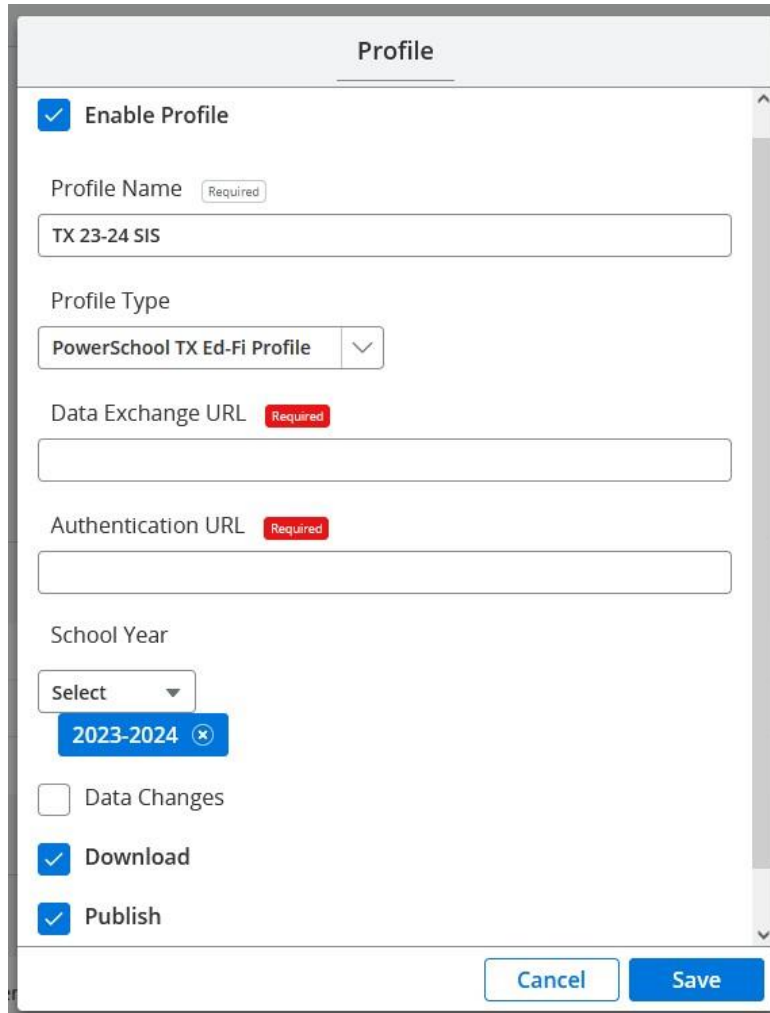
LEA

Name	State Number	Profiles
PS District One		<input checked="" type="checkbox"/> Gene TX Profile 1 <input checked="" type="checkbox"/> Gene PS TX 23-24 Profile Dev 3

Cancel Save

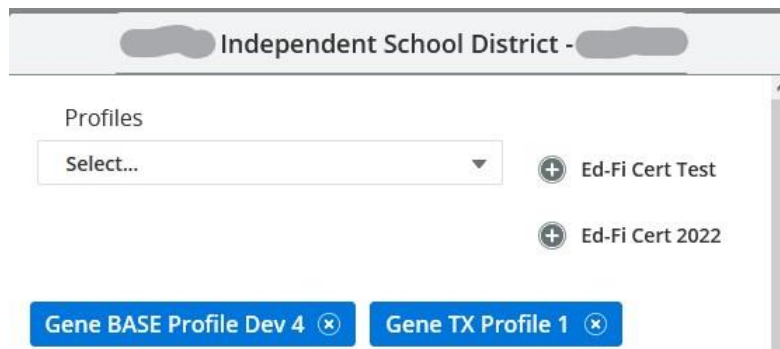
- i) 'Data Exchange Settings' is displayed at top left of page.
 - ii) 'Configure' is highlighted underneath 'Data Exchange Settings.'
 - c) If not on the Configuration page, click gear icon at top right to display the Configuration page.
 - i) Applies to Pilot districts and other districts with prior DEX setup.
 - ii) If you have an existing profile that is not current, DEX may display the Dashboard header with an error message. Clicking the gear icon will display the Configuration page, where you can update the profile.
 - d) Configuration page has three main areas: Basic Settings, Profiles, LEA
- 2) **Basic Settings**
- a) Enable Data Exchange – turn ON
 - b) Logging Options – additional selections not generally needed; default Error logging is sufficient.

- c) Simultaneous Connections – 200 is a good initial setting (20 to 500 acceptable).
 - i) Setting too low results in poor publishing performance.
 - ii) Setting too high results in frequent publishing errors (error ‘500’).
- 3) **Profiles** – To reuse an existing profile, click the three dots to right of profile name and select ‘Edit.’ Otherwise, click ‘Add Profile’ on right side of screen to display the Profile dialog:



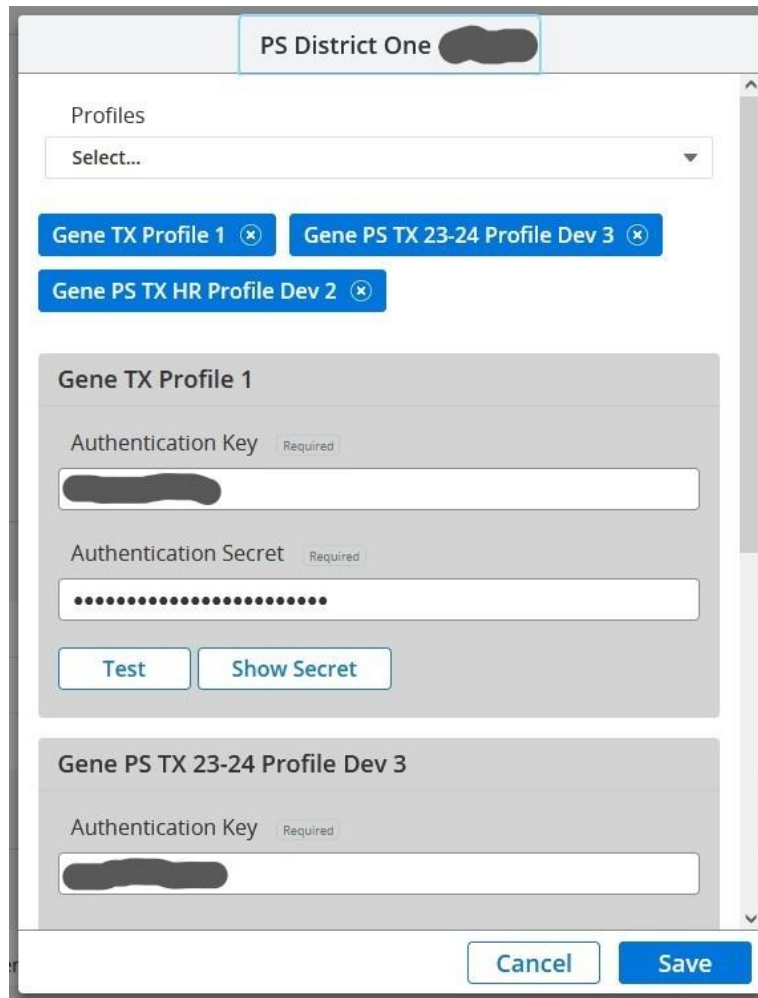
- a) Enable Profile – check to enable.
- b) Profile Name – Profile name that will display in your DEX UI, e.g., ‘TX 23-24 SIS’.
 - i) Maximum 100 characters, but short name is recommended.
 - ii) If you use a separate HR profile, you will want your profile name to indicate whether this is the HR or the SIS profile.
- c) Profile Type – select the type of profile you are adding.
 - i) You cannot change the profile type after saving, it is not included on the Edit dialog.
 - ii) For the SIS profile select ‘PowerSchool TX Ed-Fi Profile’ or ‘eSchoolPlus TX Ed-Fi Profile.’
 - iii) If you are adding a profile for an HR vendor (not the SIS), then select ‘Staff and HR TX Ed-Fi Profile.’
 - iv) If you will be publishing Staff and/or Finance data from the SIS and are adding that as a separate profile in the DEX UI, then select ‘PowerSchool TX HR Ed-Fi Profile’ or ‘eSchoolPlus TX HR Ed-Fi Profile.’

- (1) Creating a separate profile in this case is not necessary, it would only be done to create a separate profile in the UI for HR Staff and Finance data.
- (2) Currently all users able to access the general SIS profile would also have access to this one, but user-based access to specific profiles will be added in the future.
- d) Enter the Data Exchange URL and the Authentication URL.
 - i) Use the API URL from the TEA DMC for both fields.
 - ii) If reusing an existing profile, verify URLs and update if necessary.
- e) Select the school year (2023-2024 for TX Parallel year).
 - i) Districts reusing a profile from a prior year will need to add the current school year.
- f) Check/uncheck publishing options as desired:
 - i) **Data Changes** – Leave unchecked during initial setup and publishing.
 - (1) When checked, data changes made in the SIS or HR system are automatically published in near-real-time and/or weekday nightly process.
 - ii) **Download** – Check to enable.
 - (1) Required to download necessary data from state, e.g., code sets, schools, courses.
 - (2) Downloads are excluded from automatic publishing and are always user-initiated.
 - iii) **Publish** – Check to enable.
 - (1) Required to publish data.
 - (2) Includes weekend update process, which republishes all changes.
 - (3) Uncheck only if you need to stop all publishing activity.
 - iv) Note that the weekday nightly publishing is enabled or disabled as part of ‘Data Changes,’ while the weekend publishing is independent from it.
- g) Click ‘Save’ at bottom right of pop-up.
- 4) **LEA** – Connection setup for all profiles defined for LEA. Initially blank, automatically populated when profile is created. Click 3 dots on right and select ‘Edit’, displays LEA profile connection dialog:

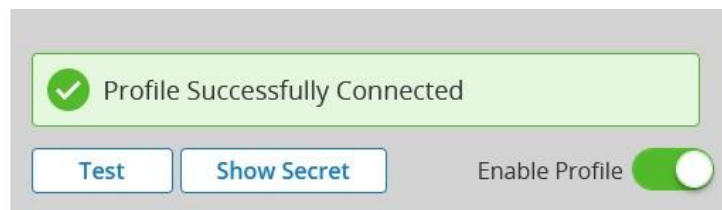


- a) District name is header, with profiles defined for district shown in upper part of dialog pop-up.
 - i) The ‘Select’ dropdown is inactive – ignore it.
 - ii) Profiles with no connection data are displayed at right with ‘+’ on left of profile name.
 - iii) Profiles with connection data are displayed on blue background with ‘x’ on right of profile name.
 - (1) The ‘x’ on the right is for removing the profile relationship.
 - (2) A panel with previously entered data is displayed below for each profile with blue background.
- b) Select a profile for setting up connection:
 - i) Click ‘+’ next to the profile name to add a new connection panel for profiles with no previous connection data.

ii) Scroll down to the connection panel for the profile.



- c) Enter Authentication Key and Secret, as received from TEA.
 - i) If reusing an existing profile, enter the new Key and Secret if these have changed.
- d) Click 'Test'
 - i) Should get 'Profile Successfully Connected' message with 'Enable Profile' switch.



- ii) If test not successful, verify key and secret, check for leading/trailing spaces.
 - iii) If still not successful, contact TEA or vendor Support.
- e) **Enable Profile.**
 - i) 'Enable Profile' switch only appears after successful test.
 - ii) Caution: important step, easy to overlook.
- f) Click 'Save.'
- 5) Click 'Save' at bottom right of Configuration page.
 - a) Publishing Dashboard for configured profile is displayed.
 - b) Name of profile displayed at upper left.

c) Publishing groups, categories, and entities are displayed, described below under ‘Publishing Data.’

6) With a profile defined, when you launch DEX Cloud it will open on the publishing Dashboard as the landing page.

The screenshot shows the 'Data Exchange' interface for the '2021 - 2022' school year at the 'District Office'. The user profile is 'DA'. The page title is 'Gene PS TX 23-24 Profile Dev 3'. There are two main sections: 'Organization' and 'Students'. Each section has a table of categories with columns for category name, sub-categories, and a status icon.

Categories	Status
Organization Catalog Local Education Agency (LEA) School SSA Organization Association	⋮
Course Catalog Course	⋮
Program Catalog Program	⋮
Organization Info Location Class Period	⋮
Organization Calendars School Calendar Calendar Date Grading Period Session	⋮
Organization Schedules Course Offering Section Bell Schedule Entry	⋮

Categories	Status
Student Identification Student ID Student Application	⋮
Enrollment & Demographics School Enrollment Student Demographics Responsible Organizations	⋮
Contacts Student Contact Student Contact Relationship	⋮
Student Sections Student Section	⋮
Prior Year Leavers Status A Leaver Prior Year Contact Prior Year Contact Relationship	⋮

The 'Staff' section is visible at the bottom but contains no data.

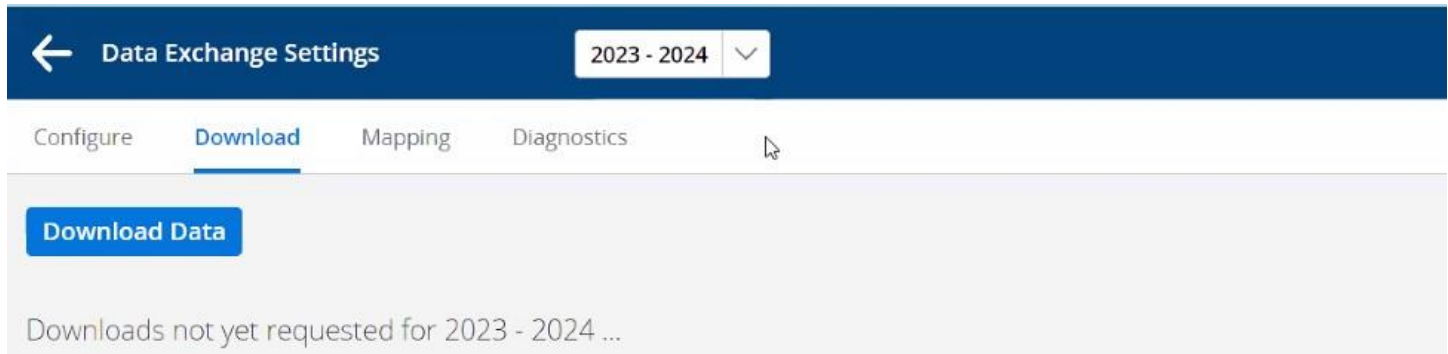
a) This page will be explained later in the section on Publishing Data.

b) Note the gear icon at the top right of the page.

After completing initial configuration there are additional setup steps that need to be completed before you can begin publishing.

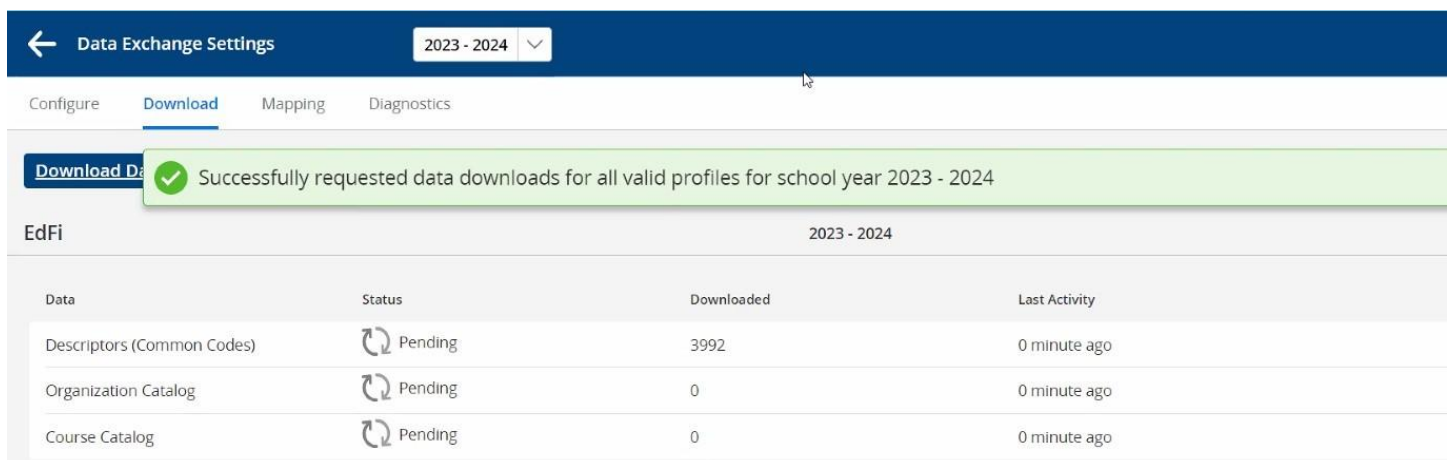
Preparation for Publishing

- 1) **Download Data** – On the publishing Dashboard, click the gear icon at the upper right to access the Configuration page.
 - a) Select ‘Download’ from top of page – a ‘Download’ button is displayed alone if downloads have not previously been initiated. If they have, one or more panels will follow (described below).



The screenshot shows the 'Data Exchange Settings' page for the school year 2023 - 2024. The 'Download' tab is selected. A blue button labeled 'Download Data' is visible. Below the button, the text reads: 'Downloads not yet requested for 2023 - 2024 ...'

- b) Click the ‘Download’ button to initiate downloading data from the IODS provided by TEA.
 - i) DEX will search for entities pre-loaded by TEA into the IODS for district reference.
 - ii) These entities are then displayed on the Download page and downloading is initiated.

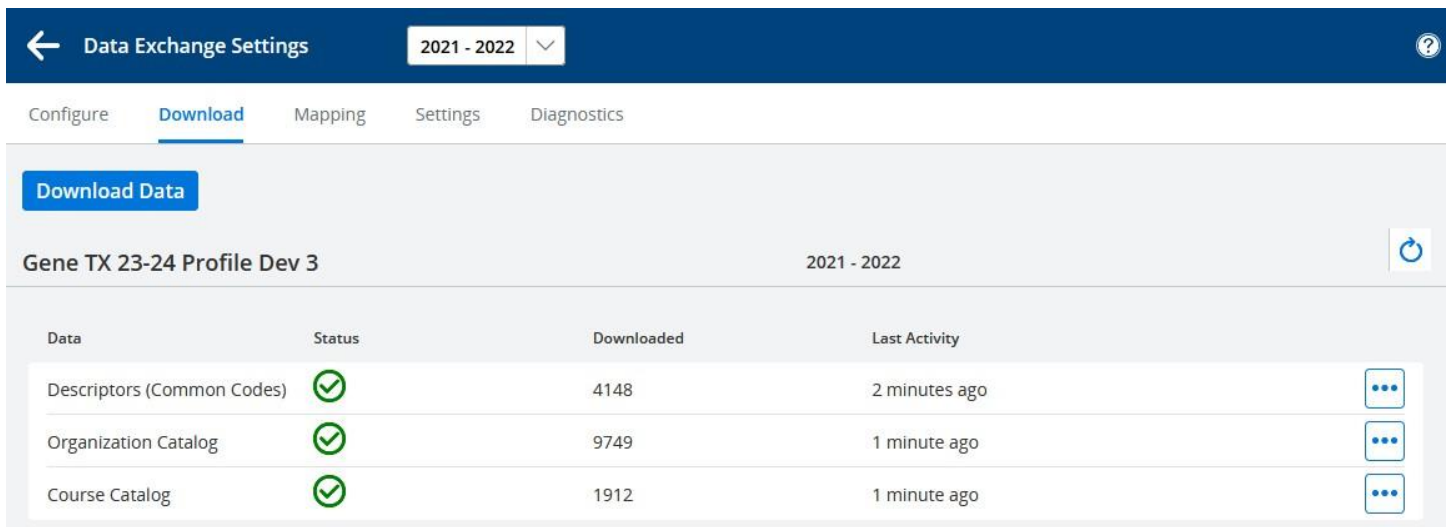


The screenshot shows the 'Data Exchange Settings' page with a green success message: 'Successfully requested data downloads for all valid profiles for school year 2023 - 2024'. Below the message is a table titled 'EdFi' for the school year 2023 - 2024.

Data	Status	Downloaded	Last Activity
Descriptors (Common Codes)	Pending	3992	0 minute ago
Organization Catalog	Pending	0	0 minute ago
Course Catalog	Pending	0	0 minute ago

- iii) After a few minutes, the ‘Downloaded’ column will start displaying an increasing count of downloaded records for each entity.
 - iv) Completing the download process may take nearly an hour or longer.

v) When completed, a green checkbox will be displayed in the 'Status' column.



Data	Status	Downloaded	Last Activity
Descriptors (Common Codes)	✓	4148	2 minutes ago
Organization Catalog	✓	9749	1 minute ago
Course Catalog	✓	1912	1 minute ago

- c) A separate Download panel is displayed for each active profile.
- d) Each Download panel includes the profile name and entities available for downloading in that profile.
- e) Downloads can be updated manually at any time by clicking the three dots on the right and selecting 'Download.'
- i) A download category can be selected before completed other downloads. It will be in waiting status until any prior downloads have completed, then it will begin.
- f) Downloaded data is stored by profile and school year, so downloads must be done separately for each school year that a profile is used, if the profile is valid for more than one school year.
 - i) The school year is selected in the dropdown at the top of the page.
 - ii) Districts reusing a profile from a prior year will need to download data for 2023-24.
 - iii) When TEA releases updates, downloads should be repeated, especially for Descriptors.
- g) TEA Downloaded Entities:
 - i) **Descriptors (Common Codes)**
 - (1) Descriptors are code values, such as Exit codes or Attendance codes.
 - (a) TEA has defined codes for state reporting use, corresponding to legacy Code Tables.
 - (i) These codes must be downloaded so they can be used in publishing data required by TEA.
 - (b) Ed-Fi includes core default codes in addition to TEA state codes.
 - (i) These codes are also downloaded so they can be used in publishing data needed for the IODS but not promoted to TEA.
 - ii) **Organization Catalog**
 - (1) Includes all Local Education Agencies and Schools recognized by TEA.
 - (a) Basic identifying data is downloaded.
 - (b) Districts will publish state reporting data for their district and schools but need the downloaded identifying records to do so.
 - iii) **Course Catalog (SIS profiles only)**
 - (1) Includes one course for each instruction code in the legacy C022 Service-ID table.
 - (a) Does not include courses for non-instructional service codes.
 - (b) Needed to publish Course-related data.

h) Reviewing downloaded data

i) To review downloaded data, click the three dots on the right and select 'Details.'

Data Exchange Download		Descriptor Summary	
Code Set Name	Description	Code Values Defined	Last Activity
Absence Event Categories	Describes the type of absence	12	
Academic Honor Categories	Describes academic distinctions earned by or awarded to a student	18	
Academic Subjects	Describes academic content or subject areas	29	
Accommodations	Describes how an assessment is taken	9	
Achievement Categories	Learner achievement categories	13	
Ada Eligibility Types	Populated from code table C059	10	
Additional Credit Types	Describes the additional credit types	5	
Address Types	Describes elements in an address including street address, city, state and zip code	22	
Administration Environment Types	Describes the environment in which a test was administered	4	
Administrative Funding Controls	Type of funding source for education (e.g., private or public)	3	
Application Types	Application types	1	
Armed Services Battery Indicators	Descriptor E1625 is populated from code table C217	3	
As Of Last Day Enrollment Statuses	E3006: Indicates the student's status in the district on the last day of school or last date of enrollment in the current school year	3	
As Of Last Friday October Statuses	E3007: Indicates the student's status in the district on the last Friday in October in the current school year	8	
Assessment Categories	Type of assessment categories	44	

1 - 15

(1) **Descriptors** – Details will display downloaded Code Set Names, with number of values defined for each code set:

(a) Page through the list using the paging scroll at the bottom of the page.

(b) 'Descriptor Summary' is displayed in a drop-down menu at the top of the page.

- (c) To see descriptor values, select 'Descriptors (Common Codes)' from the drop-down menu.
 - (i) Filter the list by clicking on 'Filter' at the top right.

The screenshot shows the 'Data Exchange Download' interface. At the top, there is a navigation bar with a left arrow, the text 'Data Exchange Download', and a dropdown menu currently set to 'Descriptors (Common Codes)'. On the right side of the bar is a 'Filter' button. Below the navigation bar, there is a search area with a 'Code Set Name' dropdown and a text input field containing 'behav'. The main content is a table with the following columns: Code Set Name, Code Value, Description, Namespace, and Last Activity. The table lists 18 rows of behavior categories, all with a last activity date of Jul 15 at 11:05 AM. At the bottom of the table, there is a pagination control showing '1 - 15' and a slider with a '1' button.

Code Set Name	Code Value	Description	Namespace	Last Activity
Behavior Categories	01	Permanent Removal By A Teacher From Class	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	02	Conduct Punishable As A Felony	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	04	Possessed, Sold, Used, Or Was Under The Influence Of Marihuana Or Other CS	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	05	Possessed, Sold, Used, Or Was Under The Influence Of An Alcoholic Beverage	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	06	Abuse Of A Volatile Chemical	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	07	Public Lewdness Or Indecent Exposure	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	08	Retaliation Against School Employee	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	09	Based On Conduct For Felony Offenses In Title 5, Penal Code	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	10	Based On Conduct For Felony Offenses Not In Title 5, Penal Code	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	11	Brought Firearm To School Or Unlawful Carrying Of Handgun Penal Code 46.02	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	12	Unlawful Carrying Of A Location- Restricted Knife Under Penal Code 46.02	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	14	Elements Of Offense Relating To Prohibited Weapons Under Penal Code 46.05	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	16	Arson	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	17	Murder, Capital Murder, Criminal Attempt To Commit Murder Or Capital Murder	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM
Behavior Categories	18	Indecency With A Child	uri://tea.texas.gov/BehaviorDescriptor	Jul 15 at 11:05 AM

1. Select 'Code Set Name' on the left.
 2. Begin typing the name of the code set you want, e.g., 'Behavior.'
- (ii) In many cases the list includes two different namespaces for the same code set.
1. uri://tea.texas.gov/ indicates descriptors that TEA will recognize (as in screenshot above).
 2. uri://ed-fi.org indicates core Ed-Fi descriptors that will be recognized by the IODS but not by TEA.

- (d) Return to the Download page by clicking the left arrow at the top of the page.
- (2) **Organization Catalog** – Details will display the downloaded LEAs and schools.
- (a) List only – there is no lower-level detail view.
 - (b) The list can be filtered by District Name, LEA ID, School Name, or State School ID.
- (3) **Course Catalog** will display the downloaded courses and (later) any additional courses that were published by the district.
- (a) List only – there is no lower-level detail view.
 - (b) The list can be filtered by State Course Code, State Course Title, or LEA ID ('1' for all state-downloaded courses).

- 2) **Code Set Mapping** – Select ‘Mapping’ at the top of the Configuration page to display the Code Set Mapping page. If returning to DEX or otherwise on the Dashboard page, click the gear icon at the upper right to access the Configuration page, then select ‘Mapping.’

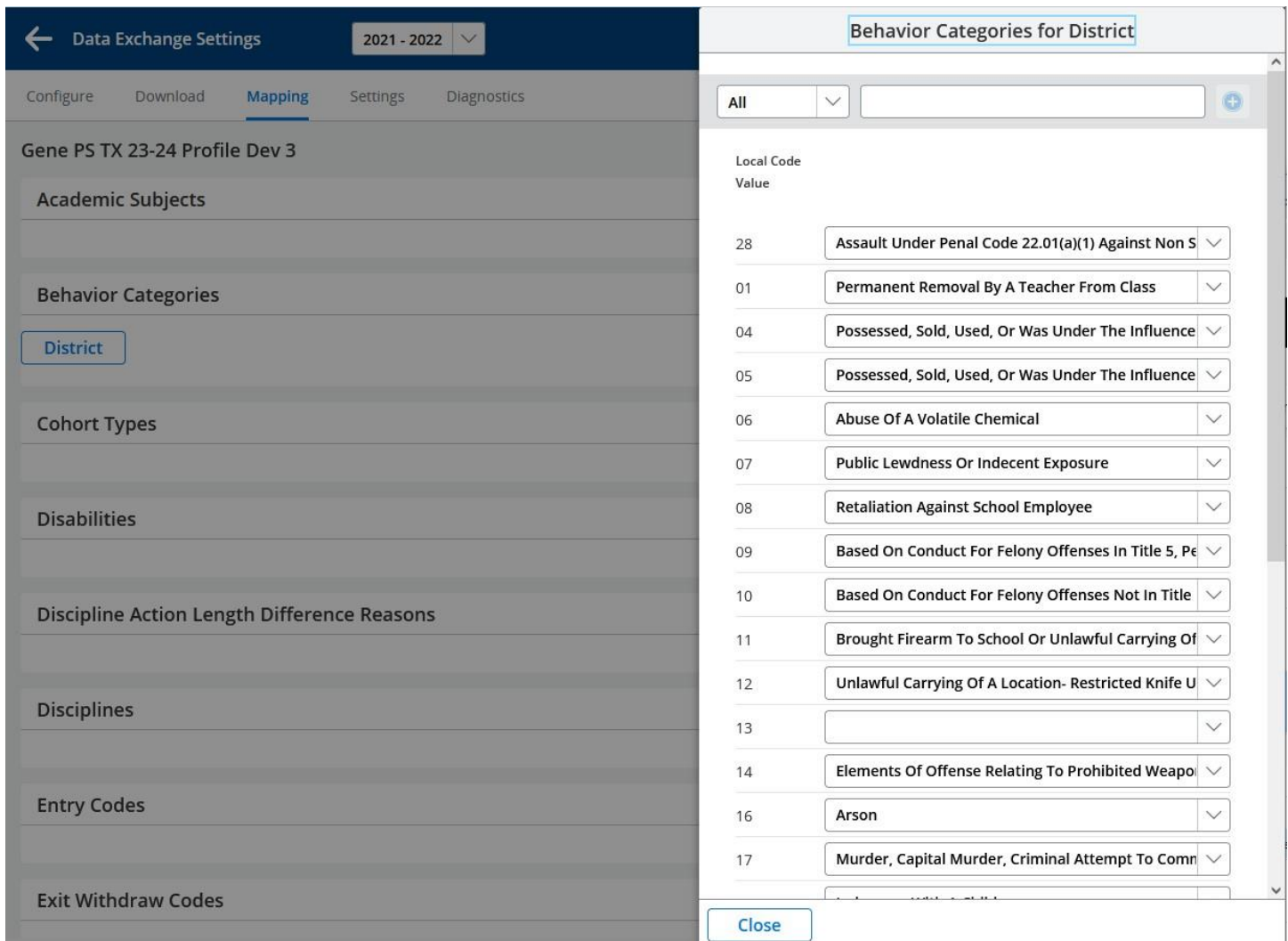
Configure Download **Mapping** Settings Diagnostics

Gene PS TX 23-24 Profile Dev 3

Academic Subjects	Map
Behavior Categories	Map
Cohort Types	Map
Disabilities	Map
Discipline Action Length Difference Reasons	Map
Disciplines	Map
Entry Codes	Map
Exit Withdraw Codes	Map

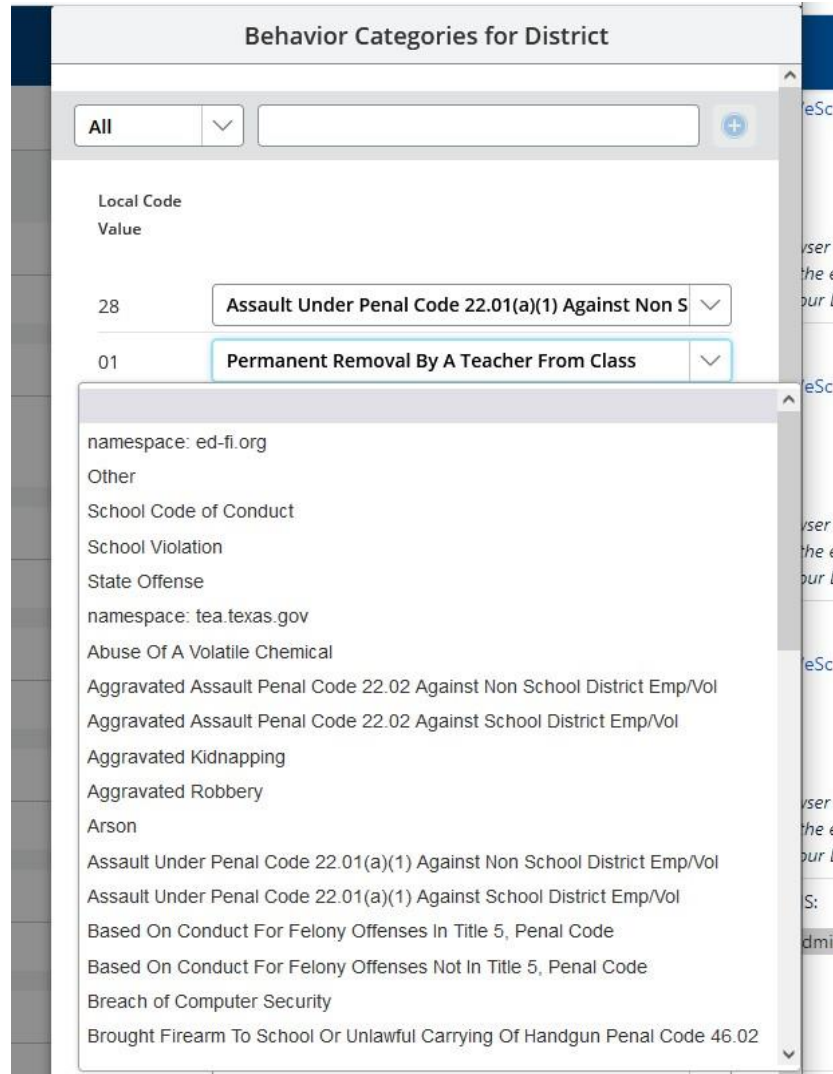
- The Mapping page includes a list of code sets on the left and ‘Map’ icons on the right.
- There is a separate mapping panel for each profile, with the profile name as a header.
- Use this page to map local code values to TEA codes or generic Ed-Fi codes.
- Not all code sets are available for mapping, only those listed on the page.
 - The following code sets are required for TEA reporting and need to be mapped:
 - Behavior Categories
 - Disabilities
 - Discipline Action Length Difference Reasons
 - Disciplines
 - Entry Codes
 - Exit Withdraw Codes
 - Languages
 - Other listed code sets are not used in TEA reporting and can be skipped:
 - Academic Subjects – not used in publishing.
 - Cohort Types – used in Cohorts, not yet implemented.
 - Grade Types – used in Grades, mapping optional.

- (4) Reporting Terms (Grading Periods, not TEA reporting terms) – used in Grades, mapping optional.
- (5) Excluded Reporting Terms – used in Grades, mapping optional.
- e) To map a code set, click ‘Map’ on the right opposite the code set name.
 - i) In most cases a ‘District’ button will appear under the code set name.
 - (1) Some local codes vary by school, and a button will be displayed for each school.
 - (2) All the necessary code sets are district wide.
 - ii) Click ‘District’ or (where mapping is by school) the name of a school.
 - iii) The mapping dialog for the code set appears on the right side of the screen:



- (1) The two boxes across the top are used for filtering the list.
 - (a) Begin typing the desired local code in the box on the right – the displayed list is limited to codes containing what you typed.
 - (b) To return to the full list, select ‘All’ in the drop-down menu on the left.
- (2) Below the top filter boxes, the mapping screen shows local codes on the left with mapping option dropdowns on the right.
- (3) Where local code values match TEA values, these are pre-mapped automatically.

- (4) To map a local code, click the down arrow on the dropdown to display downloaded values for that code set and select the desired value.



Local Code	Value
28	Assault Under Penal Code 22.01(a)(1) Against Non S
01	Permanent Removal By A Teacher From Class

namespace: ed-fi.org

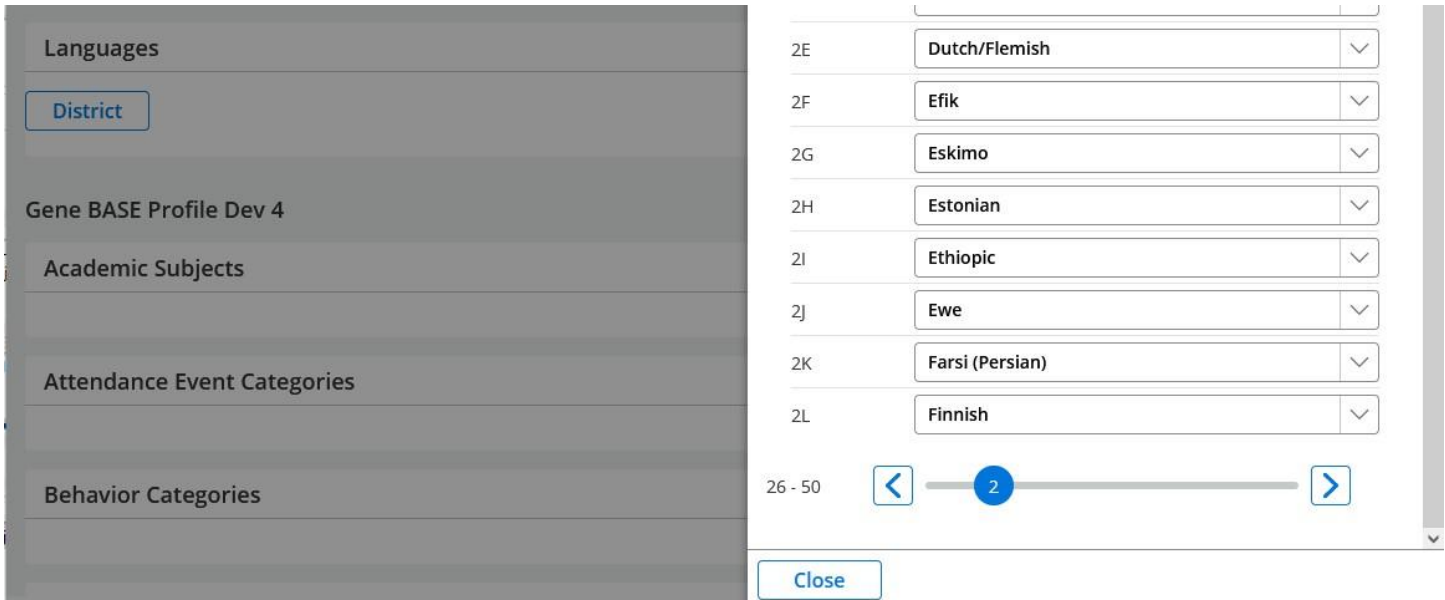
- Other
- School Code of Conduct
- School Violation
- State Offense

namespace: tea.texas.gov

- Abuse Of A Volatile Chemical
- Aggravated Assault Penal Code 22.02 Against Non School District Emp/Vol
- Aggravated Assault Penal Code 22.02 Against School District Emp/Vol
- Aggravated Kidnapping
- Aggravated Robbery
- Arson
- Assault Under Penal Code 22.01(a)(1) Against Non School District Emp/Vol
- Assault Under Penal Code 22.01(a)(1) Against School District Emp/Vol
- Based On Conduct For Felony Offenses In Title 5, Penal Code
- Based On Conduct For Felony Offenses Not In Title 5, Penal Code
- Breach of Computer Security
- Brought Firearm To School Or Unlawful Carrying Of Handgun Penal Code 46.02

- (a) Values are listed by namespace, which indicates the source of the downloaded value.
- (i) Core Ed-Fi values are listed first, under the header, 'namespace: ed-fi.org.'
 - (ii) Texas values are listed under the header, 'namespace: tea.texas.gov.'
 1. These values will be promoted to TEA as mapped without issue.
 - (iii) Local code values left un-mapped will be published to the IODS as local descriptors using the namespace, 'local.texas.gov,' as specified on the Settings page.
 1. This would preserve local code distinctions in the IODS that are lost when mapping to downloaded codes.
 2. Publishing local descriptors is done automatically as unmapped codes are encountered while publishing other entities. Not all unmapped local codes will be published, only those that were encountered during publishing.
 - (iv) If Ed-Fi or local values are to be promoted to TEA, they will need to be mapped to TEA values in the TEA Data Management Center (DMC).
- (b) Mappings are automatically stored as each code is mapped.

(c) Longer lists of local codes require multiple pages, accessed via a pager at the bottom of the mapping dialog.



- (i) Known issue: when paging between multiple pages of codes, the UI may fail to display mappings that were completed during the current session on a previous page.
 1. This is a display issue only; the mappings have been saved in the database
 2. This can be verified by closing the dialog for the code set and re-selecting it again.
- (5) When all desired local codes have been mapped, click 'Close' at the bottom of the mapping dialog.
- (6) Code set mappings are stored by profile but not by school year, so mappings for a profile persist from one school year to another when the same profile is used for multiple years.

3) Settings

- a) Select 'Settings' at the top of the Configuration page.
- b) The Settings page displays miscellaneous publishing options for each active profile.
- c) Not all settings described below are available in every profile.

d) Each active profile has a separate Settings panel with the profile name as header:

Configure Download Mapping **Settings** Diagnostics

Gene PS TX 23-24 Profile Dev 3

DescriptorNameSpacePrefixToPublish
Namespace prefix to publish descriptors

PublishDefaultStaffEmployment
Publish Default Staff Employment Records

PublishHRStaffAndAssociations
Publish Staff and Employment

PublishFinanceData
Publish Finance Data

UserProfileMappingOption
User-Profile Mapping Option

PublishSSAOrganizationAssociationExtensions
Publish SSA Organization Association Extensions

ExcludeStudentsWithoutUniqueIDs
Exclude Students from Publishing if State Student Number or SSN are Not Assigned

ExcludeUnmappedCalendarReference
Exclude Calendar Reference from School Enrollment if The Calendar is Not Defined for The School

DashboardCounterRefreshInterval
Interval between computations of the dashboard counters (seconds)

DashboardDetailFilterOption
Dashboard detail default filter option

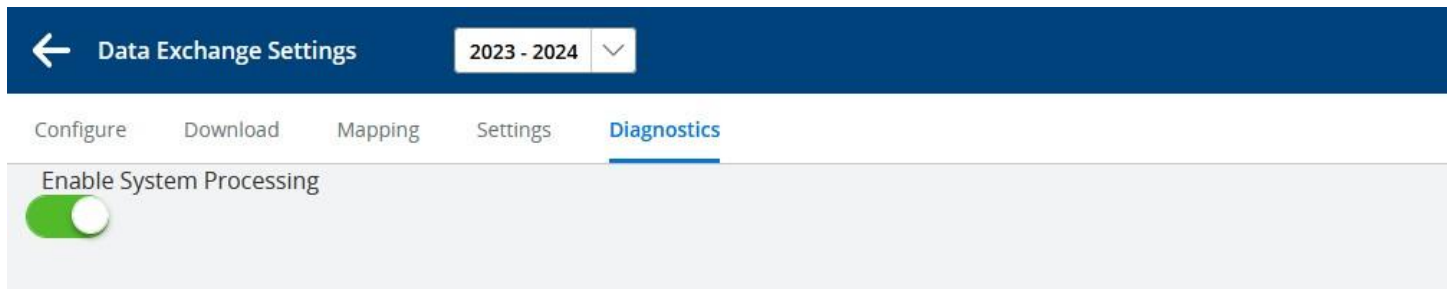
- i) **DescriptorNameSpacePrefixToPublish** – Namespace prefix used on local codes published as descriptors to the IODS. TEA specified value is ‘uri://local.texas.gov,’ update if necessary.
- ii) **PublishDefaultStaffEmployment** – Enables publishing default Staff Employment records for staff in the source system that don’t have employment data.
 - (1) Defaults to OFF for SIS or HR profile types.
 - (2) Defaults to ON for SIS+HR profile types.

- (3) Only effective if next option, PublishHRStaffAndAssociations is also turned ON.
- (4) Select ON to publish default Staff Employment records. Normally used as a temporary work-around when employment data isn't yet available from a pending HR system.
 - (a) Caution: if you are publishing Staff HR data from the SIS, setting this OFF will limit staff publishing to only those staff who have either an employment record in the SIS or a manually entered noninstructional responsibility record in the SIS. Without an employment record, teaching staff will not be published.
 - (b) Recommendation: SIS profiles temporarily publishing Staff data should select ON. Select OFF only if you want to receive errors alerting you to missing staff employment data.
 - (c) When HR employment data becomes available, Select OFF and run process for removing default staff records (to be added).
- iii) **PublishHRStaffAndAssociations** – Select ON to publish HR staff data from the source system.
 - (1) Defaults to ON for HR or SIS+HR profile types.
 - (2) Defaults to OFF for SIS profile types.
 - (a) Set ON if an HR system is not available and you want HR Staff data published from sources within the SIS.
- iv) **PublishFinanceData** – Select ON to publish finance data from the source system.
 - (1) Defaults to OFF for PowerSchool SIS profile.
 - (2) Defaults to ON for HR or PowerSchool SIS+HR profiles.
 - (3) Not available for eSchoolPlus SIS and SIS+HR profiles.
 - (4) Normal setting for a SIS profile is OFF. Set ON if an HR system is not available and you want HR Finance data published from sources within the SIS (PowerSchool only)
- v) **UserProfileMappingOption** – Security options for user access to profile data:
 - (1) Available to each user – Security turned off for profile; profile is available to any DEX user.
 - (a) Default setting.
 - (2) Vendor-based authorization – In multiple-vendor implementations (e.g., separate SIS and HR system), users entering DEX from the SIS would see SIS data only and users entering from the HR system would see HR data only.
 - (a) Example: district has PowerSchool SIS and eFinancePlus HR system, with 'Vendor-based authorization' selected:
 - (i) Users launching DEX from the PowerSchool will see only the SIS profile and PowerSchool data. They will not see the HR profile or eFinancePlus data. This Settings page will include only the SIS profile (as in screenshot).
 - (ii) Users launching DEX from eFinancePlus will see only the HR profile and eFinancePlus data. They will not see the SIS profile or PowerSchool data. This Settings page will include only the HR profile.
 - (iii) If option is changed to 'Available to each user', then users launching DEX from either PowerSchool or eFinancePlus will see both profiles and associated data. Both profiles will appear on this Settings page.
 - (b) Affects only multiple-vendor implementations; no effect on single-vendor implementations.
 - (3) Vendor- or user-authorization – Currently acts the same as Vendor-based authorization because user-based authorization is not yet implemented.

- (a) When user-based authorization is implemented, it will provide a way to define more precise access to each profile for each user.
- vi) **PublishSSAOrganizationAssociationExtensions** – All profile types. Set ON if SSA Organization Associations (Shared Services) will be published from this profile, otherwise set OFF.
- vii) **ExcludeStudentsWithoutUniqueIDs** – SIS profile types. Set ON at start of school year to exclude students who don't yet have a Unique ID, to avoid large number of dependencies slowing down system. Set OFF when student Unique ID assignment is largely completed.
- viii) **ExcludeUnmappedCalendarReference** – PowerSchool SIS profile only. Set ON at start of school year to skip calendar reference in Student Enrollments before TEA calendar mapping for state reporting is completed. Set OFF when mapping is completed.
- ix) **DashboardCounterRefreshInterval** – SIS profile types. Time in seconds before dashboard values are recalculated, defaults to 0. When 0, dashboard is recalculated on the fly every time it's accessed, otherwise stored values are used, with the refresh interval specified. Set value to 10 or 15 for smaller districts, 30 for larger ones.
- x) **DashboardDetailFilterOption** – SIS Profile types. Set automatic filtering of Dashboard detail lists based on error or dependency status (described later). Options are:
 - (1) All records (no filter) – Default operation. All records are displayed on detail list pages.
 - (2) Errors or Dependencies or All – If errors exist, only records with errors are displayed. Otherwise, if dependencies exist, only records in dependency are displayed; otherwise all records are displayed.
 - (3) Dependencies only – Only records in dependency are displayed on detail list pages. Use this option to see dependency records when records with errors exist for the entity.
 - (4) Errors and Dependencies – Records with errors and records in dependency are displayed on detail list pages. Published and processing records are not displayed.
- e) Settings should be consistent with the TEA claim set associated with the profile key and secret.
 - i) Claim set defines limitations on what can be published, settings define what will be published.
 - (1) 'SIS/HR/Finance Vendor' claim set allows HR and finance data but doesn't require them. HR Staff and Finance can be selected ON or OFF in Settings without issue.
 - (2) 'SIS Vendor' claim set does not allow HR or finance data, so selecting HR Staff or Finance ON in Settings would result in publishing errors.
 - ii) Claim set was selected when key and secret were obtained from the TEA Data Management Center. See 'Prerequisites' section above, change claim set if needed.
- f) Click 'Save' when done.
 - i) After settings saved, you need to return to Configure page then come back to Settings in order to re-enable 'Save.'

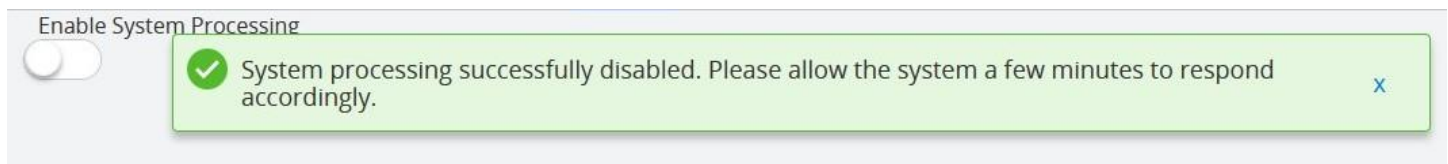
4) Diagnostics

- a) The Diagnostics page is not normally accessed. It is displayed when 'Diagnostics' is selected at the top of the Configuration page.

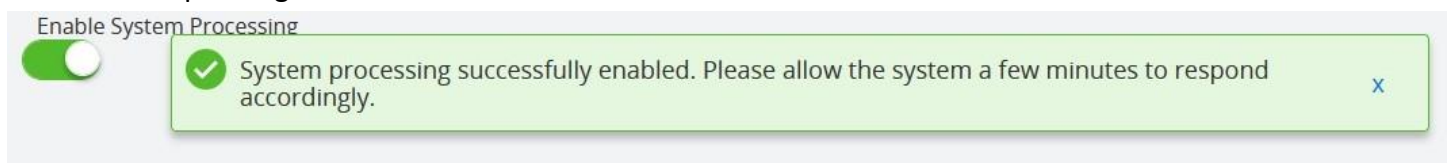


- b) The Diagnostics page currently includes only a single 'Enable System Processing' switch, which should be set ON, as shown.

- i) Setting 'Enable System Processing' OFF pauses the DEX background processing, which allows the system to resync and recreate potential missing internal indexes. Disabling takes one or two minutes.



- ii) After disabling the system, it needs to be reenabled. This may require five to thirty minutes, depending on database size.



- iii) Disabling and reenabling the system might help if nothing is publishing or downloading.
 - (1) Usually done only when directed by Customer Service.

Setup is complete. You are now ready to begin publishing your data.

Publishing Data

- 1) **The Dashboard.** With a profile defined, DEX will automatically open on the Publishing Dashboard. If you are on one of the settings pages, click the left arrow at the top left to go to the Dashboard:

Organization

Categories	Status
Organization Catalog ✓ Local Education Agency (LEA) ✓ School ✓ SSA Organization Association	✓ 15
Course Catalog ✓ Course	✓ 104
Program Catalog ✓ Program	✓ 5
Organization Info ✓ Location ✓ Class Period	✓ 385
Organization Calendars ✓ School Calendar ✓ Calendar Date ✓ Grading Period ✓ Session	✓ 2841
Organization Schedules ✓ Course Offering ✓ Section ✓ Bell Schedule Entry	✓ 1482

Students

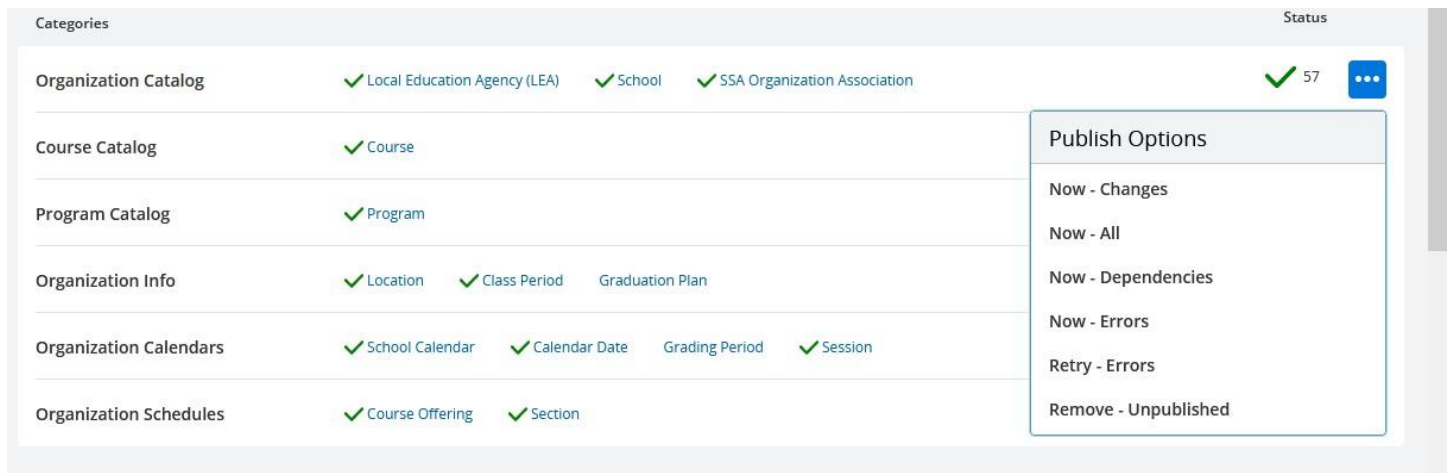
Categories	Status
Student Identification ⚠ Student ID Student Application	⚠ 1 ✓ 4355
Enrollment & Demographics ⚠ School Enrollment ⚠ Student Demographics 🔄 Responsible Organizations	⚠ 504 ✓ 8710 🔄
Contacts ✓ Student Contact ⚠ Student Contact Relationship	⚠ 2 ✓ 13486
Student Sections ✓ Student Section	✓ 17740
Prior Year Leavers Status A Leaver Prior Year Contact Prior Year Contact Relationship	

Staff

- 2) After setup, the Dashboard is the main interface for using DEX.
- 3) The Dashboard is displayed for the entire district by default.
 - a) 'District Office' is preselected in the top center dropdown menu.
 - b) Individual schools may be selected from the dropdown menu at the top, then the dashboard will publish and display only data for that school.
 - c) Internally, DEX processing is done by school. When 'District Office' is displayed, DEX processes records for each school in the district, one at a time.

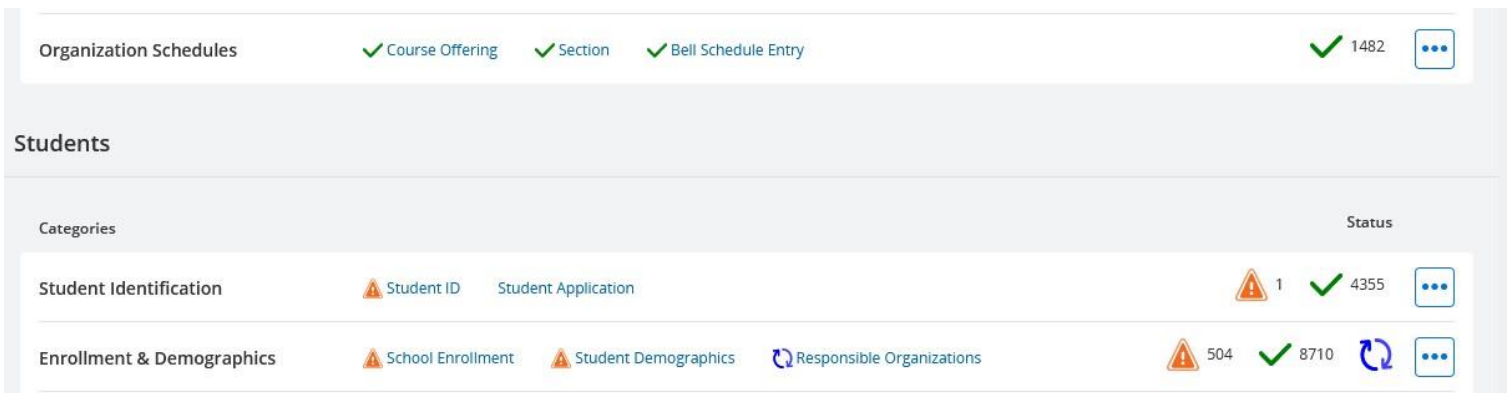
- 4) **Dashboard Organization.** The Dashboard displays all entities available for publishing, organized by Category and Data Group
- a) Data groups (e.g., ‘Organization,’ ‘Students’) are arbitrary large groupings of related data
 - i) They have no relationship to Ed-Fi or TEA standards but are for convenience in organizing the dashboard layout.
 - b) Categories are similar to TEA Domains or legacy Interchanges, with some modification to better facilitate publishing.
 - i) Categories are groupings of Entities (described below).
 - ii) Categories are listed vertically, arranged top to bottom in the recommended order for initial publishing.
 - iii) Publishing is done by Category – if you select a category to publish, all entities within that category are published if applicable.
 - (1) Example: if ‘Organization Calendars’ is selected for publishing, the entities ‘School Calendar,’ ‘Calendar Date,’ ‘Grading Period’ and ‘Session’ will all be published.
 - (2) Individual entities cannot be selected for publishing.
 - iv) In the screenshot, there are numbers and symbols in the ‘Status’ column for each category. These are added or updated during publishing and are explained below under ‘Publishing Status.’
 - v) The top three Categories (Organization Catalog, Course Catalog, Program Catalog) are district-level data and should be published from the District context.
 - c) Entities (also called ‘Resources’) correspond to ‘Complexes’ in legacy TEA reporting.
 - i) Entities are listed horizontally to the right of their respective category.
 - ii) Entities are collections of related data elements, as specified in the Ed-Fi Data Standard v6.1, with extensions as defined by TEA.
 - (1) All data is published to the IODS using the specified entity for each data element.
 - (2) Entities are displayed on the dashboard but their elements are only displayed in detail views, described below in the ‘Reviewing Data’ section.
 - (3) Within each entity, some elements are required by the Ed-Fi data standard.
 - (a) The Ed-Fi API will return an error if required elements are missing or invalid.
 - (b) Required Ed-Fi elements may or may not be required by TEA.
 - (c) TEA required elements may or may not be required for publishing.
 - (i) TEA will run validation checks for missing or contradictory elements in data that was accepted by Ed-Fi for publishing but does not meet state requirements.
 - (ii) These checks are done during promotion in the TEA DMC but are not reflected in DEX Cloud.
 - (d) Some of the Ed-Fi required elements are used to uniquely identify the record.
 - (i) If two records have the same identifying elements, the IODS reads the second record as an update to the first, rather than retaining both as separate records.
 - (ii) In such cases, no error or warning is returned, since updating a record is a normal process.
 - iii) In the screenshot, most entities have a check mark or other symbol in front of the name. These are added or updated during publishing and are described below under ‘Publishing Status.’

- iv) The entity names displayed on the dashboard are modified from the actual Ed-Fi API names used in publishing, to improve readability and understanding.
 - (1) Examples: 'Calendar Date' is displayed for Ed-Fi 'calendarDates,' 'School Enrollment' for 'studentSchoolAssociations.'
 - (2) A complete list of displayed entity names and their Ed-Fi API names is provided in Appendix A.
 - v) DEX maintains an internal record of all entities published, including element values.
 - (1) Referred to as the 'DEX Publishing Catalog' or simply the 'DEX Catalog.'
 - (2) The DEX catalog is not visible to users but is key in processing data for publishing.
- 5) **Dashboard Controls.** The Dashboard provides user controls for publishing data on demand. Publishing options are accessed by clicking the three dots to the right of the category:



- a) **Now – Changes.** The default option: checks for differences between current values and what is in the DEX catalog for each entity in the category.
 - i) Use: If data has already been published for any resources in the category, this option should be used for on-demand publishing.
 - ii) Records found that are not in the catalog are published.
 - iii) Records found that are in the catalog but with data differences from the catalog are republished.
 - iv) Records present in the catalog but no longer found in the data are deleted.
- b) **Now – All.** Complete republishing of the category.
 - i) Use: If no data has been published in the category, this option should be used for initial publishing. Otherwise, it is not normally used.
 - ii) All data in the category is published without checking for changes.
 - iii) Records present in the catalog but no longer found in the data are deleted.
- c) **Now – Dependencies.** Republishes records in the category that are in 'Dependency' status, explained below under 'Publishing Status.'
 - i) Use: If the category has records in dependency, this option initiates publishing them on demand rather than waiting for the automatic dependency republishing, described below.
- d) **Now – Errors.** Republishes records in 'Error' status after updating records.
 - i) Use: republish after modifying data to fix errors.
- e) **Retry – Errors.** Republishes records in 'Error' status without updating.
 - i) Use: Republish when API returned 'Unexpected Server Error' (code 500), meaning that error was due to problem communicating with server, not in the data that was sent.

- f) **Remove – Unpublished.** Removes records from catalog that have never been published.
- Use: Remove unpublished records from the catalog when the issue is caused by a known problem that cannot be readily resolved.
 - Includes records in Dependency and Error status.
 - Subsequently selecting ‘Now – Changes’ or ‘Now – All’ will reinstate these records into the catalog.
- 6) **Automatic Publishing.** In addition to user-selected publishing options on the dashboard, DEX also publishes data automatically.
- If ‘Data Changes’ is selected for the Profile on the Configuration Page, then DEX will automatically publish changes made in the source system in near-real-time.
 - Some categories (e.g., Attendance) require substantial processing and for them, automatic publishing is done in the weekday nightly process.
 - Some categories may on occasion have an unusually large volume of changes, such as Student Sections during the first days of the term. DEX monitors this and if the volume is too high, automatic publishing for that category is temporarily moved to the weekday nightly process.
 - A weekend data synchronization process publishes changed data and updates the catalog, irrespective of whether ‘Data Changes’ has been selected.
 - After Initial Synchronization (explained below), it is recommended to update the Profile settings to include ‘Data Changes’ if it has not been previously selected. This will greatly reduce the need to publish from the dashboard going forward.
- 7) **Publishing Status.** The Dashboard displays publishing status for categories and entities.



The screenshot shows the PowerSchool dashboard interface. At the top, there is a section for 'Organization Schedules' with three green checkmarks indicating successful publication for 'Course Offering', 'Section', and 'Bell Schedule Entry', and a total count of 1482. Below this is a section for 'Students' with a table of categories and their publishing status.

Categories	Status
Student Identification Student ID (with orange triangle icon) Student Application	1 (with orange triangle icon) 4355 (with green checkmark icon)
Enrollment & Demographics School Enrollment (with orange triangle icon) Student Demographics (with orange triangle icon) Responsible Organizations (with refresh icon)	504 (with orange triangle icon) 8710 (with green checkmark icon)

- A green checkmark indicates that all records for the entity were published successfully.**
- An orange triangle indicates that one or more records had a dependency issue.** Dependency issues are caused when one entity depends on the prior publication of another entity, or when a required element is missing in the data.
 - Entity dependency: ‘Calendar Dates’ includes a reference to ‘School Calendars,’ so ‘School Calendars’ must be published first.
 - Element dependency: Student ID is missing the required element, e.g., StudentUniqueId.
 - The Ed-Fi API will return a dependency error (error code ‘403’) if a dependency condition is found.
 - During processing, DEX checks for possible dependency errors and withholds affected records from publishing.
 - Both types of dependency are flagged internally and indicated by the orange triangle.
 - The reason for dependency is displayed on the Details page, described below.

- v) DEX will attempt to reverify or republish dependencies automatically with an increasing time interval between attempts.
 - (a) For DEX-calculated dependencies, the initial interval between attempts is 1 minute.
 - (b) For '403' returned dependencies, the initial interval between attempts is 10 minutes.
 - (c) After each attempt, the interval is increased by one minute until a maximum of 99 minutes.
- (2) Automatic republishing of dependencies is always active when publishing is enabled.

c) A red Stop sign indicates that one or more records had an error.

Enrollment & Demographics ✓ School Enrollment ✗ Student Demographics ✓ Responsible Organizations ✗ 1 ✓ 74274 ⋮

- i) Errors may be caused by invalid data types, descriptor values, or other data issues that you will need to correct and then republish.
 - ii) Errors may be caused by issues in data structure or other problems in the publishing process.
 - iii) If errors and dependencies exist, only the stop sign is displayed.
 - iv) The error message returned by the Ed-Fi API is displayed on the Details page, described below.
 - v) Ed-Fi API error codes are listed in Appendix B.
- d) 'Waiting' on the right side means that the category has been selected for processing by the user and is queued for processing.

Student Sections Student Section Waiting ⋮

- i) Multiple categories can be selected for publishing. They will be put in waiting status and will be processed in the order they were selected.
 - ii) The next category in the queue will not be started until the previous one has been completed.
- e) Circling light grey arrows indicates that the entity is being processed for publishing.

Student Sections Student Section ↻ ⋮

- f) Circling blue arrows indicates that the entity is currently being published.

Student Sections Student Section ↻ ⋮

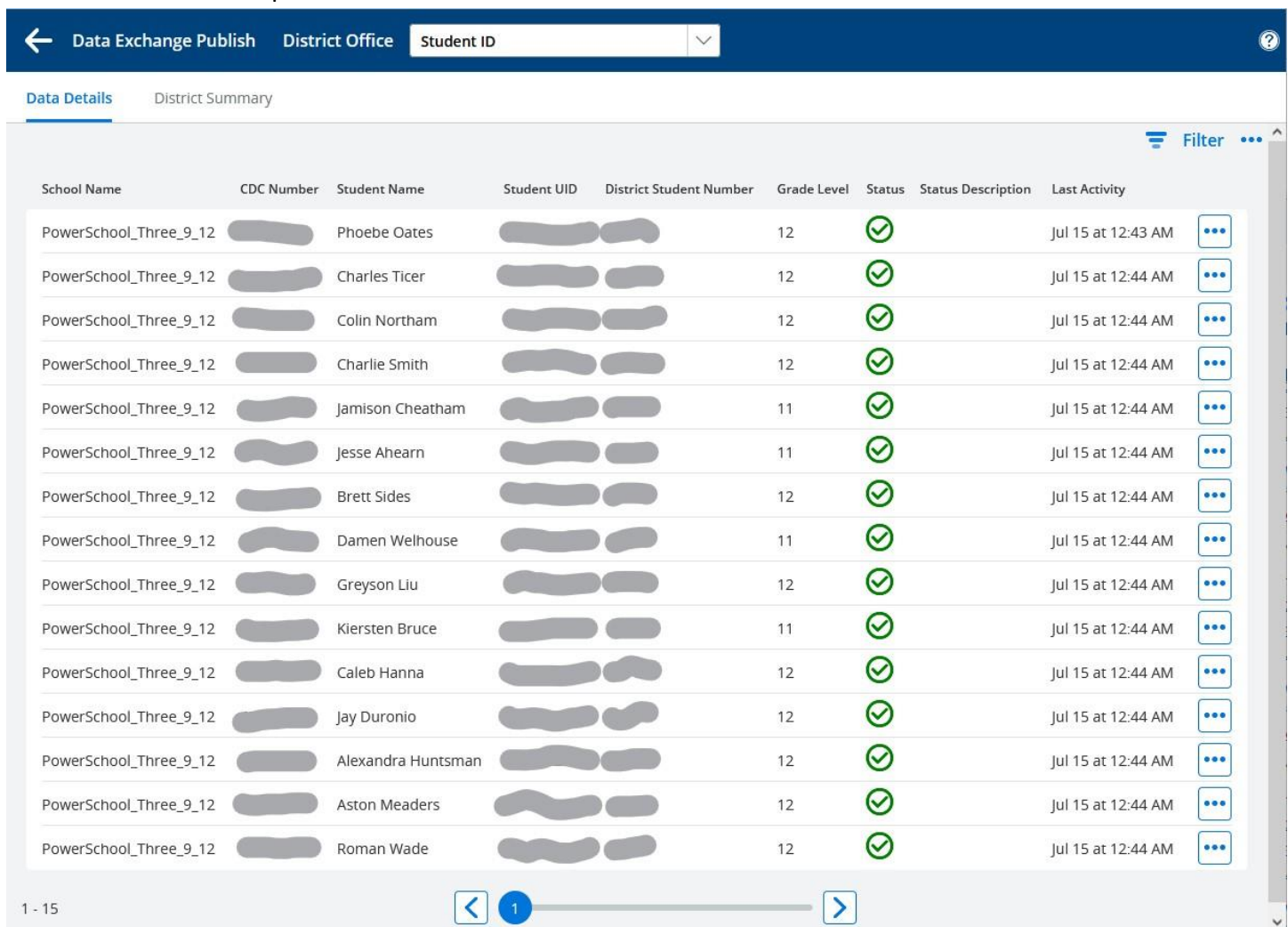
- g) When publishing is completed for a category, all applicable symbols are displayed, along with the total number of records for that were published, in dependency, or had errors.

Student Sections ✗ Student Section ✗ 116 ⚠ 2827 ✓ 268593 ⋮

- h) No symbols displayed indicates that either no records were found for the entity, or that the category has not yet been published and is not in 'Waiting' status.

Reviewing Data

- 1) To review data, click the name of a resource on the Dashboard to display a list of records that have been published or processed. For example, clicking on 'Student ID' displays the Data Details page for the entity, which is a list of all processed Student ID records:



School Name	CDC Number	Student Name	Student UID	District Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Phoebe Oates	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:43 AM
PowerSchool_Three_9_12	[Redacted]	Charles Ticer	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Colin Northam	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jamison Cheatham	[Redacted]	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jesse Ahearn	[Redacted]	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Brett Sides	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Damen Welhouse	[Redacted]	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Greyson Liu	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Kiersten Bruce	[Redacted]	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Caleb Hanna	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jay Duronio	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Alexandra Huntsman	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Aston Meaders	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Roman Wade	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM

- a) 'Data Exchange Publish' with a left arrow is displayed at the top left of the page. Click the left arrow to return to the Dashboard.
- b) 'District Office' is displayed next at the top of the page. It is the Dashboard context. If a school had been selected on the Dashboard, the school name would be displayed instead.
- c) 'Student ID,' the selected entity name for this list, is displayed next across the top of the page.
 - i) With the district context, all Student ID records in the district are included. If a school had been selected on the Dashboard, the list of records would be limited to those at the selected school.
 - ii) List pages with the district context include the school name and CDC number.
 - iii) List pages with a school context do not include identifying data for the school.
- d) The right-most columns, showing status and activity information, are included on list pages for all entities.
- e) Other columns will vary depending on the entity. Key elements and other elements helpful for identifying and troubleshooting data are included for each entity.

f) The entity name, 'Student ID' is displayed in a dropdown menu. You can switch from one List page to another using this menu without returning to the Dashboard.

School Name	CDC Number	Student Name	Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Phoebe Oates	[Redacted]	12	✓		Jul 15 at 12:43 AM
PowerSchool_Three_9_12	[Redacted]	Charles Ticer	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Colin Northam	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jamison Cheatham	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jesse Ahearn	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Brett Sides	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Damen We	[Redacted]	11	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Greyson Liu	[Redacted]	12	✓		Jul 15 at 12:44 AM

2) **Sorting Data** – You can sort the data first-to-last or last-to-first under any column by clicking the name of the column.

- a) The first click sorts first-to-last, second click sorts last-to-first.
- b) Especially helpful for the Status column – clicking status once will sort dependencies and errors to the top of the list.

3) **Filtering Data**

a) Every list page includes a filter at the top right of the page. You can filter on any of the columns displayed on the page. Clicking the 'Filter' icon displays the filtering options.

School Name	CDC Number	Student Name	Student UID	District Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Phoebe Oates	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:43 AM
PowerSchool_Three_9_12	[Redacted]	Charles Ticer	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Colin Northam	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Jamison Cheatham	[Redacted]	[Redacted]	11	✓		Jul 15 at 12:44 AM

b) For example, selecting 'Grade Level' and then typing '12' in the right-hand box will limit the selection to students in grade 12.

Filter ⋮

Grade Level

School Name	CDC Number	Student Name	Student UID	District Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Phoebe Oates	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:43 AM
PowerSchool_Three_9_12	[Redacted]	Charles Ticer	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Colin Northam	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Brett Sides	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM

- i) After selecting 'Grade Level' the page will refresh, then you will be able to type '12' and the filtering will take effect.
- c) With a filter selected, the '+' sign to the right of the filter becomes active, allowing selection of an additional filter within the context of the first.
 - i) Example 1: After clicking the '+', 'Student Name' was selected from the filter dropdown and after refreshing, 'smit' was typed into the filter box.

Filter ⋮

Student Name

Clear All 12

3 Results

School Name	CDC Number	Student Name	Student UID	District Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Kaelyn Smittle	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Brendan Smithey	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:48 AM

- ii) Example 2: The '+' was clicked again, 'Student UID' was selected from the dropdown and '2' was typed into the filter box.

Filter ⋮

Student UID

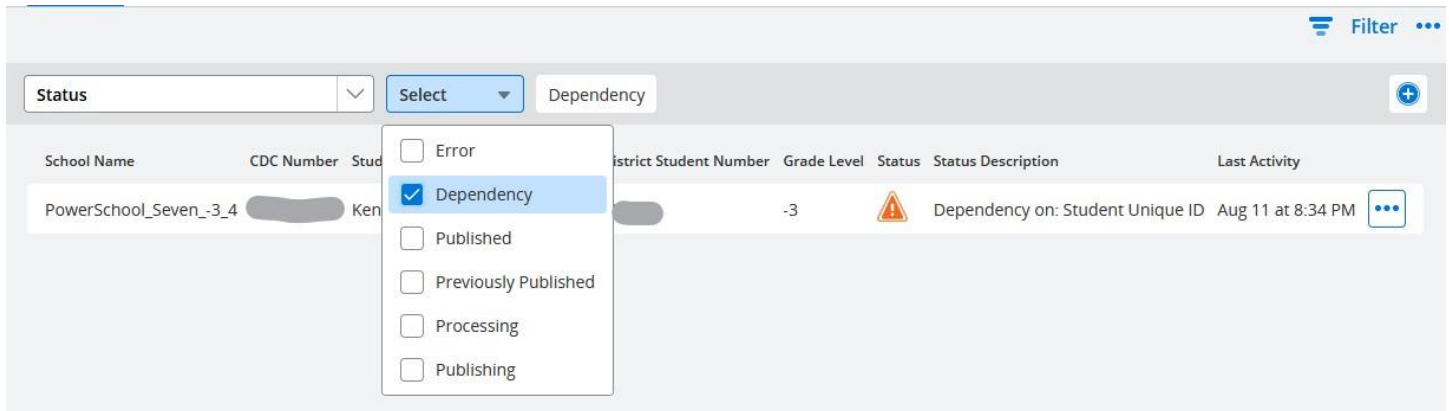
Clear All smit 12

2 Results

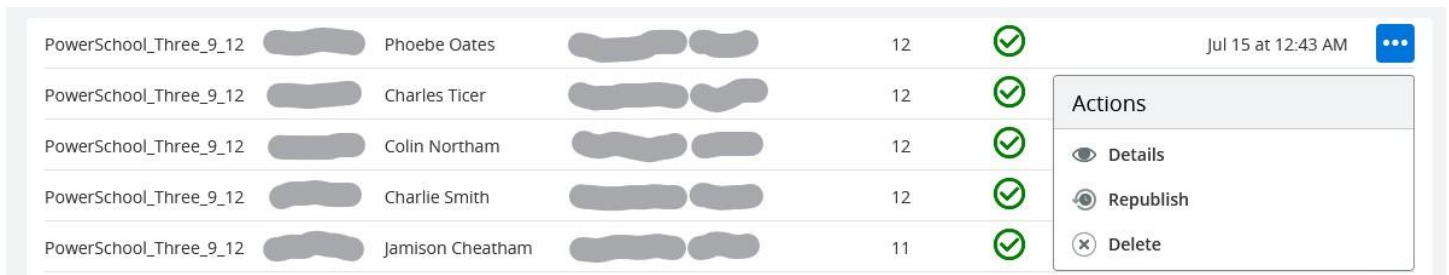
School Name	CDC Number	Student Name	Student UID	District Student Number	Grade Level	Status	Status Description	Last Activity
PowerSchool_Three_9_12	[Redacted]	Charlie Smith	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:44 AM
PowerSchool_Three_9_12	[Redacted]	Brendan Smithey	[Redacted]	[Redacted]	12	✓		Jul 15 at 12:48 AM

- (1) Note that each previously entered filter is displayed in a blue box with the value entered and 'x' on the right.
- (2) Previously entered filters can be removed by clicking the 'x' on their respective blue box. Other filters will remain in place.
- (3) Clicking 'Clear All' will remove all filters, including the most recent one across the top of the page.


- d) It is often helpful to limit the list to error or dependency records. From the Filter options, select 'Status.'
- i) A dropdown menu will appear. Select the status you want to review.



- ii) Dependencies and errors will include the dependency reason or the returned error message under 'Status Description,' if available.
- iii) Known issue: if you select more than one status option at a time, the filter may not act as expected. Typically, the last option selected will take precedence and others will be ignored.
- 4) Record Details – Clicking the three dots to the right of a record on any list page displays available actions.



a) Details – displays publishing details, including the actual JSON sent to the ODS

Details - PowerSchool_Three_9_12	
Data	
Resource	students(87)
Resource ID (External)	43913d9928f54aefb6aae818d4558ecc
Current Status	Published
Date Last Published	Jul 15 at 12:43 AM
Date Last Updated	Jul 15 at 12:43 AM
Date Created	Jul 15 at 12:42 AM
Publishing ID	405172
Student ID	1619
Dashboard ID	2768
Organization ID	
School ID	18
School Year	2022
Profile Type	E_TX_PS
Profile ID	3

JSON

- i) Resource – the Entity name and DEX identifying code
- ii) Resource ID (External) – the GUID passed back from the ODS when the record has been successfully published.
- iii) Publishing ID, Dashboard ID, Profile ID – Internal DEX identifiers
- iv) Student ID – the internal SIS student record identifier.
 - (1) PowerSchool: STUDENTS.Id (StudentId in other tables)
 - (2) eSchoolPlus: REG.STUDENT_GUID
- v) Organization ID – the published school or district state identification number
- vi) School ID – the internal SIS record number for the school
 - (1) PowerSchool: SCHOOLS.School_Number
 - (2) eSchoolPlus: REG_BUILDING.BUILDING

vii) JSON – the full JSON content of the message sent to the ODS.

JSON

```
{
  "studentUniqueId": "[REDACTED]",
  "firstName": "Phoebe",
  "middleName": "Presley",
  "lastSurname": "Oates",
  "birthDate": "[REDACTED]",
  "birthSexDescriptor": "uri://tea.texas.gov/SexDescriptor#F",
  "_ext": {
    "TX": {
      "localStudentID": "[REDACTED]",
      "studentID": "999999999",
      "censusBlockGroupSets": [
        {
          "studentCensusBlockGroup": "480850313142",
          "beginDate": "2021-07-01",
          "endDate": "2022-07-01"
        }
      ],
      "studentDoNotReportTSDS": false
    }
  }
}
```

Close

- (1) Not included for dependency records (JSON not constructed for records held in dependency).
- (2) Removed after a few days for error records. Can be reinstated by republishing single record or all error records for category.

viii) Click 'Close' to return to list.

- b) Republish – initializes republishing for single record.
- c) Delete – Sends 'Delete' event to ODS for single record.
 - i) 'Delete' event is sent without any validation, so even if a record is valid, it will still be deleted.
 - ii) Republishing changes for the category will republish the record if it is still valid.
 - iii) Option rarely used, helpful for some intermittent scenarios or for testing purposes.

Initial Data Synchronization

- 1) An initial data synchronization is necessary for DEX to recognize further changes as they take place and publish them to the IODS.
 - a) In theory the weekend process should be able to accomplish this initial publishing, but it is recommended to initiate synchronization manually from the dashboard.
 - i) Both setup and initial manual publishing need to be accomplished in the same week.
 - (1) There is only a one-week window for setup and initial synchronization under user control, so setup and manual synchronization should be started early in the week where possible.
 - (2) The first Saturday night after setup, the weekend processing will initiate everything automatically and users will no longer have control over any remaining initial synchronization.
 - ii) While multiple categories may be initiated simultaneously, where practical it is recommended to wait for each category to complete before starting the next. This will help resolve dependencies within a category that might affect a subsequent category and will improve overall performance of initial synchronization, especially for larger districts.
 - b) The dashboard is organized in an approximate recommended publishing sequence for this synchronization, top to bottom.
 - c) The following descriptions apply to either type of SIS profile (PowerSchool or eSchoolPlus). HR profile types include only the Staff categories indicated below plus the Finance categories.
- 2) Publish the categories under 'Organization' at the top of the Dashboard.

Organization				Status	
Categories					
Organization Catalog	✓ Local Education Agency (LEA)	✓ School	✓ SSA Organization Association	✓ 57	⋮
Course Catalog	✓ Course			✓ 338	⋮
Program Catalog	✓ Program			✓ 5	⋮
Organization Info	✓ Location	✓ Class Period	Graduation Plan	✓ 3735	⋮
Organization Calendars	✓ School Calendar	✓ Calendar Date	Grading Period	✓ 15240	⋮
Organization Schedules	✓ Course Offering	✓ Section		✓ 87131	⋮

- a) Start with the first category, 'Organization Catalog.' The other categories are dependent on LEAs and Schools.
 - i) Initiate publishing by clicking the associated three dots on the right and selecting 'Now – All' (or 'Now – Changes' if some data has already been published in the category).
 - ii) Then initiate publishing for the next two categories, 'Course Catalog' and 'Program Catalog.'
- b) These first three categories should be published at the district level.
- c) For all other categories you may choose to publish at the school level, especially if you are new to the system and want to try it out in a limited context.
- d) Begin publishing for the remaining three Organization categories, in order. If you are continuing at the district level, you can select them before the first three have completed publishing.














- i) Organization Info
 - (1) Graduation Plan is not fully implemented, not collected by TEA.
- ii) Organization Calendars
 - (1) Depending on district setup, Grading Period records might not be published.
 - (a) This entity is used only in publishing Grades, with is not collected by TEA.
 - (b) Enable publishing by completing mapping for Grade Types, Reporting Terms (Grading Periods), and Excluded Reporting Terms.
- iii) Organization Schedules

3) Publish the categories under 'Students.'

Students		Status
Categories		
Student Identification	Student ID Student Application	2 56239
Enrollment & Demographics	School Enrollment Student Demographics Responsible Organizations	831 118679
Contacts	Student Contact Student Contact Relationship	3 362953
Student Sections	Student Section	2 157759
Prior Year Leavers	Status A Leaver Prior Year Contact Prior Year Contact Relationship	10805

- a) 'Student Identification' must be started first. This category has an unusual relationship with the second category, 'Enrollment & Demographics' because each 'Student ID' record can only be published once prior to publishing a 'School Enrollment' record for the student.
- b) 'Enrollment & Demographics' should immediately follow 'Student Identification.'
 - i) The 'School Enrollment' entity in this category establishes the relationship between the district and the student.
 - ii) The entity 'Student ID' must be published first because 'School Enrollment' references both it and Schools.
 - iii) However, to make any updates to 'Student ID' (including republishing without change), or to publish any other student data, the relationship must be established by publishing a 'School Enrollment' at a school within the district.
 - iv) Expect to see dependencies appear on both resources. These will automatically clear out as synchronization continues.
- c) Once 'Student Identification' and 'Enrollment & Demographics' have been initiated, the other categories in 'Students' may be started in any order.








4) Publish the categories under 'Staff.'

Staff				Status	
Categories					
Staff Demographics	 Staff		 1  119		
Staff Associations	 Staff Employment	 Staff Assignment	Staff School	 2  400	
Staff Sections	 Staff Section		 3  779		







- a) Staff and Staff Associations categories are normally published from a separate HR application using an HR profile.
 - i) These categories are displayed for a SIS profile but are inactive by default.
 - ii) Which categories are active in a particular instance is determined by selections made on the Settings page, described earlier.
 - iii) Exception: SIS profiles will publish Staff Assignment records having a Service ID that is a valid descriptor value, regardless of the profile configuration settings. It is expected that these assignment records would only be entered into the SIS if they would not be published from an HR system.
 - iv) There is no harm if you select a category for publishing that is inactive in your profile. There will be some initial processing, but nothing will be published.
- b) Staff Sections are published from a SIS profile.
 - i) Staff and Staff Associations must be published first, either from an HR profile or from the SIS profile.
 - ii) Staff Sections will be placed in dependency for staff members who do not already have a record published in the Staff and Staff Employment entities.
 - iii) If you are using a SIS profile and have a separate HR vendor, you should skip this category until staff have been published by the HR vendor.
- c) If the profile setup includes Finance Data, the Staff FTE category will also be included. It has a single entity, Contracted Instructional FTEs.

Staff FTEs	Contracted Instructional FTEs	
------------	-------------------------------	---

5) Publish the categories under 'Programs & Cohort Groups.'

Programs & Cohort Groups				Status
Categories				
Student Programs	 CTE	 Language Instruction	 Special Education	Child Find
	 Student Title I Part A Program			 7  131698
Cohort Groups	Cohort (Group)	Student Cohort	Staff Cohort	

- a) The entities in the Programs category are not dependent on any Staff entities, only on Program Catalog, Student ID, and School Enrollments.
 - i) Not all Student Programs will be published for every district. Only those Student Programs for which your district has data are published.
 - b) Cohort Groups – not collected by TEA.
 - i) Displayed on Dashboard but not currently implemented.
 - ii) Requested for the Texas Data Exchange project, to be implemented later.
 - iii) When implemented, will include only groups mapped to a Cohort Type in DEX setup.
- 6) Publish the categories under ‘Attendance & Grades.’

Attendance & Grades		Status
Student Grades	Grade	
Student Transcripts	 Student Academic Records  Student Course Transcript	 3  44172 

- a) The categories in this section contain larger amounts of data with greater change rates than other categories. For this reason, they are not automatically published transactionally as changes happen (near real time) but are updated during the weekday nightly and weekend processing.
- b) The Attendance category has not yet been implemented and is not yet on the dashboard.
 - i) When implemented, the nightly process will publish changes for the last 14 days, the weekend process will publish all changes.
- c) Student Grades – not collected by TEA
 - i) Requested for the Texas Data Exchange project but optional.
 - ii) Publishing is currently disabled by a back-end setting.
 - (1) The option to enable publishing grades will be added to the configuration settings.
 - (2) When enabled, the nightly process will publish missing records only, the weekend process will publish all changes.
 - iii) Code set mapping related to grades is optional but may be needed to clear errors and dependencies.
- d) Student Transcripts are collected by TEA but not until later in the school year.
 - i) Includes graduation data for students graduating during the current school year and course completion data for the current school year.
 - ii) The nightly process publishes missing records only, the weekend process publishes all changes.
 - iii) Suggest skipping this section for initial synchronization if early in the school year.

7) Publish the categories under ‘Other.’

Other		Status
Categories		
Student Discipline	✓ Discipline Incident ⚠ Student Discipline Incident Behavior ⚠ Discipline Action	⚠ 6 ✓ 109773
Restraint Events	Restraint Events	
Descriptors (Common Codes)	✓ Descriptors	✓ 3

- a) Student Discipline – dependent only on Student ID and School Enrollments.
- b) Restraint Events – dependent only on Student ID and School Enrollments.
- c) Descriptors
 - i) Published automatically during publishing of other entities
 - ii) User options limited to ‘Retry – Errors’ and ‘Now – All’

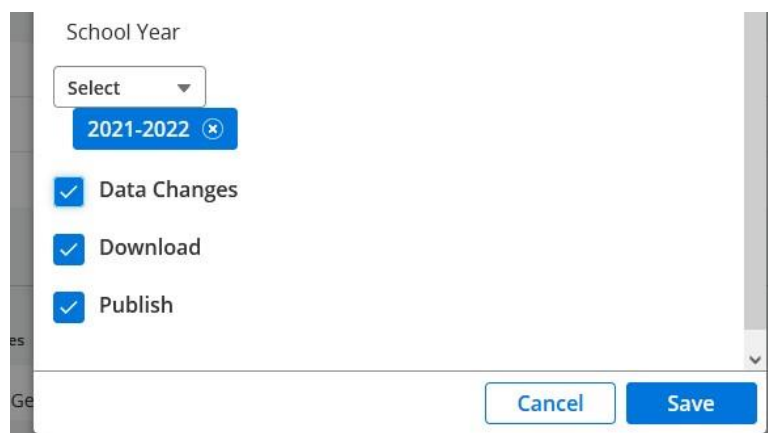
8) Publish the categories under ‘Finance.’

Finance		Status
Categories		
Accounts	Account Budgets Account Actuals	
Payroll	Payroll Transactions	

- a) Normally HR profiles only, not available for eSchoolPlus SIS profile.

9) When synchronization from the dashboard is completed, select the gear icon at the upper left to return to the Configuration page.

- a) Under ‘Profiles,’ click the three dots and select ‘Edit.’



- b) Check ‘Data Changes’ to enable automatic transactional processing and click ‘Save.’
- c) Data changes will be published automatically, in near-real-time for most entities, otherwise in the weekday nightly process.
- d) From here on, the Dashboard is principally a monitoring and debugging tool, not the primary means of initiating publishing.

Troubleshooting Common Errors and Dependencies

Adapted from PowerSchool SIS PSSR Ed-Fi, online guide.

Common Errors

Errors typically occur when data is being published to the IODS, but something happens in the transmission of the record and it is rejected on the IODS side. The categories on the Ed-Fi Dashboard are arranged such that errors on one line may propagate downward as dependencies. It is important that you always work from top to bottom when addressing issues. Records with dependencies or errors can be viewed clicking on the entity name to display the list page, then filtering on Status.

Below are some common errors that can occur and how to resolve them.

#	Message	Description
400	Validation of 'XYZ' failed. StudentUnquield/StaffUnquield is required.	This error can occur when there is a problem in the Ed-Fi system or when the Unique ID of the student or staff member has changed. If other data is publishing normally, then the Ed-Fi system is working correctly. Run 'Now - Changes' or 'Now - Errors' on the category.
409	The value supplied for the related 'XYZ' resource does not exist.	This error occurs when DEX shows that the parent resource, XYZ, has been published, but the IODS does not have the record in its system. To resolve this issue, run 'Now - All' on the Category that contains the XYZ resource.
500	An unexpected error occurred on the server.	This error is typically due to an issue on the IODS or state end. Retry publishing the record using 'Now - Changes,' 'Now - Errors' or 'Retry - Errors.' If this results in another 500 error, the state will need to be contacted to determine the issue on their end.
503	Service Unavailable	This error is due to an issue on the IODS server where the Ed-Fi system is not running properly on the server. Contact the state with this error code. Once the state has resolved the issue, run 'Now - Errors' on the Dashboard.

Common Dependencies

Dependencies on a record are due to either 1) missing or invalid data, or 2) an unpublished reference record. For example, a student may be missing a Unique ID; this would cause their record to be in dependency. Another example would be a Student Section record trying to publish with a dependency on Section Record. This dependency can occur if the Student Section record has tried to publish before the Section record has been published.

Below are some common dependencies and their resolutions.

Dependency	Resolution
Student/Staff Unique ID	Record is missing the required State Assigned Unique ID. For states where the Unique ID can be requested on the student or staff page, select the request button and acquire the Unique ID. Otherwise, follow your state process for obtaining the Unique ID. Once a new ID is assigned, go to the Ed-Fi Dashboard and run 'Now – Changes' for the category. You can also publish the individual record from the entity's List page.
Student School Association	A Student record cannot be updated and other student data cannot be published until the student record is claimed on the IODS side. To claim the record, a School Enrollment record (Student School Association) must be published. Start by running 'Now - Changes' on the Enrollment & Demographics category to publish the enrollment records. When School Enrollments have published, DEX will retry Student Demographics records still in dependency. For other student records, run 'Now - Changes' for the category.
Staff School Association	A Staff record cannot be updated and other staff data cannot be published until the staff record is claimed on the IODS side. To claim the record, a Staff Employment record or Staff Assignment record must be published. Start by running 'Now - Changes' on Staff Associations to publish the associations records. When Staff Associations have published, run 'Now - Changes' on Staff Demographics to retry the records.
Alternate Course Number not set	Either the Alternate Course Number has not been set on the Course, or the Alternate Course Number is not a valid state course number. Update the Alternate Course Number and run 'Now - Changes' on Organization Schedules.
Missing Section Meeting Record	The Section does not have a period selected. Add a period to the section and run 'Now - Changes' on Organization Schedules.
Section Record	The section record has not been published. Check Organization Schedules and look for Dependencies or Errors on the section record in question. If there are no errors or dependencies, run 'Now - All' on Organization Schedules, which will publish the missing section record, and then run 'Now - Changes' for the category where this dependency was found.
XYZ Record	The referenced record for this record has not been published. Check the referenced record and determine if there is another dependency. If there is no other dependency, run 'Now - Changes' to retry the record.

Appendix A – Dashboard Entity Names

Texas DEX Dashboard Entity Names with Ed-Fi Publishing Resource Names, listed by Dashboard Categories

Organization

Organization Catalog

Local Education Agency (LEA)	localEducationAgencies
School	schools
SSA Organization Association	ssaOrgAssociationExts

Course Catalog

Course	courses
--------	---------

Program Catalog

Program	programs
---------	----------

Organization Info

Location	locations
Class Period	classPeriods
Graduation Plan	graduationPlans

Organization Calendars

School Calendar	calendars
Calendar Date	calendarDates
Grading Period	gradingPeriods
Session	sessions

Organization Schedules

Course Offering	courseOfferings
Section	sections

Students

Student Identification

Student ID	students
Student Application	studentApplications

Enrollment & Demographics

School Enrollment	studentSchoolAssociations
Student Demographics	studentEducationOrganizationAssociations
Responsible Organizations	studentEducationOrganizationResponsibilityAssociations

Contacts

Student Contact	parents
Student Contact Relationship	studentParentAssociations

Student Sections

Student Section studentSectionAssociations

Prior Year Leavers

Status A Leaver priorYearLeavers

Prior Year Contact priorYearLeaverParents

Prior Year Contact Relationship priorYearLeaverStudentParentAssociations

Staff

Staff Demographics

Staff staffs

Staff Associations

Staff Employment staffEducationOrganizationEmploymentAssociations

Staff Assignment staffEducationOrganizationAssignmentAssociations

Staff School staffSchoolAssociations

Staff Sections

Staff Section staffSectionAssociations

Staff FTE

Contracted Instructional FTEs contractedInstructionalStaffFTEExts

Programs & Cohort Groups

Student Programs

CTE studentCTEProgramAssociations

Language Instruction studentLanguageInstructionProgramAssociations

Special Education studentSpecialEducationProgramAssociations

Child Find studentSpecialEducationProgramEligibilityAssociations

Student Title I Part A Program studentTitleIPartAProgramAssociations

Cohort Groups

Cohort (Groups) cohorts

Student Cohort studentCohortAssociations

Staff Cohort staffCohortAssociations

Attendance & Grades

Attendance (to be added)

Student Grades

Grade grades

Student Transcripts

Student Academic Records studentAcademicRecords

Student Course Transcript courseTranscripts

Other

Student Discipline

Discipline Incident disciplineIncidents
Student Discipline Incident Behavior studentDisciplineIncidentBehaviorAssociations
Discipline Action disciplineActions

Restraint Events

Restraint Events restraintEvents

Descriptors (Common Codes)

Descriptors (varies by code set name, e.g., academicSubjectDescriptors)

Finance

Accounts

Account Budgets budgetExts
Account Actuals actualExts

Payroll

Payroll Transactions payrollExts

Appendix B – Ed-Fi Response Codes

Screenshot of Ed-Fi API Design and Implementation Guidelines, Response Codes page. This page describes the codes that TEA would be expected to implement in their Ed-Fi SDK per [Ed-Fi standards](#).

Table 6. Response and Status Codes

HTTP Response Code	Name	Reason(s)
200	OK	Returned after a successful operation when a response contains a body.
201	Created	Returned after a successful POST. The response from a POST will also include a location in the header pointing to the newly added resource. A POST response will not contain a body.
204	No Content	Returned when the server has fulfilled the request, but does not return an entity body.
304	Not Modified	Returned when the client includes the “If-None-Match” header containing the requested resource’s last known entity tag.
400	Bad Request	Returned if the request is malformed. The body of the response may contain a descriptive error message.
401	Unauthorized	Returned if the access token is invalid. The response will not contain a body.
403	Forbidden	Returned when the server is refusing to fulfill a request in situations such as the requesting client is not authorized to execute the requested action on the requested resource
404	Not Found	Returned if a resource is not found. The response will not contain a body.
409	Conflict	Returned when there is any type of referential integrity violation.
412	Precondition Failed	Returned if an “If-Match” header pre-condition fails.
500	Internal Server Error	Returned if the server encountered an unexpected error during the operation.

Note that a 403 error is most often caused by a dependency issue. While DEX does internal dependency checks and withholds records from publishing where dependencies are identified, not all situations can be anticipated. There will be cases where DEX attempts to publish a record that passed the internal dependency checks but was still rejected by the API because of a dependency.