A Modern Approach to Data Certification

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Meet the Presenters

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Wyoming Department of Education

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Wyoming State DOE - History

Project Start (January 1)
Initial Software Installation of xdAD, xDUID, and xDStore (March)

January 1 – March 30, 2018

1. Implement a Statewide ODS (WYODS) with integrated Unique ID System
2. Cutover to Production
3. Expand System with xDValidator, xDStore, and xDComposer

August – September, 2018

Expand System with xDStore for CEDS/Generate (In Progress)
Expand and Modernize System with Data Certification in Full Production

2021 - Current
How it Works

We start with data collection from the school districts and other sources.

The process starts with data collection. Source data is collected from the districts and moves into the ODS.

In Wyoming the data is collected via SIF. The xDValidator is used to validate data in the ODS as it is collected from the districts.

Only data that meets the business rules can move forward.
Define and configure the reporting periods and data collections.

Each reporting period is defined by a set of collections within each period by the state. The schema of each reporting period matches the requirements of the collection.

Different periods can have different collections and schemas.
Data flows - when its time.

Clean data from the ODS moves into the data certification data store. This data store is a Transactional Data Store (TDS). Data moves into this store based on how you define your reporting periods and the data you choose to collect for each reporting period through mapping within xDComposer.

Each reporting period has an open and close date. Data will move into the Data Certification TDS automatically at the start of each reporting period.
How it Works

The Transactional Data Store tracks changes in the data during open periods.

A reporting period tracks a specific time period, but the district still needs to function on a day to day basis. Data is constantly updated as students enter and exit, change classes, and other information about the student changes. At the state, an accurate snapshot of a specific time period is necessary. How do we solve the issue that data is constantly changing?

We solve this problem through the TDS. The TDS tracks any changes that are made to the data throughout the reporting period. Users are shown those changes in the app. Users then select the most accurate information for each record to create a composite record that they submit for certification.
How it Works

Users create an accurate record for submission by making composite records in an easy to use web app hosted by the state.

Users are given the opportunity to use data from the past and combine it with current data to easily submit an accurate record without the need to use file uploads or band-aid the data at the state level ODS. The state is never out of sync with the district SIS or other source systems while still allowing users to use past data for submission.
xDValidator is running data validation every step of the way.

Data validation is another important step in this process. We ensure that as users work their data for submission, there is never a way for users to create a record that breaks business rules. We do this using xDValidator. Data validations can be made into workflows that apply different validations for different reporting periods.
How it Works

District and state users have access to advanced reporting using existing tools owned by the state.

Wyoming leverages existing data reporting tools that have been developed by the state within the system. Access to these reports is controlled by SSO and displayed within the data certification user interface for easy access.
How it Works

Modern REST APIs are used to keep the whole system flowing.

xDStore Adapter and xDBroker are leveraged to build out all of the REST API’s called by user interface. These APIs are connected to SQL stored procedures that can be easily managed by the state.
Key Features

- Districts can manually manipulate the data if needed directly through the app both singly and via batch file upload.
- All data is transferred via secure REST API calls.
- The REST API leverages an internal system of stored procedures that allows for changes to be made without the need to rebuild code allowing the state to easily make updates as needed from year to year or during the collection cycles.
- States can leverage any existing model for reporting such as Tableau or Power BI into the application to provide districts and other stakeholders with an unlimited number of reports to assist in certification.
Key Features

- The app can be integrated with existing SSO systems at the state for a seamless user experience.

- Data validation reports are available within the app easily for users with the option to correct the data on the screen.

- Districts are given the ability to select a data set to download as a CSV file at any time during the certification process. This allows districts to leverage existing processes or tools they may use on-site to ensure the data is accurate for certification.

- Districts can view data reports and download their certified data at any time.
DATA CERTIFICATION DEMO

Login and Home Screens
DATA CERTIFICATION DEMO

Review Changed Data Process
Review Changed Data

Wyoming Department of Education (0701000)
Selected School
None Selected.

Select Collection

Which collection would you like to review?
- Review records with changes for Student
- Review records with changes for SPED
- Review records with changes for Section
- Review records with changes for Attendance
## School List

Select a school from the list below. You can select one or more schools using the checkmarks in the first column. Click Select All Schools to see all schools in your district.

<table>
<thead>
<tr>
<th>School Name</th>
<th>School Code</th>
<th># Records to Review</th>
<th># Total Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baldwin Creek Elem</td>
<td>0701009</td>
<td>0</td>
<td>261</td>
</tr>
<tr>
<td>Gannett Peak Elem</td>
<td>0701008</td>
<td>0</td>
<td>489</td>
</tr>
<tr>
<td>Jeffrey City Elementary</td>
<td>0701006</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Lander Middle School</td>
<td>0701050</td>
<td>0</td>
<td>464</td>
</tr>
<tr>
<td>Lander Valley High School</td>
<td>0701055</td>
<td>6</td>
<td>722</td>
</tr>
<tr>
<td>Pathfinder High School</td>
<td>0701056</td>
<td>0</td>
<td>79</td>
</tr>
</tbody>
</table>

Showing 1 to 6 of 6 entries
## Review Student Data Automation Changes

Below you will find the list of students that have changes coming from your Student Information System. Click View Full Record to review the changes and complete the record for certification.

### 6 TOTAL RECORDS WITH CHANGES

<table>
<thead>
<tr>
<th>School Name (Code)</th>
<th>WISER ID</th>
<th>Full Name</th>
<th>Birthdate</th>
<th>Grade</th>
<th>Gender</th>
<th>Entry Date</th>
<th>Exit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student A</td>
<td>01-01-1999</td>
<td>09</td>
<td>F</td>
<td>08-22-2022</td>
<td></td>
</tr>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student B</td>
<td>01-01-1999</td>
<td>10</td>
<td>F</td>
<td>04-27-2023</td>
<td></td>
</tr>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student C</td>
<td>01-01-1999</td>
<td>11</td>
<td>F</td>
<td>08-22-2022</td>
<td></td>
</tr>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student D</td>
<td>01-01-1999</td>
<td>10</td>
<td>M</td>
<td>02-13-2023</td>
<td></td>
</tr>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student E</td>
<td>01-01-1999</td>
<td>10</td>
<td>F</td>
<td>08-22-2022</td>
<td></td>
</tr>
<tr>
<td>Lander Valley High School (0701055)</td>
<td>10010000</td>
<td>Student F</td>
<td>01-01-1999</td>
<td>11</td>
<td>M</td>
<td>08-22-2022</td>
<td></td>
</tr>
</tbody>
</table>

Showing 1 to 6 of 6 entries

Show 10 entries

Previous 1 Next
Validation Reports

Validation Reports for Student Data

Below you will see the validation status for uploaded files and changed records. Click View Errors and Warnings to see the detailed information about validation errors.

Search

<table>
<thead>
<tr>
<th>Status</th>
<th>School Code</th>
<th>Wiser ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Date/Time Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awaiting validation</td>
<td>0701055</td>
<td></td>
<td></td>
<td></td>
<td>05-08-2023 09:49 AM</td>
</tr>
</tbody>
</table>

Showing 1 to 1 of 1 entries

Show 10 entries
DATA CERTIFICATION DEMO

Manual Data Process
# Student Record Request Queue

Below you will find the record request queue.

<table>
<thead>
<tr>
<th>Request Date</th>
<th>Requested By WISERID</th>
<th>Student WISERID</th>
<th>Status</th>
<th>Completion Date</th>
<th>Has Errors</th>
<th>View Error Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-08-2023 12:00 AM</td>
<td></td>
<td></td>
<td>Completed</td>
<td>05-08-2023 10:06 AM</td>
<td>Yes</td>
<td>View Error Message</td>
</tr>
<tr>
<td>05-08-2023 12:00 AM</td>
<td></td>
<td></td>
<td>Completed</td>
<td>05-08-2023 10:09 AM</td>
<td>Yes</td>
<td>View Error Message</td>
</tr>
<tr>
<td>05-08-2023 12:00 AM</td>
<td></td>
<td></td>
<td>Completed</td>
<td>05-08-2023 10:14 AM</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Showing 1 to 3 of 3 entries

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**Error Message**

Either the student does not exist or has been deleted.

[Done]
Manual Data Editing

Select Collection

Use this screen if you would like to edit a record manually. Select the collection you would like to search.

- Search the Student collection record set.
- Search the SPED collection record set.
- Search the Section collection record set.
- Search the Attendance collection record set.

Search By WISER ID

Use this screen if you would like to edit a record manually. Enter one or more WISER IDs in the box below separated by commas.
### Manual Data Editing

**Select Collection** > **Student Data > Manual Data Editing** > **Search By WISER ID** > **Record List**

**Edit Student Data by WISER ID**

Below is a list of records matching the searched WISER IDs.

<table>
<thead>
<tr>
<th></th>
<th>School Name (Code)</th>
<th>WISER ID</th>
<th>Full Name</th>
<th>Birthdate</th>
<th>Grade</th>
<th>Gender</th>
<th>Entry Date</th>
<th>Exit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dubois Elementary (0702001)</td>
<td>64176008</td>
<td>Samantha Smith</td>
<td>06-26-2014</td>
<td>02</td>
<td>F</td>
<td>08-23-2022</td>
<td>03-23-2023</td>
</tr>
<tr>
<td>2</td>
<td>Dubois Elementary (0702001)</td>
<td>64716008</td>
<td>Samantha Smith</td>
<td>06-26-2014</td>
<td>02</td>
<td>F</td>
<td>03-24-2023</td>
<td>05-09-2023</td>
</tr>
</tbody>
</table>

Showing 1 to 2 of 2 entries

Show 10 entries

Previous 1 Next
Edit Student Data By WISER ID

Below is the details of the selected record.

STUDENT DATA FOR WISER ID: 78423

VALIDATION STATUS: Validation Completed Without Errors

District ID: 072000
School ID: 072000
WISER ID: 78423
First Name: [Name]
Gender: F
Entry Date: 03/24/2023
Exit Date: 05/06/2023
Exit Type: [Type]
Home Language: [Language]
Country of Birth: [Country]
Education Year in US: [Years]
Concurrent Enrollment: [Count]
Hispanic: N

SAVE CURRENT RECORD

CANCELED

Previous Record
Next Record

### Manual Data Editing

**Edit Student Data by WISER ID**

Below is a list of records matching the searched WISER IDs.

<table>
<thead>
<tr>
<th>School Name (Code)</th>
<th>WISER ID</th>
<th>Full Name</th>
<th>Birthdate</th>
<th>Grade</th>
<th>Gender</th>
<th>Entry Date</th>
<th>Exit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Record Dubois Elementary (G702001)</td>
<td>87752610</td>
<td>Somewhere Student Name</td>
<td>08-08-2008</td>
<td>02</td>
<td>F</td>
<td>08-23-2022</td>
<td>03-23-2023</td>
</tr>
<tr>
<td>Review Record Dubois Elementary (G702001)</td>
<td>87752610</td>
<td>Somewhere Student Name</td>
<td>08-08-2008</td>
<td>02</td>
<td>F</td>
<td>03-24-2023</td>
<td>05-09-2023</td>
</tr>
</tbody>
</table>

Showing 1 to 2 of 2 entries

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**Admin Functions**

- Resume Automatic Updates
- Import Records
- Review Changed Data
- Manual Data Editing
- Manage Deleted Records
- Download Records
- File Uploader
- Validation Reports
- Data Reports
- Complete Certification
Validation Reports

Select Collection

Select a Collection to View Validation Reports

Select a collection below. On the following screen you will see the validation errors and warning related to the selected collection. This covers all validations from file uploads, manual data edits, and reviewing automated data.

- View Student Data validation errors and warnings
- View SPED Data validation errors and warnings
- View Section Data validation errors and warnings
- View Attendance Data validation errors and warnings

Validation Reports for Student Data

Below you will see the validation status for uploaded files and changed records. Click View Errors and Warnings to see the detailed information about validation errors.

<table>
<thead>
<tr>
<th>School Code</th>
<th>WISER ID</th>
<th>Actual Value</th>
<th>Type</th>
<th>Error #</th>
<th>Error Description</th>
</tr>
</thead>
</table>

No data available in table

Showing 0 to 0 of 0 entries

Search

View Records Awaiting Validation
### Validation Reports for Student Data

Below you will see the validation status for uploaded files and changed records. Click View Errors and Warnings to see the detailed information about validation errors.

<table>
<thead>
<tr>
<th>School Code</th>
<th>WISER ID</th>
<th>Actual Value</th>
<th>Type</th>
<th>Error #</th>
<th>Error Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Data</td>
<td>View Resolution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0702001</td>
<td>[6/1/2023 12:00:00 AM;[2023-05-06 00:00:00];[2023-03-24 00:00:00];[0702001];</td>
<td>Error</td>
<td>R0011 - StudentExitType is required</td>
<td>The StudentExitType is missing on the enrollment at School 0702001 beginning 2023-03-24 00:00:00 and ending on 2023-05-06 00:00:00 for the student with Wiser Id/Local id 0702001/</td>
<td></td>
</tr>
</tbody>
</table>

**Resolution**

StudentExitType is required when StudentExitDate is present.

---

**Privacy & Interoperability Symposium**

**May 17-19, 2023**
DATA CERTIFICATION DEMO

Download Records
Download Records

Select Collection

Use this screen to download the records for your district. After selecting the collection you will be given additional options for customizing your download.

If you are planning to make changes to the data to re-upload, do not change any of the headings or delete columns from the downloaded file.

Your data will contain an additional ID field that is required for uploaded and cannot be changed or removed if you plan upload changes in the data via the File Uploader and Monitor screen.

Download the Student collection record set.
Download the SPED collection record set.
Download the Section collection record set.
Download the Attendance collection record set.

Select Download Option

Use the options below to create your customized download

Record Set
- Select a Record Set

Time Frame
- Select a Time Frame
### Download Records

#### Select Collection

**Student Data: Customize Download**

#### Select Download Option

Use the options below to create your customized download:

- **Record Set**
  - Select a Record Set

- **Time Frame**
  - Select a Time Frame

#### Details

- Records with Changes Only
- All Records
- Oldest Records
- Newest Records
Select Collection

Select a Collection to Upload Files
This screen is used to upload data corrections for your district from previously downloaded data. To use this screen you must first download a file from the Download Records area or from the record validation area on the next screen. The system will automatically know which type of records you are uploading.

Do not change any headings or delete columns in these files before uploading. The max number of records per file upload is 1000 records.

Select the collection below to upload a new file for that selected collection.

Upload Student Data collection records,
Upload SPED Data collection records,
Upload Section Data collection records,
Upload Attendance Data collection records.
File Uploader

Select Collection  >  Student : Upload Monitor

Upload File for Student Data
To upload a file you need to download a file from the Download Records area OR from the area after clicking View Errors & Warnings. The system will automatically know which type of records you are uploading.

Do not change any headings or delete columns in these files before uploading.
The max number of records per file upload is 1000 records.

Upload File

Choose File  No file chosen

Drag and Drop Files Here

No file chosen
DATA CERTIFICATION DEMO

Data Reports
Review Data Reports for Certification

Below are a list of reports that are meant to be used to review your data before certification.

- WINDS ADM Report
- WINDS Student Data Aggregation by Period Date
- WINDS Special Ed Student Data Aggregation by Period Date
- WINDS Missing Students
- Student Data Aggregation Certified
## Students Missing on the 2023-05-05 Collection Date Due to Failed Validity Checks

### Fremont #1

<table>
<thead>
<tr>
<th>School</th>
<th>Wiser id</th>
<th>Valid Student</th>
<th>Valid Sped</th>
<th>Valid Section</th>
<th>Valid ADM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0702000</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>0702001</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dubois Elementary</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Last Loaded: 5/8/2023 9:15:00 AM

Last Loaded: 5/8/2023 9:15:00 AM
WDE684 Invalid Student Timeline

Enrollment History for [REDACTED] through 2023-05-05

<table>
<thead>
<tr>
<th>Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 R0808b</td>
<td>Gap between exit and re-enrollment</td>
</tr>
<tr>
<td></td>
<td>There is a gap of (10) membership days between the enrollment following the</td>
</tr>
<tr>
<td></td>
<td>enrollment beginning on 8/23/2022 12:00:00 AM and ending on 3/23/2023 12:00:</td>
</tr>
<tr>
<td></td>
<td>00 AM with exit code 280 at school 0702001, which does not start until 4/10/23</td>
</tr>
<tr>
<td></td>
<td>12:00:00 AM for WISER Id [REDACTED] / Local</td>
</tr>
</tbody>
</table>
# WDE Report Viewer

## Student Lunch for Students with changes at Lander Valley High School (0701055)

<table>
<thead>
<tr>
<th>School Id</th>
<th>Wiser Id</th>
<th>2023-05-03</th>
<th>2023-05-04</th>
<th><strong>2023-05-05</strong></th>
<th>2023-05-08</th>
</tr>
</thead>
<tbody>
<tr>
<td>0701055</td>
<td></td>
<td>N</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Student Lunch</td>
<td></td>
<td>C</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>
DATA CERTIFICATION DEMO

Complete Certification
Complete District Certification

Certification Completed - Download Records Wyoming Department of Education
Thank you for certifying your data. You will receive an email confirmation shortly. You can download a zip archive of the certified data at the link below.

- Download Certified Student Data
- Download Certified SPED Data
- Download Certified Section Data
- Download Certified Attendance Data

Home
Let’s get in touch.

Thanks for watching! To contact our speakers, use the info below.

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