



# OPI Data Systems Overview

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## Student Information System:

A Student Information System (SIS) is a software application that schools use to manage student related data. For most districts this includes enrollment, grades, and attendance.

At the local level this provides a student profile to teachers that supports personalized instruction and district or school wide analytics for administrators.

## Local SIS Data Entry by District

The process for reporting SIS data will be different depending on which group a district falls under.

### Infinite Campus Users:

Infinite Campus 'District Edition' is used by some districts as their complete local Student Information System. 'Montana Edition - Value added' is typically used by smaller districts as their main Student Information System. The 'value added' feature allows districts to enter daily attendance and marks.

### PowerSchool Users:

Districts that utilize PowerSchool as their local Student Information System are provided the Infinite Campus 'Montana Edition' at no cost to submit data for state reporting. Districts extract data from their main PowerSchool SIS and upload it into the 'Montana Edition'.

### Other Vendors and Districts Without a SIS:

These districts are also provided the Infinite Campus 'Montana Edition' to submit data for state reporting.

## Infinite Campus – Data Aggregation and Processing (State Edition)

After districts enter or upload data into their version of Infinite Campus, they must validate that the data has been entered correctly and certify what has been entered is accurate. During this process the data required for state reporting gets synced to the 'State Edition' of Infinite Campus. The data synced to the state edition is required for State and Federal reporting purposes. Districts also pull data out of the state edition for uploads on other OPI applications like MEAFAIRS and Special Education.

Once data reaches the state level OPI staff run reports to review and validate the data. The EDUCATE team works with districts to complete data collections and fix reporting errors. After the data has been submitted and reviewed, a state level snapshot is stored for state and federal reporting.

## OPI Applications

The OPI utilizes homegrown and vendor developed software applications to collect data and provide resources to the field. The OPI is currently supporting around 20 internally developed applications accessed through the secure portal. Some of these are used for internal processes. This includes the OPI travel system, an application that manages employee travel requests and Per diem meal reimbursements.

It also includes applications developed for the field. The Direct Certification Application for the Free and Reduced Lunch program, MAEFAIRS for financial reporting, Montana Jobs for Teachers for district job postings, and the Special Education reporting portal are examples of OPI developed applications. The TeachMT teacher licensure system, E-Grants grant management application, and Teacher Learning hub providing professional development are vendor developed applications.

## Assessment Vendors

For all the state required assessments, the assessment provider prepares and submits a state level results file.

## OCHE Matched Data

Montana University System freshman enrollment counts are provided by OCHE to compare high school graduating class size and MUS enrollment each year.

## OPI Test

This subgroup represents around 75 active databases. The test environment is used to provide a controlled space for implementing and validating new business rules, stored procedures, and changes to database structure before the changes are deployed into the production environment. By operating in a separate mirrored environment database administrators can make changes, test for errors, and check for downstream effects without disrupting live operations.

## OPI Production

This subgroup represents around 75 active databases. The production environment is the live system where validated data and stored procedures are stored to support operations and integrated applications. These databases provide all the data used for state and federal reporting. Because it directly impacts daily workflows and legislative requirements, the production environment prioritizes performance and security. Only thoroughly tested and approved changes are deployed here to ensure continuity and protect the integrity of critical data.

## PowerSchool

PowerSchool utilizes existing school data reported to the state through Infinite Campus to provide data visualizations for districts and schools. Schools may choose to opt-in to a more robust, “Direct Connect” version of the visualization platform to gain additional functionality. The Community Engagement (public-facing) platform will also host the state, district, and school ESEA report cards.

## Snapshot Process:

Database snapshots provide a read only, static view of data at a specific point in time. Once data has been collected at the state, reviewed and validated, a snapshot is taken to store the data in internal databases where it will be later uploaded to the required state and federal reports.

## GEMS, State Report Card, Accountability system:

The main endpoint for state reporting is the GEMS database. This database stores indicators for the Montana ESSA accountability system, the data displayed on the State, District, and school report cards, and all the data dashboards on the GEMS website.

### GEMS Test

The test environment is used to compile data from multiple sources before being visualized on the GEMS website. The test environment is used to develop and implement required changes to the views to ensure Federal and State reporting requirements for publicly available information on schools and districts are met.

### GEMS Production

This production environment stores data in views specific to how the data is displayed on the GEMS website. This is where the masking logic is applied to ensure all FERPA requirements are met on publicly available data. OPI employees and district users with appropriate permissions can sign into a restricted section of the website to view the unmasked data based on their role and privacy restrictions dictated by FERPA.

### Manual Submission (not represented in diagram):

The OPI has developed a model that, when provided with the necessary risk factors, provides districts a list of students that are at risk of dropping out. Schools that choose to participate in the Early Warning System upload files with these factors into GEMS. Once the model is run, reports and dashboards are provided back to display the results.

## EdFacts

The main endpoint for Federal reporting is EdFacts. EdFacts is a U.S Department of Education initiative to collect, analyze, and promote the use of high-quality Pre-K through grade 12 data. The OPI is responsible for the annual submission and data quality of over 90 ED Facts files.

## What was Purchased with PowerSchool:

The two main components of the PowerSchool contract are Connected Intelligence and Analytics and Insights.

Connected Intelligence is the snowflake environment often referred to as a data lake. This is the backend and data source for all PowerSchool modules. Connected Intelligence does not directly collect data, rather it relies on other data sources at the OPI that get replicated into the snowflake environment. Currently, the main sources of data are weekly uploads from Infinite Campus state edition and state assessment file uploads. Once the data has been replicated into Connected Intelligence, it gets mapped into extracts that populate the dashboards and modules.

Analytics and Insights is the base module for all the front-end software. It uses the mapped extracts to pull data from Connected Intelligence into the dashboards and metrics that end users will see. All displays have role-based permissions that limit the type of data users will have access to. For example, a teacher will have access to the students in their class while a school administrator will have access to schoolwide data sets. All student level data will sit behind credential protected views requiring appropriate permissions. The public facing side, Community Engagement, will be hosted on a separate site and display aggregate and de-identified data sets, following all FERPA protection and masking guidelines.

Because of the limitations of the OPI data set and original contract, the majority of districts would not have been able to utilize all the modules purchased by the state. To address this, the Superintendent amended the contract with PowerSchool to split Analytics and Insights (A&I) into two separate versions allowing districts to opt-in to the direct connectors that allow utilization of the full suite of products purchased. We are calling them the “OPI Edition” and the “Direct Connect Edition”.

The “OPI Edition” will utilize state reported data and state assessment files to populate the dashboards. Because of the limited data source, not all available roles and dashboards will be populated on this version.

The “Direct Connect Edition” will require an opt-in and district implementation to pull data in directly from the local SIS to allow for full utilization of the dashboards and modules purchased by the state. This includes the MTSS module, which many districts have shown interest in. Some of these districts have purchased or created homegrown solutions using their own funding. This version is available to districts at no additional cost.



