What's New in v2.0

This documentation provides a summary overview of the major improvements, updates, enhancements, fixes, and changes made in the Ed-Fi Dashboards v2.0. The Release Notes section of this documentation has a complete list of changes.

This dashboard release delivers significant ETL build time improvements, adds many more configuration options to reduce the need for extensions, completes drill-downs that we were missing in previous versions, and delivers several bug fixes.

New High-Performance ETL Application

The code now ships with a purpose-built, high-performance ETL application for calculating metrics and populating the metrics data store. This ETL application uses the .NET framework and replaces functionality formerly handled by SQL Server Integration Services (SSIS) packages, with a notable improvement in calculation times and stability on large datasets. The new ETL is accompanied by significantly enhanced documentation.

Performance Improvements

A primary goal of the Dashboard v2.0 release was to reduce the time required to calculate metrics, particularly for implementations with large numbers of student records. The rewrite of dashboard metrics ETL ensures that the most recent data for current and historical metrics can be made available consistently to users by the next business day.

This goal was tracked through ongoing scale and performance testing during the project. The time taken to compute metrics for 1 million students and 250,000 students was measured on an ongoing basis. A summary of performance testing results at the conclusion of the project is provided below for the 1M and 250K student data set. The results reflect the time required to calculate a full set of dashboard metrics (i.e., the processing time from the Operational Data Store to the Dashboard Data Stores), including adding a day of historical data.

<table>
<thead>
<tr>
<th>Test Run (Single Day with One Day of Historical Data)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Million Students - ODS v2.0</td>
<td>6 hrs. 24 min.</td>
</tr>
<tr>
<td>1 Million Students - ODS v1.2</td>
<td>6 hrs. 10 min.</td>
</tr>
<tr>
<td>250K Students - ODS v2.0</td>
<td>2 hrs. 49 min.</td>
</tr>
<tr>
<td>250K Students - ODS v1.2</td>
<td>2 hrs. 50 min.</td>
</tr>
</tbody>
</table>

Generally speaking, the performance characteristics above are an improvement over the previous metric ETL processing implemented in SSIS. A direct performance comparison of large data sets is difficult because the legacy SSIS packages never completed the 1 million record dataset, and provided inconsistent results against the 250K dataset.

In order to provide a direct comparison between SSIS and the new ETL Application, both were run against a 48K Student data set containing an entire year of data. The ETL Application completed the set in 39 minutes while the legacy SSIS packages completed in 1 hour, 34 minutes – representing around a 2.4x improvement. For details, see ETL Application Performance Testing.

Documentation and Testing Improvements

A more comprehensive set of documentation accompanies this dashboard release. Documentation enhancements include:

- Documented business requirements for all metrics, see Dashboard Metrics for more information.
- Human-readable, reusable unit tests in SpecFlow.
- A Quick Start User Guide aimed at helping new licensees quickly understand how to use the dashboards.
- A new ETL Developers’ Guide, which covers how to configure and run the ETL application, along with a coding overview on the new architecture.
- An updated test data set of the fictional Glendale ISD with 47,000 students, along with integration test data to validate the core metrics.

ETL Improvements in Minor Release (New in v2.0.3 release)

The v2.0.3 release addressed a number of issues raised by field implementations. The improvements include:

- Minor ETL Performance tuning (DASH-3181, DASH-3016).
- Dashboard Data Warehouse processing improvements (DASH-3079, DASH-3123, DASH-3146).
ETL Improvements in Minor Release (New in v2.0.2 release)

The v2.0.2 release addressed a number of issues raised by field implementers. Improvements include:

- Support for students with multiple enrollments (DASH-3041).
- Support for sending connection strings through the command-line execution of the ETL application (DASH-3012).
- Support for linked servers, which enables configurations with databases on different servers (DA SH-3050).

ETL Improvements in Minor Release (New in v2.0.1 release)

The v2.0.1 release addressed a number of issues raised by field implementers. Improvements include:

- The ability for implementations to configure how Daily Attendance is calculated. For more information, see the ETL Developers' Guide - Application Configuration section (note the DailyAttendanceCalculationSource setting under Metric-Related Settings) and the associated business rule (MET-997).
- Improvements to ETL logging (DASH-2884).

New Dashboard Features

For this release, the Dashboard and ETL Application made several notable changes to improve configurability, along with an in-depth review of all metric calculations and reported bugs.

Flexible Assessment Visualizations

Assessment metrics have been redesigned and are now data driven, allowing parameters to be provided via configuration. This enables licensees to add new assessments without creating extensions to the dashboard ETL or UI code. The ETL can be configured to customize the specific assessment categories and score types to be included in a metric calculation. UI configuration allows licensees to customize the assessment data and column header names displayed on the UI.

The ETL assessment metric configuration options include:

- **Category.** An assessment category or categories to include (e.g., reading readiness test). A metric can be based on one or more assessment categories.
- **Subject Area.** An academic subject area or subject areas to include. A metric can include one or more subject areas.
- **Reporting Method.** At least one reporting method (e.g., Scale score) must be selected as the metric value. Additional reporting methods can be selected for display purposes.

The UI assessment metric configuration options include:

- **Metric Value Reporting Method.** The title is the reporting method name by default. Roll-ups and drill-downs will be based on this value.
- **Performance Level Column Header.** The title is "Performance Level" by default.
- **Additional Reporting Method columns.** These UI values are for display purposes only. The values are not included in roll-ups or drill-downs. The title is the reporting method name by default.

Assessment metrics can be added and configured using the Metrics Configuration Tool. For more information, see the ETL Developers' Guide - Assessment Configuration section.

Dashboard Improvements in Minor Release (New in v2.0.3 release)

The v2.0.3 release addressed a number of issues raised by field implementations along with a few improvements. The fixes and improvements include:

- Upload School and LEA images via photo manager pull request (DASH-918).
- Photos by StudentUniqueId in the Dashboard (DASH-3144).

The full list of improvements and bug fixes for v2.0.3 are cataloged in the Release Notes.

Dashboard Usage Module (New in v2.0.1 release)

The dashboard usage module, previously released with Dashboards v1.4, has been refactored and is now available in its own GitHub repository. See the Dashboard Usage Module documentation for more information.

New Metric Settings Configuration Options

Metric Reporting Periods

On previous versions of the dashboards, the metrics had hard-coded reporting periods for Last Four Weeks and Last Eight Weeks:

This update includes configurable reporting periods. By default, Last X days is configured to 20 days (4 weeks) and Last Y days is configured to 40 days (8 weeks), but implementers can now configure the number of instructional days for each reporting period displayed in the dashboards. Configuration details for Last X days and Last Y days can be found in the ETL Developers’ Guide - Application Configuration section.

Daily Attendance Calendar View

The Daily Attendance metric now includes a Daily Attendance Calendar view. Users can now quickly see all reported daily attendance events for students. The intent of this calendar is to replace the values recorded in the historical daily attendance chart. The previous chart made it difficult to see the specific days of absences and did not show the attendance event type (e.g., excused). The calendar provides an easier way to visualize attendance – and also improves performance by eliminating the need to record daily attendance data in historical tables.

Custom Grading Scale

The dashboard now allows configuration of grading scales by grade level. The grade scales can be letter, proficiency level, or numeric values. For non-numeric grade scales, the relative position or rank of the grades in the grade scale is used for calculating metrics such as dropping, failing, and grades below proficiency metrics (which were formerly simply grades below C).
For more information, take a look at the article Customizing the Grading Scale Metrics.

Credit Accumulation Configuration

The credit accumulation and on track to graduate metrics have been redesigned. The number of required credits for each graduation plan should be supplied in the ODS. This allows a wide range of graduation plans to be supported and also makes it easier to update the graduation plan credit requirements. The percent of total graduation plan credits a student should earn in each grade level can be configured. This was previously a hard-coded value. By default, the dashboards assume 25% of a student’s graduation plan credits should be earned in each high school grade level.

Student Goal Configuration

In previous dashboard releases, several student metric goals were hard-coded (e.g., the Days Absent metric flagged students with eight or more unexcused absences). Student goals can now be configured at the implementation level through the user interface. All students within a district inherit these goals so the student metrics can be rolled up to the school and district level.

The default goals are the same as the goals that were hard coded in the previous dashboard releases – but you can now visit the Student Goals page to change these values, eliminating the need to modify the ETL and UI code.

A summary of configuration options is available in the article Dashboard and ETL Application Configuration Options.

Metric Configuration Tool

Gone are the days of directly editing a CSV file edit the dashboard metric tree. This release includes a user-friendly utility that allows licensees to manage and view metrics metadata. The tool can be used to easily add, edit, and delete metrics to the dashboard. In addition, the Metric Configuration Tool is the place to go to configure the new, flexible assessment metrics.
For more information, see the Metric Configuration Tool documentation.

Backward Compatibility & Legacy Support

For backward compatibility, the as-shipped dashboard code contains several structures that are not currently used by the new high-performance ETL, but have been left in place for legacy SSIS package support:

- **StudentMetricAssessmentHistorical.** Used in a StudentMetricAssessmentHistorical drill-down. This table was used by an assessment drill-down. It is currently empty and not assigned to any more menu options. Additional work on the assessment drill-downs are expected in the public release.
- **StudentMetricAssessmentHistoricalMetaData.** Used in combination with the StudentMetricAssessmentHistorical drill-down.
- **StudentMetricBenchmarkAssessment.** Used in the BenchmarkHistoricalChart metric action.
  - This metric action was assigned to some metrics in the previous sample database (e.g., metric IDs 74, 75, 76, 80, 1042), but it is not assigned to any metrics in the current release.
  - This metric action was also used in the LearningStandardsList drill-down.
- **StudentMetricLearningStandardMetaData.** No longer used by the updated Assessment drill-downs.
- **StudentMetricStateAssessmentHistorical.** No longer used by the updated Assessment drill-downs. This was used in the StateAssessmentNormalizedChart and StateAssessmentNonNormalizedChart drill-downs.
- **SchoolMetricAssessmentRate.** Formerly used by the AssessmentRateChart drill-down, which has been deprecated.

The **StudentMetricObjective** table includes schema changes that may need to be addressed if existing Ed-Fi Extension implementations are dependent on the legacy schema version of this table. The legacy Objective Assessment drill-down was replaced with a newer version that uses the updated schema.

Important Code Changes

The following is a list of changes made to the Ed-Fi Dashboards code base that could cause issues when upgrading. We encourage licensees who are upgrading to v2.0 to check these areas when performing an upgrade:

- Updated column name in the Metric Metadata Files. The column OverriddenByMetricId in the metric CSV file was corrected to OverriddenByMetricId.
- Removed MetricId-specific metric templates (ticket DASH-2182).
- Removed dashboard.MetricThresholds table from the Ed-Fi Application database and removed all references and dependent code artifacts from the Ed-Fi Dashboards UI code base. Relates to the addition of configurable grade thresholds (ticket DASH-2183).
- Removed MetricId-specific metric templates. Metrics are in backlog for re-design and business rule updates (tickets DASH-2184, DASH-2185, DASH-2186).
- Changed MetricId 0 to MetricId 1. May affect anything hard-coded to MetricId 0 (ticket DASH-2187).
- Cleaned up teacher student list data view. Removed Assessment data views for new assessment drill-downs (ticket DASH-1234).