



EDFacts

Shared State Solution

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ESP Solutions Group, Inc.

Highlights

- **Fully Functional EDFacts System**
 - Unit & aggregate staging data stores
 - ETL to EDFacts submission specifications
 - Submission file creation
 - Edit reports
 - Longitudinal archives & analytics
- **Developed with Partner SEAs**
- **Fully Maintainable by the SEAs**
- **No License Fee for the SEAs**
- **Optional SEA Partner Association for Annual Updates and Shared Enhancements**
- **Support Services Available from ESP**

Common Solution Shared across SEAs for EDFacts No License Fee, Partner Association are Attractive Incentives for SEAs

Until now, EDFacts has generated a state-by-state response. A new opportunity is available for all SEAs this spring. The EDFacts Shared State Solution (ES3) is designed to maximize shared components to reduce duplicate effort, yet still maximize SEA configurations and adaptability. ES3 includes:

- A set of SQL Server submission tables formatted in the EDFacts submission file specification,
- A set of SQL Server Integration Services (SSIS) extract-transform-load (ETL) processes to create submission files from the EDFacts Submission Tables,
- A set of standardized SQL Server staging tables for

- either (a) unit records or (b) aggregate staging records, aligned with the Common Education Data Standards (CEDS) to the maximum degree possible,
- A set of SSIS ETL processes to convert from local codes and formats to the federal standards and load the submission tables from the staging data,
- A series of SQL Server Reporting Services (SSRS) validation reports against both the staging and submission tables so SEAs can review their data prior to submission,
- All ETL processes with full audit logging and email notification,
- A centralized web front-end for triggering the ETL and

accessing validation and management reports, and

- Customized ETL to load the staging tables from the SEA's existing data sources.

The content for the top seven bullets is common for all SEAs. The EDFacts Shared State Solution means this common content does not need to be developed 59 times for the states and extra-state jurisdictions.

The last bullet, customized ETL from SEA data sources to ES3 staging databases, is unique to each agency.

This first newsletter begins the process of describing how an SEA can join the ones already leveraging ES3 to their advantage.

Development in SEAs is Central to Success

The first SEAs to contribute code to the components of the EDFacts Shared State Solution will be Idaho, Missouri, and South Dakota. Others that ESP has worked with have added concepts to the architecture. As other SEA partners use ES3, their contributions will enhance the solution, especially in the area of reports.

The Idaho Department of Education generously offered

to share their code with any other SEA that could use it. The Missouri Department of Elementary and Secondary Education followed soon with a project to develop their new system using the same architecture. Recently South Dakota awarded a contract that included the adoption of the common data model and components as well.

From this core, ESP has committed to be managing partner

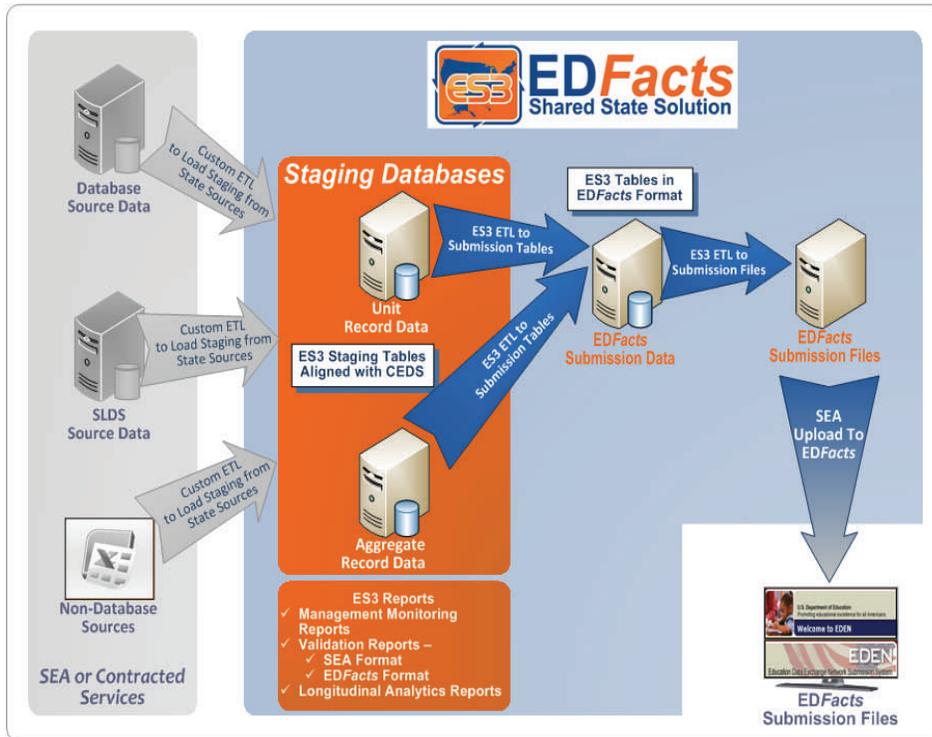
for all states joining an SEA Partner Association to share the maintenance of requirements, business rules, and data model; and to manage documentation and sharing of enhancements such as reports.

Because the solution is founded on these multiple SEAs' ideas and processes, ES3 is portable to others. The common need to keep ES3 up-to-date is a key to future success for everyone.

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ES3 Solution Flows from SEA Data Sources to Uploads



For the *EDFacts* Coordinator, a solution is just a partial fix unless it encompasses everything from the rawest source file to the very final acceptance of a submission file by the EDEN/*EDFacts* system itself.

This high-level picture shows just that. The darker blue area outlines the ES3 components, which are common across SEAs. Those in gray are unique to each SEA and are accomplished by SEA staff or contracted.

Years of *EDFacts* experience have gone into refining a solution that can be shared across SEAs.

The ES3 Story

MANY SEAS HAVE LOOKED ACROSS THEIR BORDERS OVER THE YEARS AND WONDERED HOW MANY OF THEIR PROCESSES AND SOFTWARE APPLICATIONS THEY COULD SHARE.

The U.S. Department of Education revolutionized state-to-federal reporting with the EDEN/*EDFacts* system. Every state is mandated to submit data in the same format.

Most of the core processes are duplicated within every SEA.

Many SEAs have looked across their borders over the years and wondered how many of their processes and software applications they could share. However, their time and resources were concentrated on meeting the *EDFacts* requirements and deadlines and not on software product development.

What changed?

- Microsoft tools eventually became more common, standardized, affordable, and easy to use.
- SEAs learned enough about the *EDFacts* processes to pinpoint where the commonalities are and where the uniqueness of each SEA remains.
- ESP eventually accumulated enough clients to allow it to devote sufficient resources to building the common data model, databases, documentation, and ETL processes.
- The ES3 SEA Partnership Association model with an annual fee to support updates and on-going enhancements became viable as enough states adopted a common architecture.

What are the common components?

- Two Staging Databases (allowing the SEA to ETL and process either unit or aggregate records; and to transform unit records to aggregate) in SQL Server
- Three Types of Reporting (providing feedback to the *EDFacts* Coordinator, data providers, and analysts/decision makers) using SSRS
- *EDFacts* Submission Data Store (creating a longitudinal data system for verification and analytics)
- *EDFacts* Submission File Engine (creating *EDFacts*-compliant files for uploading)

Unique to every SEA is the ETL into the staging databases from the data sources.

Getting it All Done...the EDFacts Coordinator's Dilemma

The EDFacts Coordinator for an SEA runs on adrenaline from December through February. That's when the majority of the 105 annual submission files are due. Barbara Clements, Steve King, and Glynn Ligon of ESP visited 17 SEAs in 2011 along with AEM and USED experts providing EDFacts technical support under the SEISS contract. What did we discover takes the Coordinators' time?

- Keeping up with the updates
- Finding new and changed source data across the SEA

- Making changes to the local ETL processes
- Keeping the SEA data providers up-to-date (conducting an annual meeting, publishing an annual calendar, communicating requirements changes, communicating changes in processes)
- Updating the submission file formats
- Creating/maintaining the data dictionary
- Creating error, edit reports for data stewards and providers

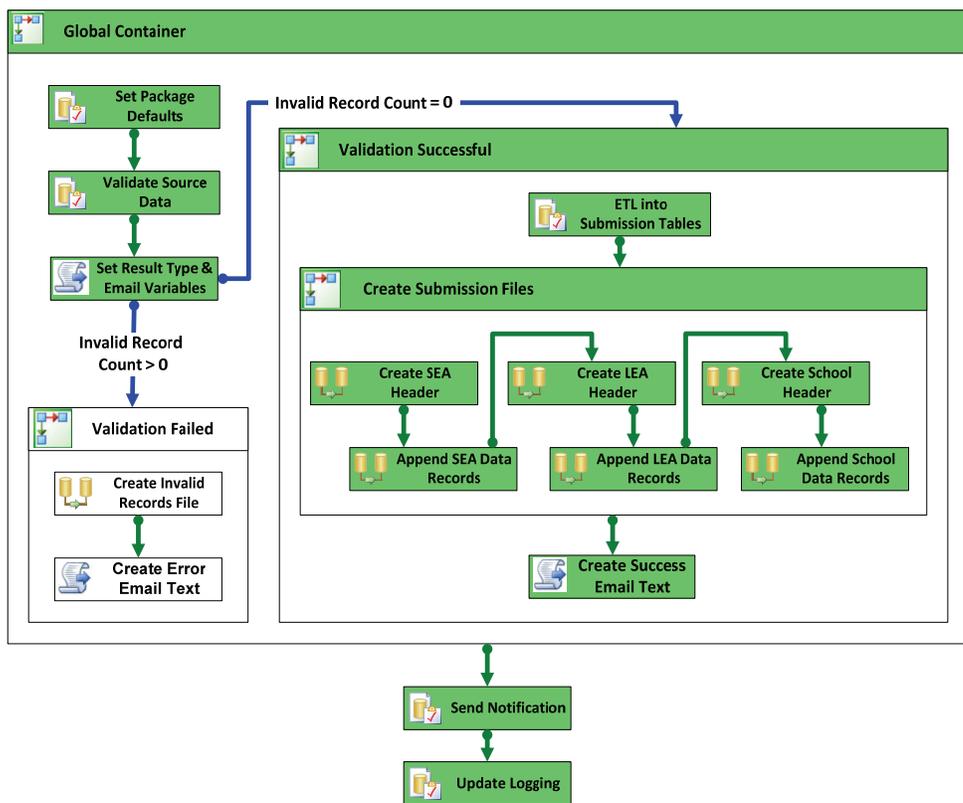
- Maintaining business rules
- What seldom or never gets done?
- Creating a longitudinal data store of EDFacts submissions
- Creating enough edit reports
- Providing longitudinal analytics and reports
- Creating a comprehensive training program for EDFacts data stewards and providers

Tough job! These last three bullets have become the roadmap for ES3.

Process Flow Management for ES3

Steve King, ESP's Chief Architect, has mapped the processes for ES3 in Visual Studio. ESP site visits have uncovered multiple instances where new EDFacts Coordinators are building new processes and management systems because they could not understand or follow the ones they inherited.

The economy of scale derived from multiple partners means we can build a robust, professional solution. ES3 incorporates best practices in ETL design and implementation. All steps are logged, the process is auditable, both final staging and submission file histories are maintained, and a system for notifying the appropriate parties is built.



Individual stage loading or submission file creation processes can easily be triggered by non-technical program staff. This potentially frees the EDFacts Coordinator to focus on managing the EDFacts process.

There is a standard approach and set of ETL templates for each component. ES3 uses standard tools in the Microsoft SQL Server development stack. The entire development and operational process is well documented.



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Extraordinary Insight for Support of EDFacts Shared State Solution SEA Partners

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ESP Offers ETL and Implementation Services

ESP Solutions Group is the developer of the *EDFacts* Shared State Solution as an enhancement of its contracts with several SEAs. For newly adopting SEAs, the tasks of installing and configuring the solution, creating the ETL for the local sources to the staging data stores, and managing the process for the first year are available from ESP as contracted services. In future years, the maintenance of the ETL from local sources to the ES3 data stores can also be a service provided by ESP.

The design of the *EDFacts* Shared State Solution is entirely based upon Microsoft tools. These were purposely adopted by the early SEAs to ensure that they and future partners could maintain the solution themselves without an obligation to any vendor. However, the availability of ESP as an option provides both the risk mitigation and the alternative when local staffing or priorities require assistance.

Contact ESP at 512-879-5300 or info@espsg.com.

ESP to be the Managing Partner for ES3

States have shared software applications in the past with varying success. Challenges have ranged from:

- Who writes the documentation?
- Who maintains the code?
- Who coordinates communications among all the users?
- Who ensures everything is up to changing standards and requirements?

For The *EDFacts* Shared State Solution, ESP became the natural managing partner for the SEA Partner Association. ESP has a deep understanding of EDEN/*EDFacts* from working with USED/NCES on the data stan-

dards and reporting processes for the Common Core of Data (CCD), the Integrated Performance Benchmarking System (IPBS), the Performance Based Data Management Initiative (PBDMI), and others that contributed to the foundation for *EDFacts*.

ESP has directly assisted multiple SEAs in the design and delivery of recognized *EDFacts* solutions. Those insights, combined with the expertise of participating SEAs supplied ESP with the architecture for ES3.

SEA Partner Association membership enrolls an SEA in ESP's managing partner services. ESP will provide project management, annual updates

to requirements, current table and field structures for the data stores (unit staging, aggregate staging, and submission files), support, and documentation.

Steve King, Chief Architect, is only one of ESP's experts who will be ready to provide that value-added service for which ESP is known.

Darrell Prather, Data Analyst, is also well known for working directly with multiple SEAs to move their *EDFacts* reporting status right to the top. His in-depth knowledge of file specifications, business rules, and ETL from SEA sources make him an invaluable resource to partner SEAs.