



Ovation™ Enterprise Data Solutions (EDS)

Features

- Collects plant information from disparate systems to form a single data source for secure, remote visualization, and monitoring
- Provides staff with read-only access to near real-time and archived plant information, regardless of geographic location
- Presents comprehensive views of assets to all levels of an organization
- Enables proactive response to process changes, operational abnormalities, or equipment issues
- Scalable from a single unit to widely dispersed plants with numerous deployment options
- Measures, monitors, and reports Key Performance Indicators (KPIs)
- Fully supported through Emerson's lifecycle services programs



Introduction

In today's Industrial Internet of Things (IIoT)-connected world, plants generate more data than ever before, but they often lack the structure to transform that data into actionable insights. Numerous systems from different vendors in varying formats provide important process and business information, but it is often dispersed throughout a single unit, plant, district, or fleet.

Because a lack of immediate access to key data can hinder effective decision making, plant personnel need a centralized solution for presenting actionable data that enables the right people to quickly and accurately make decisions.

Enterprise Data Solutions

Emerson's Ovation™ Enterprise Data Solutions (EDS) provide secure plant monitoring from any location with access to an organization's network. EDS uses a centralized server to collect insightful plant data from multiple sources and presents the high-fidelity information in near-real time to authorized personnel and systems.

Scalable single or multi-plant deployment along with mobile capabilities provide flexible and economical options to meet organizational objectives. Authorized users can view process graphics, control diagrams, alarm lists,

and graphic trends. Users can also generate reports that track operating performance or fulfill other regulatory reporting requirements.

Remote visualization of critical data allows plant staff to monitor asset health and proactively troubleshoot issues before they become serious problems.

Applications

EDS is a powerful tool that simplifies information management by consolidating data from disparate systems into a single source for remote monitoring and analysis.

EDS delivers increased awareness of plant operations by securely connecting staff to near-real time and archived data, regardless of geographic location. Timely and accurate representation of plant performance enables more informed decision-making to enhance operations and streamline maintenance.

For example, severe weather events pose many forms of danger to any industrial process site, which could require plant staff, both on and off duty, to quickly troubleshoot problems before they escalate. EDS provides critical process data to the right people at the right time, helping to mitigate emerging issues.

Using EDS data and tools, power generators can assess abnormal conditions that could lead to infrastructure damage or widespread power outages. Water plants can monitor increased flows within distribution networks to better predict flooding, thus helping to prevent overflows and associated environmental impact.

As an option, Ovation EDS can automate operator round activities, including interfaces to computer maintenance or lab information systems and customized route and data collection templates.

EDS data can also monitor key performance indicators (KPIs) for measuring against objectives and generating required performance reports. Example KPIs include:

- Power generation: fuel usage, plant availability, emissions, generation revenue, or efficiency (heat rate).
- Water and wastewater plants: quality, compliance, energy usage, chemical usage, or operating and maintenance expenses.

As an integrated information source, EDS provides valuable insights to all levels of an organization:

- Executives or corporate management can obtain a complete view of district- or fleet-wide operations.
- Plant management can view and trend information to make informed operating or maintenance decisions.
- Plant supervisors, engineers, and technicians can easily evaluate process or plant status.

Deployments

Deploy secure and flexible EDS solutions in various configurations depending upon user needs.

Individual Unit or Plant

An EDS server monitors processes within a single unit or plant by collecting data from different systems and presenting the consolidated information in standard formats including process diagrams, alarm lists, trends, and reports. The data is also archived within the EDS server.

Enterprise

Authorized users can scale EDS to an enterprise level by securely integrating data provided by individual unit or plant EDS servers. EDS enterprise deployment provides a single, centralized platform for a comprehensive view of district- or fleet-wide assets.

As with individual servers, EDS enterprise can report on, and trend data provided by the individual unit or plant EDS servers.

Mobile

Authorized users can remotely view, trend, and manage all EDS data through the EDS mobile application using a cellular or Wi-Fi signal.

Authorized users can also view a high-fidelity representation of what the operator sees in the control room from a hand-held device such as a smart tablet or smart phone. Additionally, users can synchronize EDS mobile to an Apple Watch®.

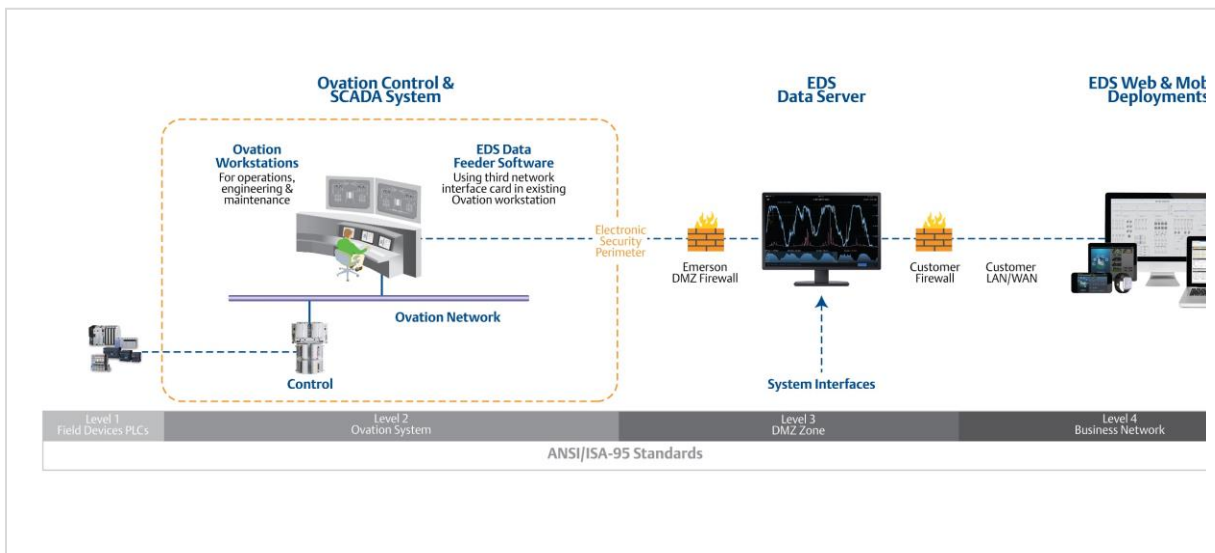
Download the EDS mobile application from:

- The Apple App Store® for iOS devices.
- The Google Play™ e-store for Android devices.

Web Portal

The EDS web portal application interfaces the EDS data server to customer-approved browsers such as Internet Explorer™, Mozilla®, Firefox®, Google Chrome™, Microsoft Edge®, and Opera for view-only access to EDS functions. The portal is delivered with a preconfigured dashboard equipped with trend, alarm, point list, graphic modules, and gauge widgets. Users can customize the dashboard by adding user-defined tabs to the browser.

Architecture & Functions



EDS deployment configurations adhere to the ANSI/ISA-95 international standard for developing an automated interface between enterprise and control systems, specifically level three for manufacturing operations management and level four for business planning and logistics.

Various security techniques such as firewalls, a demilitarized zone (DMZ), data diodes, and one-way communication to data sources ensure operating system data stays unaltered and protected. Access control and authentication features assure only validated users can view EDS information. The EDS configuration supports server clustering, parallel servers, and virtualization for redundancy and high availability. Additionally, virtualization allows scaling to accommodate large system applications with high point counts.

Connectivity to data sources and a data server equipped with software applications comprise the base EDS solution for collecting, managing, and displaying data. Users can customize these solutions to meet requirements for point size or functionality.

Connectivity

Two types of connectivity are employed within an EDS system for data collection and communication. Data feeders are used to collect information from one or more Ovation systems depending on the installed deployment. System interfaces gather data from other non-Ovation sources using standard protocols such as OPC-UA, UPC-DA, and Modbus/TCP-IP. Analog, digital, packed, and time point types are supported.

Ovation EDS Data Server

The EDS data server is a centralized repository for process tags and values, scalable to accommodate application size and staff needs.

The server manages current, archived, and alarmed point values used in EDS displays, calculations, reports, and trends.

Additionally, the data server is equipped with applications that manage system interfaces, data feeders, system configuration, and data visualization functions.

The data server simplifies EDS administration by continuously monitoring system interfaces and Ovation data feeders to detect new or revised process graphics or points. The server interface only captures value changes, thus minimizing network traffic.

Unique to the EDS data server is its ability to display original control system process graphics and control logic sheets for viewing. This feature provides Ovation users with a consistent view of plant information regardless of device and eliminates the expense of recreating displays in other formats.

Excel Plug-In Package

Users can add an optional Microsoft Excel® plug-in to the data server for exporting EDS process point values to a spreadsheet.

The plug-in embeds an EDS tab within the Excel application that includes functions such as connecting or disconnecting from the server, status, recalculate, start, stop, show point list, edit workbook autorun, and save workbook copy.










EDS Web Scraper

The EDS web scraper pulls data from informational websites, such as those for weather or government reporting, for use in analysis or forecasting. For example, information from weather websites can unite with EDS data to anticipate energy usage or water flows as a result of rain events.

Support

Emerson lifecycle programs include dedicated Ovation EDS support plans for the first year of operation, at which point further support is available for purchase. Users can select between two levels of support depending on needs and budget. There are also options to include EDS support as part of an overall Ovation maintenance contract for easier tracking and implementation.

Ovation EDS Applications

Icon	Application	Description
Standard Applications		
	Graphics	Displays up to four windows of process diagram replicas that include dynamic process value updates in numeric or graphic form.
	Tag - point list	Provides views of available point information from any source.
	Events list	Lists current and past occurrences of alarmed points from Ovation and non-Ovation data sources with original time stamps.
	Report editor	Defines report layouts in a spreadsheet-like application window with the ability to save reports locally, on the server, or in the archived history. Create reports using picture, HTML, or CSV file formats.
	Report monitor	Enables periodic scheduling of report execution (for example, hourly, daily, weekly) based on a process condition or on demand.
	Trend	Trends current and past data for up to 16 process points. Special features allow changing trend time, value ranges, and viewing process values at the time indicated by the cursor. Users can annotate trend and point values to assist with data analysis. Users can also import trend groups from Ovation systems, with the ability to create and save new groups from a client station. All trends are saved in equipment folders.
	Control viewer	Provides an exclusive Ovation feature that allows secure remote troubleshooting and control logic reviews.
	Message log	Displays messages and internal status of errors or detected communication issues with data sources.
	Workspace (profile) editor	Captures window and trend views in a shortcut as a named profile. Users can save unlimited profile definitions for quick access to preferred displays and trends.
Custom Applications		
	Configuration utility	Manages EDS server configuration.

Icon	Application	Description
	Calculations editor	Operates as an embedded calculation tool for creating and storing custom formulas.
	Graphic builder	Creates and edits EDS process diagrams.
	Shade editor	Manages shade, shadow, or substitution values. Defined processes point replacement values have specific time ranges that can replace point data when no data is found. These values are archived independently from process point values history.

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