

EDS™

Features

- Allows remote visualization of process graphics, trends and alarms with a comprehensive application package
- Integrates view of multiple systems and sites at authorized desktop computers
- Creates and executes process data reports with an execution scheduler option
- Uses layout and calculation builder to customize scheduled reports
- Gathers data from multiple process control systems to a centralized data server for local storage and forwarding to the EDS desktop environment
- Scalable up to 500,000 process points
- Provides remote functionality and features while away from site using its mobile application

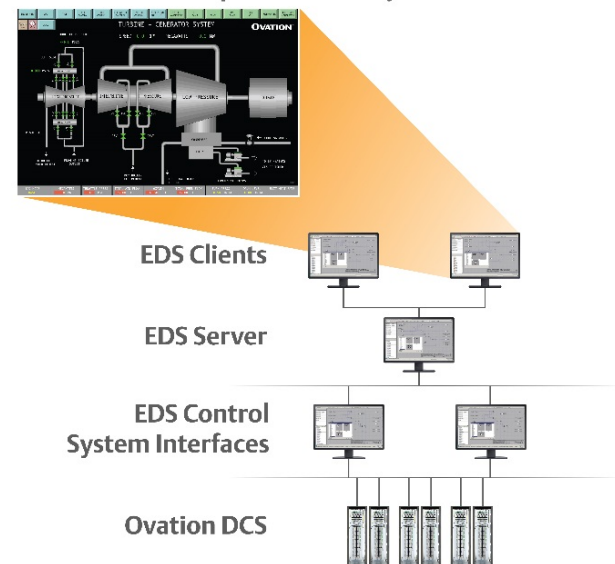
Introduction

Accurate, up-to-date process information for executives, managers, supervisors and engineering analysts is essential for optimal plant operation. The ability to monitor plant's processes from anywhere within the corporate or remote locations, provides additional flexibility for more efficient troubleshooting, improved individual site operations and enhanced evaluation of activities at multiple site locations.

Emerson offers the EDS™, a comprehensive system for collecting and processing plant data that allows viewing of current and past process information from anywhere within a corporate structure or remote locations.

EDS data is gathered from control systems, as well as other multiple plant data sources into one place and presented in near real time data, process and read-only control diagrams, alarm lists, trends and reports.

Real-time view of process activity



This capability provides remote users a high fidelity representation of what the operator sees in the control room.

A key feature of the EDS that sets it apart from other control system integration products is its ability to import and convert original control system process graphics for viewing at the EDS terminal client application. Ovation control systems with EDS solutions provide all users with a consistent view of the plant process and eliminates the expense of recreating these displays in other formats.

The EDS data server and clients operate on Linux or Windows operating systems.

Control System Integration

EDS manages the distribution of process values, alarms and displays to users running the EDS terminal client application suite at their desktop computer. The EDS also acts as a data integration platform that

provides process information to plant optimization and performance software applications.

EDS architecture supports interfacing with one or more control systems, with one EDS server typically located at each plant site. The client application provides the ability to select between the individual servers in order to focus on process activity from each unique system. In addition, site EDS servers can propagate their data to a higher level EDS server, thus providing multi-site integration support.

The EDS is comprised of three major components:

- Control system interfaces (data feeders)
- EDS data server
- EDS terminal client application suite

The data server manages the EDS system configuration and offers security and technology group definitions. Redundancy via server clustering is available and storage options include SCSI arrays and fiber channel arrays.

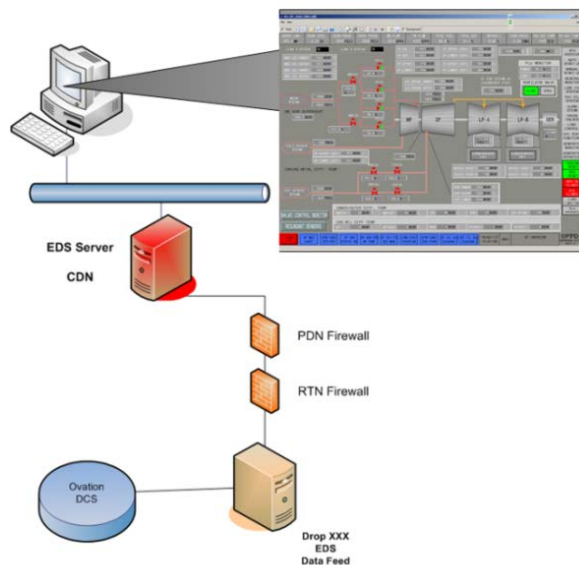


Figure 1. Example of a typical EDS architecture scheme.

Control System Interfaces

The EDS includes software applications which are loaded onto the control system in order to monitor process value statuses and determine when to transfer this information to the EDS data server. The EDS data

structure obtains information from Ovation systems supporting all types of control signals and minimizing network traffic by monitoring only its value changes.

EDS Data Server

The EDS data server provides a centralized source of current and past process values and alarm state data. Also EDS data server manages connections to terminal client applications. A single EDS data server can be configured to collect data from one or more sources, such as Ovation controls, OPC data access servers, or another EDS server. The server's point collection can handle up to 500,000 points.

For ultra-secure applications Emerson can supply one-way data feeders from DCS system outbound, ensuring secure data infrastructure configurations.

Equipped with tools for importing databases, the EDS server is specifically designed to read point and configuration parameters from Ovation systems. It also monitors the control systems' databases to identify new or modified points and automatically updates clients with point database and graphics changes.

The EDS system powerful administration tools include a graphics converter that quickly transforms actual Ovation graphics into EDS displays. User administration features allow the definition of security groups and the users assigned within.

EDS Terminal Application Suite

The EDS terminal application suite is a set of process visualization tools for presenting dedicated data server process information and graphics to end-user desktops located throughout the corporate wide area network. The EDS terminal consists of the following applications:

- EDS toolbar
- Process diagram display
- Data replay
- Process diagram – graphics builder
- Point list – point information
- Control logic viewer

- Events list
- Report editor
- Trends
- Message log
- Workspace (profile) editor

These applications work together in a secure, well-organized environment to provide a number of easy-to-use features, including:

- Drag and drop of process values between applications
- Menu-based navigation between EDS terminal applications from the chosen process point value
- Selection of graphics, Trends, and reports from user-filterable lists
- Display layout and organization profiles for each user
- Automatic database and graphics updates

EDS Toolbar

Once the user has authenticated and connected to an EDS server, the EDS terminal toolbar appears, providing direct access to the EDS applications.

During the login process, the terminal environment is automatically updated with the latest point database and process graphics available from the EDS data server. The toolbar, collapsible to a single minimized icon, contains a small status indicator which shows that communication with the server has been established.

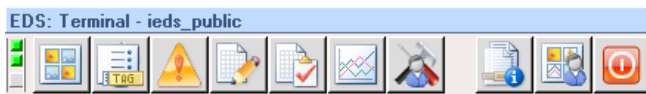


Figure 2: The EDS terminal toolbar is a panel of icons that enables access to the individual application components via log in security settings.

Process Diagram Display

The EDS process diagram display provides a list of available Ovation process graphic replicas. The list of graphics is filterable based on selection of the source control system. Graphics can be previewed in this window before launching the desired selection into one of four available diagram display windows.

Each diagram display window shows a selected graphic with live, dynamic updates of its process values, presented in numeric or graphical form. It also supports scaling of a resized process graphic and navigation controls to go backward and forward in a chain of previously displayed graphics.

Data Replay Plug-in

The EDS data replay plug-in displays historical values on operator graphics. Available replay functions include play, pause, step back, step forward and replay speed. Data is stored with date and time stamps for quickly accessing and replaying the historical data.

Process Diagram Builder

EDS terminal may include additional tools within the process diagram display window for graphics creation and editing, along with drawing functions for element creation, cut / copy / paste, and item group/ungroup.

The diagram builder's drawing functions allow construction of graphic elements made of lines, arcs, rectangles, and ellipses. Process point elements produce place holders for numeric values to be displayed during run-time. Bars and trends represent process values visually as charts within the process graphic.

Trends

The EDS terminal can trend current and past data for up to sixteen selectable process points. Trend assignments can be made by dragging and dropping points from process graphics or other EDS terminal applications into the trending diagram. Points can be saved to trend groups for easy and quick initiation at a later time.

EDS trend window can be launched from any process graphic, EDS point list or the EDS trend group window. Special features allow changing the trends time and value ranges and viewing process values at the time indicated by the cursor.

Annotation Feature

The EDS annotation feature provides an explanation for any given occurrence and enables users to select a

trend and add an annotation. All information is then stored in historian for retrieval by any user.

Control Logic Viewer

The EDS toolbar launches the control builder viewer for 'view only' displays of Ovation logic and control sheets. The viewer assists with process troubleshooting by permitting remote observation of the plant control configurations.

Events List

The EDS events list application allows viewing of current and past occurrences of points alarmed within the EDS server and alarms replicated from data sources and systems. A key feature is that EDS maintains the original time stamp of the data source.

Switching from the current to a past view is accomplished by selecting the radio button on the event list window. The EDS events function supports eight levels of alarms, each with a unique user-configurable color and provides event printing and exporting capability.

EDS Report System

The EDS report system is a powerful tool to create and execute process data reports. The report system consists of two parts: the report editor and the report monitor.

The EDS report editor contains tools to define report layouts in a spreadsheet-like application window. The layout window is organized by a grid of cells where process values and mathematical expressions can be programmed, as well as special functions for process values, point attributes and summary results.

The EDS report monitor schedules selectable reports for periodic execution (e.g. hourly, daily, weekly), assigns the report to run based on a process condition, or manually requests the report to output.

Microsoft® Excel Plug-in

EDS offers a Microsoft Excel plug-in feature which provides import functionality of values from the EDS live data function or from archived (historical) data sets

to Excel. The point descriptions, value, and time samples are all available, as well as the EDS functions (99) including the steam tables.

Web Service

EDS data is also available in user-friendly customized portal (web application). It may be delivered as a customized portal or web service.

The customized portal is a fully engineered and integrated corporate portal with additional custom features such as web-based reporting systems, external database links, and O&M functions. These data management solutions are available on various operating systems.

EDS Mobile

EDS mobile gives users the ability to remotely view EDS plant data and monitor system processes from a desktop operating system on a handheld device.

This mobile application gives great flexibility in managing operations when users are away from their offices, having access to detailed key performance indicators (KPI) data. EDS mobile is available on the Apple App Store and for Android devices on the Google Play e-store.

Features

The comprehensive EDS mobile application enables viewing of current KPI data from anywhere within the corporate structure while providing a dynamic view of plant assets reflecting new functionality, technology features for the hardware platforms and cybersecurity provisions.

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