

EDS™ Enterprise

Features

- Comprehensive platform for live data, archival data, data integration, remote visualization of process graphics, trends, and alarms
- Integrated view of multiple systems and sites at authorized desktop computers
- Calculation server and reporting system with execution scheduler
- Data gathering from multiple data sources to a centralized data server for live and local archival and forwarding to the EDS™ thin and thick clients
- High availability options including clustering, and server virtualization
- Scalable to 1,200,000 process points in clustered arrays
- Microsoft® Excel plug-in



Introduction

Accurate, up-to-date process information for plant operators, technicians, engineers, supervisors, managers or executives is essential for optimal plant operation. The ability to monitor plant's processes from anywhere within the corporate or remote locations, provides additional flexibility improved operations, and enhanced evaluation and decision support.

Emerson offers EDS Enterprise, a comprehensive system for collecting and processing data, which allows viewing of current and past process information from anywhere within your 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.

High Availability Solutions

EDS may be supplied in a redundant hardware configuration, from basic parallel servers to high

availability rack mounted hardware and optionally clustered server configurations. Figure 1. shows an example of virtualization of three servers on a redundant set of servers with attached RAID hard disk storage.

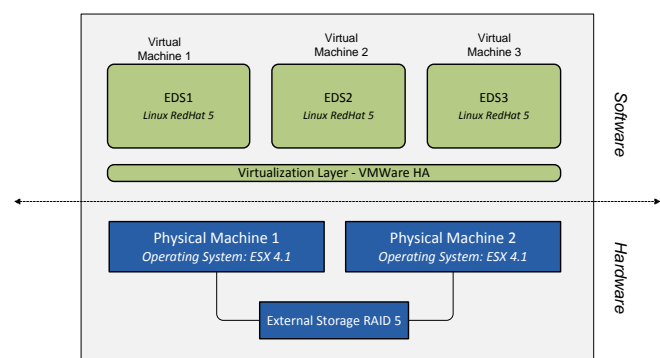


Figure 1. Virtualization example to be used with EDS architecture and RAID hard disk storage.

The system can be supplied with RAID 1, RAID 5, and RAID 10 for the ultimate level of performance, which offers data redundancy storage capability.

Control System Integration

EDS manages the distribution of replicated 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 Ovation™ advanced power applications, plant optimization systems and performance software applications as well as fleet management solutions.

The EDS architecture supports interfacing with data sources, control systems, and PLCs. 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 or data feeders can propagate their data to a higher level EDS Enterprise 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

Control System Interfaces

The EDS includes software applications which are loaded onto data systems or control systems in order to monitor process value statuses and determine when to transfer this information to the EDS data server. Only value changes are sent to the server, thus minimizing network traffic.

The EDS data structure obtains information from those data sources with support for analog, digital, packed, and time point types. Interfaces available are API's, DCS data feeders, OPC, Modbus, and various SCADA protocols.

EDS Data Server

Running on the Linux (preferred) operating system, the EDS server provides live data service, archive service, calculation service, diagram service, reports, and database access. As a centralized source of current and past process values and alarm state data, the EDS server manages connections to EDS terminal client

applications. A single EDS data server can be configured to collect data from one or more sources, such as OPC-DA servers, Smart metering systems, PLCs, DCSs, or another EDS server.

Equipped with tools for importing databases, the EDS server is designed to read point and status parameters from data sources. It also monitors the control systems' databases to identify new or modified points.

Calculation Server

The EDS calculation server allows users to select any point in the system and run calculations to create new tag values, virtual tag values, and other functions. There are currently 99 functions available. These calculated points can be used and displayed system wide the same way as other tags in the system on displays, trends, in reports and can alarm to the events list. This tool uses a visual tree structure for the representation of the calculation. All calculations can be stored in archive function for retrieval by any user.

The 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.

EDS Data Gateways

The EDS Data Gateways provide an ability to retrieve and synchronize information from multiple sources including existing EDS servers and other data collection services.

There are programs that provide functionality to display and store live data as well as synchronize historical data between sources.

Database Administration Tools

The EDS system's powerful administration tools include a graphics converter that quickly transforms actual Ovation graphics into the EDS displays at a high level of translation with minimal display differences. The graphics builder allows users to create custom, multi-unit or multiple data source display creations.

Point database configuration is available for point database importation and system database monitoring to identify new or modified points. Additionally, a calculation builder is included for calculation functions.

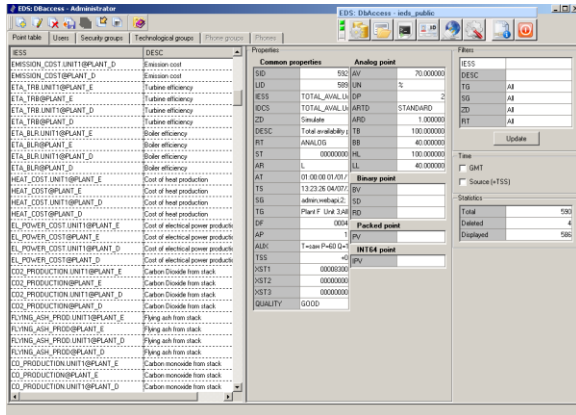


Figure 1: Point database administration for the EDS server.

User administration features allow the definition of security groups and users. Technology groups are a collection of other security groups for rapid area access, and are used for filtering points and graphics.

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 suite consists of:

- EDS toolbar
- Process diagram display
- Graphics builder
- Point list – point information
- Events list
- Report editor
- Report monitor
- Trends
- Message log
- Workspace (profile) editor

These applications work together in a secure, well-organized environment to provide a number of ease-of-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 logged in with a unique ID and password and has connected to an EDS server, the EDS terminal toolbar appears, providing access to the user level of 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.

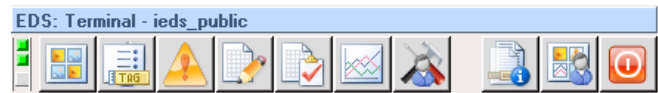


Figure 2: The EDS terminal toolbar is a panel of icons that enables access to the individual application components via log in security settings.

Process Diagram Display

The EDS process diagram display provides a list of available 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 in one of four available diagram display windows.

Each diagram display window shows a selected graphic with live, dynamic updates of the process values presented in numeric or graphical form. It also supports scaling a resized process graphic and navigation controls to go backward and forward in a chain of previously displayed graphics. For example, right-clicking on a displayed process value in a graphic's active area initiates a pop-up menu which

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 a 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.

Software Features

EDS Enterprise is a dynamic product that is often updated to reflect new functionality, new technology features for the hardware platforms, and new cybersecurity provisions. Latest EDS version includes features such as buffering at data interface level, integration with Ovation Historian, Microsoft Excel multi-server connectivity, corporate solutions such as ETL for data warehousing and reporting applications like ORACLE, Business Intelligence, and Balanced Scorecards.

Additionally, a new EDS feature: the EDS mobile, gives users the ability to view plant data and monitor system processes from a desktop operating system on a handheld device. Detailed KPI data can be viewed by selecting from the iconic data menu or in the drill down plant view.



EDS Mobile offers navigation through a multi-level enterprise hierarchy spread across different geographic locations. It presents high level key process data but also renders technical point information, live and historical plots, live alarms, historical events, and live graphics on tablets and iPads.

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