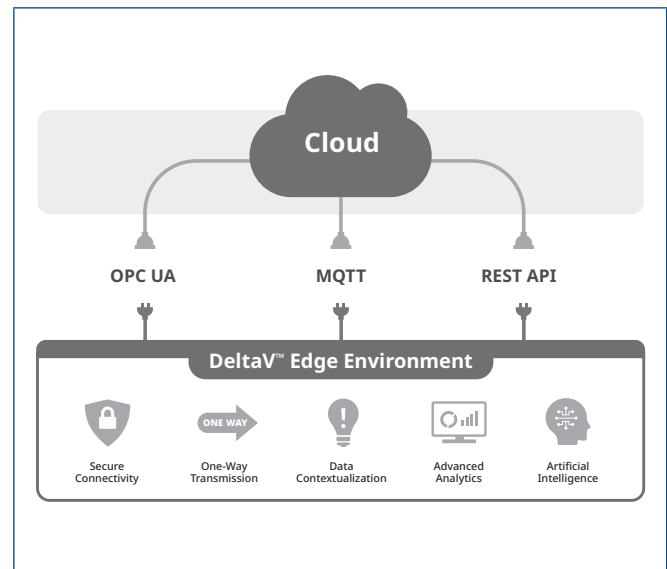


DeltaV™ Edge Environment

DeltaV™ Edge Environment makes DeltaV data available to the rest of your business without disrupting the control system. Purpose built for DeltaV, it delivers secure, read-only access to data in its original context, for dashboards, reports, analytics, and workflows across the plant, the enterprise, and the cloud.

- Easy and secure access to DeltaV system data
- Out-of-the-box contextualization that reflects plant object hierarchy
- Secure sandbox to deploy and run applications close to the data source
- Easy maintenance that requires minimal field expertise



Introduction

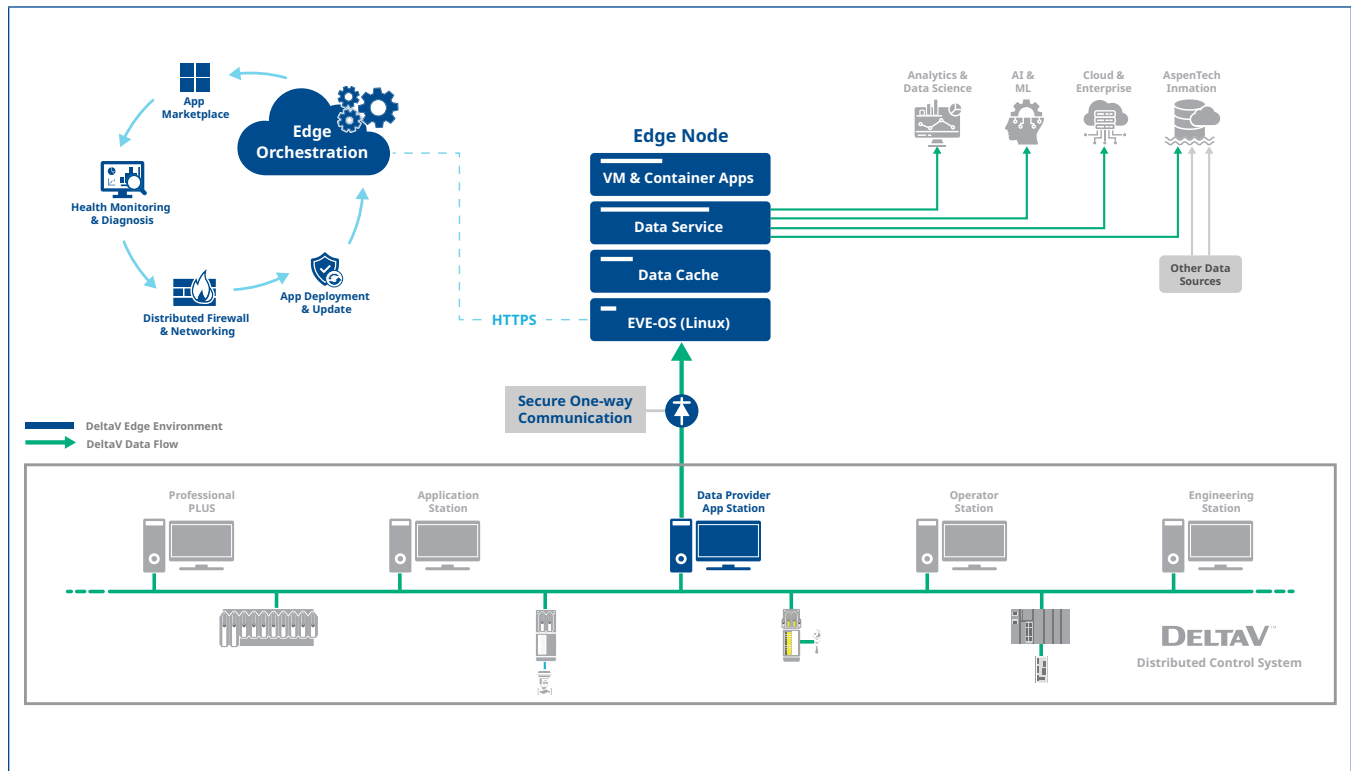
DeltaV™ distributed control systems collect, generate, and aggregate large amounts of valuable data, and that data is increasingly used well beyond process control. OT and IT applications draw on it to generate production and operations intelligence, monitor and track regulatory and other compliance data, compute and report on plantwide KPIs, and drive sustainability and digitalization initiatives. Cloud analytics, machine learning, and AI have since raised what those applications expect: more data, in context, delivered faster.

Getting that data out of a control system has traditionally been the hard part. Each data type has needed its own server and its own outbound path through the Purdue Model, and the teams who want the data, in IT, cloud, and data engineering, rarely speak the control system's protocols. What they need is DeltaV data on the business

network, already in context, reachable with the off the shelf tools they already use, whether they query it on demand, subscribe to a live stream, or feed a Unified Namespace. Many also want analytics to run at the edge, close to the source, with the results reachable from a browser.

The DeltaV Edge Environment is built for exactly that, and is the ideal source for accessing DeltaV data. It provides access to DeltaV™ system data through a unified solution architecture, replicating the data along with its configuration hierarchy so it arrives in the context operators already recognize. It satisfies IT cybersecurity, communications, and application requirements without disrupting the DeltaV system, and it is designed to be approachable to IT and OT users alike, for use on premise or in the cloud.

DeltaV Edge Environment Architecture



The DeltaV™ Edge Environment solution consists of four major product components: Data Provider, Edge Node, Edge Orchestration, and an optional Data Diode.

Data Provider

The Data Provider is a service that runs on a dedicated DeltaV Application Station, physical or virtual. It is the single collection point for DeltaV data. Rather than standing up a separate server for each data type, one service reads everything the Edge Node needs and consolidates it into a single outbound flow that traverses the Purdue Model once.

It sends four data streams to the Edge Node on a continuous basis:

- Configuration hierarchy
- Process values
- Alarms and Events
- Batch Events
- DeltaV Live Displays

The Data Provider Configuration Tool defines exactly what is sent. Parameter fields can be selected directly from existing DeltaV historians or imported as a list, and the Data Provider Configuration Tool calculates the resulting field count and update rate before anything is subscribed. The same tool selects which DeltaV Live displays are sent to the Edge Node and controls the Store and Forward buffer.

Communication is outbound only: the Data Provider sends data out and does not read anything back.

Edge Node

The Edge Node is the computing platform where DeltaV data lands, is cached, and is made available. It receives the Data Provider's streams and reconstructs them as an on demand digital twin of the DeltaV system, complete with its configuration hierarchy, so data arrives already in the context operators recognize. Its internal database caches everything it receives and automatically removes data more than one year old.

Both the runtime data and the cached data are available to client applications through the Edge Node's data egress interfaces.

The Edge Node is also a place to run applications close to the data, which removes the need for another PC and its network connections. Its operating system is EVE-OS, a Linux based operating system built for edge computing. Applications are containerized, and the Data Service is the only virtual machine the Edge Node runs.

Emerson applications include DeltaV Edge Explorer, DeltaV Live Enterprise View, and DeltaV Agent.Connect, alongside curated open source applications such as Grafana, Node-RED, and Jupyter Notebook, to name a few. All are deployed through the Application Marketplace, and applications hosted on the Edge Node reach Edge data locally, without traversing the network.

The Data Service and the Edge Manager form the Edge Node's operational core, handling data processing and local administration.

Edge Orchestration

Edge Orchestration is the cloud based control panel for the DeltaV Edge Environment. It connects to the Edge Node's operating system and gives visibility and control over both the applications running on the Edge Node and the underlying EVE-OS and computing resources. Where the Edge Manager administers a single Edge Node locally, Edge Orchestration manages a fleet of them from one place, across sites.

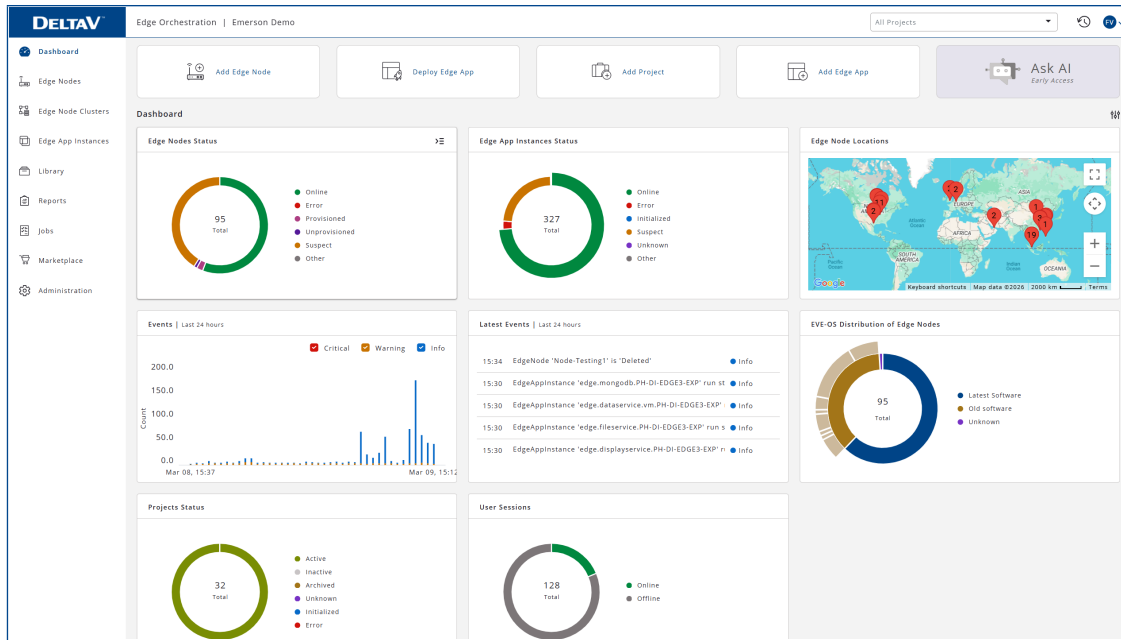
Edge Orchestration can:

- Display configuration, status, diagnostics, and resource usage for every Edge Node
- Activate, deactivate, and reboot the Edge Nodes
- Deploy, diagnose, and update apps from the Application Marketplace
- Configure network setups, update operating system, and perform system-wide backup

The connection between the Edge Node and Edge Orchestration is based on HTTPS, which is normally open at the enterprise network (Purdue Model Level 4) and the plant network (Purdue Model Level 3). An Edge Node can stay connected so its working status and diagnostics are visible continuously, or it can connect only when needed. Normal operation does not depend on a continuous connection to Edge Orchestration.

Data Diode (Optional)

For additional security, an optional data diode can be deployed between the Data Provider and the Edge Environment. OPSWAT's MetaDefender Optical Diode is qualified for use with the DeltaV Edge Environment. The MetaDefender Optical Diode reliably transfers data over a hardware enforced one-way communications link enabling secure data sharing between isolated networks. Supporting a wide range of industrial protocols, MetaDefender Optical Diode is highly scalable and can transfer real time and historical data while ensuring the security and integrity of your critical assets.



Edge Orchestration Dashboard.

Benefits

Easy and Secure Access to DeltaV™ System Data

To access data from a control system, users traditionally need to set up several servers on the control system level because each server represents one type of data such as real-time data, history, alarms and events, batch, configuration data, etc. Each of those servers has an out-bound data flow going through the Purdue Model. This can be challenging given the requirements on network policies, security domains, encryptions, authentications, etc. and consumes time and resources for both initial setup and on-going maintenance.

To solve these challenges, DeltaV Edge Environment simplifies connectivity by combining all the control system level data servers into one solution called the Data Provider. As a super data service that pulls all DeltaV data and only needs one data outbound flow to traverse the Purdue Model, network setup is drastically simplified. Optionally, data from DeltaV Edge Environment can bypass the Purdue Model by directly connecting the Data Provider to the Edge Node through a data diode which will further simplify the OT/IT network setup.

Rather than letting data sit within the control system and waiting for it to be accessed, DeltaV Edge Environment replicates DeltaV data and exposes the data replica as an on-demand digital twin. This valuable data is available on the plant or enterprise level network where analysts, data scientists, and data consumption applications reside.

Once the data lands on the enterprise level network, it opens a universe of data analytical capabilities. Through the standard data interfaces, DeltaV data in the DeltaV Edge Environment will be open to all the data users across the organization's entire network. Data users can use their favorite tools (e.g. Power BI, Microsoft Excel, Jupyter Notebook, Node-RED) to access and analyze the data without causing any disturbance to the DeltaV control system and the production process.

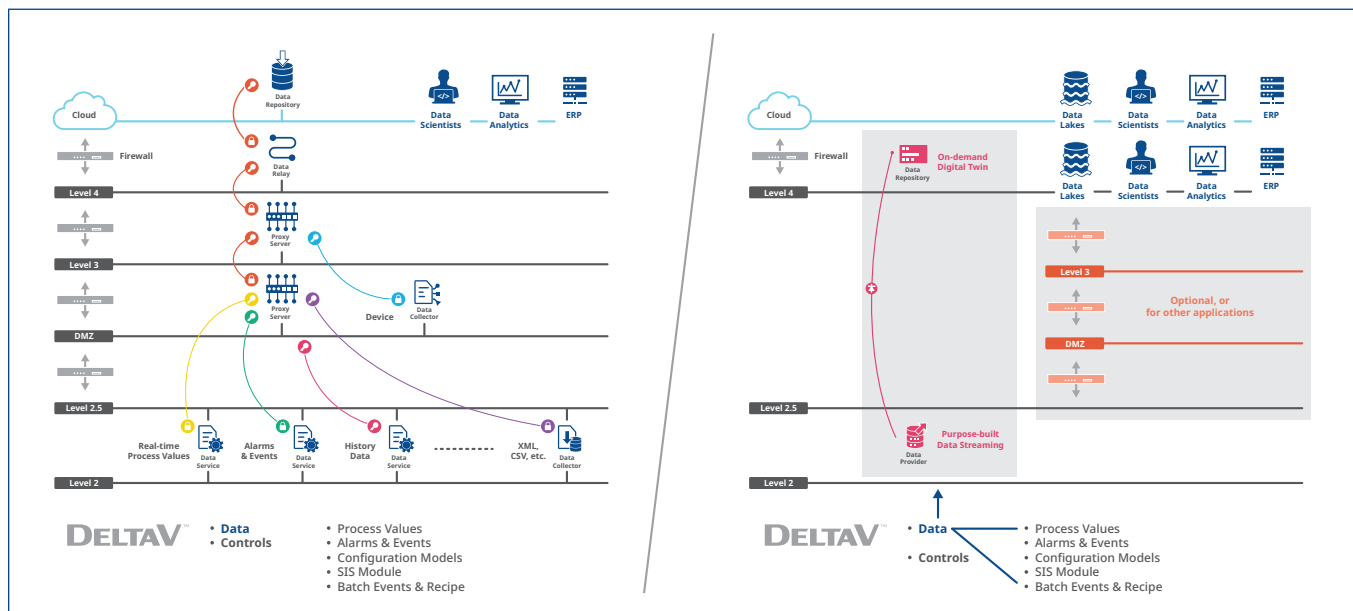
*DeltaV Edge Environment provides user account managed access to data via admin tools.

Out-of-the-box Contextualization that Reflects the Plant Object Hierarchy

Siloed and fragmented data with no relation to each other is difficult to use. The silos are often caused by the fact that data pulled from control systems are stored in a flat format and different types of data are pushed into different data repositories. To deal with the silo, users often construct a separate data hierarchy as a bolt-on solution separately hosted in a database infrastructure parallel to the data repositories. However, this bolt-on solution requires significant engineering efforts to design and implement. In addition, it needs to be constantly updated for changes made to the control system.

The design, engineering, and on-going updating of the data hierarchy often consumes large amounts of time and resources.

To solve this problem, the DeltaV Edge Environment replicates DeltaV's configuration hierarchy together along with DeltaV data. The source data model is preserved under the context of the DeltaV configuration and is available out of the box. It is also synchronized with DeltaV's latest configuration so any added changes will be automatically reflected. DeltaV's configuration hierarchy always reflects the actual process setup because operators rely on that hierarchy to operate the process and hence is the ideal data contextualization framework.



Traditional connections lead to complex security and configuration VS easy and secure connectivity providing data to all users.

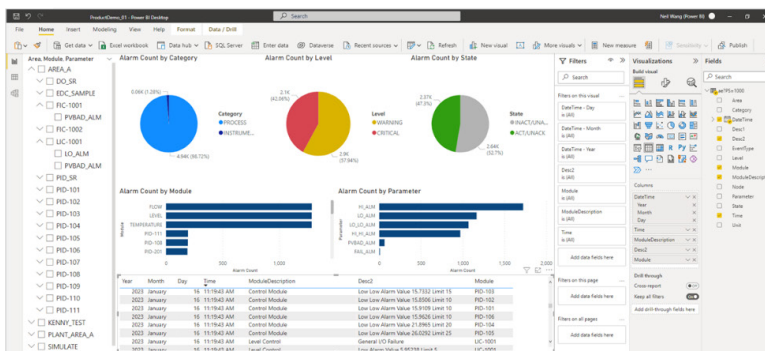
Secure Sandbox to Deploy and Run Applications Close to the Data Source

The DeltaV Edge Environment solution can host data analytical applications. Users don't need to worry about establishing another PC or its associated network connections. Since applications can be hosted directly on the Edge Node, DeltaV Edge Environment serves as a sandbox where data can be analyzed, aggregated, and assessed before deciding if it needs to be sent to the cloud or other long-term repositories. Applications hosted internally within the Edge Node can access data locally, further reducing complexity.

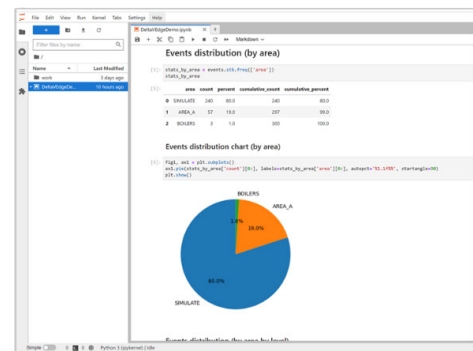
Edge Orchestration simplifies deployment with an application marketplace featuring curated, open-source containerized applications like JupyterLab, Node-RED, and Grafana. This marketplace will also serve as a hub for applications from Emerson and our Alliance Partners.

Finally, DeltaV Edge provides a private space for end-users to deploy and run their own custom-developed applications. On our DeltaV GitHub portal, users can explore a growing library of code snippets, tools, and utilities designed to empower them to develop custom applications for the DeltaV Edge Environment. Join the DeltaV Community on GitHub: <https://github.com/EmersonDeltaV>.

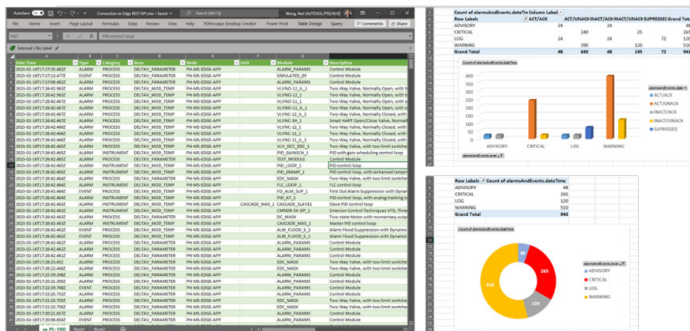
Sample Dashboard based on PowerBI



Sample Analytics based on Jupyter Notebook



Sample Data Query and Analytics based on Microsoft Excel



Sample Interactive Dashboard based on Node-RED

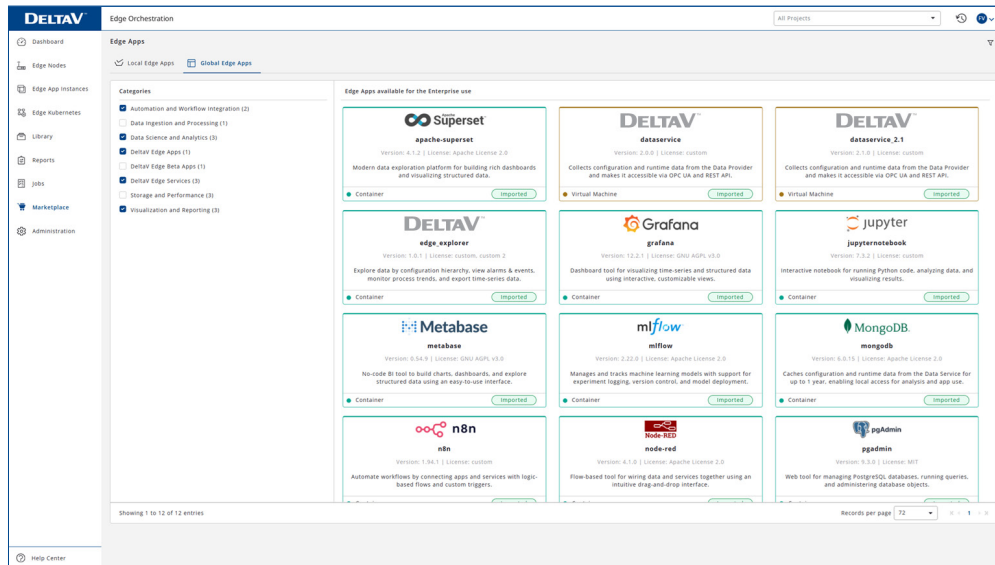


Easy Maintenance that Requires Minimal Field Expertise

Through the Edge Orchestration capability, DeltaV Edge Environment can be used as a managed appliance. That means users can focus on using the data without worrying about the underlying infrastructure. Emerson support is available to apply updates as well as to remotely diagnose, troubleshoot, and resolve issues through the Edge Orchestration.

Application Marketplace

The DeltaV Edge Application Marketplace enables users to seamlessly extend the capabilities of their Edge system by deploying applications tailored to their specific needs. Through the Marketplace, users can choose from Emerson-developed applications, trusted third-party vendor apps, or open-source tools that they may already be using in their workflows.



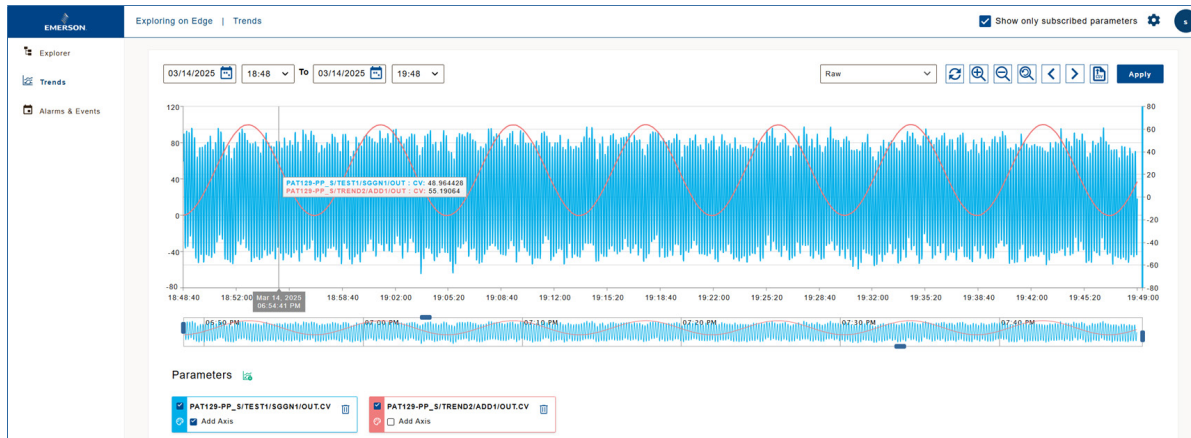
Key Features of the Marketplace:

- **Wide Range of Applications:** Whether it's for advanced analytics, process visualization, alarm management, or machine learning, the Marketplace offers apps designed to solve a variety of use cases.
- **Containerized & Web-Based:** Every app is containerized and web-based, ensuring reliable performance across different environments. With a browser interface, you can easily access your apps from anywhere on the network.
- **Simple Deployment & Updates:** Adding new functionality is as easy as importing an app to your local library and pushing it to the Edge Node where it will run. Apps can be deployed, updated, or removed with minimal effort through Edge Orchestration, ensuring the system stays up-to-date with no hassle.
- **Flexible Integration:** Whether you need Emerson solutions, third-party applications, or your own custom apps, the Marketplace ensures flexibility to meet the needs of your operations.

The Edge App Marketplace makes it easy to deploy the right tools to solve your challenges, without complicating the system with IT complexities. It ensures that you control the applications and can scale them as your needs grow.

DeltaV Edge Explorer

DeltaV Edge Explorer is the first application available through the DeltaV Edge Application Marketplace, providing users with an out-of-the-box solution to interact with DeltaV data directly at the Edge.



It offers engineers, production teams, and analysts quick, intuitive access to DeltaV system data, without the need for additional tools or configurations. With Edge Explorer:

- **Browse & Search Data:** Users can browse and search for DeltaV data within the context of the full DeltaV hierarchy, making it easy to locate parameters, modules, units, and areas.
- **View & Filter Alarms & Events:** With Edge Explorer, you can efficiently view and filter alarms and events to stay informed on system conditions and any irregularities.
- **Monitor Real-Time Trends:** Users can monitor live process trends in real time, giving them the ability to stay on top of operations as they happen.
- **Export Time-Series Data:** If further analysis is required, you can export time-series data to CSV for easy use in other applications, such as reporting or advanced analysis tools.

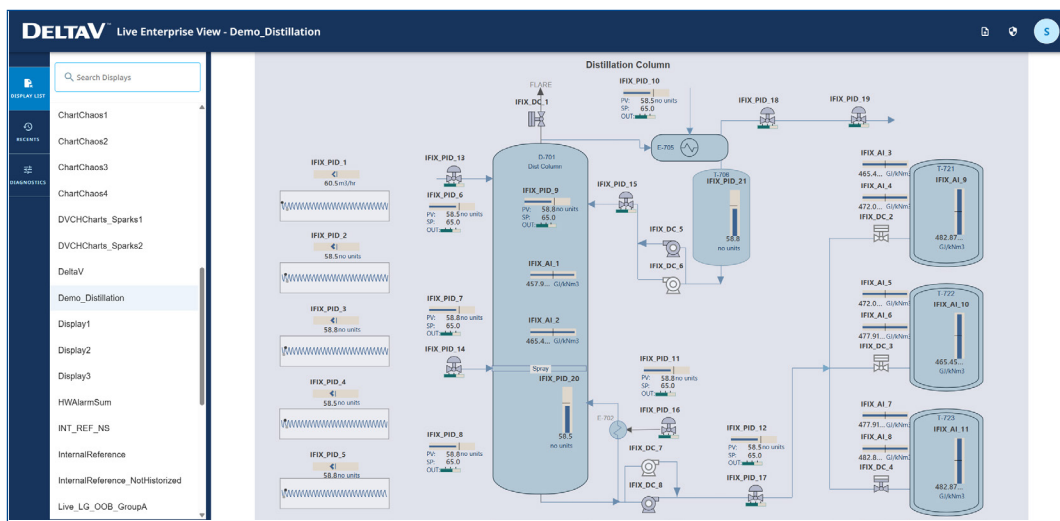
Edge Explorer is built with the goal of empowering users with quick, direct access to the most important DeltaV data, all without the need for additional software or configuration. It's a simple and intuitive way to get the insights you need directly from the Edge.

DeltaV Live Enterprise View

DeltaV Live Enterprise View is an application in the DeltaV Edge Application Marketplace that enables users to view DeltaV Live displays through a web browser.

For many facilities, getting a live view of process displays outside the control room has historically meant workarounds, additional 3rd party software, or manual display conversions. DeltaV Live Enterprise View eliminates these by hosting selected DeltaV Live displays directly on the Edge Node, making them accessible through a standard web browser from anywhere on the plant or enterprise network, with no display conversion, no client software installation, and no engineering rework required.

The application is strictly read-only. Users have full visibility into process conditions but cannot write to the control system in any way, making it safe to extend access broadly across an organization without introducing any operational risk.



Displays are selected and sent to the Edge Node using the Data Provider Configuration Tool, with support for up to 500 displays. Display refresh rates are configurable between 1 and 60 seconds through the Data Provider. The effective data resolution is ultimately dependent on the scan rate of the underlying DeltaV control modules and the parameter subscription rate configured in the Data Provider, meaning the display refresh rate reflects how often the view updates, not necessarily the fidelity of the data itself.

Live Enterprise View v1.0 supports the following DeltaV Live display types and features:

- Process graphics displays with equipment animations and datalinks
- Trend chart PDEs
- Table PDEs
- Alarm list displays
- Sequential Function Chart (SFC) visualization
- Embedded Watch Area

Faceplates, alarm banners, batch PDEs, and display hierarchy are not supported in version 1.0. Subsequent releases of Live Enterprise View are planned to progressively extend support across these areas.

DeltaV Agent.Connect is an AI assistant that runs on DeltaV Edge. Engineers ask questions in plain language and get answers back, no query building, no REST API calls, no digging through docs. Your process data stays in your own environment, and you bring your own Large Language Model (LLM), so nothing leaves your infrastructure and you're not locked into a model someone else picked. Use the one that fits your security, cost, and performance needs.

- **Process Intelligence Agent:** Ask about the DeltaV operational data cached on Edge and get values, trends, summaries, batch timelines, alarm history, and on-demand visualizations. For example, "Trend the average PV and SP for LIC-101 in the last 7 days" or "What phases have executed for batch BATCH-4521?"

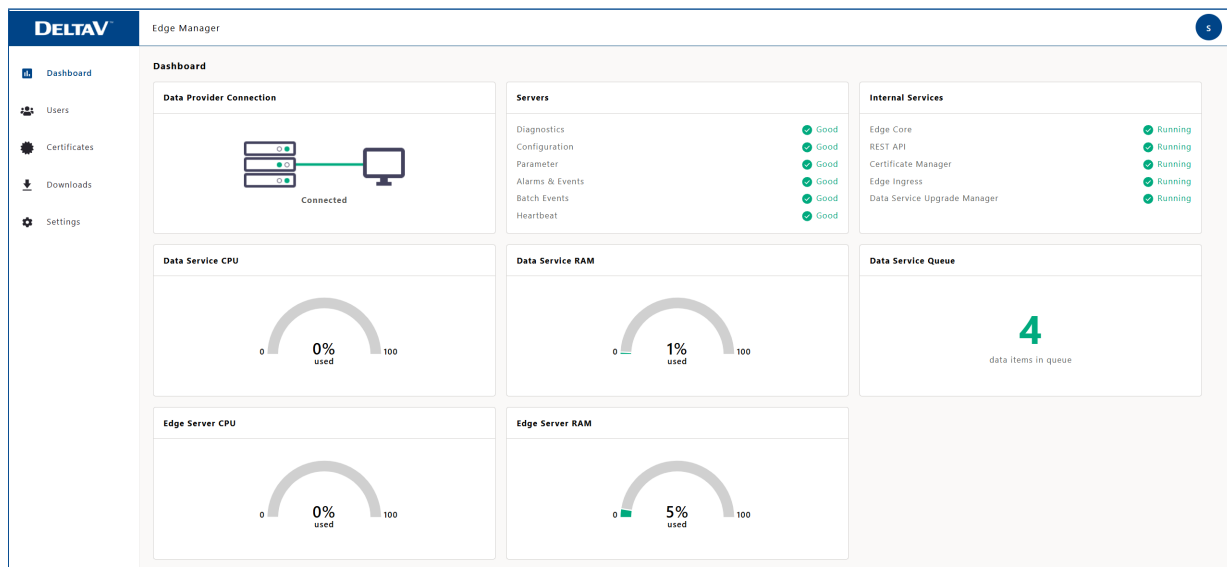


- **Product Knowledge Agent:** Ask a question and get a direct answer pulled from authoritative Emerson sources, including KBAs, product data sheets, technical docs, and Books Online. Every answer cites its sources, so you can check the original.

Right now DeltaV Agent.Connect supports OpenAI and Azure OpenAI. Support for Anthropic, Google Gemini, and others is coming soon.

Data Service and Edge Manager

The Data Service is the core software component running inside the Edge Node that receives data from the Data Provider, processes it, and routes it into the appropriate database areas for storage and access. It manages all incoming data streams and makes them available through the Edge Node's data egress interfaces. The Data Service runs as a Windows Server IoT Standard Server Core virtual machine within the Edge Node and is the engine behind everything the DeltaV Edge stores and serves.



The Edge Manager is the local administration interface for the Data Service. Accessible through a standard web browser on the plant or enterprise network, it gives administrators direct, on-site control over the Data Service without requiring a connection to Edge Orchestration. From the Edge Manager, administrators can monitor the health and performance of the Edge Node and its components, manage user accounts and access groups including Active Directory integration, generate and manage security certificates for the data egress interfaces, and Ingress connections, configure security settings, and apply Microsoft Security Updates to the Data Service. The Edge Manager dashboard provides real-time visibility into the connection status between the Data Provider and Edge Node, data queue health, and the operational status of internal services.

Together, the Data Service and Edge Manager form the local operational core of the DeltaV Edge Environment, handling the day-to-day data processing and security administration that keeps the system running reliably.

Data Egress

DeltaV Edge Environment provides four ways to move DeltaV data out of the Edge Node: REST API, OPC UA, MQTT, and NATS. All four are included in the base subscription. All four are read only: client applications receive data from the Edge Node and cannot write to it.

The four fall into two groups. The REST API and OPC UA serve applications that ask the Edge for the data they need. MQTT and NATS are publish and subscribe protocols: DeltaV Edge publishes, and applications subscribe to receive a continuous live stream as events happen. The methods are designed to work together, and most sites use more than one, chosen per data flow:

Method	How It Works	What It Serves	Best Suited For
REST API	Request and response over HTTPS (pull)	Configuration hierarchy, runtime and cached parameters, cached alarms, events, and batch events	On demand queries, bulk requests, and retrieving history
OPC UA	Connected client and server: browse, read, or subscribe to changes (pull or push)	Runtime parameters, alarms and events, batch events, and cached data with aggregation	Standards based industrial clients and existing OT integrations
MQTT	Publish and subscribe: the Edge publishes, applications subscribe (push)	A continuous live stream of parameter updates, alarm events, and batch events	Real time integration, IoT platforms, and a Unified Namespace
NATS	Publish and subscribe: the Edge publishes, applications subscribe (push)	A continuous live stream of parameter updates, alarm events, and batch events	Real time integration in cloud native and edge to cloud stacks

MQTT and NATS carry identical DeltaV data. MQTT is the established industrial and IoT standard with the broadest tool ecosystem, and NATS suits cloud native and edge to cloud designs. Streaming delivers each message once, in real time, to applications connected at the time, so where a guaranteed record or history is needed, REST API remains the right choice.

Access to all four methods is authenticated, and user accounts and certificates are managed in the Edge Manager.

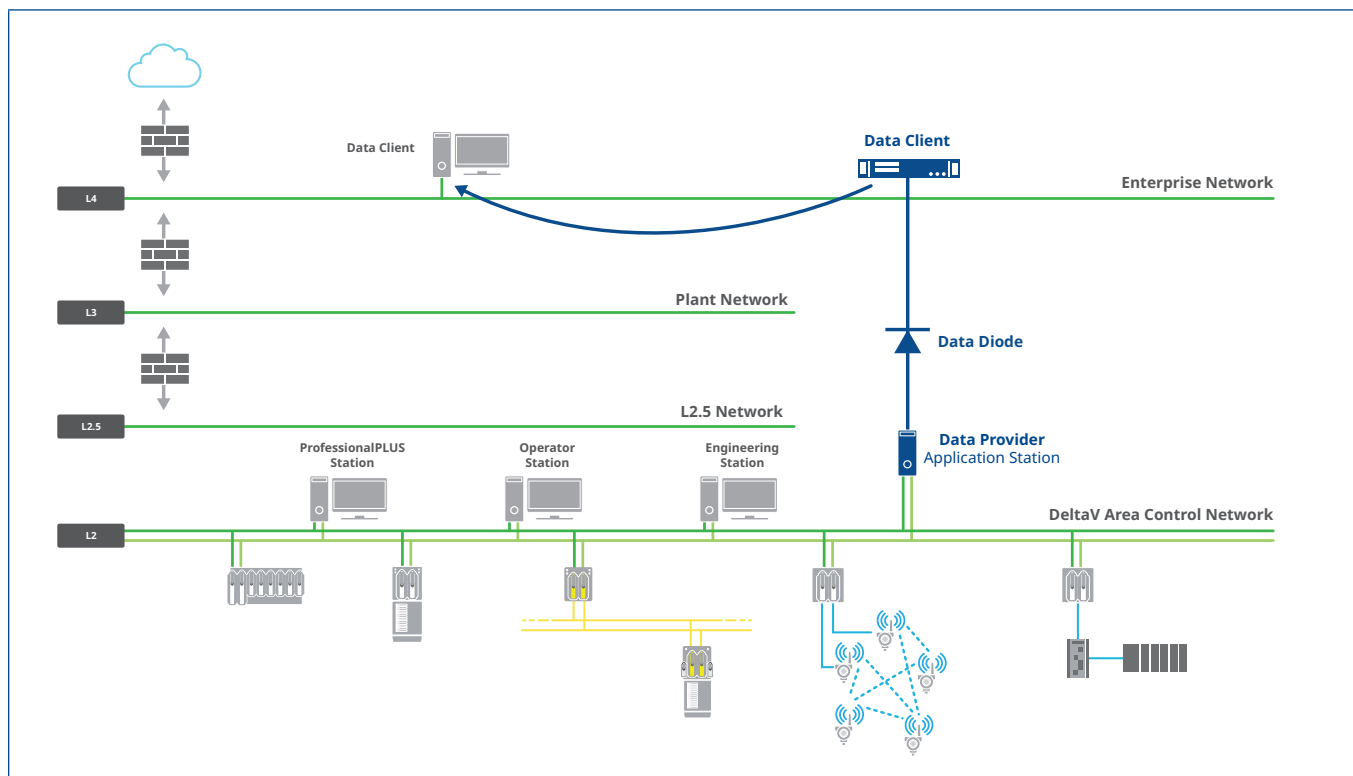
Built-in Security

Network Deployment

DeltaV Edge Environment supports both Purdue Model and data diode-based network connections. Users have two options to deploy the DeltaV Edge Environment solution. With both options, DeltaV Edge Environment's Data Provider remains inside of the DeltaV system based on a DeltaV Application Station and the Edge Node can be placed at the Level 3 Plant Network or Level 4 Enterprise Network.

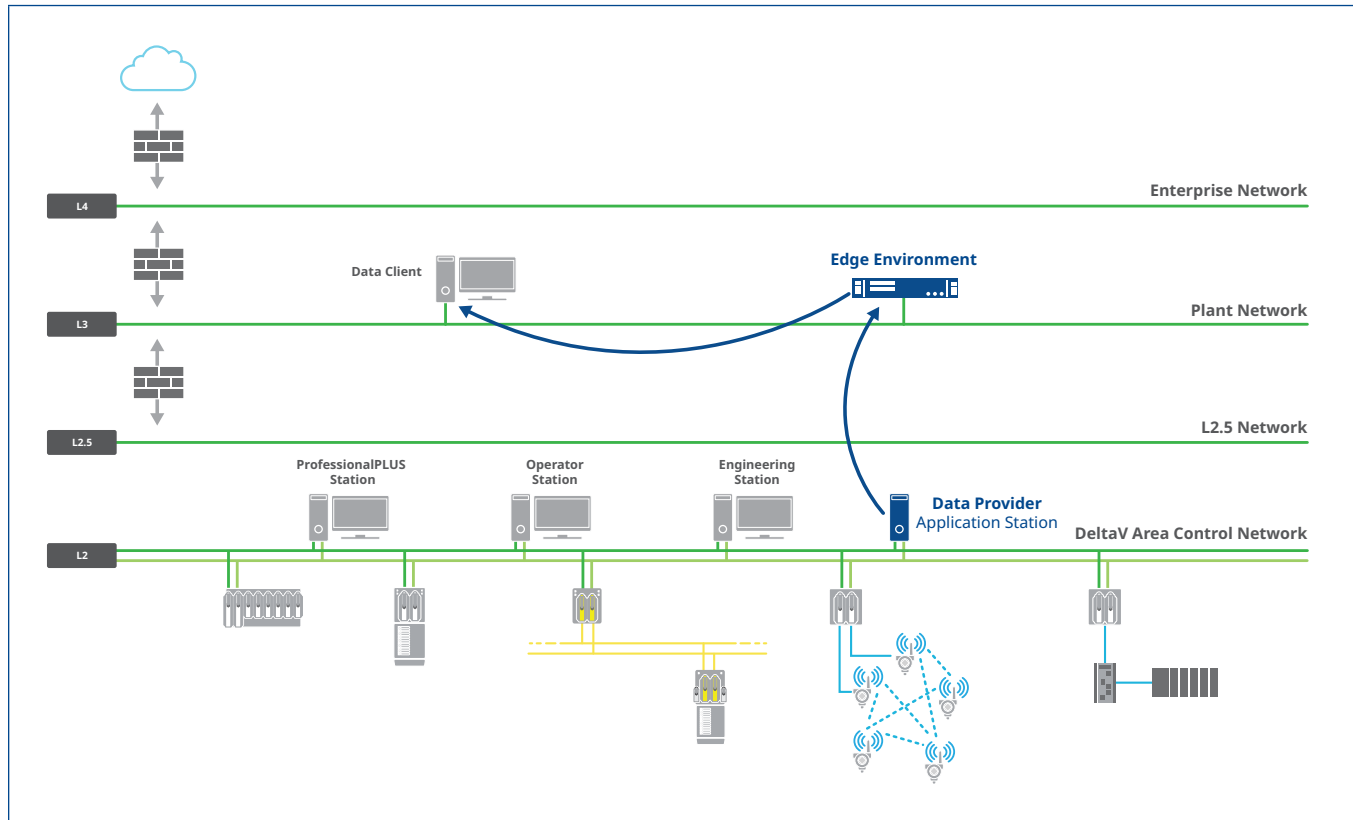
Option 1: A data diode is used to directly connect the Data Provider on Level 2 and the Edge Node on Level 4. Because the data diode allows data to travel in only one direction out from the Data Provider, there is no possibility for external intrusion or data being written back to DeltaV. This direct connection using the data diode can bypass the firewalls and security rules required in the traditional IT network setup and further simplify the network based security.

Option 1: Use A Data Diode to Simplify Edge Connection.



Option 2: Edge Node is placed on Level 3 or Plant Network and the Data Provider connects to the Edge Node through a firewall. The connection between the Data Provider and Edge Node is HTTPS.

Option 2: Edge Environment Node on Level 3 Plant Network.



Security Best Practices Between Data Provider and Edge Node

The Data Provider's out-bound data flow is built following cybersecurity best practices including Transport Layer Security (TLS) and Endpoint Authentication to ensure the data is encrypted and secured both in motion and at rest. The Data Provider's outbound communication only sends data out which means it does not read back external data or information. The communication between Data Provider and Edge Node is based on HTTPS, where a TLS certificate is required to establish the communication. The one-directional communication, together with TLS, perfectly protects DeltaV from external intrusion risks.

Edge Node Data Access Security

The Edge Node's OPC UA Server supports secure access via administrator-defined user accounts and anonymous access with a server self-signed certificate. Users can configure the OPC UA Server to allow either or both access methods. The anonymous option is intended to help users simplify the initial connection setup process.

The Edge Node's REST API can be authenticated through an organization's Active Directory Server. Permitted users can be set up as groups by the IT Department and DeltaV Edge Environment will verify with the Active Directory Server to authenticate a user's access. The DeltaV Edge Environment Manager allows users to manage the Active Directory synchronization for REST API.

The Edge Node's MQTT and NATS interfaces require mutual TLS. A connecting application presents a client certificate signed by the Edge, together with account credentials managed in the Edge Manager. The application generates its own private key and submits only a signing request, so the private key never leaves the connecting machine. Client applications are granted subscribe permission only: they receive data and cannot publish, so nothing on the plant or enterprise network can write into the DeltaV system.

Edge Orchestration and User Data Security

The provided Edge Orchestration has been architected with a security-first approach. For key features of the Edge Orchestration solution, please reference the Whitepaper at: https://zededa.com/white_papers/zededa-security-architecture/.

Supported Data Types

The DeltaV Edge Environment provides secure and efficient access to a wide range of DeltaV data types, enabling enhanced monitoring, analytics, and reporting capabilities. The primary data types currently supported include:

- **Configuration Data:** The structural definition of the control system, including module configurations, parameter settings, and the hierarchical organization of areas, units, equipment modules, and control modules. Automatically synchronized with the DeltaV configuration file as changes are made.
- **Process Values:** Real-time measurements and control parameters such as temperatures, pressures, flow rates, and levels. The Data Provider supports up to 300,000 unique parameter fields streamed to the Edge Node at up to 30,000 values per second.
- **Alarms & Events:** A continuous log capturing the timing, type, and context of every alarm and event generated by the control system, supporting abnormal situation management, incident investigation, and compliance reporting.
- **Safety Instrumented Systems (SIS):** Safety-critical information from SIS modules, including safety alarms, interlock statuses, and safety logic details, supporting safe operations and regulatory compliance.
- **Batch Events & Recipe:** The full lifecycle of batch manufacturing, including recipe hierarchy, procedures, operations, phases, parameters, and batch journal events, supporting traceability and optimization.
- **DeltaV Live Displays:** Selected displays can be sent to the Edge Node and viewed through a standard web browser via the DeltaV Live Enterprise View app, extending process graphics visibility beyond the control room with no display conversion or additional client software required.
- **Historical Data:** Caches ingested process values, alarms, events, and batch data for up to one year, facilitating trend analysis, performance assessment, and informed decision-making.

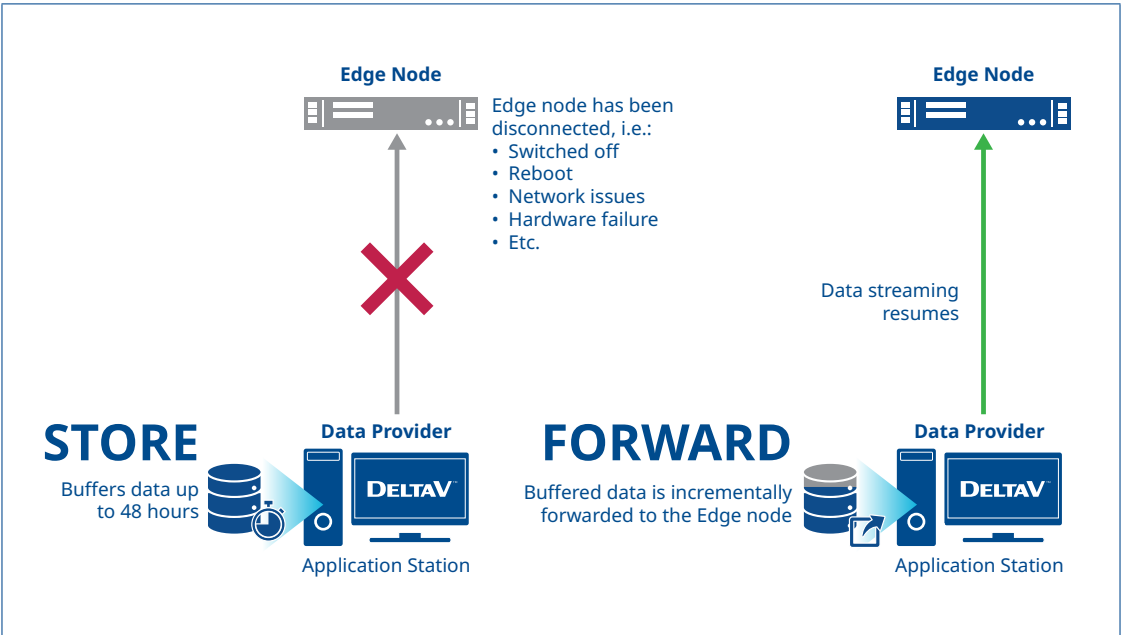
Future releases of the DeltaV Edge Environment aim to expand data accessibility by incorporating additional data types such as batch runtime, diagnostics, VCAT and more.

Data Reliability

Store and Forward

The Store and Forward feature enhances data reliability by locally buffering incoming data for up to 48 hours in case of a connection loss between the Edge Node and the Data Provider. This is crucial for preventing data loss during both scheduled maintenance and unexpected downtimes on the Edge Node, such as power outages or network disruptions.

Store and Forward can be enabled immediately or scheduled for later. In setups without a data diode, the feature activates automatically when the Data Provider detects that the Edge Node is not receiving data. In configurations with a data diode, which enforces one-way communication, Store and Forward must be manually enabled because the sender cannot receive acknowledgments from the receiver. If the buffer exceeds the 48-hour limit, the system uses a first-in, first-out approach to manage the data, ensuring that the most recent data is preserved.



Capacity

Data Provider Egress to Edge Environment	
Parameters Data	30K parameter data/second, 300K parameter data
Alarms and Events	100 events/second, 4K peak alarms handling*
Batch Events	Supports data from up to 4 active Batch Executives, each handling up to 100 active batches
DeltaV Live Displays	Up to 500 displays; supports the same number of datalinks per display as DeltaV Live
Transportation	HTTPS

*In an alarm flood situation, a spike of 4K alarms generated within 1 second will still be sent to the Edge Node on top of the regular 100/second events flow, without data loss; notice a spike is defined as a sudden and non-repetitive alarms or events burst.

Technical Specifications

Edge Server (Dell PowerEdge R660xs XL)

DeltaV Edge Environment is hosted on the Dell PowerEdge R660xs XL rack-mounted server, delivering high-performance computing designed specifically for industrial edge applications. This server provides the compute, memory, and storage resources necessary to host core DeltaV Edge services and applications, run advanced analytics, and support third-party applications.

DeltaV™ Edge Environment Server based on Dell PowerEdge R660xs XL Rack Mounted Server	
	
Specifications	Details
Part Number	SE2742C02
Supported Capabilities	Core DeltaV™ Edge applications, DeltaV Live Enterprise View, and third-party app hosting
Memory (RAM)	256GB RAM
CPU	Dual Intel Xeon Gold 6526Y 2.8G, 16C/32T, 20GT/s, 37.5M Cache, Turbo, HT (195W) DDR5-5200
Storage	12TB SSD (7 x 1.92TB SATA Read-Intensive SSD, RAID 5)
Chassis	2.5" Chassis with up to 8 Hard Drives (SAS/SATA), 2 CPU
RAID Controller	PERC H755 SAS Front
Network Interface	Broadcom 5720 Quad Port 1GbE BASE-T Adapter, OCP NIC 3.0
Power Supply	Dual, Hot-Plug, Redundant (1+1), 800W
Management	iDRAC9, Enterprise 16G
Form Factor	1U Rack-Mounted Server (Height: 42.8mm (1.68in), Width: 482mm (18.97in), Depth: 748.79mm (29.47in))
Operating System	EVE-OS 12.0.7 LTS
Warranty	Up to 5 Years

The Dell PowerEdge R660xs XL server replaces the previously supported Dell PowerEdge R650xs (SE2741C01) in this configuration. However, the R650xs model still includes a five-year warranty from Dell, applicable from the original date of purchase.

Dedicated Application Station for the Data Provider

The Data Provider can be a physical or virtualized machine. The table below lists the recommended physical and VM settings:

Physical	Virtual
Any server-class Application Station that supports DeltaV versions 14 and up. Refer to the DeltaV Workstation and Server Hardware Product Data Sheet under Documents & Drawings.	4 vCPUs, 16GB Memory, with minimum storage allocation of C: 80 GB, D: 40 GB (as in the default server VM template). Note: For future-proofing, it is recommended to allocate C: 400 GB, D: 400 GB of storage.

Data Diode (OPSWAT's MetaDefender Optical Diode)

The OPSWAT's MetaDefender Optical Diode is the tested and validated solution for users that need to egress data from the DeltaV system through DeltaV Edge Environment via data diode. The MetaDefender Optical Diode provides access to real-time OT data and enables secure data transfer to make DeltaV data accessible at the enterprise. For DeltaV Edge Environment, the 100MB and 1GB data transfer rates are supported options. This solution allows the Data Provider to be directly connected to the Edge Node for a secure and simplified IT network solution. For key features of the MetaDefender Optical Diode, visit: <https://www.opswat.com/products/metadefender/optical-diode>.

OPSWAT's MetaDefender Optical Diode			
Firmware	Redundant Power Supply	Power Consumption	Voltage
1.14.x	250W	Typical – 150W	100-240VAC. auto ranging
 You will receive a package from OPSWAT containing the following: ■ Two 19" 1U servers ■ Mounting rail kits ■ Two power cables ■ Fiber Optic cables (OS2 LC-LC Single Mode Fiber Patch Cable Simplex 9/125 LC to LC Singlemode Jumper Cord) ■ Two USB security dongles ■ SFP modules (2x Single Mode TX only 10G SSFP+, 2x Single Mode RX only 10G SFP+) Field or factory Upgradeable by software licensing			

Data Diode (Other Brands and Models)

We are open to qualify alternative data diodes upon request. We will evaluate its specifications to ensure compatibility and optimal performance with DeltaV Edge Environment's system requirements.

Data Diode Support

For any issues with the data diode, please reach out directly to the manufacturer for support.

Licensing

DeltaV Edge Environment is a term-based offering with three performance tiers: 20K, 100K, and 300K parameter data points. Customers can select the tier that best aligns with their data and scalability requirements.

Both required and optional components are available, as detailed in the **Ordering Information** table. These include perpetual licenses and subscription-based add-ons.

DeltaV Live Enterprise View is licensed separately and available as a subscription. Customers can choose between a concurrent user license or an unlimited user license. Each concurrent user license allows one user at a time per Edge Node, with the option to scale by purchasing additional licenses. The unlimited user license requires at least 10 concurrent user licenses to activate. Once unlocked, customers may purchase additional unlimited user licenses for other Edge Nodes without having to meet the 10-user threshold again. While the unlimited license does not impose a declared cap on concurrent users, actual system performance may vary depending on the total number of active sessions and the underlying hardware capacity.

The DeltaV Edge Environment subscription licenses are set to automatically renew unless written notice of non-renewal is provided at least 30 days before the renewal date. If the licenses are not renewed due to a customer request for non-renewal or a breach of contract, data egress functionality will be disabled. Access to additional admin users for Edge Orchestration will also be restricted. While the Edge system will continue operating with its current configuration, no new data can be accessed or transferred out of the environment. Additionally, support services and software updates will be suspended until the licenses are renewed.

To ensure uninterrupted access to new data, system functionality, data egress, and support, it is essential to maintain active licenses. Failing to do so may lead to operational disruptions and limited access to critical data.

Ordering Information

Description	Model Number
Base Subscription	
DeltaV Edge Environment Base Subscription: xxxK parameter data - DeltaV Edge Environment Software Stack: Data Provider, Edge Manager, Data Service, Data Cache, Edge Explorer, and Agent.Connect. - Data Ingress: Configuration Hierarchy, Alarms & Events, Parameter and SIS Module Data - Data Egress: REST API, OPC UA, NATS and MQTT - Edge Orchestration (1 Administrative User and 1 User Reserved for Emerson Support) - Emerson Product Support	VFDVEESwBPSxxx_YyFYzz*
Required Add-ons	
DeltaV Edge Server – Perpetual This server is optimized to support all core DeltaV Edge applications, including DeltaV Live Enterprise View. It is designed for high-performance edge deployments requiring application hosting, data processing, and real-time visualization at the edge level. With expanded memory and compute capacity, the server enables the use of multiple third-party and Emerson-developed applications.	SE2742C02
DeltaV Edge Application Station License – Perpetual This is the DeltaV software license to be installed on the dedicated DeltaV Application Station for the DeltaV Edge Environment Data Provider.	VFDVEEPDVAPPS01

Description	Model Number
*DeltaV Application Station Server – Perpetual This is the dedicated application station that only runs the “Data Provider” software without any other services (e.g., historian, OPC server, other applications). This can either be a physical or virtual application station. Any existing server-class application station that supports DeltaV versions 14 and above may be selected.	Varies, reference release notes of targeted DeltaV release for supported servers
Optional Add-ons	
DeltaV Edge Environment Batch Data – Subscription	VFDVEESwBATCHS01_YyFYzz*
DeltaV Live Enterprise View User – Subscription Provides access to DeltaV Live displays through a web app hosted on the DeltaV Edge Environment. Each license allows one user signed in at a time per Edge Node. Licenses are not assigned to named users: 10 licenses allow any 10 users signed in at once, from a team of any size. To allow more, increase the number of licenses ordered. Minimum of 1 license required.	VFDVEESwLIVEUS01_YyFYzz*
DeltaV Live Enterprise View Unlimited Users – Subscription Removes the cap on how many users can be signed in at once on an Edge Node. Requires an existing license of at least 10 users to activate. Once unlocked, the unlimited license can be purchased for additional Edge Nodes without repurchasing the 10-user base. Unlimited applies to users signed in, not to sessions: total sessions and hardware determine performance.	VFDVEESwLIVEUSUL_YyFYzz*
Base Package Upscale	
DeltaV Edge Environment Base Package Scaleup	VFDVEESwUPSxxx_1MFYzz*

These model numbers are for the initial subscription term only; part numbers for renewals end with -R and are sold separately.

*w represents the length of the subscription term in years (1, 3, or 5).

*xxx represents the capacity of the license (020 for 20K parameter data, 100 for 100K parameter data, or 300 for 300K parameter data).

*y represents the specific year of the subscription term (1, 2, 3, 4, or 5).

*zz represents a two-digit indicator of the year of purchase (e.g. 23).

Volume Incentive Program	Model Number
Base Subscription	
2 to 3 DeltaV Edge Systems	VFDVEESwT2BAS01_YyFYzz*
4 or more DeltaV Edge Systems	VFDVEESwT3BPSxxx_YyFYzz*
Batch Data Subscription	
2 to 3 DeltaV Edge Systems	VFDVEESwT2BPSxxx_YyFYzz*
4 or more DeltaV Edge Systems	VFDVEESwT3BPSxxx_YyFYzz*

Launched on November 1, 2025, the **Volume Incentive Program** provides tiered discounts on the DeltaV Edge Base and Batch Data Subscriptions based on the number of Edge Nodes included in a single purchase order. The discount remains in effect for the entire subscription lifecycle, including renewals, as long as multiple systems from the original order remain active.

Optional Data Diode from OPSWAT	Model Number
Hardware	
MetaDefender Optical Diode 100Mbps Hardware Base - Perpetual This is the 2 short depth 1U OPSWAT MetaDefender Optical Diode hardware only. The software has to be purchased separately. This includes first year hardware warranty. Hardware warranty extension can be purchased separately as subscription.	MD-NW-OPT-100MBPS-HW-PERP
Software	
MetaDefender Optical Diode 100Mbps Software - Perpetual Option 1: Perpetual License SKU includes software and first year software updates. Software warranty extension can be purchased separately as subscription. 100Mbps Base Upgradeable to 1Gbps only.	MD-NW-OPT-SW-100MBPS-PERP
MetaDefender Optical Diode 100Mbps Software - Subscription Option 2: Subscription License SKU includes software and first year software updates. Software warranty extension can be purchased separately as subscription. 100Mbps Base Upgradeable to 1Gbps only.	MD-NW-OPT-SW-100MBPS-SUB
Extended Software Support & Hardware Warranty	
MetaDefender NetWall 100Mbps Extended Software Updates - Subscription Provides continued access to NetWall software updates, ensuring the right to download and apply the latest software enhancements.	MD-NW-SW-100MBPS-EXTS
MetaDefender Optical Diode 100Mbps Extended Hardware Warranty - Subscription One year extension of hardware warranty following the first year of purchase of appliance.	MD-NW-OPT-100MBPS-HW-EXTW
Product Support	
Silver Support - Subscription Provides business-hours access to live chat and case support, with a 4-hour response target higher severity issues. Additional details available at https://www.opswat.com/support	SILVER-SUPPORT

This hardware enforced one way transfer solution serves as an industrial firewall that can't be compromised. The model number for 100Mbps includes the hardware, software and first year support plus warranty. Dell 340 or equivalent server on for Blue and Red server with redundant power supplies.

The 100Mbps configuration has been tested and confirmed to handle the maximum throughput requirements of the DeltaV Edge Environment. A 1Gbps upgrade is available as a software license for customers who require additional bandwidth headroom for future needs. Contact emerson@opswat.com for pricing and availability.

Note on Subscription: OPSWAT's data diode relies on an active subscription license. According to OPSWAT's Terms of Service, if the subscription period is not renewed, support services (including software updates, security patches, and technical assistance) will no longer be available.

Although the hardware may still function, OPSWAT may disable software components critical to data transfer operations—or those related to compliance and threat mitigation—once the subscription lapses. To maintain full, uninterrupted functionality of your data diode, ensure subscription renewal prior to expiration.

Product Support

DeltaV Edge Environment product support is included with all base package subscription purchases and delivered through Guardian™. With your product subscription, you can access 24/7 call support, hotfixes, patches, minor and major releases, and empower your team for action with a direct connection to our Guardian platform.

Controller Loading Considerations

The DeltaV Edge Environment extracts data directly from the control system, and subscribing to a large number of parameters adds to controller loading in a manner comparable to configuring additional DeltaV history collection. Exceeding recommended controller capacity limits can affect system performance and inter-controller communications in ways that impact control activities. A system health and controller loading verification is strongly recommended before deployment. For detailed guidance on capacity limits and pre-deployment assessment steps, refer to **Section 1.1 and 1.2** of the **DeltaV Edge Environment System Preparation Guide** found in **Guardian Support > Resources**.

Version Compatibility

DeltaV Edge Environment is compatible with DeltaV versions 14.LTS and above, up to v16.LTS. The DeltaV Live Enterprise View app is only supported on DeltaV version 15.LTS and above, up to v16.LTS. Please note that support is currently limited to the standard (English) DeltaV releases; localized DeltaV versions (such as Chinese and Japanese) are not yet supported.

Related Products

For detailed information about the following applications, refer to the appropriate product data sheet:

- **DeltaV OPC UA Servers and Clients** is an interoperability standard that allows for a secure and reliable exchange of real-time and historical data between the DeltaV system and other systems, applications and enterprise users.
- **DeltaV Application Station Software Suite** gives you the ability to integrate DeltaV and off-the-shelf applications into your enterprise.
- **DeltaV Live** is Emerson's modern HTML5-based operator interface for the DeltaV Distributed Control System, providing process monitoring and control through scalable graphics, integrated alarm management, trending, SFC visualization, and a configurable display environment built around ISA 101 standards.
- **DeltaV Virtualization Hardware for Hyperconverged Infrastructure (HCI)** improves productivity in development/training environments and with HCI you can take advantage of high availability options for on-line production environments.
- **DeltaV Workstation and Server Hardware** provides the computing platform for engineering and operating your DeltaV control system.

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