

DeltaV™ Mobile

- Make faster and better decisions with read-only access to your critical operational data, whenever and wherever you need it.
- Stay connected to your operations by monitoring real-time data, trends, and alarms.
- Improve situational awareness by receiving proactive alarm notifications.
- Streamline workflows by easily combining data from multiple sources into consolidated views.
- Facilitate information sharing and leverage subject matter experts, wherever they may be located.

Introduction

Would you like to monitor the performance and health of your operations in real time by securely accessing your critical data, on-demand? Do you want to be aware of relevant alarms and events, even when you don't have easy access to a PC? Would you like to improve productivity and decision-making by having an easy way to efficiently share data and collaborate with experts across your enterprise?

With DeltaV™ Mobile, you can have read-only access to your most important process data and keep your operations at your fingertips, whenever and wherever you need it. You can improve safety, productivity, and awareness by being instantly notified about alarms or abnormal situations on your mobile device or via email, even if you are offsite. Critical alarms and alerts can also be escalated to notify people throughout the organization at the right time.

The DeltaV Mobile platform allows you to combine data and alarms from multiple DeltaV and non-DeltaV systems into intuitive views, with no additional DeltaV configuration required. It uniquely provides the same richness of data shown on an operator workstation (alarms, real-time data, trends, and more) in mobile screens that are built for purpose.



DeltaV™ Mobile provides the read-only platform that allows managers, engineers, and operators to have their operations at their fingertips, whenever they need it.

You can also monitor data and receive alerts from non-DeltaV systems, such as OPC Classic historians. Additionally, you can remotely view the same graphics that your operator is viewing from a web browser.

DeltaV Mobile is comprised of the DeltaV Communicator, the DeltaV Portal, the DeltaV Mobile Server, a native app for iOS and Android mobile devices, and graphics and mobile configuration applications. With DeltaV Mobile version 3.1 and later DeltaV Operate displays and dashboards can be viewed with Web View from a browser using Microsoft Edge with Internet Explorer mode (IE mode) enabled.

DeltaV Mobile provides one platform viewing operational data through a variety of delivery mechanisms:

- Monitor real-time process values, diagnostics, alarms, and trends from iOS or Android mobile devices with the DeltaV Mobile app.
- Receive native push or SMS notifications on mobile devices. Email notifications are also available.
- View dashboards and DeltaV operator displays in a web browser using a PC or Windows tablet with Web View.

Benefits

Have Your Operations at Your Fingertips, Whenever and Wherever You Need it

DeltaV Mobile provides read-only access to your critical operations data, delivered to the right people, whenever and wherever they need it. It sends real-time data, historical data, alarms, and notifications to your mobile device, ensuring you always have the most accurate and current information on hand.

The tight integration with DeltaV Systems allows you to leverage your existing DeltaV configurations and easily create customized watch lists that are specific to each user's needs.

- View DeltaV and DeltaV SIS process data, diagnostic information, and KPIs.
- View real-time process data or control module information (e.g. process variable, setpoint, output) with relevant alarms and trends all the same screen.
- Create customized watch lists that contain information from both DeltaV and non-DeltaV sources, that are specific to each user's needs.

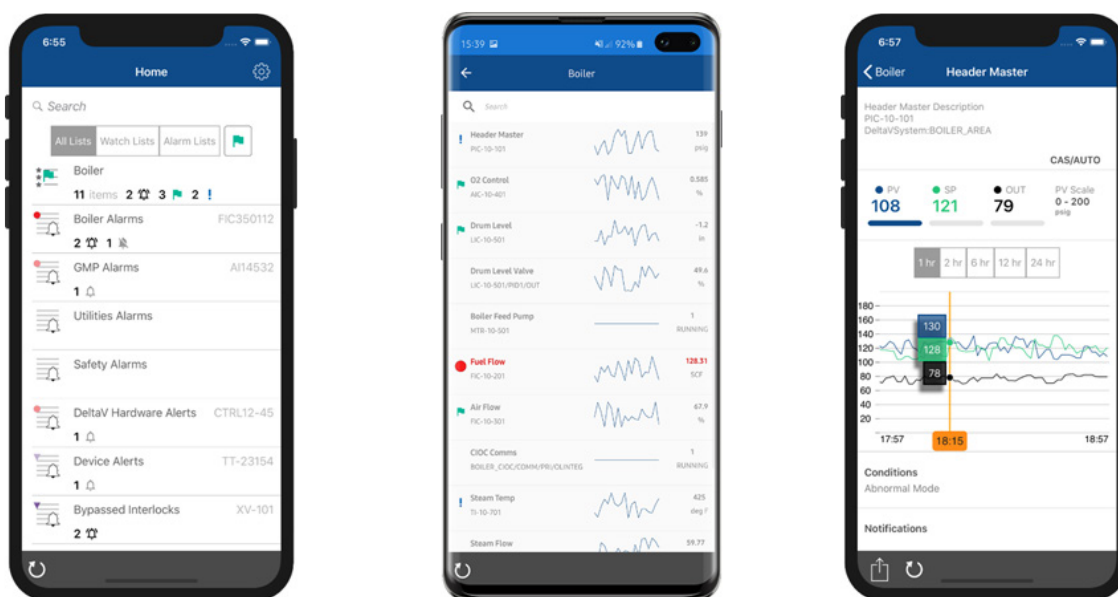
Make Faster, More Informed Decisions by Viewing Data from Multiple Systems in Consolidated Views

Production personnel need to make fast, informed decisions based on current production conditions. However, essential information is often distributed in a variety of systems and historians.

DeltaV Mobile allows you to easily combine data from multiple sources into consolidated displays or mobile watch lists. You can view the process information you need, regardless of whether it comes from a single DeltaV System, multiple DeltaV Systems, a separate historian, or even other control systems.

DeltaV Mobile can access the following data sources:

- OPC Classic DA – access real-time data from control systems and PLCs.
- OPC Classic HDA – access historical data from control systems, historians, and PLCs.
- DeltaV Real-time – directly access real-time DeltaV data.
- DeltaV OPC Alarms and Events – access DeltaV alarms.
- DeltaV Event Chronicle – access DeltaV Event Chronicle information (for Web View only).



Raise Situational Awareness by Monitoring Alarms in Context with Process Information

Unlike other notifications products that require extra engineering work only to display limited alarm details, DeltaV Mobile allows you to leverage what you have already configured by bringing the rich alarm information from your DeltaV Systems to mobile devices. It also provides important process context with alarms, such as trends of relevant process values and recommended actions with DeltaV Alarm Help*.

You can monitor DeltaV alarms in intuitive list views that update in real time as they would on an operator workstation. Advanced filtering capabilities ensure that you only receive the alarms that are relevant to you.

- Create customized alarm lists based on filters such as area, equipment, module, category, priority, or functional classification.
- Be instantly aware of alarm state, priority, and acknowledgement status with intuitive alarm icons.
- Toggle between annunciated and suppressed alarms.
- View alarms with relevant trends and DeltaV Alarm Help*.

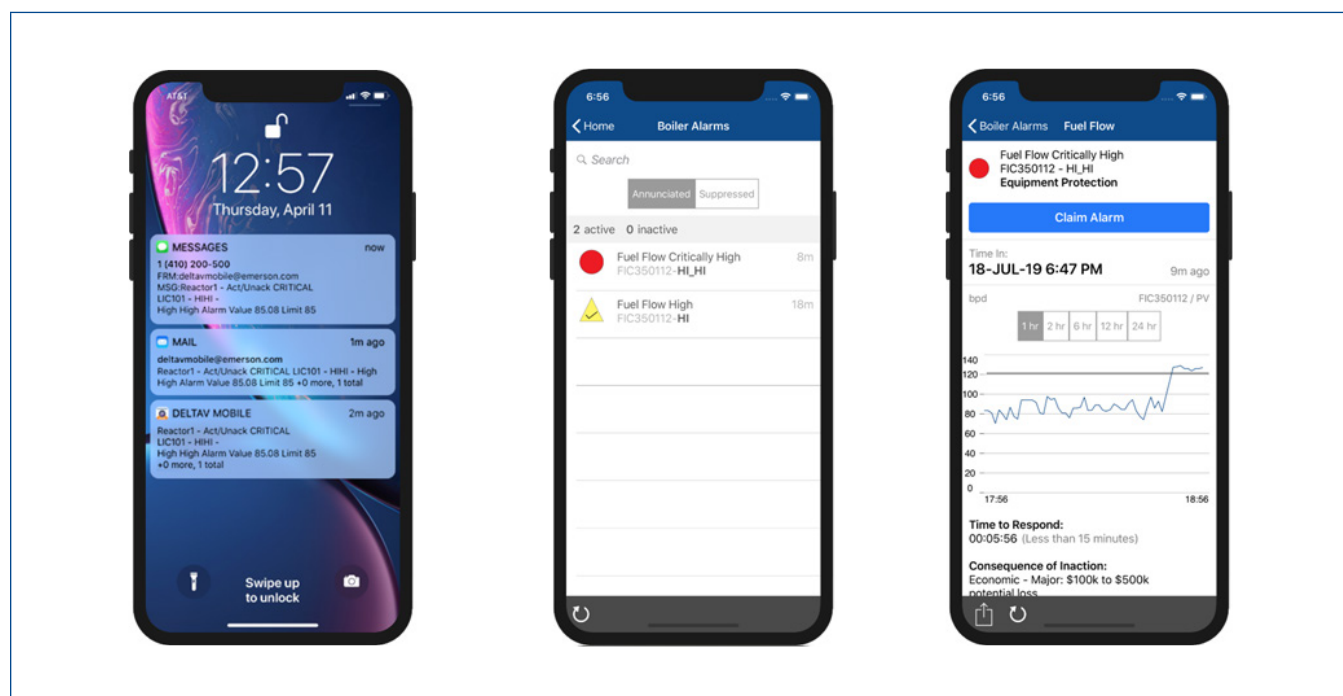
Stay Up-to-Date with Smart, Proactive Notifications

DeltaV Mobile proactively notifies you about alarms and events, even if you're offsite, so you can stay current with real-time information. Unlike other notifications solutions that only send a vague message about an alarm, DeltaV Mobile provides the same detailed alarm message for DeltaV alarms that an operator sees.

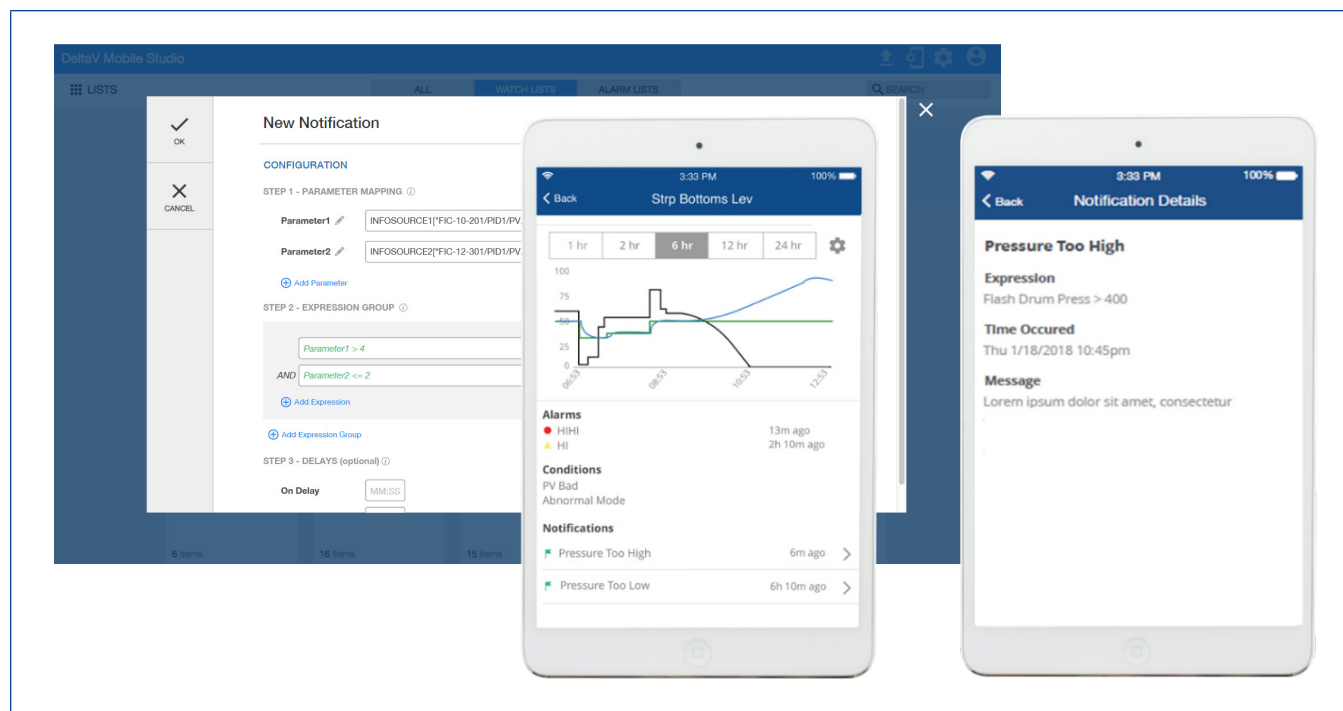
In addition to DeltaV alarms, you can create custom alerts for non-DeltaV data, or for DeltaV data that is not currently configured as an alarm. The rules for these custom alerts are created using DeltaV Mobile Studio. You can receive notifications on these custom alerts and relevant details about the alert are available in the details of the corresponding watch list item.

DeltaV Mobile allows you to respond faster to abnormal situations by quickly connecting you to the mobile screen in the context of that notification. Tapping on a DeltaV Mobile notifications will connect you directly to the relevant, real-time details and a trend for the associated parameter.

DeltaV Mobile can be used to **escalate an alarm or custom alert to one or several designated recipients**. If a recipient does not claim the alarm or alert in DeltaV Mobile, the escalation chain will continue to other recipients.



*claiming is in-app only and does not affect Alarm Acknowledgement in DeltaV Operate or DeltaV Live.



Email and SMS notifications are also supported. Recipients can include users that do not have the DeltaV Mobile app on their mobile devices. These notifications are routed through an SMTP email server and do not require internet access. Unlike mobile push notifications, they do not link directly to alarm details.

Mobile push notifications are sent through the Microsoft Azure Notification Hub and require the DeltaV Mobile Server to have internet access. You do not need to have a Microsoft Azure account, and none of your data is stored in Azure. It is simply a routing mechanism for notifications to reach your mobile device, wherever you may be located.

You can specify which alarm states and state changes you would like to be notified about, as well as delay, frequency, and maximum resends of notifications on a per-user basis. Notifications can also be disabled as needed.

With DeltaV Mobile, you can:

- Receive notifications for native DeltaV alarms and custom alerts created for non-DeltaV data or DeltaV data that are not configured using alarm modules.
- Filter, assign, and route alarm and event notifications to one or multiple designated recipients through notification methods such as mobile push notification, SMS text, or email.
- Escalate notifications to the right people at the right time.

- Use the “claiming” in-app feature to claim a DeltaV alarm and stop the escalation chain+.
- Tap or swipe a push notification to automatically view the real-time alarm details, DeltaV Alarm Help, or real-time values associated with a custom alert.
- Throttling settings ensure that you are not flooded with alarm notifications.
- Select the level of alarm detail displayed in notification messages.

Enabling Collaborative Workflows

DeltaV Mobile facilitates information sharing with in-app collaboration, allowing you to better leverage your team and subject matter experts, wherever they may be located.

You can easily share process data and alarm information directly from the DeltaV Mobile app, enabling easy collaboration across the enterprise. Sharing a link with other DeltaV Mobile users directs recipients to the same live mobile view that you sent, so they can look at the same information updating simultaneously in real time.

Links to the relevant page and screenshots of alarms, process data, and trends can also be easily shared via email or text.

*Claiming is in-app only and does not affect Alarm Acknowledgement in DeltaV Operate or DeltaV Live.

Gain Insights by Analyzing Historical Trends

DeltaV Mobile delivers a premium usability experience by optimizing views of historical data for mobile screens and leveraging your mobile device's native touch screen capability, allowing you to manipulate trends for further analysis.

DeltaV Mobile also features responsive views. When the mobile device is turned from portrait to landscape view, it expands the entire chart to landscape mode, where touch gestures can be used to analyze and explore the data.

- Optimized layout for viewing trends on mobile screens.
- Versatile, responsive viewing options that support portrait and landscape modes.
- Use touch gestures to activate and trace an on-screen cursor that displays y-axis values.
- Easily select or toggle between time spans, depending on how much history you need to see.
- Quickly change scales by tapping on the parameter of choice.
- Select which data to display on trends and customize y-axis scaling as you see fit.



Easily Create and Assign Lists and Notifications from a Web Browser

DeltaV Mobile includes an HTML5 browser-based application called DeltaV Mobile Studio that allows you to configure watch lists, alarm lists and notifications. Simply browse your DeltaV hierarchy and select the critical data and alarms that you want to monitor and receive as notifications. It has intuitive interfaces and filters that are easily applied to create customized lists, assign lists to users, create custom alerts, set notification preferences and escalation rules, and register mobile devices.

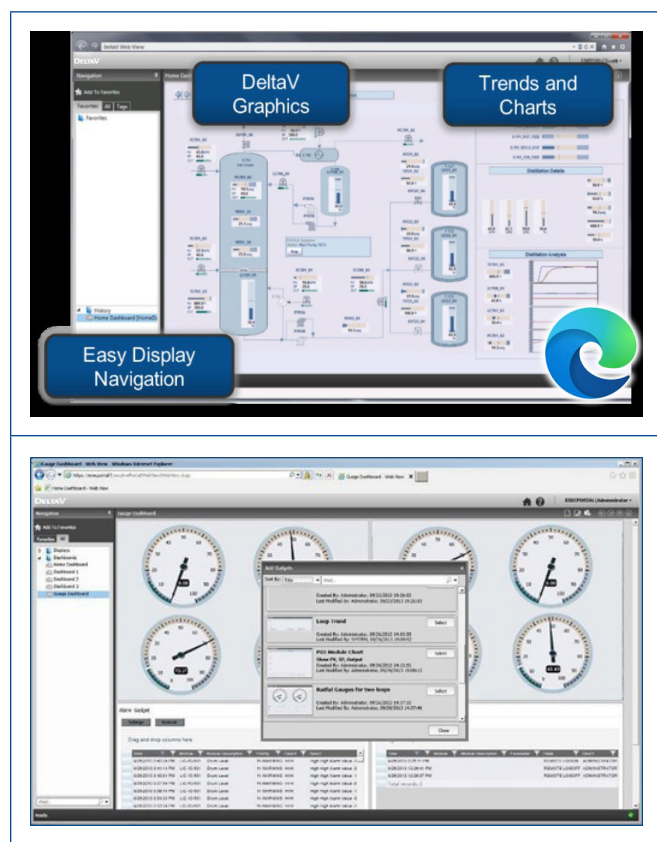
Bulk editing tools are also available to simplify setup by allowing you to quickly use existing lists to modify or create new ones.

View Operator Displays and Customized KPI Dashboards from a Web Browser

With the DeltaV Mobile platform, you can use Web View to view DeltaV Operate displays and create your own customized dashboards from an Microsoft Edge enabled browser in IE mode.

The DeltaV Operate display conversion tool allows you to easily select the existing displays that you wish to convert and import them. Because imported displays are built with DeltaV graphics components (i.e., rectangles and lines), you can simply augment the displays in the Graphics Studio application with no need to change them.

- Choose from one to multiple Web View users to concurrently view displays and dashboards from their PCs and/or Windows tablets. Once a user logs off, the license becomes available for another user.
- Easily convert, modify, and view operator displays and customized dashboards in a web browser.
- View DeltaV alarm status, display static shapes, real-time data, common display animations, and trends.
- Create your own dashboards using the library of pre-built display gadgets or design your own gadgets in the Web Studio application.



View DeltaV Operate displays or create your own displays with dashboard gadgets.

DeltaV Mobile Cloud Capabilities

DeltaV Mobile takes advantage of several cloud capabilities that may be leveraged for improved connectivity. Optional cloud capabilities for DeltaV Mobile include push notifications, Off-premise Access provided by Emerson, and cloud-enabled deployment.

Push Notifications

DeltaV Mobile allows you to leverage the cloud for mobile push notifications as an easy way to set up and receive notifications for native DeltaV alarms as well as custom alerts created for any value. Mobile push notifications are sent through the Microsoft Azure Notification Hub and require the DeltaV Mobile Server to have an internet connection. You do not need to have a Microsoft Azure account, and none of your data is stored in Azure for the push notifications to work.

Off-Premise Access

The Emerson-provided solution for Off-Premise Access allows you to easily set up an external connection to your Mobile Server with just 1-click, so that you can log into the DeltaV Mobile app and view your real-time data, trends, and alarms from anywhere without the need for VPN.

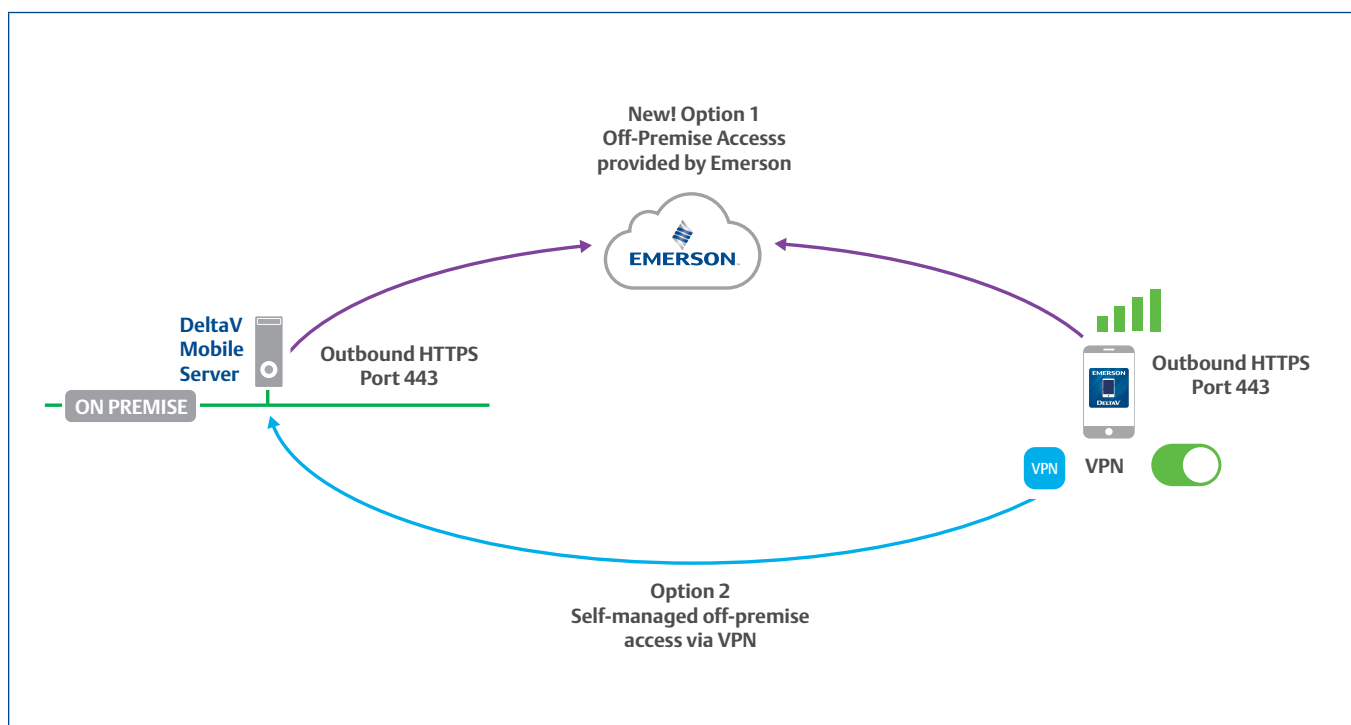
DeltaV Mobile's Off-Premise Access capability was built with cybersecurity in mind. It takes advantage of two-factor authentication which checks Active Directory user credentials in combination with device whitelisting. It also utilizes a reverse-proxy network architecture whereby both the Mobile Server and the mobile application only use outbound network connections.

Off-Premise Access provided by Emerson requires the DeltaV Mobile Server to have an internet connection, but you do not need to have an account with a cloud provider, and none of your data is stored in the cloud. If you are already using Push Notifications for DeltaV Mobile, no additional firewall ports need to be opened for Off-Premise Access.

Cloud-Enabled Deployment

You may choose to deploy DeltaV Mobile in a private cloud that you own or in a public cloud where you already have an account with a cloud provider. If you deploy your Mobile Server this way, careful attention should be paid to the resources allocated to make sure that PC specifications, as well as to the networking requirements to make sure that cybersecurity best practices are followed.

In the next section, we will go into more depth about the cybersecurity capabilities that have been built into DeltaV Mobile, including the flexibility to accommodate various deployment scenarios.



Built-in Security

The DeltaV Mobile platform is designed with security in mind. Transferring your critical data to mobile devices utilizes several key aspects of secure connectivity: a multi-level segmented architecture, user authentication and authorization, and encryption.

Whether viewing lists on your mobile phone or graphics in a web browser, **DeltaV Mobile is strictly read-only**, preventing users from inadvertently affecting operations. DeltaV Mobile topologies accommodate access at each level in the architecture to be isolated by firewalls, necessary Authentication and Authorization-Audit (AAA), and layered security.

Multi-Level, Segmented Networks

As shown in Figure 1, the DeltaV Portal connects to the Application Station or Professional Plus on the DeltaV network via the DeltaV Communicator. A single DeltaV Portal can connect to 10 DeltaV Systems* provided that a DeltaV Communicator is installed on the Application Station or Professional Plus of each DeltaV System.

When only connecting to one DeltaV System, the DeltaV Portal can also be installed on the Application Station or Professional Plus (or an operator panel connected to a standalone DeltaV PK controller).

The DeltaV Communicator transfers alarms, real-time data, and historical data to the DeltaV Portal across a firewall between Levels 2 (DeltaV network) and 3 (commonly referred to as the DMZ or plant network). These levels may vary depending on your existing network architecture. Data is then transferred from the DeltaV Portal to the DeltaV Mobile Server, where it is arranged into lists and sent to mobile devices. Both the DeltaV Portal and the DeltaV Mobile Server can be installed on virtual machines.

Mobile devices may connect to the Mobile Server via local plant Wi-Fi, Off-Premise Access provided by Emerson, or off-premise through a VPN connection. Both Off-Premise Access provided by Emerson and Mobile push notifications require a connection to Microsoft Azure via the Internet to work, and are optional features. You do not need to have an Azure account, and none of your data is stored on the Internet. Notifications may also be received via email and SMS text messages.

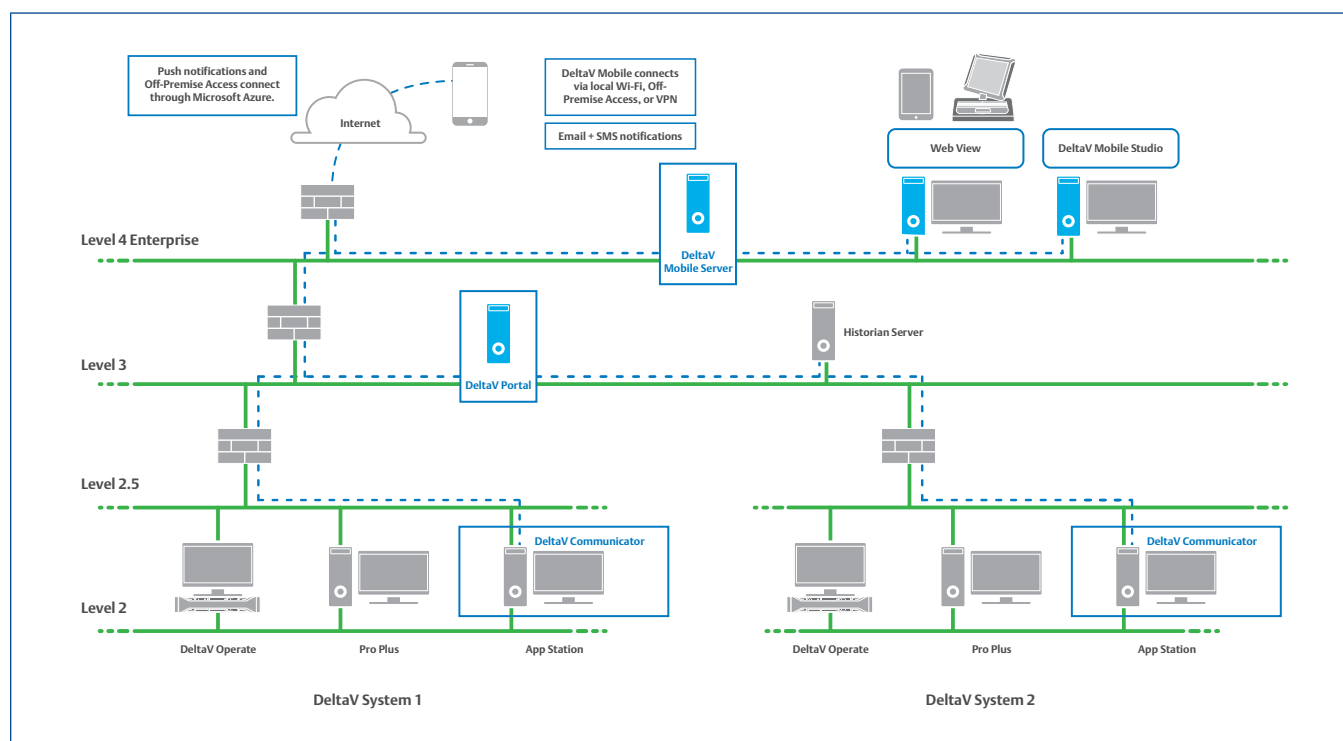


Figure 1. Example of 3-Tier DeltaV Mobile Architecture.

* Assumes each DeltaV System has a configuration (.fhx) file size of 1-2GB. More or less than 10 DeltaV System connections can be supported depending on these file sizes.

Built-in Flexibility to Accommodate Various Deployment Scenarios

Deployment can vary depending on your existing network architecture and how you plan to use DeltaV Mobile.

If you would like to access DeltaV Mobile and receive mobile notifications while onsite from a Level 4 (Enterprise level) Wi-Fi connection or while off-premise with either Off-Premise Access provided by Emerson or a VPN connection, you may prefer the 3-tier architecture shown in Figure 1. This involves installing the DeltaV Portal on Level 3 (commonly known as the DMZ or Plant Network), and the DeltaV Mobile Server on Level 4.

The DeltaV Portal and the DeltaV Mobile Server can also be installed on the same computer at Level 3, as shown in Figure 2. There are various reasons that you may wish to utilize this 2-tier architecture:

- You are primarily interested in using Web View to view browser-based displays and dashboards.
- You only want to use DeltaV Mobile on-site with Wi-Fi, or you do not want to access the internet. In this case, you would not receive mobile push notifications. You would still be able to receive email and SMS notifications.
- You only want to maintain one server machine on Level 3.

User Authentication and Data Encryption

With DeltaV Mobile, you decide which users are allowed access.

For the DeltaV Mobile app, users are authenticated by registering their mobile devices using a device ID and supplying valid login credentials. This process ensures that only a registered phone with an authenticated user can access the DeltaV Mobile Server. Built-in security features include:

- Two-factor authentication: whitelisting by device in combination with user credentials, validated against Active Directory or Windows Workgroup credentials.
- The DeltaV Mobile Server and DeltaV Portal require server certificates for server identity-based validation.
- DeltaV Mobile transfers data via encrypted communication channels. All data sent to mobile devices is encrypted using a certificate that is provided by the DeltaV Mobile Server and transmitted over HTTPS.

Cybersecurity Whitepapers

- Cybersecurity Brief
- Security Manual

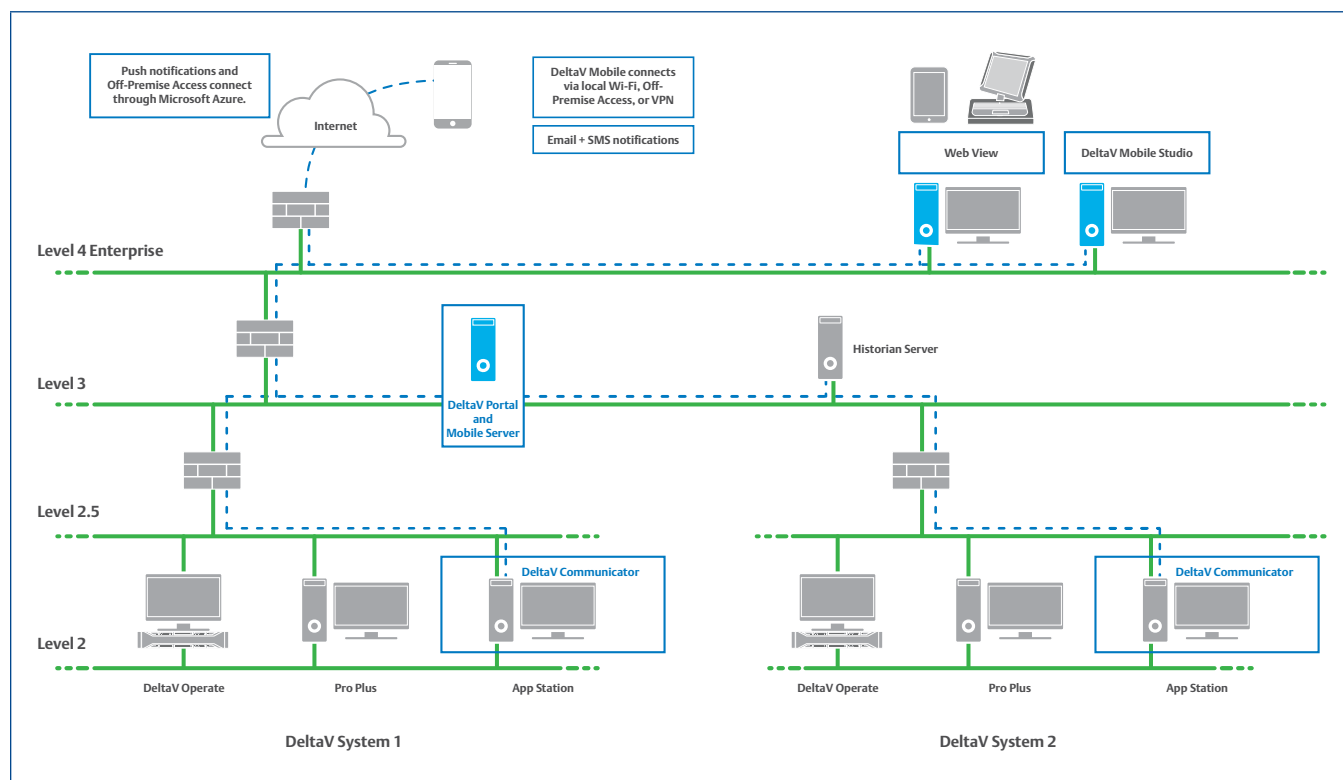


Figure 2. Example of 2-Tier DeltaV Mobile Architecture.

PC Specifications

For best performance, the following PC specifications are recommended for the DeltaV Mobile Server and the DeltaV Portal. Note that both servers may reside on virtual machines.

- Hard Drive – configured as RAID 1 Arrays (size depending on computer model).
 - 128 GB or greater
- Memory – 16 GB
- Processor – (depending on computer model):
 - 2.00 GHz, minimum of 4 cores
- One network interface card is needed for both the DeltaV Portal and the DeltaV Mobile Server.

If you are deploying DeltaV Mobile with a 2-tier architecture as shown in Figure 2, the PC memory specification is also 16GB.

Other Specifications

- For e-mail and SMS notifications, a connection to an e-mail server that supports SMTP based e-mail delivery is required.
- Mobile devices that are to receive SMS notifications must support text messaging.
- The DeltaV Communicator must be installed on the same DeltaV Workstation (Application Station, Professional Plus, or operator panel connected to a standalone DeltaV PK controller) as the DeltaV Continuous Historian or the Advanced Continuous Historian (DeltaV v13.3.1 and newer).
- No additional OPC Alarms and Events Server license is required.
- DeltaV Mobile performance may vary depending on network performance, PC hardware, internet service, and data complexity.
- DeltaV Mobile can support up to 200 mobile device connections and 100 mobile devices accessing data from the DeltaV Mobile Server simultaneously.
- Notifications are sent from the DeltaV Mobile Server within 30 seconds after conditions for notifications are triggered.
- DeltaV Mobile can connect to up to 10 DeltaV Systems at the same site.
- Push notifications are truncated after 500 characters. Email and SMS notifications are not limited in length.

Compatibility and Sizing

DeltaV Mobile v3.1 is compatible with DeltaV v13.3.2-v15.LTS

DeltaV Mobile v3.2 is compatible with v14.LTS and greater

DeltaV Portal can be installed on the following DeltaV workstations

DeltaV v13.3.1 and v14.LTS Application Stations when using Microsoft Windows 10 (64-bit) or Microsoft Windows Server 2016 (64-bit)

DeltaV Portal and DeltaV Mobile Server can be installed on the following operating systems

Microsoft Windows Server 2016 (64-bit)

Microsoft Windows 10 Professional (64-bit)

Microsoft Windows 10 IoT Enterprise 2016 LTSC (64-bit)

DeltaV Mobile Studio for configuring mobile lists and registering devices can be viewed using the following browsers

Microsoft Edge

Mozilla Firefox

Web View clients for web-based graphics can be viewed using the following browser

DeltaV Mobile v3.1 and later is supported on Microsoft Edge using IE Mode

DeltaV Mobile is supported with the following mobile devices and operating systems

iOS operating systems: iOS 11 and newer

Android operating systems: Oreo (8.1) and newer

Phones:

- iPhone
- Samsung Galaxy S Series, A Series, M Series, Note Series
- Oppo A Series, R Series
- Ecom Smart-Ex 01 and Smart-Ex 02

Tablets:

- iPad, iPad Pro
- Samsung Galaxy Tab S Series
- Huawei Mediapad
- Ecom Tab-Ex 01, Tab-Ex 02, Ecom Samsung Galaxy Tab Active and Galaxy Tab Active 2

Ordering Information

DeltaV Mobile can be purchased as a one-year, three-year, or five-year subscription which includes software, updates, and support. DeltaV Mobile users are counted on a named user basis where each named user can register up to 3 mobile devices that can access the DeltaV Mobile app. Web View sessions are counted on a concurrent basis. Web-based graphics and dashboards are consumed when a Web View client is open in Microsoft Edge IE mode. Multiple windows from the same user require multiple sessions.

Description	Model Number
DeltaV Mobile Platform - Base Package for 5 users Required DeltaV Mobile base components, including five (5) DeltaV Mobile named users, and a connection for one (1) DeltaV system.	VFDVMSwSYS005_YyFYzz
DeltaV Mobile Platform - Base Package for 25 users Required DeltaV Mobile base components, including twenty-five (25) DeltaV Mobile named users, and connections for up to three (3) DeltaV systems.	VFDVMSwSYS025_YyFYzz
Web View – Base Package for 5 sessions 5 Web View Sessions, 1 DeltaV System Connection	VFDVMSwWVSYS005_YyFYzz
Scale Ups	
■ 1 Additional DeltaV Mobile User	VFDVMSwAPP001_YyFYzz
■ 1 Additional Web View Session	VFDVMSwWV01_YyFYzz
Additional Data Connections	
■ 1 DeltaV Mobile Data Connection for 1 additional DeltaV system Consumed by each data connection to another data source, such as an OPC server	VFDVMSwDVUPS01_YyFYzz
■ 1 OPC Real-time Data Connection Consumed by each data connection to another data source, such as an OPC server	VFDVMSwISDA_YyFYzz
■ 1 OPC Historical Data Connection Consumed by each data connection to another data source, such as an OPC server.	VFDVMSwISHD_YyFYzz

These model numbers are for initial subscriptions only; model numbers for renewals are listed separately in the price book.

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

*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)

For existing customers with perpetual licenses that wish to expand their DeltaV Mobile solution, please contact your local sales office.

Product Support

Product Support for DeltaV Mobile is included with all base package subscription purchases. With your product subscription, Emerson will provide you access to the Guardian platform to manage subscriptions, 24/7 call support, hotfixes, patches, and minor and major releases.

Off-Premise Access

Off-Premise Access provides internet connectivity from the Mobile App to the Mobile Server without the need for VPN. Base licenses must be renewed on an annual basis. Additional usage licenses overflow to the following year.

Description	Model Number
Off-Premise Access Annual Subscription 500 Annual subscription license for DeltaV Mobile Off-Premise Access, includes 500GB usage. Recommended for customers with the Base Package for 5 users. If required*, select additional usage licenses below.	VFDVMSOP0500
Off-Premise Access Annual Subscription 1000 Annual subscription license for DeltaV Mobile Off-Premise Access, includes 1000GB usage. Recommended for customers with the Base Package for 25 users If required*, select additional usage licenses below.	VFDVMSOP1000
Off-Premise Access Annual Subscription 5000 Annual subscription license for DeltaV Mobile Off-Premise Access, includes 5000GB usage. If required*, select additional usage licenses below.	VFDVMSOP5000
Off-Premise Access Additional Usage XXXX (500, 1000, or 5000 GB)	VFDVMOPUPSXXXX**

* One person using the DeltaV Mobile app continuously consumes about 30 MB / hour of data.

** XXXX represents amount of additional usage in GB

Other Notes

DeltaV Mobile is a read-only application for viewing process automation information and receiving notifications. Neither the DeltaV Mobile app nor Web View are designed as a replacement for operator workstations for 24/7 continuous use.

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