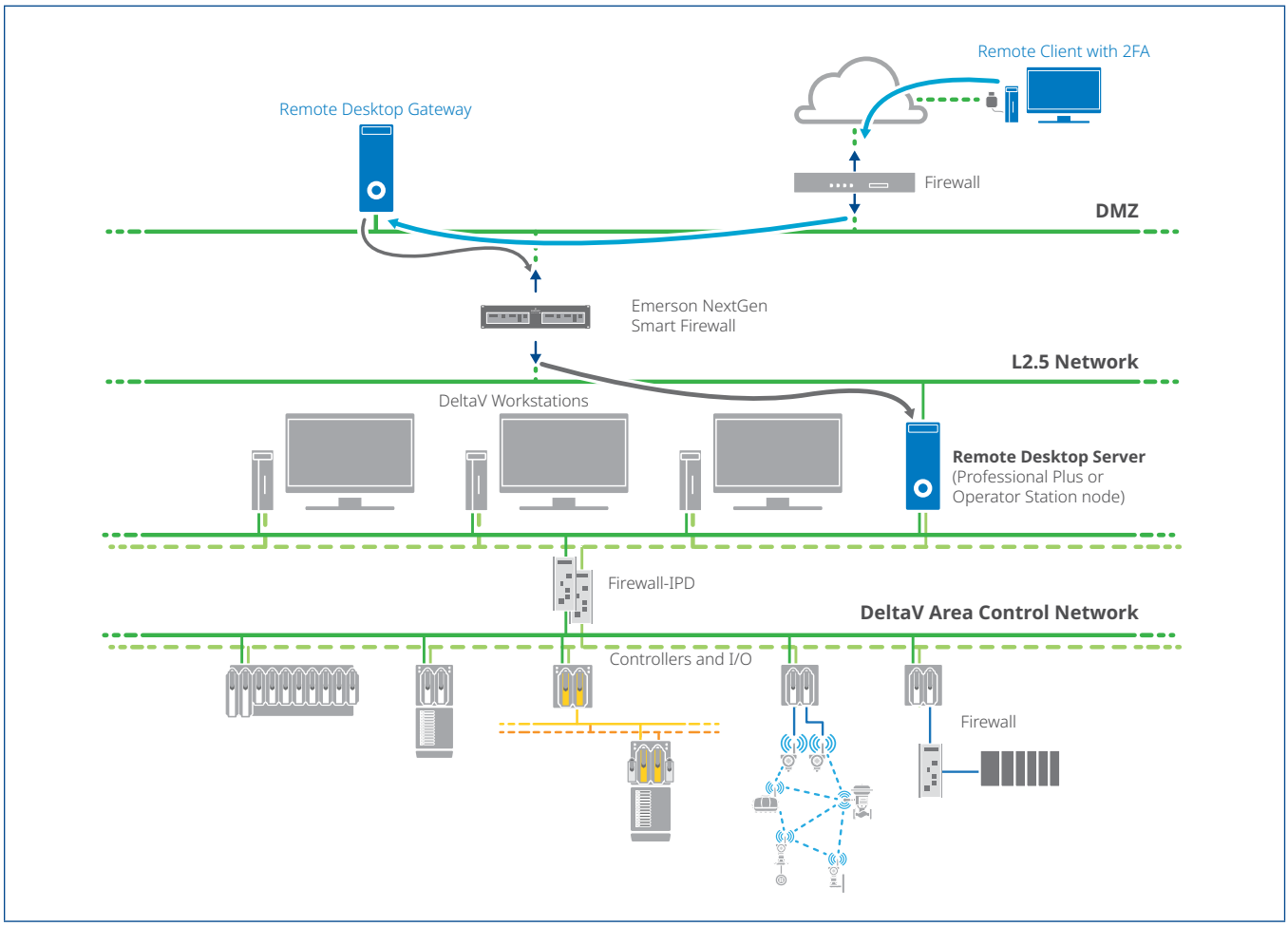
DeltaV™ Remote Client



- Remote engineering and operator consoles
- View Multiple DeltaV™ Systems from a single workstation
- Remote Operator Station over low speed and dial up communications links
- Uses thin-client architecture
- Upgrades are EASY!

Introduction

DeltaV™ Remote Client is the solution for remote connectivity to DeltaV systems using session-based Microsoft Remote Desktop Protocol (RDP) and it allows you to locate full-function DeltaV operator and engineering workstations remote from the DeltaV control network. Engineers can configure and troubleshoot DeltaV systems from their desktops with a direct LAN connection or from remote locations using any Microsoftsupported communications method. Operator Interface capabilities are also provided to personal computers or thin-client hardware located on or through the L2.5 network.

Benefits

Remote engineering and operator consoles: Operate, configure, and diagnose your process from locations outside your DeltaV control network while still using your DeltaV and Windows security. From a single remote client you can easily open multiple windows to simultaneously view different DeltaV systems.

View Multiple DeltaV Systems from a single workstation: You can easily switch the connection between different DeltaV systems. You can connect using any existing computer shared with other functions. Your engineers and operators can be wherever they need to be and still manage the process. You can configure, operate, and troubleshoot the system from a computer located anywhere in the world. Just make a connection to the Remote Desktop Server and you can access all the functions that are normally available to you. Maintain your configuration, run diagnostics, build displays, and help operators troubleshoot the process without going to the control room or traveling to the site.

Remote Operator Station over low-speed communications links: DeltaV Remote Client provides the flexibility to operate or configure your plant from an onsite remote network connection or from hundreds of kilometers away using standard communications hardware, including satellite, microwave, or Virtual Private Networks (VPN).

Uses thin-client architecture: DeltaV Remote Client uses Microsoft Remote Desktop Services technology to provide the client connection to the server. DeltaV software does not need to be installed on the remote client. The client does not require high power or sophisticated workstation hardware to function.

Product Description

DeltaV Remote Client is a thin-client application that connects through a DeltaV server (the DeltaV Remote Client server) that is set up with the Microsoft Remote Desktop Server (formerly Terminal Server) role enabled. Supported DeltaV servers that can have this role enabled are: ProfessionalPLUS, or a DeltaV server licensed as a Base Station or Operator Station. DeltaV Remote Client provides full remote capability to all DeltaV applications configured for remote access. These remote workstations are physically connected to the Remote Desktop Server through the L2.5 network.

The communications between the remote clients and the DeltaV Remote Client servers in the system utilize the Microsoft Remote Desktop Protocol (RDP). This session-based RDP communication is valid for DeltaV systems where the DeltaV Remote Client server is a physical server machine, or it is a virtual machine running in a DeltaV virtualization host server. A remote client may be utilized for Operator, Engineering or Maintenance needs. Each remote session functions as an individual station with the same capabilities as a connected workstation. On direct high-speed LAN connections, users may not even realize they are working at remote terminals. The DeltaV Remote Client uses the standard Microsoft security and standard DeltaV security to prevent unauthorized use of the DeltaV applications. Users on the network who do not have authorization are denied access to the server, while authorized DeltaV users are allowed access according to their normal DeltaV security privileges.

In addition, each session can be reserved for a specific group of users or group of client nodes both to help prevent unauthorized access and to ensure that sessions are kept available for critical users. A remote client can connect to multiple servers on different DeltaV systems. This will allow multiple engineering windows to be open on the same monitor at the same time. The user can also transfer configuration files, displays, and other information among the different DeltaV systems using the client PC.

If the client workstation is equipped with multiple monitors, the different remote client session windows can be positioned across these monitors. Remote windows can also be used on a dual monitor window arrangement.

Operator Capabilities

Each remote client operator session is totally independent and can have its own set of assigned areas. Alarms are reported only to the session(s) to which those areas are assigned – just like a standard operator station. Alarms can follow the operator from one terminal to another by logging into the same session on each remote client terminal. DeltaV users have all the same control capabilities as they would on any other DeltaV station. Operational capabilities are designed to follow the user. Users can navigate through displays, select items, make control actions, view trends, view events, view historical data from any historian, and perform all their tasks. No special setup or conversion is required. All the display navigation, toolbar buttons, alarm banners, and data work the same as on a standard DeltaV Operator Station.

Audible alarm is supported on any remote client that has a sound card. Alarms are sent from the server for local alarming. From the client, the user can silence the horn, acknowledge alarms, and participate in global horn acknowledgment groups.

The Microsoft Remote Desktop Connection software can be launched on a DeltaV operator workstation that will allow the operator or engineer to access other DeltaV systems from an operator workstation. Operators in a central control room can use the remote client to monitor and control other DeltaV systems during off-shifts when other control rooms might be unmanned or as an "extra pair of hands" during plant startup or shutdown. The engineer can access other DeltaV systems for engineering tasks that allows engineering to be done from a single centralized location.

Engineering Capabilities

The remote client can perform any engineering and configuration function. From the remote client, you can set up your system using the DeltaV Explorer, configure and troubleshoot controller modules using Control Studio and Control Studio Online, and build operator displays and trend charts for use on other workstations.

The DeltaV Remote Client provides access to real-time data for engineering applications such as Control Studio Online and operating data for display development. Any or all the remote client sessions can be licensed as Professional Stations. The DeltaV Remote Client server will support up to fifteen concurrent engineering users with up to sixty total database connections (see information below for more information on remote engineering sessions).

Maintenance Capabilities

The remote sessions can also be licensed as a DeltaV Maintenance Station to allow your maintenance shop to use the remote client to monitor device alerts and DeltaV system health from any PC. Since the client can make connections to multiple systems at the same time one computer can serve as the Maintenance Station for several DeltaV systems.

Secure Remote Access to DeltaV Systems

The DeltaV Remote Client solution supports two-factor authentication and jump servers to further protect the remote access to DeltaV systems.

For Two-Factor Authentication, the user is required to have a smart card and card reader attached to the client PC and the Remote Desktop session must be configured to share the smart card information so that the Remote Desktop Server can use it as the first level of authentication. The PIN is the second level of authentication and is manually entered by the user. Additional information can be found in the Smart Card Two-Factor Authentication white paper. Jump servers can be installed to enhance the DeltaV Remote Client solution security. A standard Microsoft server role called Remote Desktop Gateway can be enabled on jump servers sitting outside of the DeltaV security boundaries (e.g. L3 or DMZ networks) to prevent direct connections between remote clients and the DeltaV Remote Client servers. Information on how to set up the Remote Desktop Gateways for the secure remote access to DeltaV can be found in Books- OnLine (DeltaV v13.3.1 and higher).

Architecture

DeltaV Remote Client is implemented via a client computer and a server computer. The server computer is a DeltaV node with DeltaV software installed. This node can be either the ProfessionalPLUS Station or another DeltaV server licensed as an Operator Station or Base Station that is specifically dedicated to serving DeltaV information to remote clients. An Application Station cannot be used as a DeltaV Remote Client server.

The client computer can be any Windows-based computer or thin-client hardware capable of running the Microsoft Remote Desktop Connection software. DeltaV software is not installed on this computer, so a DeltaV-compatible workstation is not required for the client application.

System Setup

A remote client session can be connected to any Remote Desktop Server on the DeltaV system. Remote clients are connected using standard Ethernet communications and do not use the redundant DeltaV Control Network for communications. As with any outside connection to the DeltaV system, we suggest that a perimeter firewall is installed at the L2.5 network. In the event of a client failure, simply use another workstation to log into the DeltaV system. In the event of a server failure, you can log into any other Remote Desktop Server configured on the DeltaV system if available.

DeltaV Remote Client Support with DeltaV Operate

A single Remote Desktop Server allows users to host a maximum of fifteen (15) concurrent engineering sessions for DeltaV Operate. If the server is the ProfessionalPLUS station, a maximum of seven (7) concurrent sessions is recommended.

For operations (runtime), a single Remote Desktop Server that is licensed as an Operator or Base Station can host a recommended maximum of eight (8) concurrent remote operator sessions running DeltaV Operate, Note the total number of datalinks should not exceed 12,000 across all sessions.

DeltaV Remote Client Support with DeltaV Live

The Standard tier of DeltaV Live is included with all DeltaV systems beginning in version 14.LTS; no additional licenses are required for remote clients using the Standard tier. For the Premium tier of DeltaV Live, each remote session will require a DeltaV Live Operations Premium Performance Pack license (VE2104P01/VE2104PSwS01_YyFYzz).

When the Remote Desktop Server is an Operator or Base station, support for DeltaV Live in v14.LTS/later is provided for the following:

- A total of 12,000 datalinks across all sessions
- Single-monitor layout: Up to 3 concurrent runtime sessions with 8 virtual CPUs and 16GB RAM (not exceeding the 12,000 datalink limit)
- Single-monitor layout: Up to 4 concurrent runtime sessions with 16 virtual CPUs and 32GB RAM (not exceeding the 12,000 datalink limit)
- Quad-monitor layout: Up to 2 concurrent runtime sessions with 16 virtual CPUs and 32GB RAM (not exceeding the 12,000 datalink limit)
- Up to 10 concurrent engineering sessions with 16 virtual CPUs and 32GB RAM.

When the Remote Desktop Server is a ProfessionalPLUS, support for DeltaV Live in v14.LTS/later is provided for:

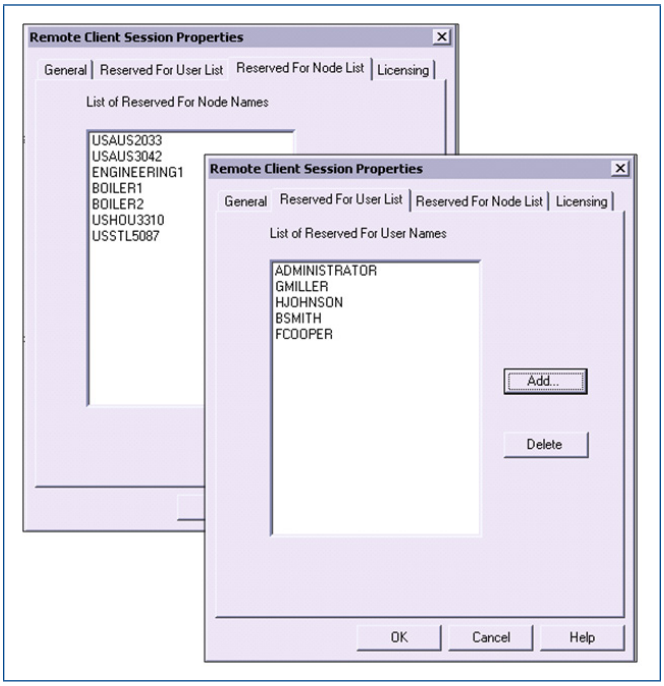
- A total of 12,000 datalinks across all sessions
- Single-monitor layout: Up to 2 concurrent runtime sessions with 16 virtual CPUs and 32GB RAM (not exceeding 12,000 datalink limit)
- Up to 4 concurrent engineering sessions

If normal use will require four (4) concurrent runtime sessions in constant use, we strongly recommend a dedicated server for engineering sessions and another for operator sessions instead of a single shared server

All concurrent sessions can be open at the same time as long as the total of all datalinks on all open displays does not exceed 12000 links. Full operator, display development and “view only” sessions all count against the active link limit.

Users are encouraged to consider a dedicated server for the DeltaV Remote Client server. A DeltaV server licensed as a Base Station or Operator Station can be configured as a Remote Desktop Server for this purpose.In this case, the DeltaV Remote Client server sole purpose is to host remote sessions.

The ProfessionalPLUS Station can be used as a DeltaV Remote Client server primarily to support systems that require limited remote access for troubleshooting and less than full-time operator tasks. The ProfessionalPLUS station may be used for all its typical functions. However, when the ProfessionalPLUS station is also used for local engineering, it can impact the response time to the remote client sessions and reduce performance. If higher performance engineering and operator access is desired on the remote clients, a dedicated DeltaV Remote Client server should be used.

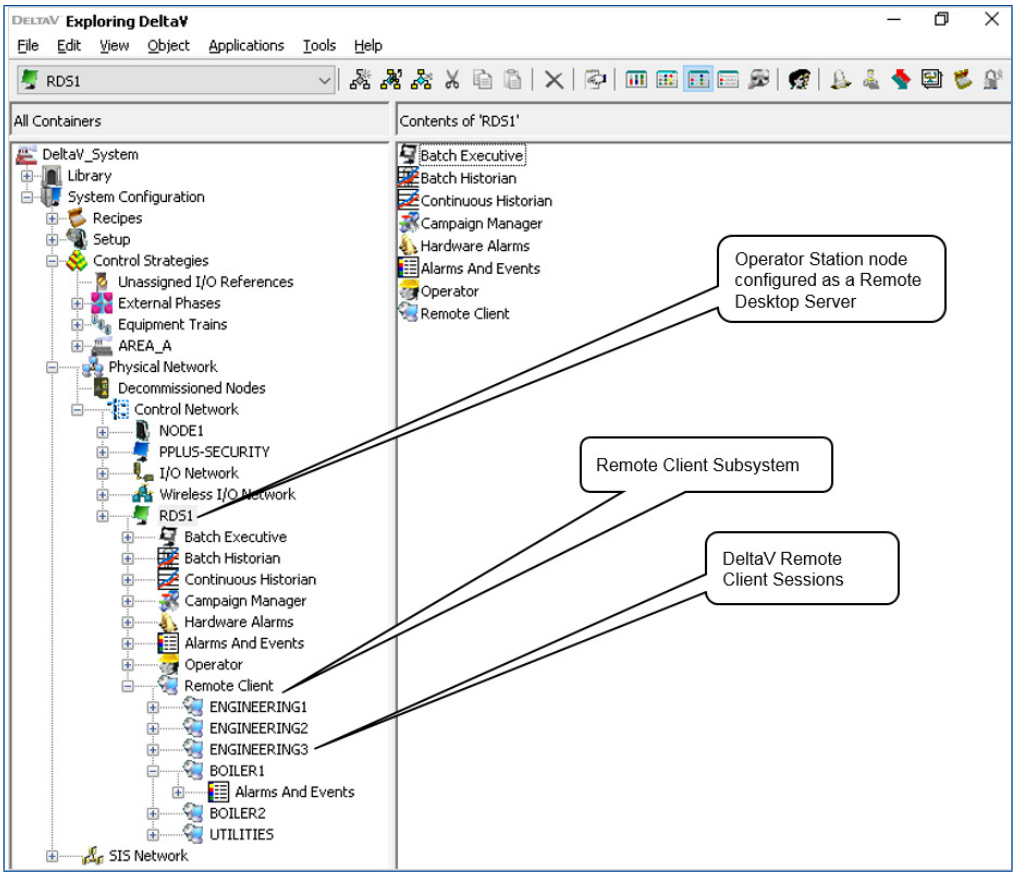


Sessions can be reserved for use by specific users and nodes to ensure availability for critical uses.

Data Accessibility

The DeltaV Remote Client server can be set up with a local DeltaV Continuous Historian and Event Chronicle. The server can collect up to 250 parameters in a local DeltaV Continuous Historian. The server can collect alarms and events for all the areas assigned to the Alarms and Events subsystem on the server. This data can be seen by any of the remote client sessions with the Process History View application. The Process History View application on a remote client can also be used to view the alarms and events from an Event Chronicle on any other DeltaV workstation.

The DeltaV Remote Client server supports a single copy of the settings for the Batch Operator Interface. All sessions using the Batch Operator Interface from one server will use the same set of filters, column widths, colors and other user- configurable settings in the application. Changes made to the settings will be reflected in all sessions and not limited to the specific session making the changes. This includes the setting of which Batch Executive the Batch Operator Interface is connecting to. This also applies to the Campaign Manager Operator Interface. All sessions from the same server will use the same settings.



DeltaV Explorer showing setup for Remote Clients.

Remote Session Options

Each remote client session can support a different set of functionality. Remote client sessions are sized and set up exactly as you would configure a local workstation.

For example, to configure a remote operator session, choose an appropriate Operator Station license, full span for alarming in that session. To configure a remote engineering session, choose an appropriate Professional Station license, full span for alarming in that session.

A DeltaV Remote Client session can be used on a DeltaV Operator Station that will allow the plant operator or engineer to use the DeltaV Remote Client to access and control other DeltaV systems from the operator workstation.

A remote, view-only workstation can be created by choosing an Operator Station and setting up the DeltaV security for each user of the view-only workstation so that users do not have authority to make operating or engineering changes.

Remote engineering sessions are included in the maximum of 60 database connections to the ProfessionalPLUS. This means that once the 60 database connections are consumed at the ProfessionalPLUS, no further engineering applications can be started from any workstation – remote or local.

When using DeltaV Operate, remote graphics editing sessions allow a maximum of one copy of DeltaV Operate configure mode open on each server. This means that only one remote session can be editing graphics at any one time for each server. If you require multiple concurrent display configuration sessions, multiple DeltaV Remote Client servers will have to be used. Additionally, Display Audit Trail does not support remote display configuration.

When using DeltaV Live, each remote session supports full functionality of Graphics Studio for editing displays. DeltaV Live supports concurrent engineering and you can take advantage of DeltaV Remote Client sessions for this purpose. Beginning with v15.FP3, DeltaV Live offers Version Control and Audit Trail capabilities. More information is available in the DeltaV Live Product Data Sheet.

The remote client subsystem is available in the DeltaV Explorer under the ProfessionalPLUS and Operator Station nodes (Base Stations are defined as Operator Stations in DeltaV Explorer). Configuration is easy, requiring only the assignment of plant areas to define the span of control. If you need to ensure that specific workstations or users will always be able to log onto a remote session, you can reserve lists of users or remote nodes.

Performance and Integrity

There are many factors that will influence the performance of the remote client including communications method and speed, type of server used for the DeltaV Remote Client server, type of computer used as the remote client, number and type of sessions connected to the DeltaV Remote Client server.

Communications and speed

Performance of the remote client is highly dependent on the speed of communications, type of communications link, and network traffic.

For local, high speed LAN communications; the performance of all functions is comparable to a directly connected DeltaV workstation. For WAN and all other non-LAN communications (microwave, satellite, etc.), the performance can vary from 2 to 10 times slower than a LAN connection. For example, operations that take 2 seconds at LAN speeds can take 10-12 seconds at modem speeds. Therefore, if you plan to use a low communication speed remote client session for an operator interface; it is critical that you specifically design displays for use at this low speed. The use of bitmaps and large amounts of datalinks will seriously impact the performance of the client. Please contact your local Emerson Sales Office for support deploying DeltaV Remote Client on low speed networks.

Communications and integrity

Communications integrity can be impacted by high network traffic and poor communication connections. In wireless communications, atmospheric conditions can impact speed of response and loss of communications. A dedicated control LAN without a connection to the L2.5 network provides a high level of integrity. An open L2.5 network with general business network traffic, satellite, microwave, wireless or other non-LAN connections all provide a medium level of integrity.

Computer hardware

Both the DeltaV Remote Client server and the remote client device have an impact on the performance. For the DeltaV Remote Client server, the model and configuration of the hardware will impact the performance. Remote client device hardware can also make a difference in performance. When the remote client is used for operator interface applications, the CPU speed plus the memory and type of video card can make a 1 to 2 second difference in the display call up times between older slower PCs and the new, faster PCs with improved bus and video capabilities. Response times for engineering activities are not impacted by differences in the remote client device hardware. Additionally, if other software applications are running on the remote client device, the performance and software integrity may be affected.

Remote client sessions

The number of concurrent users on a single DeltaV Remote Client server impacts the performance. As additional users consume the shared resources on the server, the performance of the clients may decrease. The activities of the remote clients will also impact the performance. Operators will create more loads on the DeltaV Remote Client server than engineering clients. Operators working in plant upset conditions, responding to alarms, and paging between displays will create higher loading than operators at more normal times.

As with any multi-user client/server solution, customers need to be aware of the risks in using common hardware to support multiple operator workstation clients. When deploying the DeltaV Remote Client solution, users must understand their specific risk of a server failure simultaneously impacting the ability of multiple operators to access the system or having the actions of a single user impact the availability of the server to other users. The use of a Microsoft Remote Desktop Services-based operator interface may not be advisable in all situations, and Emerson assumes that the customer is aware of these risks prior to deploying this solution in their specific situation.

Ordering Information

Description	Model Number
ProfessionalPLUS Station Software Suite	VE2101Sxxxx
DeltaV Live ProfessionalPLUS Premium Station Software Suite	VE2101PSxxxx
Base Station Software Suite	VE2106
Event Journal	VE2143
Operator Station Software Suite, Full Span of Control[2]	VE2104
DeltaV Live Operations Premium Performance Pack License	VE2104P01
Operator Station Software, View-Only[2, 3]	VE2110
Professional Station Software Suite, Full Span of Control[2]	VE2102
Maintenance Station Software Suite[1]	VE2105
Microsoft Client Access License for Server 2016 (CAL) – 5 CALs (per device)[4]	VF1049MS5CALS
Microsoft Remote Desktop Service Client Access License for Server 2016 – 5 RDS CALs (per device)[4]	VF1049MS5RDSCALS
Microsoft Client Access License for Server 2022 (CAL) – 5 CALs[5]	VF1052MS5CALS
Microsoft Remote Desktop Service Client Access License for Server 2022 – 5 RDS CALs[5]	VF1052MS5RDSCALS

[1] Assignable to the remote client sessions.

[2] Assignable to the remote client sessions. Span of Control is defined by how many DSTs can be assigned to the Alarms and Events of a workstation (e.g., Full Span of Control = 30,000 DSTs).

[3] Available for DeltaV systems v12.3 and higher.

[4] Microsoft Windows Server 2016 CALs and RDS CALs may be downgraded for Windows Server 2008 client access.

[5] Microsoft Windows Server 2022 CALs and RDS CALs may be downgraded for Server 2016 client access.

Support

Full support will be provided for any DeltaV Operator Station that is being used as a remote client to another DeltaV system. Additionally, full support will be provided for a remote client device when it is dedicated to DeltaV Remote Client use, and it is running a compatible Microsoft Remote Desktop Connection software. Full support cannot be provided if the device is running any other software.

For any communication problems and any remote client devices, Emerson will provide technical support to the best of its ability until it is determined that the issue is caused by conditions outside the control of Emerson or that the issue is caused by equipment supplied by others. Customer is responsible for resolving problems caused by conditions outside the control of Emerson or caused by equipment supplied by others.

System Compatibility

DeltaV version 8.4 or later is required on the DeltaV Remote Client server (Remote Desktop Server role enabled) to use the specifications in this document.

The Remote Desktop Server role must be enabled on a server-class computer running a supported Microsoft Server operating system.

Remote client sessions may be run on any device that will support the Microsoft Remote Desktop Connection software. Please refer to the KBA NK-1800-0150 available in the Guardian Support Portal for the compatibility of Microsoft Remote Desktop Connection software and the Microsoft Remote Desktop Server.

Related Products

- **Base Station:** Centralized DeltaV applications, where the combination of applications included are user selected on a DeltaV workstation.
- **Maintenance Station Software Suite:** Centralized system and device maintenance, including device calibration, device and hardware alerts and diagnostics on a DeltaV workstation.
- **Operator Station Software Suite:** Centralized operations and diagnostics on a DeltaV workstation.
- **Professional Station Software Suite:** Centralized operations, engineering, and diagnostics on a DeltaV workstation.
- **ProfessionalPLUS Station Software Suite:** Centralized operations, engineering, configuration database, and diagnostics on a DeltaV workstation.
- **DeltaV Remote Access Service:** Enables remote configuration, operation, and diagnostics from DeltaV workstations.

Not Supported Products

- **DeltaV Operate for PROVOX:** Replace PROVOX consoles for a single integrated operator interface for both PROVOX and DeltaV systems.
- **DeltaV Operate for RS3:** Replace RS3 consoles for a single integrated operator interface for both RS3 and DeltaV systems.

Related Hardware Products

DeltaV Workstation Hardware Select from a variety of PC and server hardware, tested and preloaded with DeltaV software.

Prerequisites

- Each client session requires one or more standard DeltaV workstation licenses, and the licenses may be different for each defined session.
- The DeltaV Remote Client server needs to be licensed appropriately within DeltaV to allow the node to communicate with the DeltaV Control Network. This license is assigned to the server itself and not to the sessions.
- If the DeltaV Remote Client server is licensed as an Operator Station or a Base Station, an Event Chronicle license must be assigned to the server node to enable the event collection.
- Please review the DeltaV Live license requirements when using it with the DeltaV Remote Client solution.
- All DeltaV Operate displays must be using the DVSYS functionality on the operator interface.
- Each DeltaV Remote Client server requires a Microsoft Server Client Access License (CAL) for each session. These are the basic access licenses required for any user to connect to a server. A DeltaV server comes with 10 CALs included in the base setup. If you will have more than 10 remote devices connecting to a server, you will have to supply additional CALs.
- Each remote client session requires a Microsoft Remote Desktop Services Client Access License (RDS CAL). Each remote device connecting to a Remote Desktop Server requires an RDS CAL (in addition to the CAL). There are no RDS CALs included in the DeltaV system setup. Licenses must be purchased for all devices that will be connecting to the server.purchased from Microsoft or another third party vendor.

©2026, Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. The DeltaV logo is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while diligent efforts were made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

Contact Us
www.emerson.com/contactus

DELTAV™

EMERSON™