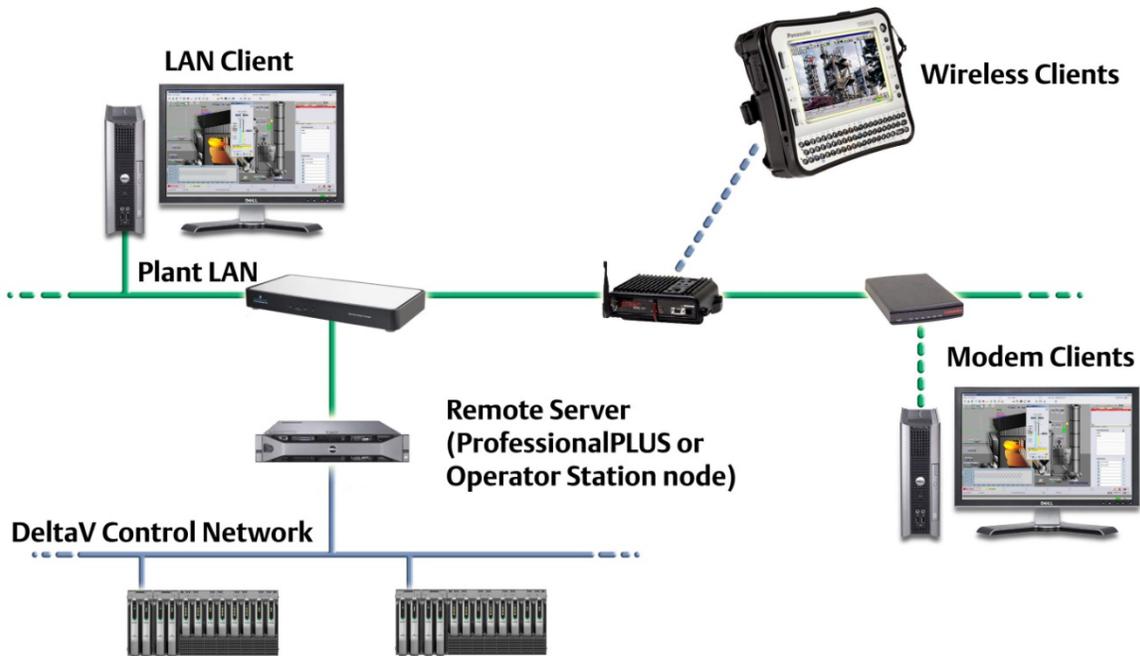


# DeltaV™ Remote Client



- 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 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 Microsoft-supported communications method, including a dial-up modem connection. Operator Interface capabilities are also provided to personal computers or thin-client hardware located on the plant LAN or other remote locations—and over lower-speed communications.

## 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. Now it's possible to manage and monitor your process from remote locations using virtually any type of communications. From a single Remote Client you can easily open multiple windows to simultaneously view different DeltaV systems – even systems at different revision levels (7.2 or later).

### **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 Client 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 and dial-up communications links.** DeltaV Remote Client provides the flexibility to operate or configure your plant from your internal plant LAN or from hundreds of kilometers away using standard communications hardware, including satellite, microwave, VPN's or dial-up modems.

**Uses thin-client architecture.** DeltaV Remote Client uses the latest Microsoft Terminal Server technology to provide the client connection to the server. DeltaV software does not need to be installed on the remote client. The Remote Client software is less than 500KB in size and will run on any workstation with a Microsoft Windows 32-bit operating system. The client does not require high power or sophisticated workstation hardware to function.

**Upgrades are EASY!** Since the same client can connect to different DeltaV versions, the client software does not need to be upgraded when you migrate to a new DeltaV version.

## Product Description

DeltaV Remote Client is a thin-client application that connects through a DeltaV ProfessionalPLUS or Operator Station node. DeltaV Remote Client provides full remote capability to all DeltaV applications configured for remote access. These remote workstations are physically connected to the ProfessionalPLUS Station or Operator Station through a dedicated network card on these servers.

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. Persons 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 size.

## 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 of 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 of their tasks. No special setup or conversion is required. All of the display navigation, toolbar buttons, alarm banners, and data work exactly the same as on a standard 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 Remote Desktop software can be installed 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 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 of the Remote Client sessions can be licensed as Professional Stations. The Remote Client server will support up to fifteen concurrent engineering users with up to sixty total database connections to the ProfessionalPLUS (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.

## 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 an Operator Station node that is specifically dedicated to serving DeltaV information to remote clients. An Application Station cannot be used as a Remote Client Server.

The client computer can be any 32-bit 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 Client 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 router be installed between the DeltaV system and the plant LAN to prevent unnecessary plant LAN traffic from getting to the server. 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 Client server configured on the DeltaV system.

A Remote Client server allows users to host a recommended maximum of fifteen (15) concurrent operator and engineering sessions from a single Operator Station node server and a recommended maximum of seven (7) concurrent sessions on a ProfessionalPLUS node server. These sessions can be a combination of engineering and operator sessions. If normal use will require multiple engineering sessions or more than 4 operator sessions in constant use, we strongly recommend a dedicated server for engineering sessions and operator sessions rather than share the same server.

A single Remote Client server can host a recommended maximum of eight (8) concurrent remote operator sessions running –sessions with DeltaV Operate running. All of the concurrent sessions can be open at the same time as long as the total of all datalinks on all open displays does not exceed 7200 links. Full operator, display development and “view only” sessions all count against the active link limit.

The terminal server architecture used to support the remote client sessions is designed to be disconnected from the server when not in use. It is recommended that DeltaV Remote Client sessions not be used as full time (7/24/365) operator workstations.

When the Operator Station is used as the Remote Client Server, its sole purpose is to host remote sessions. It cannot be used as an Operator Station or a Professional Station; only the connected remote sessions can be Operator and Professional Stations.

The ProfessionalPLUS Station is used as the 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 of 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 Operator Station node should be used as the Remote Client Server.

**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 of 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 BOI is connecting to. This also applies to the Campaign Manager Operator Interface. All sessions from the same server will use the same settings.

**Remote Session Options**

Each Remote Client session can support a different set of functionality. Remote Client sessions are sized and setup 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. If no alarming is required, only the zero span Operator or Professional Station license is necessary.

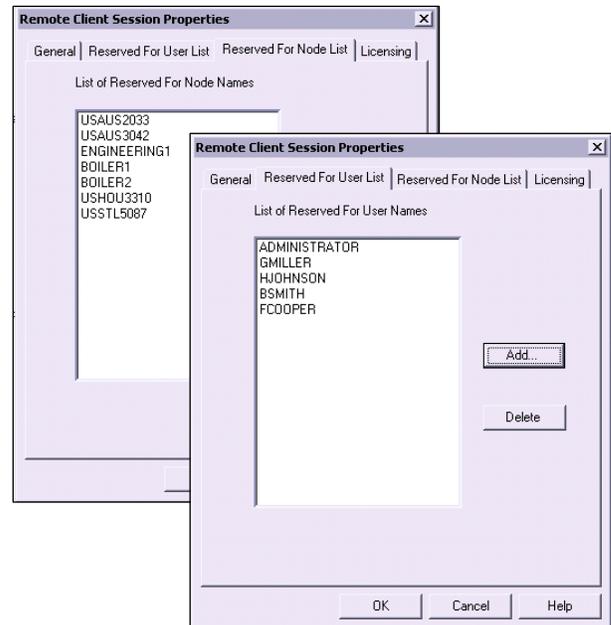
A DeltaV Remote Client session can be used on a DeltaV Operator Station that will allow the plant operator or engineer to use the DeltaV Remote Client to access and control other DeltaV systems from the operator workstation.

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.

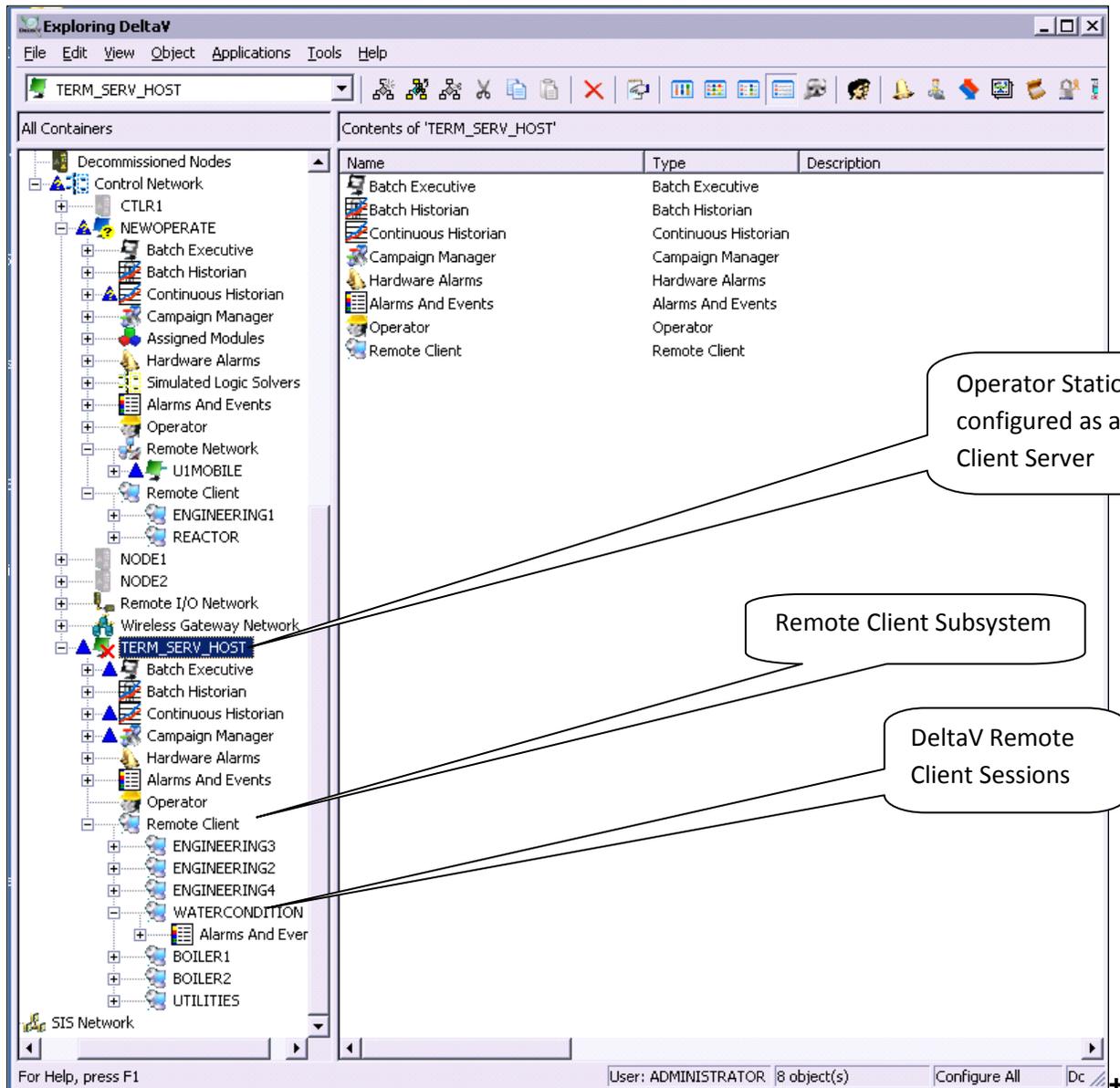
Remote Engineering sessions are included in the maximum of 60 database connections to the ProfessionalPLUS. This means that once the 60 database connections are consumed at the ProfessionalPLUS, no further engineering applications can be started from any workstation – remote or local.

Remote graphic editing sessions allow a maximum of one copy of the 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 Remote Client servers will have to be used. Additionally, Display Audit Trail does not support remote display configuration.

The Remote Client subsystem is available in the DeltaV Explorer under the ProfessionalPLUS and Operator Station nodes. 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.



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



DeltaV Explorer showing setup for Remote Clients

### Performance and Integrity

There are many factors that will influence the performance of the Remote Client including communications method and speed, type of computer used for the Remote Client Server, type of computer used on the Remote Client Sessions, number and type of sessions connected to the 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, modem, 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. We do not recommend applying the Remote Client at speeds lower than 28.8 kbps.

**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 plant LAN provides a high level of integrity. An open plant LAN with general business network traffic, satellite, modem, microwave, wireless or other non-LAN connections all provide a medium level of integrity. Dial-up modems provide a low to medium integrity level.

**Computer Hardware**

Both the Remote Client Server computer and the Remote Client Session computer have an impact on the performance. For the Remote Client server, the model and configuration of the hardware will impact the performance. For example, a dual processor with 2 GB of memory will provide better performance than a small single processor, especially in a multi-user situation. Remote Client Session 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 Session hardware. Additionally, if other software applications are running on the Remote Client Session computer, the performance and software integrity may be affected.

**Remote Client Sessions**

The number of concurrent users on a single 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 Client sessions will also impact the performance. Operators will create more loads on the 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 this terminal server 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 terminal server-based operator interface may not be advisable in all situations, and Emerson Process Management assumes that the customer is aware of these risks prior to deploying this solution in their specific situation.

**Support**

Full support will be provided for any DeltaV Operator Station that is being used as a Remote Client session to another DeltaV system. Additionally, full support will be provided for a Remote Client computer when the computer is dedicated to DeltaV Remote Client use, is running the current Microsoft O/S, and is certified for that O/S. Full support cannot be provided if the computer is running any other software.

For any communications problems and all remote client sessions, Emerson Process Management 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 Process Management 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 Process Management or caused by equipment supplied by others.

**System Compatibility**

DeltaV version 8.4 or later is required on the Remote Client server to use the specifications in this document.

The Remote Client Server node must be installed on a server-class computer running the Microsoft Server operating system.

Remote Client sessions may be run on any computer hardware that will support the Microsoft Remote Desktop Connection software.

Must run Microsoft Remote Desktop Connection software. (Available as a free download from Microsoft). The software can be downloaded from <http://www.microsoft.com/windowsxp/pro/downloads/rdclie ntdl.asp>. Microsoft supports the Remote Desktop Connection software on any Windows 32 bit operating system including Windows NT.

## Ordering Information

Description	Model Number
ProfessionalPLUS Station Software Suite	VE2101Sxxxx
Base Station Software Suite	VE2106
Event Journal	VE2143
Operator Station Software Suite, Full Span of Control**	VE2104
Operator Station Software Suite, Zero Span of Control**	VE21040000
Professional Station Software Suite, Full Span of Control**	VE2102
Professional Station Software Suite, Zero Span of Control**	VE2102S0000
Maintenance Station Software Suite*	VE2105

\*Assignable to the remote client sessions.

\*\* 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).

## 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.

## Related Hardware Products

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

## 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.

## Prerequisites

- Each client session requires one or more standard DeltaV workstation licenses, and the licenses may be different for each defined session.
- If the Remote Client Server is an Operator Station, a Base Station license is required 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 Remote Client Server is an Operator Station, an Event Chronicle license must be assigned to the server node to enable the event collection.
- If the Remote Client Server is a ProfessionalPLUS Station, no server license is required.
- All displays must be using the DVSYS functionality on the operator interface.
- Each 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 Terminal Server Client Access License (TSCAL). Each remote device connecting to a terminal server requires a TSCAL (in addition to the CAL). There are no TSCALs included in the DeltaV setup. Licenses must be purchased for all devices that will be connecting to the server.
- Emerson Process Management is not able to provide the CAL or TSCAL license packs. They can be purchased from Microsoft or another third party vendor.

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