

DeltaV Connect™ Solution for Moore® Systems



For enhanced operator workstations and a platform for today's digital technologies, DeltaV workstations easily connect to your APACS or QUADLOG system

- Operate your process easily and intuitively
- Install and commission with no downtime
- Accelerate operator training with side-by-side DeltaV™ workstations and APACS® and QUADLOG® consoles
- Easily integrate today's state-of-the-art digital technologies
- Future-proof your investment

Introduction

Emerson Process Management's DeltaV Connect™ Solution for Moore® Systems upgrades your user interface while APACS or QUADLOG controllers and I/O continue running your process. DeltaV Connect Solution for Moore Systems provides a transition path to a digital plant architecture with the DeltaV system.

Moore Systems users can take advantage of today's performance enhancing technologies such as digital buses, embedded advanced control, self-diagnosing instrumentation, on-the-fly scalability, wireless communications and plug-and-play business integration, without completely starting from scratch.



Benefits

Operate your process easily and intuitively. The DeltaV Connect Solution for Moore Systems provides capabilities such as event reporting, history collection, and enhanced alarming for the Moore system. The interface seamlessly transfers analog and discrete I/O, process control loops, device control, resource operating status, and online tuning to the DeltaV system. Operating (mode, setpoint and output) and tuning changes made from the DeltaV workstations are automatically sent to the APACS or QUADLOG controller.

Install and commission with no downtime. Installing the DeltaV Connect Solution for Moore Systems is no more invasive than installing an APACS or QUADLOG Human-Machine-Interface (HMI). The connection is to an Industrial Ethernet Module (IEM) running NIM32 software (see Figure 1).

Once you install the DeltaV Connect Solution for Moore Systems software on DeltaV workstations and the required 3rd party software and physical connections, the interface can immediately communicate with APACS or QUADLOG controllers.

Accelerate operator training with side-by-side DeltaV workstations and APACS or QUADLOG consoles. The DeltaV Connect Solution for Moore Systems communicates with standard DeltaV Operator Stations. Placing the DeltaV Operator Station beside an APACS or QUADLOG console can be highly effective for operator training. This affords operators a gradual transition to the DeltaV user interface, increasing their confidence day by day.

Take advantage of state-of-the-art digital technologies. With the DeltaV Connect Solution for

Moore Systems, you have all the tools needed for expanding the DeltaV system to include DeltaV hardware controllers and I/O. You have the ProfessionalPlus Station, which includes libraries of templates for configuration of various bus types and approved digital devices from various vendors. You can configure FOUNDATION Fieldbus, DeviceNet, AS-i bus or Profibus DP I/O for your new DeltaV controller at any time.

All configuration work—on control strategies, I/O and displays—can be completed prior to the actual installation of the hardware. Once the DeltaV controllers are installed, the cutover from the Moore system to the DeltaV system can be done at your pace—from one loop at a time to as much I/O as you need.

Through the interface, you can easily share APACS or QUADLOG controller data with DeltaV controller data on the same graphic display.

Future-proof your investment. You can invest in the future today. With DeltaV Connect Solution for Moore Systems, you broaden the options for future expansion. You preserve the most durable components of the APACS system, while positioning your plant for on-going enhancements.

For example, with DeltaV embedded advanced controls, you may discover control strategy improvements that dramatically reduce variability. Other DeltaV tools examine loop usage and performance, to highlight underperforming loops. Auto-tuning is another built-in feature for DeltaV controllers that may add significant value in improving the performance of your process. You will gain many opportunities to generate and measure real returns on your investment.

DeltaV Connect Solution for Moore Systems

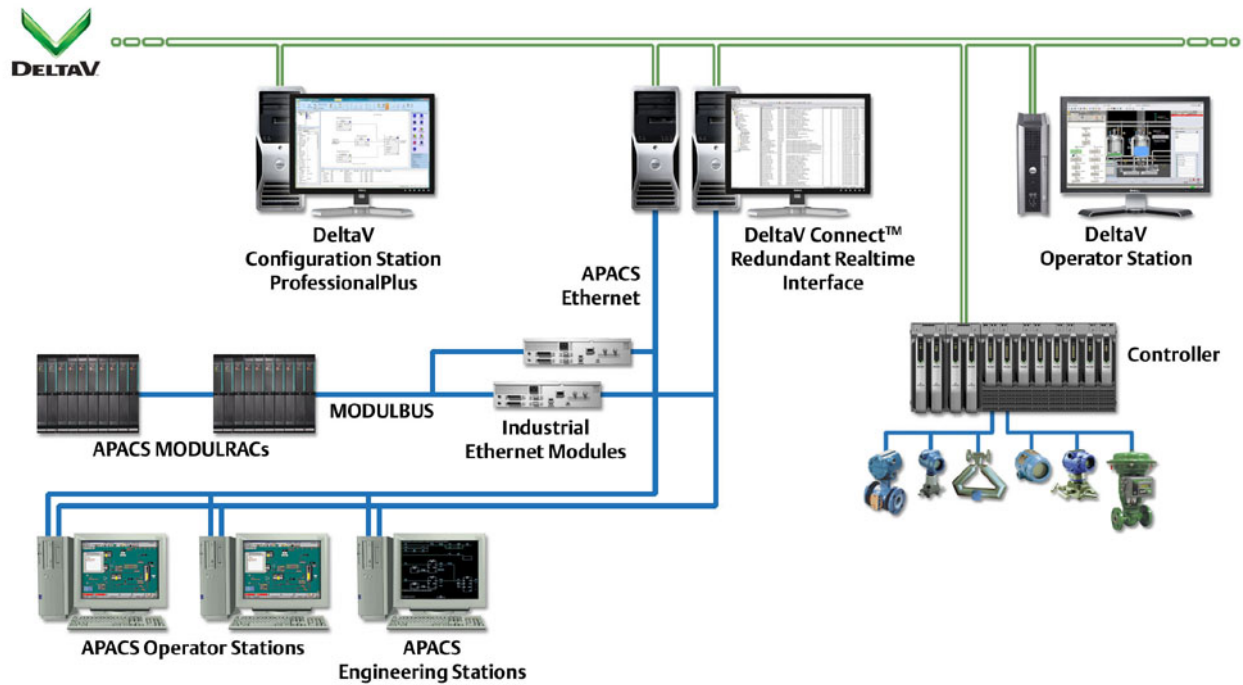


Figure 1. DeltaV Connect Solution for Moore Systems paves the way for future expansion with DeltaV controllers and I/O (IEM option shown)

A Wealth of Information

The DeltaV ProfessionalPLUS Station and the DeltaV Operator Station are used in place of or in conjunction with APACS and QUADLOG consoles. Your operators can run history view applications, system diagnostics, event viewers, and control strategy diagnostics right on the DeltaV Operator Station.

Additional workstations can be added to the DeltaV system, allowing multiple operator access. Optional DeltaV Dual-Monitor and Touchscreens provide an expanded field of view for the operator and easy-to-use touch access to the system.

Easy Access to APACS and QUADLOG Data

The DeltaV Connect Solution for Moore Systems makes APACS function block data accessible on DeltaV workstations. From APACS-oriented DeltaV faceplates and detail displays, operators can change modes, adjust setpoints and even modify tuning parameters in the APACS controllers (see Figure 6).

Product Description

DeltaV Connect Solution for Moore Systems consists of engineering and real-time interface software applications. The engineering software includes templates for the DeltaV database “control modules” and faceplates. Once downloaded to the real-time interface, these database points mirror the APACS function block data across an OPC connection, providing real-time data transfer between the DeltaV and Moore systems.

The interface modules communicate directly with APACS or QUADLOG function blocks. The data is brought in as “APACS blocks” data, such as: Setpoint & Setpoint Limits, Process Variable (PV) and PV Limits, Outputs & Output Limits; Loop and Device Modes; Device Discrete Statuses; Alarms, and so on.

The DeltaV Connect solution is fully scalable, supporting systems with fewer than 8,000 APACS connect block references to systems with 80,000 APACS connect block references.

Up to 8,000 OPC references per second can be updated with a single DeltaV Connect Solution for Moore Systems interface. Support for up to 80,000 references per interface is based on the report by exception design.

Architecture

The DeltaV Connect Solution for Moore Systems interface works with IEM (NIM32) devices. Installing the DeltaV Connect Solution for Moore Systems with an IEM (NIM32) device requires a dedicated DeltaV Application Station for the real-time interface—for 8,000 or more connect block references—and a DeltaV ProfessionalPLUS Station for configuration (see Figure 2). This interface is redundancy-capable and supports up to 80,000 connect block references.

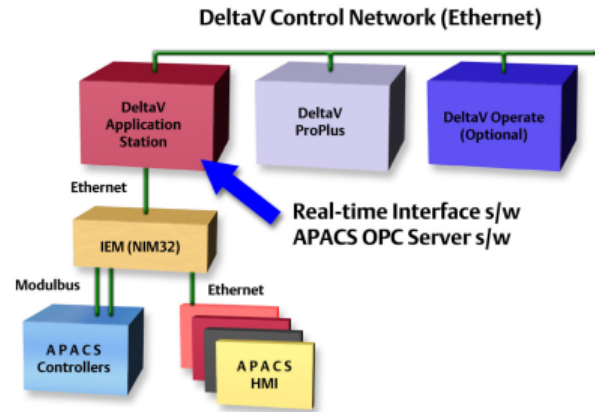


Figure 2. DeltaV Connect Solution for Moore Systems with IEM (NIM32) device

IEM (NIM32) Option for Small Systems. For smaller system interfaces of less than 8,000 connect block references, you can install both engineering and real-time interface software applications on a single ProfessionalPLUS Station (see Figure 3). This interface is not redundancy-capable.

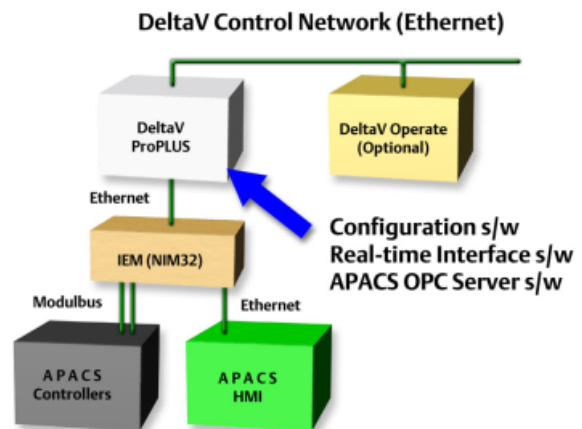


Figure 3. DeltaV Connect Solution for Moore Systems on a single workstation

Configuration

The DeltaV Connect Solution for Moore Systems modules and their building blocks, called “function blocks” have a one-to-one correspondence with APACS function block data for PID loops, motor and valve devices, monitoring points, discrete alarms and global variables.

The interface software includes templates for these APACS-specific modules and function blocks (see Tables 1 & 2).

Once these modules are downloaded to the DeltaV interface station’s “virtual controller,” they are ready to communicate.

Each module is composed of function blocks that mirror specific parameters of the APACS function blocks into the DeltaV Operator Interface. The DeltaV Connect solution function blocks shown in Table 2 are the essential elements of the communications interface. Configuring the interface is easily done by drag-‘n-drop of these module templates.

Module configuration on the DeltaV ProfessionalPLUS Station applies standard DeltaV engineering methods, as follows. In the DeltaV Explorer:

1. Select a module template that matches an APACS derived block type.
2. Drag the module to a Control Strategies Area. (See Figure 4).
3. Enter a tag name and a descriptor.
4. Enter the 4-mation sheet name or its alias, which you define in another module.

To configure the interface for QUADLOG, modify APACS-specific templates to match the QUADLOG derived blocks. Then follow steps 2-4 above.

| Module | Descriptor |
|------------|-----------------------------------|
| DCA-AAI | Analog Alarm Input |
| DCA-CPID | Cascaded PID |
| DCA-DAI | Discrete Alarm Input |
| DCA-ESPID | External Set PID |
| DCA-MOTOR1 | Motor, 1 Output |
| DCA-MOTOR2 | Motor, 2 Output |
| DCA-PRIPID | Primary Loop PID |
| DCA-PTCOMP | Pressure Temperature Compensation |
| DCA-RPID | Ratio PID |
| DCA-SECPID | Secondary Loop PID |
| DCA-SPID | Single Loop PID |
| DCA-VALVE1 | Block Valve, 1 Output |
| DCA-VALVE2 | Block Valve, 2 Output |
| DCA-ACM | APACS Resource Summary |
| DCA-ALIAS | Alias for 4-mation Sheet Name |
| DCA-IDB | Interface Definition Block |

Table 1. DeltaV Connect Solution for Moore Systems module templates

| Function Block | Descriptor |
|----------------|----------------------------|
| OPCIDB | Interface Definition Block |
| OALIAS | Alias Block |
| OBASE | Base Tag Block |
| OD | Discrete Block |
| ODA | Discrete Alarm Block |
| OFP | Floating Point Block |
| OFPA | Floating Point Alarm Block |
| OFPL | Floating Point Limit Block |
| OI | Integer Block |
| OIL | Integer Limit Block |
| OMD | Mode Block |
| OS | String Block |

Table 2. DeltaV Connect Solution for Moore Systems function block templates

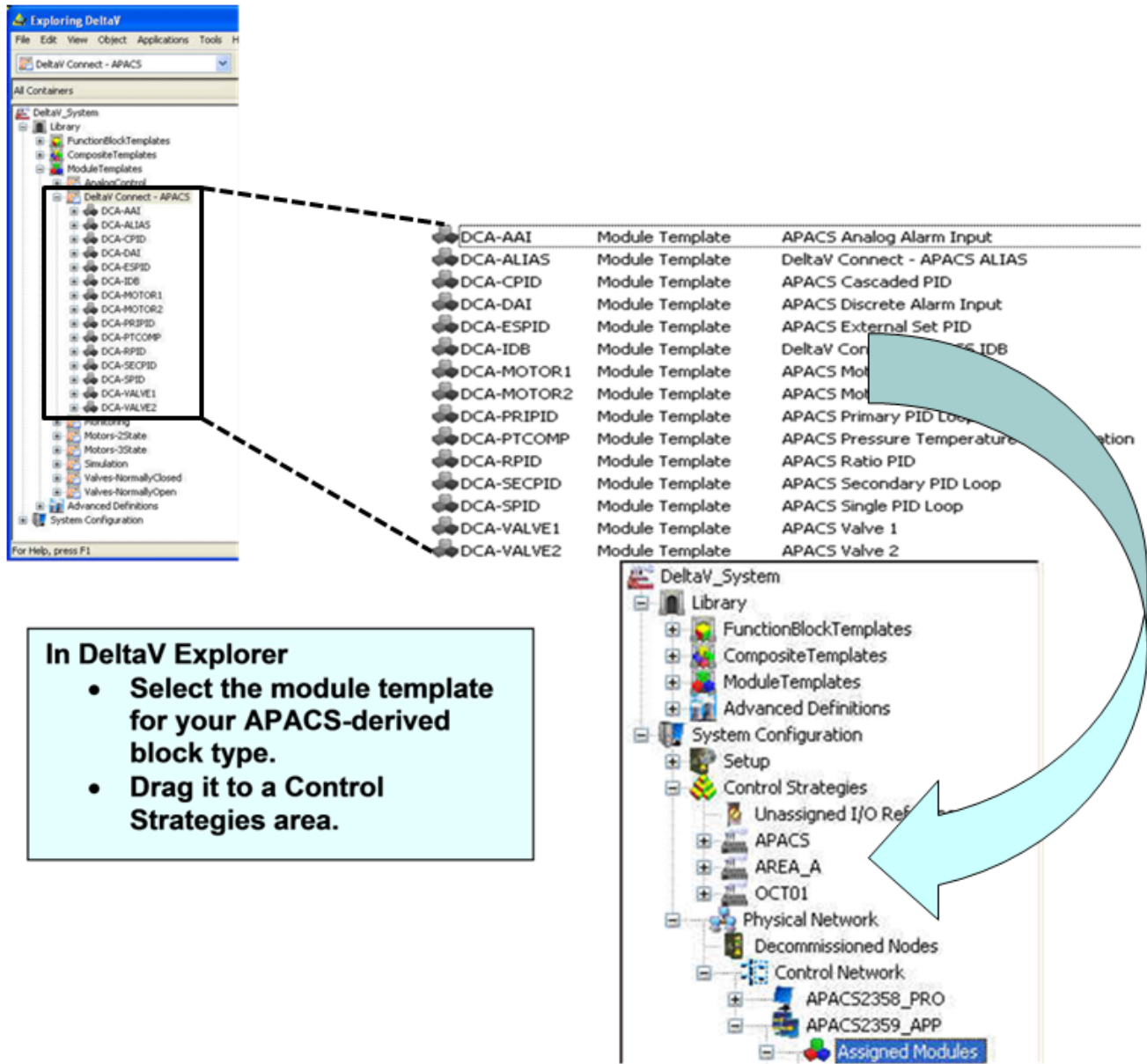


Figure 4. DeltaV Explorer view of interface module templates

Predefined Operator Faceplates

DeltaV Connect Solution for Moore Systems module templates are preconfigured to call up the correct faceplate and detailed display (where applicable) on the DeltaV Operator Station. To make any adjustments to the faceplates, simply edit them using the DeltaV graphics editor.

The interface software includes predefined faceplates for DeltaV Operate for each of the modules identified above in Table 1. Device faceplate examples are shown in Figure 5.

PID loop faceplate and detail displays are shown in Figure 6.



Figure 5. DeltaV Connect Solution for Moore Systems VALVE & MOTOR faceplates

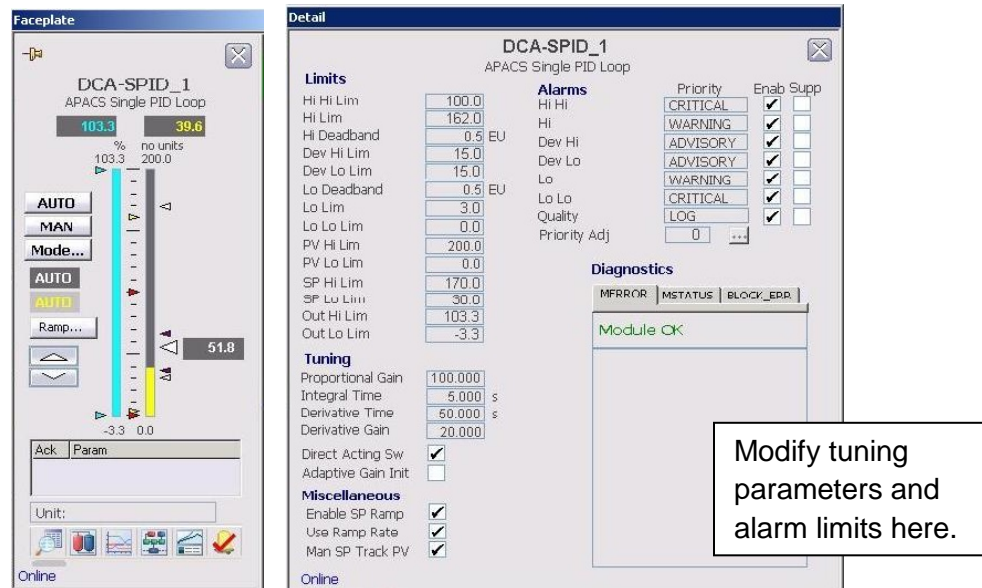


Figure 6. DeltaV Connect Solution for Moore Systems SPID faceplate and SPID detail display

System Compatibility

The DeltaV Connect Solution for Moore Systems v1.3 is compatible with DeltaV releases v10.3.1 and v11.3.1 (see Table 3).

| DeltaV Connect Solution for Moore Systems and DeltaV Version Compatibility | DeltaV v10.3.1 | DeltaV v11.3.1 |
|--|----------------|----------------|
| DeltaV Connect Solution for Moore Systems v1.3 | Yes | Yes |

Table 3. DeltaV version compatibility with DeltaV Connect Solution for Moore Systems

The DeltaV system hardware and software requirements depend on the implementation of the DeltaV Connect Solution for Moore Systems as simplex, redundant or single workstation (see Table 4).

| DeltaV Connect Solution for Moore System Requirements | Simplex Interface | Redundant Interface | Single Station Interface |
|--|-------------------|-----------------------|--------------------------|
| DeltaV ProfessionalPLUS 25 DST license | Yes | Yes | Yes |
| DeltaV Application Station 250 data value license ¹ | Yes | Yes, One ² | No |
| Minimum number of DeltaV PC workstations ⁶ | Two ³ | Three ⁴ | One ⁵ |

Table 4. DeltaV items required to support DeltaV Connect Solution for Moore Systems

¹ Each simplex DeltaV Connect Solution for Moore Systems installed on an Application Station requires an Application Station suite license. Each redundant interface installed on an Application Station pair requires one Application Station suite license.

² For a redundant interface, purchase two workstations for the Application Station redundant pair. A single Application Station license and a single Redundancy License are required for the Application Station pair.

³ One ProfessionalPLUS and one Application Station.

⁴ One ProfessionalPLUS and two Application Stations.

⁵ One ProfessionalPLUS.

⁶ To add DeltaV Operator Stations, add one DeltaV Operator Station Suite software license and one Dell PC (workstation or server as required) for each Operator Station.

The DeltaV Connect Solution for Moore Systems interface is sized based on the number of DeltaV Connect function block references required for the associated APACS or QUADLOG system I/O. Table 5 shows a general guideline for sizing a DeltaV Connect Solution for Moore Systems interface license based on the I/O count. To determine the exact number of references present on the current operator interface, it is recommended that controller and HMI database backups be sent to Emerson for analysis.

| APACS or QUADLOG System I/O | Number of Connect Block References |
|------------------------------------|---|
| <800 | 8000 |
| 800 – 1500 | 16000 |
| 1500 – 3000 | 32000 |
| 3000 – 8000 | 80000 |

Table 5. DeltaV Connect Solution for Moore Systems I/O-Based Sizing Chart

The DeltaV Connect Solution for Moore Systems includes the license for the APACS interface engineering and real-time software applications. For this interface to be operational, 3rd party hardware and software components are required (see Table 6). Please contact your local Emerson sales office for details.

| DeltaV Connect Solution for Moore Systems v1.3 3rd Party Requirements |
|---|
| Matrikon OPC Server for Siemens APACS Direct v1.6.0 software and license (simplex or redundant) |
| IEM with spare capacity to support one interface station |

Table 6. 3rd party components required to support DeltaV Connect Solution for Moore Systems

Services

For help in planning, justifying or implementing your Moore system migration, contact your local Emerson representative. Expert consultants are willing and able to advise you on a variety of concerns, including safety system design, implementation and standards compliance; digital buses, wireless applications, control performance and process optimization.

Inquiries and Ordering Information

For inquiries and new DeltaV Connect Solution for Moore Systems sales, please contact your local Emerson sales office.

To scale up the function block license capacity on existing DeltaV Connect Solution for Moore systems, see below.

| Description | Model Number |
|---|--------------|
| DeltaV Connect Solution for Moore Systems, 8000 Block Scaleup | VE22UPS045 |

Related Products

- **DeltaV ProfessionalPLUS Station Software Suite.** Centralized operations, engineering, configuration database and diagnostics on a DeltaV workstation.
- **DeltaV Application Station Software Suite.** Integrate your DeltaV system with 3rd party systems and applications on a DeltaV workstation. Includes a scalable DeltaV Continuous Historian and DeltaV OPC Data Access server.

Prerequisites

- DeltaV v10.3.1 or DeltaV v11.3.1 system software. See Table 3 for DeltaV system version compatibility.
- DeltaV ProfessionalPLUS workstation, Application Station, and Operator Station(s), as needed. See Table 4 for DeltaV workstation requirements.

To locate a sales office near you, visit our website at:
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