



Interoperating PROVOX Devices with DeltaV Devices

Ten scenarios involving PROVOX/DeltaV interoperability are considered as guides for expanding plant operation.

© Emerson Process Management 1996—2007 All rights reserved.

DeltaV, the DeltaV design, SureService, the SureService design, SureNet, the SureNet design, and PlantWeb are marks of one of the Emerson Process Management group of companies. All other marks are property of their respective owners. The contents of this publication are presented for informational purposes only, and while every effort has been 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 design or specification of such products at any time without notice.





Contents

Console Replacement	3
Major Expansion, Single Operator Interface—A	5
Major Expansion, Single Operator Interface—B	7
Small Expansion, Single Operator Interface—C	9
Small Expansion, Single Operator Interface—D	11
Small Expansion, Single Operator Interface—E.....	13
Upgrade Regulatory Controllers to DeltaV Controllers, Single Operator Interface	
Upgrade IFC/UOC Controllers to DeltaV Controllers, Single Operator Interface—A	17
Upgrade IFC/UOC Controllers to DeltaV Controllers, Single Operator Interface—B	18
Upgrade UniVOX/microPROVOX to DeltaV Controllers, Single Operator Interface:	20



Console Replacement

The customer desires to replace PROVUE or OWP consoles in the plant due to maintenance issues. The PROVUE consoles are needing frequent maintenance on (or replacement of) the hard disks or monitors causing maintenance costs to increase.

Solution: Use DeltaV Operate for PROVOX

Value Proposition

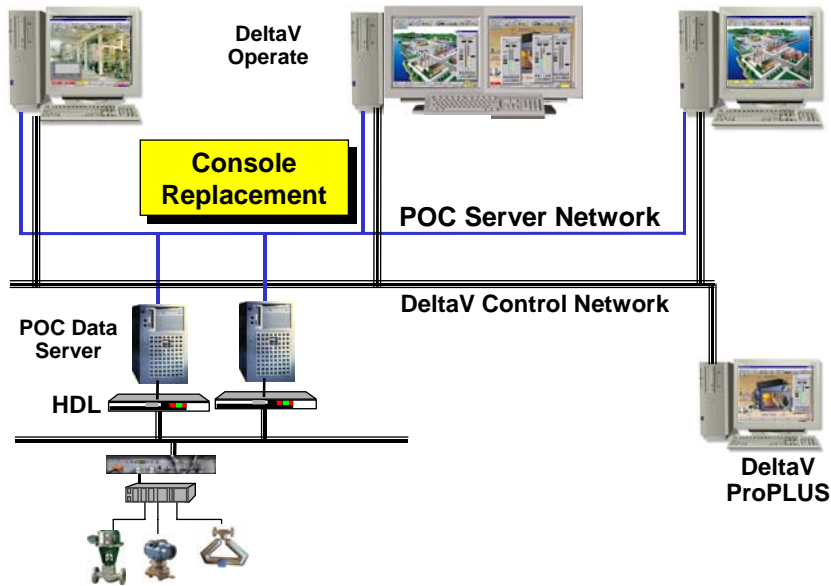
- Allows a single-head or a dual-head workstation to display control information from the plant area controlled by PROVOX controllers
- Provides the latest graphics technology (Intellution iFIX graphics) on a PROVOX console.
- Allows for easy configuration of the operator interface database, because the PROVUE device information in ENVOX can be updated to an OWP configuration through ENVOX utilities, and downloaded to the console server of DeltaV Operator for PROVOX
- Redundancy is inherent in and part of the console data server of DeltaV Operate for PROVOX. The redundancy in the console provides the ability for a secondary console to pick up processing of the points resident in the primary console, and provides the ability to serve process data to the primary console's workstations.

Limitations

- New graphics will need to be configured to display the control information from the PROVOX controllers



DeltaV Operate for PROVOX



DeltaV Operate for PROVOX Architecture, with DeltaV Controllers



Major Expansion, Single Operator Interface—A

A customer with a PROVOX control system is expanding the plant (major expansion) and using DeltaV controllers in the expansion. The objective is a single operator interface for the operators for all areas of the plant.

Solution: Use DeltaV Operate for PROVOX

Value Proposition:

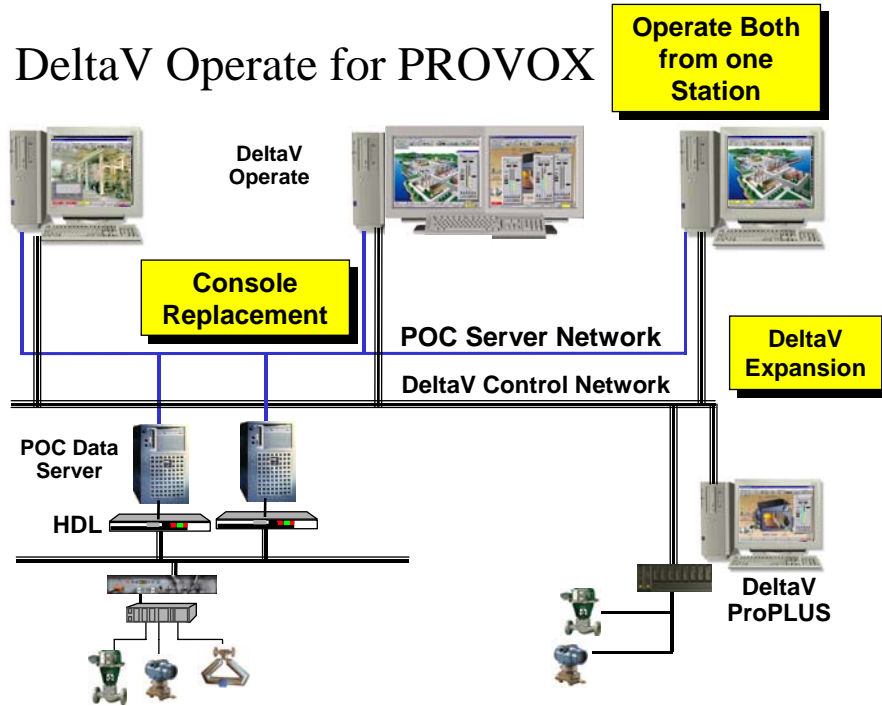
- Allows a single-head or a dual-head workstation to display control information from the plant area controlled by PROVOX controllers on the same picture as control information from the plant area controlled by DeltaV controllers
- Provides full redundancy capabilities
Redundancy is inherent in and part of the console data server of DeltaV Operate for PROVOX. The redundancy in the console provides the ability for a secondary console to pick up processing of the points resident in the primary console, and provides the ability to serve process data to the primary console's workstations after a failure of the primary console server or of the communications path.
- Provides the latest graphics technology (Intellution iFIX graphics) on a PROVOX console.
- Allows for easy configuration of the operator interface database, because the PROVUE device information in ENVOX can be updated to an OWP configuration through ENVOX utilities, and downloaded to the console server of DeltaV Operator for PROVOX

Limitations:

- New graphics will need to be configured to display the control information from the PROVOX controllers
- Differences between how DeltaV controllers and PROVOX controllers handle control loops and discrete control will need to be handled by the operator.



DeltaV Operate for PROVOX



Use of DeltaV Operate for PROVOX in a Major Expansion with a Single Operator Interface



Major Expansion, Single Operator Interface—B

A customer with a PROVOX control system, is expanding the plant (major expansion) and using DeltaV controllers in the expansion. The objective is a single operator interface for the operators for all areas of the plant. An additional factor to consider is whether there is a need to control coordination between PROVOX and DeltaV controllers and how much data is needed for that control coordination. In this situation, control coordination involving a large amount of data is needed.

Solution

Use DeltaV Operate for PROVOX & PROVOX DeltaV Integrator

Value Proposition

- Allows a single-head or a dual-head workstation to display control information from the plant area controlled by PROVOX controllers on the same picture as control information from the plant area controlled by DeltaV controllers
- Provides full redundancy capabilities for the operator interface. Redundancy is inherent in and part of the console data server of DeltaV Operate for PROVOX. The redundancy in the console provides the ability for a secondary console to pick up processing of the points resident in the primary console, and provides the ability to serve process data to the primary console's workstations after a failure of the primary console server or of the communications path.
- Provides the latest graphics technology (Intellution iFIX graphics) on a PROVOX console.
- Allows for easy configuration of the operator interface database, because the PROVUE device information in ENVOX can be updated to an OWP configuration through ENVOX utilities, and downloaded to the console server of DeltaV Operator for PROVOX
- PROVOX DeltaV Integrator provides ability to easily move information between PROVOX and DeltaV equipment
- Quick Configuration Tool to minimize configuration and setup
- Rules based capability gives power users extensive flexibility

Limitations

- New graphics will need to be configured to display the control information from the PROVOX controllers
- Differences between how DeltaV controllers and PROVOX controllers handle control loops and discrete control will need to be handled by the operator.
- Amount of data that can be transferred by PDI is limited by the PROVOX Data Highway; Data Highway II can transfer more data than Data Highway I.
- PDI can not transfer commands for PROVOX Unit points or Logic Control points (LCPs); alternate methods may be required to handle specific needs.



Small Expansion, Single Operator Interface—C

A customer with a PROVOX control system is expanding the plant (small expansion) and using DeltaV controllers in the expansion. There are OWP consoles in the plant, and wants to have a single operator interface for the operators for all areas of the plant, and needs control coordination for a large amount of data (> 100 points, < 500 points for Highway I, and < 2000 points for Highway II).

Solution: Use PROVOX DeltaV Integrator to bring DeltaV data to the PROVOX highway

Value Proposition:

- Use existing PROVOX consoles to operate DeltaV equipment
- Easily move information between PROVOX and DeltaV equipment
- Quick Configuration Tool to minimize configuration and setup
- Rules based capability gives power users extensive flexibility
- Existing graphics can be modified to display the control information from the DeltaV controllers
- Runtime parameter conversions provided as standard

Limitations:

- Redundancy for PDI is not currently available.
A Hot Standby Unit is offered as an option. This requires manual switch over from the primary to the Hot Standby Unit should the primary unit fail. This provides an added level of reliability for users in mission critical applications.
An option using a fault-tolerant server with dual HDLs for redundancy is planned for Data Highway II installations.
- The bandwidth, the speed at which the PDI can move information onto the data highway, is perhaps the most significant factor to consider when planning a PDI installation. For Data Highway I and moving DeltaV values to the PROVOX system, there is a 500 point limit per HDL. For Data Highway II and moving DeltaV values to the PROVOX system, there is a 2000 point limit per HDL.



PROVOX - DeltaV Integrator

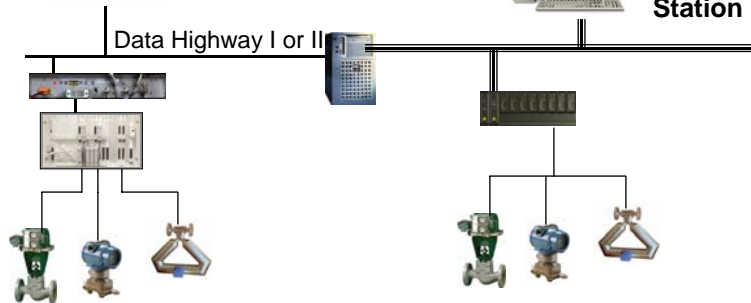
PROVOX

Operator Console
PROVUE, OWP, POC



DeltaV Expansion

DeltaV
Operator
Station



Use of PROVOX DeltaV Integrator in a Small Expansion with a Single Operator Interface and Control Coordination for a Large Amount of Values



Small Expansion, Single Operator Interface—D

A customer with a PROVOX control system is expanding the plant (small expansion) and using DeltaV controllers in the expansion. There are OWP consoles in the plant, and the objective is to have a single operator interface for the operators for all areas of the plant, and the plant manager needs control coordination for a small amount of data (< 100 points), or needs fast transfer of data between his controllers.

Solution: Use a serial connection using an IDI on the PROVOX controller and the serial module on the DeltaV controller to bring DeltaV data to the PROVOX controller.

Value Proposition:

- Use existing PROVOX consoles to operate DeltaV equipment
- Equipment needed may be already available
- Redundancy

Limitations

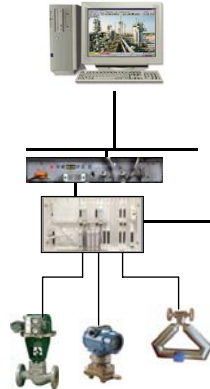
- Low point solution (due to economics)
- Configuration mapping is required for the Serial I/O points in both the PROVOX and DeltaV systems



Serial Connection

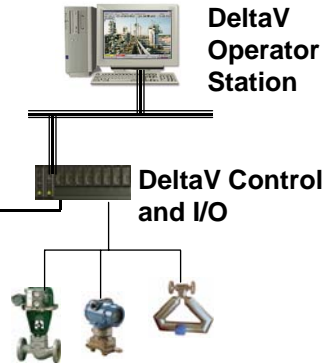
PROVOX

Operator Console
PROVUE, OWP, POC



DeltaV Expansion

DeltaV
Operator
Station



Serial link

Use of Serial Communications in a Small Expansion with a Single Operator Interface and Control Coordination for a Small Amount of Values



Small Expansion, Single Operator Interface—E

A customer with a PROVOX control system is expanding his plant (small expansion) and using DeltaV controllers in the expansion. He has PROVOX consoles (POC, OWP, or PROVUE) in the plant, and wants to have a single operator interface for the operators for all areas of the plant.

Solution: Use PROVOX DeltaV Integrator to transfer the DeltaV controller data to the PROVOX highway for display on the PROVOX console.

Value Proposition:

- Use existing PROVOX consoles to operate DeltaV equipment
- Equipment needed may be already available
- Console Redundancy

Limitations:

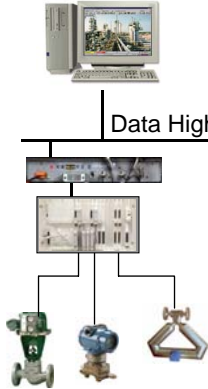
- Redundancy for PDI is not currently available.
A Hot Standby Unit is offered as an option. This requires manual switch over from the primary to the Hot Standby Unit should the primary unit fail. This provides an added level of reliability for users in mission critical applications.
- An option using a fault-tolerant server with dual HDLs for redundancy is planned for Data Highway II installations.
- The bandwidth, the speed at which the PDI can move information onto the data highway, is perhaps the most significant factor to consider when planning a PDI installation. For Data Highway I and moving DeltaV values to the PROVOX system, there is a 500 point limit per HDL. For Data Highway II and moving DeltaV values to the PROVOX system, there is a 2000 point limit per HDL.



PROVOX - DeltaV Integrator

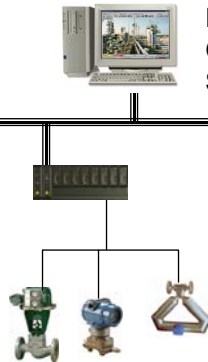
PROVOX

Operator Console
PROVUE, OWP, POC



DeltaV Expansion

DeltaV
Operator
Station



Data Highway I or II

Use of PROVOX DeltaV Integrator in a Small Expansion
with a Single Operator Interface



Upgrade Regulatory Controllers to DeltaV Controllers, Single Operator Interface

A customer with a PROVOX control system is upgrading his PROVOX regulatory controllers to use DeltaV controllers. He has PROVOX consoles (POC, OWP, or PROVUE) in the plant, and wants to have a single operator interface for the operators for all areas of the plant.

Solution: Use FlexConnect to marshal his field connections to the DeltaV I/O mass termination blocks. Use Emerson Process Management services to have the controller configuration converted using the conversion utility and services.

For console needs, use the criteria in previous sections to determine the proper solution.

Value Proposition:

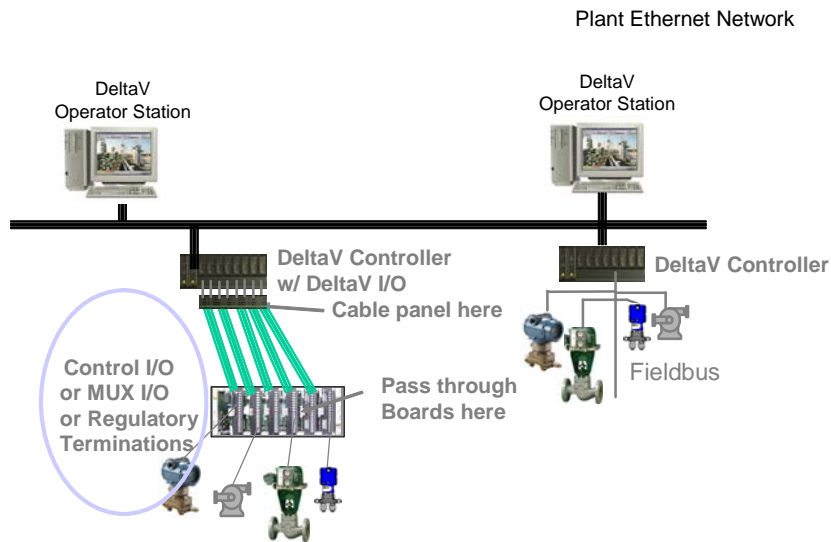
- Save investment in existing wiring
- No updating engineering drawings
- Speed startup by not disturbing field connections
- Reduce process downtime to almost zero
- Moving to the DeltaV platform with increased control functionality and use of advanced process control software
- Reconfiguration of PROVOX points to DeltaV modules can be done quickly and relatively inexpensively using Emerson Process Management's expertise and a conversion utility.

Limitations:

- Must configure PROVOX points to display on DeltaV operator interface.



PROVOX to DeltaV I/O Upgrade (FlexConnect)



Use of FlexConnect for PROVOX in a Migration to DeltaV Controllers to Reduce Rewiring Costs



Upgrade IFC/UOC Controllers to DeltaV Controllers, Single Operator Interface—A

A customer with a PROVOX control system is upgrading his PROVOX IFC or UOC controllers with MUX I/O to use DeltaV controllers. He needs to maintain his MUX I/O for a short while longer in order to replace it in a follow-on project next year. He has PROVOX consoles (POC, OWP, or PROVUE) in the plant, and wants to have a single operator interface for the operators for all areas of the plant.

Solution: Use DeltaV Controller for PROVOX to use the MUX I/O (adding the serial buffer card, if not already used) with the DeltaV controller.

Use Emerson Process Management services to have the controller configuration converted using the conversion utility and services.

For console needs, use the criteria in previous sections to determine the proper solution.

Value Proposition:

- Unplug MUX I/O from SRx/SR90/20 Series controller and plug into DeltaV Controller for PROVOX carrier
- Protects wiring investment
- Protects I/O board investment
- Adds Redundant connection between controller carrier and I/O
- Failsafe values supported (applicable to MUX I/O???)
- MUX I/O card types supported (More info requested).
- Save investment in existing wiring
- No updating engineering drawings
- Speed startup by not disturbing field connections
- Reduce process downtime to almost zero
- Moving to the DeltaV platform with increased control functionality and use of advanced process control software
- Reconfiguration of PROVOX points to DeltaV modules can be done quickly and relatively inexpensively using Emerson Process Management's expertise and a conversion utility.

Limitations:

- MUX I/O card types not supported include the serial connections
- Must configure PROVOX points to display on DeltaV operator interface.



Upgrade IFC/UOC Controllers to DeltaV Controllers, Single Operator Interface—B

A customer with a PROVOX control system is upgrading his PROVOX IFC or UOC controllers with Control I/O to use DeltaV controllers. He has PROVOX consoles (POC, OWP, or PROVUE) in the plant, and wants to have a single operator interface for the operators for all areas of the plant.

Solution: Use DeltaV Controller for PROVOX to use the Control I/O with the DeltaV controller.

Use Emerson Process Management services to have the controller configuration converted using the conversion utility and services.

For console needs, use the criteria in previous sections to determine the proper solution.

Value Proposition:

- Unplug Control I/O from SRx/SR90/20 Series controller and plug into DeltaV Controller for PROVOX carrier
- Unplug MUX I/O from SRx/SR90/20 Series controller and plug into DeltaV Controller for PROVOX carrier
- Protects wiring investment
- Protects I/O board investment
- Redundant connection between controller carrier and I/O
- PROVOX HART cards supported (Control I/O only)
- Failsafe values supported (Control I/O only)
- Firmware updates via passthrough (Control I/O only)
- Control I/O Card types supported include: Analog Input, Analog Input/Output, Pulse Count Input, Time Proportional Output, Weigh Scale Interface, and Smart Device I/O
- Save investment in existing wiring
- No updating engineering drawings
- Speed startup by not disturbing field connections
- Reduce process downtime to almost zero
- Moving to the DeltaV platform with increased control functionality and use of advanced process control software
- Reconfiguration of PROVOX points to DeltaV modules can be done quickly and relatively inexpensively using Emerson Process Management's expertise and a conversion utility.



Limitations:

- Control I/O Card types not supported include the External Device Interface, and Intelligent Device Interface; however, there is a solution for these applications, as the serial device can be plugged into a DeltaV Serial module.
- Must configure PROVOX points to display on DeltaV operator interface.



Upgrade UniVOX/microPROVOX to DeltaV Controllers, Single Operator Interface

A customer with a UniVOX (with MUX I/O) or microPROVOX control system (with Control I/O) is upgrading his controllers to use DeltaV controllers. He has PROVOX consoles (POC, OWP, or PROVUE) in the plant, and wants to have a single operator interface for the operators for all areas of the plant.

Solution: Use DeltaV Controller for PROVOX to use the Control I/O or MUX I/O with the DeltaV controller.

Use Emerson Process Management services to have the controller configuration converted using the conversion utility and services.

For console needs, use the criteria in previous sections to determine the proper solution.

Value Proposition:

- Unplug Control I/O from SRx/SR90/20 Series controller and plug into DeltaV Controller for PROVOX carrier
- Protects wiring investment
- Protects I/O board investment
- Redundant connection between controller carrier and I/O
- PROVOX HART cards supported
- Failsafe values supported
- Firmware updates via passthrough
- Control I/O Card types supported include: Analog Input, Analog Input/Output, Pulse Count Input, Time Proportional Output, Weigh Scale Interface, and Smart Device I/O
- MUX I/O card types supported (More info requested).
- Save investment in existing wiring
- No updating engineering drawings
- Speed startup by not disturbing field connections
- Reduce process downtime to almost zero
- Moving to the DeltaV platform with increased control functionality and use of advanced process control software
- Reconfiguration of PROVOX points to DeltaV modules can be done quickly and relatively inexpensively using Emerson Process Management's expertise and a conversion utility.



Limitations:

- Control I/O Card types not supported include the External Device Interface, and Intelligent Device Interface (However, there is a solution for these applications, as the serial device can be plugged into a DeltaV Serial module).
- MUX I/O card types not supported include the serial connections
- Must configure PROVOX points to display on DeltaV operator interface.