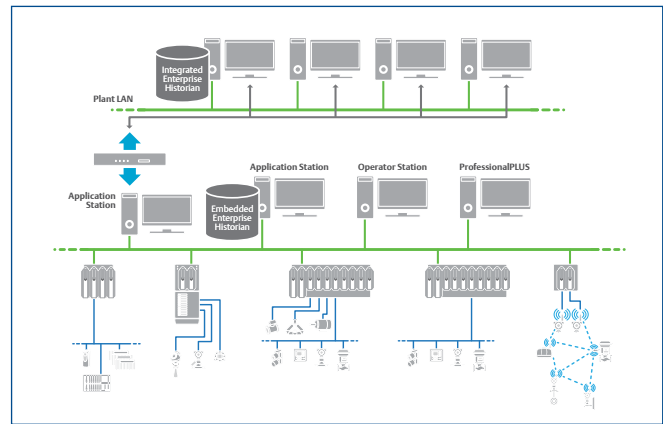# Enterprise Historian

- Enterprise historian functionality

- Integrated DeltaV™ system configuration and data collection

- Seamless DeltaV history client connectivity and data viewing

- Eeamless enterprise historian client and interface connectivity

- Flexible system architecture

An enterprise historian may be integrated into the DeltaV™ system.

Introduction

The DeltaV Continuous Historian collects and stores continuous process data generated by the DeltaV system. The DeltaV Continuous Historian provides all of the historical data collection and viewing functionality required by the DeltaV system.

However, there may be occasions when more historian functionality is required. In these cases, a PI Server from OSIsoft may be integrated into the DeltaV system to replace or supplement the DeltaV Continuous Historian.

The PI Server is integrated into the DeltaV system and can assume the role of the DeltaV system historian but can also provide enterprise historian functionality. In DeltaV v10.3 and later versions, the PI Server may be integrated into the DeltaV system on a DeltaV Application Station. In DeltaV v12.3 and later versions, the PI Server may be integrated into the DeltaV system on a DeltaV Application Station or on a non-DeltaV PC located on the plant or enterprise network.

Benefits

Enterprise historian functionality: The PI Server is integrated into the DeltaV system, providing all the functionality of a control system historian. However, the *PI Server also provides the full functionality of an enterprise historian.* Any enterprise historian functionality available and purchased with the PI Server may be used.

Integrated DeltaV system configuration and data collection: The DeltaV parameters required for history collection in the PI Server are configured using the familiar DeltaV engineering tools: DeltaV Explorer and/or Control Studio. The PI Server is configured in exactly the same way as the DeltaV Continuous Historian, using the native DeltaV engineering tools. *No 3rd party engineering tools are required!*

Seamless DeltaV history client connectivity and data viewing: The DeltaV history client applications will *seamlessly connect to and view data in the PI Server.* The DeltaV history clients will seamlessly connect to and view DeltaV historical data in the PI Server. The DeltaV history client applications may reside on any DeltaV workstation and access the historical data collected in the PI Server.

Seamless enterprise history client and interface connectivity: OSIsoft PI client applications and interfaces will seamlessly connect to and access DeltaV historical data in the PI Server. Use the PI client applications and interfaces to *provide DeltaV historical data to your users in your corporate enterprise.* The PI client applications and interfaces may reside on the DeltaV Application Station or non-DeltaV PC on the plant or enterprise network.

Flexible system architecture: The PI Server may be *installed on a DeltaV Application Station or any non-DeltaV PC* with network connectivity to an Application Station. DeltaV v10.3 and later versions, the PI Server may be installed on a DeltaV Application Station. This PI Server option is referred to as the "embedded enterprise historian". In DeltaV v12.3 and later versions, the PI Server may be installed on a non-DeltaV PC located on the plant or enterprise network, anywhere that has network connectivity to an Application Station. This PI Server option is referred to as the "integrated enterprise historian". These installation options give you the flexibility to install the PI Server where it makes sense for your plant and network requirements.

Product Description

A PI Server may be integrated into the DeltaV system as a replacement for or a supplement to the DeltaV Continuous Historian. The DeltaV Continuous Historian remains the default historian in the DeltaV system, but the PI Server provides an alternative to the DeltaV Continuous Historian for users that require enterprise historian functionality. The PI Server is integrated into the DeltaV system such that configuration and use of the PI Server is no different than the DeltaV Continuous Historian.
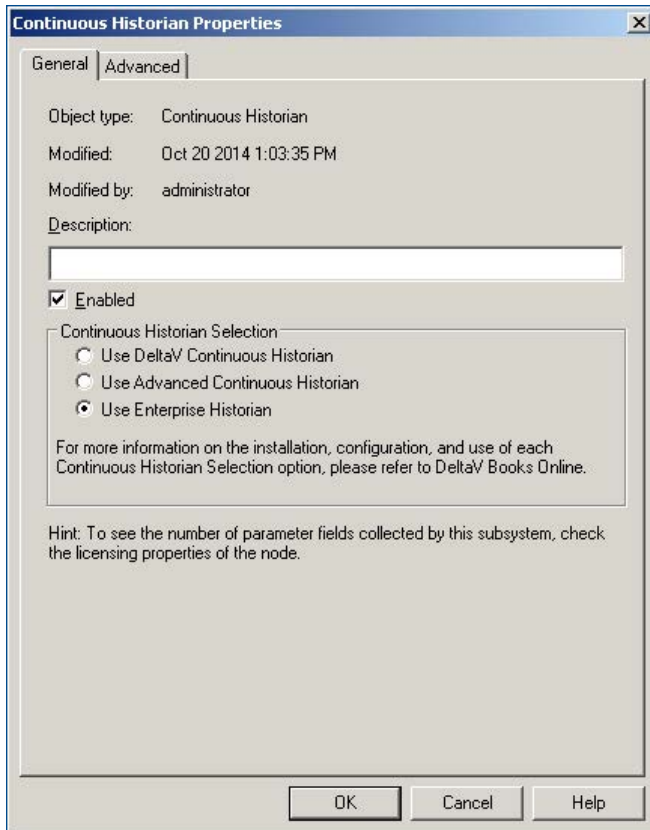
The PI Server is purchased and installed separately from the DeltaV system software. The DeltaV Smart Connector provides the interface between the PI Server and the DeltaV system and is also purchased and installed separately from the DeltaV system. The DeltaV Smart Connector is installed on an Application Station, regardless of where the PI Server is installed. For the embedded enterprise historian, the DeltaV Smart Connector is installed on the same Application Station. For the integrated enterprise historian, the DeltaV Smart Connector is installed on an Application Station that has network connectivity to the PI Server.

You use DeltaV Explorer to configure an Application Station to use the DeltaV Continuous Historian or an enterprise historian

(i.e. PI Server). Only one historian can be configured on an Application Station, but you can configure the enterprise historian on one Application Station and the DeltaV Continuous Historian on another Application Station. The DeltaV parameters required for history collection in the enterprise historian are configured using the DeltaV system engineering tools—DeltaV Explorer or Control Studio—just like the DeltaV Continuous Historian.

When the DeltaV parameters required for history collection are configured, the Continuous Historian subsystem on the Application Station is downloaded and the historian configuration changes are committed to the enterprise historian—just like the DeltaV Continuous Historian. During download of the Continuous Historian subsystem, an enterprise historian configuration file is generated by the DeltaV system, which contains the history collection details for the DeltaV parameters. The DeltaV Smart Connector uses this file to create PI tags for the DeltaV parameters in the PI Server and configure the PI OPC DA interface to collect data for the configured parameters.

The PI OPC DA interface collects real-time data from the DeltaV system for the configured parameters using the DeltaV OPC Data Access (DA) Server. The PI OPC DA interface uses the DeltaV OPC DA Server located on the same Application Station to populate real-time data in the PI Server, using the configuration settings defined in the enterprise historian configuration file. The DeltaV OPC DA Server must be sized to accommodate the number of DeltaV parameters configured for history collection in the PI Server.

Use the Continuous Historian Properties dialog to enable the enterprise historian (DeltaV v13.3 dialog shown).

With the embedded enterprise historian, all required components are installed on a single DeltaV Application Station; the PI Server, DeltaV Smart Connector, and the DeltaV OPC DA Server will reside on the same Application Station. In this architecture, up to 30,000 DeltaV parameters may be configured for history collection in the embedded enterprise historian at a recommended data collection rate of 5,000 samples per second.

With the integrated enterprise historian, the DeltaV Smart Connector and the DeltaV OPC DA Server will reside on the same Application Station. In this architecture, up to 30,000 DeltaV parameters may be configured for history collection on a single Application Station at a recommended data collection rate of 5,000 samples per second. If more DeltaV parameters are required in the integrated enterprise historian from the same DeltaV system, you can install another DeltaV Smart Connector on another Application Station and collect up to an additional 30,000 parameters in the integrated enterprise historian, for a total of 60,000 DeltaV parameters. This process may be repeated for up to 20 Application Stations per DeltaV system, for a maximum of 500,000 DeltaV parameters collected in the integrated enterprise historian from a single

DeltaV system. Each Application Station will require the DeltaV Smart Connector license and the DeltaV OPC DA Server license, and the integrated enterprise historian will require sufficient licensing for the DeltaV parameters.

A single DeltaV system may include any combination of DeltaV Continuous Historians, embedded enterprise historians, and integrated enterprise historians configured on up to 20 Application Stations. It is not necessary to have a DeltaV Continuous Historian configured in a DeltaV system in order to use an enterprise historian. In addition, only one historian may be installed on a single Application Station.
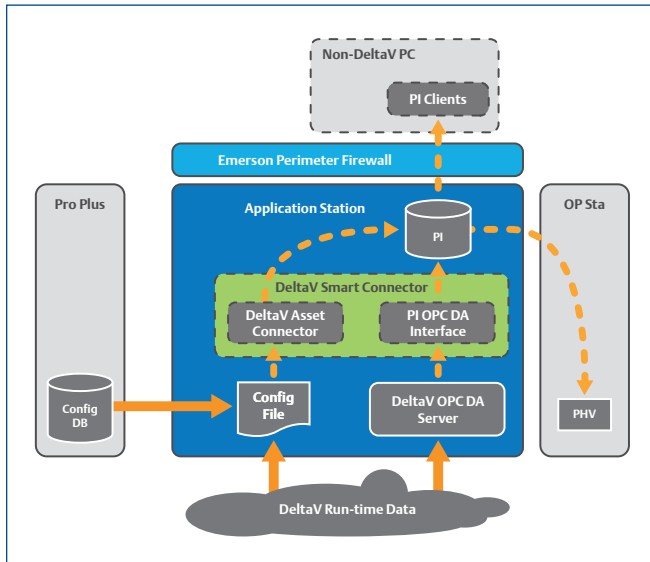
The DeltaV system historian client applications provide seamless connectivity to the enterprise historian. The DeltaV history client applications may reside on any DeltaV workstation and access the historical data collected in the enterprise historian. PI client applications may be purchased and used with the enterprise historian. The PI client applications may be installed on a DeltaV Application Station or any non-DeltaV PC that has network connectivity to the enterprise historian.
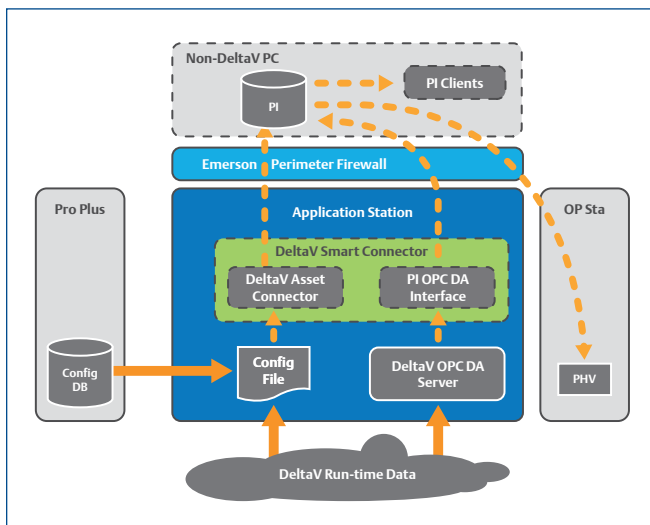
OSIsoft PI Server Configuration

The PI Server and DeltaV Smart Connector must be purchased from OSIsoft or an Emerson reseller. The PI Server and DeltaV Smart Connector are installed separately from the DeltaV system software on a DeltaV Application Station and/or non-DeltaV PC. OSIsoft or Emerson can provide assistance with the installation of the PI Server and DeltaV Smart Connector, if necessary.

Integration of the PI Server with the DeltaV system is accomplished using the DeltaV Smart Connector developed by OSIsoft. The DeltaV Smart Connector includes the DeltaV Asset Connector and the PI OPC DA interface. The DeltaV Asset Connector is a software component developed by OSIsoft that consumes the enterprise historian configuration file generated when the Continuous Historian subsystem is downloaded. The DeltaV Asset Connector then creates the appropriate PI tags in the PI Server, with the appropriate configuration settings, and configures the PI OPC DA interface. Any time changes are made to history collection and downloaded, the DeltaV Asset Connector reads the changes from the enterprise historian configuration file and updates the PI tags accordingly, ensuring that the PI Server is always synchronized with the DeltaV system history configuration.

The PI OPC DA interface collects real-time data from the DeltaV system for the configured PI tags using the DeltaV OPC DA Server. The DeltaV OPC DA Server must be sized to accommodate the number of DeltaV parameters configured for history collection in the enterprise historian, one OPC item for each configured parameter.

Architecture details of the PI Server as an embedded enterprise historian.

Architecture details of the PI Server as an integrated enterprise historian.

In addition to storing real-time data from the DeltaV system, the PI Server can be configured to store the DeltaV equipment hierarchy in PI Asset Framework (AF). PI AF is a component of the PI Server that enables you to define a representation of your plant assets and use these assets to easily view and analyze your plant data. By manually exporting the DeltaV equipment hierarchy from DeltaV Explorer, you can recreate the DeltaV equipment hierarchy in PI AF to provide the same data structure in the PI Server as exists in the DeltaV system. PI client applications can use PI AF to navigate and find data in the PI Server in the same manner as DeltaV client applications.

Historian Client Connectivity

The DeltaV system historian client applications provide seamless connectivity to the enterprise historian. The DeltaV history client applications may reside on any DeltaV workstation and access the historical data collected in the enterprise historian. The DeltaV historian client applications supported in the DeltaV v13 release and higher include Adapt, Batch Analytics, embedded trend objects in DeltaV Operate, Executive Portal, History Analysis, InSight, MPC Diagnostics, MPC Operate, MPC Simulate, MPC SimulatePro, Neural, Predict, PredictPro and Process History View. A few DeltaV historian client applications only work with the DeltaV Continuous Historian, notably the DeltaV Reporter, History Web Service and DeltaV OPC Historical Data Access Server (OSIsoft can provide an OPC Historical Data Access server for the PI Server, if required).

Any of the OSIsoft PI client applications purchased from OSIsoft may also be used with the enterprise historian. The PI client applications may be used on the DeltaV Application Station or any non-DeltaV PC that has network connectivity to the enterprise historian.

Enterprise Historian Licensing

Use of the enterprise historian requires the OSIsoft PI Server software and license and the DeltaV Smart Connector software and license, provided by OSIsoft or an Emerson reseller. Also required are the DeltaV OPC DA Server license and Enterprise Historian Configuration Interface license, provided by Emerson.

OPC .NET Connectivity

In DeltaV v12.3 and later releases, you have the option to use the PI OPC .NET/DA interface and the DeltaV OPC .NET/DA Server instead of the PI OPC DA interface and the DeltaV OPC DA Server, as used in DeltaV v10 and DeltaV v11. OPC .NET/DA is based on the Microsoft .NET technology and provides a more modern, secure, and firewall-friendly interface than OPC DA, which is based on the legacy Microsoft COM technology. The DeltaV OPC .NET/DA Server was released in DeltaV v11.3. The decision to use the PI OPC DA interface or the PI OPC .NET/DA interface in DeltaV v12.3 and later releases depends on your specific system and network requirements.

Ordering Information

Description	Model Number
Enterprise Historian Configuration Interface	VE2221

Related DeltaV Products

- DeltaV OPC Data Access Server. Supporting sustained communication rates of up to 30,000 real-time values per second, the DeltaV OPC Data Server delivers fast, secure, reliable communications to client applications anywhere on your network. Scalable on the Application Station from 250 to 30,000 data values.

- History View Software Suite. Monitor your plant's continuous, event and batch data—historically and in real time.

- Predict/Predict Pro. Model Predictive Control (MPC) which runs in DeltaV to provide multivariable control and optimization for small and large applications. Includes off-line model identification and simulation, plus on-line MPC with operator interface.

- Neural. On-line calculation of process conditions normally only available from lab analysis. Includes off-line data analysis and model training, and on-line calculation modules.

Prerequisites

- Installation and licensing of the enterprise historian on a DeltaV Application Station or non-DeltaV PC with network connectivity to a DeltaV Application Station.

- Installation and licensing of the DeltaV Smart Connector on a DeltaV Application Station. If using the embedded enterprise historian, the DeltaV Smart Connector is installed on the same Application Station as the enterprise historian.

- A DeltaV OPC DA Server license sized to meet the data collection requirements of the enterprise historian (e.g. an enterprise historian configured with 10,000 parameters will require a 10,000 item DeltaV OPC DA Server license). The DeltaV OPC DA Server must be licensed for use on the same Application Station as the DeltaV Smart Connector.

- If using the embedded enterprise historian, the PI Server is installed and licensed on a DeltaV Application Station. If using the integrated enterprise historian, the PI Server is installed and licensed on a non-DeltaV PC.

- The Enterprise Historian Configuration Interface license requires a DeltaV Application Station.

- The Enterprise Historian Configuration Interface requires DeltaV v10.3 or later software.