

# DeltaV™ OPC History Server

- Historical data transfer from the DeltaV™ Continuous Historian
- Browsable interface
- Raw, interpolated and calculated data
- Remote viewing of historical data
- Available on the ProfessionalPLUS Station and Application Station
- Programmatic collection of non-DeltaV historical data



The DeltaV™ OPC History Server provides access to historical data in the DeltaV Continuous Historian.

## Introduction

The DeltaV OPC History Server makes it easy for external applications to retrieve historical data from the DeltaV system using an industry standard, open interface.

The DeltaV OPC History Server is built upon the latest OPC Historical Data Access specification and provides external client access to the DeltaV Continuous Historian.

The DeltaV OPC History Service also enables external applications to programmatic write non-DeltaV historical data into the DeltaV Continuous Historian.

## Benefits

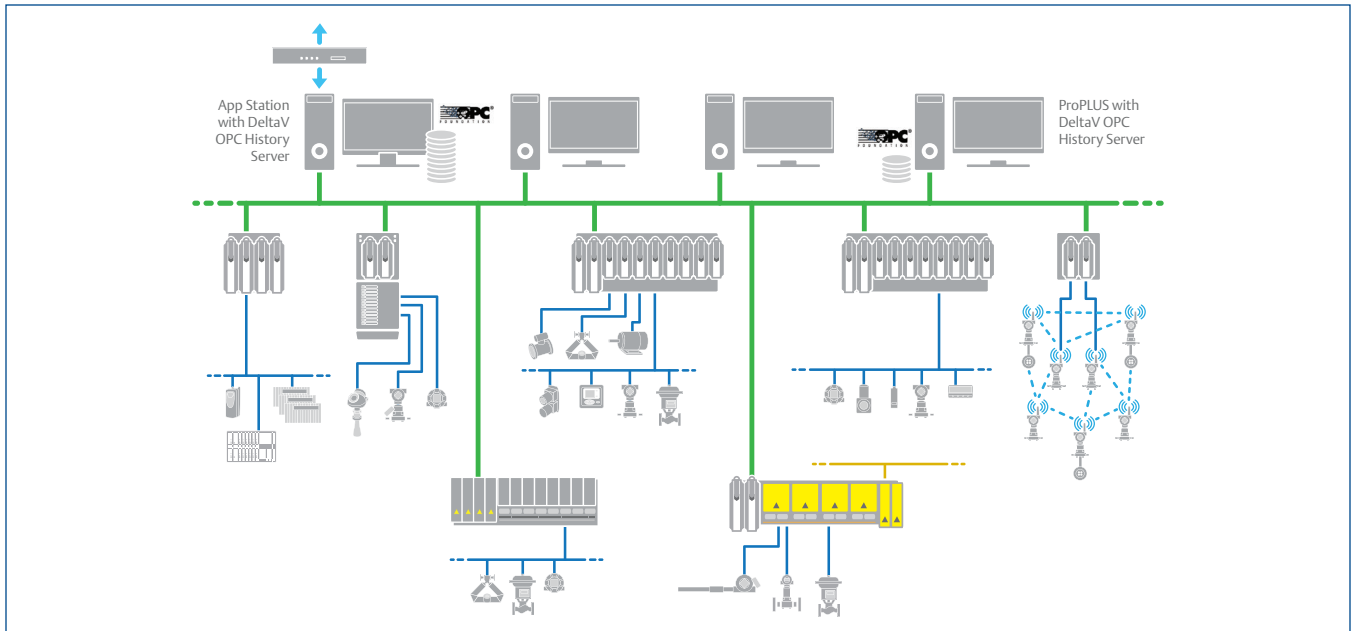
**Historical data transfer from the DeltaV Continuous Historian.** The DeltaV OPC History Server provides fast and efficient transfer of historical data from the DeltaV Continuous Historian using the industry standard OPC Historical Data Access specification.

**Browsable interface.** The DeltaV OPC History Server provides a browsable interface to all OPC Historical Data Access client applications.

**Raw, interpolated and calculated data.** OPC Historical Data Access client applications may read raw, interpolated and calculated data from the DeltaV Continuous Historian. Interpolated and calculated data may be requested by time or number of intervals. Calculated data includes minimum, maximum, average, standard deviation and many others as noted below. Raw data is read directly from the historian; interpolated and calculated data is computed in the historian interface.

**Remote viewing of historical data.** OPC Historical Data Access client applications may be located outside the DeltaV System, allowing remote viewing capability of any or all historical data contained in the DeltaV Continuous Historian.

**Remote batch entry of historical data.** OPC Historical Data Access client applications located outside the DeltaV system may programmatically record information in the DeltaV Continuous Historian.



The DeltaV OPC History Server is available on the ProfessionalPLUS Station and the Application Station.

**Available on the ProfessionalPLUS Station and Application Station.** The DeltaV OPC History Server is available on the ProfessionalPLUS and Application Stations. All you need to do is enable, configure, and download the DeltaV Continuous Historian for the DeltaV OPC History Server to be operational. Since the DeltaV Continuous Historian is available on the ProfessionalPLUS and Application Stations, any size DeltaV system has the capability to expose DeltaV Continuous Historian data through the DeltaV OPC History Server.

## Product Description

The DeltaV OPC History Server provides a read interface to the historical data located in the DeltaV Continuous Historian. OPC Historical Data Access clients may use the DeltaV OPC History Server to view all historical data collected in the DeltaV Continuous Historian.

OPC Historical Data Access client applications request historical data for a given period of time. Browsing capability is provided by the DeltaV OPC History Server along with the use of wildcard filtering, making it easy for client applications to view any or all historical data collected in the DeltaV Continuous Historian.

The DeltaV OPC History Server provides OPC Historical Data Access client applications access to raw, interpolated and calculated data from the DeltaV Continuous Historian. Raw data is defined as data that is stored within the historian. The availability of raw data is based on the configuration settings of each parameter configured for history collection. Interpolated

data is defined as data that is derived from the raw data in the historian, but for which there is no stored value. Interpolated and calculated data are derived from the raw data values stored in the historian over the given time range.

The DeltaV OPC History Server provides a timestamp and quality value associated with each history data value. For raw data values, the timestamp is the time the value was recorded by the DeltaV Continuous Historian. For interpolated and calculated data values, the timestamp is the start of the requested interval, with two exceptions, minimum and maximum, which can be requested with actual timestamps or interval timestamps.

The DeltaV Continuous Historian captures the quality status of every parameter configured for history collection. The DeltaV parameter quality is available for use by the DeltaV Continuous Historian client applications. The DeltaV parameter quality is also available through the DeltaV OPC History Server. In the DeltaV OPC History Server, the DeltaV parameter status is mapped to the OPC Historical Data Access quality to provide the complete quality status from the DeltaV Continuous Historian.

The DeltaV OPC History Server has access to all of the historical data associated with the plant areas that are assigned to the local DeltaV Continuous Historian. If it is necessary to access all historical data in the DeltaV system, then every plant area must be assigned to the workstation where the DeltaV OPC History Server is in use.

## Programmatic Write Feature

The DeltaV OPC History Server may also be used to programmatically create up to 2000 non-DeltaV tags in the DeltaV Continuous Historian and populate them with an unlimited number of data samples. This write feature is intended for “batched” and not continuous data entry.

Data insertion rates are limited to 600 samples per second to protect read access performance.

Data samples may be entered in local or UTC time format, and are stored in UTC format in the DeltaV Continuous Historian.

There can be multiple data entries for a single tag (with multiple timestamps) or multiple data entries for multiple tags with a single timestamp. Data samples cannot be overwritten or edited.

DeltaV user security for writing historical data applies.

A sample write client interface application, source code, and documentation are provided, for use by a qualified OPC practitioner to develop specific user applications.

## Installation and Licensing Notes

This product is for use with the DeltaV Continuous Historian. It will not work with the DeltaV Advanced Continuous Historian, Embedded Enterprise Historian or Integrated Enterprise Historian.

The DeltaV OPC History Server is available on the ProfessionalPLUS Station and the Application Station. The DeltaV OPC History Server is activated when the DeltaV Continuous Historian is enabled, configured, and downloaded. The DeltaV OPC History Server will accept one concurrent OPC Historical Data Access client connection without the need for a license. Additional concurrent OPC Historical Data Access client connections require the purchase of the DeltaV OPC History Server license. The DeltaV OPC History Server may be licensed on the ProfessionalPLUS Station or the Application Station.

The programmatic write interface is available for deployment on non-DeltaV workstations. Activation requires enabling “Historical Data Entry” from the properties settings of the target DeltaV Continuous Historian. The sample write client interface application does not require a license if it is the first connection on the DeltaV OPC History Server.

## Interfaces and Methods

The DeltaV OPC History Server incorporates all of the required interfaces and methods of the OPC Historical Data Access specification.

The interfaces supported by the DeltaV OPC History Server are as follows.

- IOPCCommon
- IConnectionPointContainer
- IOPCShutdown
- IOPCHDA\_Server
- IOPCHDA\_Browser
- IOPCHDA\_SyncRead

The IOPCHDA\_Server and IOPCHDA\_SyncRead interfaces provide information via various methods that is meaningful to users of OPC Historical Data Access clients.

The IOPCHDA\_Server interface is the primary interface for the DeltaV OPC History Server. The IOPCHDA\_Server interface provides methods for requesting what types of data the DeltaV OPC History Server is able to provide and for setting up access to historical data values. The methods included with this interface are as follows:

- IOPCHDA\_Server::GetItemAttributes
- IOPCHDA\_Server::GetAggregates
- IOPCHDA\_Server::GetHistorianStatus
- IOPCHDA\_Server::GetItemHandles
- IOPCHDA\_Server::ReleaseItemHandles
- IOPCHDA\_Server::ValidateItemIDs
- IOPCHDA\_Server::CreateBrowse

The GetItemAttributes method returns the list of standard and vendor specific attributes supported by the DeltaV OPC History Server. The attributes are as follows:

- Data Type
- Stepped
- ItemID
- Maximum Time Interval
- Minimum Time Interval
- Exception Deviation
- Current Module Description
- Current Engineering Units
- Current 0% Range Value (EU0)
- Current 100% Range Value (EU100)
- Last Download
- Currently On Scan
- DeltaV Named Set

The GetAggregates method returns the list of aggregates supported by the DeltaV OPC History Server. The aggregates are as follows.

- Interpolative
- Time Average
- Count
- Minimum Actual Time
- Minimum
- Maximum Actual Time
- Maximum
- Start
- End
- Total
- Average
- Range
- Standard Deviation

The DeltaV OPC History Server provides data to OPC Historical Data Access clients through the SyncRead interface. This interface provides access to the data held by the DeltaV Continuous Historian. The SyncRead interface provides several methods for obtaining various types of data from the DeltaV OPC History Server. The methods included with this interface are as follows:

- IOPCHDA\_SyncRead::ReadRaw
- IOPCHDA\_SyncRead::ReadProcessed
- IOPCHDA\_SyncRead::ReadAttribute

The ReadRaw method reads the values, qualities, and timestamps from the DeltaV Continuous Historian database for the specified time domain for one or more OPC HDA Items.

The ReadProcessed method requests an aggregate value or values to be computed by the DeltaV Continuous Historian for one or more OPC HDA Items, providing values, qualities, and timestamps. See the GetAggregates method for a list of supported aggregates. The ReadProcessed method is an optional method that is not required by the OPC Historical Data Access specification but is available in the DeltaV OPC History Server.

The ReadAttribute method reads the standard and vendor specific attributes and timestamps for an item. The DeltaV OPC History Server returns the current state of these attributes as only the current state is stored in the DeltaV Continuous

Historian, with the exception of the attributes identified as “Current”. See the GetItemAttributes method for a list of supported attributes.

The vendor specific attributes Current Module Description, Current Engineering Units, Current 0% Range Value and Current 100% Range Value are unique to the DeltaV OPC History Server and represent the current state of these attributes as read from the DeltaV run-time system.

The DeltaV OPC History Server’s programmatic data insertion capability is implemented using the “Insert” method on the:

- IOPCHDA\_SyncUpdate interface per the OPC HDA specification v1.20, supplemented by an additional method for creating and validating new non-DeltaV tag names

## OPC Historical Data Access

The DeltaV OPC History Server is based on the OPC Historical Data Access specification published and maintained by the OPC Foundation.

The DeltaV OPC History Server is separate and distinct from the other DeltaV OPC servers. The DeltaV OPC History Server is the third OPC Server in the DeltaV system, joining the DeltaV OPC Data Server and the DeltaV OPC Events Server. The DeltaV OPC History Server provides access to the historical data collected by the DeltaV system, where the OPC Data Server and OPC Events Server provide access to real-time process data and alarms and events data, respectively. With the DeltaV OPC History Server, historical data can be queried from any point in the past for which data exists all the way up to near real-time. All three OPC Servers share the same client-server architecture that has been the foundation of the OPC standard.

The DeltaV OPC Data Server provides access to real-time process data in the DeltaV system, such as level, pressure, or flow measurements. The DeltaV OPC Data Server implements the OPC Data Access specification. The DeltaV OPC Events Server provides access to real-time alarm and event data in the DeltaV system, such as high level alarms, system events, or operator change actions. The DeltaV Events Server implements the OPC Alarms and Events specification.

As with the other DeltaV OPC Servers, the DeltaV OPC History Server provides fast and powerful information-sharing capabilities with its client applications. Any 3rd party OPC Historical Data Access client application can connect to the DeltaV OPC History Server and retrieve any and all historical data contained in the DeltaV Continuous Historian.

## Ordering Information

Description	Model Number
DeltaV OPC History Server*	VE2227*

\*The DeltaV OPC History Server license provides up to 25 concurrent OPC Historical Data Access client connections. The first OPC Historical Data Access client connection is provided free of charge. The DeltaV OPC History Server license is required if more than one OPC Historical Data Access client is connected to the server at the same time.

## Related Products

- **DeltaV Continuous Historian.** Captures up to 250 analog, discrete and text parameters along with their status and stores them for future analysis. Optionally scalable up to 30,250 parameters on the Application Station.
- **OPC .NET Server (aka OPC Xi).** Delivers secure and reliable real-time and historical data communications between your automation systems and your enterprise.
- **OPC UA.** The different OPC UA servers and clients in the DeltaV system allows data reads and writes to and from 3rd party application in an easy, reliable and secure way.

## Related 3rd Party Products

- OSisoft PI OPC Historical Data Access Interface. Transfer historical data from the DeltaV OPC History Server to an Enterprise PI Server quickly and easily.

## Prerequisites

- DeltaV version 7.4 or later.
- DeltaV Continuous Historian.
- DeltaV ProfessionalPLUS Station or Application Station.
- If using a 3rd party OPC Historical Data Access client application on a non-DeltaV workstation, the OPC Remote utility must be installed on the non-DeltaV workstation. The OPC Remote utility is located on the DeltaV software media in the DV\_Extras folder.

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