AVEVA™ Historian Server 2020 R2

Course Description

The AVEVA™ Historian Server 2020 R2 course is a 2-day, instructor-led class designed to provide a fundamental understanding of the features and functionality of AVEVA™ Historian for both AVEVA™ Application Server and AVEVA™ InTouch HMI applications. This course provides lectures and hands-on labs to present and reinforce the knowledge necessary to use Historian for SCADA and factory data. This information includes how to configure, historize, and retrieve historical data; retrieve auto-summary data; implement data replication to a remote historian; and insert, update, and import historical data.

Objectives

Upon completion of this course, you will be able to:

- Start and configure Historian
- Configure and historize Application Server and InTouch HMI data
- Retrieve data with Historian tools
- Retrieve data with SQL queries
- Distinguish between retrieval modes
- Use time domain extensions in SQL queries
- Update, insert, and import historical data
- Use a Tier-2 Historian for replication and summarization
- Back up and restore Historian data

Audience

Individuals who need to historize, analyze, and maintain data from Application Server or from an InTouch HMI application

Prerequisites

Knowledge of the following tools, features, and technologies is required:

- For all students:
    - Industrial automation software concepts
    - Structured query language (SQL) fundamentals for data retrieval
- For historizing data from Application Server:
    - IDE
    - Automation Objects ○   Historization of attributes ○   Deployment model ○
        Object Viewer
- For historizing data from InTouch tags:

- InTouch HMI tag development

Module 1 – Introduction

Section 1 – Course Introduction

This section describes the AVEVA™ Historian Server course objectives and agenda.

Section 2 – Introduction to Historian

This section describes the main functions and features of Historian, explains how it relates to other AVEVA software offerings, describes the relationship to other AVEVA software offerings, and explains the capabilities of AVEVA Online.

Section 3 – System Requirements and Licensing

This section provides an overview of the general hardware recommendations and software requirements for Historian. It also explains the licensing models.

Module 2 – Historian Configuration

Section 1 – Configurator

This section describes Historian configuration options. It also discusses the Historian security options, describes the Historian search configuration, and explains the Historian reporting configuration.

Section 2 – Historian and the System Management Console

This section describes the System Management Console (SMC). It provides an overview of its interface and explains how to set startup permissions and start Historian, as well as use it to register Historians. It also describes Historian options and system parameters and discusses Historian history block configuration and behavior. This section also discusses engineering units and engineering units catalog configuration.

Module 3 – Historian and System Platform

Section 1 – Integrating Historian with System Platform

This section explains the basics of how Historian integrates with the Galaxy. It also describes how to configure platforms, engines, and object attributes for historization. This section also discusses extended properties for tags using aliases.

Module 4 – Historian and InTouch HMI

Section 1 – Historian and InTouch HMI

This section explains the basics of historizing data from InTouch HMI applications. It describes the Tag Importer Wizard (IDAS), the historization option from InTouch configuration (HCAL), defines storage options, and explains manual tag configuration. This section also discussed extended properties for tags in the SMC.

Module 5 – Data Retrieval

Section 1 – Historian Data Retrieval Tools

This section describes how to retrieve data using Historian Client Web. It explains the different methods of data representation, adding annotations, and explains how to save and share

content. It also demonstrates how to retrieve data using Microsoft Excel. It discussed the alarm retrieval tool and explains searching for tags using extended properties.

Section 2 – Data Retrieval Subsystem

This section describes the Historian data retrieval subsystem, the Historian OLE DB provider, and extension tables for history data. It explains the syntax for basic SQL queries and demonstrates how to use Live, History, Wide History, and Summary History options to display data, as well as UOM conversion using queries. It discusses the auto-summary features of Historian and explains the syntax for the OPENQUERY function in SQL queries.

Section 3 – Retrieval Modes

This section describes Historian retrieval modes, with a focus on Cyclic, Delta, Full, and BestFit. It also explains how to use retrieval modes in SQL queries. It goes on to discuss using wwResolution and wwCycleCount for cyclic retrieval as well as wwExpression for scaling to alternative engineering units.

Module 6 – Manual Data

Section 1 – Data Definitions

This section defines Historian data categories. It explains original versus revision data, as well as streamed versus non-streamed original data. Further, it explains the possibilities of inserting data into future retrievals.

Section 2 – INSERT and UPDATE Query Syntax

This section describes data versioning and explains the INSERT and UPDATE query syntax.

Section 3 – Importing and Backfilling Historical Data

This section describes the methods of importing historical data using a .CSV file. It discusses Historian data folder methods and executable methods and explains how to backfill autosummary data.

Module 7 – Summaries and Data Replication

Section 1 – Data Summarization and Replication

This section explains the concept of Tiered Historians, describes analog and state summary replication, and explains naming schemes for the replication process. It describes how to summarize data locally, as well as how to summarize to a Tier-2 Historian. It also describes how to do simple replication to a Tier-2 Historian.

Section 2 – Summarized and Replicated Data Retrieval

This section describes how to retrieve summarized and replicated data from a Tier-2 Historian. It also reviews AnalogSummaryHistory and StateSummaryHistory views.

Module 8 – Historian Maintenance

Section 1 – History Block Maintenance

This section explains how to back up and restore history blocks. It goes on to discuss the volume shadow copy.

Section 2 – Historian Database Management

This section explains how and when to back up Historian databases. **Appendix**

A – Additional Retrieval Options for Queries

Section 1 – Retrieval Options

This section describes Historian retrieval options, with a focus on wwResolution, wwCycleCount, wwEdgeDetection, and wwFilter. It also explains the usage of wwRetrievalmode = Startbound/Endbound when querying history, and the usage of SliceBy options when retrieving data from AnalogSummaryHistory.

Section 2 – Advanced Retrieval Modes

This section describes phantom cycles. It defines Historian advanced retrieval modes, including Average, Counter, Integral, Interpolated, Maximum, Minimum, RoundTrip, Slope, and ValueState retrieval modes.