Course Syllabus - System Platform 3.0

Course Description

The Wonderware System Platform 3.0 - Part 1 course is a four-day, instructor-led course designed to provide a fundamental understanding of the basic principles of ArchestrA® and supply the knowledge necessary to develop and support applications for the Wonderware Application Server 3.0. The course utilizes a number of hands-on labs to reinforce concepts and features.

The focus of this course is to illustrate the use of ArchestrA® tools and services in the System Platform to develop a project utilizing connectivity to the field, data processing, scripts, alarms and history, using features and functionality such as Automation Objects, templates, template instances, ArchestrA® Integrated Development Environment and QuickScript .NET.

This course also provides a fundamental understanding of how to utilize the InTouch® Alarm DB Logger for real-time alarm recording as well as the security settings available for securing the applications.

Course Objectives

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

- Create new projects using ArchestrA® Integrated Development Environment
- Model the plant floor using automation objects
- Work with the alarm and history configuration in the Galaxy
- Configure ArchestrA® security in the Galaxy
- Troubleshoot Wonderware Application Server applications

Audience

This training class is targeted to engineers, application developers, system integrators, and other individuals whose jobs include creating and/or maintaining a Galaxy for use with the Wonderware System Platform.

Prerequisites

The prerequisites for this course are:

- Completion of Getting Started with Wonderware Application Sever web tutorial located at http://www.wonderware.com/training/online_training/tutorials.asp
- Manufacturing industry experience

Agenda

- Module 1 – Introduction
  - Section 1 – Course Introduction -- This section describes the Wonderware® System Platform 3.0 course - Part 1, (Wonderware Application Server 3.0), the objective of the course, intended audience, prerequisites, and the course agenda. It also includes a description of Wonderware Products.
  - Section 2 – Wonderware System Platform -- This section provides an overview of the Wonderware System Platform, the architecture of ArchestrA and the importance of how it is critical to plant automation, and an overview of the differences between Object-oriented and traditional Tag based HMI and SCADA products and how it applies to Wonderware System Platform applications. It also provides an understanding of what a Galaxy is, how it relates to the Galaxy Database and the Galaxy Repository and how a Galaxy is created.
  - Section 3 – The ArchestrA IDE -- This section provides an overview of the ArchestrA IDE, the Template Toolbox and Application Views and the object Check-in/Check-out process.
  - Section 4 – Automation Objects -- This section provides an explanation of the various types of objects utilized in the ArchestrA IDE and an overview of when and how they are used. Additionally, it describes how to create and configure instances of objects and the hosting and containment relationships of objects.
  - Section 5 – System Requirements, Licensing and Support -- This section provides a detailed explanation of the system requirements necessary for System Platform, discusses Licensing details and covers Support services.
  - Section 6 – Application Planning -- This section provides an explanation of the need for adequately modeling your plant in order to achieve an application implementation that will be optimal for efficiency.
- Module 2 – Application Infrastructure
  - Section 1 – The Plant Model -- This section provides an explanation of the importance of having a model of the plant facility. Additionally, it explains the concept of how to utilize ArchestrA Application Server to model a specific facility.
  - Section 2 – The Deployment Model -- This section provides an explanation of the Deployment Model and demonstrates the structure of the Deployment Model.
  - Section 3 – The Runtime Environment -- This section provides an explanation of the Runtime environment and explains the use of the Object Viewer in monitoring the Runtime environment.
  - Section 4 – Connecting to the Field -- This section provides an understanding of the Device Integration Objects, I/O Server and DA Server. It also provides an overview of DI Objects.
- Module 3 – Application Objects
  - Section 1 – Templates and Instances -- This section introduces you to the concept of templates and explain how to derive a template.
  - Section 2 – The $UserDefined Object -- This section introduces you to the $UserDefined object and its functionality.
  - Section 3 – Change Control and Propagation -- This section presents the concept of attribute locking and provides an illustrations on how locking attributes can propagate to previously derived instances.
  - Section 4 – The $AnalogDevice Object -- This section introduces you to the concept of the $AnalogDevice object and its functionality.
  - Section 5 – The $DiscreteDevice Object -- This section introduces you to the concept of the $DiscreteDevice object and its functionality.
  - Section 6 – Containment -- This section illustrates the concept of containment and how it works with Application Objects and Templates.
- Module 4 – Extending the Objects
  - Section 1 – UDAs -- This section introduces and explains UDAs and how they are configured and used.
  - Section 2 – Extensions -- This section provides describes the Output Functionality for Application Objects in the Extensions environment.
  - Section 3 – Introduction to QuickScript .NET -- This section introduces and explains the scripting environment and the various scripting configuration attributes of the ApplicationObject
- Module 5 – Alarms and History
  - Section 1 – Alarms -- This section provides familiarization of the concept of alarms and events and how ArchestrA handles them.
  - Section 2 – Historization -- This section provides familiarization with the background concept of historization and the details of historizable configuration.
- Module 6 – Security

- Section 1 – Security Overview -- This section provides an understanding of Security as it relates to Application Server.

- Module 7 – Galaxy Maintenance
  - Section 1 – Exporting and Importing Objects -- This section provides an understanding of fundamental functions dealing with Galaxy Maintenance. Specifically, it illustrates how to Export for future use and how to Import a galaxy created previously.
  - Section 2 – Configuring Instances Through a .CSV File -- This section provides an understanding of fundamental functions dealing with Galaxy Maintenance. Specifically, it illustrates how to Export for future use and how to Import a galaxy created previously.
  - Section 3 – System Management Console (SMC) -- This section provides an understanding of role of the System Management Console and how it can be configured.
  - Section 4 – Network Account Utility -- This section discusses the role of changing the network account and how to use the Change Network Account and how to configure it.
- Module 8 – Device Integration Products
  - Section 1 – Wonderware I/O Servers -- This section will describe the configuration of a Wonderware I/O Server (Modbus).
  - Section 2 – Data Access Servers -- This section provides familiarization with DAServer and its use with Wonderware Application Server.
  - Section 3 – Device Integration Objects -- This section provides familiarization with DI Objects and their use with Wonderware Application Server.
- Module 9 – Multi-Node Applications
  - Section 1 – Application Redundancy -- This section provides an understanding of the concept of redundancy, how it can be configured and key points to more effectively implement this feature. It also provides an understanding of the concept and functionality of Redundant DI Objects
  - Section 2 – DI Redundancy -- This section provides an understanding of the concept of redundancy, how it can be configured and key points to more effectively implement this feature. It also provides an understanding of the concept and functionality of Redundant DI Objects
  - Section 3 – Multi Node Application -- This section provides an understanding of how to migrate from a standalone configuration to a network configuration. At the conclusion of this section you will have an understanding of the steps necessary to migrate to a network environment.