

Matrikon's OPC Level 1 & Level 2 Hands-on Workshops

Hands-On OPC Workshops: Take the Next Step!



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Last year, over 1500 control and automation professionals from a variety of industries attended our Hands-On OPC Workshops at locations around the world. Our workshops deliver value through vendor-neutral education about OPC technology and solutions that address real-world problems.

MatrikonOPC's Hands-On Workshops give individuals in the automation and process control industry the knowledge and tools necessary to understand and work with OPC technology in any industrial environment. And as a key part of the [OPC Systems Integrator certification program](#), you can earn [Education Credits](#) toward competency certification by numerous licensing boards, engineering societies, and other organizations.

Attend an OPC Workshop today to get a clear, concise, and practical understanding of OPC technology!

Our OPC Workshops will train you to:

- Solve common system connectivity issues using field-tested OPC technology
- Reduce integration time by learning to install, configure, and test OPC
- Improve system reliability using standards-based technology
- Reduce long term ownership costs by building robust systems
- Quickly troubleshoot and diagnose Windows security problems



Level 1 & 2 - OPC Integration and Diagnostics

Overview

For engineers, developers and integrators who are integrating new systems, expanding current operations, replacing legacy equipment and looking for ways to improve data communication; our OPC hands-on workshops provide a practical approach to learn and understand the methods of accessing data through OPC technology.

Unlike other OPC courses that only provide basic lectures, MatrikonOPC provides interactive, hands-on workshops that enable participants to install, configure, and test OPC servers and applications using a variety of OPC specifications including OPC Data Access, Redundancy, and Alarms & Events.

Objectives

Upon completion of OPC Level 1 & 2, graduates will have the following knowledge and skills:

- Understand the various OPC specification including Data Access, Historical Data Access and Alarms & Events.
- Install, configure, and test OPC servers & clients
- Understand the benefits of OPC and how OPC components can be used to build efficient and flexible systems
- Troubleshoot and diagnose common networking problems
- Learn how to optimize an OPC solution to maximize the performance of a system

Target Audience

Control and Application Engineers, Developers, Integrators, Managers, Operations Managers, Plant Floor Operators, Plant Managers, Product Managers

Learning Environment

OPC Level I is held within a classroom environment where each student will be supplied with their own computer for the duration of the workshop. The workshop will be made up of lectures, PowerPoint presentations, and hands-on exercises. It will be an open and friendly environment that encourages discussion and participation. Students are welcome to discuss current connectivity issues they are faced with and learn from one another.

Abstract

Level 1 Pragmatic OPC Integration

Module 1: Introduction to OPC: The course begins with an introduction to OPC and explains the fundamental concepts and vision of OPC. Through examples and case studies, participants will understand how OPC compares to traditional or proprietary connectivity methods. Emphasis will be placed on the OPC Data Access (DA), the most common specification. Also discussed is the history of OPC and how it has evolved into the largest connectivity standard used within the process control industry today. An introduction to the various OPC specifications will be presented along with the benefits of OPC.

Module 2: OPC Tunnelling Technology: OPC Tunnelling technology deals with the exchange of process data across different domains, WANS, unreliable networks and low bandwidth infrastructures. The factors that impact these environments will be explained and participants will be shown how OPC is used to resolve these issues. A hands-on exercise will configure and demonstrate the transfer of process data across different domains without having to configure DCOM.

Module 3: OPC Alarms & Events: The OPC Alarms and Events module begins by explaining the differences between alarms and events. OPC A&E types, conditions and sub-conditions, notifications, and states are all covered throughout the presentation. Alarms & Events State Diagrams are used to depict specific scenarios at the end of the module.

Module 4: OPC Redundancy: This module explains how redundancy can be applied to the different levels of the plant network to achieve the highest degree of communication reliability possible. Device, driver, and application level redundancy will be presented and discussed including connection policies, watchdog tags, diagnostics and statistics. Some discussion will include the business and economic impact redundant systems have on a plant.

Module 5: OPC Client Server Architecture: This module begins with a hands-on exercise of installing and configuring both OPC servers and clients. Students will become familiar with the concept of OPC by working through practical exercises that includes connecting to simulated devices and testing connections. Using an OPC client, students will read, write and configure data points.

Module 6: OPC Historical Data Access: This module looks at the intricacies of the OPC HDA (Historical Data Access) specification and how it differs from OPC DA (Data Access). Common OPC client applications such as trenders and spreadsheets will be demonstrated and OPC utilities will be used to transport and migrate historical data from one source to another. The module will conclude with a hands-on exercise that involves installing, configuring and collecting data using an OPC archiving client application.

Level 2 OPC Diagnostics and Optimization

Module 1: Networking: OPC is a communication technology that enables data movement from one device or application to another. Considering most data communication requires an Ethernet connection, an understanding of networking concepts is essential to configuring and implementing any OPC system. This module provides an in-depth understanding of OPC communication and the communication network. Students will learn to recognize various network-related problems within OPC applications and understand how these problems can impact overall operations. At the end of this module, students should be able to diagnose and repair network connections.

Module 2: DCOM Essentials: DCOM is the number one problem reported when working with OPC applications. This module will help participants understand the limitations of DCOM, recognize DCOM symptoms, and manage DCOM within current operations. Other objectives of this module are to understand how COM/DCOM technologies are related to OPC, to understand how DCOM communication actually works, and to learn how to configure DCOM. Throughout the module, various tools and methods are used in identifying DCOM issues. Participants will also learn how to get around the DCOM problem altogether by using alternate technologies.

Module 3: Troubleshooting Techniques: This module explores the various OPC tools and applications that can be used to debug networking and automation problems. The instructor works through a variety of hands-on exercises that are simulated versions of common problems typically encountered in plants, refineries and manufacturing environments. Students spend a portion of the afternoon using OPC applications to debug problems, recover client/server connections with other devices such as PLC's, and diagnose communication errors through standard troubleshooting practices.

Instructor Profile

Eldin Dickinson: B.E (Electrical/Computer Systems), is an experienced Control Systems Engineer, OPC Specialist and an instructor of MatrikonOPC workshops. Eldin has delivered more than 30 hands-on OPC workshops throughout Australia and South East Asia. In his 12 years since graduating from University, Eldin has been working in the area of control and network systems design, implementation and commissioning and spent 2 years in North America assisting in the establishment of a multi-national HMI/Scada company.

About Matrikon

Matrikon provides web-based products and optimization services to leaders in oil and gas, petrochemicals, cement, utilities, pulp and paper, automotives and heavy equipment, discrete manufacturing, pharmaceuticals, and food and beverage processing. Across these diverse industries, we adhere to one performance standard: customer satisfaction.



Matrikon has the tools and expertise to help plants achieve operational excellence by transforming production and operational data into knowledge to predict and prevent problems, identify opportunities for improvement, and plan and execute production more efficiently. We help corporations attain business agility by combining market and enterprise-wide operational data to make informed, intelligent decisions in real time.

At Matrikon, we achieve our goals by helping you achieve yours.

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