

# PRACTICAL TRAINING IN OPC AND OPC UA

OFFICIAL MATRIKON CERTIFICATION



# PRACTICAL TRAINING IN OPC and OPC UA

## Overview

The Matrikon Certified OPC & OPC UA Technology Workshop is geared towards:

- 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.

For engineers 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, Matrikon 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, Historical Data Access, and Alarms & Events.

## Learning environment

The workshop will be composed of explanations, Power Point presentations and practical exercises.

Attendees will expose their own connectivity problems and experiences to learn from each other.

## Materials included

- Manual and exercise guide in digital format.
- Power Points with extra material and annexes in digital format.
- Access to the virtual classroom.
- Digital diploma of successful completion by Matrikon OPC and VITC.

\*All the necessary material will be sent by mail before the first day of Workshop.

## Objectives

Upon completion, graduates will have the following knowledge and skills:

- Understand the various OPC specifications including Data Access, Historical Data Access, and Alarms&Events.
- Understand the client/server architecture and how connections are made.
- Learn how to use OPC on the old and new operating systems.
- Install and configure OPC servers & clients and test OPC connections.
- Integrate archives and analyze data using OPC HAD and configure remote OPC connections. Recognize, identify, and solve various networking problems through common symptoms.
- Understand the inner workings of DCOM and learn how to set or restore an OPC system's DCOM configuration.
- Use advanced troubleshoot techniques to diagnose and debug any OPC connection and system. Solve a series of simulated OPC issues. Identify problems related to interoperability.

## Workshop schedule

# Day 1

### Introduction to OPC Technology

Basic OPC technology concepts. Real case study.  
Introductory practice using OPC Explorer test client.  
OPC History and OPC Foundation role.

### OPC DA

OPC DA fundamentals. What is it for and when to use it? Sync Reads, Async Reads, Device Reads.  
Introduction exercise using OPC Explorer.  
Detailed explanation for quality, timestamp, cache reads, device reads.  
Address Space.  
Detailed explanation about data sources in the market and different hardware control types.  
Practical exercises.

### DCOM and Tunnelling

What is Windows DCOM and how it works.  
DCOM limitations: Windows users, Firewalls, ACL, Domain vs Workgroup.  
What is OPC Tunnelling and how it works.  
Practice using local OPC Tunneller.  
Practice using AWS OPC Tunneller.

## Workshop schedule

### Day 2

#### Introduction to OPC UA:

Classic OPC versus OPC UA.  
Main advantages for OPC UA compared to its predecessor.  
OPC UA road map, and midterm migration.  
OPC UA technical: Address Space, namespaces, nodes, etc.  
Space Browsing functionality.

#### Administration and advanced configuration:

Subscription management.  
Advanced subscription settings.  
Read and Write.  
**Practice:** Connection with an OPC UA Embedded Server in a PLC.  
Queue buffering and data recovery.  
**Practice (Data Recovery).**

#### Discovery Process:

Local Discovery Server LDS.

#### Digital Certificates:

What is a digital certificate?  
Using digital certificates with OPC UA communications.  
**Practical exercises.**

#### Administration and advanced configuration:

The connection process (Firewall, Certificates, user security).  
Embedded Systems: pros and cons.  
DMZ topology with OPC UA.

#### Mixed technologies:

OPC Classic and OPC UA compatibility.  
OPC Wrapper and UA proxy.

## Workshop schedule

### Day 3

#### Redundancy:

Why is redundancy important in industry and how is it used.

Case studies.

Redundant architecture.

PLC level redundancy, OPC level redundancy and Scada level redundancy.

What is needed for a redundant architecture?

Exercise architecture in detail.

Practical exercises.

#### OPC Security:

Why is a secure implementation important for OPC?

Security in real cases today.

How to implement a secure topology for OPC.

Practical exercises.

#### Troubleshooting:

How to identify issues in an OPC architecture.

Handy tools to use in projects: Telnet, OPC Explorer, OPC Simulation Server,

Wireshark, OPC Tunneller, Netstat, Logs, Windows Event Viewer.

#### Test multiple choice online:

Group analysis, Q&A session.

## Workshop information

 **Training duration:**

3 days

 **Format:**

Online / Virtual Classroom

Face to face

Private for Companies

 **Language:**

English

Spanish

 **Email:**

[info@vittrainingcenter.com](mailto:info@vittrainingcenter.com)

 **Phone:**

CR: +506 222 523 44

ES: +34 935 721 007 / +34 660 997 665

FR: +33 413 680 106

MX: +52 554 628 2593

UK: +44 161 660 3241

USA: +1 754 755 0009





Organized by  
**Vester Industrial Training Center**

info@vittrainingcenter.com  
www.vestertraining.com

United Kingdom  
☎ (+44) 161 660 32 41

Spain y Portugal  
☎ (+34) 935 686 178  
☎ (+34) 650 199 175

Costa Rica  
☎ (+506) 2225-2344

Mexico  
☎ (+52) 55 46282593



www.vestertraining.com