

OPC

Open Platform Communications

Presented by :

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OPC

Open Platform Communications

Outlines

- 1. Main Problem**
- 2. introduction to OPC**
- 3. Classic OPC**
- 4. OPC DA with Wincc Flexible and Fatek**

Main Problem

PLC FATEK

???

**SCADA Wincc
flexible**



Main Problem

WinCC flexible Advanced - Project.hmi

Project Edit View Insert Format Faceplates Options Window Help

New [Icons] Allen Bradley DF1 [Icons]

English (United States)

Project

- Project
 - Device_1(WinCC flexible Runtime)
 - Screens
 - Add Screen
 - Template
 - Screen_1
 - Communication
 - Tags
 - Connections
 - Cycles
 - Alarm Management
 - Analog Alarms
 - Discrete Alarms
 - Settings
 - Recipes
 - Historical Data
 - Scripts
 - Reports
 - Text and Graphics Lists
 - Runtime User Administration
 - Device Settings
 - Language Settings
 - Project Languages
 - Graphics
 - Project Texts
 - Dictionaries
 - Structures
 - Version Management

Screen_1 **Connections**

Name	Communication driver	Inline	Comment
Connection_1	Allen Bradley DF1	On	

Parameters Area po

WinCC flexible Runtime

HMI device

Type: ☐ TTY ☒ RS232 ☐ RS422 ☐ RS485 ☐ Simatic

Baud rate: 9600

Parity: Even

Data bits: 8

Stop bits: 1

Network

Checksum: BCC

Communication driver

Allen Bradley DF1

Allen Bradley DF1

Allen Bradley DH485

Allen Bradley E/IP C.Logix

GE Fanuc SNP

LG GLOFA-GM

Mitsubishi FX

Mitsubishi Protocol 4

Modicon MODBUS

Modicon MODBUS TCP/IP

Omron Hostlink / Multlink

OPC

SIMATIC 500/505 DP

SIMATIC 500/505 seriell

SIMATIC HMI HTTP Protocol

SIMATIC S5 AS511

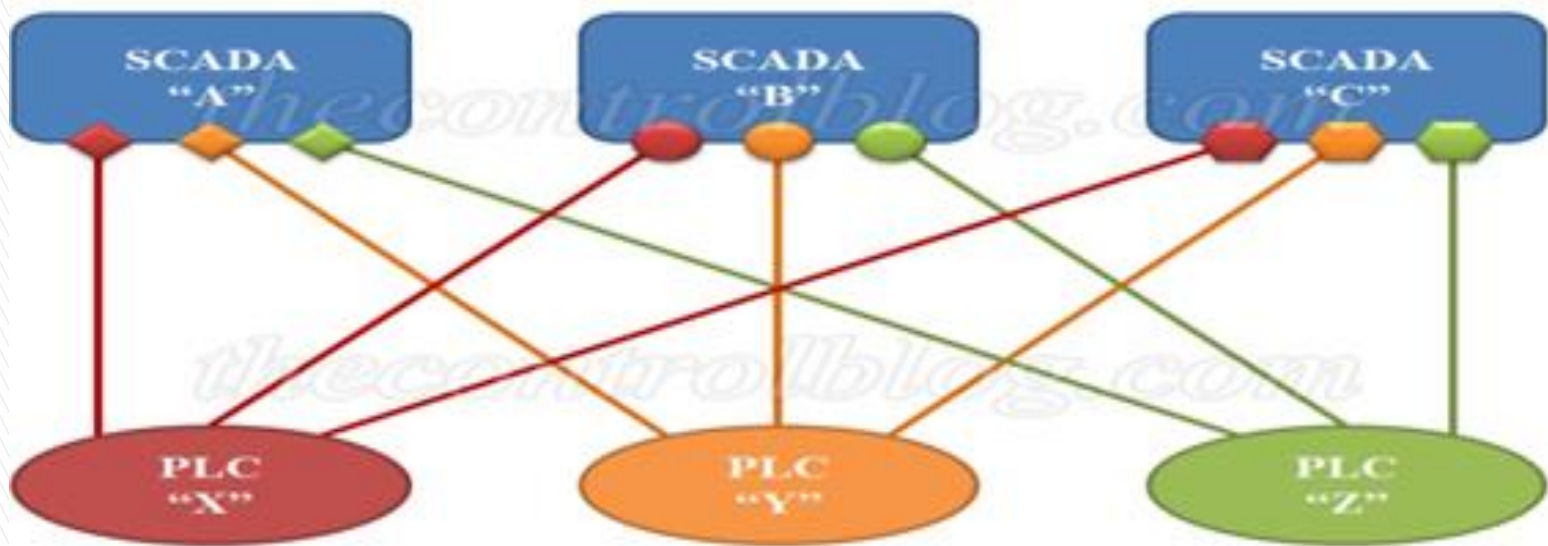
SIMATIC S5 DP

SIMATIC S7 200

SIMATIC S7 300/400

Main Problem

Each **application** requires a **specific driver** to allow it to communicate with each respective device.



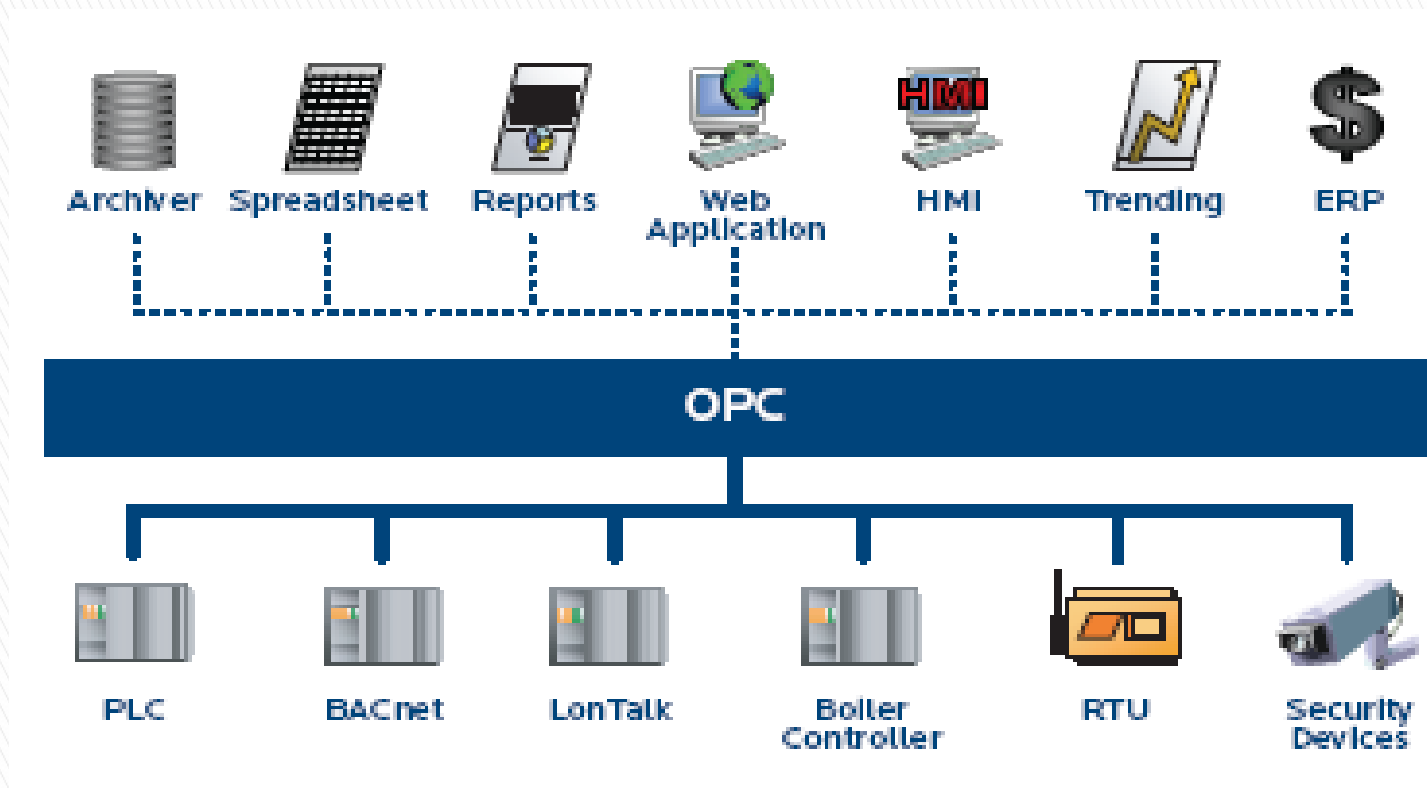
To Connect 3 Different SCADA Packages to 3 Different PLCs,
SCADA vendors needed to develop
9 Different Interface Drivers

Main Problem

Thus , it was necessary to **define a standard** for device drivers providing a standardized access to automation data on Windows-based systems

Introduction to OPC

OPC is standard that defines the communication of data between devices from different manufactures



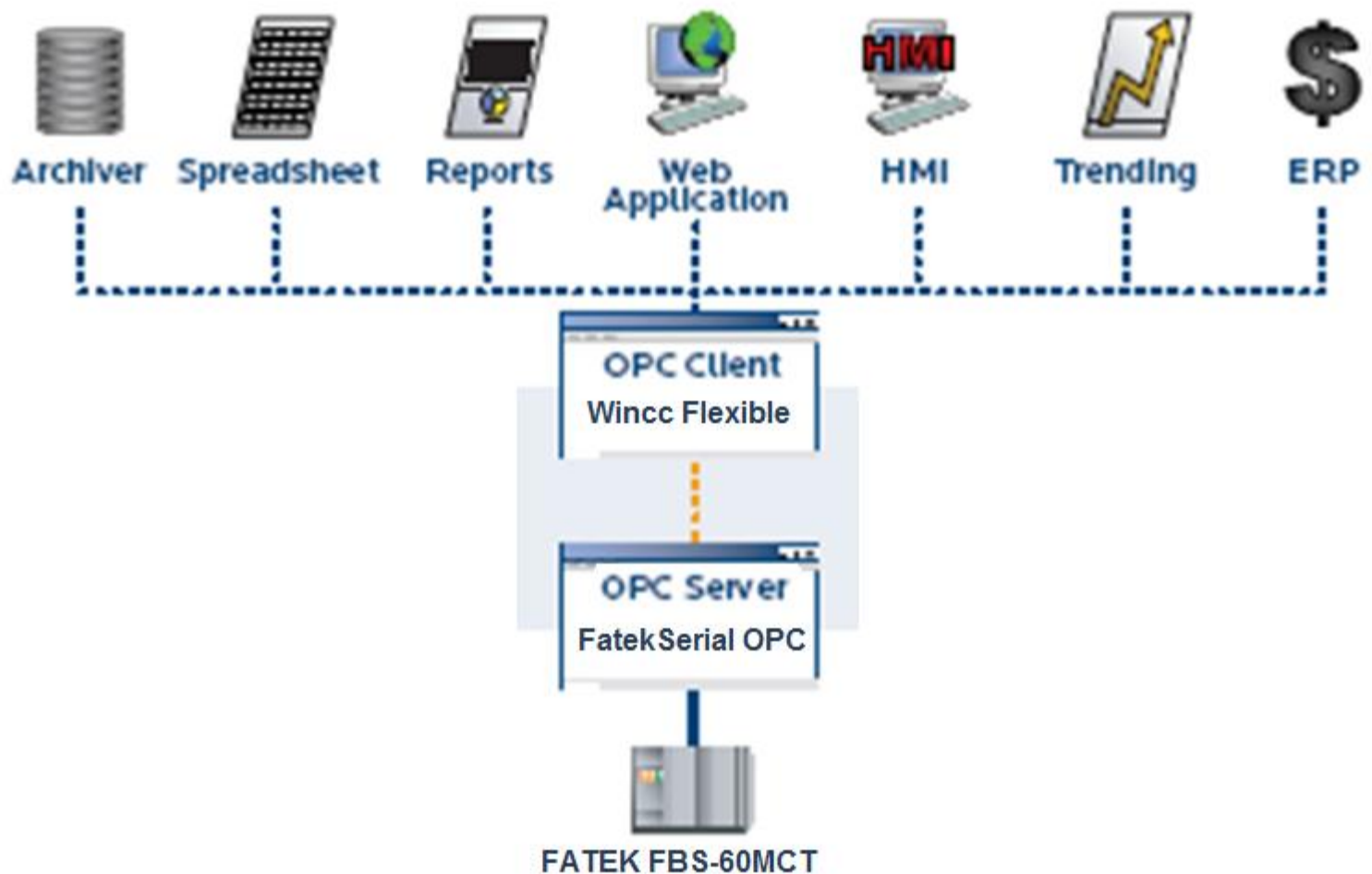
Introduction to OPC

OPC uses of a client/ server approach for the information exchange

OPC Server : software takes care of communicating natively with a device (data source).

OPC Client : software, natively communicates with the Application (data sink)

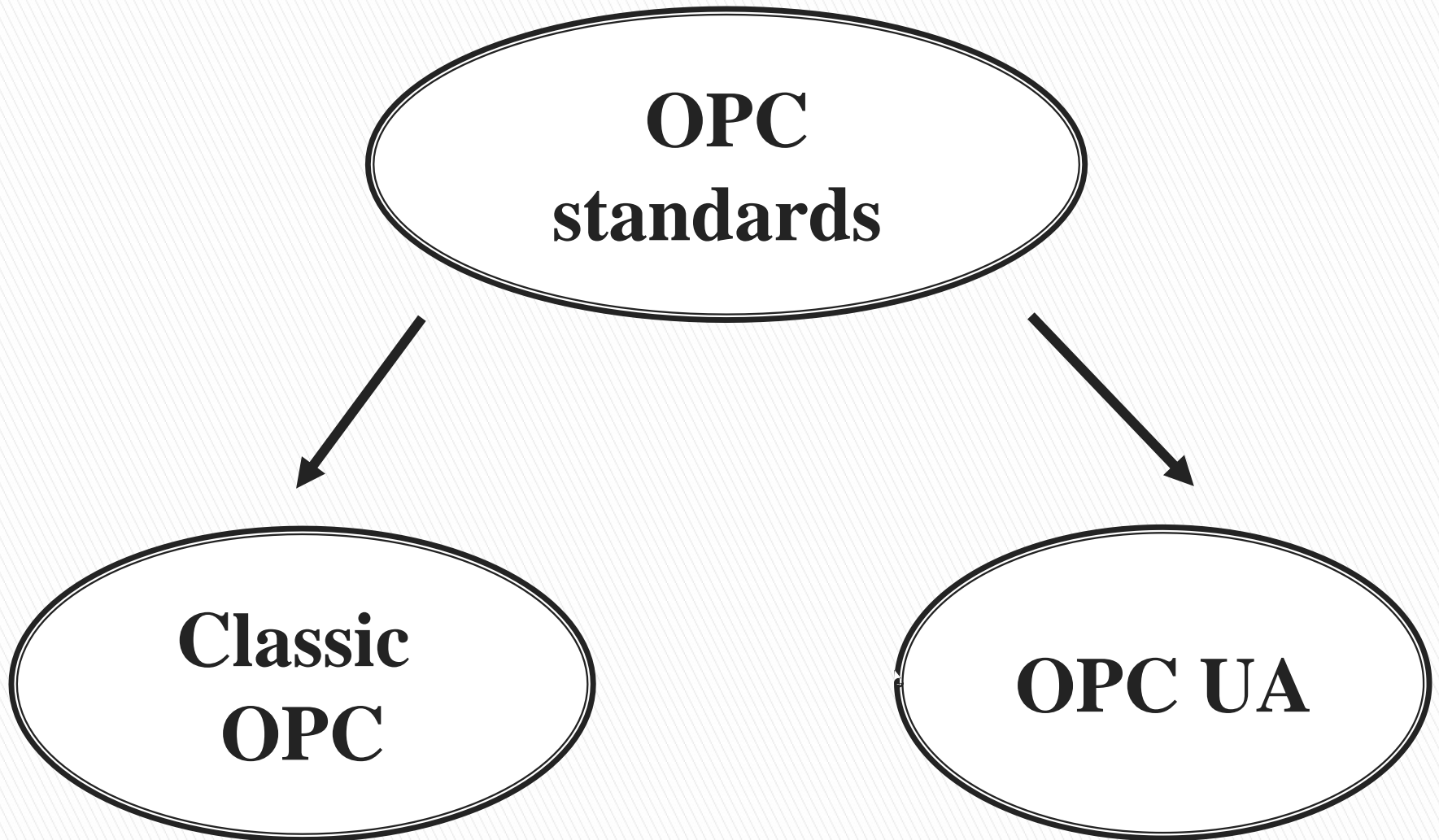
Introduction to OPC



Introduction to OPC

According to the different requirements within industrial applications different OPC standards have been developed.

Introduction to OPC



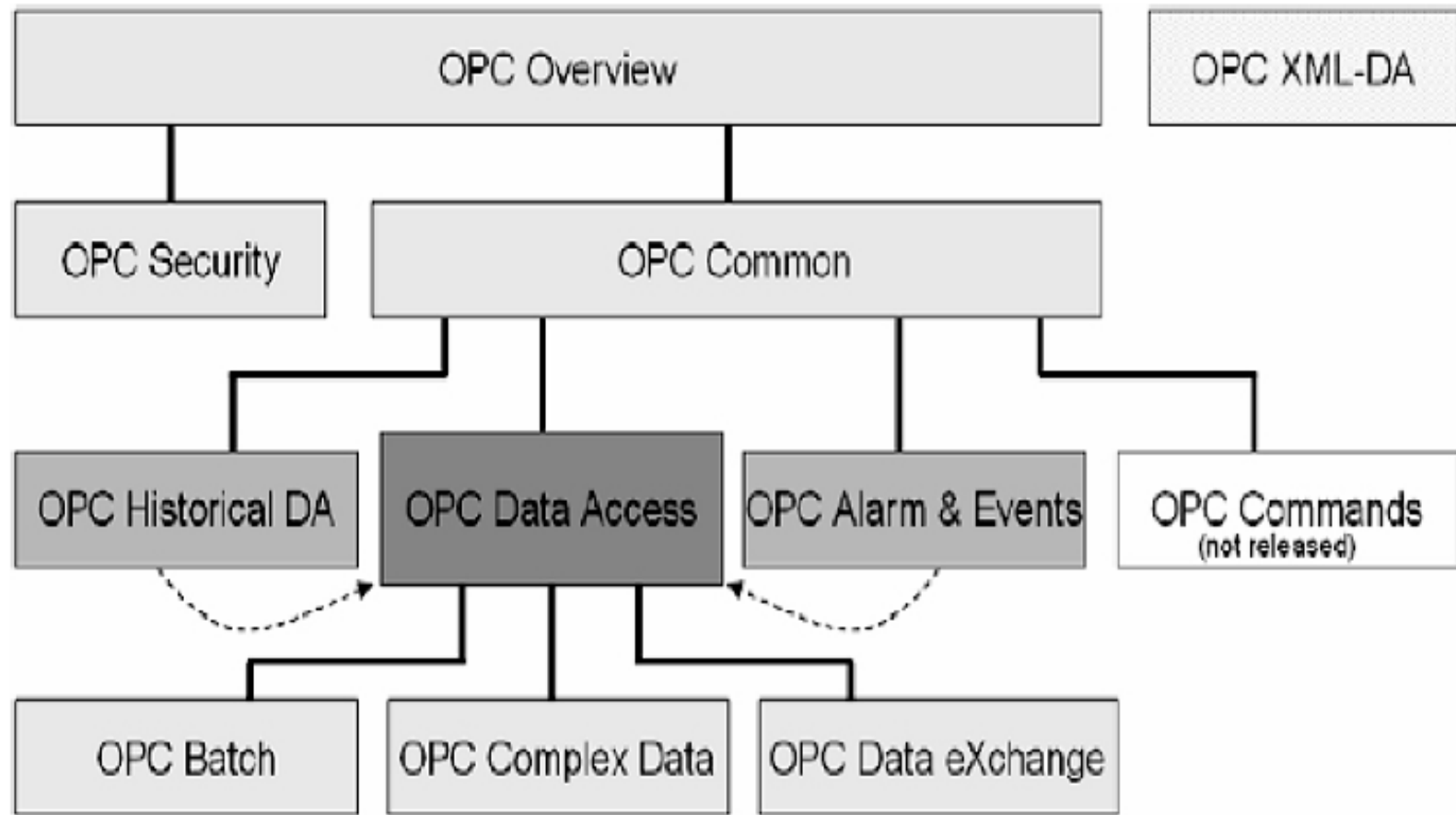
Classic OPC

Classic OPC interfaces are based on the **COM and DCOM** technology from Microsoft.

Classic OPC specifications :

1. **Data Access** (DA) : for real time data access
 2. **Alarm & Events** (A&E) : process alarms and events
 3. **Historical Data Access** (HDA) : for historical (stored) data
 4. **Security** control client access to servers
 5. **PC Complex Data**, **OPC Batch**, and **OPC Data eXchange** (DX)
- are extensions to OPC DA

Classic OPC



Classic OPC

The main **disadvantages** of Classic OPC :

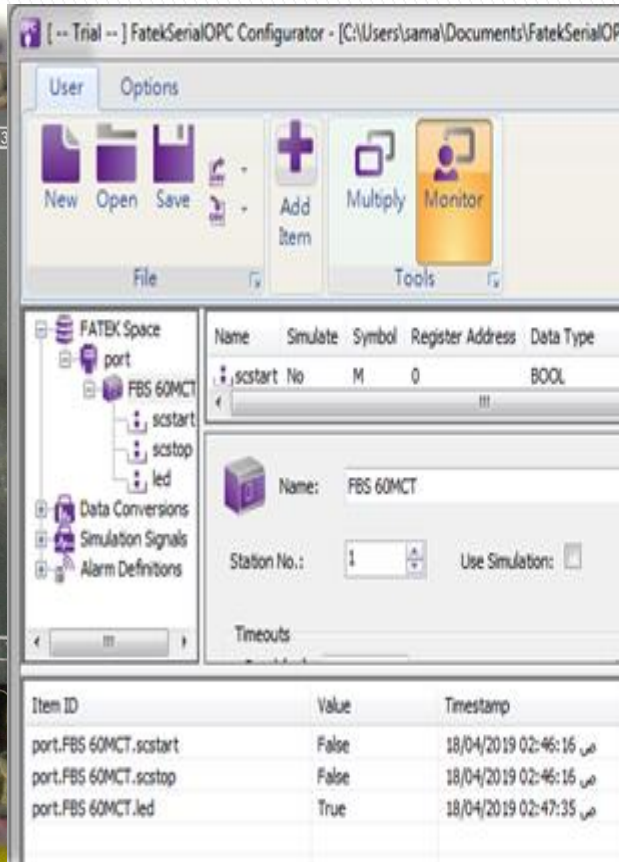
1. Windows-platform-dependency
2. the DCOM issues when using remote communication with OPC. DCOM is difficult to configure .

OPC DA with Wincc Flexible and Fatek

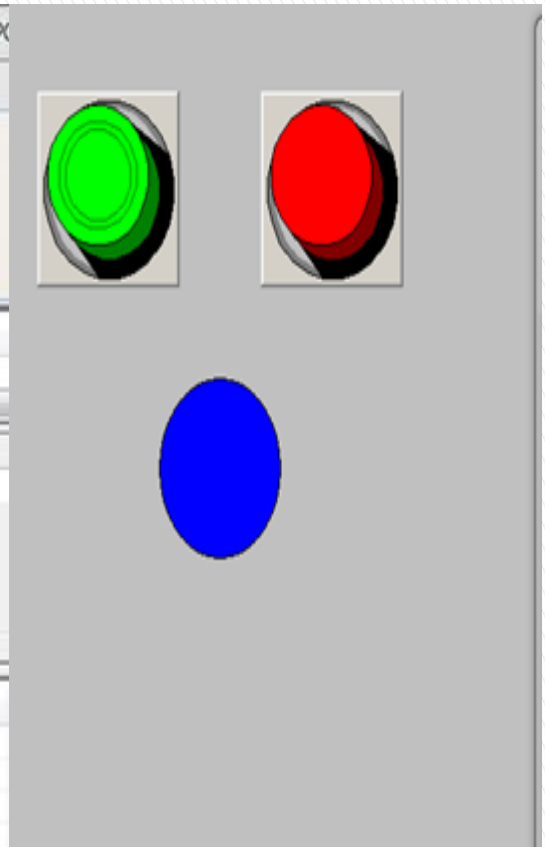
PLC



OPC Server

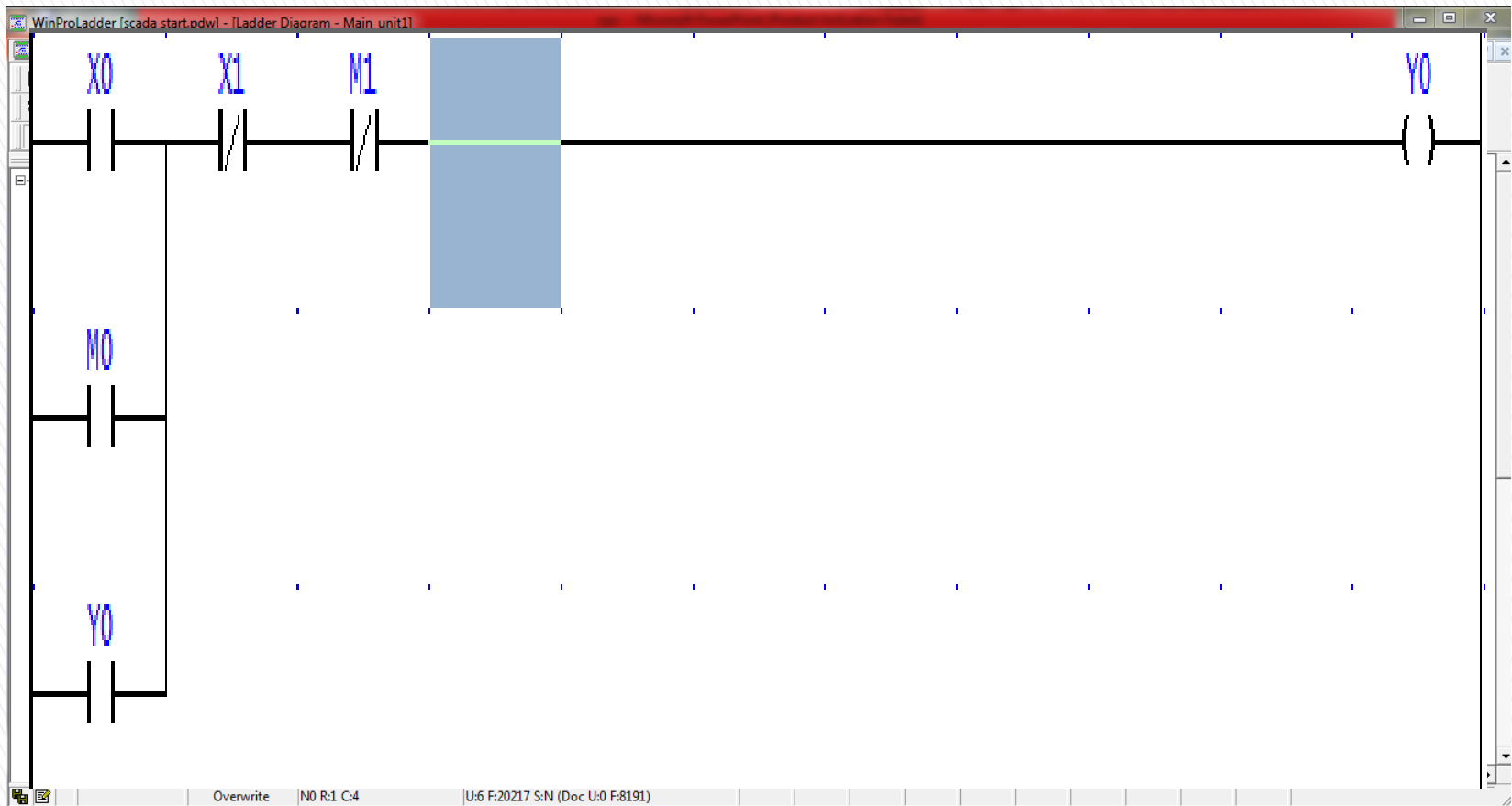


SCADA



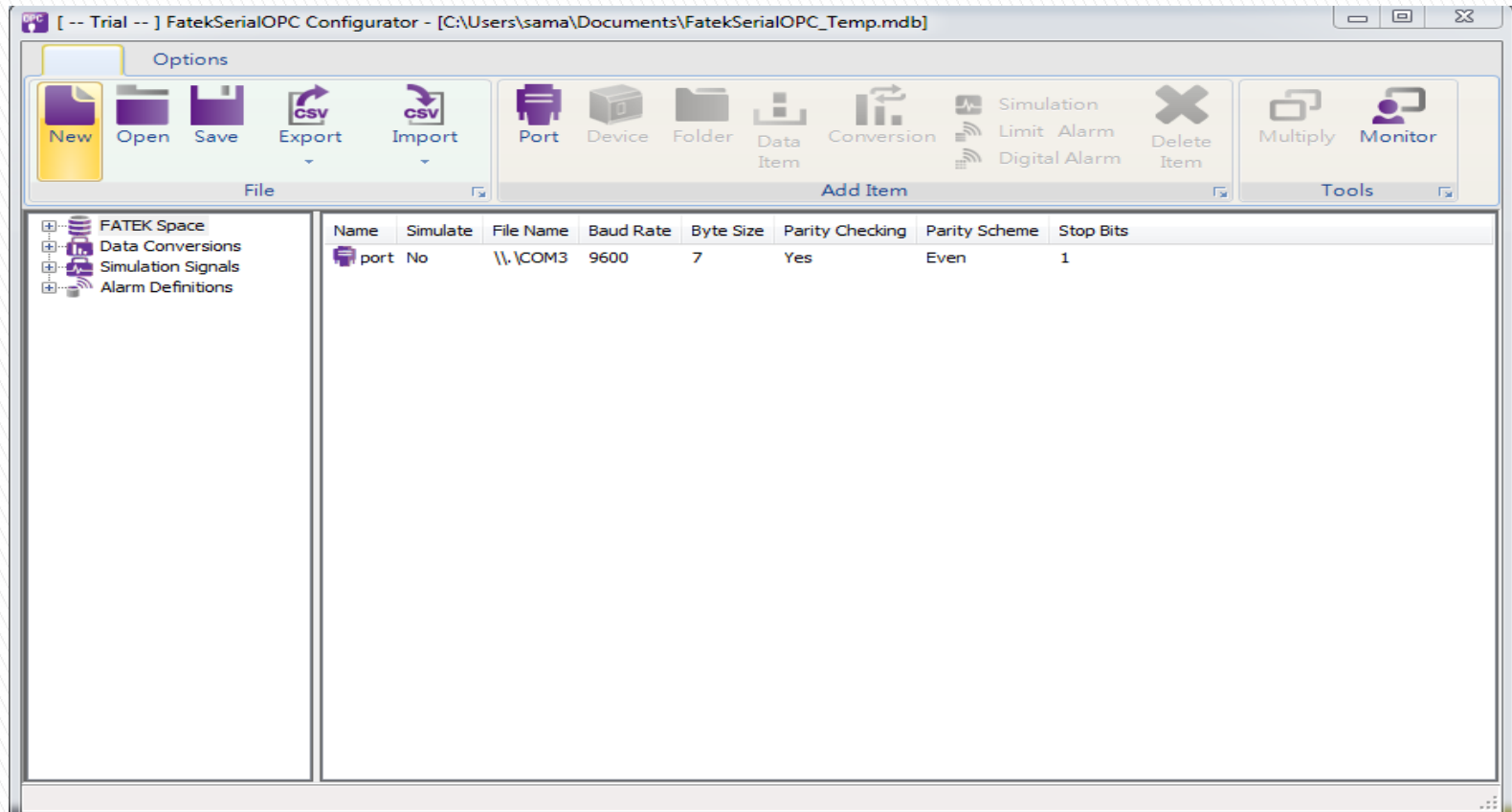
OPC DA with Wincc Flexible and Fatek

PLC Program



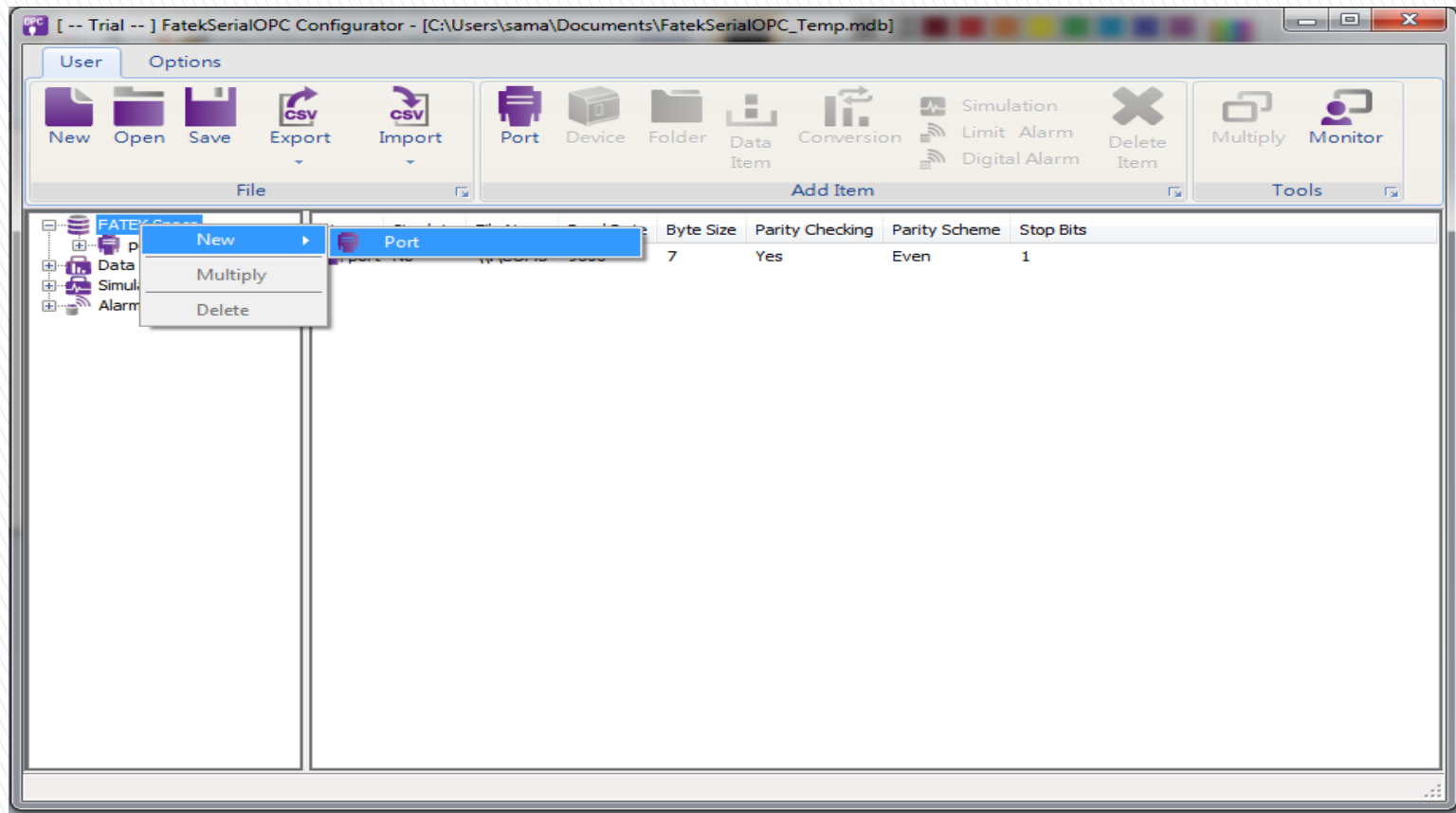
OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)



OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)



OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)

OPC [-- Trial --] FatekSerialOPC Configurator - [C:\Users\sama\Documents\FatekSerialOPC_Temp.mdb]

User Options

New Open Save Export Import Port Device Folder Data Item Conversion Simulation Limit Alarm Digital Alarm Delete Item Multiply Monitor

File Add Item Tools

FATEK Space
port
Data Conversions
Simulation Signals
Alarm Definitions

Name	Simulate	Station No.	Read Timeout	Write Timeout	Timeouts to Suspend	Suspend Period
FBS 60MCT	No	1	1000	1000	100	1000

Name: port

Restore

Apply

Setting

File Name: \\.\COM3

Baud Rate: 9600

Data Bits: 7

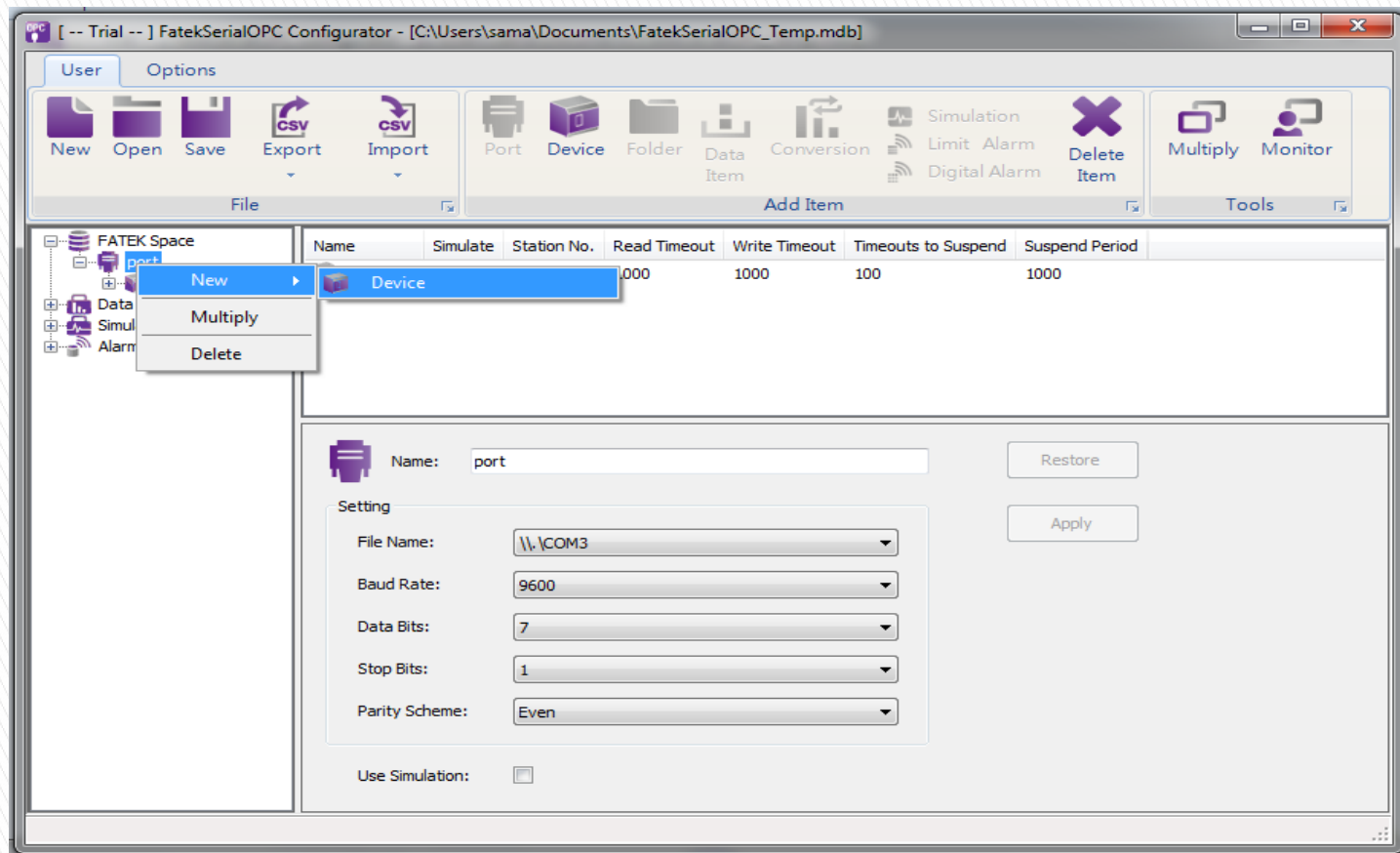
Stop Bits: 1

Parity Scheme: Even

Use Simulation: ☐

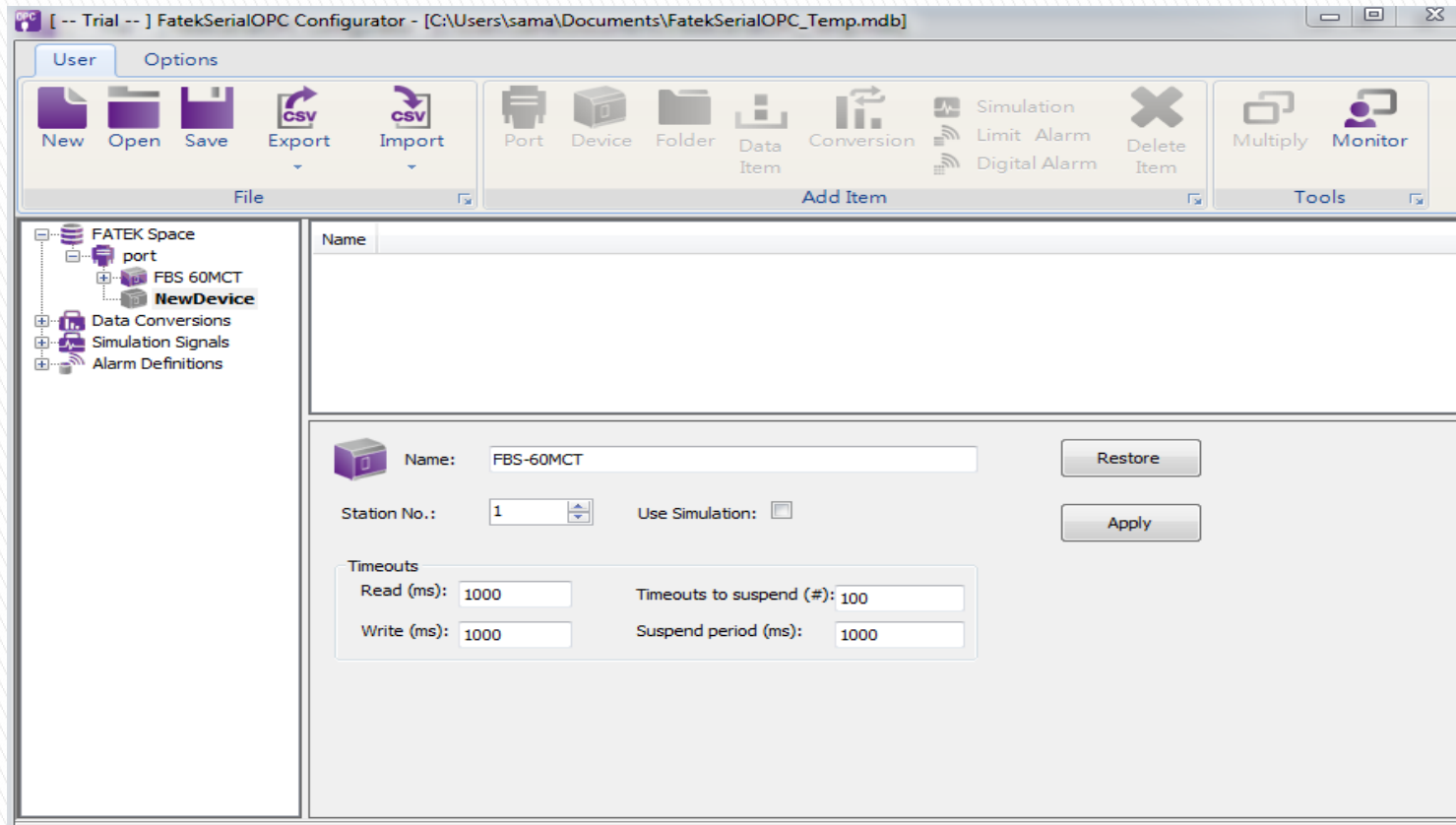
OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)



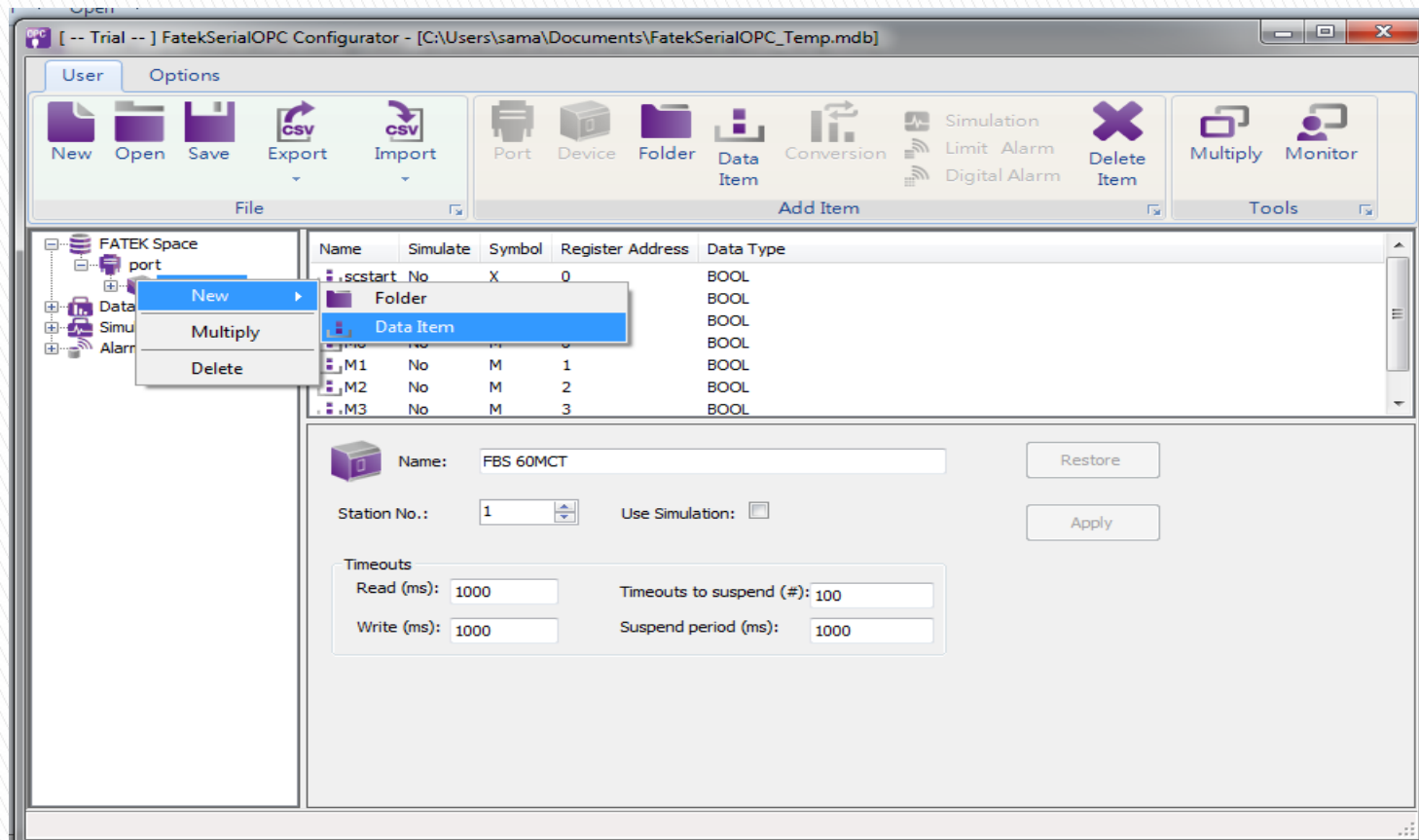
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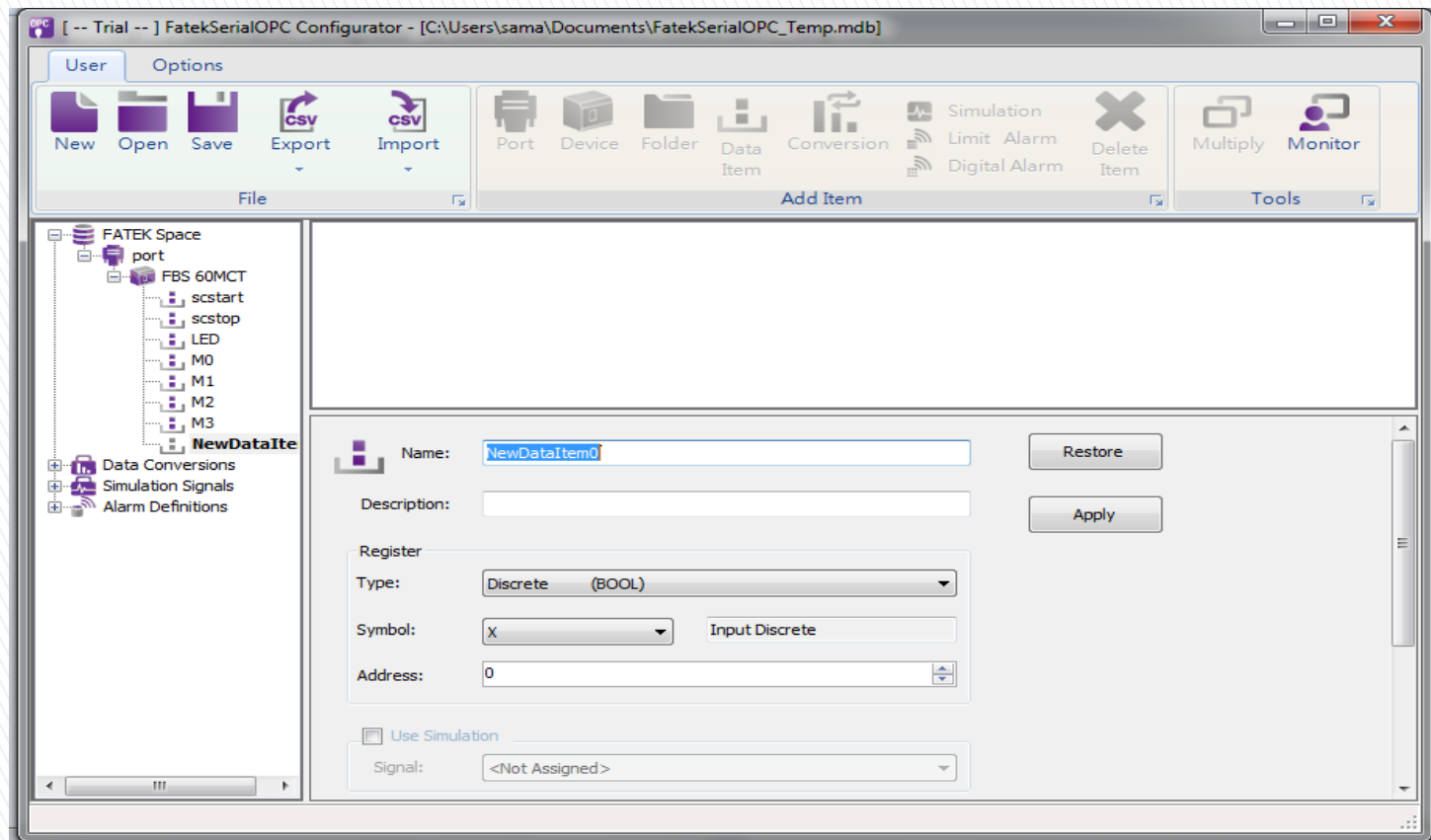
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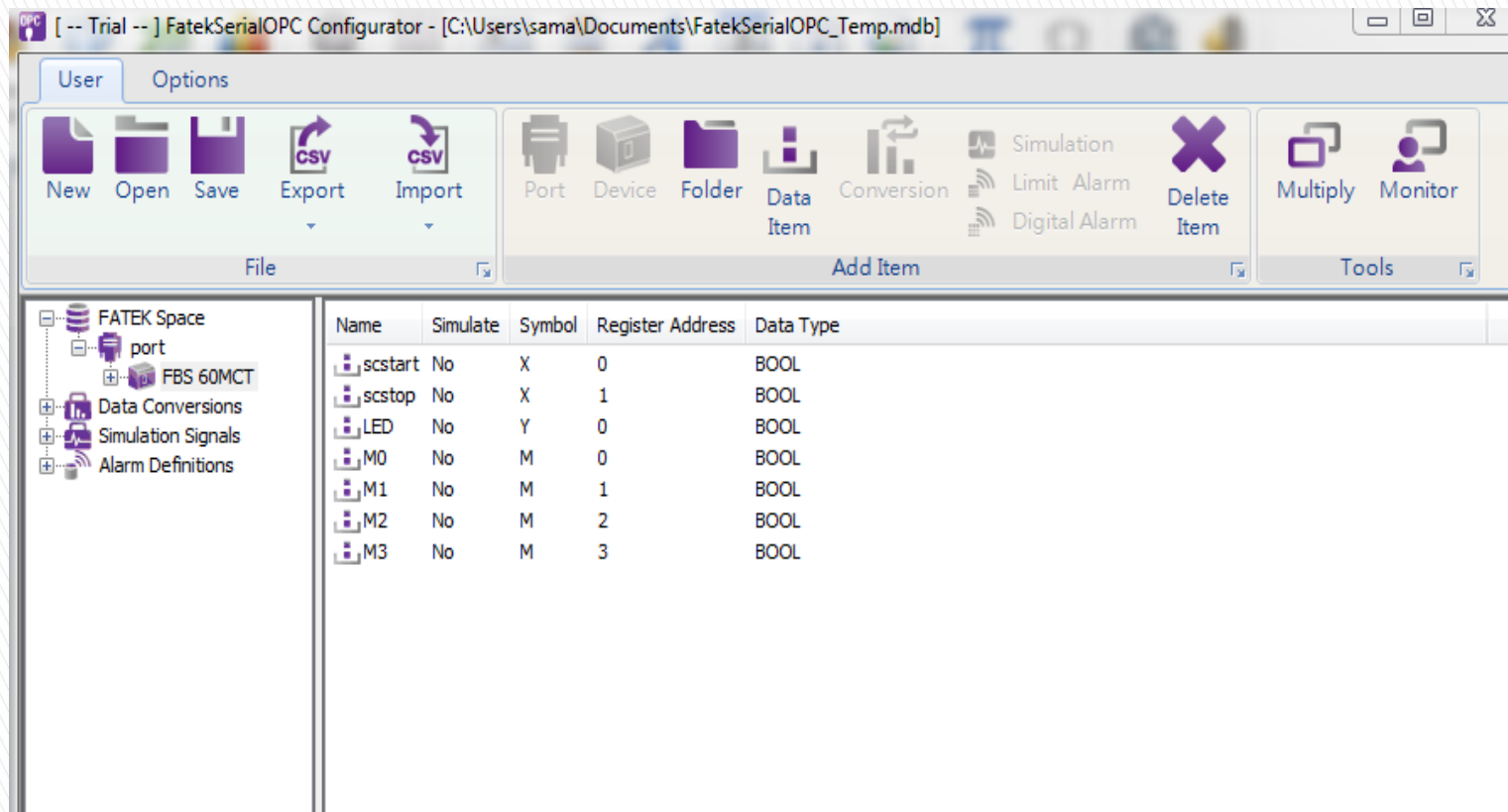
OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)



OPC DA with Wincc Flexible and Fatek

OPC Server (FATEK Serial OPC Configurator)



OPC DA with Wincc Flexible and Fatek

Wincc Program

