Application Note

FESTO

CODESYS OPC DA server

This application note describes the license dependency with the CODESYS OPC DA server and possible alternatives for CODESYS Development System >= V3.5 SP12

CODESYS Development System >= V3.5 SP12

100306

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Copyright Notice

Legal Notice

Table of contents

1 Components/Software used

Type/Name	Version Software/Firmware	Date of manufacture
CODESYS Development System	>= V3.5 SP12	20.12.2017
CODESYS provided by Festo	V3.5 SP12 Patch 6	22.07.2019

Table 1.1: 1 Components/Software used

2 Overview

The 3S-Smart Software Solutions GmbH changed their business model of the CODESYS OPC Server with the release of CODESYS V3.5 SP12 (2017-Dec-20).

At page https://www.codesys.com/products/codesys-runtime/opc-server.html the original text
(= before 2017-Dec-20)

> *The CODESYS OPC Server*
> - *is free of charge and delivered along with the CODESYS Development System*

changed to (= AFTER 2017-Dec-20)

> *The CODESYS OPC Server*
> - *is part of the standard setup of the CODESYS Development System but requires a USB dongle license for usage*

Note
“CODESYS OPC Server 3” will NOT be activated during the default installation of the “CODESYS provided by Festo” version “V3.5 SP12 Patch 6 pbF (22.07.2019)”
(= CODESYS_V35SP12Patch6_pbF(c1be7dd9e13b).zip)

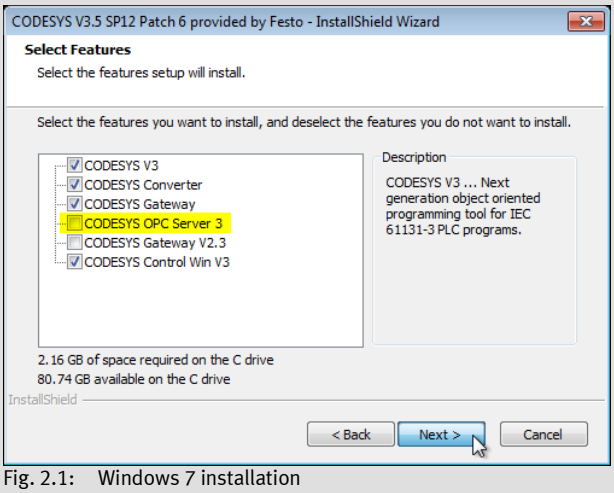

Fig. 2.1: Windows 7 installation

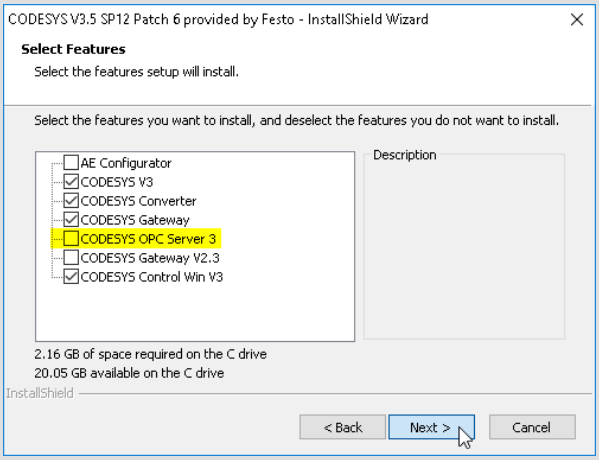

Fig. 2.2: Windows 10 installation

3 Licensing

Even though the CODESYS OPC Server is still delivered with the CODESYS Development System, from CODESYS V3.5 SP12 on there is now a license necessary to use it.

DEMO (30-days)/Full licenses are available via the CODESYS store

- https://store.codesys.com/codesys-opc-da-server-sl-bundle.html

Note
Any 3S OPC server prior to version 3.5 SP12 does NOT need a license and can still be used. Nevertheless beware of possible security vulnerabilities in older versions of these implementations acc. to “Version history” of register “All versions” on the 3S CODESYS store webpage!

3.1 Missing License error

Without ANY (valid) license the following error message will be displayed trying to start the OPC DA server via *WinCoDeSysOPC.exe*

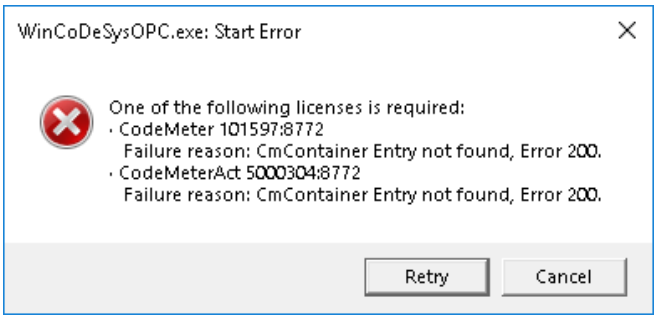

Fig. 3.1: Missing License error dialog

4 Obtain and implement the (actual) CODESYS OPC Server

The CODESYS OPC Server is available as standalone setup or as a part of the **32-bit** setup of the CODESYS Development System.
The current version of the OPC Server Setup or the CODESYS Development System can be downloaded free of charge from the CODESYS Store after registration.
In order to use the OPC server, a license is required, which is stored on a USB-Dongle (CODESYS Key) or directly on the Windows PC running the CODESYS OPC Server (= CODESYS Softcontainer).
Licenses and CODESYS Keys can be purchased directly via the CODESYS Store.

For more information please contact the sales department under **sales@codesys.com**

Information
ALL available "standalone" OPC server packages downloadable from the CODESYS store require a valid demo/full license!

4.1 CODESYS provided by Festo V3.5 SP12 Patch 6

To install the (previously deselected) OPC server AFTER an already installed CpbF

1. Start again the installation executable *Setup_CODESYSV35SP12Patch6.exe*
2. Select option "Modify, Repair or Remove the program" -› Next -› "Modify" -› Next
3. Activate the previously disabled feature "CODESYS OPC Server 3" -› Next

Note
Activate the option "AE Configurator" too if you need the "Alarm and Events Configurator".
Prerequisite for AE Configurator: .NET 3.5

4. Select "install files and install services"

Note
In case you have already a NEWER version of the CODESYS development system installed select option "install files, but do not install as a service".

Information
You need a valid demo/full license for this server implementation version!

5 Default installation locations

5.1 32-bit Windows operating system

Note
Only the 32-bit CODESYS Development System version can be installed on a 32-bit Windows operating system!

Note
All “CODESYS provided by Festo” software packages contain the 32-bit version of the CODESYS Development system!

Vendor	CODESYS Version	Directory Location
Festo	SP12 Patch 6 CpbF	C:\Program Files\Festo\CODESYSV3.5.12.6\CODESYS OPC Server 3
	SP10 Patch 4 CpbF	C:\Program Files\Festo\CODESYSV3\CODESYS OPC Server 3
	SP7 Patch 2 CpbF	
3S	SP15 Patch 3	C:\Program Files\CODESYS 3.5.15.30\CODESYSV3\CODESYS OPC Server 3
	SP12 Patch 6	C:\Program Files\3S CODESYS\CODESYSV3\CODESYS OPC Server 3
	SP10 Patch 4	
	SP7 Patch 2	

Table 5.1: Windows 7, 32-bit: Default OPC server directory location

5.2 64-bit Windows operating system

Vendor	CODESYS Version	Directory Location
Festo (32-bit)	SP12 Patch 6 CpbF	C:\Program Files (x86)\Festo\CODESYSV3.5.12.6\CODESYS OPC Server 3
	SP10 Patch 4 CpbF	C:\Program Files (x86)\Festo\CODESYSV3\CODESYS OPC Server 3
	SP7 Patch 2 CpbF	
3S 32-bit	SP15 Patch 3	C:\Program Files (x86)\CODESYS 3.5.15.30\CODESYSV3\CODESYS OPC Server 3
	SP12 Patch 6	C:\Program Files (x86)\3S CODESYS\CODESYSV3\CODESYS OPC Server 3
	SP10 Patch 4	
	SP7 Patch 2	
3S 64-bit	SP15 Patch 3	C:\Program Files\CODESYS 3.5.15.30\CODESYSV3\CODESYS OPC Server 3
	SP12 Patch 6	C:\Program Files\3S CODESYS\CODESYSV3\CODESYS OPC Server 3

Table 5.2: Windows 10, 64-bit: Default OPC server directory location

Information
ALL newer 3S versions (>= V3.5 SP13) have the version number in the directory path:

```
...\<Version: 3.5>.<service pack>.<patch*10\CODESYS OPC Server 3\
```

6 3S OPC server version

1. Right click on the related OPC server executable (i.e. *WinCoDeSys.exe*) and select “Properties”.
2. Switch to register “Details”.
3. Check the “Product version”.

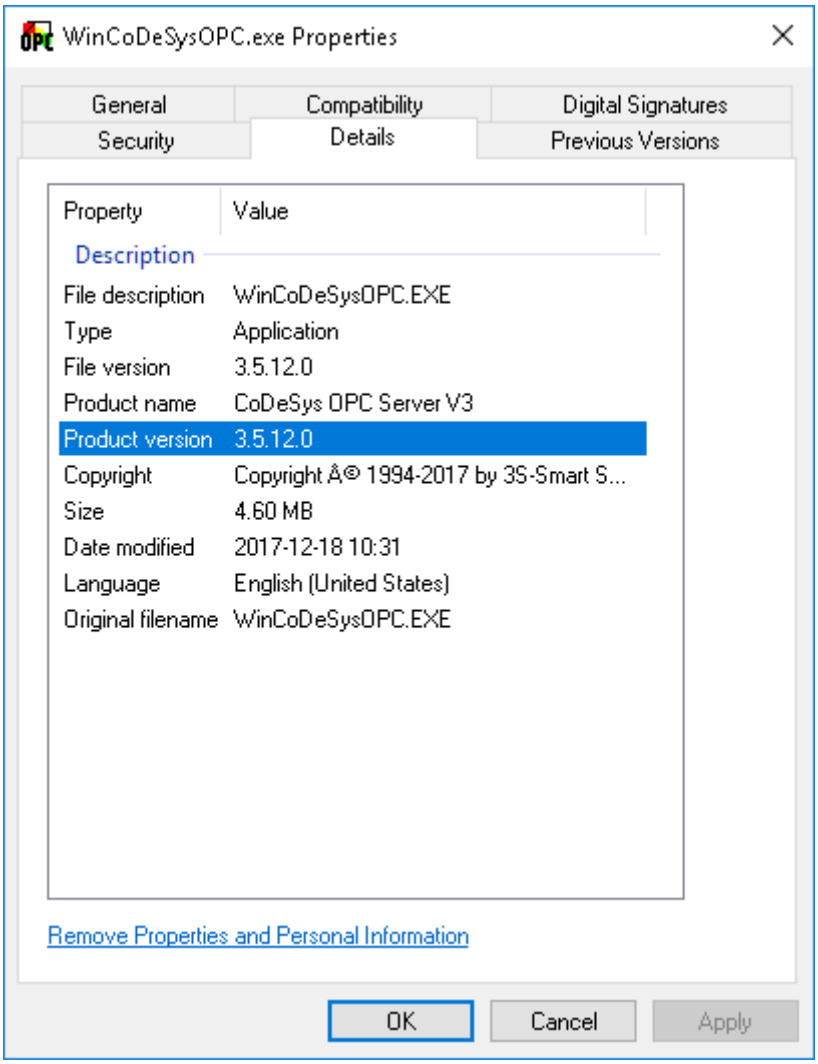

Fig. 6.1: OPC executable product version

7 Alternatives

If using OPC only for testing purposes check the list of other (demo) server solutions at https://www.opcconnect.com/freesrv.php.

7.1 OpenOPC for Python

I-Net: http://openopc.sourceforge.net

OpenOPC for Python is a free, open source OPC (OLE for Process Control) toolkit designed for use with the popular Python programming language. The unique features that set it apart from the many commercially available OPC toolkits include...

- Easy to use
  Because the OpenOPC library implements a minimal number of Python functions which may be chained together in a variety of ways, the library is simple to learn and easy to remember. In its simplest form, you can read and write OPC items as easily as any variable in your Python program...

```
print opc['Square Waves.Int4']
opc['Square Waves.Real8'] = 100.0
```

- **Cross platform support**
  OpenOPC works with both Windows and non-Windows platforms. It has been tested with Windows, Linux, and Mac OS X.

- **Functional programming style**
  OpenOPC allows OPC calls to be chained together in an elegant, functional programming style. For example, you can read the values of all items matching a wildcard pattern using a single line of Python code!

```
opc.read(opc.list('Square Waves.*'))
```

- **Designed for dynamic languages**
  Most OPC toolkits today are designed for use with static system languages (such as C++ or C#), providing a close mapping to the underlying Win32 COM methods. OpenOPC discards this cumbersome model and instead attempts to take advantage of the dynamic language features provided by Python.

  EXAMPLE: Minimal working program

```
import OpenOPC
opc = OpenOPC.client()
opc.connect('Matrikon.OPC.Simulation')
print opc['Square Waves.Real8']
opc.close()
```

  This project utilizes the de facto OPC-DA (Win32 COM-based) industrial automation standard.

7.2 OPC server version of 3S (‹ V3.5 SP12 / before 2017-Dec-20)

You can use any old OPC server version installed by a CODESYS Development System version prior to version 3.5 SP12.

Just copy the directory “CODESYS OPC Server 3” from any old CODESY Development System installation to your new development PC (see -› chapter 5: Default installation locations)

➔ **Note**
Beware of possible security vulnerabilities in older versions of these implementations acc. to “Version history” of register “All versions” on the 3S CODESYS store webpage!