

# Siemens OPC interface

**INDEX Multi-spindle turning machines**

**Control system INDEX C200-sl**

## **Note on applicability**

Illustrations in this publication may deviate from the product supplied. Errors and omissions due to technical progress expected.

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## **OPC UA Interface - General**

The OPC (Open Platform Communications) Unified Architecture, briefly "OPC UA", is a standardised industrial communication interface.

Not only is the OPC UA interface capable of transporting machine data (control variables, measured values, parameters, etc.) safely, it is also capable of automatically describing such data in a machine-readable semantic way. This interface may for instance serve for data communication between the production and the enterprise level..

For further information, refer to the SIEMENS documentation, please.

## Siemens OPC UA Server Version 1.x

In case of "SolutionLine" machines, i.e. machines equipped with "HMI Operate", you may enquire system variables NCU-wide.

The OPC UA interface has been released from software version 4.7 SP2 HF1 on.

Also refer to the Siemens put-into-service manual "Base software and operating software – chapter 3 "OPC UA".

### Interface activation – procedure

- Set "AccessMyMaschine /OPC UA" licence (available subject to costs) on all NCUs.
- The settings of the following file "...user\sinumerik\hmi\miniweb\cfg\AddressModeller.xml" must be adjusted respectively.

#### AddressModeller.xml

```
<?xml version="1.0" encoding="utf-8" standalone="yes" ?>
  <AddressModeller
    DefaultLocale="en" CompileXmlOnLoad="true" StorePrefixLen="false"
    MaxNodeIds ="12000"
    MaxNodes  ="12000"
    MaxRefs   = "600000"
  />
```

- In case of "embedded machines" HMI-run-up must be delayed.  
File "...user\sinumerik\hmi\cfg\run\_hmi.ini" must be expanded by the following entry:

#### run\_hmi.ini

```
...
[HMI]
StartupDelay=60
....
```

- Enter user name / password in screen "Start-up > network > OPC UA" and "activate OPC UA" (refer to the following section, please.).

## **Siemens OPC UA from server version 2.1 onwards**

The OPC UA interface has been approved from Siemens software version > 4.7 (PCU with WIN7) onwards.

### **Activation of the interface**

Please refer to Siemens manual "SINUMERIK Access MyMachine / OPC UA"

<https://support.industry.siemens.com/cs/document/109783264/sinumerik-840d-sl-8282d-access-mymachine-opc-ua?dti=0&lc=en-CO>

## Test by means of "UaExpert"

The Siemens OPC UA server may be tested by means of the OPC UA Client "UaExpert" from "Unified Automation".

"UaExpert" is a free test software and can be loaded down from the "Unified Automation" website.

<https://www.unified-automation.com/products/development-tools/uaexpert.html>

"UaExpert" is an accredited product of the "OPC Foundation".

<https://opcfoundation.org/>

## Establishing the Server - Client connection

Establish test connection between "UaExpert" (PC) and "HMI operate" (machine).

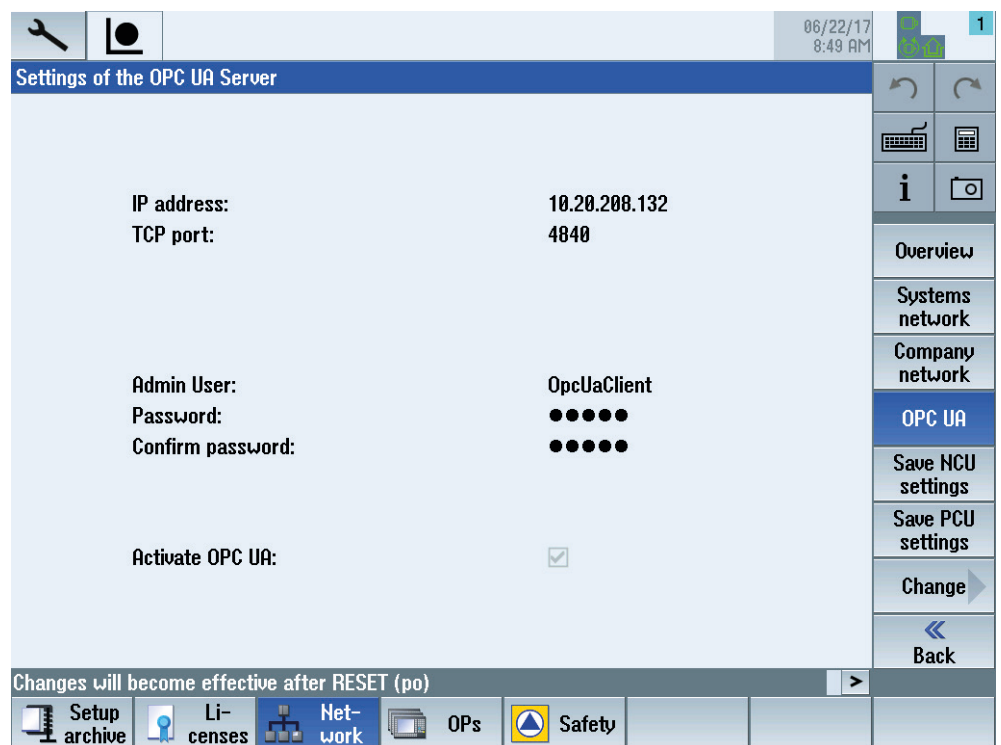
At this, PC and machine must be within the company network.

It is recommended to establish a fix IP-address for the machine.

## Establishing the server version 1.x on "HMI operate"

In screen "Start-up > network > OPC UA":

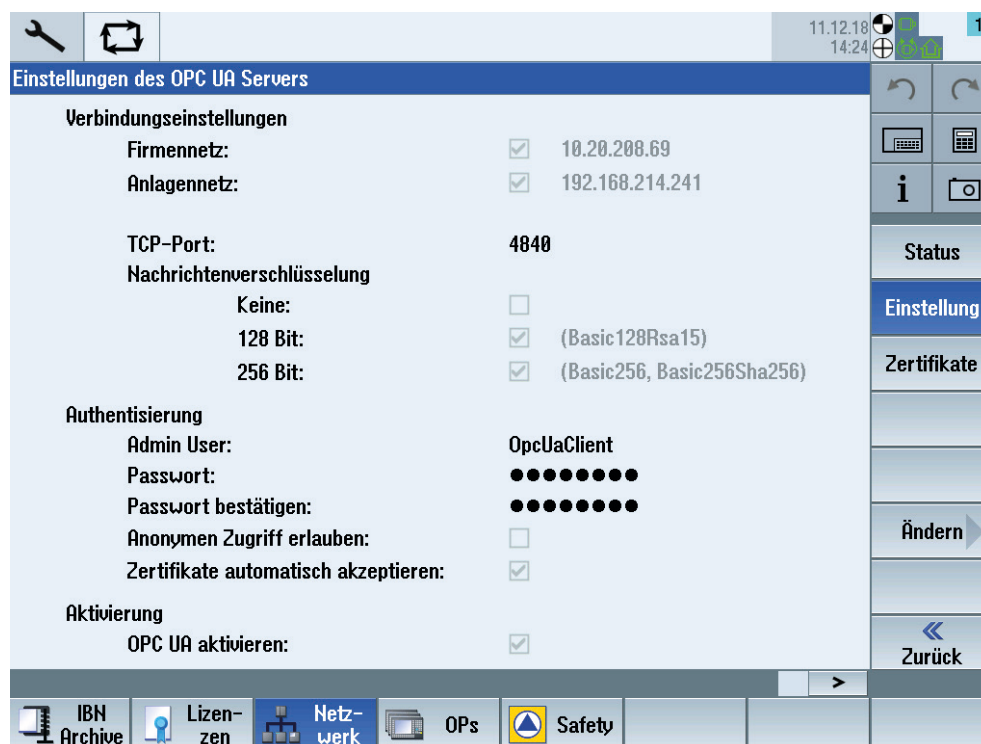
- Enter IP-address of the company network.
- Create a user name plus password.
- Activate OPC UA



## Establishing any server from version 2.1 onwards on "HMI operate"

In screen "Set-up" > network > OPC UA > set-up":

- The IP-address of the company network will be entered automatically as soon as softkey "Modify" has been activated.
- Create a user name plus password.
- Activate OPC UA.
- For further settings, refer to the Siemens manual "SINUMERIK Access MyMachine / OPC UA", please.

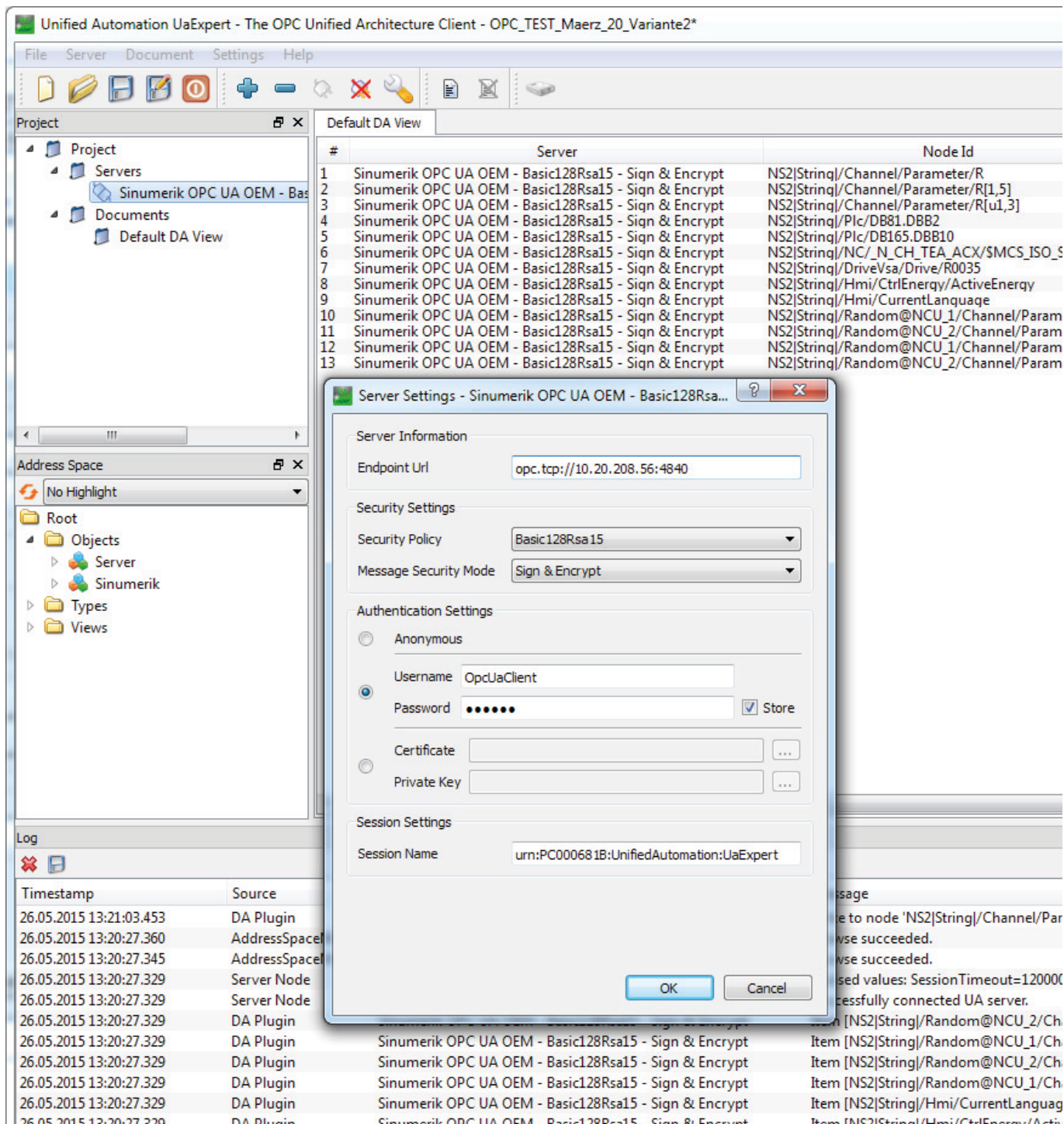




## Establishing a connection with the server.

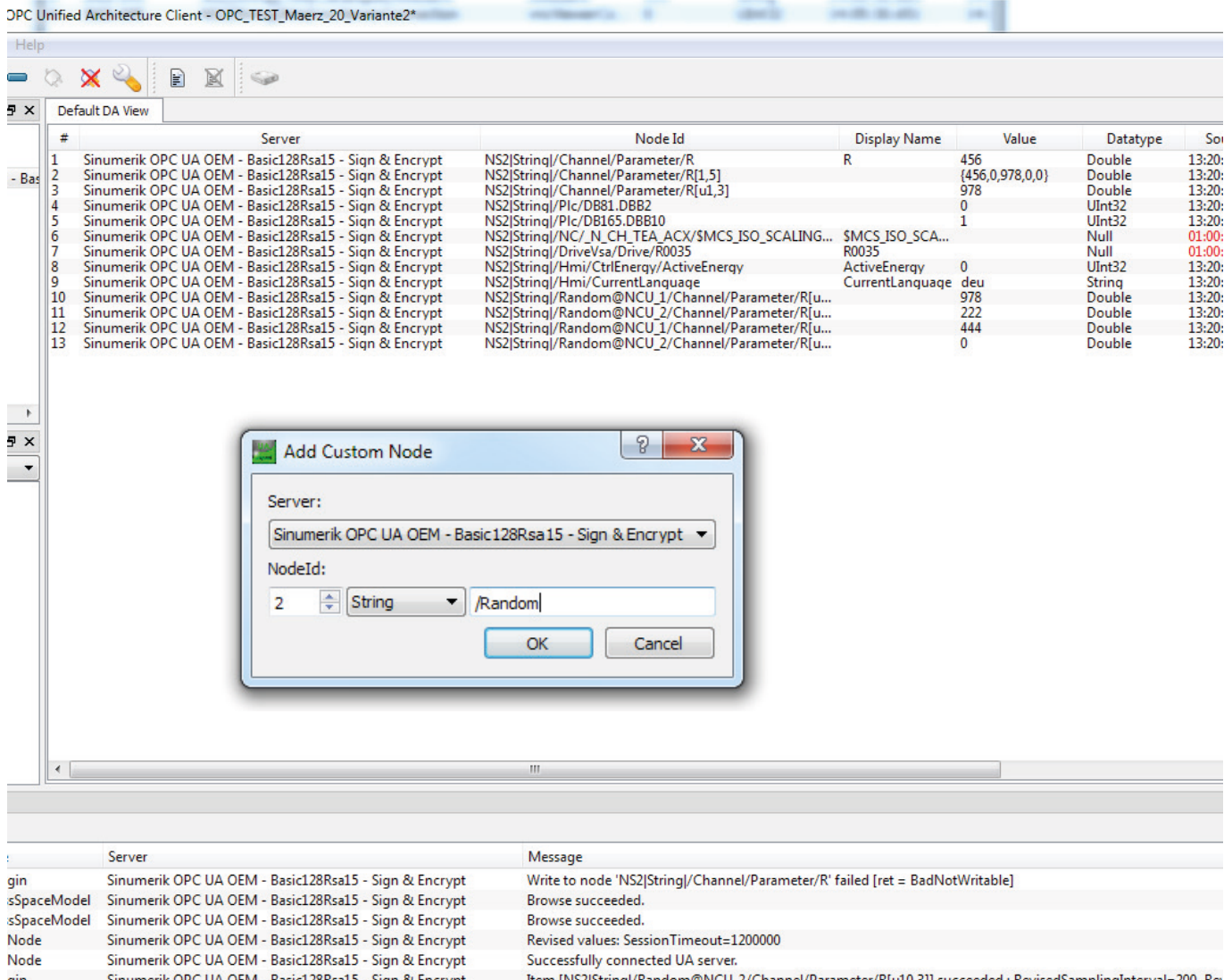
In "UaExpert", among others, you have to enter the IP-address of the server as well as the user name plus password

For further settings, refer to the following screen, please:



### Access to the ("Node Id") variable path via "Add Cutom node..."

Procedure: In screen "Default DA View", you call up a menu by clicking on the "right mouse key", thereafter, select "Add Custom node...". Enter path of the variable according to the following illustration.



The illustration shows a view of the paths of variables by means of "UaExpert". From the "Value" column you can read the current value of the variable.

**Table showing different variable paths (examples)**

Variable path (Node ID)	Description
/Random@NCU_1/Channel/Parameter/R[u1,0]	R parameter 0 from channel 1 on the 1st NCU
/Random@NCU_1/Channel/Parameter/R[u1,3]	R parameter 3 from channel 1 on the 1st NCU
/Random@NCU_1/Channel/Parameter/R[u2,3]	R parameter 3 from channel 2 on the 1st NCU
/Random@NCU_2/Channel/Parameter/R[u1,0]	R parameter 0 from channel 1 on the 2nd NCU
/Random@NCU_2/Channel/Parameter/R[u2,1,5]	R parameter 1 - 5 (field) channel 2 on the 2nd NCU
/Random@NCU_1/Plc/DB165.DBX0.1	in production
/Random@NCU_1/Plc/DB165.DBD162	pre-selection counter 1 position 1 actual value
/Random@NCU_2/Plc/DB165.DBD354	pre-selection counter 1 position 5 actual value (in case of machines with double-NCU)
/Random@NCU_1/DriveVsa/Drive/R0035[u13]	Temperature of drive of machine axis 13 of the 1st NCU
/Random@NCU_1/DriveVsa/Drive/R0035[u14]	Temperature of drive of machine axis 14 of the 1st NCU
/Random@NCU_1/NC/_N_CH_TEA_ACX/\$MC_AXCONF_MACHAX_USED[u2,1,20]	Assignment of the channel axis to the machine axis for all channel axes (1 through 20) in channel 2 of the 1st NCU
/Random@NCU_1/HMI/CurrentLanguage	Selected operating panel language
/Random@NCU_1/Channel/ProgramInfo/workPNameLong[u1]	Selected workpiece (of channel 1 on the 1st NCU)

**Syntax of the variable paths*****/RandomNCU name/variable***

<b><i>/Random</i></b>	<b><i>NCU name</i></b>	<b><i>Variable</i></b>
/Random	@NCU_1 @NCU_2 (only in case of machines with double-NCU)	a) determination via "Browsing" /* b) Siemens manuals: (i.a. manual of lists "System variables")

/\* "Browsing" does not display all variables.

**For additional general variables from the INDEX company**

refer to INDEX document DIM040... "Operating data of building block DB165"





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