

How to get connection between WinStudio and ctrlxCORE

The following how to... describes the OPC-UA connection between WinStudio and our new ctrlxCORE. There are thousands of WinStudio applications running, and there is still a need to keep WinStudio going on with our newest PLC, so here is a short description how to get in contact with ctrlxCORE.

Tested on ctrlxCORE:

OPC UA Server – 1.8.2

PLC – 1.8.1

WinStudio:

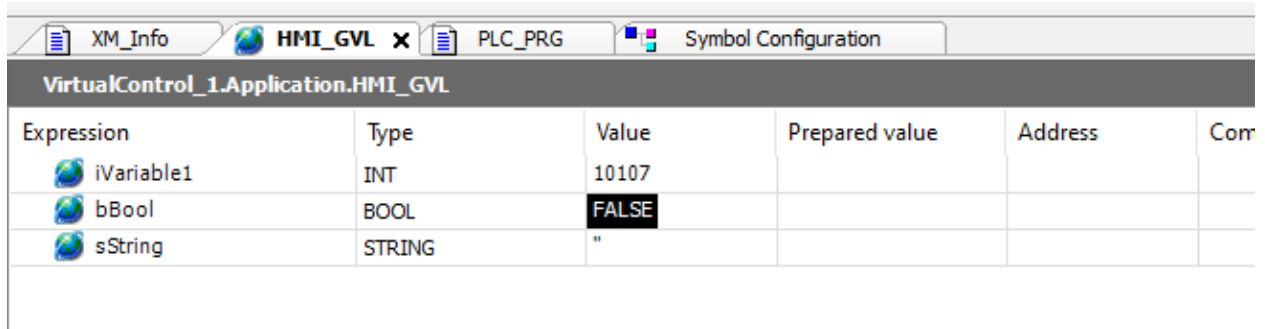
IW ML 15V12

CtrlxCORE:

At first, you should write a small plc program and put the needed symbols to the Symbol Configuration

```
1 (*XM_Info ();*)
2
3 iVariable1 3767 := iVariable1 3767 + 1;
4 //sString:= "test";
5 bBool FALSE;
6
7
8 RETURN;
9 RETURN
```

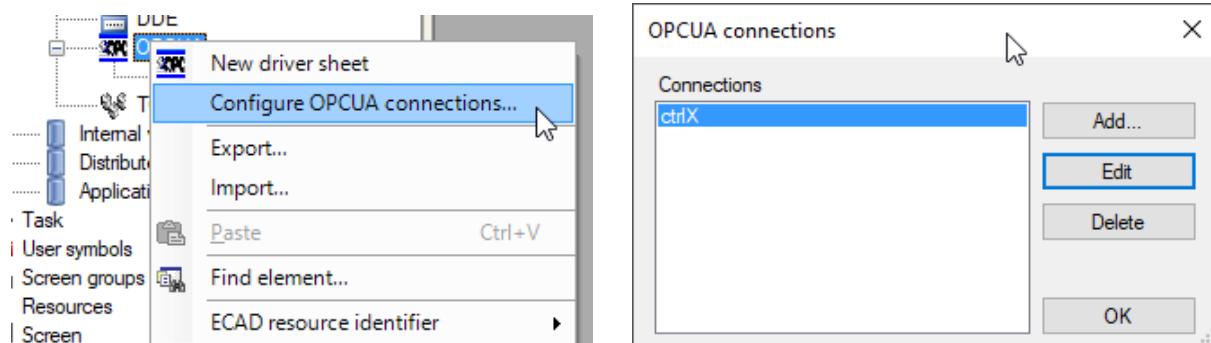
I



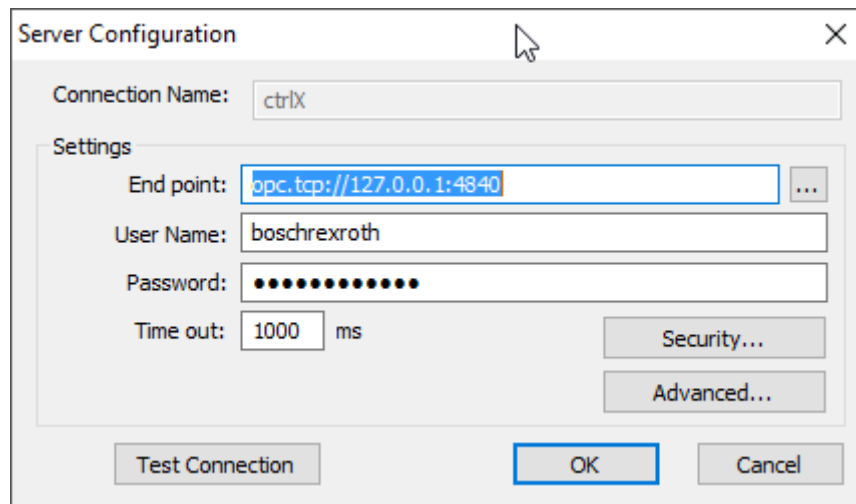
Expression	Type	Value	Prepared value	Address	Com
iVariable1	INT	10107			
bBool	BOOL	FALSE			
sString	STRING	"			

Now you have to prepare the OPC_UA configuration in WinStudio. Be aware, that you need IW 15V12, otherwise you cannot run the WinStudio Application on another PC!

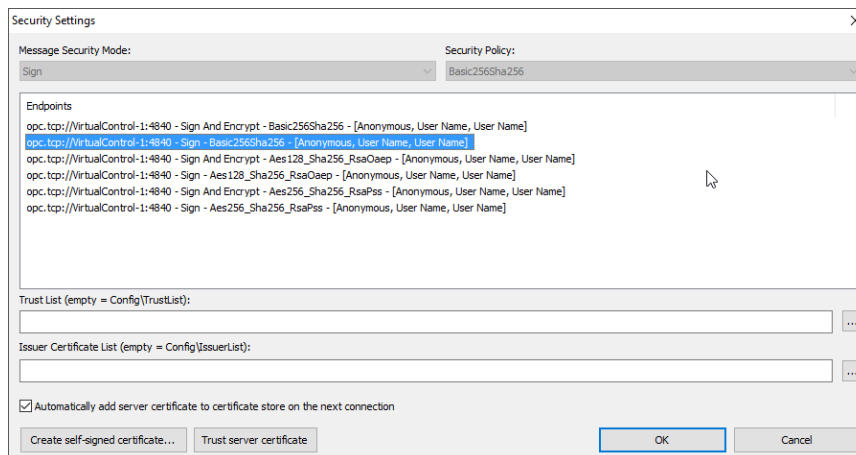
At first you have to configure the OPC_UA connections



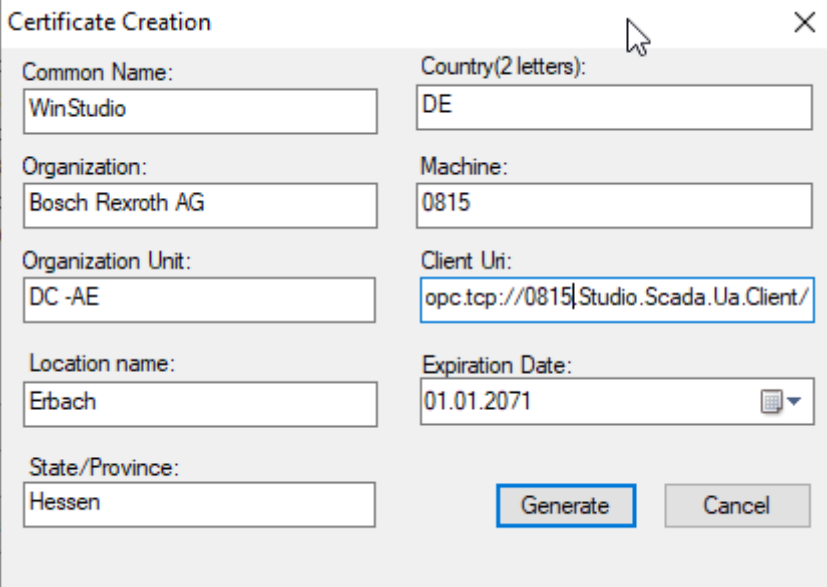
I have created one (ctrlX) and here is the next screen



CtrlxCORE always uses a secure OPC_UA connection. So you have to use User Name and Password (it's the same as user name by default) and then you have to open the security screen.



We use the Sign Basic256Sha256 certificate. You have to create the self-signed certificate



The image shows a 'Certificate Creation' dialog box with the following fields and values:

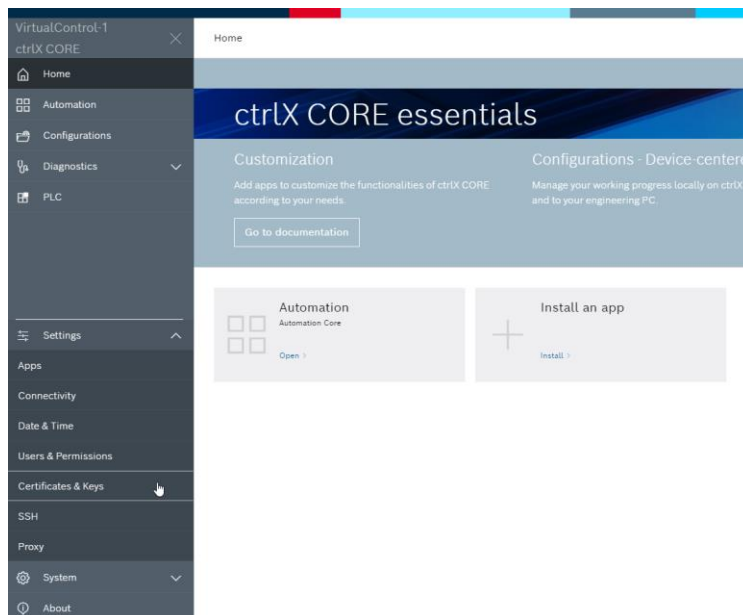
Common Name:	WinStudio	Country(2 letters):	DE
Organization:	Bosch Rexroth AG	Machine:	0815
Organization Unit:	DC -AE	Client Uri:	opc.tcp://0815 Studio.Scada.Ua.Client/
Location name:	Erbach	Expiration Date:	01.01.2071
State/Province:	Hessen		

Buttons: Generate, Cancel

The entries on the left side are optional, the entries at machine and Client Uri are read by the system and it is the computer name where you create the certificate. So if you move the application later on to a VR21xx, you have to use the computer name of the VR21.

Accept the entries with generate and the certificate will be stored. You are back to the security settings now. Here you have to trust the server certificate too, then the configuration of the OPC-UA on WinStudio site is finished.

We had send a certificate to the ctrlxcore. So there we have to accept this certificate too. To do so, we have to go to the homepage of the ctrlxcore and have to open certificate & keys under settings














Open this menu and open the OPC-UA Server item. In my case there are several OPC-UA server running.

The last line refers to the WinStudio certificate which is at the moment rejected

OPC UA Server

Certificates Keys

4 items

Name	Category	Issued by	Valid from	Valid until	Actions
rexroth-opcua-server2048.der	Own	CommonName: ctrlX OPC UA Server @ Control Organization: Bosch Rexroth AG	03-05-2021 09:34:34	09-04-2120 09:34:34	 
428137910486D0A36BBE199ED2F2B	Trusted	CommonName: opcua.shmi Organization: Smart HMI GmbH	03-05-2021 11:14:44	01-05-2031 11:14:44	  
E3AC1EF7A36730A9C93C534720D0C	Trusted	CommonName: UATestClient Organization: BoschRexroth	03-05-2021 11:03:11	07-04-2026 11:03:11	  
DDA6BB8F2A7506AE975D2C3199755	Rejected	CommonName: WinStudio Organization: Bosch Rexroth AG	11-05-2021 08:08:28	31-12-2070 22:00:00	  




If you are not sure, if your certificate is downloaded, you can go to the details and get more information.

DDA6BB8F2A7506AE975D2C31997559AB5342E0D5.der

```
Category: rejected
Version: 3
Serial Number: 1620720508
Issuer:
  CN=WinStudio,
  O=Bosch Rexroth AG,
  OU=DC - AE,
  L=Erbach,
  ST=Hessen,
  C=DE
IsCA: true
Validity: valid
Valid From: 11-05-2021 08:08:28
Valid To: 31-12-2070 22:00:00
Subject:
  CN=WinStudio,
  O=Bosch Rexroth AG,
  OU=DC - AE,
  L=Erbach,
  ST=Hessen,
  C=DE
Hash Algorithm: SHA256-RSA
Public Key: -----BEGIN PUBLIC KEY-----
MIGfMA0GCsGSIb3DQEBAQUAA4GNADCBiQKBgQC+xpLyMDKoP5qlrxxsTwe04XeP
oqzMDKEk71XwvoG31fo9igHh1K9sETADxMgk7YTLuD+u16zwrAGaw0U1lhZMI3r9
3jb20scNi+1S5BbLjnKXKACqGipyN6/F1gmMBHwE65Ah4iUJ03Tp04CPHF4ILQdE
aK03+YnXNAAW8XcZnwIDAQAB
-----END PUBLIC KEY-----

Public Key Parameters: RSA
Signature Algorithm: RSA
```

If everything is ok, you can trust the certificate and then you can start to work with WinStudio as usual.

DDA6BB8F2A7506AE975D2C3199755	Trusted	CommonName: WinStudio Organization: Bosch Rexroth AG	11-05-2021 08:08:28	31-12-2070 22:00:00	  
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A last hint regarding the OPC-UA connection. In the header of the WinStudio OPC-UA driver sheet you can create two variables which are written by the OPC-UA Server.

	Tag Name	Node Id	Scan	Dir
	Filter text	Filter text	(All)	Filter
1	IntVar1	ns=2;s=plc/app/Application/sym/HMI_GVL/iVariable1	Always	
2	String	ns=2;s=plc/app/Application/sym/HMI_GVL/sString	Always	
*			Always	
*			Always	
*			Always	
*			Always	
*			Always	

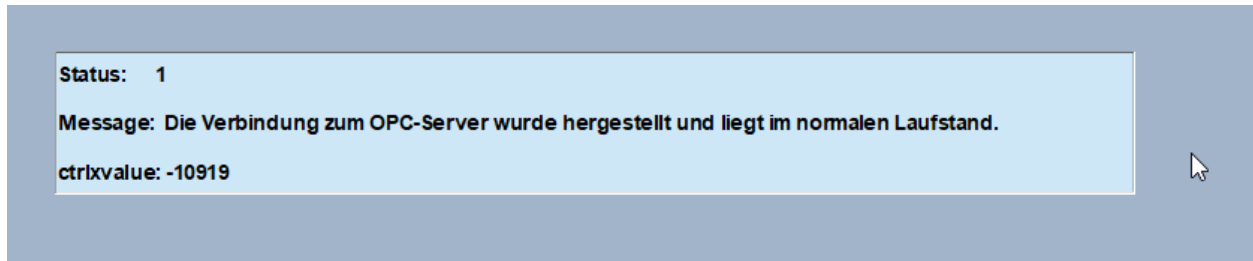
Status

this is an integer value which shows you the actual connection status. Value 1 means everything is fine.

StatusMessage

this is a string value which shows you the actual connection status in clear text. The text is depending on what is written in the OPC-UA Server.

At runtime it should look like this



If you have any questions regarding this how to..., do not hesitate to contact me

Mit freundlichen Grüßen / Best regards

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