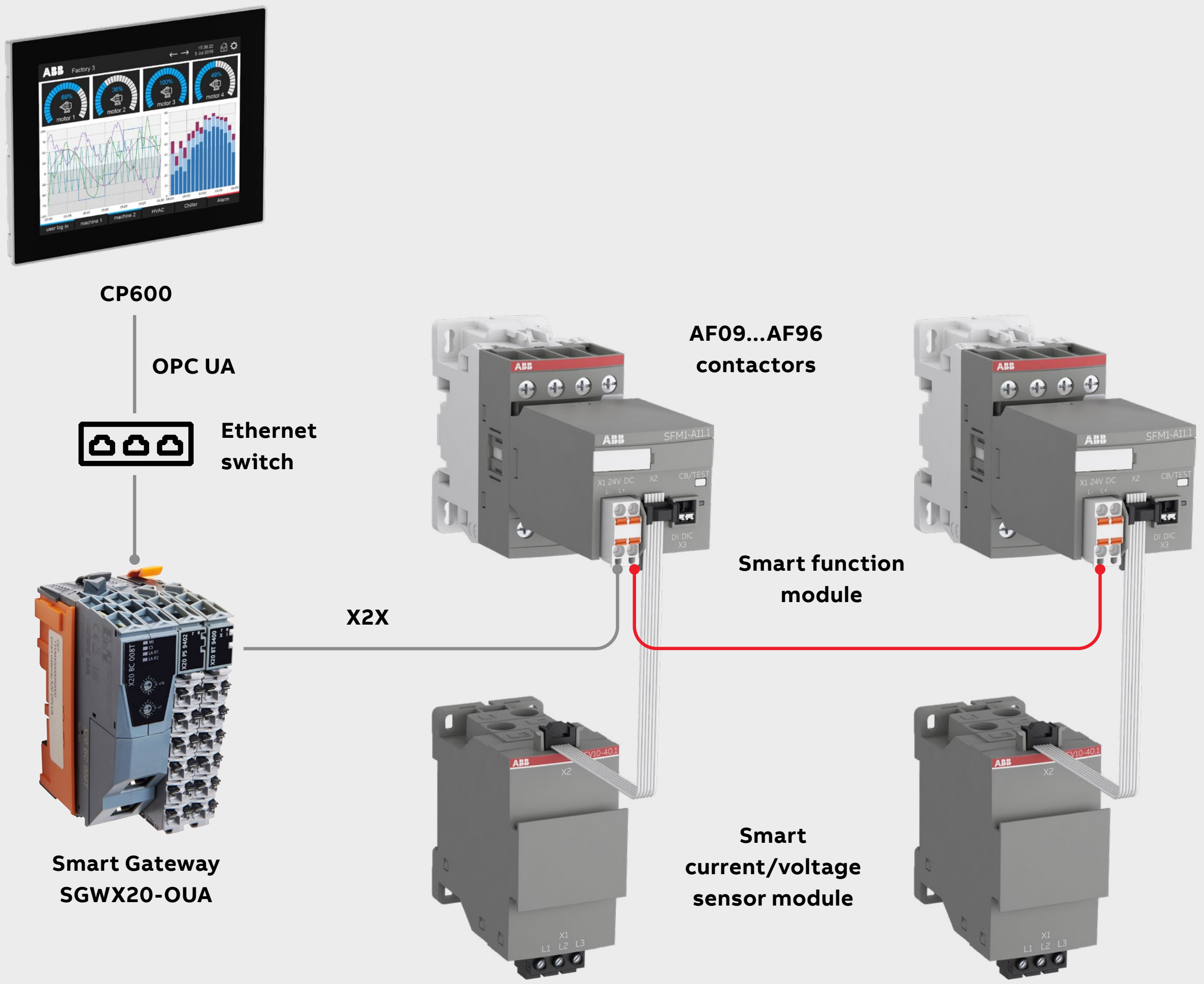
TECHNICAL GUIDE

CP600 with Novolink

Users’ manual for connecting CP600 to Smart Gateway SGWX20-OUA using Panel Builder



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1. Introduction

1.1. Scope of the document

This document will take you through the configuration of CP600 panel and ABB Novolink modules to prepare for the OPC UA communication via B&R Smart Gateway X20BC008T. The detailed step by step instruction shows all necessary steps and describes the relevant parameters which must be set carefully to establish a reliable and robust OPC UA communication.

1.2. What is Novolink?

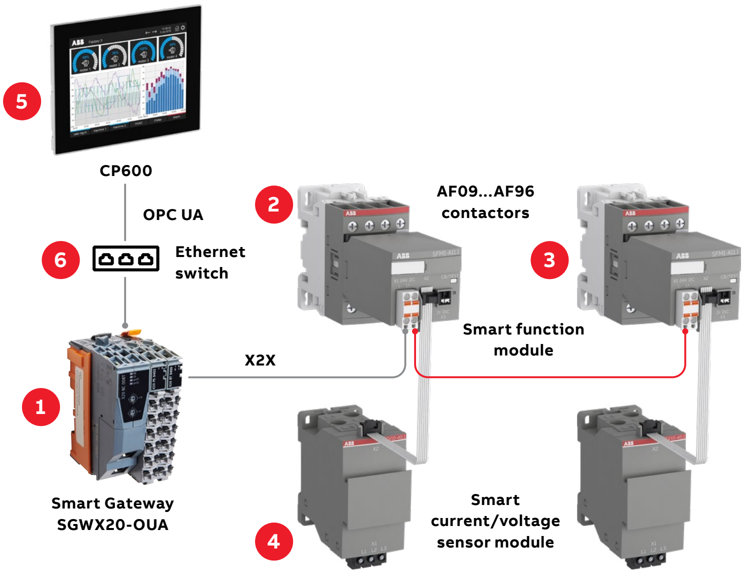
The all-new ABB Novolink™ devices help digitalize motor starting solutions and gain insights into the connected loads. They‘re easy to design into existing wiring plans and connect to standard AF contactors. Installation is fast and simple, thanks to reduced wiring and fewer components, so engineering efforts are minimized. The Novolink devices enables predictive maintenance to reduce downtime, as well as increasing efficiencies and boosting cost savings. It’s fully integrated into the CP600 and B&R automation system. And the possibilities open up even more as full remote access to your data creates new maintenance service and revenue opportunities.

1.3. Compatibility

The application note explained in this document has been used with the engineering system versions below. They should also work with other versions, nevertheless some small adaptations may be necessary for future versions.

- CP600-Pro
- Panel Builder 600 4.5.0 or newer

1.4. Overview



The figure shows that:
Smart Gateway SGWX20-OUA (1) is connected to ABB CP600(5) via ethernet switch (6).
SFM (3) should be inserted on AF contactors (3).
SFM are connected to SCV (4) over X2X cable.
All the SFMs are connected to Smart Gateway SGWX20-OUA (1) over X2X cable.

Note: Smart Gateway SGWX20-OUA can be a OPC UA server.

The figure below shows the main components and how they can be combined for complete motor starting solutions.

1.4.1. Hardware used

Following hardware are used.

	Device	Description	Part number	Quantity
OPC UA Client	CP6607	ABB CP600-Pro panel 7.0''	1SAP560710R0001	1
Novolink	SFM-CAB-RJTB.1-500	Connection cable RJ45 - X20 Terminal block of X20BT9400, 5 m	1SVM823000R0500	1
Novolink	SFM-CAB-S.1-50	Connection cable SFM to sensor 0.5 m	1SVM811000R0050	1
Novolink	SCV10-40.1	Current/Voltage sensor	1SVM320010R0000	1
Novolink	SFM1-A11.1	Advanced function module with X2X	1SVM120012R0000	2
Contactor	AF09	Contactors	1SBL137001R1101 AF09-30-01-11	2
X2X OPC UA Gateway	X2X OPC UA Gateway	B&R controller	X20BT08T	1
X2X OPC UA Gateway	OPC UA bus coupler	B&R controller	X20BT08T	1
X2X OPC UA Gateway	Power supply for the bus coupler	B&R controller	X20PS9400	1
X2X OPC UA Gateway	Power supply and interface of the X2X bus	B&R controller	X20BT9400	1
X2X OPC UA Gateway	Backplane module	B&R controller	X20BB80X	1

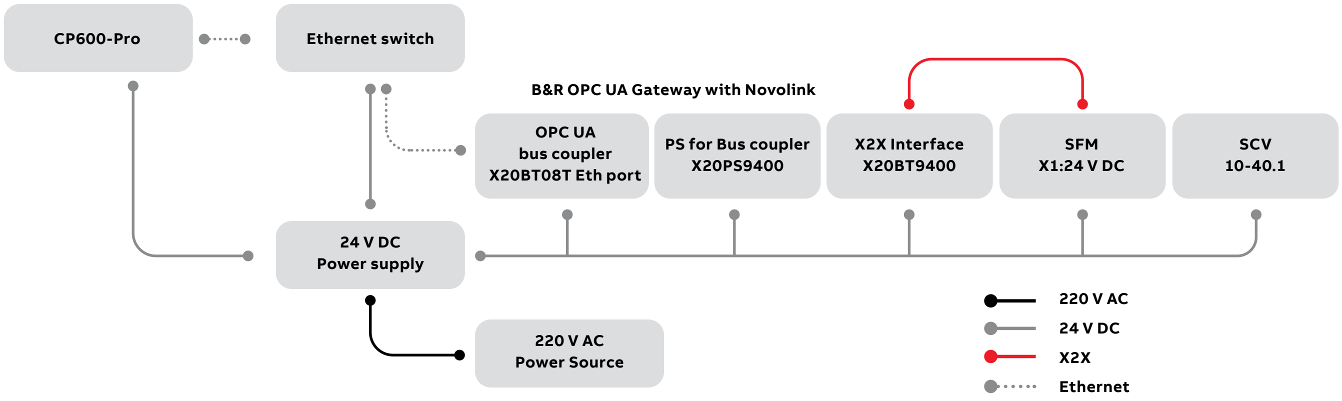
1.4.2. Software used

Following software are used.

- Panel Builder 600 version 4.5.0 build 678 or newer (download link: https://new.abb.com/plc/automationbuilder/platform/software)
- SGWX20-OUA FW V1.3.2 or newer

1.4.3. Wiring and Power up

Please ensure that all wiring is done, and devices are powered up using the schematic shown below.



24 VDC	24VDC is connected to the Smart Gateway, Novolink modules and CP600-Pro.
220 VAC	220 VAC is required for power supply. 220 VAC can also be used for power up contactors
OPC UA	For OPC UA: Connect the Smart Gateway and CP600 -Pro(Ethernet switch).
X2X	Connect Smart Gateway to SFM with cable “SFM-CAB-RJTB.1-500”. Use cable “SFM-CAB-S.1-50 “to connect Sensors to the SFM

2. Basic configuration of the OPCUA Server Novolink

The bus controller is delivered with the factory settings. This means that neither device settings nor security settings are configured.
In the following example , the OPC UA “UaExpert” client software is used for configuration. Other similar tools can also be used.

The following minimum version should be used:

- UaExpert version 1.6 or later

Download here: https://www.unified-automation.com
This document assumes that you already have a basic knowledge of OPC UA in general and the X20BT08T bus coupler in particular.

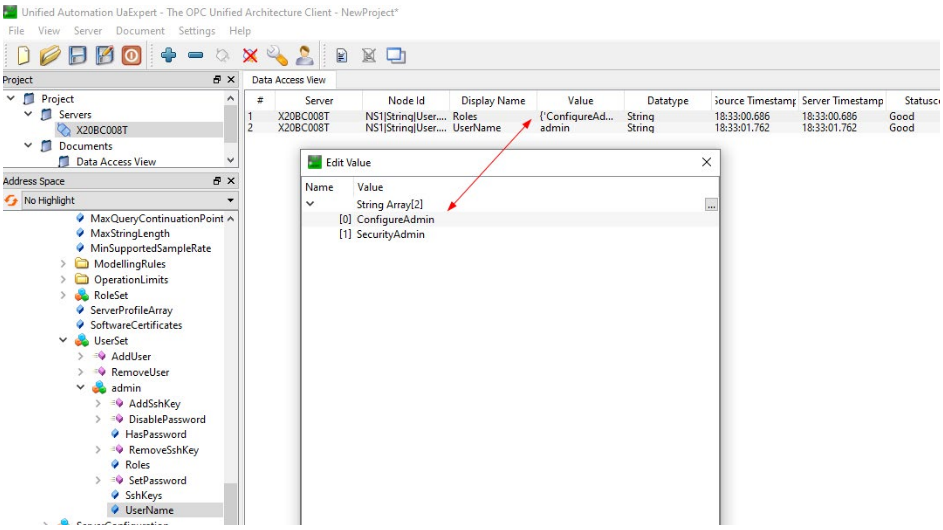
⚠ Note: Please visit the data sheet of X20BC008T for the detailed steps.

2.1. Setting the network address

A DHCP server is not required for this method. The static IP address (in this example ‘192.168.1.1’) is suggested to be established for the connection.
The following’Endpoint URL’can be used in UaExpert/AC500 to establish the connection
Opc.tcp://192.168.1.1:4840
Or opc.tcp://<Product ID>-<MAC address>:4840

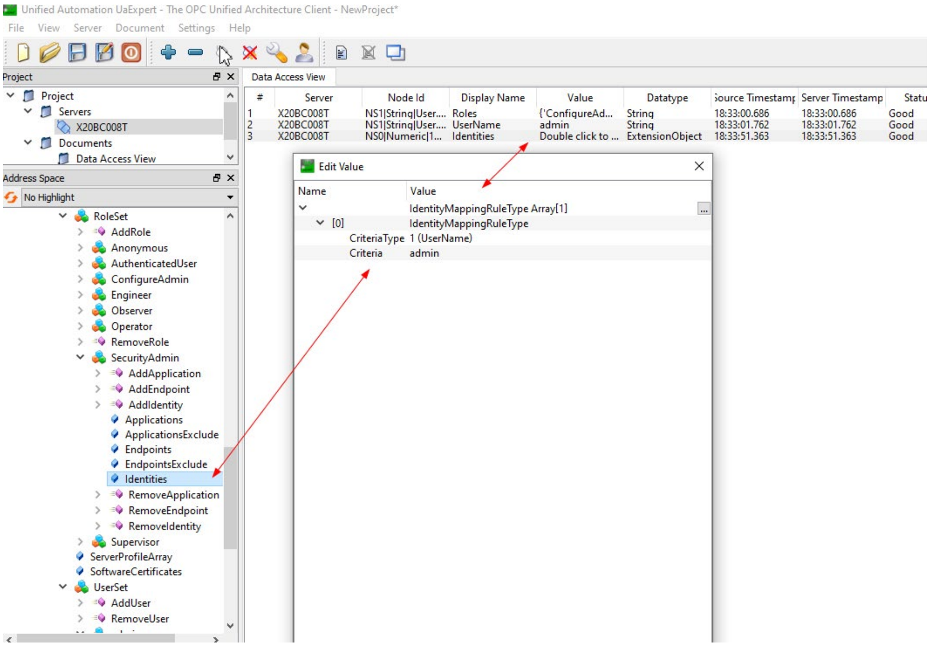
2.2. Creating user accounts

Creating the first user, setting the password and assignment to role SecurityAdmin.



#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Statusc
1	X20BC008T	NS1|String|User....	Roles	{'ConfigureAd...	String	18:33:00.686	18:33:00.686	Good
2	X20BC008T	NS1|String|User....	UserName	admin	String	18:33:01.762	18:33:01.762	Good

Name	Value
	String Array[2]
[0]	ConfigureAdmin
[1]	SecurityAdmin



#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Statu
1	X20BC008T	NS1|String|User....	Roles	{'ConfigureAd...	String	18:33:00.686	18:33:00.686	Good
2	X20BC008T	NS1|String|User....	UserName	admin	String	18:33:01.762	18:33:01.762	Good
3	X20BC008T	NS0|Numeric|1...	Identities	Double click to ...	ExtensionObject	18:33:51.363	18:33:51.363	Good

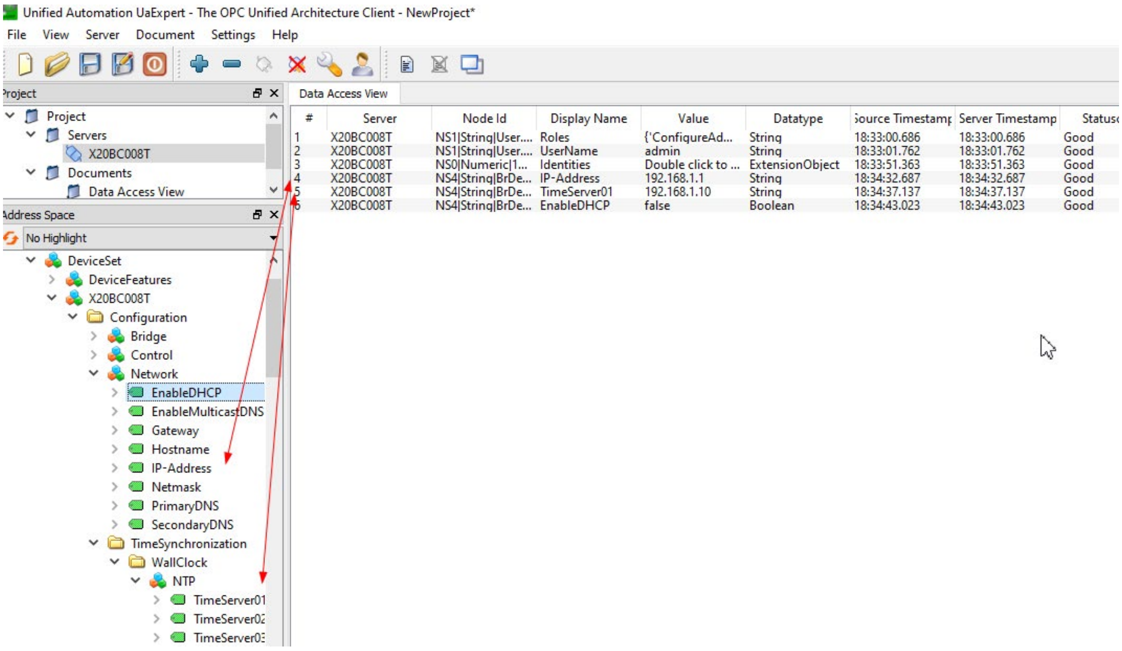
Name	Value
	IdentityMappingRuleType Array[1]
[0]	IdentityMappingRuleType
CriteriaType	1 (UserName)
Criteria	admin

Note: A user must be created, otherwise, no further configuration can be performed.

2.3. Time Synchronization

Information about the current time is required in order for the bus controller to operate. This is mainly needed to process digital certificates correctly and to correctly set the timestamps of OPC UA values.

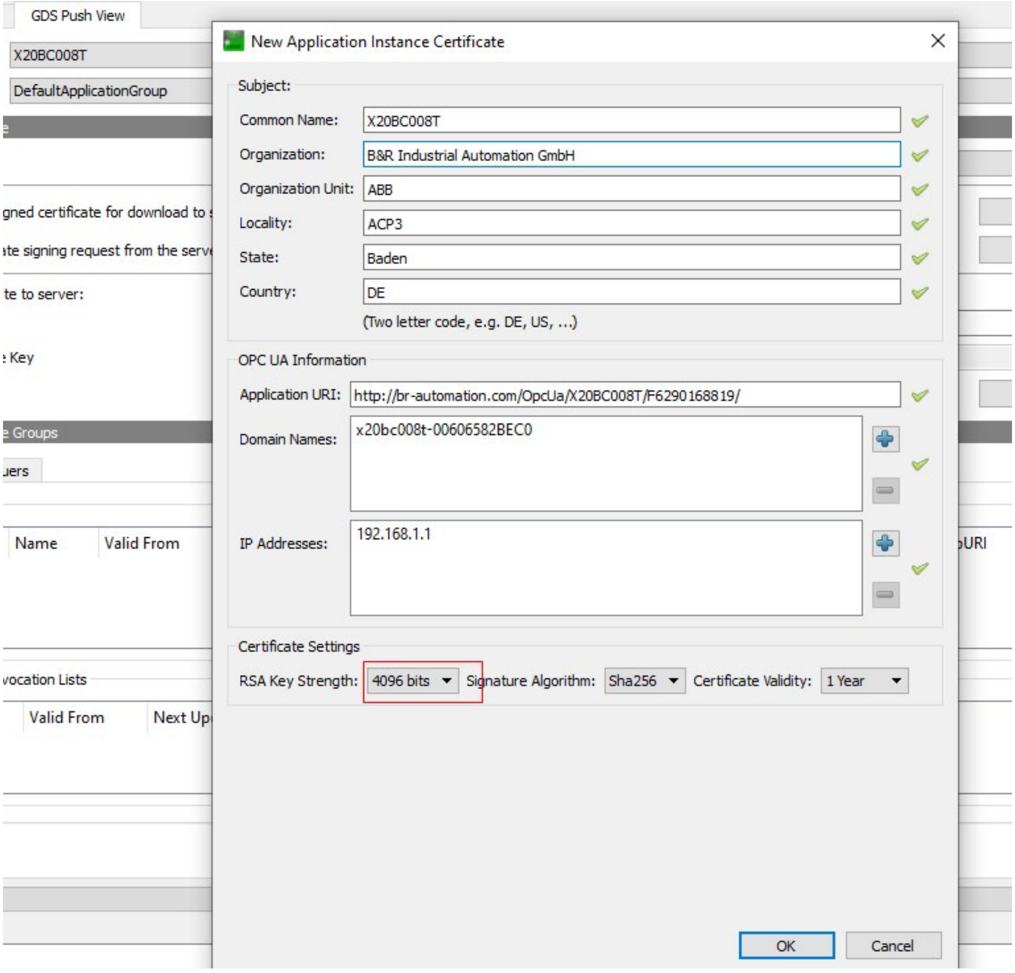
The following description shows how to configure „WallClock“ to enable synchronization over the Network Time Protocol (NTP). We are using ABB AC500 PLC as NTP server in this example (e.g. TimeServer01: ‘192.168.1.10’).



#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Status
1	X20BC008T	NS1|String|User....	Roles	{'ConfigureAd...	String	18:33:00.686	18:33:00.686	Good
2	X20BC008T	NS1|String|User....	UserName	admin	String	18:33:01.762	18:33:01.762	Good
3	X20BC008T	NS0|Numeric|1...	Identities	Double click to ...	ExtensionObject	18:33:51.363	18:33:51.363	Good
4	X20BC008T	NS4|String|BrDe...	IP-Address	192.168.1.1	String	18:34:32.687	18:34:32.687	Good
5	X20BC008T	NS4|String|BrDe...	TimeServer01	192.168.1.10	String	18:34:37.137	18:34:37.137	Good
6	X20BC008T	NS4|String|BrDe...	EnableDHCP	false	Boolean	18:34:43.023	18:34:43.023	Good

2.4. Updating the self-signed certificate using UaExpert

The bus controller has a method in the information model that can be used to easily generate a new self-signed certificate that contains necessary application-specific information. However, UaExpert contains tools(GDS Push View) that make it easier to update certificates.



New Application Instance Certificate

Subject:

- Common Name: X20BC008T
- Organization: B&R Industrial Automation GmbH
- Organization Unit: ABB
- Locality: ACP3
- State: Baden
- Country: DE (Two letter code, e.g. DE, US, ...)

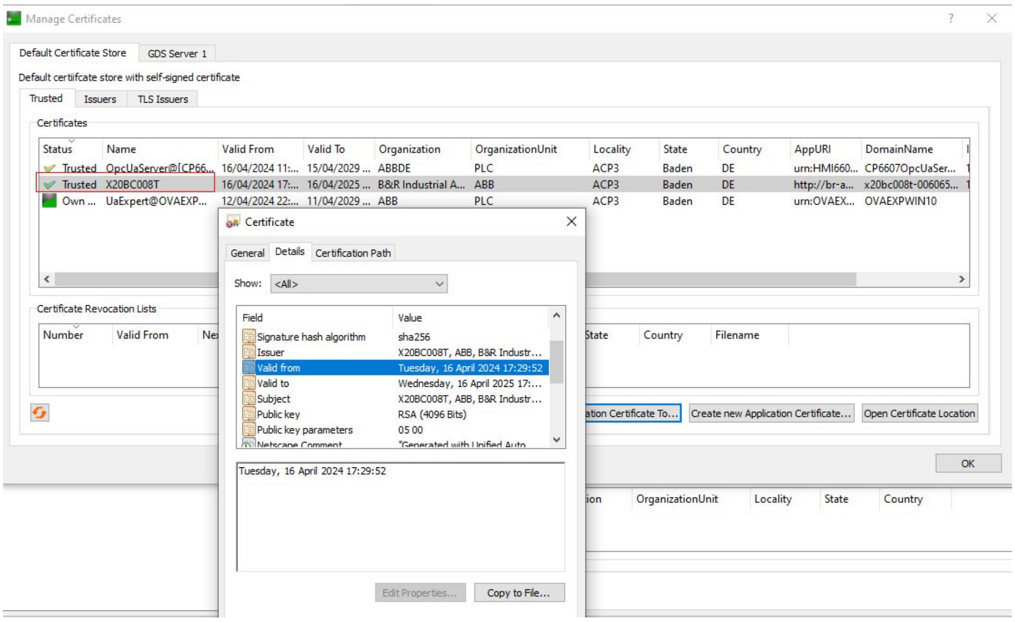
OPC UA Information

- Application URI: http://br-automation.com/OpcUa/X20BC008T/F6290168819/
- Domain Names: x20bc008t-00606582BEC0
- IP Addresses: 192.168.1.1

Certificate Settings

- RSA Key Strength: 4096 bits
- Signature Algorithm: Sha256
- Certificate Validity: 1 Year

Calling method ApplyChanges disconnects all connected clients. A new connection is only possible when the new certificate is trusted.
After that, please accept the new Server certificate in UaExpert and save the certificate file on your PC.



Default certiifcate store with self-signed certificate

Status	Name	Valid From	Valid To	Organization	OrganizationUnit	Locality	State	Country	AppURI	DomainName
Trusted	OpcUaServer@[CP66...	16/04/2024 11:...	15/04/2029 ...	ABBDE	PLC	ACP3	Baden	DE	urn:HMI660...	CP6607OpcUaSer...
Trusted	X20BC008T	16/04/2024 17:...	16/04/2025 ...	B&R Industrial A...	ABB	ACP3	Baden	DE	http://br-a...	x20bc008t-006065...
Own ...	UaExpert@OVAEXP...	12/04/2024 22:...	11/04/2029 ...	ABB	PLC	ACP3	Baden	DE	urn:OVAEX...	OVAEXPWIN10

Certificate

Show: <All>

Field	Value
Signature hash algorithm	sha256
Issuer	X20BC008T, ABB, B&R Industr...
Valid from	Tuesday, 16 April 2024 17:29:52
Valid to	Wednesday, 16 April 2025 17:...
Subject	X20BC008T, ABB, B&R Industr...
Public key	RSA (4096 Bits)
Public key parameters	05 00
Netscape Comment	"Generated with Unified Auto

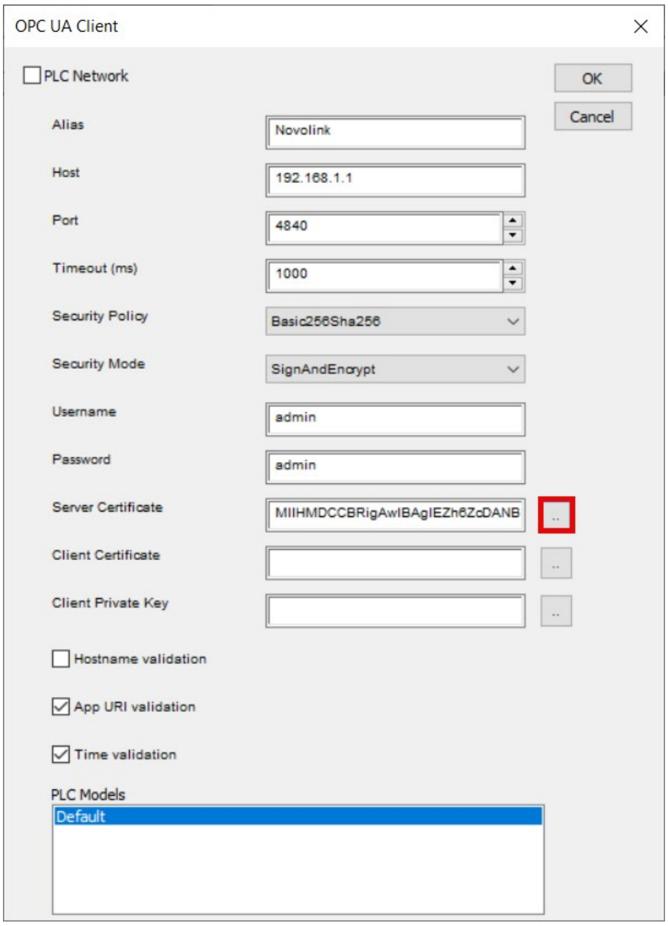
Tuesday, 16 April 2024 17:29:52

The certificate file will be stored on the PC folder:
C:\Users\<username>\AppData\Roaming\unifiedautomation\uaexpert\PKI\trusted\certs

3. Panel Builder 600 for OPC UA Client

Using CP600 as OPC UA client, you can connect to the bus controller OPC UA server Smart Gateway X20BC008T. The following description refers to this program. Other OPC UA clients work in a similar way.

Create a simple Panel project.
Add the OPC UA Client protocol. Enter the IP address of the remote OPC UA server and its port number (4840).
Select the Security Policy = Basic256Sha256, and Security Mode = SignAndEncrypt.
Choose the above certificate file for Server Certificate field.



OPC UA Client

☐ PLC Network

Alias	Novolink
Host	192.168.1.1
Port	4840
Timeout (ms)	1000
Security Policy	Basic256Sha256
Security Mode	SignAndEncrypt
Username	admin
Password	admin
Server Certificate	MIIHMDCCBRigAwIBAgIEZh6ZcDANB
Client Certificate	
Client Private Key	

☐ Hostname validation

☑ App URI validation

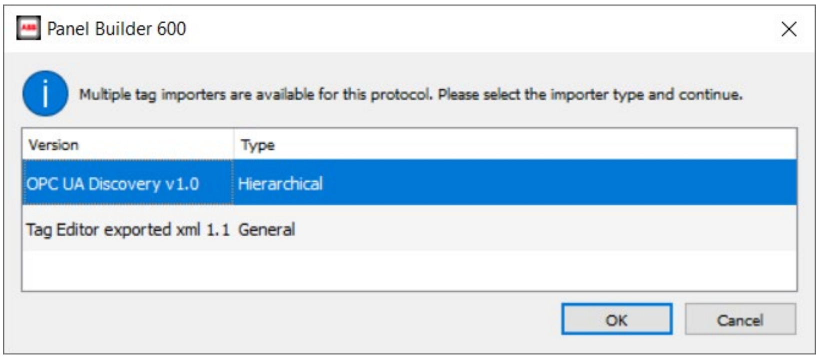
☑ Time validation

PLC Models

Default

Note: The username and password please refer to the settings in chapter 2.2

Open tag editor and import tags. Select ‘OPC UA Discovery v1.0’ mode and click ‘OK’ button to continue.

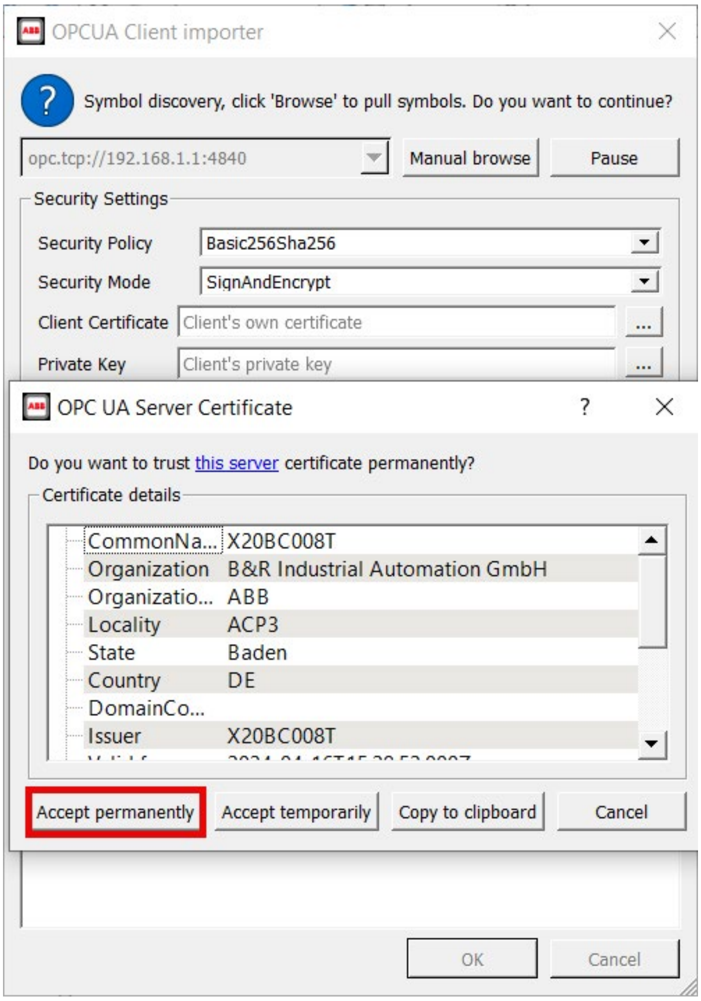


Panel Builder 600

Multiple tag importers are available for this protocol. Please select the importer type and continue.

Version	Type
OPC UA Discovery v1.0	Hierarchical
Tag Editor exported xml 1.1	General

Accept the Server OPC UA certificate and import some tags. Now the CP600 Client scans the OPC UA server to find the variables and types of the OPC UA server. The OPC UA server must be in online mode to do this.



OPCUA Client importer

Symbol discovery, click 'Browse' to pull symbols. Do you want to continue?

opc.tcp://192.168.1.1:4840

Security Settings

Security Policy: Basic256Sha256

Security Mode: SignAndEncrypt

Client Certificate: Client's own certificate

Private Key: Client's private key

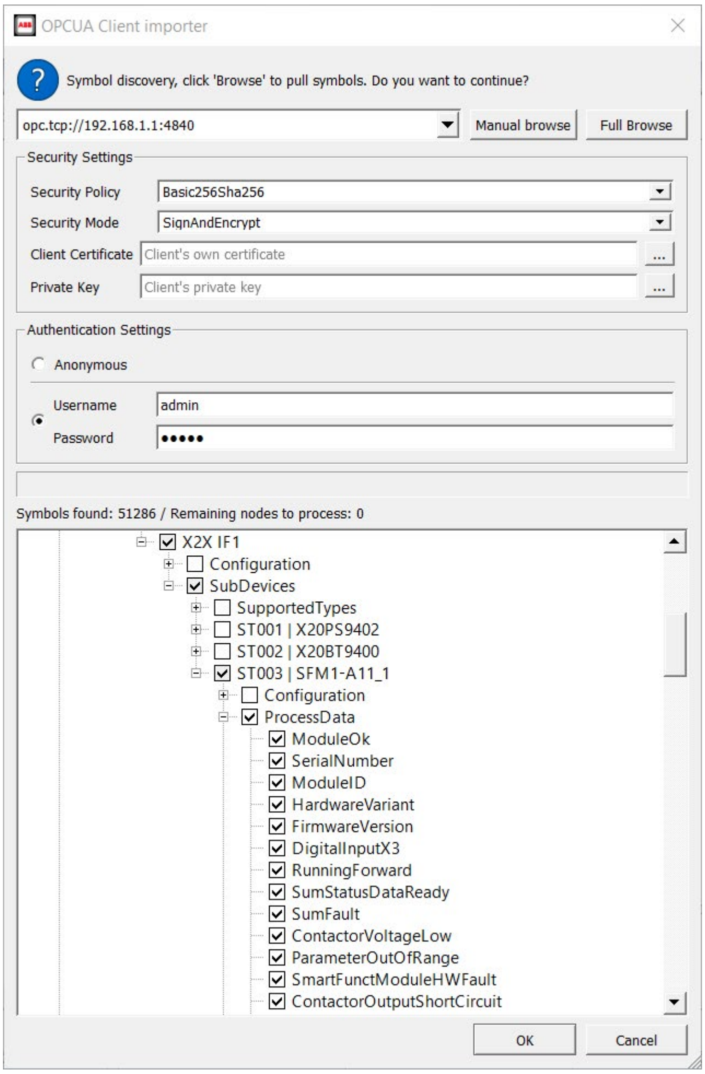
OPC UA Server Certificate

Do you want to trust this server certificate permanently?

Certificate details

CommonNa...	X20BC008T
Organization	B&R Industrial Automation GmbH
Organizatio...	ABB
Locality	ACP3
State	Baden
Country	DE
DomainCo...	
Issuer	X20BC008T

Now select one or more variables. The variables can be exchanged later via encrypted communication between the OPC UA Client and the OPC UA Server. After that, click ’OK’ to continue.



Symbol discovery, click 'Browse' to pull symbols. Do you want to continue?

opc.tcp://192.168.1.1:4840

Security Settings

Security Policy: Basic256Sha256

Security Mode: SignAndEncrypt

Client Certificate: Client's own certificate

Private Key: Client's private key

Authentication Settings

○ Anonymous

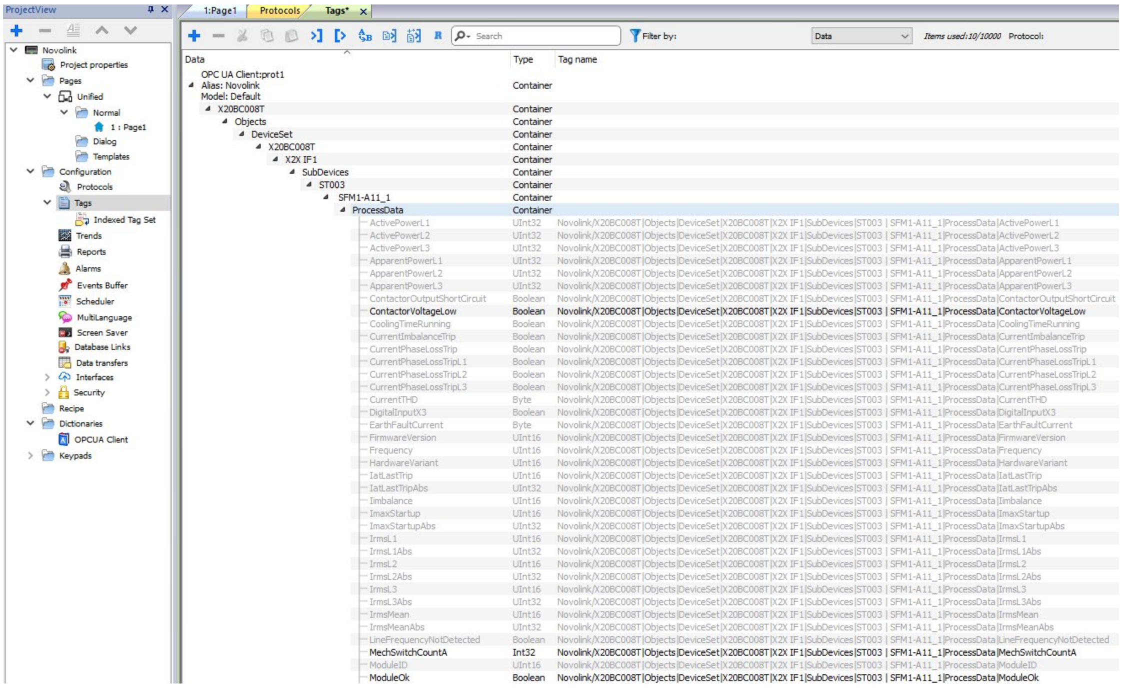
● Username: admin

Password: •••••

Symbols found: 51286 / Remaining nodes to process: 0

- ☑ X2X IF1
  - □ Configuration
  - ☑ SubDevices
    - □ SupportedTypes
    - □ ST001 | X20PS9402
    - □ ST002 | X20BT9400
    - ☑ ST003 | SFM1-A11_1
      - □ Configuration
      - ☑ ProcessData
        - ☑ ModuleOk
        - ☑ SerialNumber
        - ☑ ModuleID
        - ☑ HardwareVariant
        - ☑ FirmwareVersion
        - ☑ DigitalInputX3
        - ☑ RunningForward
        - ☑ SumStatusDataReady
        - ☑ SumFault
        - ☑ ContactorVoltageLow
        - ☑ ParameterOutOfRange
        - ☑ SmartFunctModuleHWFault
        - ☑ ContactorOutputShortCircuit

You can select all the ProcessData tags or only the tags are needed.

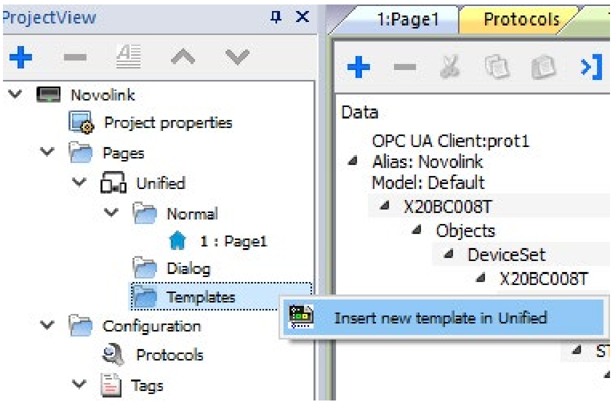


Data	Type	Tag name
OPC UA Client:prot1 Alias: Novolink Model: Default	Container	
X20BC008T	Container	
Objects	Container	
DeviceSet	Container	
X20BC008T	Container	
X2X IF1	Container	
SubDevices	Container	
ST003	Container	
SFM1-A11_1	Container	
ProcessData	Container	
ActivePowerL1	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ActivePowerL1
ActivePowerL2	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ActivePowerL2
ActivePowerL3	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ActivePowerL3
ApparentPowerL1	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ApparentPowerL1
ApparentPowerL2	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ApparentPowerL2
ApparentPowerL3	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ApparentPowerL3
ContactorOutputShortCircuit	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ContactorOutputShortCircuit
ContactorVoltageLow	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ContactorVoltageLow
CoolingTimeRunning	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CoolingTimeRunning
CurrentImbalanceTrip	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentImbalanceTrip
CurrentPhaseLossTrip	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentPhaseLossTrip
CurrentPhaseLossTripL1	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentPhaseLossTripL1
CurrentPhaseLossTripL2	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentPhaseLossTripL2
CurrentPhaseLossTripL3	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentPhaseLossTripL3
CurrentTHD	Byte	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|CurrentTHD
DigitalInputX3	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|DigitalInputX3
EarthFaultCurrent	Byte	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|EarthFaultCurrent
FirmwareVersion	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|FirmwareVersion
Frequency	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|Frequency
HardwareVariant	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|HardwareVariant
IatLastTrip	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IatLastTrip
IatLastTripAbs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IatLastTripAbs
Iimbalance	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|Iimbalance
ImaxStartup	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ImaxStartup
ImaxStartupAbs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ImaxStartupAbs
IrmsL1	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL1
IrmsL1Abs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL1Abs
IrmsL2	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL2
IrmsL2Abs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL2Abs
IrmsL3	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL3
IrmsL3Abs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsL3Abs
IrmsMean	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsMean
IrmsMeanAbs	UInt32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|IrmsMeanAbs
LineFrequencyNotDetected	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|LineFrequencyNotDetected
MechSwitchCountA	Int32	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|MechSwitchCountA
ModuleID	UInt16	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ModuleID
ModuleOk	Boolean	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1-A11_1|ProcessData|ModuleOk

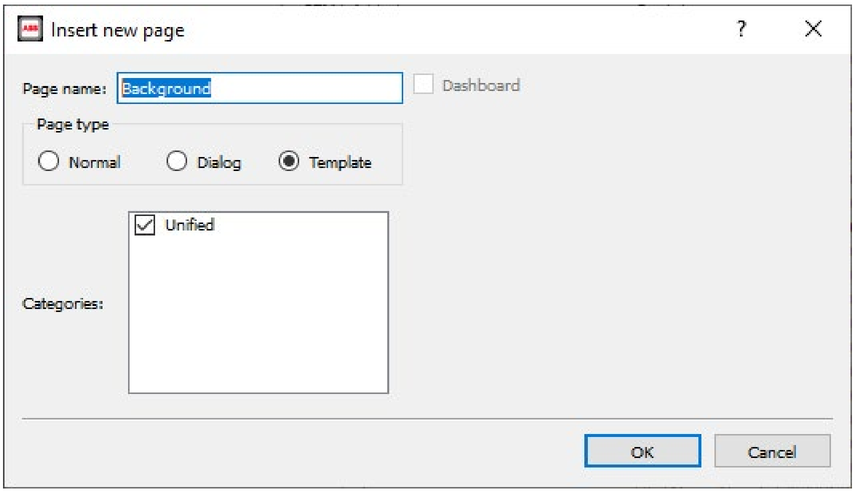
Note: In this example we will use the next variables:

- ProcessData >> ModuleOk
- ProcessData >> RunningForward
- ProcessData >> ContactorVoltageLow
- ProcessData >> OverloadTrip
- ProcessData >> SensorModuleMissing
- ProcessData >> OSPValid
- ProcessData >> RunForward
- ProcessData >> ResetErrors
- ProcessData >> ResetCounterContactorA

Right-click on the ‘Templates’folder and select’Insert new template in Unified’.



At the ‘Insert new page’, change the page name with ‘Background’ and click ‘OK’ button to continue.


Insert new page

Page name: Background

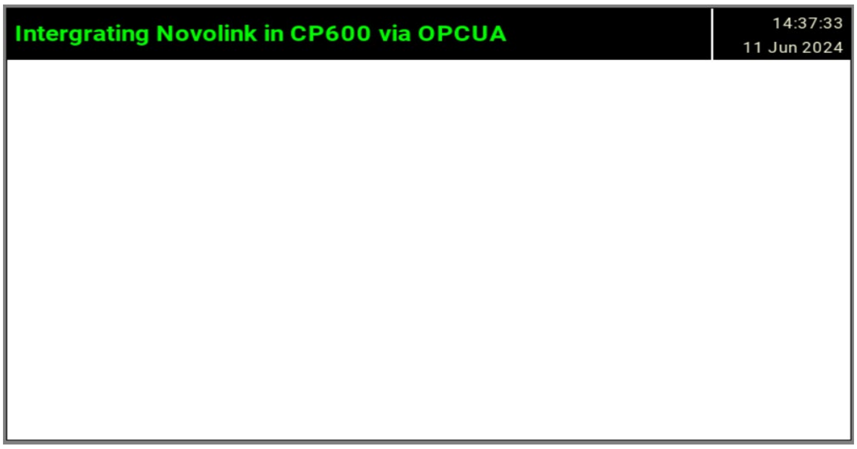
□ Dashboard

Page type

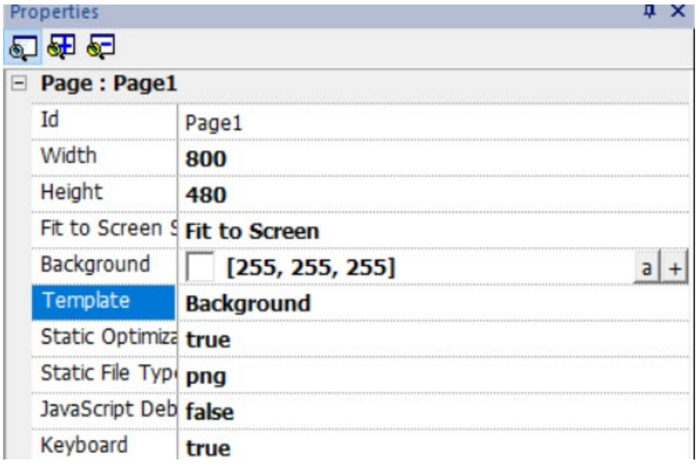
○ Normal ○ Dialog ● Template

Categories: ☑ Unified

Create the graphic as below with the time and date.



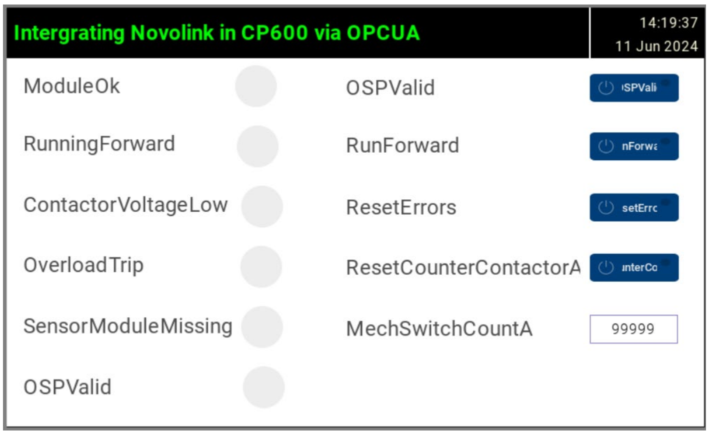
Now we will create the main page.
At the main page properties,select the ‘Background’from the drop down menu.



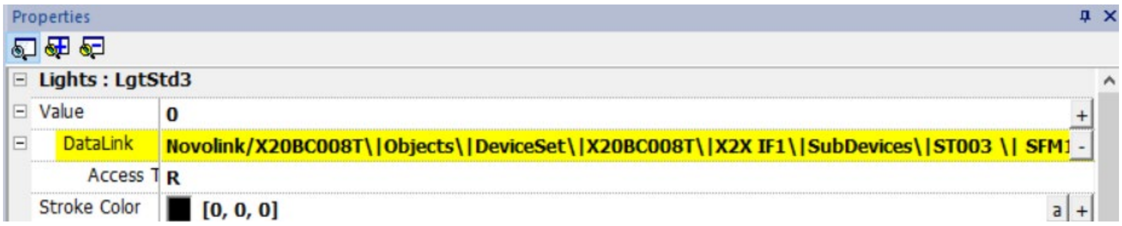
Page : Page1

Id	Page1
Width	800
Height	480
Fit to Screen S	Fit to Screen
Background	[255, 255, 255]
Template	Background
Static Optimiza	true
Static File Typ	png
JavaScript Deb	false
Keyboard	true

Draw the graphic as below.



After that link the tags for the value field in the main page.

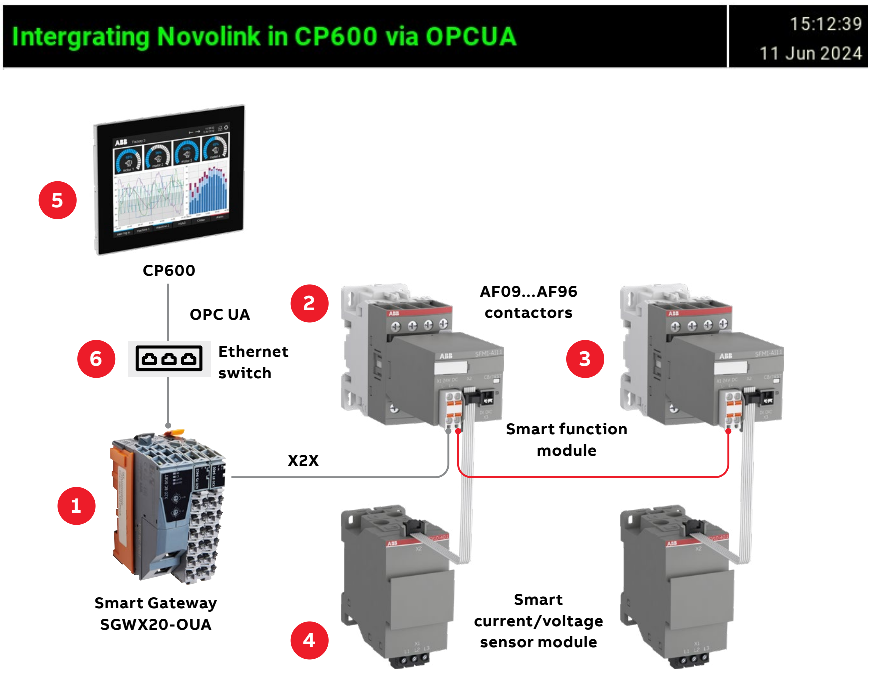


Lights : LgtStd3

Value	0
DataLink	Novolink/X20BC008T|Objects|DeviceSet|X20BC008T|X2X IF1|SubDevices|ST003 | SFM1
Access T	R
Stroke Color	[0, 0, 0]

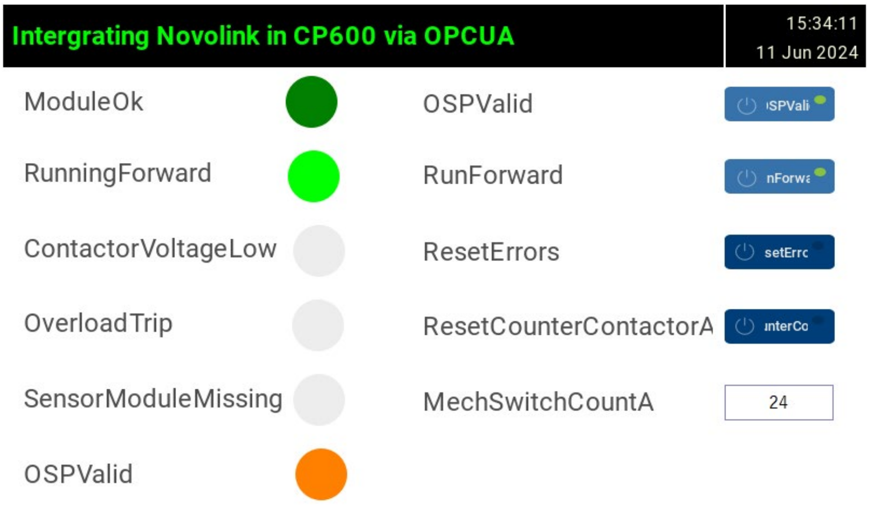
Repeat the same for others.

When complete, download the project to the CP600 device. Now the communication will start.



Intergrating Novolink in CP600 via OPCUA

15:12:39
11 Jun 2024



Intergrating Novolink in CP600 via OPCUA

15:34:11
11 Jun 2024

ModuleOk ●

RunningForward ●

ContactorVoltageLow ○

OverloadTrip ○

SensorModuleMissing ○

OSPValid ●

OSPValid ıSPVali

RunForward nForwa

ResetErrors setErrc

ResetCounterContactorA ınterCo

MechSwitchCountA 24

Note: CP600 HMI simulator can also work with real protocols in case we don’t have the CP600 hardware in the hand.

4. Important disclaimers & recommendations

4.1. Cyber security legal disclaimer

CAUTION!
Generally, the user in all applications is fully and alone responsible for checking all functions carefully, especially for safe and reliable operation.

The Smart Gateway and Novolink modules are designed to be connected in the ABB and 3rd party products and communicate information data via network interface. It is the user's sole responsibility to provide and continuously ensure a secure connection between the product and the user's network or any other. The user shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc.) to protect the product, the network, its system, and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information. The data, examples and diagrams in this manual are included solely for the concept or product description and are not to be deemed as a statement of guaranteed properties. All people responsible for applying the equipment addressed in this manual must satisfy themselves that each intended application is suitable and acceptable, including that any applicable safety or other operational requirements are complied with. Any risks in applications where a system failure and/or product failure would create a risk for harm to property or persons (including but not limited to personal injuries or death) shall be the sole responsibility of the person or entity applying the equipment, and those so responsible are hereby requested to ensure that all measures are taken to exclude or mitigate such risks. This document has been carefully checked by ABB, but deviations cannot be completely ruled out. In case any errors are detected, the reader is kindly requested to notify the manufacturer. Other than under explicit contractual commitments, in no event shall ABB be responsible or liable for any loss or damage resulting from the use of this manual or the application of the equipment.

4.1. UaExpert

UaExpert is software, provided by Unified Automation. We suggest using this software for monitoring the data as described in chapter "UaExpert".

Important: This software does not belong to ABB, and we don't take any responsibility on its functionality.

4.2. Making your Networks more secure

Following points are strongly recommended to make networks more secure:

- **Isolate your network** – separate the OT network (operation technology) from the IT network (information technology). This helps prevent any attack reaching the IT network from spreading to the OT network.
- **Use firewalls** – Implement firewalls to prevent unauthorized access to the OT network.
- **Use access control** – Implement access controls to restrict the human and device access to the OT/IT network and devices.
- **Keep software up to date** – Make sure all software/firmware of the devices are up to date to have the latest security updates installed.
- **Reduce attack surface on devices** – Disable device functions, services and ports not needed.
- **Replace default passwords** – Replace all default passwords of the devices to prevent attacker from getting access using default credentials.
- **Monitor network activity** – Monitor the OT network for any malicious activities that could be a sign of an attack. Example of network monitoring tool is intrusion detection system (IDS).
- **Train employees** – Train operators and service people on IT and OT security best practices.

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Eppelheimer Strasse 82
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You can find the address of your local sales organization on the ABB homepage

abb.com/lowvoltage

Additional information

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

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