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pbsSoftLogic V4.4

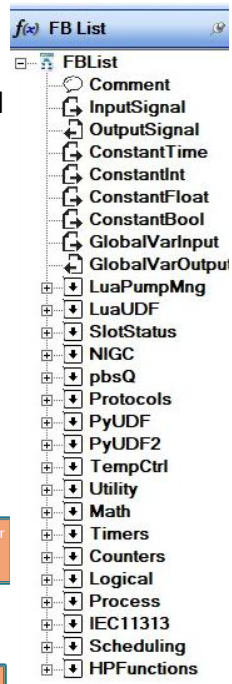
pbsSoftLogic is an integrated development environment for RTU programming from pbscontrol. pbsSoftLogic has been on the market since 2007 and runs on many different hardware platforms.

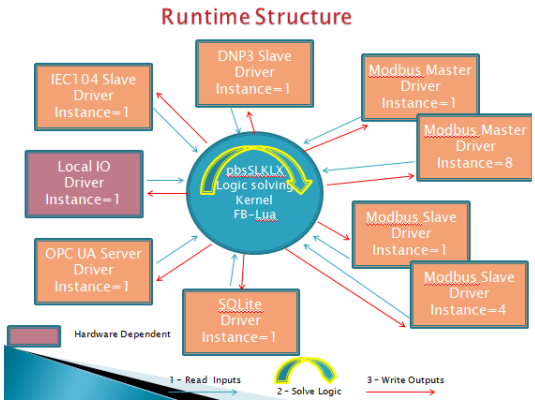
pbsSoftLogic Supports following protocols : ModbusTCP/RTU(M/S),DNP3(M/S),IEC101/104 (M/S),IEC62351 for IEC104 and DNP3 , Beckhoff ADS , Siemens S7 ,MQTT , Redis , OPC Classic , OPC UA (C/S), Vestas Wind Turbine , IEC62056-21 , SQLite with TDS protocol ,EmailPub , Fatek PLC and GSP.

pbsSoftLogic supports Function Block programming based on the IEC1131-3 standard. pbsSoftLogic has more than 400 ready function blocks and user can create new FB by C and Lua Scripting.

Logic Monitoring Facility helps the user to monitor logic at runtime and perform hot and cold updating of logic and change tag value.

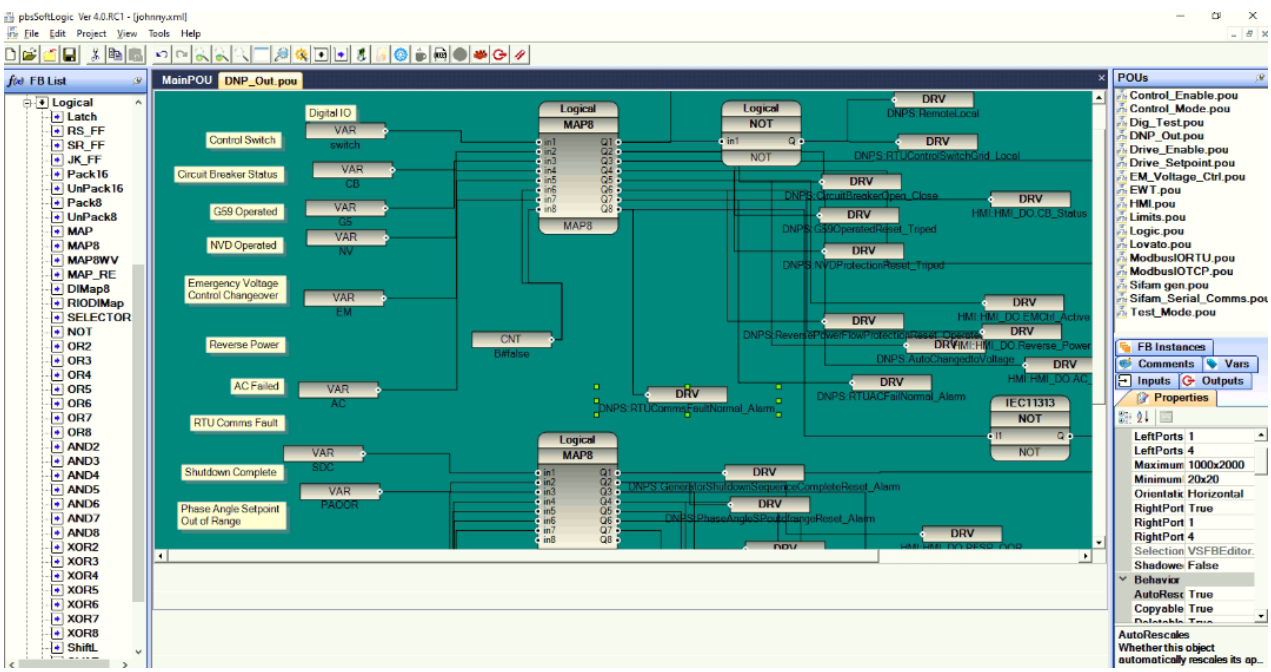
pbsSoftLogic IDE is free and only the license applies to the runtime kernel.





pbsSoftLogic IDE runs on Windows and the runtime kernel is ported to Linux, WinCE and Win32 operating systems. pbsSoftLogic has offline logic emulation on Windows.

User can define many Program Organization Units for a project . There is no limitation for logic size . Multiple instance for each driver is supported .



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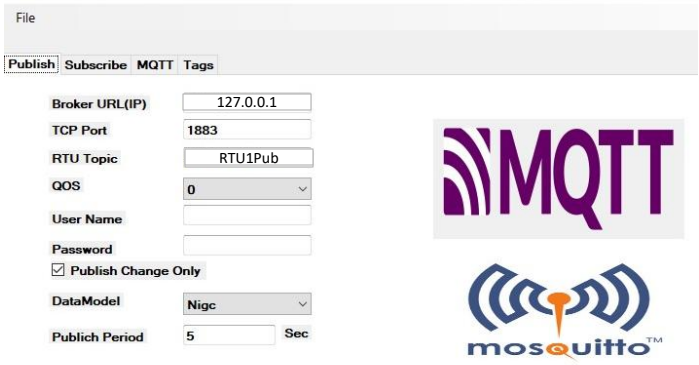
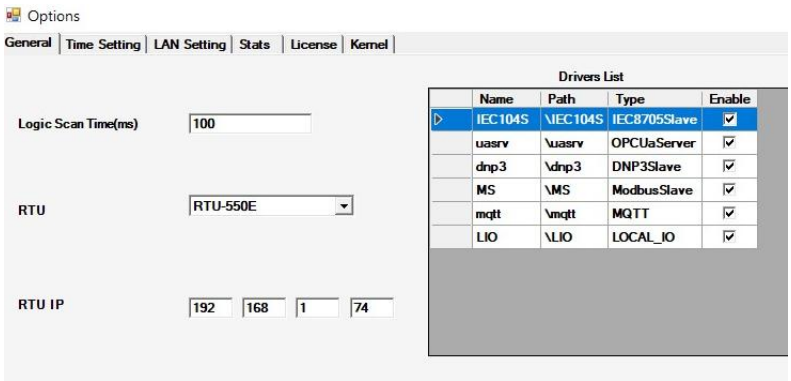


There is a GUI for each communication driver for easy configuration.
DNP3 , IEC101/104 , Modbus ,Fatek PLC , Vestas Wind Turbine , IEC62056-21 and IEC62351 and GSP are developed at pbsControl .
Other protocols like MQTT , OPC UA , TDS are used from open sources
For OPC UA we used Open62541 and for MQTT , Mosquitto stack is used .

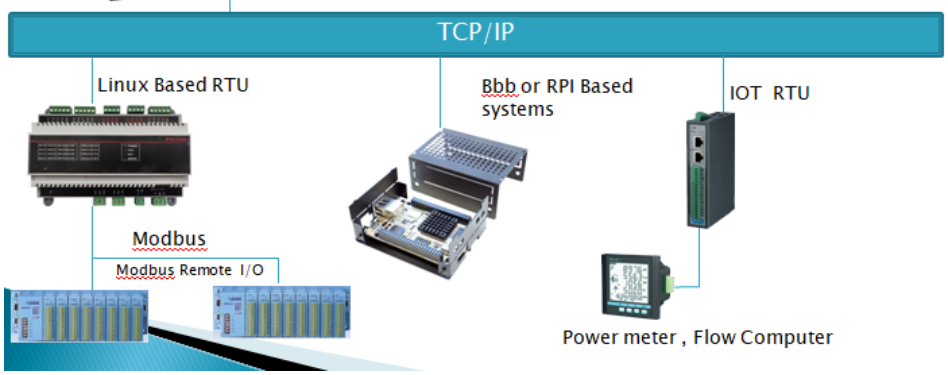
Internal Events passing between Modbus ,DNP3 , IEC101/104 and MQTT is handling automatically by runtime kernel .

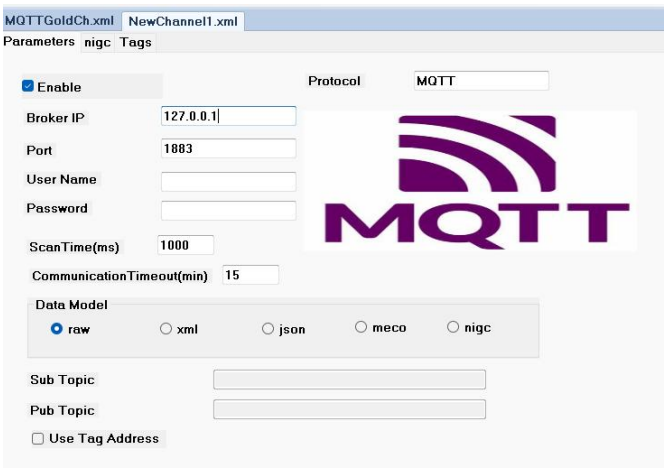


Logic Development

pbsSoftLogic Engineering

- Develop control logic by Function Block language ,
- Develop User defined FB by Lua , C, Python
- Simulate on Windows
- Transfer Configuration and logic to controllers
- Monitor Logic at runtime and update logic





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MQTT Support

pbsSoftLogic and pbHMI have built Data model export/import facility to quickly define SCADA platform based on MQTT. pbsHMI supports MQTT driver for various data models. You can define tags as raw data, XML, json, or a user-defined data model.

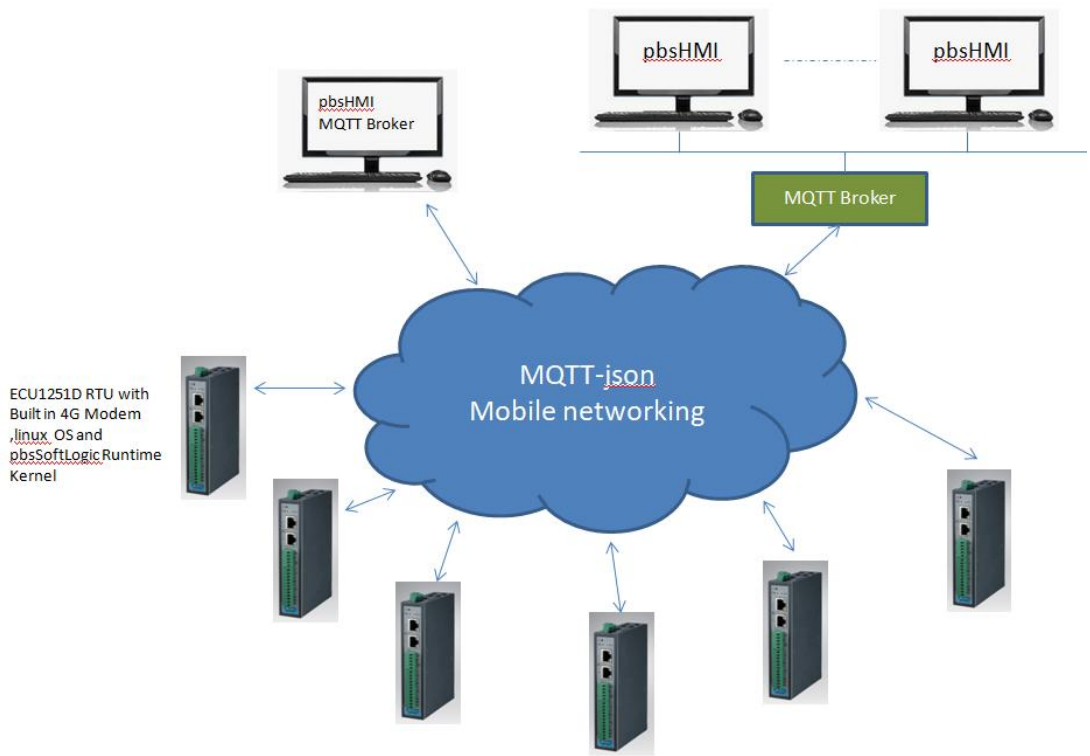
It is possible to import tags from an XML file or from a pbsSoftLogic project.
To reduce data consumption, tag address can be used between pbsSoftLogic and psbHMI MQTT drivers instead of tag name.

To secure communications, you can use TLS or frame encryption in the pbsSoftLogic and pbsHMI drivers.

pbsSoftLogic enabled RTUs can publish MQTT frames to up to eight different brokers simultaneously.

Parameters nigc Tags

Block Name	Type	Init Value	Address
SYS_Online	SYS	0	0
MainMeter_L1_Current	AI	0	1
MainMeter_L2_Current	AI	0	2
MainMeter_L3_Current	AI	0	3
MainMeter_Total_Active_Power	AI	0	4
MainMeter_Total_Reactive_Power	AI	0	5
MainMeter_Total_Real_Power	AI	0	6
MainMeter_Total_Power_Factor	AI	0	7
MainMeter_Active_Energy_Pos	AI	0	8
MainMeter_Reactive_Energy_Pos	AI	0	9
InatkeReception_L1_Current	AI	0	10
InatkeReception_L2_Current	AI	0	11
InatkeReception_L3_Current	AI	0	12
InatkeReception_Total_Active_Power	AI	0	13
InatkeReception_Total_Reactive_Power	AI	0	14
InatkeReception_Total_Real_Power	AI	0	15
InatkeReception_Total_Power_Factor	AI	0	16
InatkeReception_Active_Energy_Pos	AI	0	17
InatkeReception_Reactive_Energy_Pos	AI	0	18
Grinder31_L1_Current	AI	0	19



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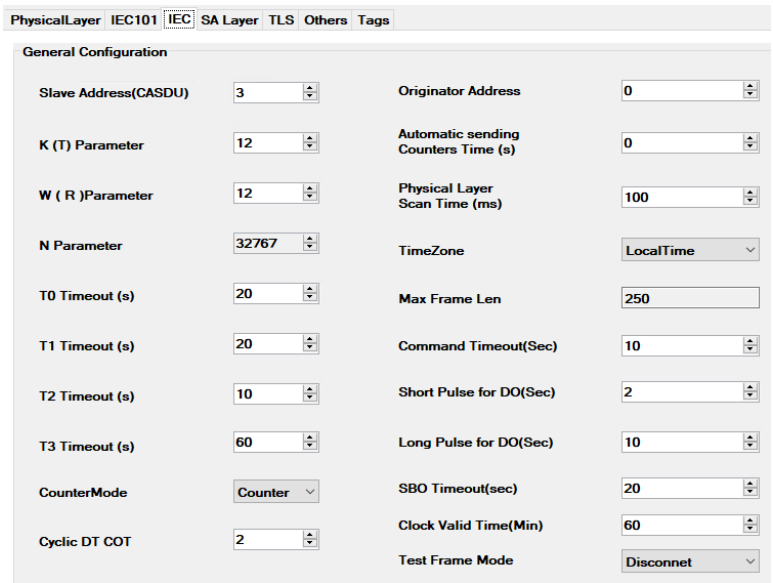
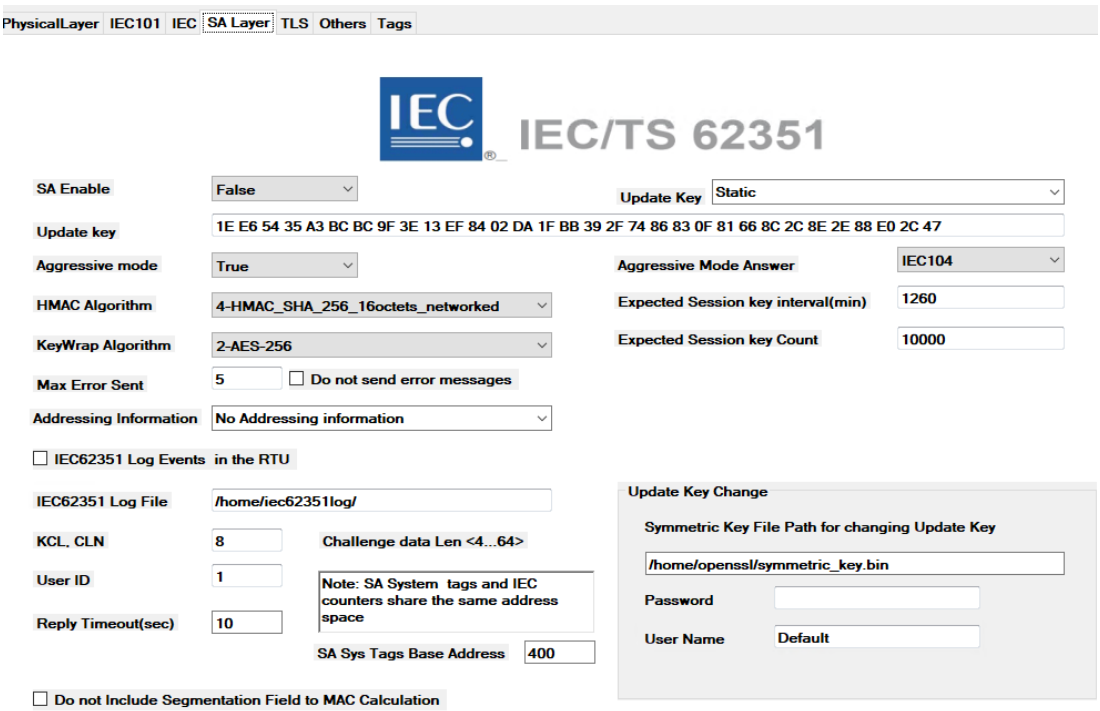
pbsSoftLogic Supports DNP3 and IEC104 slave drivers with IEC62351 and TLS layer .

DNP3 and IEC104 Support



IEC104 Slave drivers is fully tested with DNV and TMW test tools .for IEC104 protocol , SA Layer (IEC62351) and TLS layer .



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DNP3 and IEC104 Support

The IEC104 and DNP3 Slave drivers support the TLS layer with various parameters to configure TLS operation.

PhysicalLayer | IEC101 | IEC | SA Layer | TLS | Others | Tags

- [ ] TLS is Enabled for IEC104

CA Certificate File	/home/pbsLX/cert/cer1.crt	
CA TLS Common Name	******	
RTU Public Key X.509 Certificate File	/home/pbsLX/cert/rtu.crt	
RTU Private Key File	/home/pbsLX/cert/rtu.pem	
Private Key Pass Phrase	******	
X.509 certificate revocation list File	/home/pbsLX/cert/cer0.crl	Blank = Disable
Master X509 Certificate(s) File		Blank = All Cert Accept
TLS Renegotiation Count	10000	
TLS Resumption Timeout(Sec)	21600	
TLS Handshake Timeout(sec)	3	
TLS Version	1.3	

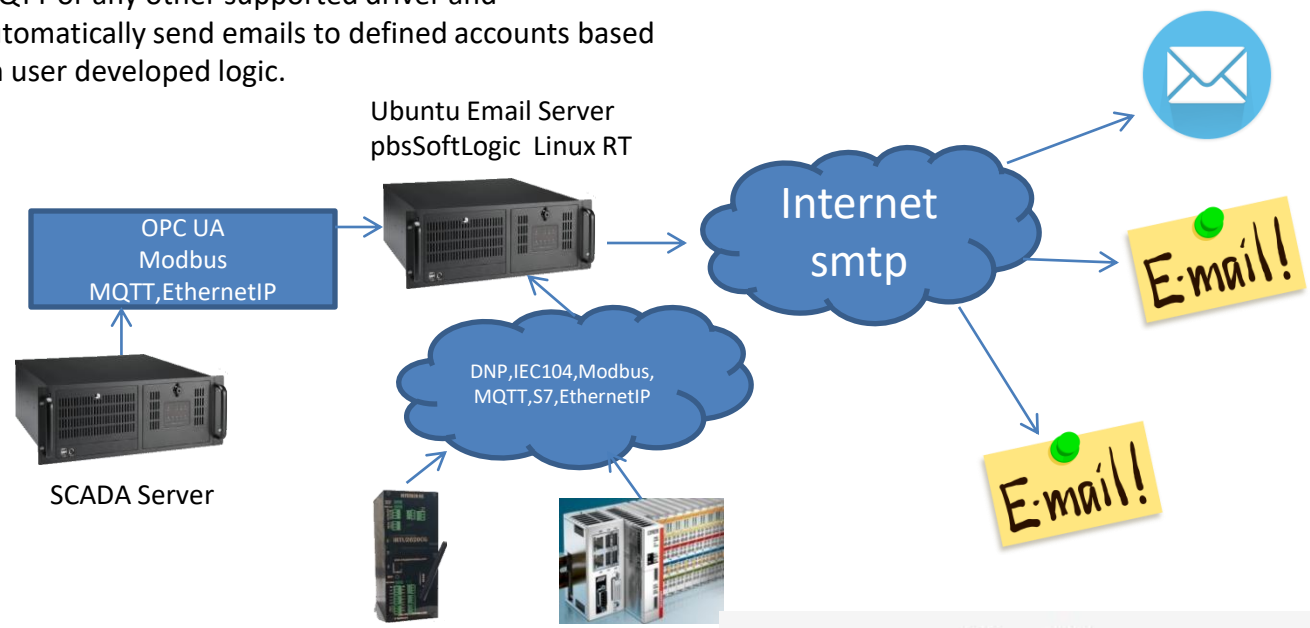
IEC62351 statistics counters are defined as driver tags and can be used by RTU logic.

PhysicalLayer | IEC101 | IEC | SA Layer | TLS | Others | Tags

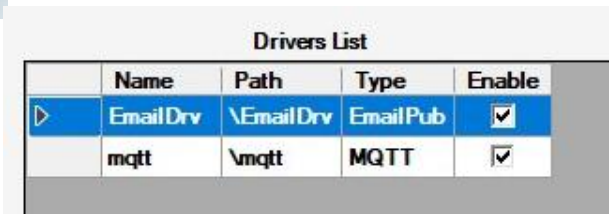
Name	Type	Class	Init	Address	Period
SYS.MasterIsOnline	SYS-System Diagnostic	0	0	1	0
SYS.GIStatus	SYS-System Diagnostic	0	0	2	0
SA_UnexpectedMessagesNum	SYS-System Diagnostic	0	3	3	0
SA_AuthorizationFailuresNum	SYS-System Diagnostic	0	5	4	0
SA_AuthenticationFailuresNum	SYS-System Diagnostic	0	5	5	0
SA_ReplyTimeoutsNum	SYS-System Diagnostic	0	10	6	0
SA_RekeysDueToAuthenticationFailureNum	SYS-System Diagnostic	0	3	7	0
SA_TotalMessagesSentNum	SYS-System Diagnostic	0	100	8	0
SA_TotalMessagesReceivedNum	SYS-System Diagnostic	0	100	9	0
SA_CriticalMessagesSentNum	SYS-System Diagnostic	0	100	10	0
SA_CriticalMessagesReceivedNum	SYS-System Diagnostic	0	100	11	0
SA_DiscardedMessagesNum	SYS-System Diagnostic	0	10	12	0
SA_ErrorMessagesSentNum	SYS-System Diagnostic	0	10	13	0
SA_ErrorMessagesReceivedNum	SYS-System Diagnostic	0	10	14	0
SA_SuccessfulAuthenticationsNum	SYS-System Diagnostic	0	100	15	0
SA_SessionKeyChangesNum	SYS-System Diagnostic	0	20	16	0
SA_FailedSessionKeyChangesNum	SYS-System Diagnostic	0	5	17	0
SA_UpdateKeyChangesNum	SYS-System Diagnostic	0	1	18	0
SA_FailedUpdateKeyChangesNum	SYS-System Diagnostic	0	1	19	0
SYS.CounterResetedByMaster	SYS-System Diagnostic	0	0	20	0
SYS.EnableFrameLogging	SYS-System Diagnostic	0	0	21	0
DITag1	DI-Digital Input (IEC Tag Type 1.30)	1	0	1	0
DITag2	DI-Digital Input (IEC Tag Type 1.30)	1	0	2	0
DITag3	DI-Digital Input (IEC Tag Type 1.30)	1	0	3	10
DITag4	DI-Digital Input (IEC Tag Type 1.30)	1	0	4	10
DITag5	DI-Digital Input (IEC Tag Type 1.30)	1	0	5	0
DITag6	DI-Digital Input (IEC Tag Type 1.30)	1	0	6	0
DITag7	DI-Digital Input (IEC Tag Type 1.30)	1	0	7	0
DITag8	DI-Digital Input (IEC Tag Type 1.30)	1	0	8	0

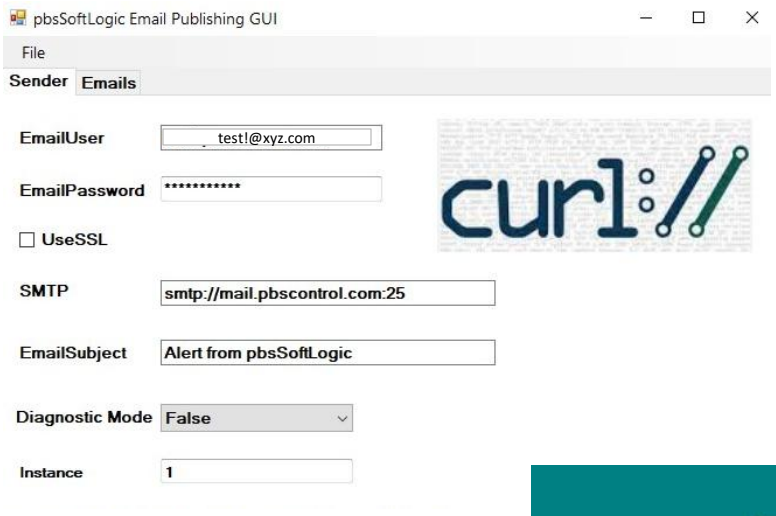
pbsSoftLogic supports email publishing driver to automatically send emails to defined accounts.

pbsSoftLogic can read data by ModbusTCP, OPC UA, MQTT or any other supported driver and automatically send emails to defined accounts based on user developed logic.



The mail server can be a standard Ubuntu server with the pbsSoftLogic runtime kernel installed. Email server can read data from SCADA server or directly from RTU with various supported protocols such as DNP3, IEC104, OPC UA, Modbus, MQTT, Redis, S7, AB, ...





You can define many EmailPub Driver for Email Server.
At each driver instance you can define 100 email accounts for publishing emails .

Each driver instance has 8 inputs for accepting emails from logic to publish . Email content can be dynamically changed at runtime by user-defined FBs created by Lua Scripting.

Diagnostic data like Number of sent emails , Number of Failed Emails , Email Server online status , .. are defined in EmailPub Driver .