



PBSControl
SCADA SOFTWARE SOLUTIONS

pbsSoftLogic

2025

info@PBSControl.com

www.PBSControl.com

pbsControl LTD

Registered in northern ireland , UK,
no NI723363



pbsSoftLogic v4.4

pbsSoftLogic is an integrated development environment for RTU programming from pbscontrol, and 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 ,

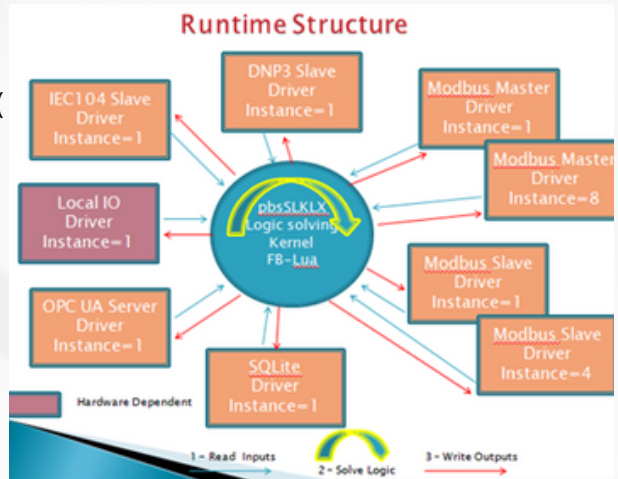
OPC Classic , OPC UA (C/S),

Vestas Wind Turbine ,

IEC62056-21 , SQLite with

TDS protocol ,EmailPub ,

Fatek PLC and GSP.

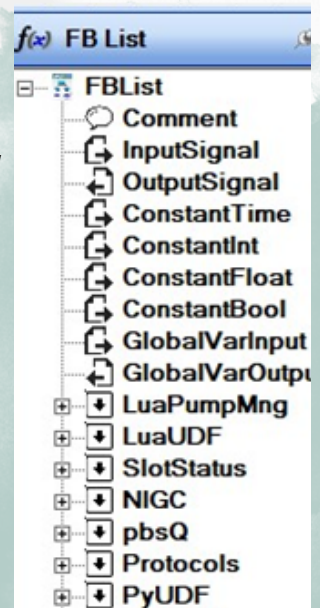


pbsSoftLogic supports Function Block programming based on the IEC1131-3 standard. pbsSoftLogic has more than 400 ready function blocks and user can create new FB by C and Lua Scripting.

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

FREE

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

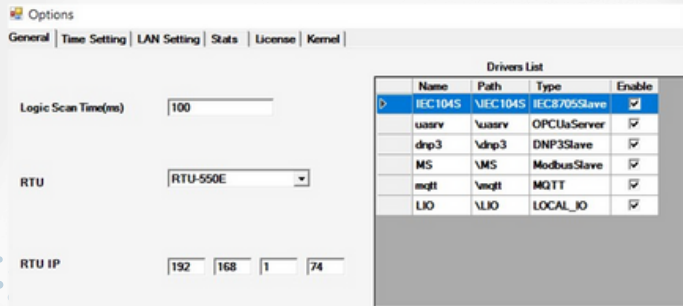




pbsSoftLogic v4.4

Open62541 is used for OPC UA 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

TCP/IP

Linux Based RTU



Modbus

Modbus Remote I/O



Bbb or RPI Based systems



IOT RTU



Power meter , Flow Computer



MQTT Support

pbsSoftLogic and pbHMI have built inData 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.

MQTTGoldCh.xml NewChannel1.xml

Parameters nlgc Tags

☒ Enable

Broker IP: 127.0.0.1

Port: 1883

User Name:

Password:

ScanTime(ms): 1000

CommunicationTimeout(min): 15

Protocol: MQTT

Data Model:

☒ raw ☐ xml ☐ json ☐ meco ☐ nlgc

Sub Topic:

Pub Topic:

☐ Use Tag Address

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

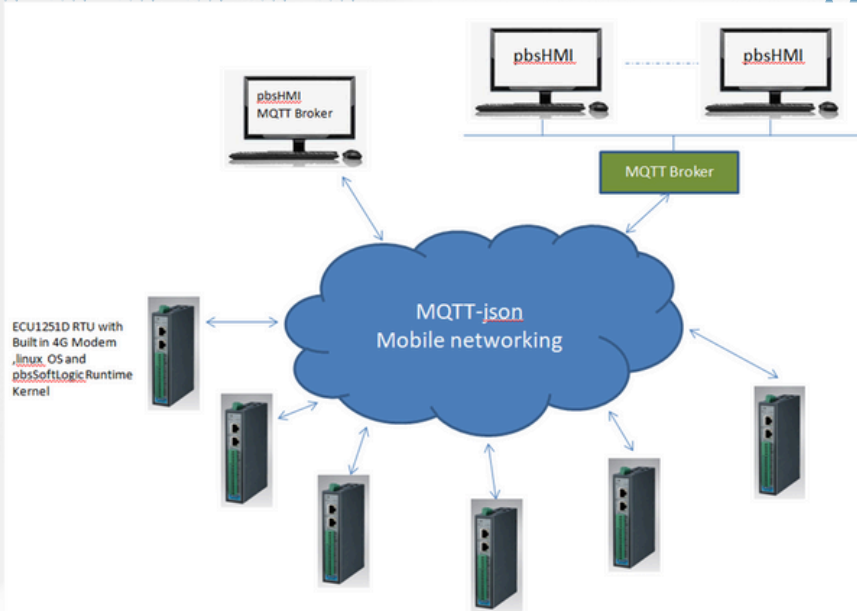
It is possible to import tags from an XML file or from a pbsSoftLogic project.

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.

MQTT Support



DNP3 and IEC104 Support


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

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

PhysicalLayer	IEC101	IEC	SA Layer	TLS	Others	Tags
General Configuration						
Slave Address(CASDU)	3		Originator Address	0		
K (T) Parameter	12		Automatic sending Counters Time (s)	0		
W (R)Parameter	12		Physical Layer Scan Time (ms)	100		
N Parameter	32767		TimeZone	LocalTime		
T0 Timeout (s)	20		Max Frame Len	250		
T1 Timeout (s)	20		Command Timeout(Sec)	10		
T2 Timeout (s)	10		Short Pulse for DO(Sec)	2		
T3 Timeout (s)	60		Long Pulse for DO(Sec)	10		
CounterMode	Counter		SBO Timeout(sec)	20		
Cyclic DT COT	2		Clock Valid Time(Min)	60		
			Test Frame Mode	Disconnet		

DNP3 and IEC104 Support

PhysicalLayer IEC101 IEC SA Layer TLS Others Tags



IEC/TS 62351

SA Enable	False	Update Key	Static
Update key	1E E6 54 35 A3 BC BC 9F 3E 13 EF 84 02 DA 1F BB 39 2F 74 86 83 0F 81 66 8C 2C 8E 2E 88 E0 2C 47		
Aggressive mode	True	Aggressive Mode Answer	IEC104
HMAC Algorithm	4-HMAC_SHA_256_16octets_networked	Expected Session key interval(min)	1260
KeyWrap Algorithm	2-AES-256	Expected Session key Count	10000
Max Error Sent	5 <input type="checkbox"/> Do not send error messages		
Addressing Information	No Addressing information		
<input type="checkbox"/> IEC62351 Log Events in the RTU			
IEC62351 Log File	/home/iec62351log/		
KCL CLN	8	Challenge data Len <4...64>	
User ID	1	Note: SA System tags and IEC counters share the same address space SA Sys Tags Base Address 400	
Reply Timeout(sec)	10		
<div>Update Key Change</div> <div>Symmetric Key File Path for changing Update Key</div> <div>/home/openssl/symmetric_key.bin</div> <div>Password</div> <div>User Name Default</div>			
<input type="checkbox"/> Do not Include Segmentation Field to MAC Calculation			

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	

DNP3 and IEC104 Support

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	

Email Publishing

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.

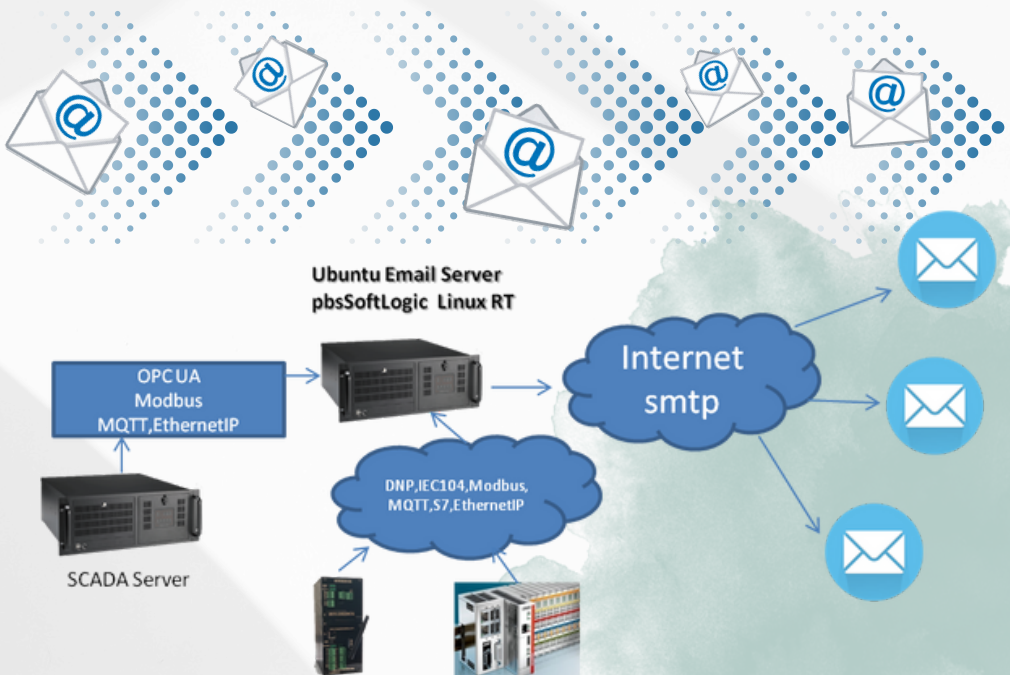
Email Publishing

The mail server can be a standard Ubuntu server with the pbsSoftLogic runtime kernel installed.

Drivers List				
	Name	Path	Type	Enable
▶	EmailDrv	\EmailDrv	EmailPub	<input checked="" type="checkbox"/>
	mqtt	\mqtt	MQTT	<input checked="" type="checkbox"/>

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,

The email server generates emails based on the logic.



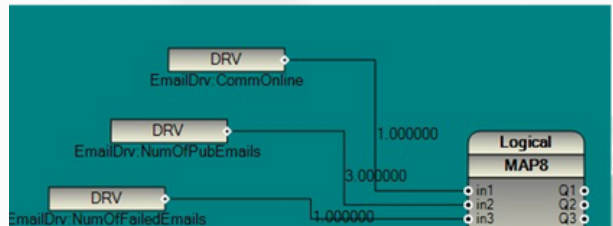
Email Publishing

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 .



Find pbsHMI catalogue in website ...

pbsSoftLogic is a powerful IDE for programming RTUs, supporting Function Block and Lua languages. It facilitates communication via Modbus, DNP3, IEC104, OPC UA, and MQTT, with added support for IEC62351 and TLS for IEC104 and DNP3 drivers.

Its intuitive interface allows users to configure drivers, create logic, and monitor it. Features like logic simulation and tag forcing streamline development and testing, ensuring robust automation solutions.

PBSCONTROL