

pbsHMIWebSCADA V3.3

pbsHMI is the HMI/SCADA platform from pbscontrol. It is developed by Microsoft .NET technology. pbsHMI has been in the market since 2009.

pbsHMI Supports following protocols :
ModbusTCP/RTU,DNP3,IEC104 ,Beckhoff ADS , Siemens S7 ,MQTT , Redis , OPC Classic , OPC UA , Vestas Wind Turbine ,Fatek PLC and GSP.

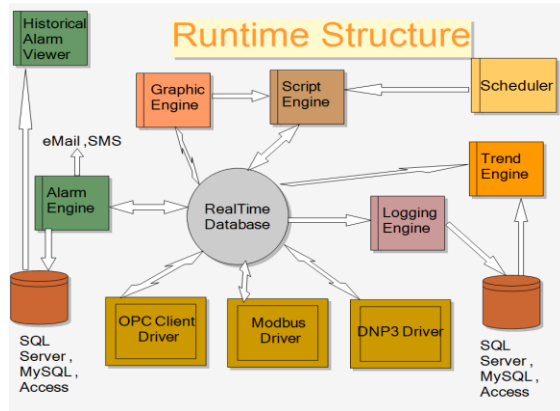
pbsHMI has more than 3000 ready-made graphic symbols and user can create or import any type of graphic symbol from svg.

pbsHMI supports MS SQL Server, MS Access and MySQL as the default database format for data, alarms and events. User can communicate with any other database with pbsHMI C# language

pbsHMI has a variety of dynamics for creating animations on graphics screens: blink, brush, move, rotate, height, switch and hide dynamics. Dynamics can be applied to any symbol and user-defined symbols. Page zooming and decluttering is supported for Graphic pages.

pbsHMI can be run on a standalone PC or distributed as a client server on a network.

There is no limitation for number of graphic pages , 64K Device tags , no limitation for internal tags , 16K alarms and events. The development version of pbsHMI is free and the license applies only at runtime



There are many types of Events for any symbol or user define symbols to make action , set signal , toggle , make pulse , load page , load popup and execute scripts .User defined left mouse menu is supported for all symbols.

Decluttering - Zooming

Dynamic showing of elements based on zooming level
Each element in page has decluttering level



```

File Edit Search View
1 using System;
2 using System.Collections;
3 using System.ComponentModel;
4 using System.IO;
5 using System.Xml;
6 using System.Data;
7 using MySql.Data.MySqlClient;
8
9
10
11 namespace pbsHMIUserScript
12 {
13     public partial class pbsHMIUserClass
14     {
15         MySqlConnection _MySQLCon = new MySqlConnection();
16
17         bool _MySQLServerConnected = false;
18
19         public void MySQLDBScript_Insert2DB()
20     {
21     }
22     public void MySQLDBScript_InitDB()
23     {
24     }
25     public void MySQLDBScript_DownDB()
26     {
27     }
28     }
29 }
30
31
32
33
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35
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```

Errors

Script	Line	Error	Description
			Successfully compiled

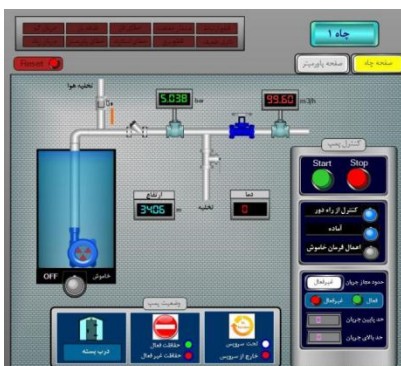
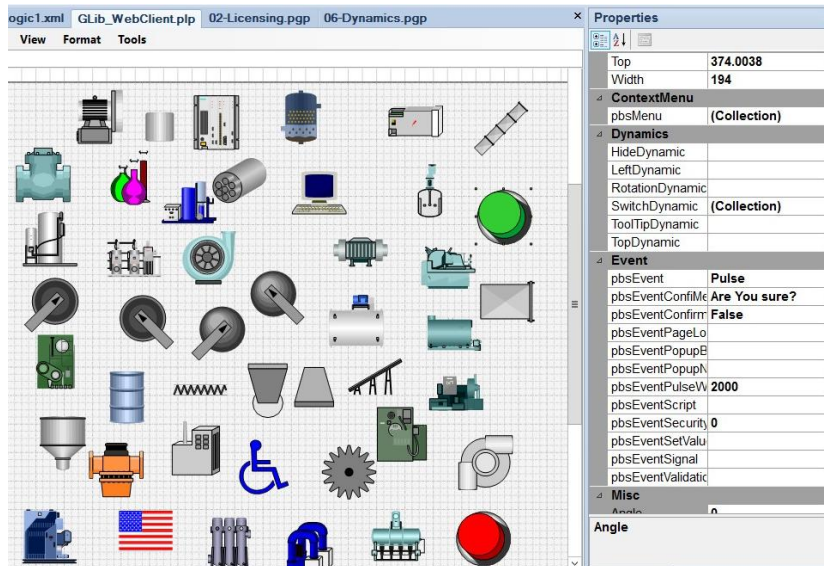
pbsHMI supports various types of scheduling to create automatic cyclic actions, run scripts, report.

Different types of users can be defined to restrict access to view pages, ACK alerts and execute events.

pbsHMI supports Function Block and C# for easy user programming . The user has access to the complete .NET platform with C# language.

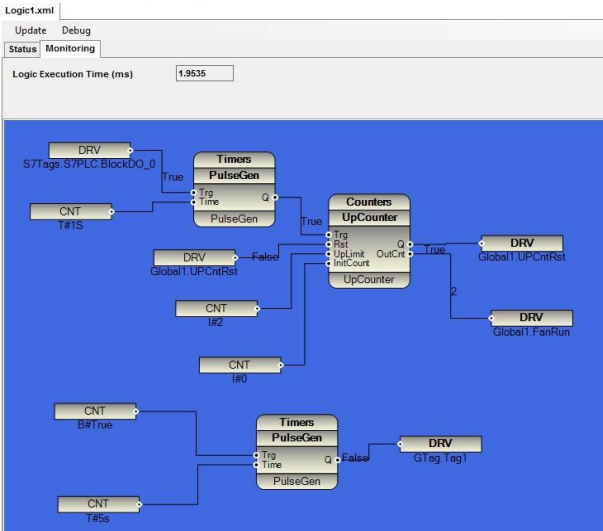
pbsHMI can support local languages in graphics pages , Alarms , events and Reports

pbsHMI has a built-in symbol editor to include any type of symbol into the platform. You can create a new symbol with the main pbsHMI graphics tools or import from SVG format. The pbsHMI symbol is a combination of graphical objects and C# code.



pbsHMI has a built-in OPC UA server that automatically ports all communications and tags to OPC UA.

pbsHMI communication channels, tags, alerts, events and FB logics are updated at runtime. No need to restart the system



SoftLogic IDE

There is an IDE for Logic software development based on the Function Block programming language inside pbsHMI. There are many ready FBs in pbsHMI and user can develop user defined FB in C# language.

Multiple logic instances are supported and instances are running in parallel.

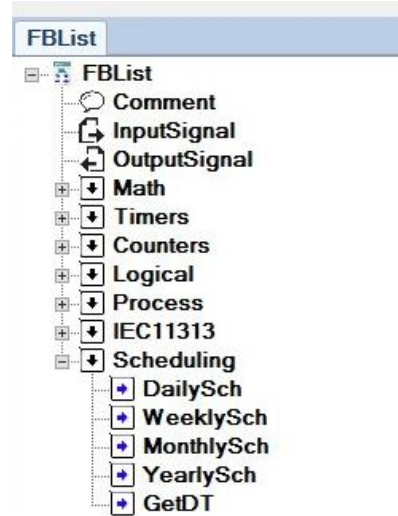
There is no limit to the number of FBs per logical instance.

You can use any type of pbsHMI tag in Logics.

It is possible to load new logic and unload old ones at runtime.

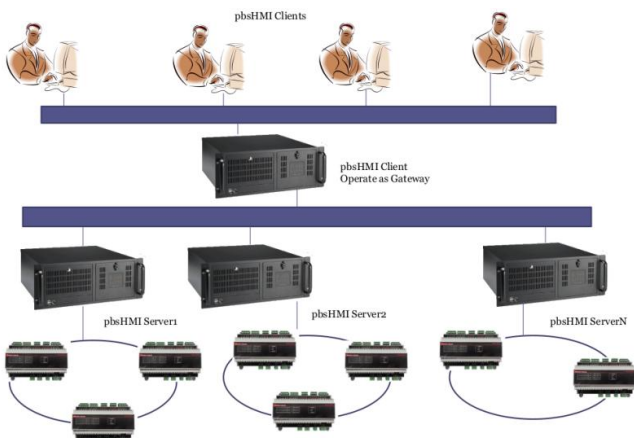
You can update the loaded logic with the latest version at runtime (Warm Logic Update)

You can monitor the logic at runtime and watching variables.



Network Operation and redundancy

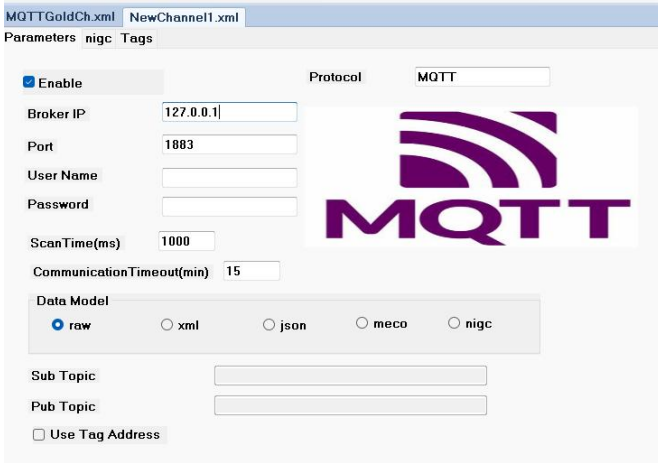
pbsHMI supports Client-Server architecture. A client can connect to multiple servers and merge different server projects into one client project.



The pbsHMI client project can be migrated from servers automatically or manually.



pbsHMI supports warm Server redundancy structure and in a bump less operation clients and PLC/RTUs are switching between Servers .



MQTT Support

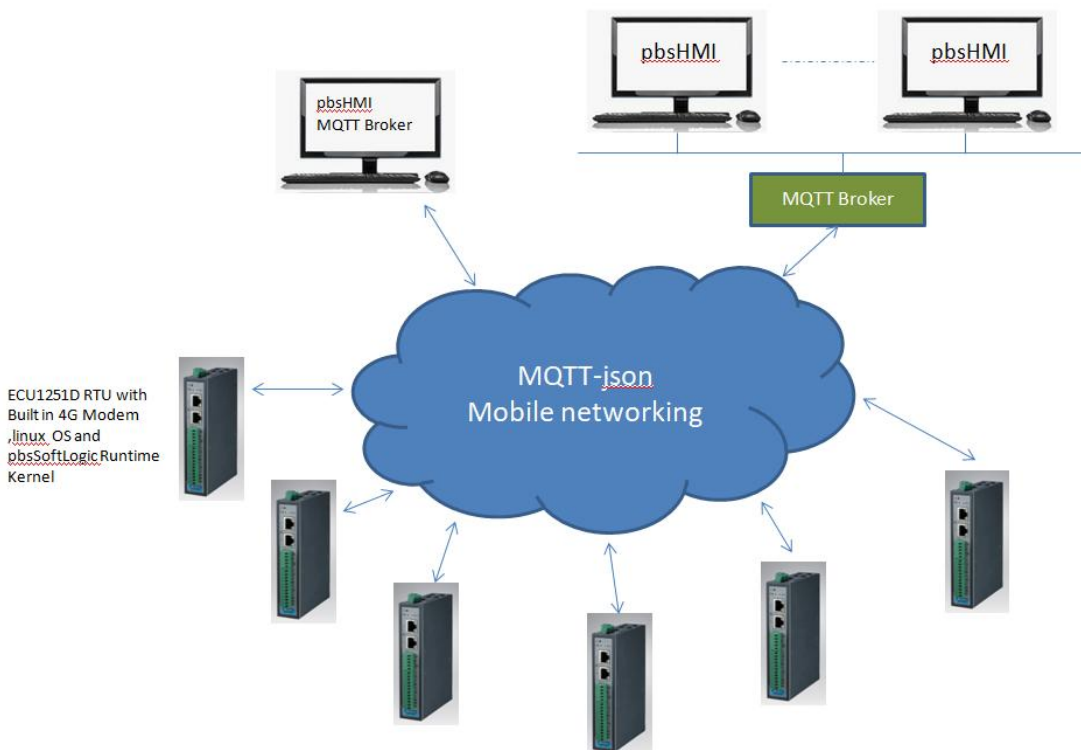
pbsHMI supports MQTT driver for various data models. You can define tags as raw data, XML, json, or a user-defined data model.

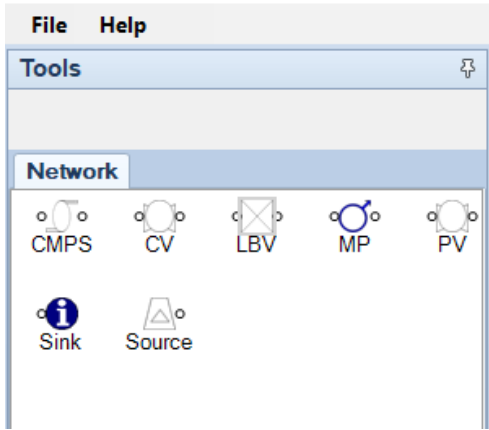
It is possible to import tags from an XML file or from a pbsSoftLogic project. To reduce data consumption, tag address can be used between pbsSoftLogic and pbsHMI MQTT drivers instead of tag name.

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.

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

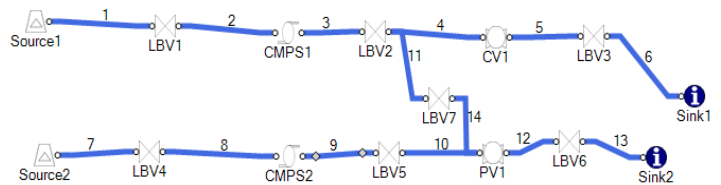




pbsHMI-NX

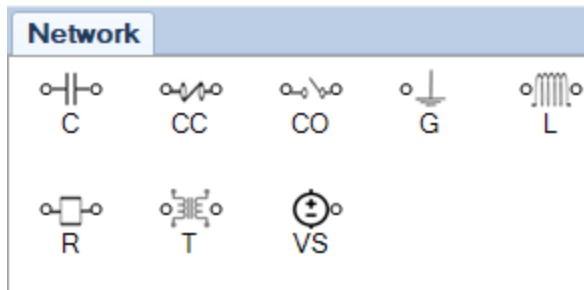
pbsHMI has a built-in network simulation platform that is used to simulate and estimate electricity, gas, and water networks.

The user can design any number of networks and link to SCADA tags and periodically simulate it and monitor and use the calculated states in pbsHMI.(need separate License)



Properties	
.Networks	
pbLinePackTag	
pbsCompresityFa	0.96
pbsD	1
pbsFTag	
pbsHb	100
pbsHe	150
pbsHT	0.0008
pbsLen	1000
pbsModelName	
pbsPbTag	
pbsPeTag	
pbsPipeConstant	0.47857
pbsRc	0.5
pbsTbTag	F#24
pbsTeTag	F#30
pbVTc	3.3E-05

The user can set Gas Pipeline and network elements parameters and link them to pbsHMI Tags .



Partial Differential equation of Networks solves periodically with help of integrated python engine and estimate network state at each cycle.

pbsHMI-NX calculate network parameters like Node degree , clustering coefficient and adjacent matrix and finds hubs and most important nodes of network .

pbsHMI-NX supports network dynamics functions such as State estimation , percolation and diffusion .