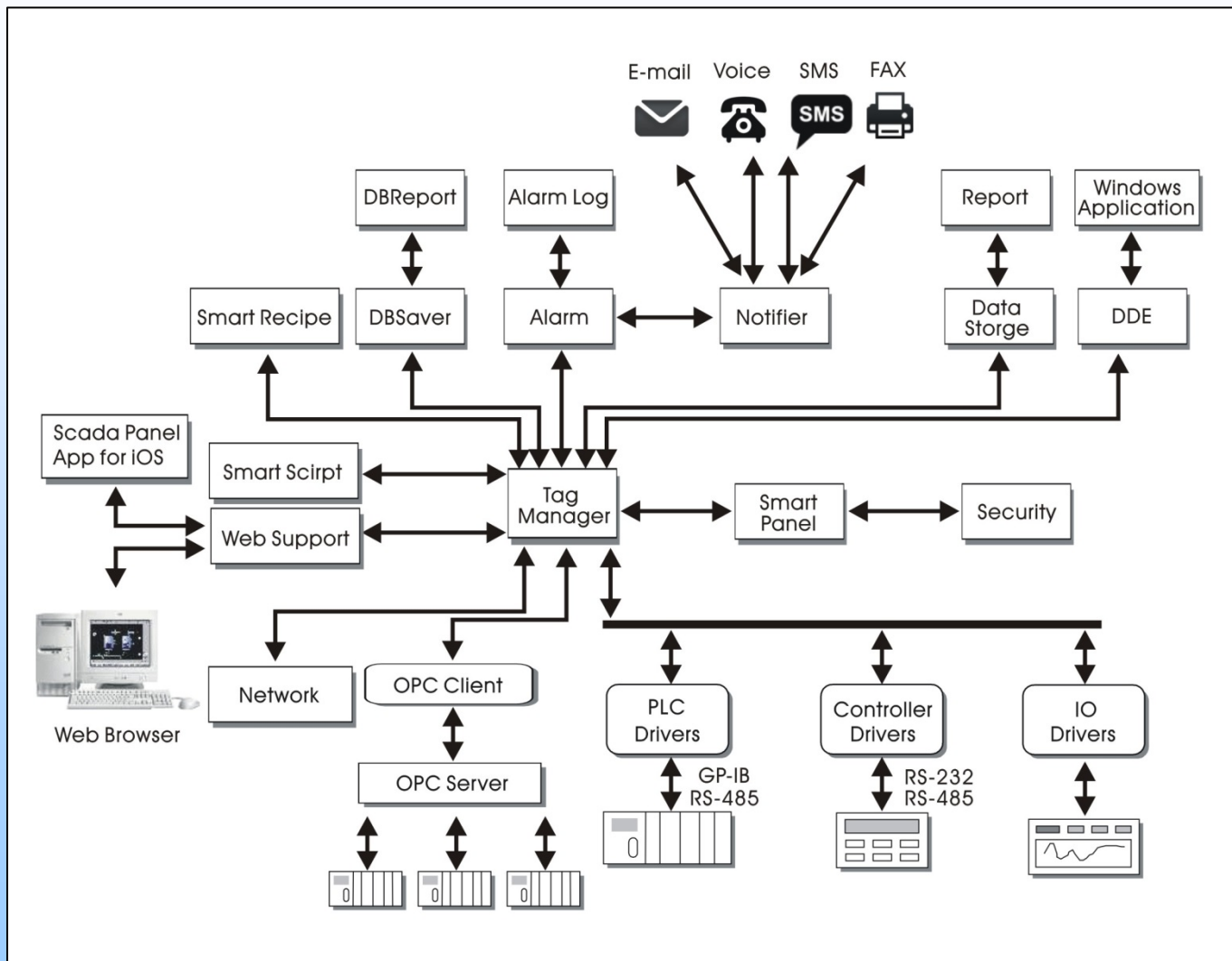




Lab-LINK for Windows SCADA Software Introduction



System Architecture





SmartPanel User Interface Module

❑ Object oriented design

- Abundant graphic functions
- Over 50 dynamic genie objects
- Suit all control applications

❑ All user definable

- No limit on panel numbers
- User defined panel switching

❑ Free panel architecture

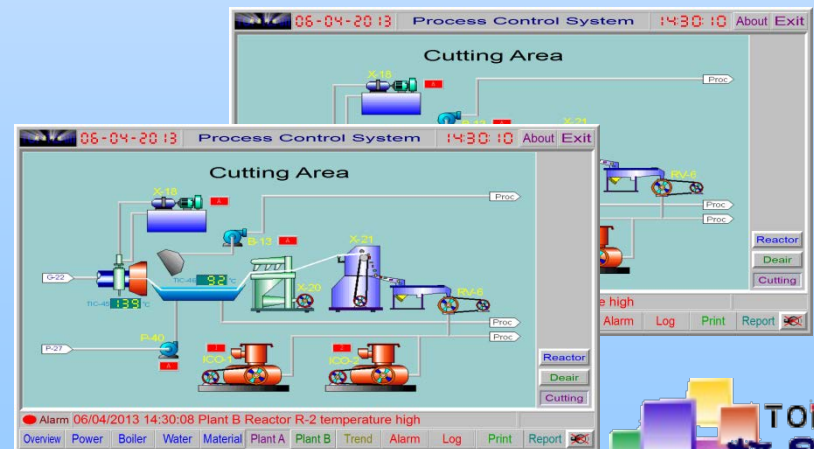
- Tree architecture
- Direct jump

❑ Replace traditional panels

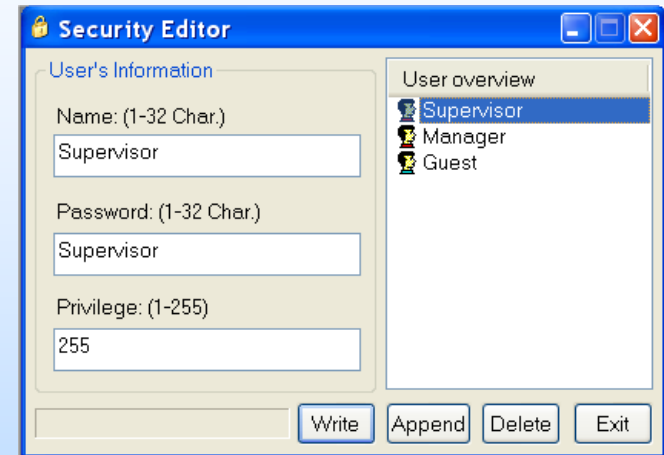
- Replace operator panels with computer
- Save space and cost

❑ Easy operation

- Intuitive, no command
- Support touch screen



- ❑ 255 levels of user privileges
- ❑ User defined operation privilege
- ❑ Support Windows Authentication
- ❑ Auto logout on system idle timeout
- ❑ User management tool

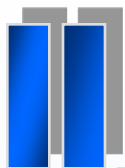




SmatAlarm Alarm Module

- ❑ 8 alarm conditions
- ❑ Alarm acknowledgement
- ❑ Alarm actions
 - Alarm objects display
 - Sound and voice playing
 - Screen jump
 - Alarm logging
 - Alarm message printing
 - LED panel display
- ❑ Alarm notification with NotifierPro Module





LogView Alarm Report

- ❑ Alarm log query
 - By date and time
 - By alarm group
- ❑ Print alarm report
- ❑ Delete or export old alarm records

LogView - History.log

File View Help

Select Time ☐ Enable Select Group ☐ Enable

From 2/25/2009 11:00:28 AM To 6/4/2013 4:08:59 PM [All] List

Date Time	Message	Acknowledge Message
06/04/2013 16:07:43	Cooling water temperature high	
06/04/2013 16:07:43	Boiler E-22A temperature high	06/04/2013 16:07:48 Acke...
06/04/2013 16:07:43	Boiler E-22A temperature high	
06/04/2013 16:07:43	Boiler E-22B temperature high	06/04/2013 16:07:48 Acke...
06/04/2013 16:07:43	Boiler E-22C temperature high	06/04/2013 16:07:48 Acke...
06/04/2013 16:07:43	Boiler E-22C temperature high	
06/04/2013 16:07:43	Boiler E-22B temperature high	
06/04/2013 16:07:48	Plant A Reactor R-2 temperat...	
06/04/2013 16:07:48	Plant A Reactor R-1 temperat...	06/04/2013 16:07:50 Acke...
06/04/2013 16:07:48	Plant A Reactor R-1 temperat...	
06/04/2013 16:07:48	Plant A Reactor R-2 temperat...	06/04/2013 16:07:50 Acke...
06/04/2013 16:07:48	Plant B Reactor R-1 temperat...	06/04/2013 16:07:50 Acke...
06/04/2013 16:07:48	Plant B Reactor R-2 temperat...	06/04/2013 16:07:50 Acke...
06/04/2013 16:07:48	Plant B Reactor R-2 temperat...	
06/04/2013 16:07:48	Plant B Reactor R-1 temperat...	
06/04/2013 16:07:57	Boiler E-22A temperature nor...	
06/04/2013 16:07:59	Boiler E-22B temperature nor...	
06/04/2013 16:08:00	Boiler E-22C temperature nor...	
06/04/2013 16:08:02	Cooling water temperature no...	
06/04/2013 16:08:17	Plant A Reactor R-1 temperat...	
06/04/2013 16:08:20	Plant A Reactor R-2 temperat...	
06/04/2013 16:08:21	Plant B Reactor R-1 temperat...	
06/04/2013 16:08:24	Plant B Reactor R-2 temperat...	
06/04/2013 16:08:33	Boiler E-22A temperature high	
06/04/2013 16:08:37	Boiler E-22B temperature high	
06/04/2013 16:08:40	Boiler E-22C temperature high	
06/04/2013 16:08:47	Cooling water temperature high	
06/04/2013 16:08:49	Boiler E-22A temperature nor...	
06/04/2013 16:08:52	Boiler E-22B temperature nor...	
06/04/2013 16:08:59	Boiler E-22C temperature nor...	

Ready Record : 75/75 NUM





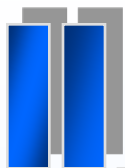
SmartFile Data Storage Module

- ❑ User defined cyclic data storage intervals
- ❑ Can select different storage interval
- ❑ Can select data expiration time range
- ❑ Support gain and offset calculation for data
- ❑ Provide various statistical methods for data aggregation

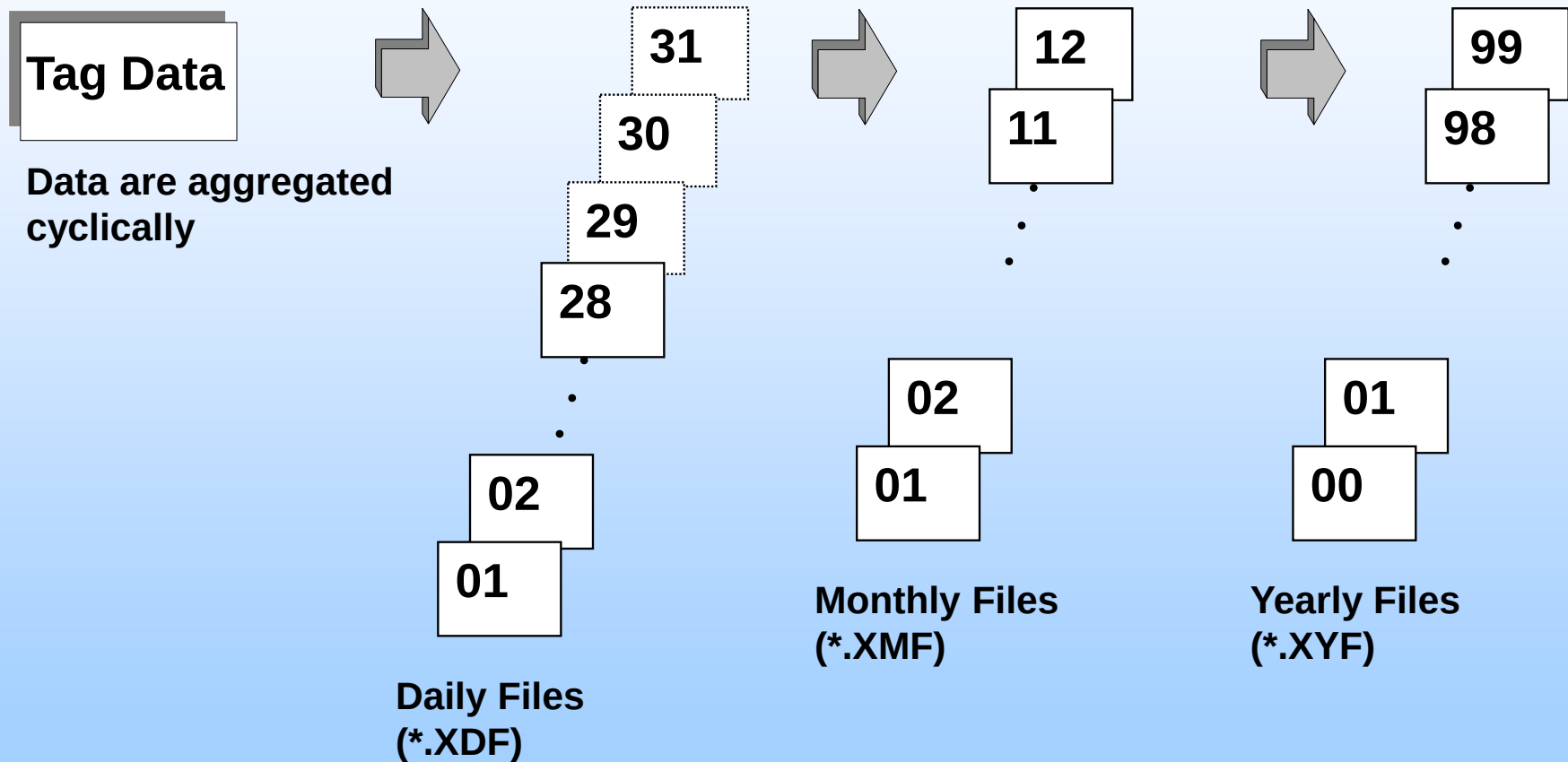
NEW	Newest	DLT	Difference
OLD	Oldest	INT	Integration
MIN	Minimum	CT1	0 to 1 counts
MAX	Maximum	CT0	1 to 0 counts
AVG	Average		

- ❑ Data file format:
 - XDF (Lab-LINK propriety)
 - TXT (Text file)





SmartFile Data Aggregation



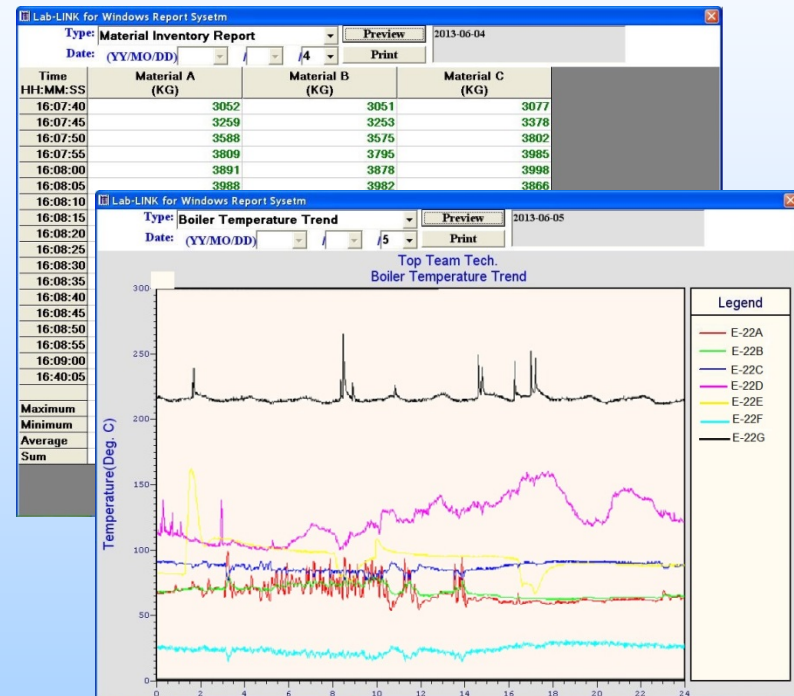


SmartReport Report Module

- Daily, Monthly, Yearly Report
- Text and Trend Report
- Users can define

<<Report>>	<<Column>>
Title	Title
Data file	Aggregation
Interval	Width
Font size	Decimal Point
Orientation	Statistics

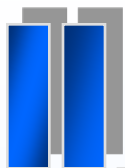
- Preview and print reports



□ Support popular IO devices

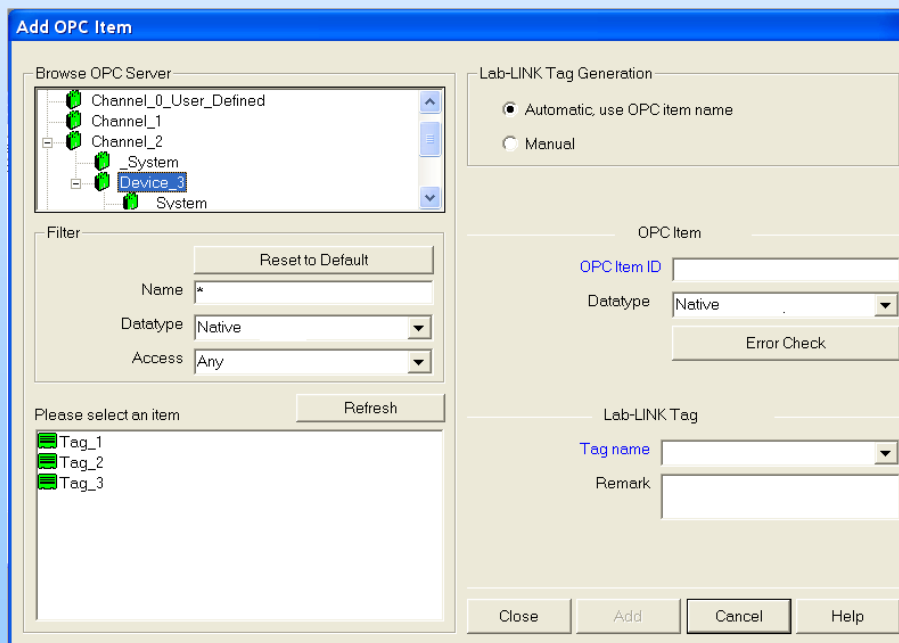
PLC	Mitsubishi, Omron, GE, AB, Modicon, Fuji, Sharp, Delta, Facon, Vigor, Fama,...
PID Controller	Yokogawa, Yamatake, RKC, Toho, West, Shinko, J&D,...
Recorder	Yokogawa, Shimaden,...
Power Meters	Square D, Merlin Gerin, Algodue, NEMO, ...等
Others	Modbus RTU, Modbus TCP, Advantech Adam 4000/5000, ...

- Support multiple registers and data type conversion
- Automatic communication failure detection
- Intelligent communication recovery to ease partial communication failure effect



OPC Client Module

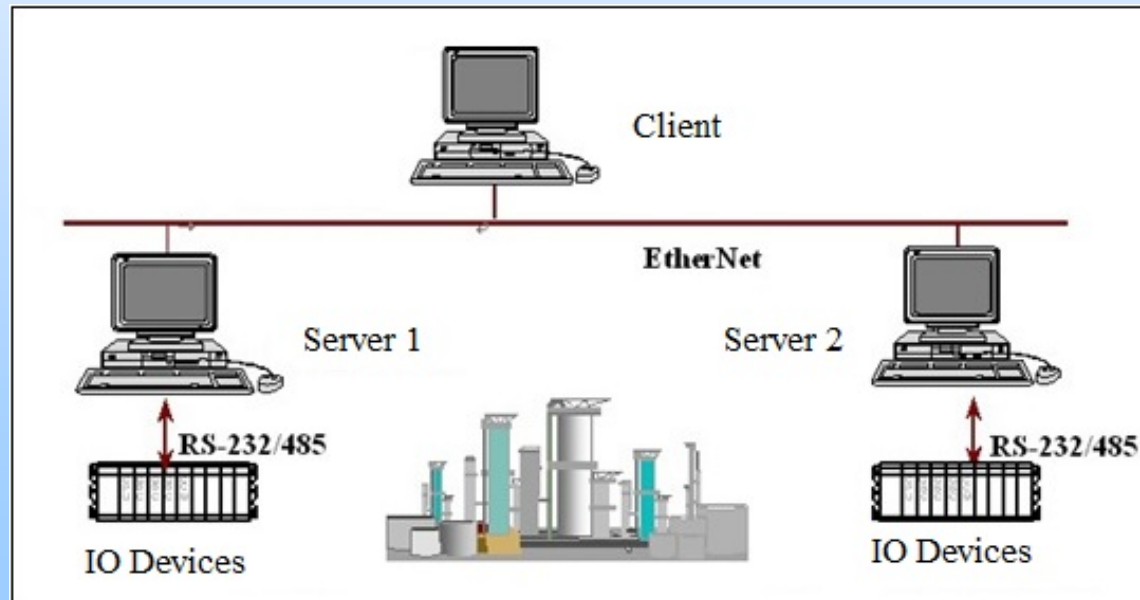
- ❑ Comply with OPC DA standard
- ❑ Can connect to third party OPC Servers and extend IO devices connectivity
- ❑ Support OPC Name Space browsing





Network Module

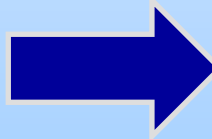
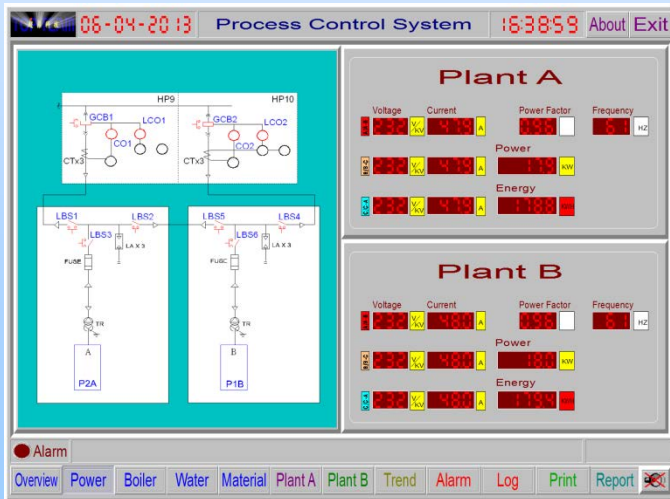
- ❑ Client/Server architecture
- ❑ Use internet standard TCP/IP protocol for real time data communication.
- ❑ Connect multiple Lab-LINK computers for remote monitoring and control





DDE Module

- ❑ Connect to third party application for real time data exchange using DDE
- ❑ Support both DDE Client and DDE Server.
- ❑ All Tag data can be shared.



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K
1	R相電壓	224									
2	S相電壓	225									
3	T相電壓	226									
4	R相電流	47.0									
5	S相電流	47.5									
6	T相電流	47.9									
7	功率因數	223.5									
8	實功率	18.2									
9	瓦時	191.1									
10	頻率	62									
11											
12											
13											
14											
15											





SmartScript Script Module

- ❑ The built-in script language for Lab-LINK.
- ❑ Tag data can be used as variables.
- ❑ Support various logic control scheme including IF and CASE/SWITCH conditional branching, GOSUB and Tag event Subroutine calling, FOR and WHILE loop..., etc.
- ❑ Over 100 function and statement for math calculation, string manipulation, file access, serial IO communication, system operation..., etc.
- ❑ Include SmartScript Editor for script editing, testing and debugging.

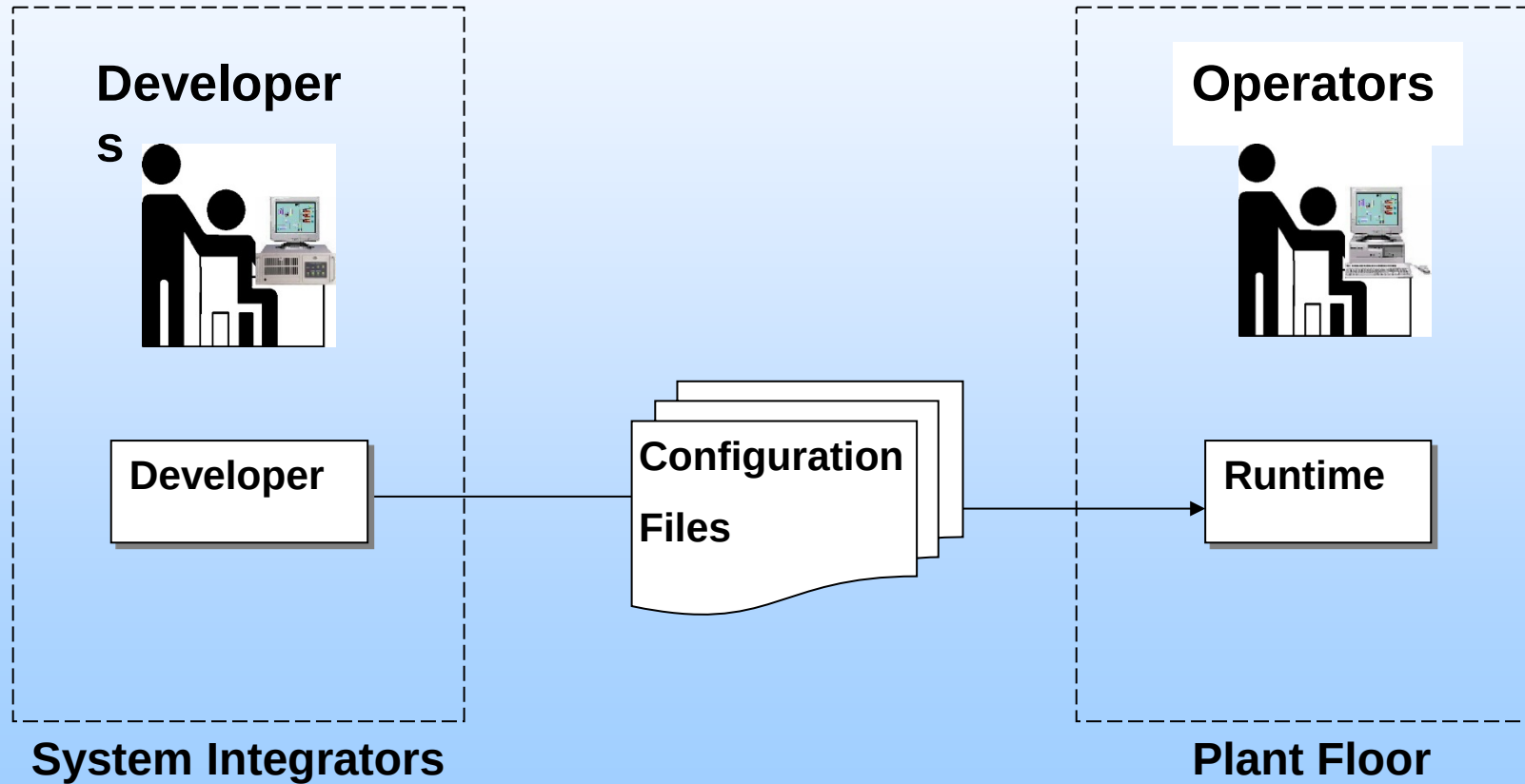
```
COMMON.csl - Control
File Edit View Run Help
[Icons]
SLEEP 3
IF (Client)
  SENDIP 6, \\140.96.161.190\Lablink\project\itri_pda\dat
ELSE
  MemoPath$="...Project\ITRI_PDA\dat\Memo.log"
ENDIF
//SDBCheck=(SDB_INT)*3
SDBCheck=30
CheckInt=SDBCheck*60
LastSDBRCD=0
SLEEP CheckInt
WHILE (! (Client))
  IF (PDA_RCD)=-LastSDBRCD
    (SDB_A)=1
  ELSE
    (SDB_A)=0
  ENDIF
  SLEEP CheckInt
LOOP
IDLE

(map_pb):
IF (map_pb)=>RETURN
(ph0)=1
SWITCH (map_pb)
CASE 3
  (dpage_c)=1
  (dpage_d)=5
  (dpage_m)=3
```





Developer and Runtime Licenses





Developer Tools

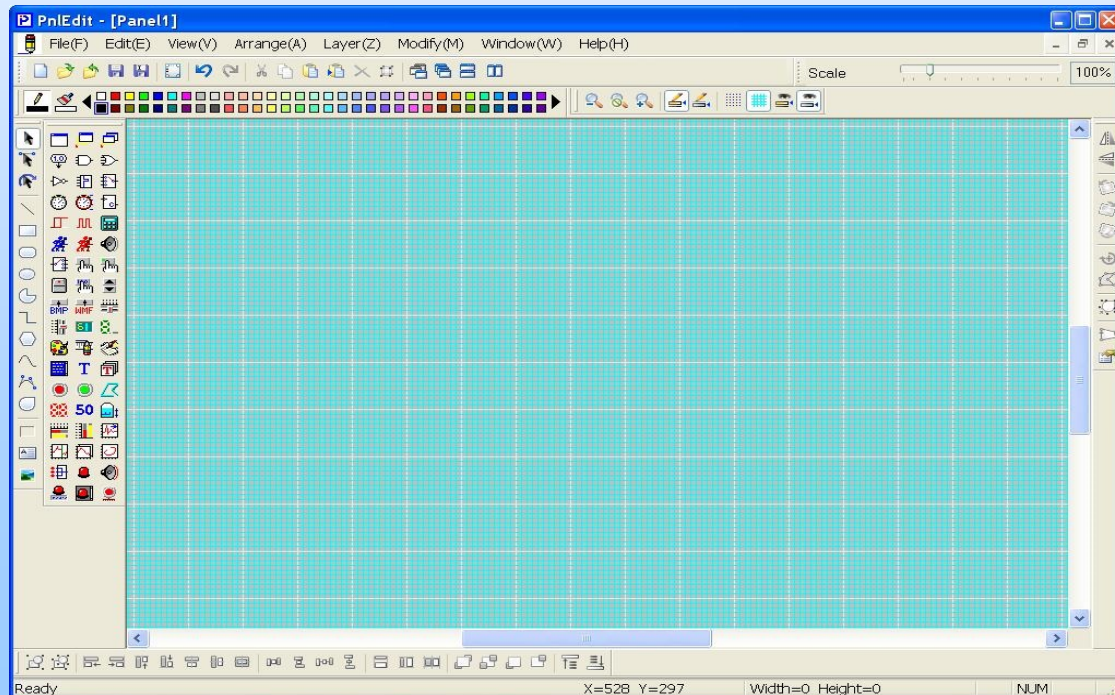
- ❑ PAM-Integrated developer environment for Lab-LINK project.
- ❑ Project configuration
 - Tag
 - Alarm
 - Data
 - Report
 - IO Driver
 - OPC Client
 - DDE
 - Network
 - Script
- ❑ Panel Editor: User interface design tool
- ❑ Security Editor: User management tool
- ❑ Tagview: Runtime testing tool
- ❑ SmartScript Editor: Script editing and debugging tool

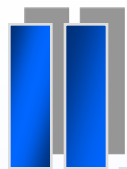




Panel Editor

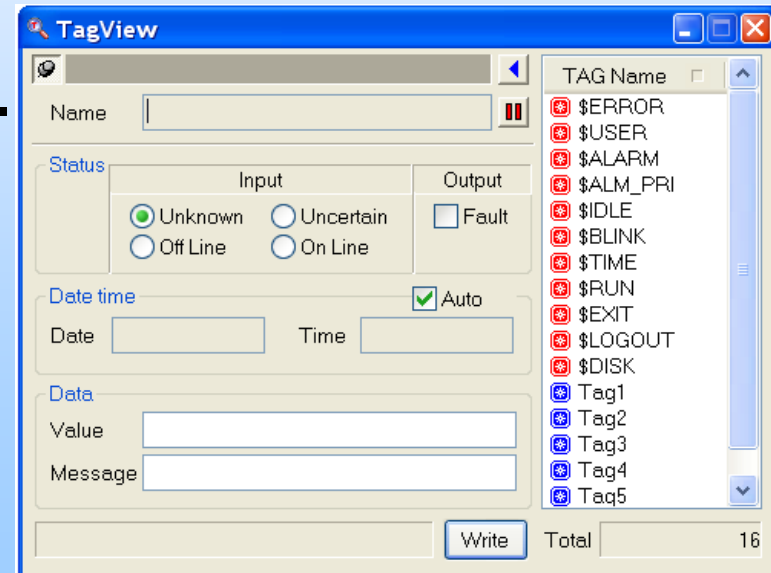
- ❑ User interface design tool
- ❑ Select and drag to draw objects
- ❑ Define object properties using dialog
- ❑ Connect object to tags
- ❑ No programming needed





TAGView Testing Tool

- ❑ Tool for Lab-LINK project runtime testing
- ❑ Monitor all Tag data in real time
- ❑ Modify any Tag data for testing
- ❑ Show Tag date, time and status.



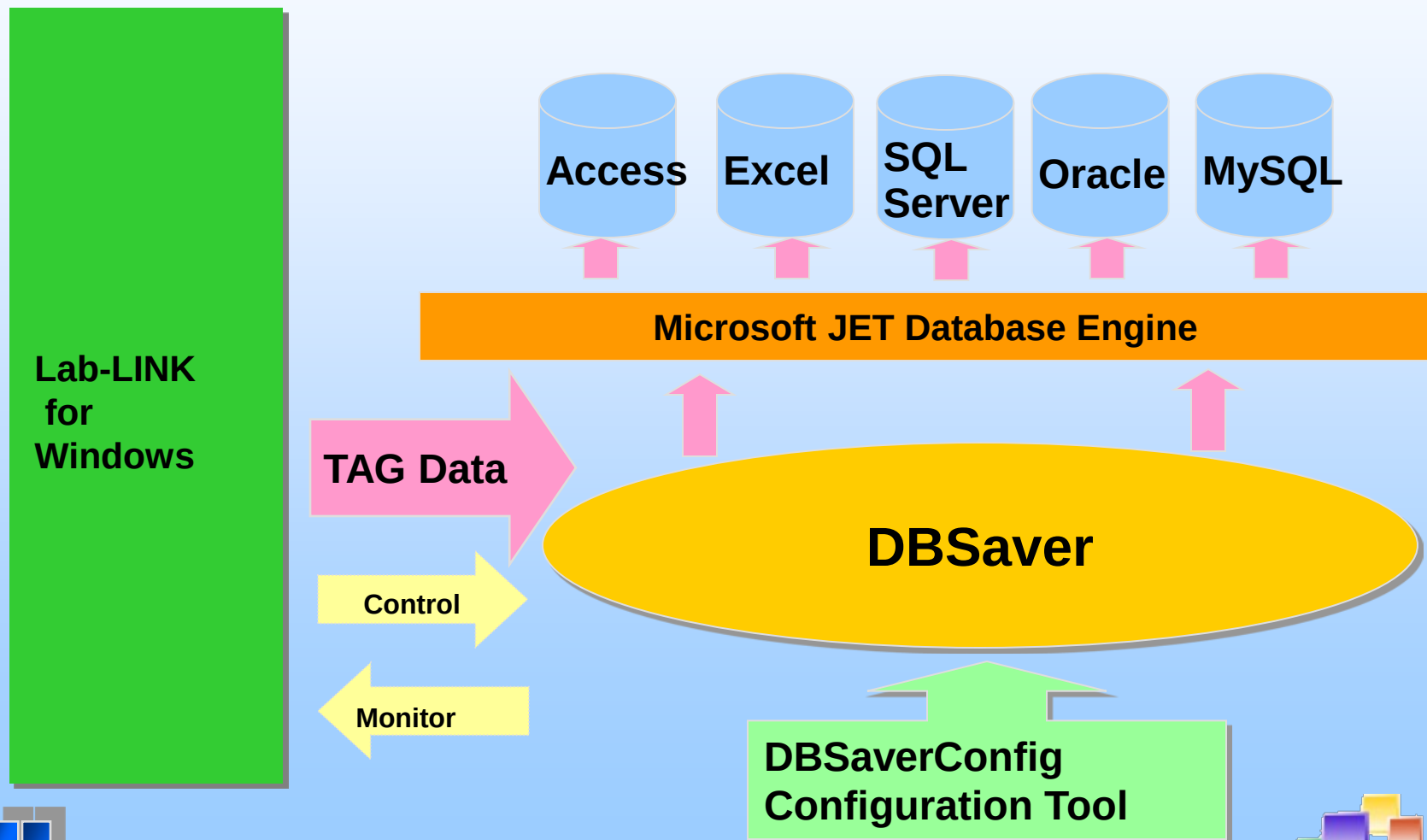


Add-on Modules

- ❑ DBSaver Database Storage Module
- ❑ DBReport Database Report Module
- ❑ SmartReceipe Recipe Module
- ❑ NotifirtPro Alarm Notification Module
- ❑ WebSupport Web Tool Module
- ❑ ScadaPanel App for iOS



DBSaver Database Storage Module





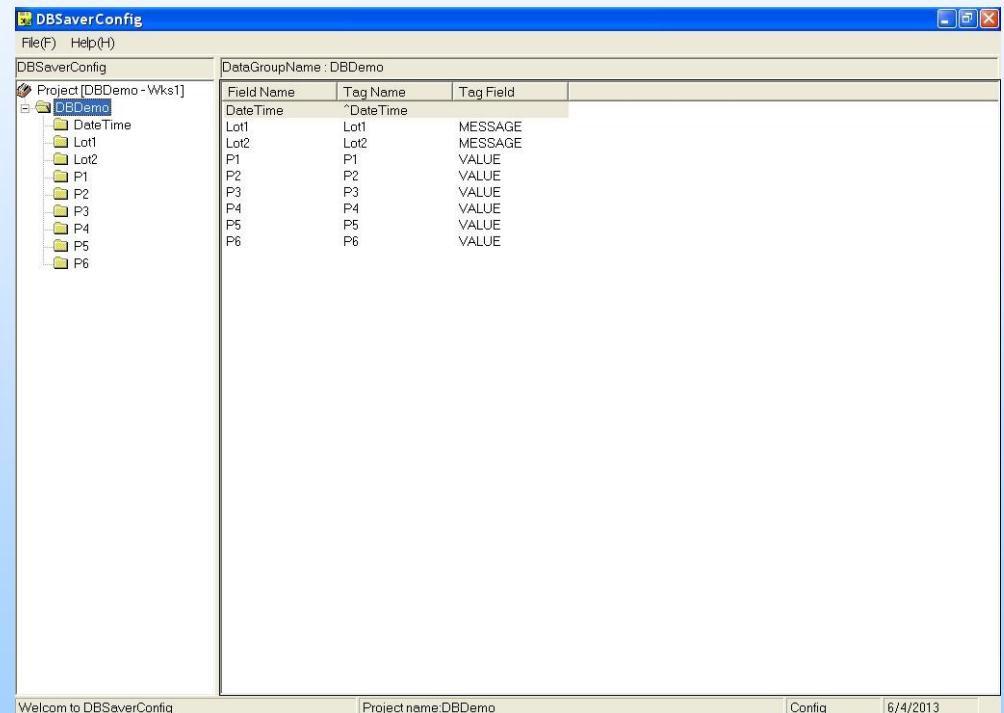
DBSaver Database Storage Module

□ Support database

- Excel
- Access
- SQL Server
- Oracle
- MySQL

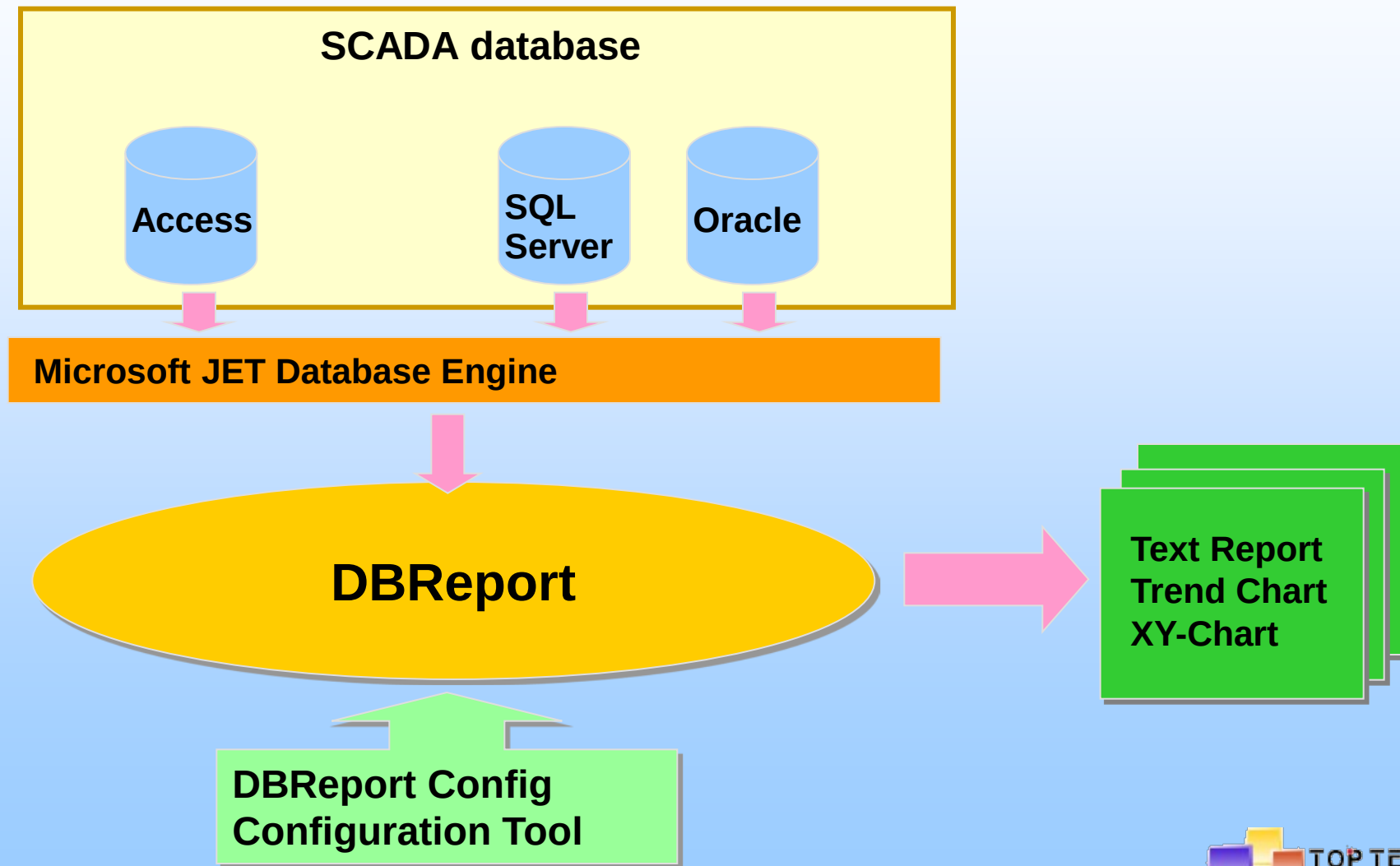
□ Storage methods

- Cyclic
- Triggered





DBReport Database Report Module



DBReport Database Report Module

□ Support database

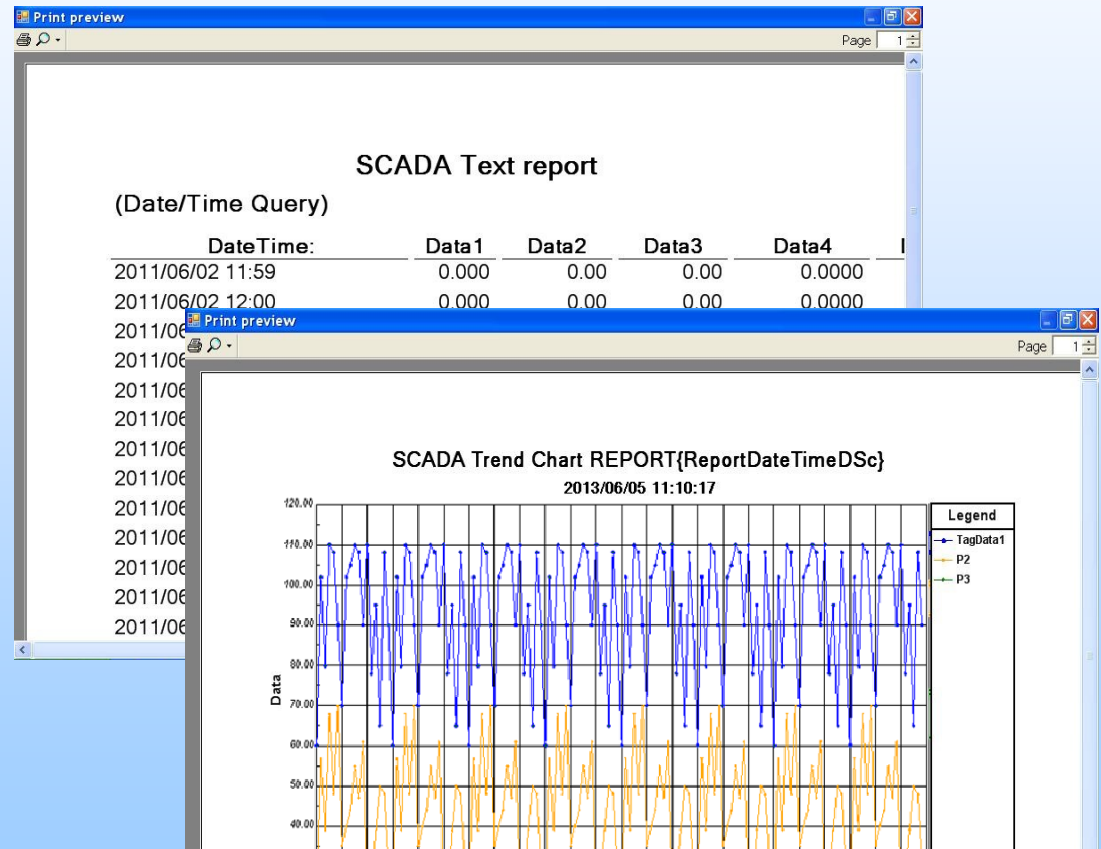
- Access
- SQL Server
- Oracle

□ Query types

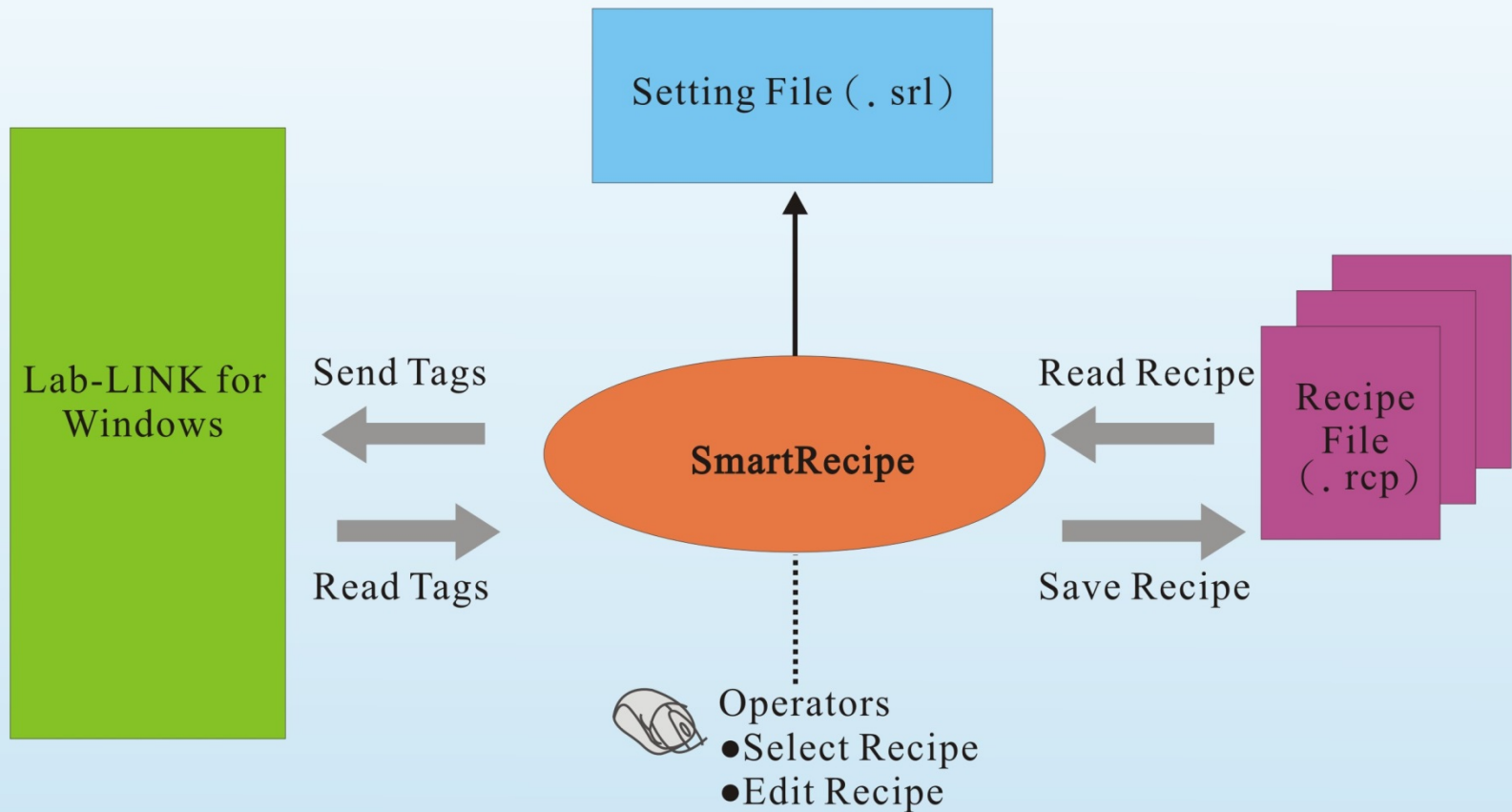
- Date/Time
- Column
- Condition

□ Report types

- Text report
- Trend chart
- XY Chart



SmartRecipe Recipe Module



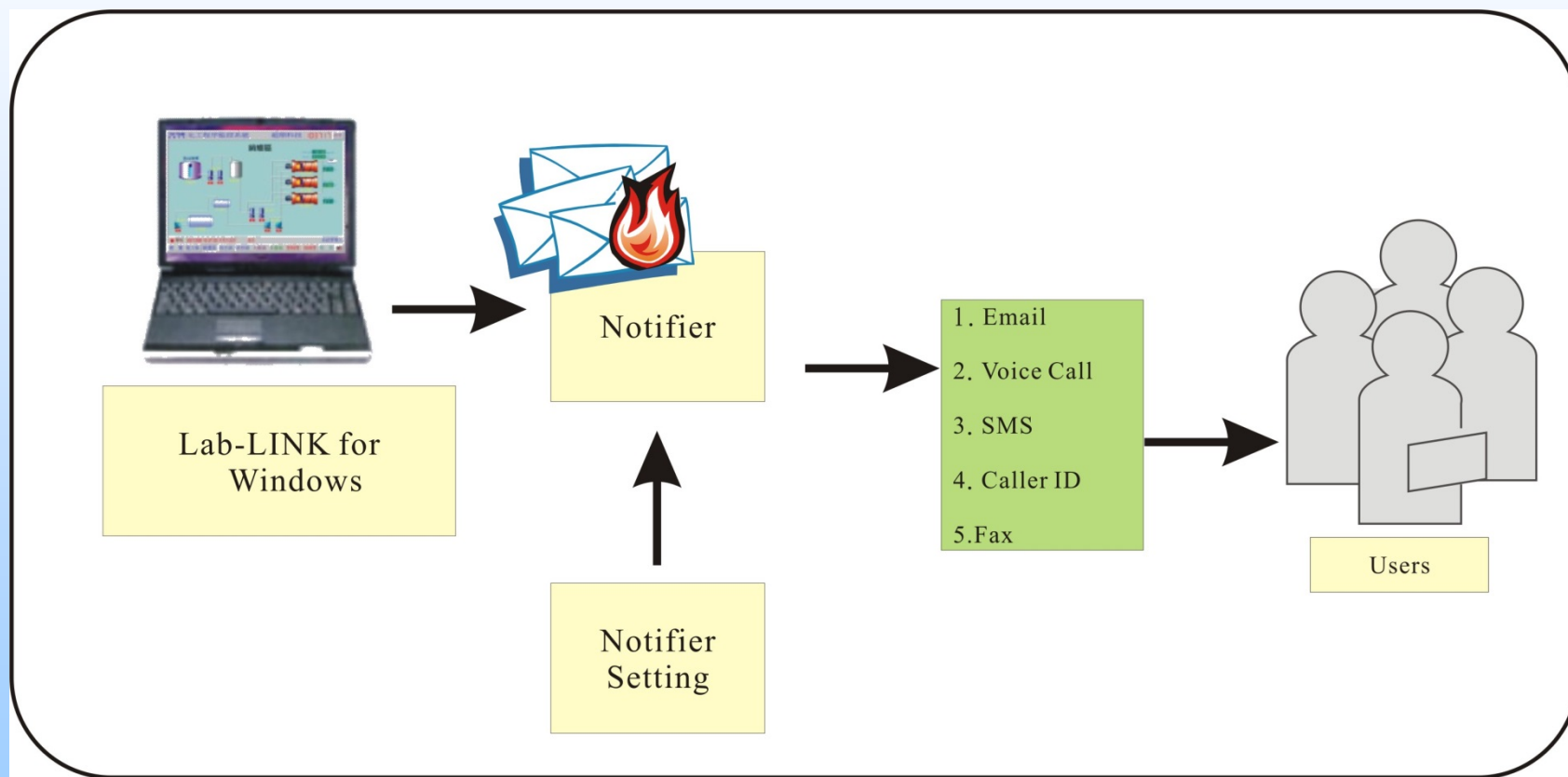


SmartRecipe Recipe Module

- ☐ **Select Recipe Structure**
 - Can use predefined structure name
- ☐ **Select Recipe File**
 - Can use predefined file name
- ☐ **Select Recipe**
 - Can use predefined recipe name
- ☐ **Show recipe content**
 - Operator can examine recipe content before downloading
 - Recipe content can be hidden
- ☐ **Edit recipe on-line**
 - Can edit and store recipe parameter
 - Real time tag data can be uploaded and store as a recipe
 - on-line editing can be prohibited



NotifierPro Alarm Notification Module

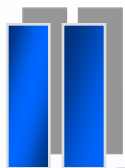




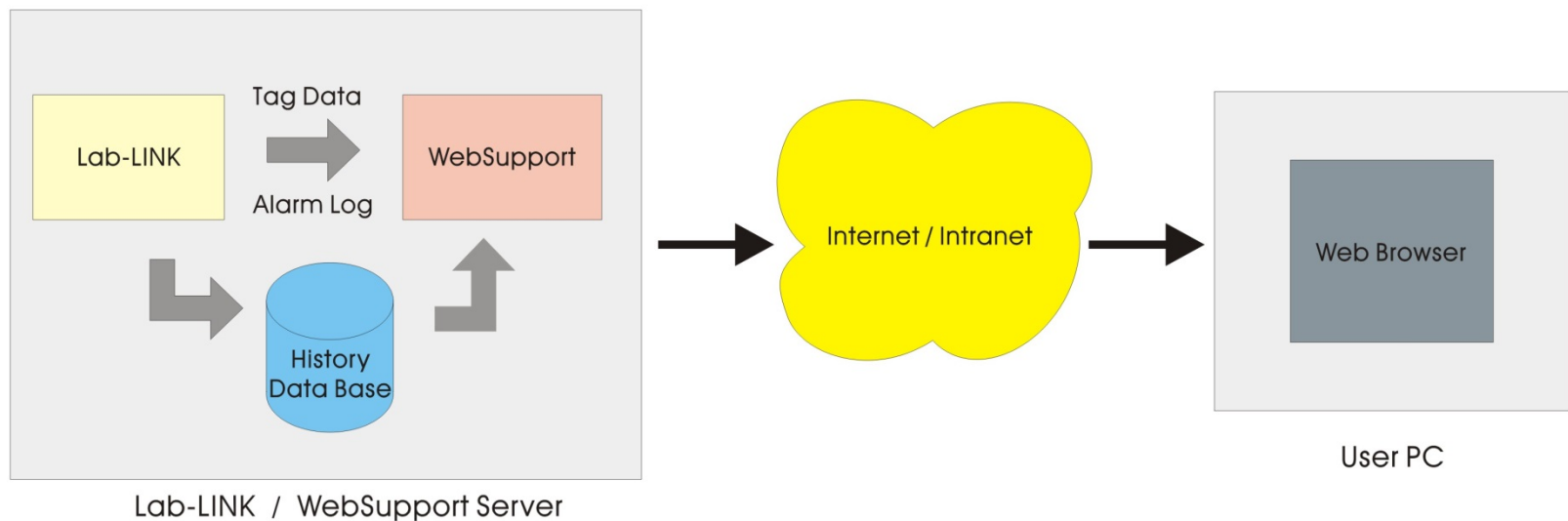
NotifierPro Alarm Notification Module

- ❑ Notification can be sent to different users based on alarm group.
- ❑ Notification can be sent in sequence based on occurrence time or alarm priority
- ❑ Notification can filtered based on occurrence time or group to cancel unnecessary notification
- ❑ Use tree architecture to notify alarm group at a higher or lower layer
- ❑ Can notify different user at different shift time
- ❑ For voice call notification
 - Automatic redial when line is
 - User can acknowledge notification by pressing phone button. Unacknowledged notification will be recalled
 - Can select optional user who will only be dialed if all other calls unacknowledged. ◦





WebSupport Web Tool Module





WebSupport Web Tool Module

- ☐ Built-in web server
- ☐ WebReport: Web report tool
 - Historical Report: Display historical data in text report, trend or X-Y chart
 - Overview Report: Display real time data.
 - Alarm Report: display real time alarm and historical alarm log
- ☐ WebPanel: Browse Lab-LINK graphic panels
 - Select and display Lab-LINK user interface graphic panels to show real time data
- ☐ WebRemoteDesktop: Remote desktop tool
 - Control Lab-LINK computer remotely



SCADAPanel App for iOS

- ❑ Download from Apple App Store
- ❑ Can be used on all iOS platforms including iPod、iPhone and iPad
- ❑ Browse Lab-LINK graphic panels ◦
- ❑ View Lab-LINK Web Reports

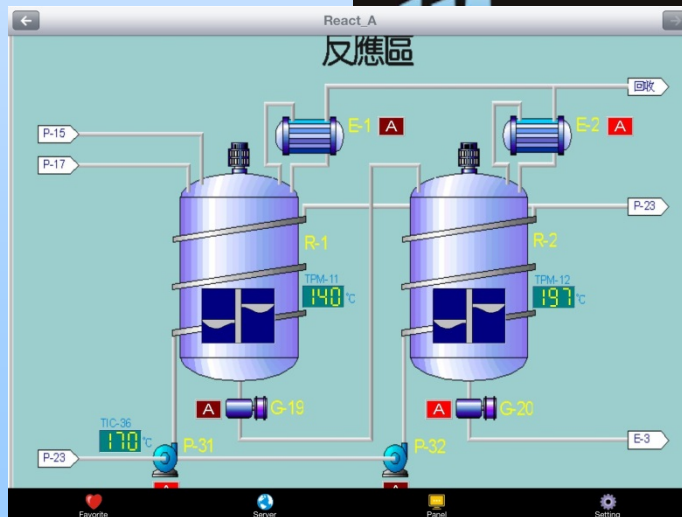
Select a server to connect Edit server Save

Name:	Demo
IP address:	211.21.100.173
Port:	80
User name:	supervisor

Done

Overview Elec

topteam.com.tw





Lab-LINK Licenses

- Developer
 - The most complete edition including developer and runtime functions
 - Used in standalone and network project development
- Runtime
 - Runtime Standalone)
 - Runtime Server
 - Runtime Client
- Lite
 - Used for developing and running standalone project of low I/O Tags



Developer License

System Integrators
(Designers)



Developer
License

System Owners
(Operators)



Runtime
License



PLC、
Controllers,
IO Devices...

- Developer License include developing and runtime function for standalone and network application.
- Purchased by system integrator for designing and testing SCADA application.
- After the design of a SCADA project, a runtime license should be purchased and transferred to the system owner.
- Can be used as network server and client at runtime.

Runtime License

Standalone

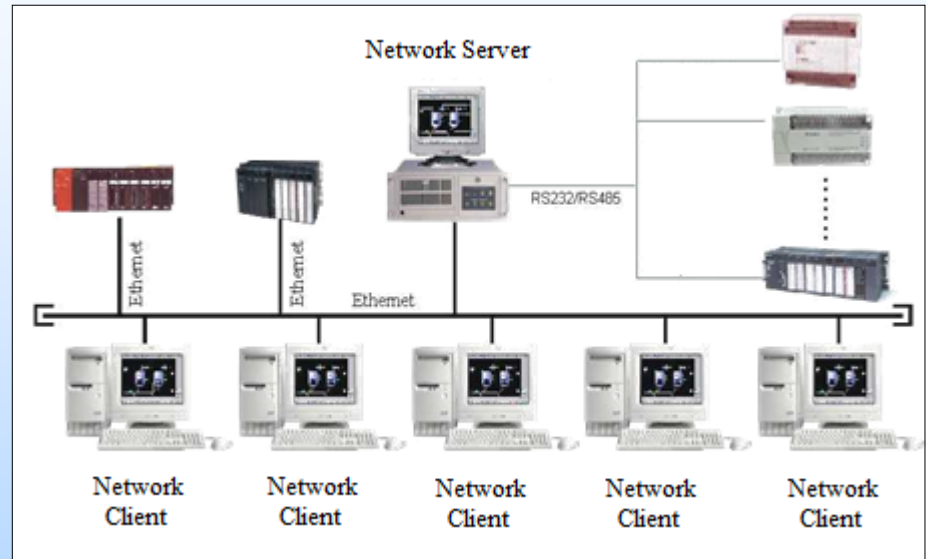


- Runtime license is only used for running a Lab-LINK project, no developing function included.

• Runtime licenses:

- ❑ Standalone: Single PC application, can connect with IO devices, but not other PC.
- ❑ Network Server: Networked application, can connect with IO devices, and share real time data with other Lab-LINK PC.
- ❑ Network Client: Network application, cannot connect with IO device, but can connect to a Lab-LINK Server PC to access its real time data.

Network Server/Client



Lite License

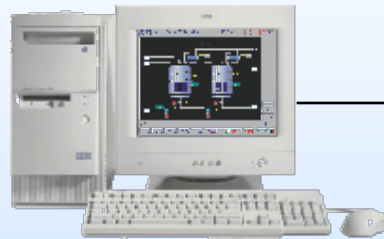
System Integrators
(Designers)



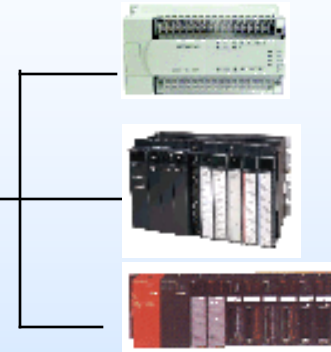
Developer
License



System Owners
(Operators)



Runtime
License



PLC 、 Controllers,
IO Devices...

- Lite License include developing and runtime function for standalone application with low I/O Tags.
- Purchased by system integrator for designing and testing SCADA application.
- Transfer to the system owner after the design of a SCADA project.
- Can only be used as network client at runtime.

License I/O Limits

Developer

I/O Capacity
512 I/O Tag
1024 I/O Tag
2048 I/O Tag
4096 I/O Tag
Unlimited I/O Tag

Runtime Standalone

I/O Capacity
64 I/O Tag
256 I/O Tag
512 I/O Tag
1024 I/O Tag
2048 I/O Tag
4096 I/O Tag
Unlimited I/O Tag

Runtime Network Server

I/O Capacity	Users
64 I/O Tag	2 User 5 User 10 User 20 User
256 I/O Tag	
512 I/O Tag	
1024 I/O Tag	
2048 I/O Tag	
4096 I/O Tag	
Unlimited I/O Tag	

Lite

I/O Capacity
64 I/O Tag
100 I/O Tag
200 I/O Tag
500 I/O Tag

Runtime Network Server

I/O Capacity
None

* User: Concurrent clients connected to the server

License IO Limits

- License based on IO Tag used
 - Suitable for applications of various sizes.
 - Buy only what you use.
- I/O Limits
 - Either an analog or a digital IO used is counted as an I/O Tag.
 - Only IO needed to be read or written by Lab-LINK are counted.
 - Ex: For a PLC with 200 physical IO points, a license of 50 IO Tags is needed if only 50 of the IO points needed to be used by Lab-LINK.

- No Limit on
 - Panel numbers
 - Object numbers
 - Internal Tag numbers

