

Release note for V1.6

New Components

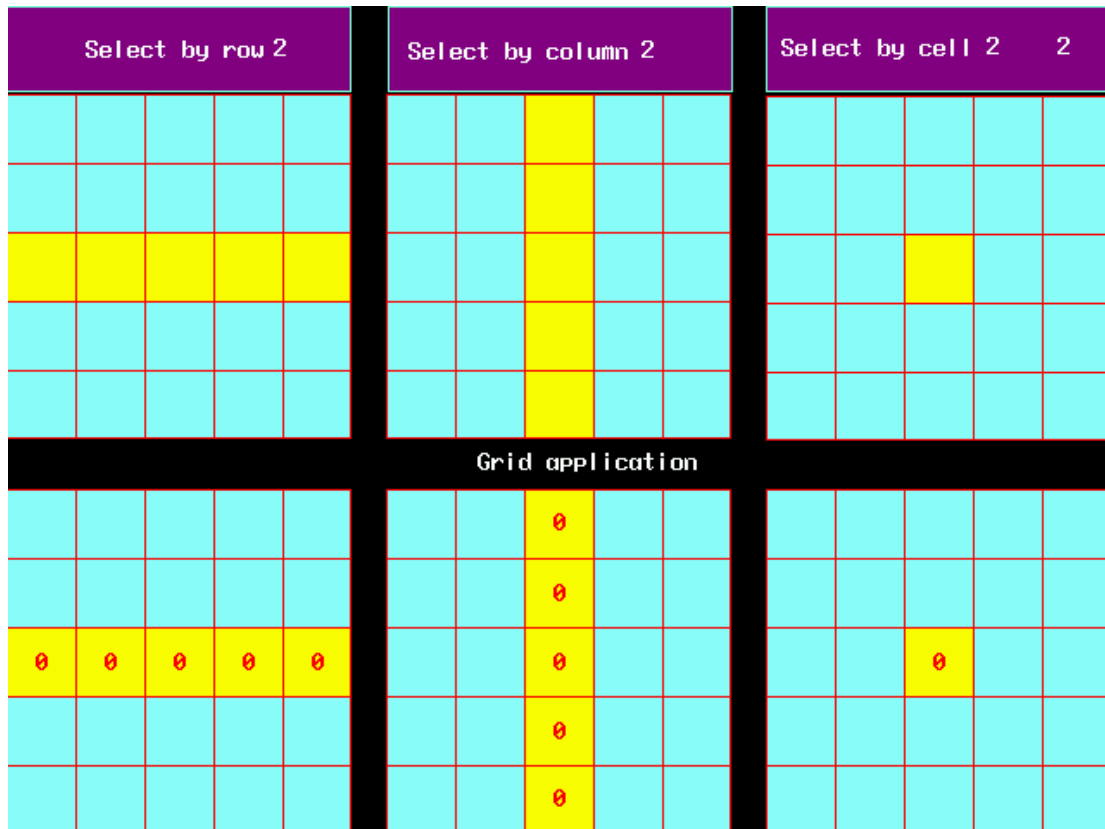
1. Grid

Grid can be used to select by row, column and cell. The user can set some parameters of the grid such as the amount of row and column, the selected color, background color, border color and so on. When you select one of the cell, it will send the row number and column number of the cell to the specified registers.

Relevant attributes are as following:

Selection method	Select by row	Select by column	Select by cell
Register corresponding to row	First address	—	First address
Register corresponding to column	—	First address	First address+1
The amount of registers needed	1	1	2

The simulation effect of grid is as following figure:



The grid component can be used together with number input component and macro to achieve to control the display condition.

2. Operation Log

Operation Log is used to record the operation what the user do on the HMI and save it in the external memory(USB disk or SD Card).

Note Operation Log can be only used in the HMI which support USB HOST or SD CARD.

1)Attributes of Operation Log component

1. Basic Attributes

Operation Report Component Attribute

Basic Attributes | Table Display Attributes | Display Setting

Priority: Normal

Read address

HMI: HM10 | PLC No.: []

Port: None

Change Station Num: 0

Addr. Type: LW

Address: 0 System register

Code Type: BIN | Word Length: 2

Format(Range): DDDDD (0-10255)

Use Address Tag

Use the index register

HM10:LW:0 <<

Write Address

HMI: HM10 | PLC No.: []

Port: None

Change Station Num: 0

Addr. Type: LB

Address: 0 System register

Code Type: BIN | Word Length: []

Use Address Tag

Use the index register

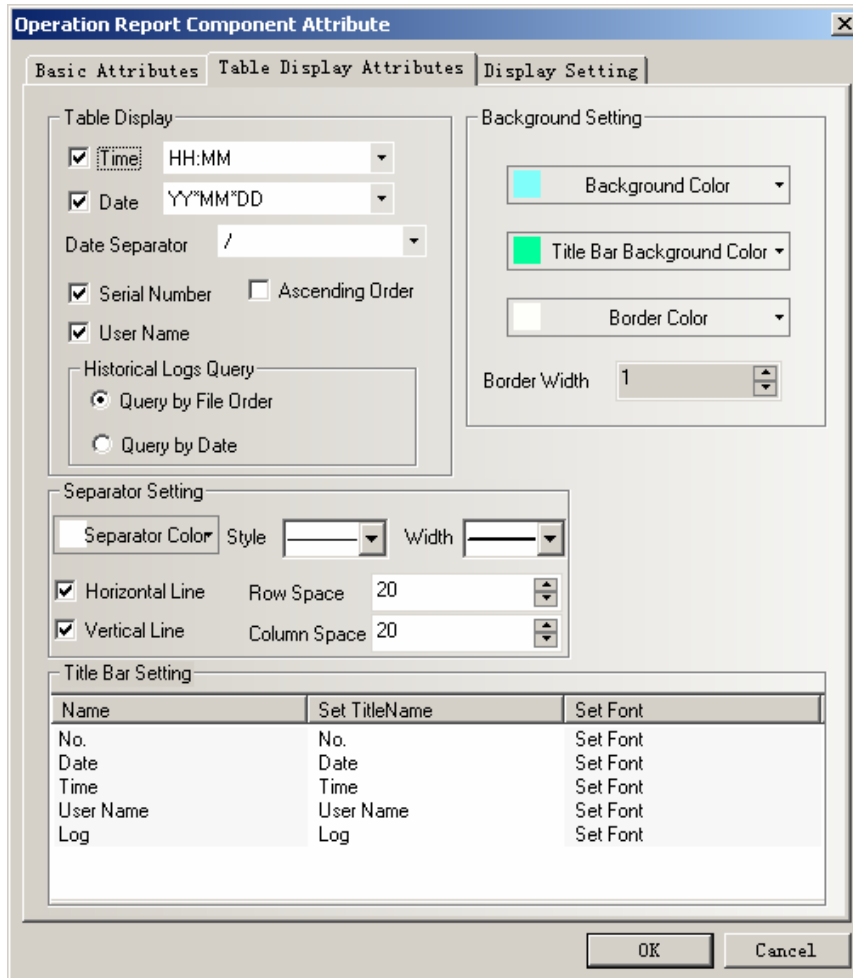
Description: []

OK Cancel

Address: The first address of Operation Log

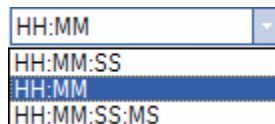
Word Length: Default value is 2.

2. Table Display Attributes

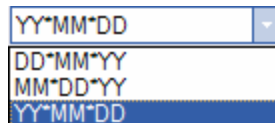


◆ **Table Display**

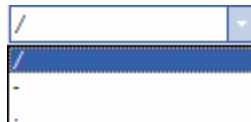
Time: Time display format in table.



Date: Date display format in table.



Date Separator: Display separator for date.



Serial Number: Display serial number in table.

User Name: Display user name in table. ※

Ascending Order: Operation log display in time ascending order. Tick it indicate displaying in time ascending order. Cancel it indicate displaying by descending order.

◆ **Historical Order Query**

Query by File Order: Query address is the same as the address in basic attribute.

Word length is 2.

Enter 0 indicate what you query is today's or the latest day's operation log, enter 1 indicate what you query is forth day's operation log and so forth.

Query by Date : Query address is the same as the address in basic attribute. Word length is 2.

Enter date format is YYYYMMDD,to query the day's operation log.

◆Background Setting

Background Color: Set table's background color.

Title Bar Background Color: Setting the background color of table's title bar

Border Color: Set table's border color.

Border Width: Set table's border width.

◆Separator Setting

Separator Color: Set table's separator color.

Style: Set table's list separator style.



Width: Set table's list separator width.



Horizontal Line: Display horizontal line in table list. Tick it indicates display.

Vertical Line: Display vertical line in table list. Tick it indicates display.

Row Space: The space between two horizontal separator lines in the table list.

Column Space: The space between two vertical separator lines in the table list.

◆Title Bar Setting

Name: Name in table list option,including No.,Time,Date,User Name and Log.

Set Title Name: Used to set the list option name in the title bar by user-defined.

Set Font: Click "Set Font" to set the font attribute in list option.



Note

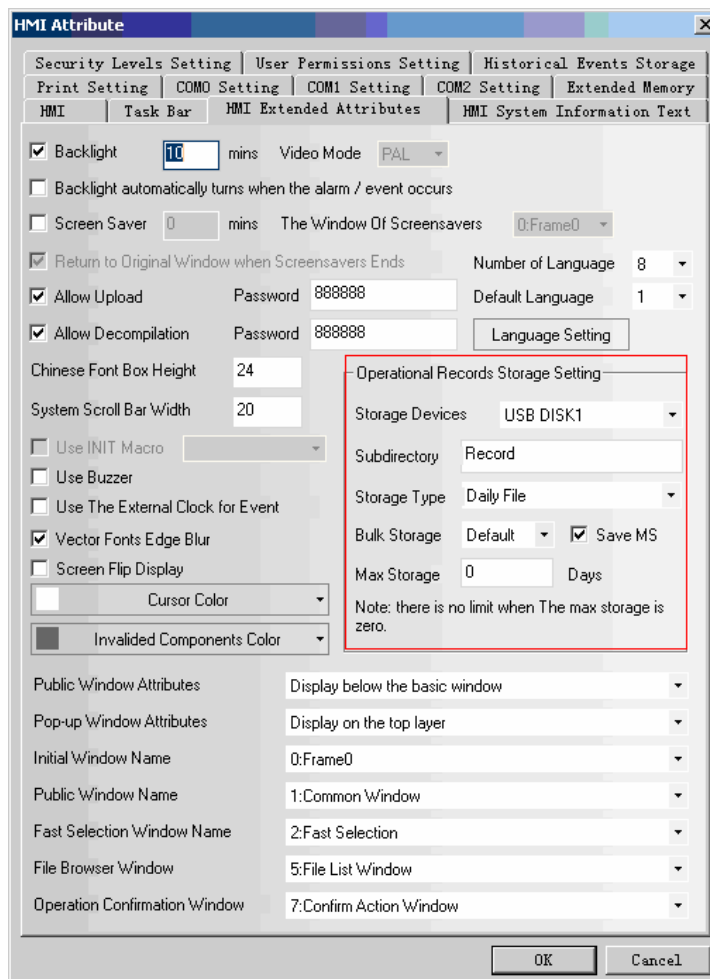
The content of operation log doesn't support vector font and Chinese.

✘When the system uses user permissions, the User Name bar can display the current operator's user name.

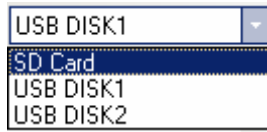
2)How to use Operation Log component

1. Set the Operational Records Storage Setting

Double click HMI attribute, then enter the **HMI Extend Attributes** option, and select **Operational Records Storage Setting**.



Storage Devices: Select expansive memory for operation log storage.



Subdirectory: Folder name where store operation log.

Storage Type: Select whether the operation log save as daily file or single file.

When selecting save as daily file, then the file is named as “yyyymmdd.csv”,and the Max. Storage indicates the maximum csv files in the directory. If the files greater than the maximum,then it will delete the earliest file.When selecting save as single file,then the file is named as “name.csv”,and the Max. Storage indicates the maximum records in the file.If the records equal to the maximum,then it won't storage.(name is the name of subdirectory,yyyymmdd is the operation date.)

Bulk Storage: It is used to set a buffer for storage.It means when the data amount reach the bulk storage,then it will save these data into USB disk or SD Card once.“Default” indicates no buffer,then it will save data as soon as the data appear.

Save MS: Save and display the millisecond value in operation records in the csv file.

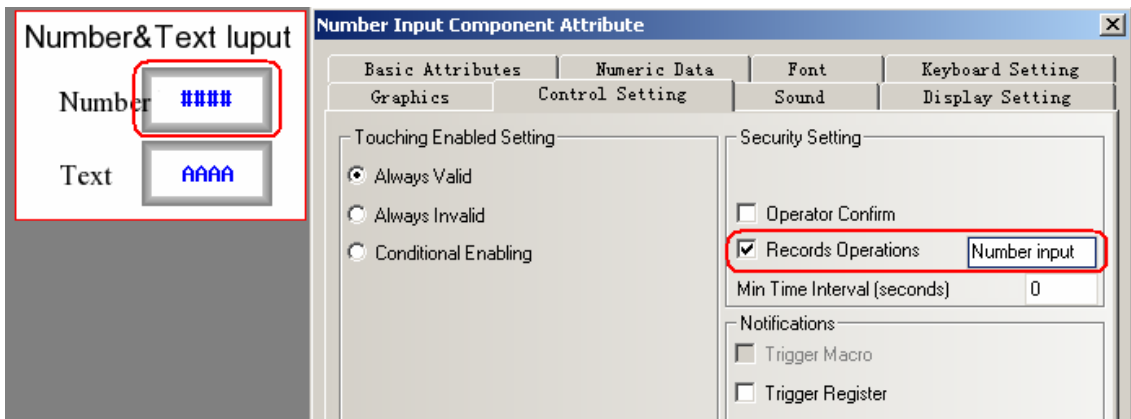
Note

- 1.The route for saving the csv file of operation log is:/log/subdirectory/subdirectory.csv or /log/subdirectory/yyyymmdd.csv.
- 2.If select “Single File”, then it won't storage the records when the storage records reach the maximum.

2. Set **Records Operations** for component.

Double click the component, then open **Control Setting** option in Component Attribute.

Tick **Records Operations** in **Security Setting**, then enter the descriptions of the operation in the text box.



3. Add Operation Log Component.



You can drag the icon from the PLC Parts in Graph element window to the edit window, or click **Components->Operation Log** to add it.

The relevant setting of operation log as following figure.

Operation Report Component Attribute

Basic Attributes | Table Display Attributes | Display Setting

Priority: Normal

Read address

HMI: HMIO | PLC No.: []

Port: None

Change Station Num: 0

Addr. Type: LW

Address: 0 System register

Code Type: BIN | Word Length: 2

Format(Range): DDDDD (0-10255)

Use Address Tag

Use the index register

Write Address

HMI: HMIO | PLC No.: []

Port: None

Change Station Num: 0

Addr. Type: LB

Address: 0 System register

Code Type: BIN | Word Length: []

Use Address Tag

Use the index register

Description: []

OK Cancel

Operation Report Component Attribute

Basic Attributes | Table Display Attributes | Display Setting

Table Display

Time: HH:MM:SS:MS

Date: YY*MM*DD

Date Separator: .

Serial Number Ascending Order

User Name

Historical Logs Query

Query by File Order

Query by Date

Background Setting

Background Color: []

Title Bar Background Color: []

Border Color: []

Border Width: 4

Separator Setting

Separator Color: [] Style: [] Width: []

Horizontal Line Row Space: 22

Vertical Line Column Space: 22

Title Bar Setting

Name	Set TitleName	Set Font
No.	NO.	Set Font
Date	DATE	Set Font
Time	TIME	Set Font
Log	LOG	Set Font

OK Cancel

The effect of configuration image is as follows:

NO.	DATE	TIME	LOG
0	10.08.24	12:46:21:000	##

4. Add query for operation log.

Add a number input component, which use the same address as operation log. Herein we set it as LW0, word length is 2. Other settings are as following figure:

Number Input Component Attribute

Graphics Control Setting Sound Display Setting
Basic Attributes Numeric Data Font Keyboard Setting

Data Type: unsigned int Data Width: DWORD
Integer: 8 Decimal: 0

Max/Min Value Setting
Min: 20000101 Max: 20991231
 Variable Max/Min Value

HMI: HM10 PLC: Use Address Tag
Port: None Change Station Num: 0
Address Type: LW Address: 0
Code Type: BIN Word Length: 4
Format(Range): DDDD (0-10255)

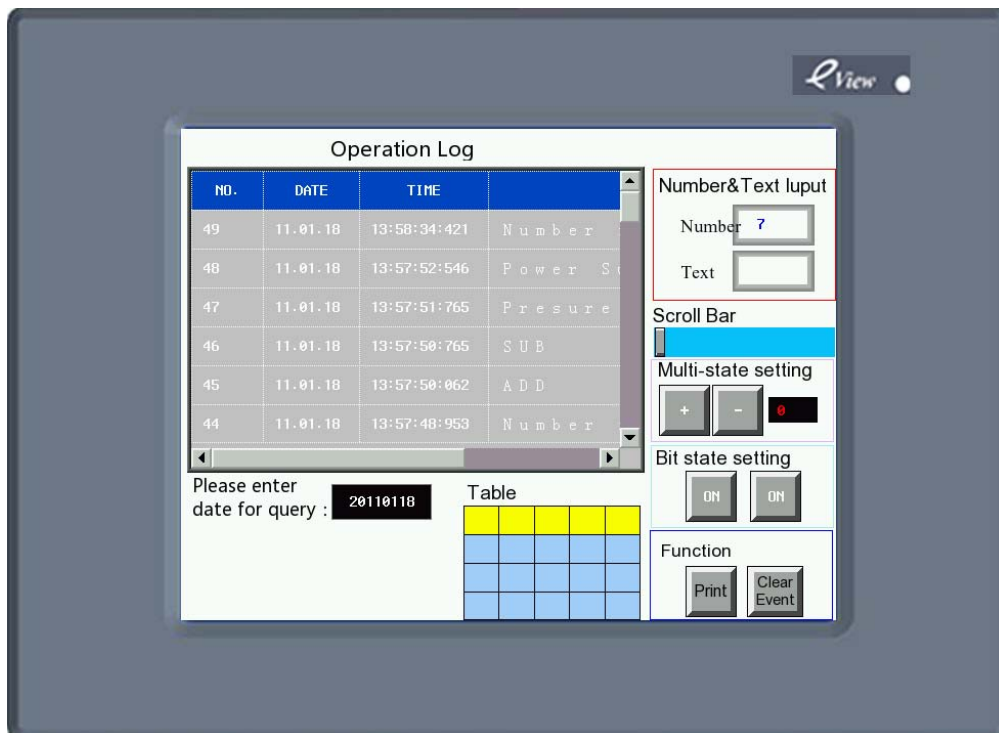
Off Normal Upper
 Color Flash

Off Normal Lower
 Color Flash

Proportion Conversion
Min Value: 0
Max Value: 9999

OK Cancel

Click the number input component to enter current date, then you will see the offline simulation effect as following figure:



3. User Info Display

User info display component must be used together with User Permissions, use separately is invalid. Please refer to the part of **【User Permissions】**.

4. Historical Event Display

Historical Event Display component is used to query the historical event information. It can input the file's sequence no. or date to query.

Note **【Historical Event Display】** component only suitable for the HMI which support USB HOST or SD Card.

1) Historical Event Display Component Attribute

1. Basic Attributes

Historical Events Display Component Attribute

Basic Attributes | **Table Display Attributes** | Display Setting

Priority: Normal

Read address

HMI: HM10 | PLC No.: 0

Port: COM0

Change Station Num: 2

Addr. Type: LW

Address: 0 System register

Code Type: BIN | Word Length: 2

Format(Range): DDDDD (0-10255)

Use Address Tag

Use the index register

Write Address

HMI: HM10 | PLC No.: 0

Port: COM0

Change Station Num: 2

Addr. Type: LB

Address: 0 System register

Code Type: BIN | Word Length:

Use Address Tag

Use the index register

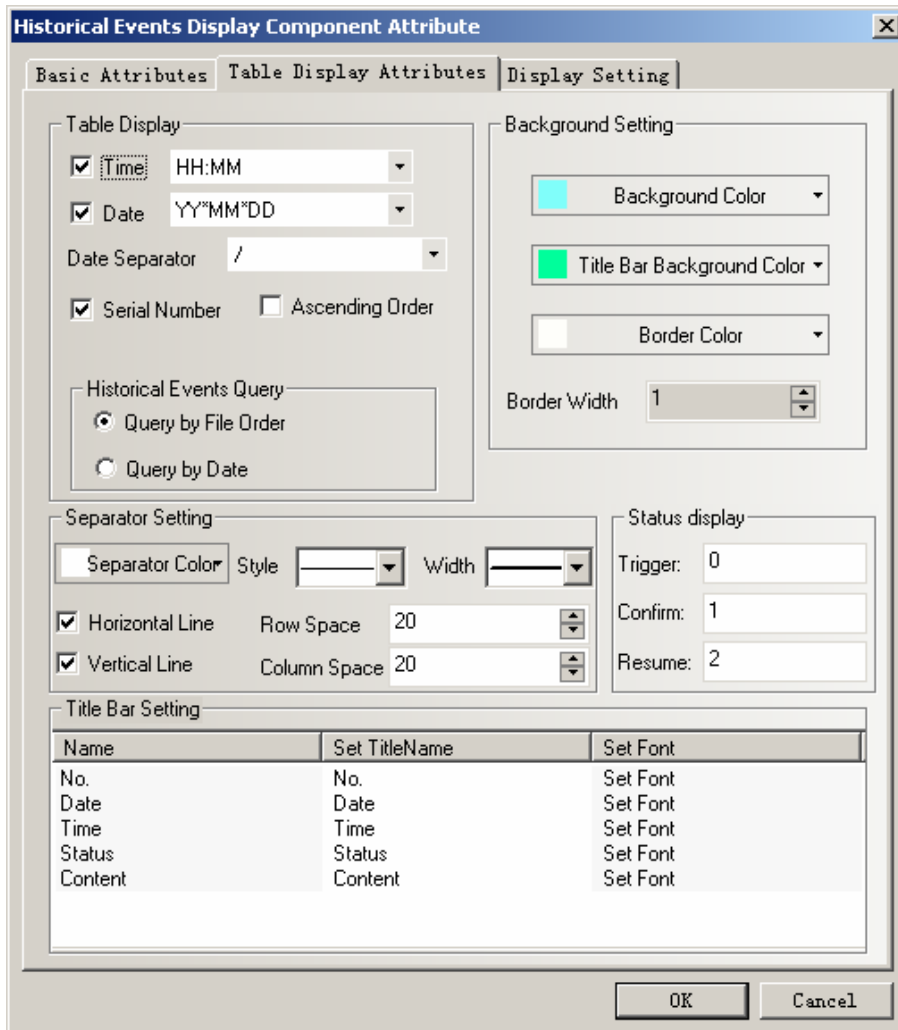
Description:

OK Cancel

Address The first address of historical event display component.

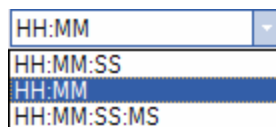
Word Length Default value is 2.

2. Table Display Attributes

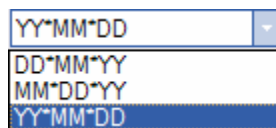


◆ **Table display**

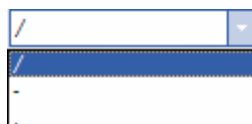
Time: Time display format in table.



Date: Date display format in table.



Date Separator: Display separator for date.



Serial Number: Display serial number in table.

User Name: Display user name in table. ✖

Ascending Order: Historical event display by time ascending order. Tick it indicate displaying by time ascending order. Cancel it indicate displaying by descending order.

◆ **Historical Event Query**

Query by File Order: Query address is the same as the address in basic attribute. Word length

is 2. Enter 0 indicate what you query is today's or the latest day's event information, enter 1

indicate what you query is forth day's event information and so forth.

Query by Date: Query address is the same as the address in basic attribute. Word length is 2.

Enter date format is YYYYMMDD, to query the day's event information.

◆ Background Setting

Background Color: Set table's background color.

Title Bar Background Color: Setting the background color of table's title bar

Border Color: Set table's border color.

Border Width: Set table's border width.

◆ Separator Setting

Separator Color: Set table's separator color.

Style: Set table's list separator style.



Width: Set table's list separator width.



Horizontal Line: Display horizontal line in table list. Tick it indicates display.

Vertical Line: Display vertical line in table list. Tick it indicates display.

Row Space: The space between two horizontal separator lines in the table list.

Column Space: The space between two vertical separator lines in the table list.

◆ Status Display

Trigger: Display the status information which indicates event trigger, it can be edited by custom. Default is 0.

Confirm: Display the status information which indicates event acknowledge, it can be edited by custom. Default is 1.

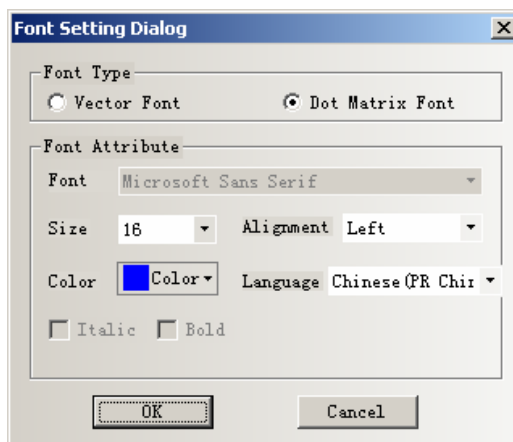
Resume: Display the status information indicates event recovery, it can be edited by custom. Default is 2.

◆ Title Bar Setting

Name: Name in table list option,including No.,Time,Date,Status and Content.

Set Title Name: Used to set the list option name in the title bar by user-defined.

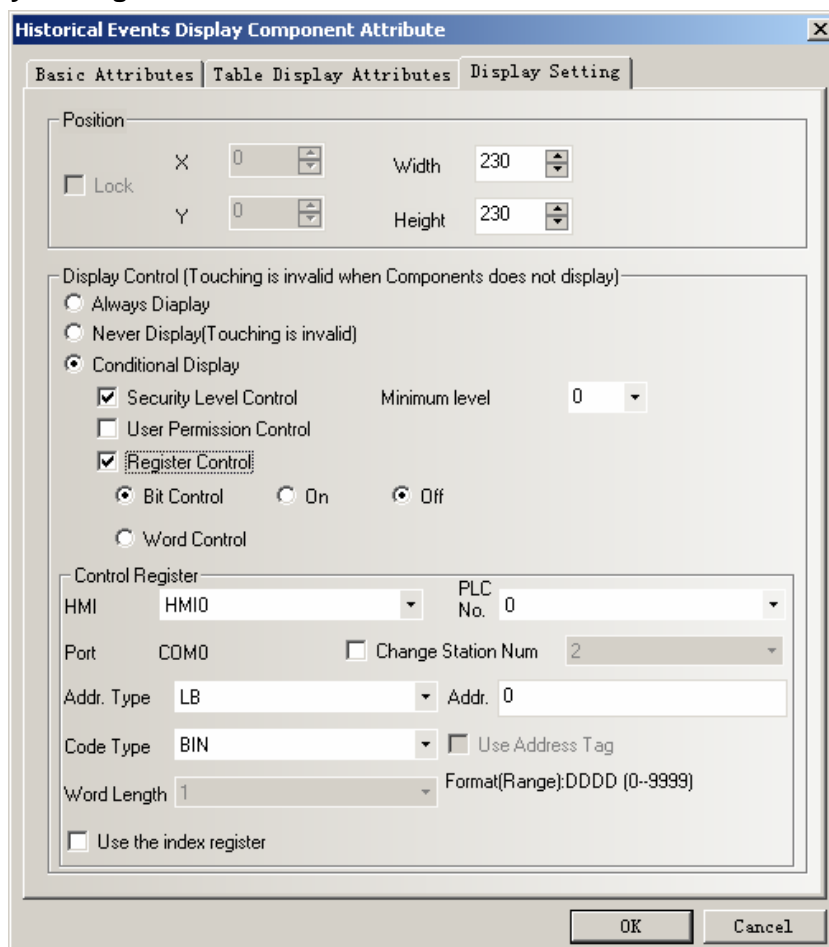
Set Font: Click “Set Font” to set the font attribute in list option.



Note

The content of historical event doesn't support vector font.

3. Display Setting



◆ **Position**

The size and position setting.

◆ Display Control

Display Control	Always Display		Component always display on screen.
	Never Display		Component never display on screen,it will hide all the time.
	Conditional Display	Security Level Control	When the user level is greater than or equal to this level,then the component will display on the screen.
		User Permission Control	When the user permission is equal to this permission,then the component will display.
Register Control		When the register satisfies this condition,then the component will display on the screen.	

2)How to use Historical Event Display component

1. Event Information Logon

Historical Event Display component is the same as Event Display component. The event information which need to display must logon in **Event Information Logon** first

No.	T.	HMI No.	Address Info	HMI...	Address	Trigger	Condition	Content
0	0	0	HMIO:PLCO:2		LW:345		< 0	<0
1	0	0	HMIO:PLCO:2		LW:346		> 0	>0
2	0	0	HMIO:PLCO:2		LW:347		== 1	==1
3	0	0	HMIO:PLCO:2		LW:348		◇ 0	◇0
4	0	0	HMIO:PLCO:2		LW:349		≤ -1	≤-1
5	0	0	HMIO:PLCO:2		LW:350		≥ 1	≥1

2. Historical Event Storage Setting

Because the event information of Historical Event Display component read from the CSV file in the external storage,then it must set the historical event to save in external storage when using the Historical Event Display component.

Double click HMI,open **HMI Attribute>>>Historical Event Storage** option,then tick **Save to External Device**

Storage Devices: Choose the external storage which used to save event information.

Outage Keeping: After HMI restart,it can recover to display the event information before outage.

Export to CSV File: Tick it to save the event information to external storage as CSV

file format.

Subdirectory: Used to name the folder which used to save the historical event information.

Storage Type: Select whether the historical event information save as daily file or single file.

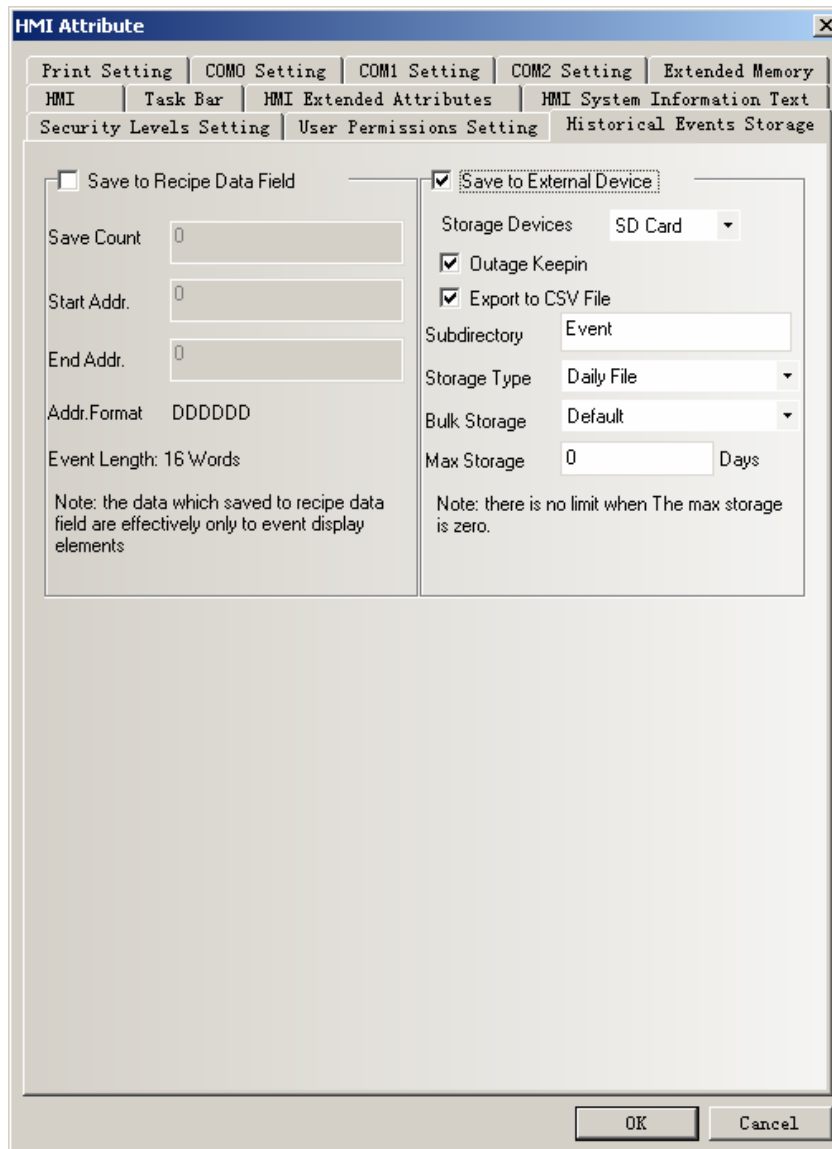
When selecting save as daily file,then the file is named as “yyyymmdd.csv”,and the Max. Storage indicates the maximum csv files in the directory.If the files greater than the maximum,then it will delete the earliest file.When selecting save as single file,then the file is named as “name.csv”,and the Max. Storage indicates the maximum records in the file.If the records equal to the maximum,then it won't storage.(name is the name of subdirectory,yyyymmdd is the operation date.)

Bulk Storage: It is used to set a buffer for storage.It means when the data amount reach the bulk storage,then it will save these data into USB disk or SD Card once.“Default” indicates no buffer,then it will save data as soon as the data appear.

Save MS: Tick it to save and display the millisecond value in historical event information in the csv file.



The route for saving the csv file of historical event information is:
/log/subdirectory/subdirectory.csv or /log/subdirectory/yyyymmdd.csv.



Note

Tick **Save to External Device** option but don't tick **Export to CSV File** option, then it can't query historical event by date or file sequence No..

3. Historical Event Display component setting

For adding Historical Event Display component, the user can click the menu **Component>>>Historical Event Display** or drag the icon of **Historical Event Display** from **Graph element window>>>PLC Parts** to edit window.

Herein we set the address of Historical Event Display component as LW0, word length is 2. Then other attribute setting as follows:

Historical Events Display Component Attribute [X]

Basic Attributes | Table Display Attributes | Display Setting

Priority: Normal

Read address

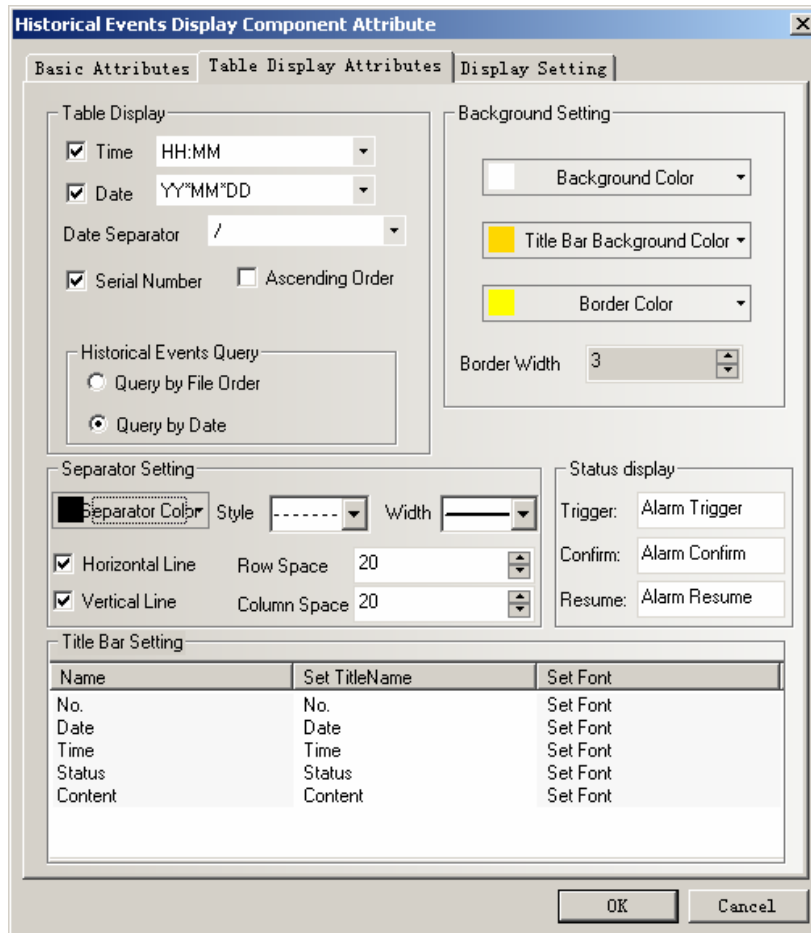
HMI: HM10 PLC No.: 0
Port: COM0
 Change Station Num: 2
Addr. Type: LW
Address: 0 System register
Code Type: BIN Word Length: 2
Format(Range): DDDDD (0-10255)
 Use Address Tag
 Use the index register

Write Address

HMI: HM10 PLC No.: 0
Port: COM0
 Change Station Num: 2
Addr. Type: LB
Address: 0 System register
Code Type: BIN Word Length:
 Use Address Tag
 Use the index register

Description: _____

OK Cancel



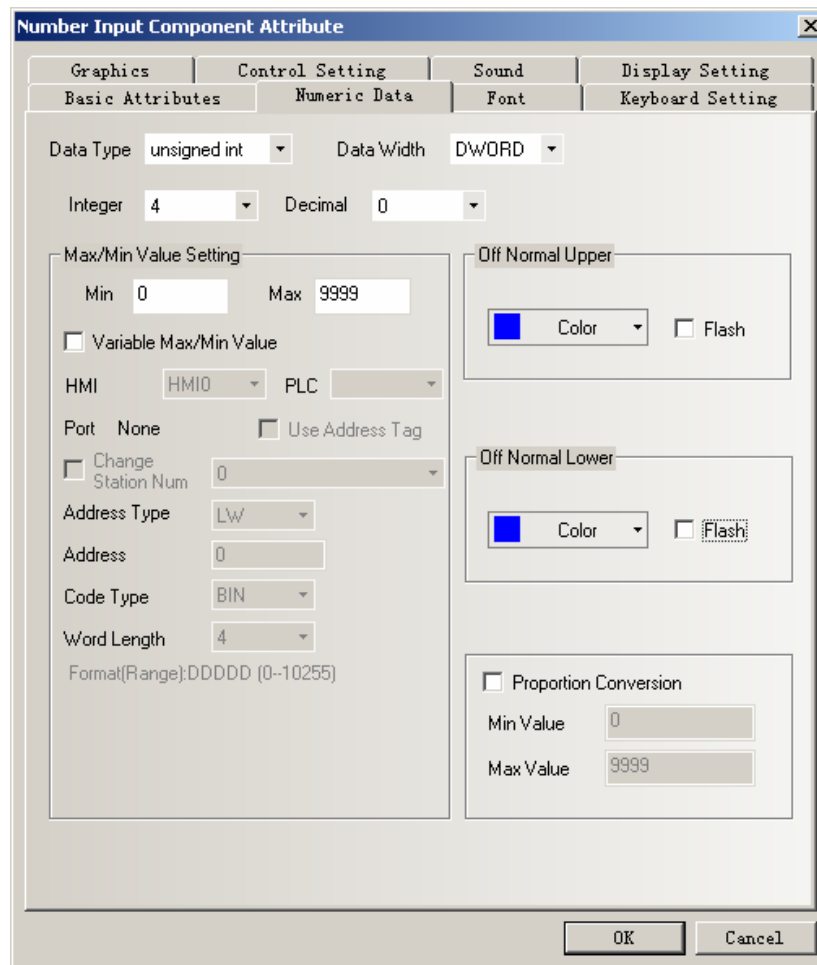
The effect as follows:

No.	Date	Time	Status	Content
0	11/01/19	11:41:47	##	##

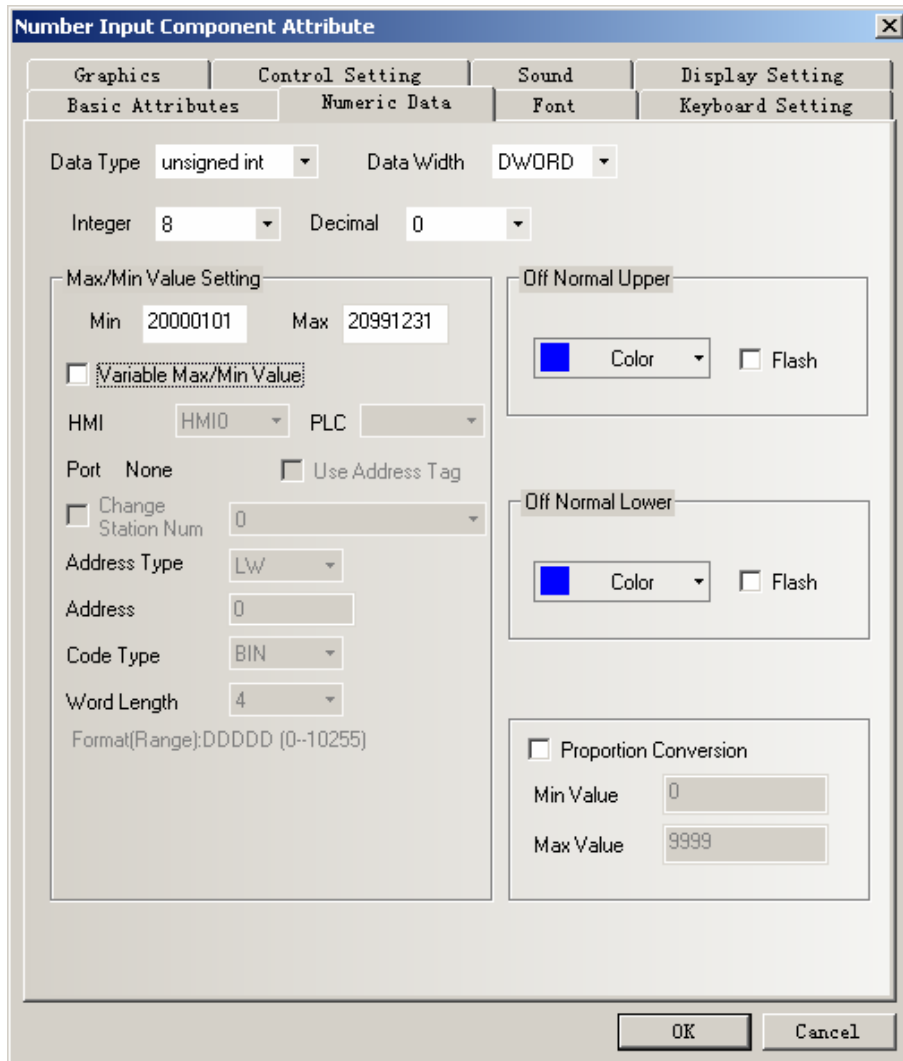
4. Set number input component for historical event query.

Add a number input component with the same address as Historical Event Display component. Herein we set the address as LW0, word length is 2. If select **Query by File**

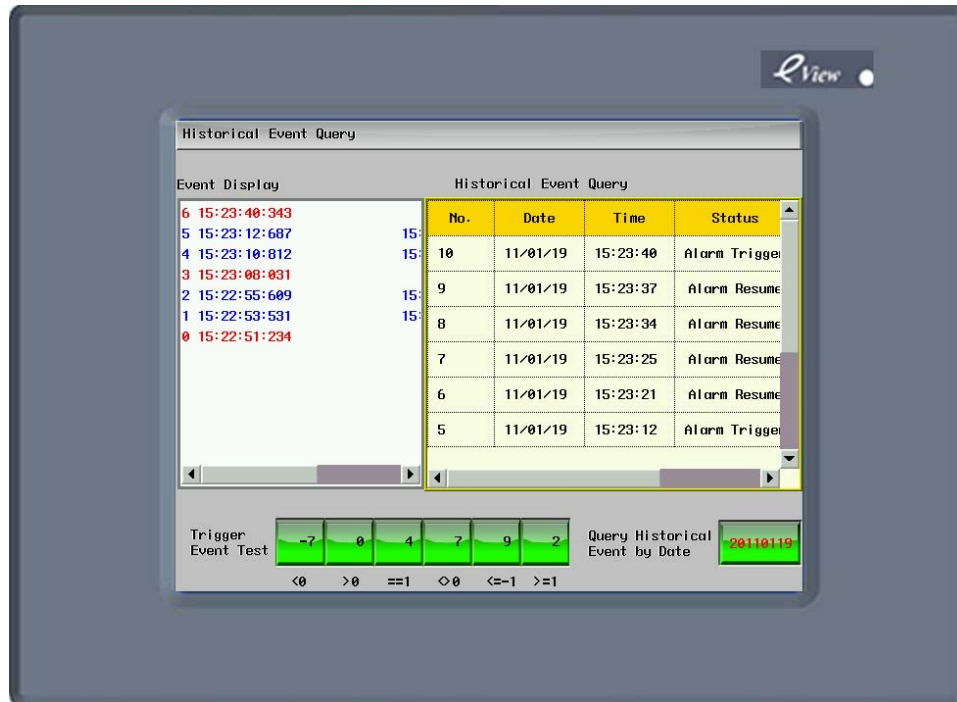
Order in historical event display component, then the attribute of number input component set as follows:



If select **Query by Date** in Historical Event Display component, then the attribute of number input component set as follows:



5. The off-line simulation effect as follows:



3)The difference between Historical Event Display component and Event Display component.

1. Historical Event Display component can query by file order or date and display.

Event Display component can't query by file order or date and display.

2. Historical Event Display component can only read the event information saved in external storage.

Event Display component can read event information saved both in HMI recipe memory and in external storage.

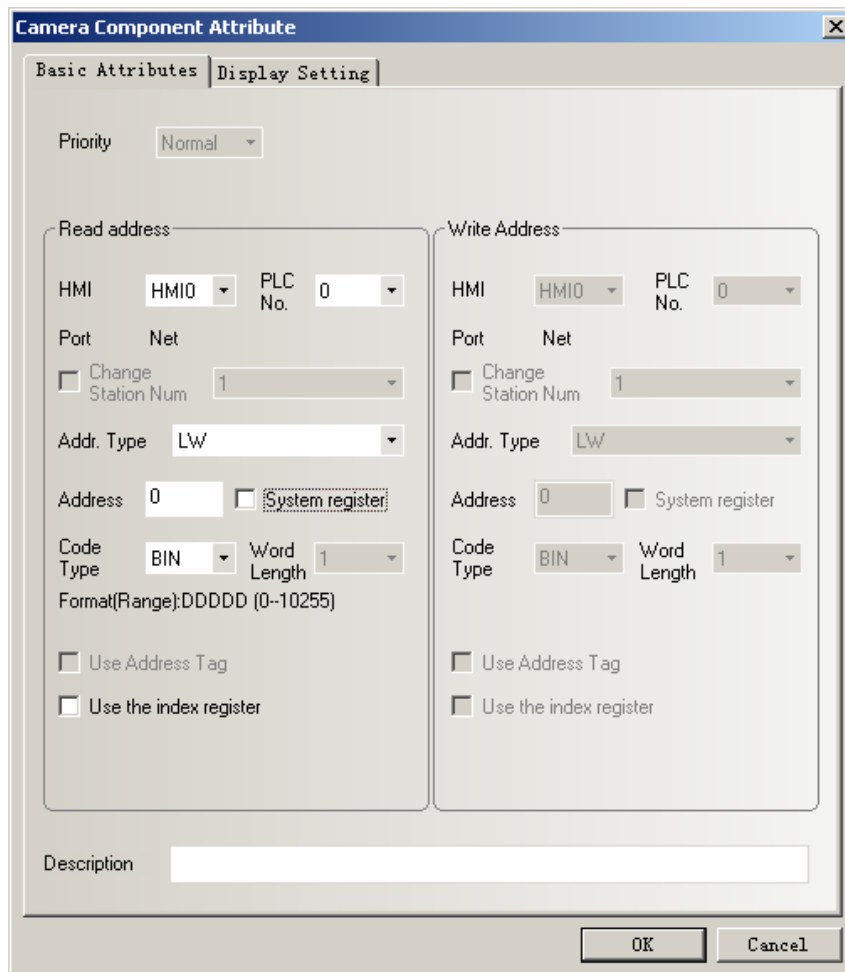
3. Historical Event Display component can't be cleared by using the function **Clear Event** in function key.

Event Display component can be cleared by using the function **Clear Event**

5. Camera

The HMI which supports USB HOST support USB camera.It can use the camera to monitor site.

The attribute of Camera component is as following figure.



For example.

The address of **Camera** component is LW0. When LW0=0, it will close the camera. When LW0=1, it will open the camera which connect to USB HOST 1. When LW0=2, it will open the camera which connect to USB HOST 2.

Note

1. Only the HMI which support USB HOST can support Camera component.
2. When open the camera in one of the USB HOST, then the other camera will close automatically.

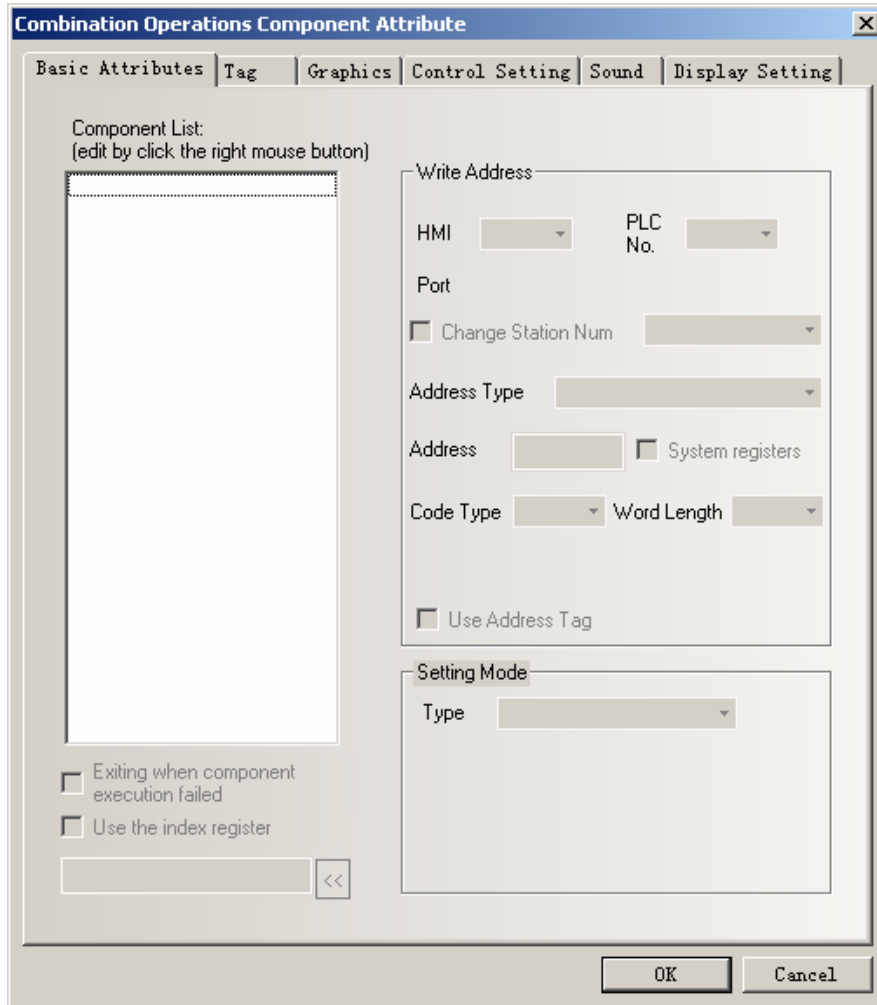


Support most brands of camera in the market.

6. Combination Operations Component

Combination Operations Component is used to combine Bit State Setting component and Multiple State Setting component into one component. It can satisfy the customer who want to use one button to excute bit state setting and multiple state setting functions.

For adding Combination Operations component, the user can click the menu **Components>>>Button/switch>>>Combination Operations** or drag the icon of **Combination Operations** from **Graph element window >>>PLC Parts** to edit window.

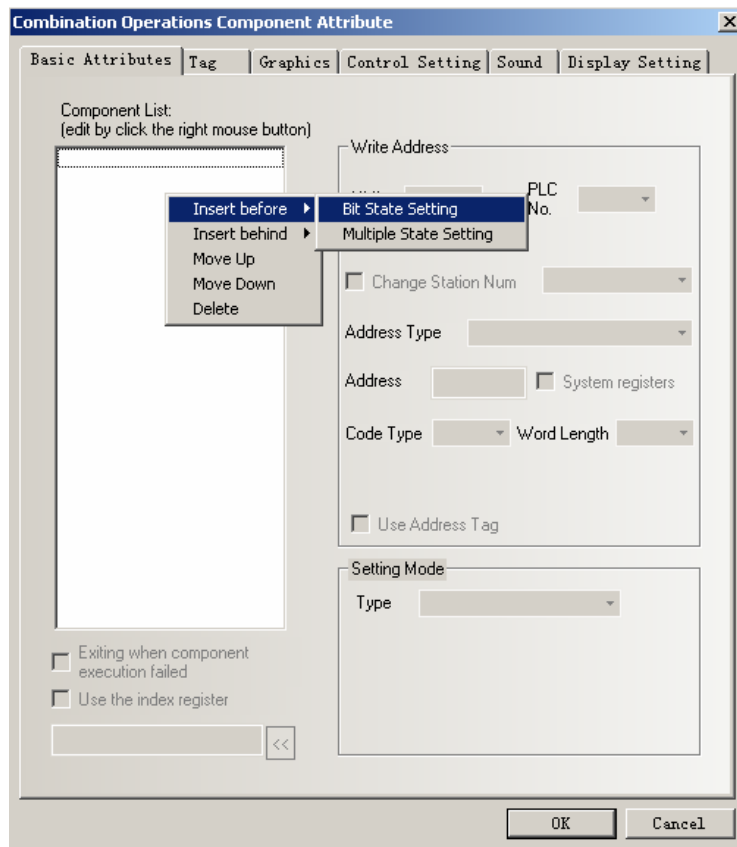


1. Add components

Right click in the blank on the left side of the component attribute to add bit state setting component or multiple state setting component.

1. Before adding components, user can change the component's execution sequence by selecting **Insert Before**, **Insert Behind** in the right-click menu.
2. For the added component, user can change the component's execution sequence by selecting **Move Up**, **Move Down** in the right-click menu.
3. Select **Delete** in the right-click menu to delete the added component.

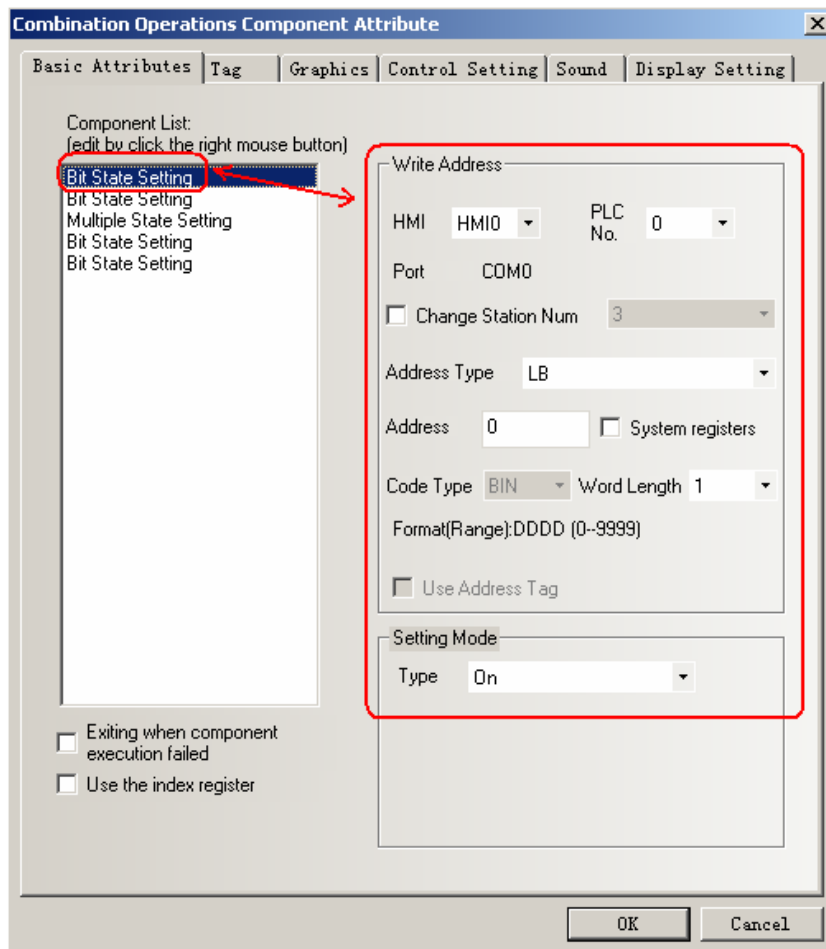


**Note**

It can only add 16 components at most in Combination Operation Component.

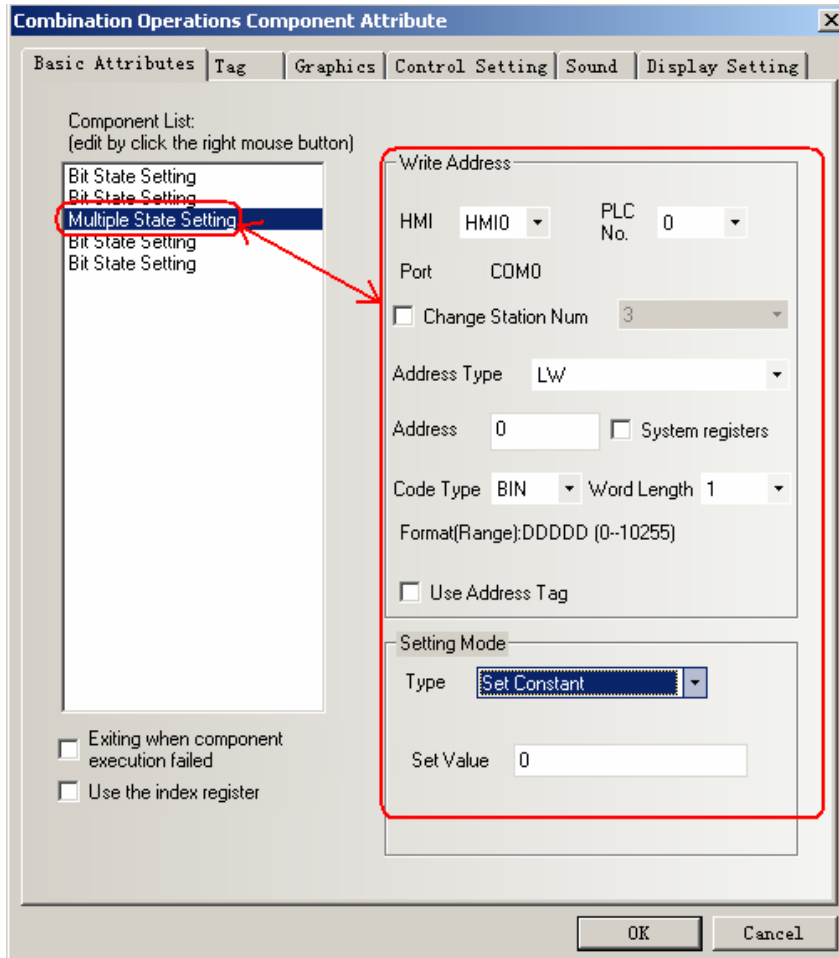
2. Edit component attribute

The attribute of adding component can be edited separately at the right side.

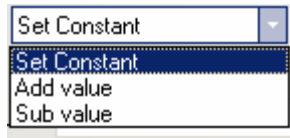


Bit State Setting only support setting mode such as ON,OFF and Toggle.





Multiple State Setting only support type of Set Constant,Add Value and Sub Value.



3. Exiting when component execution failed Option

Tick **Exiting when component execution failed** option indicates that if any component can't execute successfully, then it will finish executing without executing the next component.

Don't tick this option indicates that if any component can't execute successfully, then it can ignore this component and execute the next component.

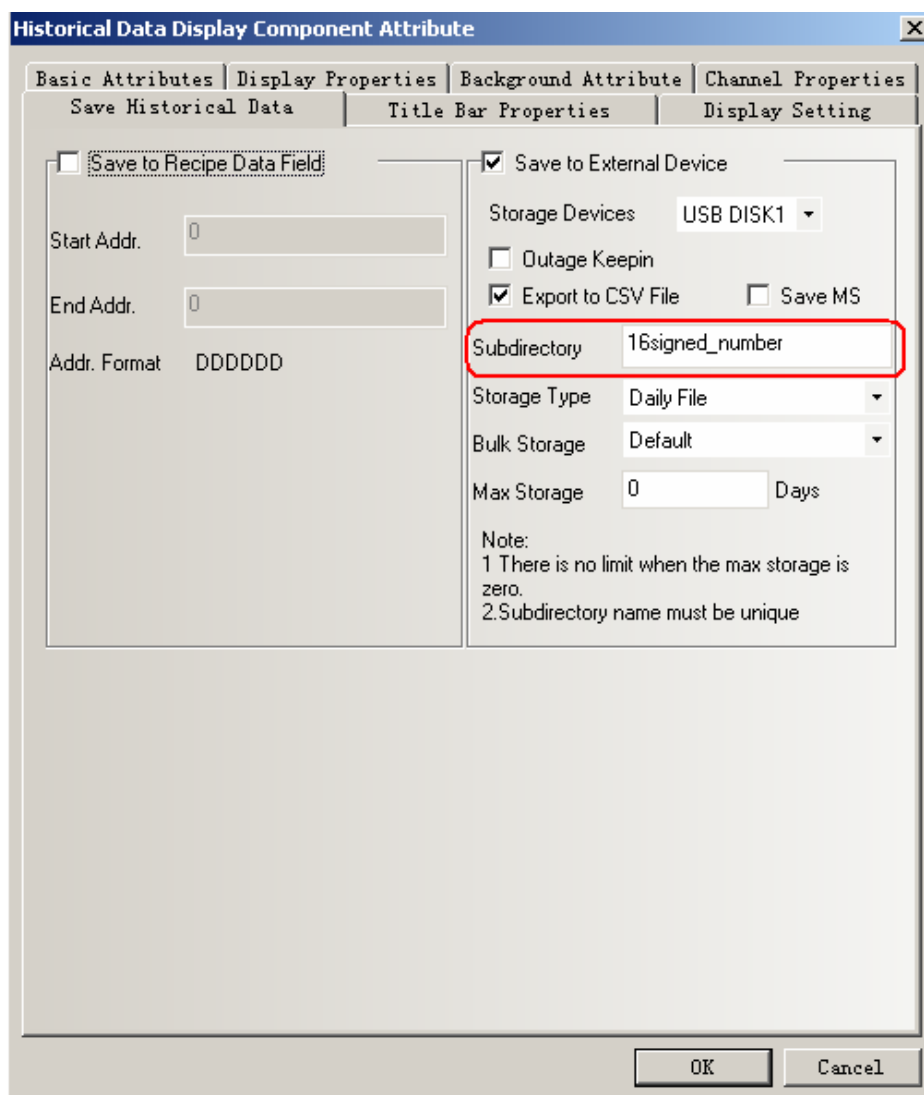
7. Historical Data Display Component

Historical Data Display Component can save the continuous data in internal memory (RW) or external memory (ERW).

Note

1. The sampling data must be continuous. It is only suitable for saving a small amount of continuous data, not suitable for saving a large amount of data.
2. Different Historical Data Display components can't use the same name in

【Subdirectory】 in following figure.



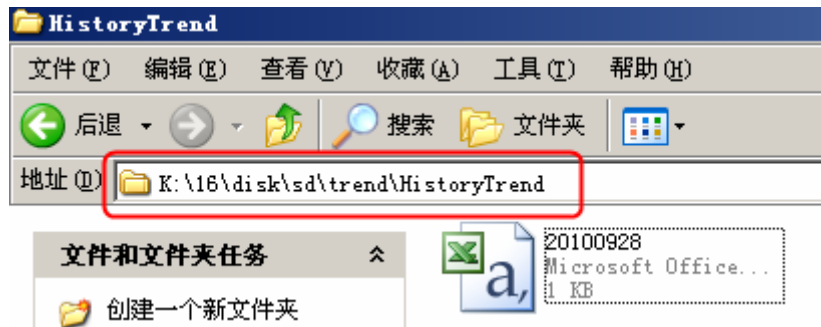
3. Historical Data Display component can use together with Trend Curve, but the sampling address and channels can't be the same, and the subdirectory for saving can't be the same either. When using the Historical Data Display component together with Trend Curve, then it can only save one of them, they can't be save at the same time. If user want to use Historical Data Display component to display the sampling datas of Trend Curve, then you can transfer the PLC's datas to local register (LW) .

4. If user need to save datas for long, and don't mind the interval time for saving datas, then we suggest to set the sampling time long and choose bulk storage.

The route for saving datas in external memory: sd\trend\HistoryTrend

The route for saving datas when off-line simulating: \disk\sd\trend\HistoryTrend

As following figure:



When the data saved in the external device is up to the maximum, then user can clear all the data through system registers.

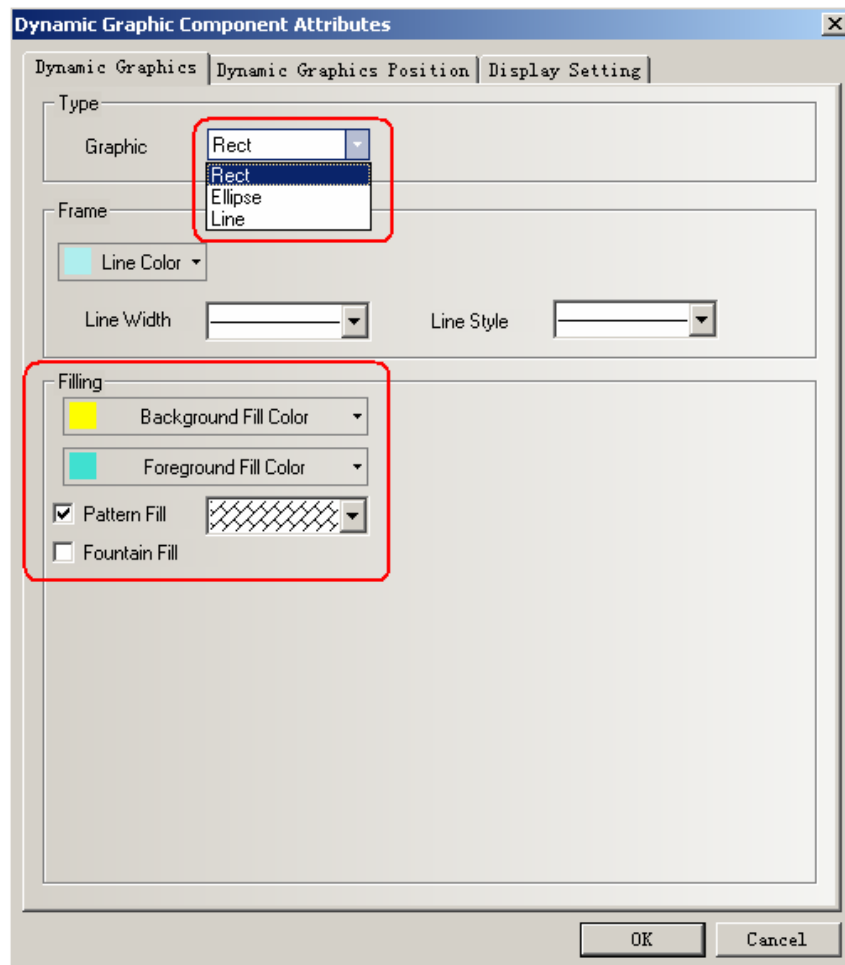
LB9156~9158 is corresponding to SD card, USB1, USB2. When LB9156~9158 set ON, it will clear the files about historical data, historical event, operation record and screen shot and so on. After operation finish, it will set OFF by automatical.

8. Dynamic Graph Component

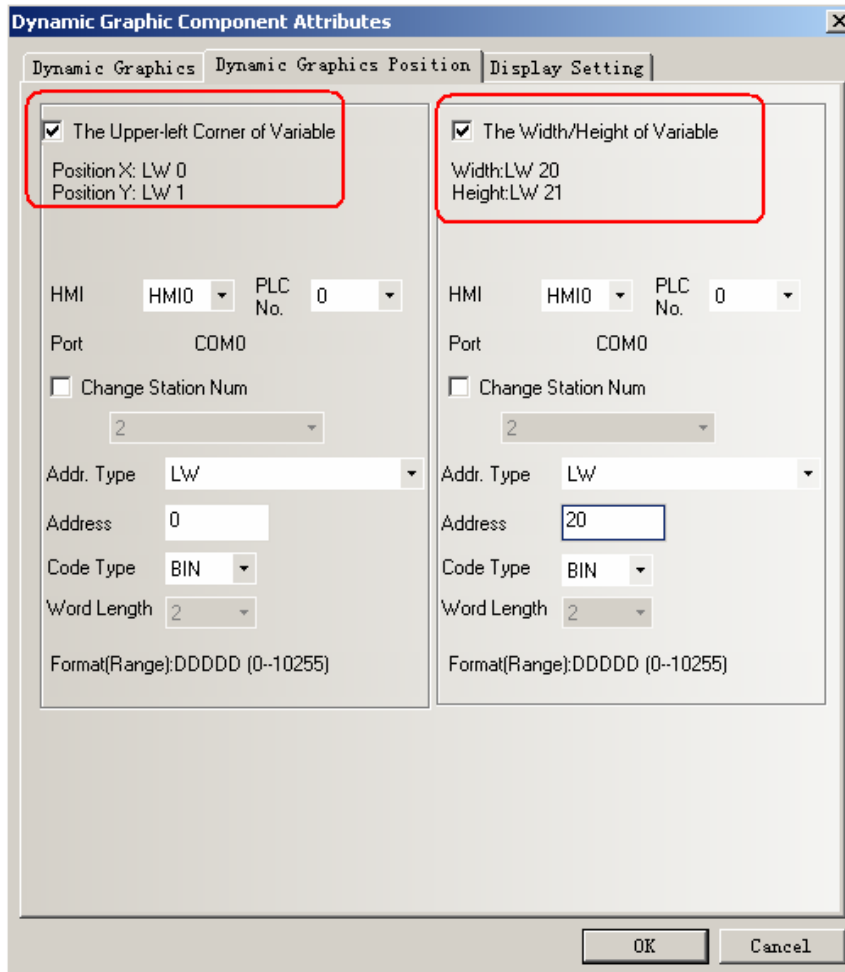
Dynamic Graph Component is used to change the position and size of rectangle, ellipse or straight line by changing the value of the registers.

Dynamic Graph support rectangle, ellipse and straight line. The origin is at the top left corner. Towards the right is to increase the X position, and downwards is to increase the Y position.

The unit of Dynamic Graph Component is pixel.



Dynamic Graph Position Attribute



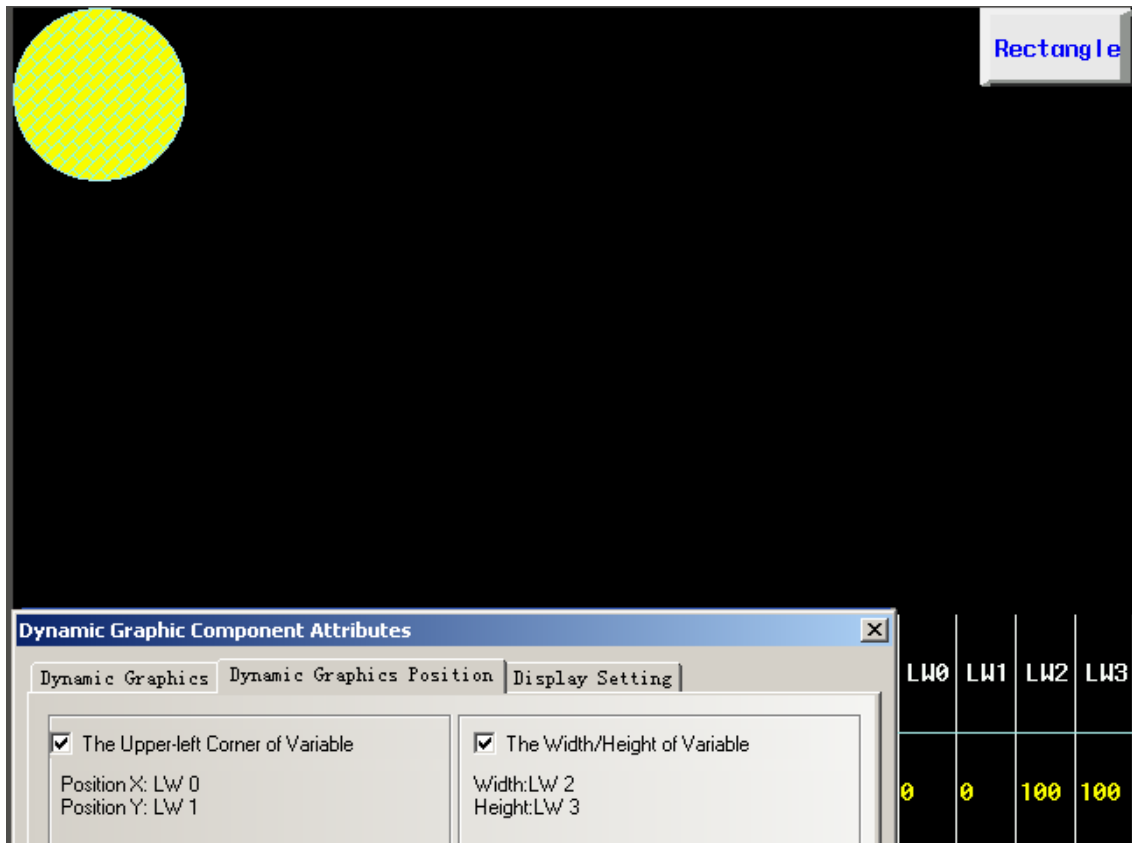
Specific attribute is as following table.

The Upper-left Corner of Variable	Not tick	The X,Y positions of dynamic graph are constant.
	Tick	The X,Y positions of dynamic graph are variable.X position = the first address,Y position = second address
The Widthe/Height of Variable	Not tick	The width/height of dynamic graph are constant.
	Tick	The width/height of dynamic graph are variable. Width = first address, Height = second address.

For example:

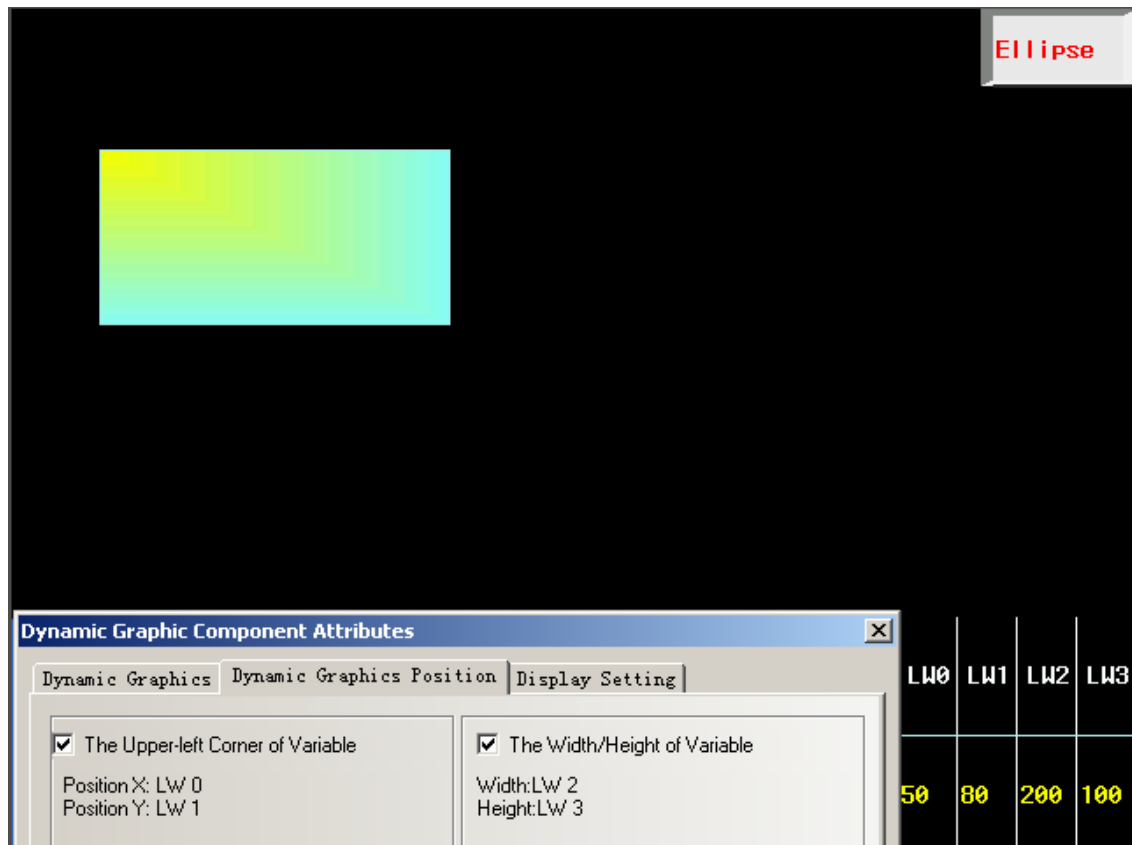
1.Dynamic circle graph,set the address of the upper-left corner of variable as LW0,and set the address of the width/height of variable as LW2.Set LW0=0,LW1=0,LW2=100,LW4=100.

The effect is as following figure:



2. Dynamic circle graph, set the address of the upper-left corner of variable as LW0, and set the address of the width/height of variable as LW2. Set LW0=50, LW1=80, LW2=200, LW4=100.

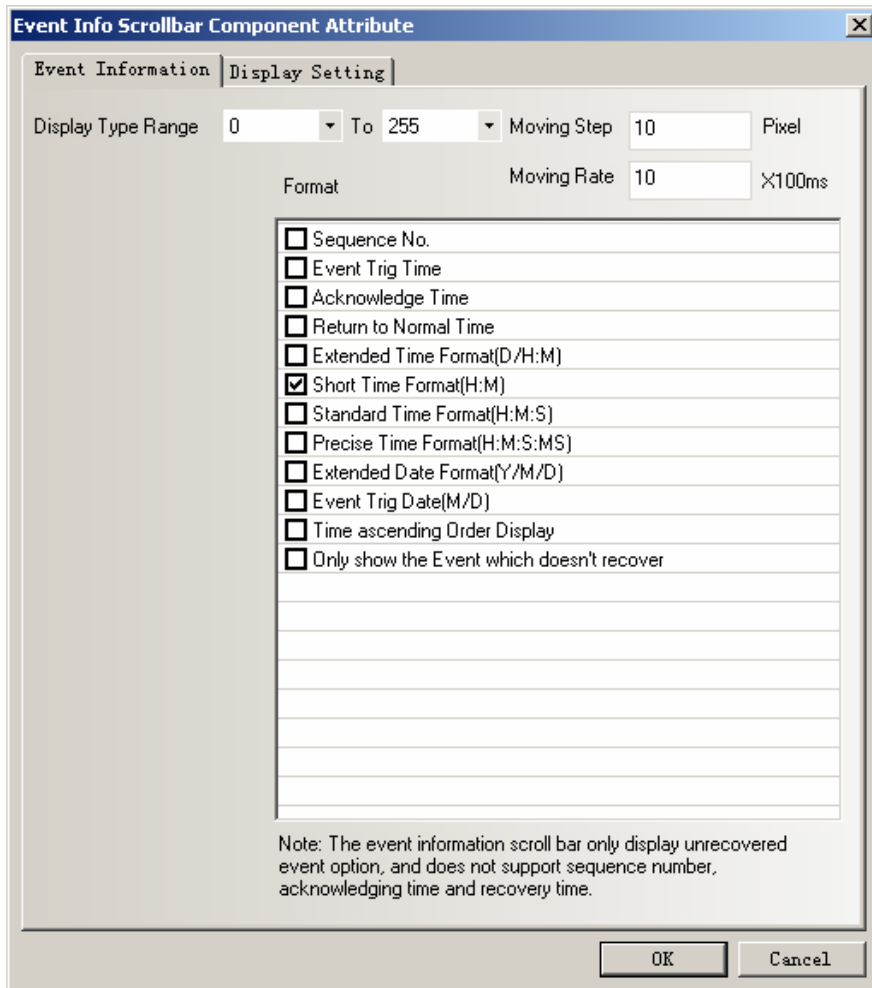
The effect is as following figure:



9. Event Bar

Event Bar component is used to rolling display the current trigger event information.

1.Event Info Scrollbar Component Attribute



Display Type Range: Only display the event information of type among this range.

Moving Step: Every moving step for displaying the event information. Unit is pixel.

Moving Rate: The interval time between two moving steps. Unit is 100ms.

【Format】 The content is as following table.


Format for event information display,all the format information will display before the event information.	
Event Trig Time	The time when event is triggered.
Extended Time Format(D/H:M)	Time format is Day/Hour:Minute
Short Time Format(H:M)	Time format is Hour:Minute
Standard Time Format(H:M:S)	Time format is Hour:Minute:Second
Precise Time Format(H:M:S:MS)	Time format is Hour:Minute:Second:Millisecond
Extended Date Format(Y/M/D)	Date format is Year/Month/Day
Event Trig Date(M/D)	Date format is Month/Day
Time Ascending Order Display	Tick indicates the latest event information display at the back. Not tick indicates the latest event information display in the front.

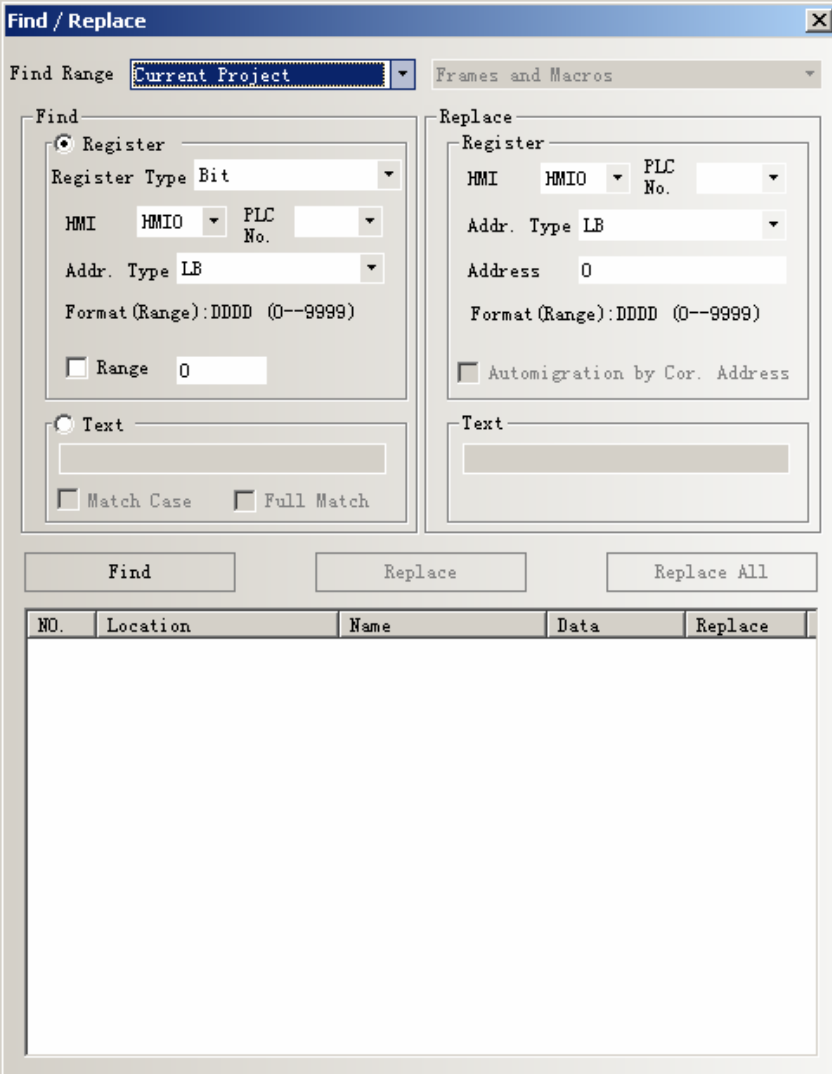
- Note**
- 1.Event Bar doesn't support the such formats as "Sequence No.,""Acknowledge Time","Return to Normal Time" and "Only show the Event which doesn't recover" option.
 - 2.Once the triggered event recover,the event bar won't display this event.

New Function

1. Find/Replace

Find/Replace

Click menu “Edit”->”Find/Replace” or click the icon , then it will popup following dialogue box.



NO.	Location	Name	Data	Replace

Find Range

Indicates the contents needed to find in EV5000, it can be separated into four kinds as following

Description for Find Range		
Find Range	Current Project	Find all the HMI frames, macros, background databases.
	Background Database	Find background database such as event information logon, alarm information logon, trend curve and so on.

	All HMI	Frames and Macros	Find all the frames and macros in current project.
		All Frames	Find all the frames in current project.
		All Macros	Find all the macros in current project.
	Current HMI	Frames and Macros	Find all the frames and macros in current HMI.
		All Frames	Find all the frames in current HMI.
		Current Frame	Find the current frame in current HMI.
		Macros	Find all the macros in current HMI.

Find

Description for Find Types		
Register	Register Type	Indicate the register type which need to find such as bit address or word address.
	Addr.Type	Indicate the address type and address in the controller which we need to find.Tick "Range" indicate to find in the setting address range.
Text	Not tick "Match Case" and "Full Match" indicates that don't match the letters case and full-text consistent.	
	Match Case	Indicate the text which need to find must match the letters case.
	Full Match	Indicate the text which need to find must match full-text consistent.

Replace

Set address type and address to replace the address type and address which conform to the find condition.

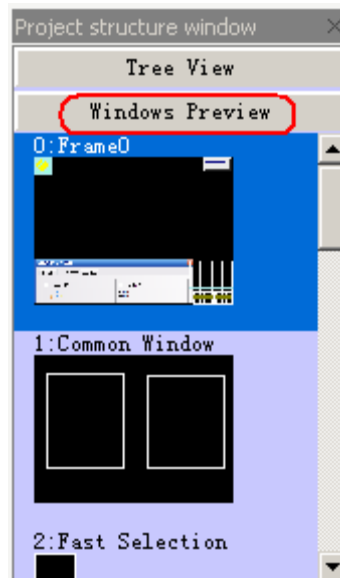
When user tick "Range" in Find,then the "Automigration by Cor. Address" will activate.If don't tick "Automigration by Cor. Address",then the address for replace is the same.If tick "Automigration by Cor. Address",then the address for replace is consider the address in "Replace" as initial address and then automatic migration.

After setting the parameters above,click the "Find" button, then it will search the address in the range which conform to the find condition.If the address is found,then it will display its No.,Location,Name and Data in the white box in the bottom.If we double click it,then the frame will jump to the location of the component by automatic and popup its attribute window.

Click "Replace" or "Replace All",then it will replace all the address type and address.

2. Windows Preview

Click **Windows Preview** in **Project Structure Window**, it will display the preview of the frames as following.



3. FTP Function

EV5000 has opened FTP function, the users can copy the data files from SD card or U disk to PC, or from PC to SD card or U disk by LAN.

Note

FTP function is only suitable for the HMI which support Ethernet port and USB HOST or SD card.

FTP Function Setting.

1. Enter the HMI option in HMI attribute, then tick **Open FTP Passwords** and set password.



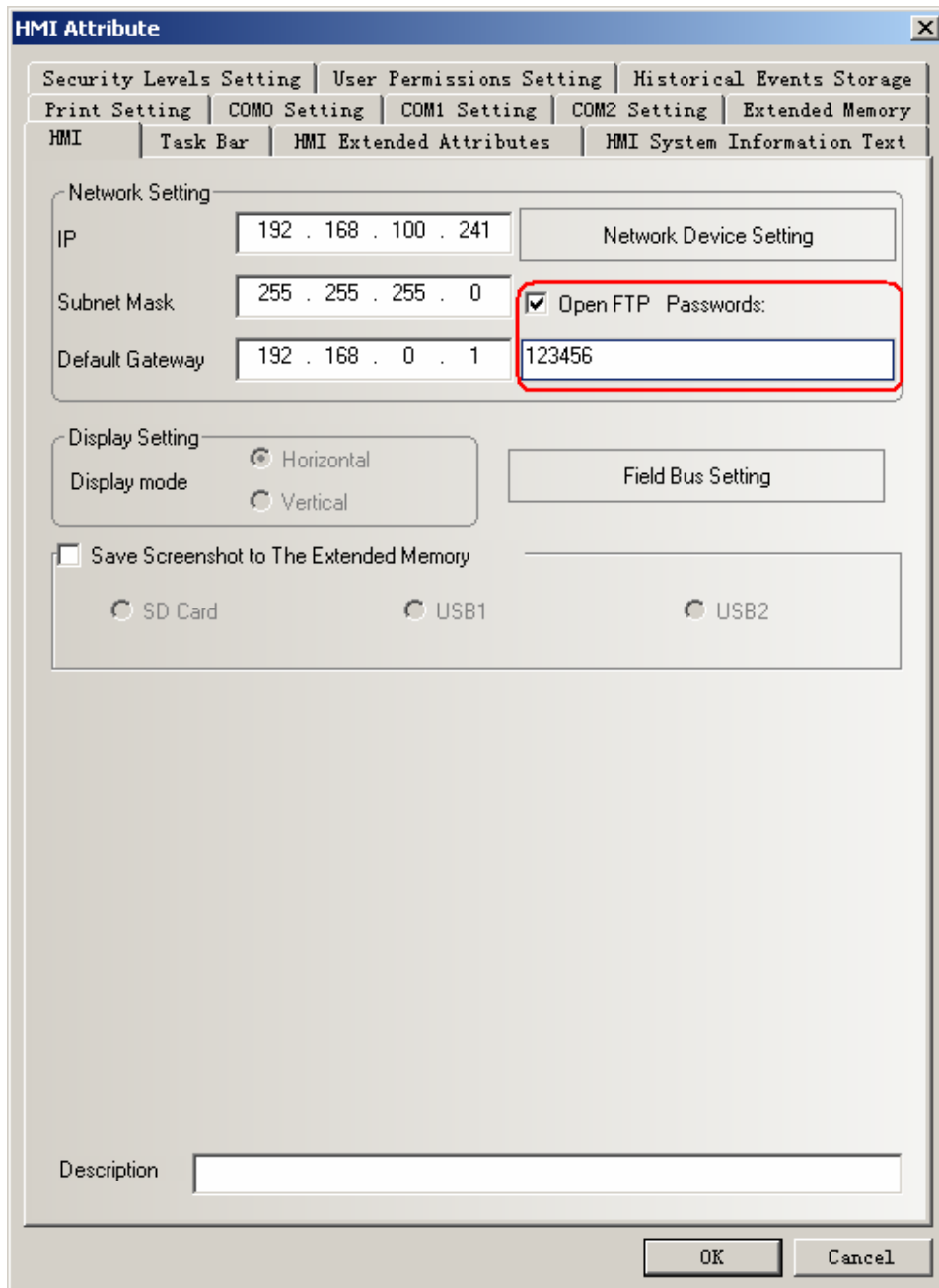
1. Default password: 888888
2. Password only support number, don't support characters.
If the password is empty, it will mention "FTP password can not be empty".

2. Set IP address of HMI, the top three section of the IP address must be the same as LAN, the last section must be different from PC.

3. The subnet mark must be the same as LAN. Generally users needn't modify this parameters.

For example, we visit the data in SD card through LAN.

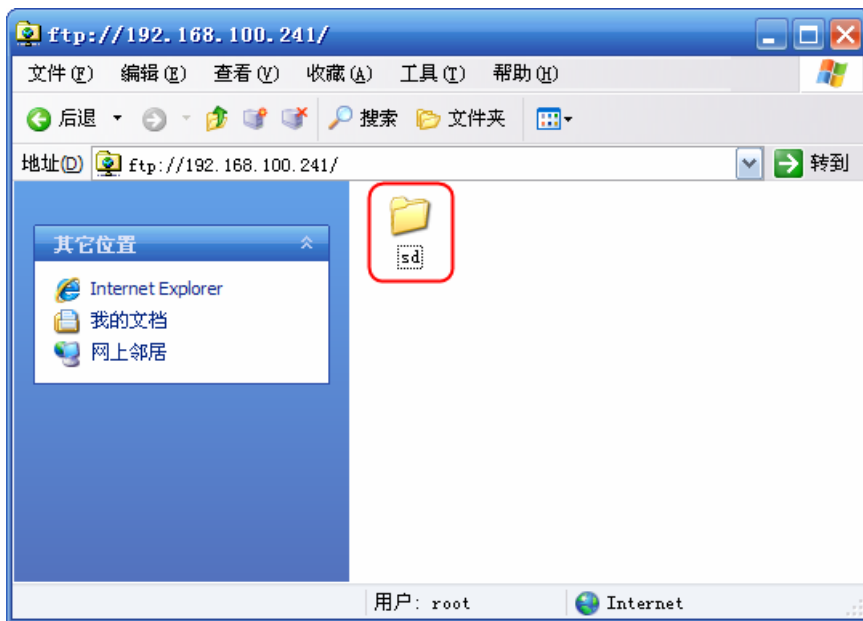
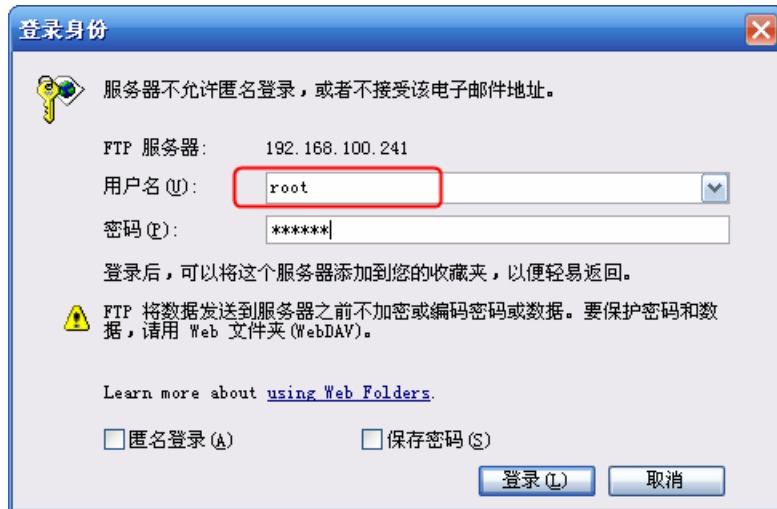
1. Set the IP address of HMI as 192.168.100.241, Subnet Mark and Gateway as default. Password is 123456.



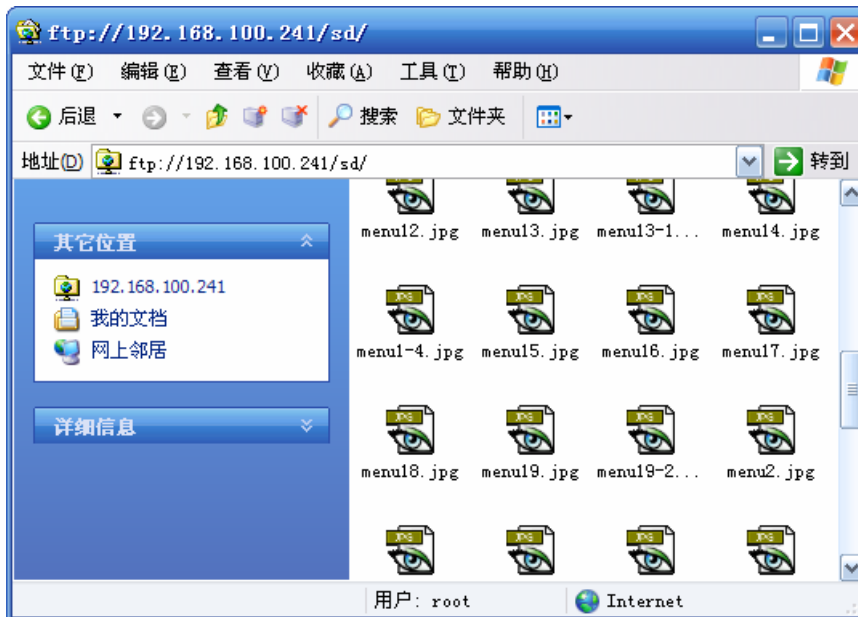
2. Save project and compile, then download to HMI.
3. Use Ethernet cable to connect to LAN, then open explorer. Input the IP: <ftp://192.168.100.241> and press Enter, then it will popup following window. Input the user name and password, then it will login the FTP server.

Note

User name is root .



4. Open the folder "sd", then we can visit the SD card in HMI.



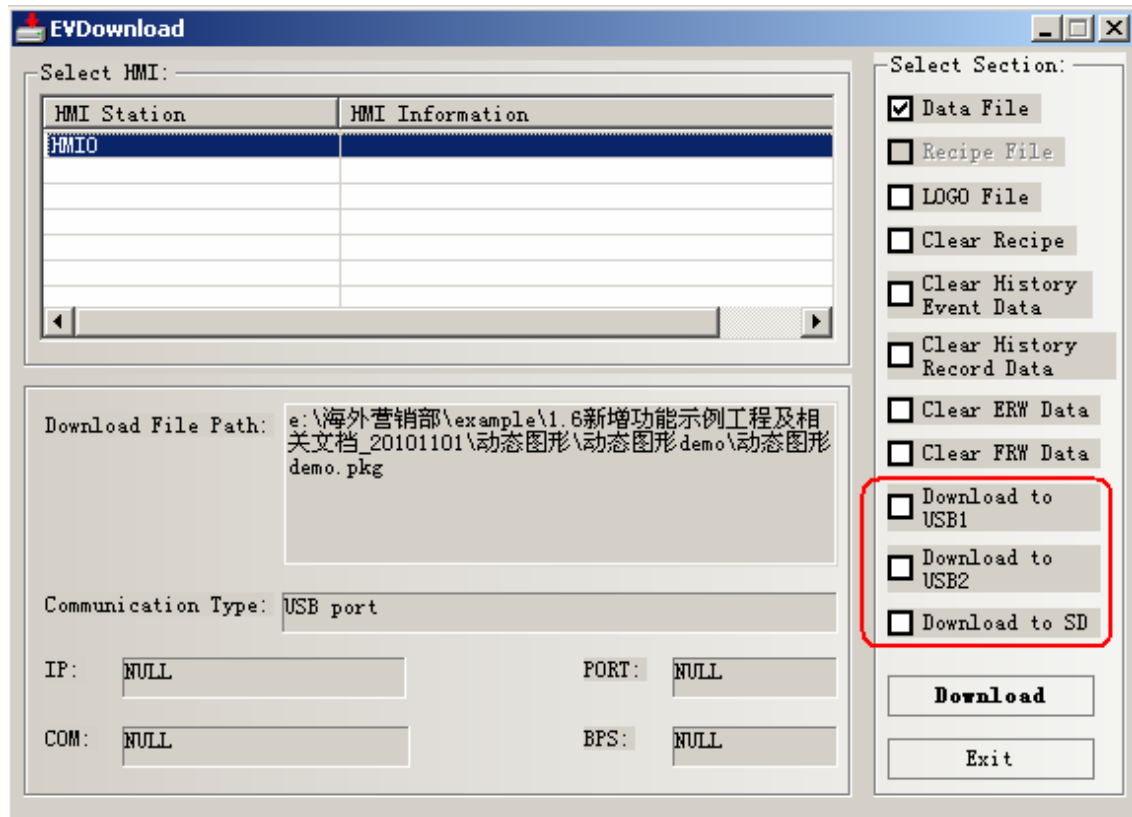
4. Run the project in U disk or SD card directly

When users make lots of pictures in the project, then it will cause that the project is too large to download into HMI. At this time, users can download the project to U disk or SD card.

Note

1. This function is only suitable for the HMI which support USB HOST or SD card.
2. The project can't run if it is copied to U disk directly.
3. The U disk can't be pulled up when the project is running.

Tick **Download to USB1 or USB2 or SD** when downloading the project as following figure:



5. Read Picture and Audio From Extended Memory

EV5000 V1.6 support reading the bitmap and audio data from extended memory directly. It can save memory in HMI.

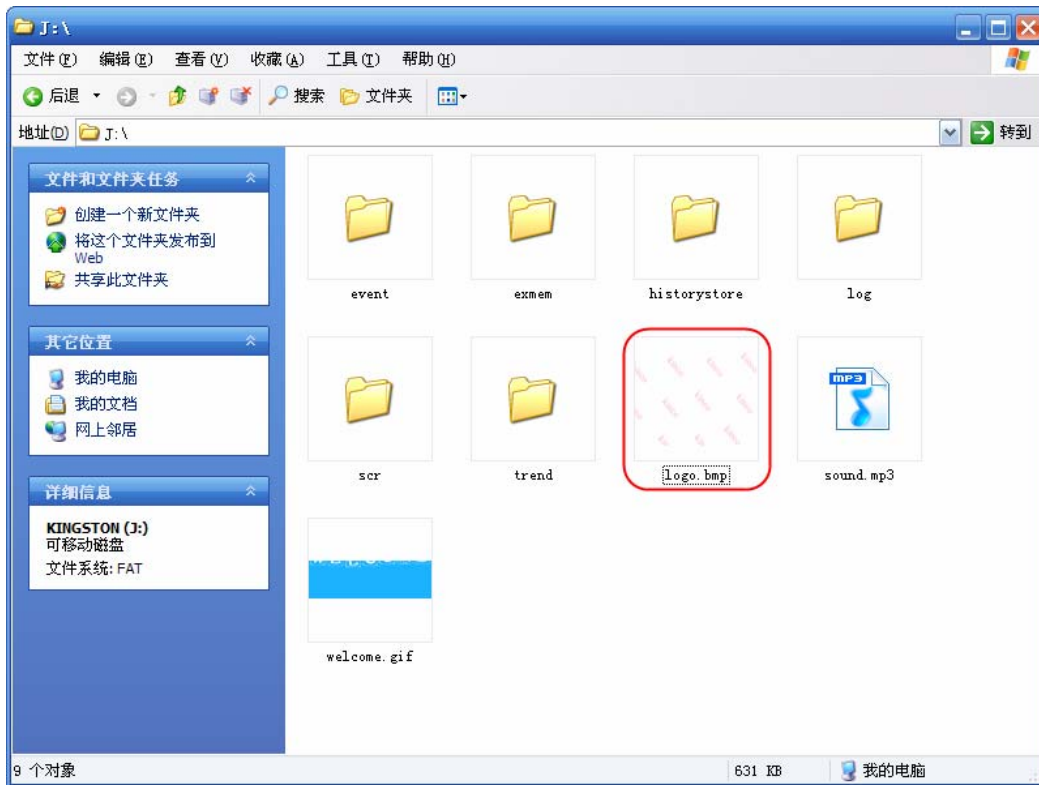
Note

1. Read picture from extended memory function is only suitable for the HMI which support USB HOST or SD card.
2. Read audio data from extended memory function is only suitable for the HMI which support USB HOST or SD card and have audio port.

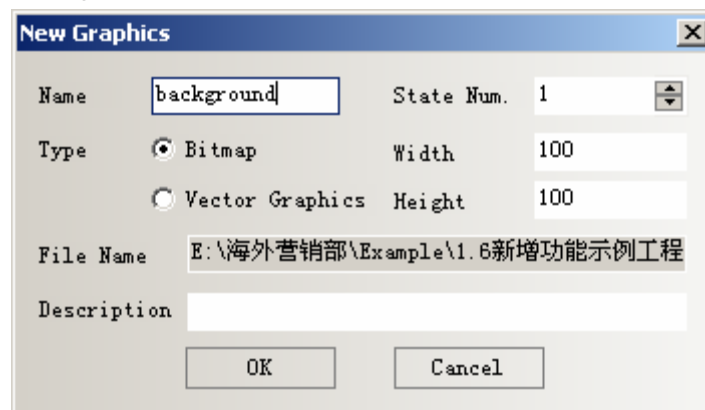
(1).Read picture from extended memory

For example: put a picture named logo.bmp in the root directory of USB disk,and then the project read the picture directly.The setting is as follows:

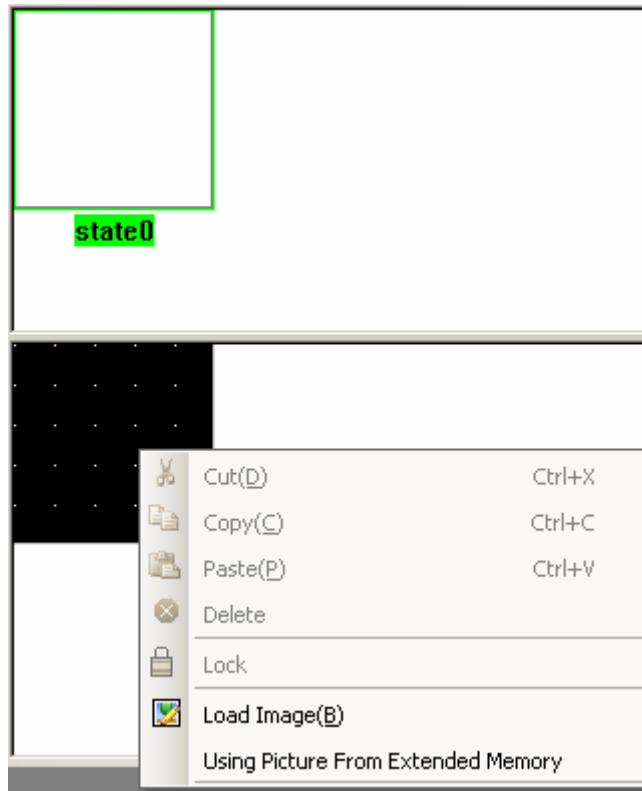
1. Copy logo.bmp to the root directory of U disk.



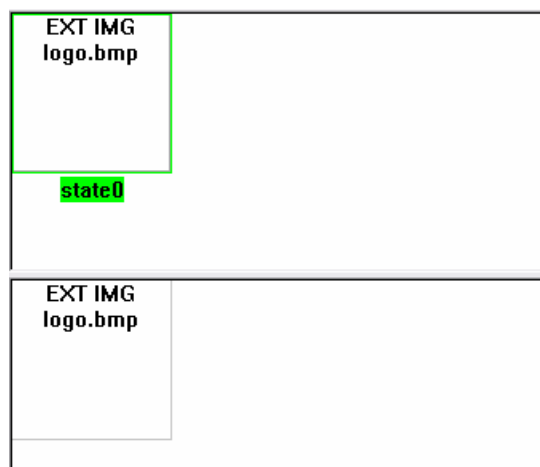
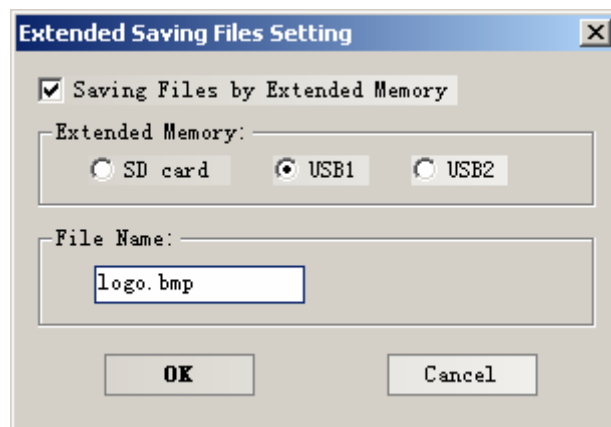
2. Create a new graphics.



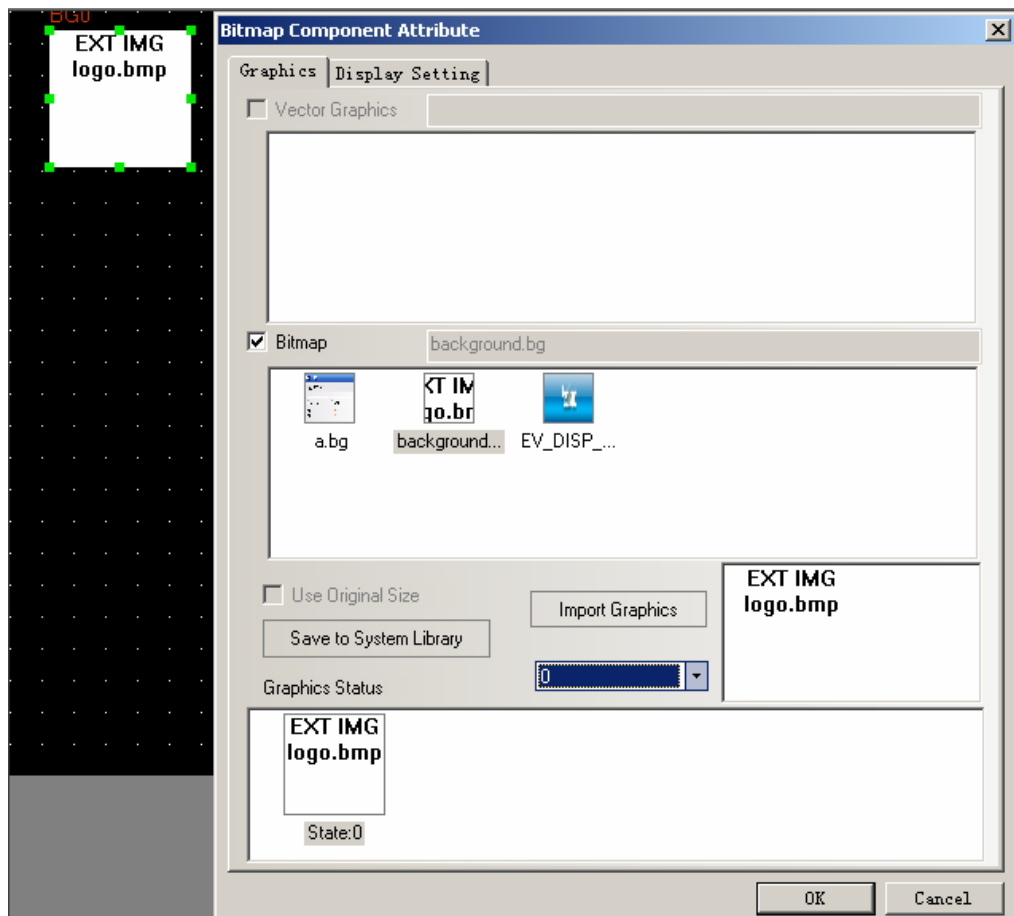
3. Click **OK** to enter the graphics edit window. Right click the edit area and choose **Using Picture From Extended Memory**



Then popup the Extended Saving Files Setting window, set as follows:



4. After creating the bitmap, then we can use **bitmap** component to use the picture as follows:



Note

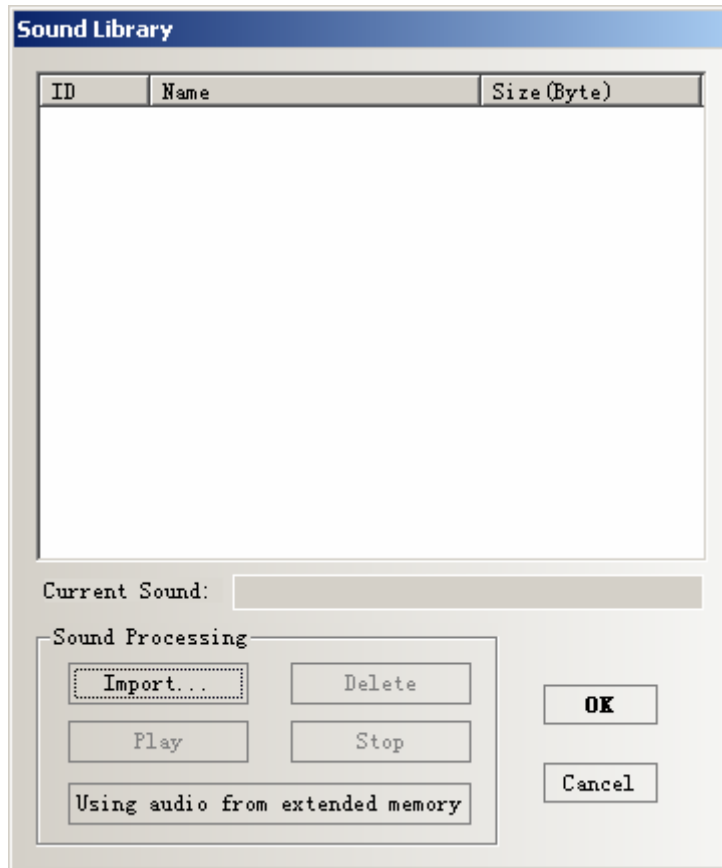
1. **File Name** must be the same as the name of the picture in USB disk or SD card.
2. Only support bmp,jpg,gif pictures,don't support png pictures.
3. The pictures must put in the root directory of U disk or SD card.



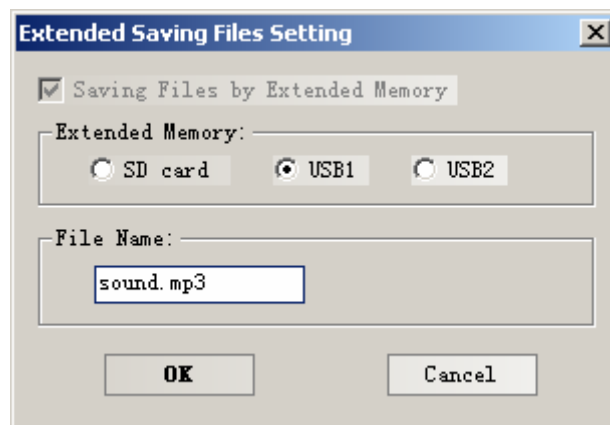
The picture read from extended memory don't support "Use Original Size" function,the users need to adjust by themselves.

(2) Read audio from extended memory

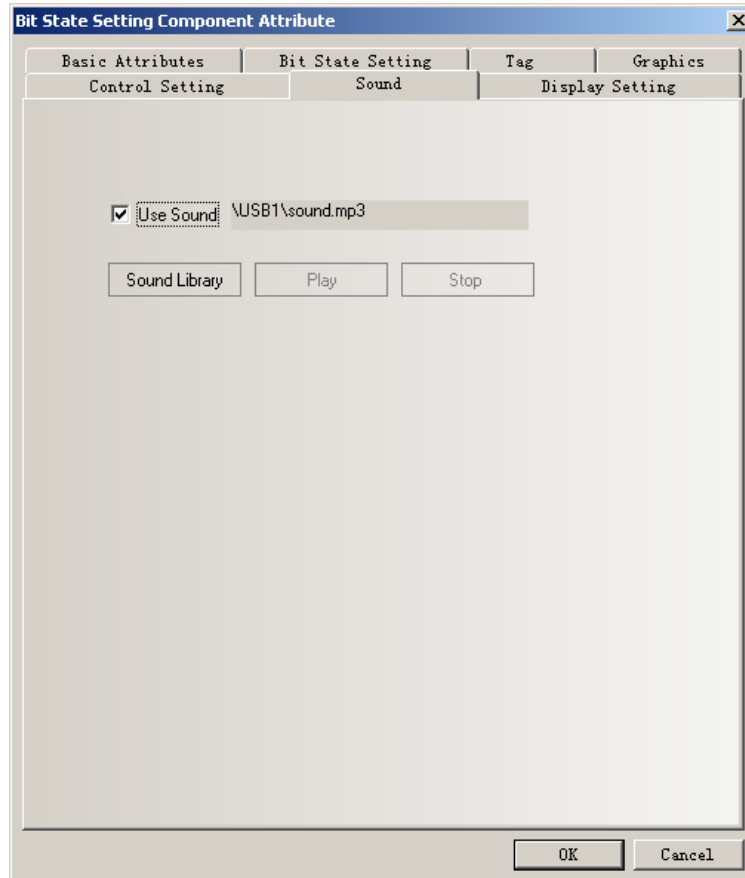
1. Copy audio files to root directory of U disk or SD card.
2. Click **Graph element window>>>Project Database>>>Sound Lib** to open "Sound Library" window.



3. Click **Using audio from extended memory** to open the “Extended Saving Files Setting” window. Then choose the extended memory and input the file name.



4. Press **OK**, then it can be used in the project.

**Note**

1. **File Name** must be the same as the name of the audio files in USB disk or SD card.
2. Only support mp3 files.
3. The audio files must put in the root directory of U disk or SD card.

6. Screenshot

Screenshot function is used to copy the image of the current screen in HMI to U disk or SD card as a picture format.

Screenshot function is only suitable the HMI which support USB HOST or SD card.

The format of the picture is .BMP, it is saved in folder "scr" of U disk or SD card. Screenshot function can also support off-line simulation, direct on-line simulation and indirect on-line simulation. By these three methods, the pictures of screenshot are saved in the route EV5000\disk\sd (usb or usb2) \scr.

The BMP picture is named as the date and time format (Year-Month-Day,Hour:Minute:Second:Millisecond.bmp), such as "2010-09-01,10:12:50:203.bmp". The prefix title of the name can also be user-defined by changing the registers LW9470~9485.F or example, if the content of LW9470~9485 is Num.20100001, then the name of the BMP file is "Num.20100001-2010-09-01,10:15:28:421.bmp".

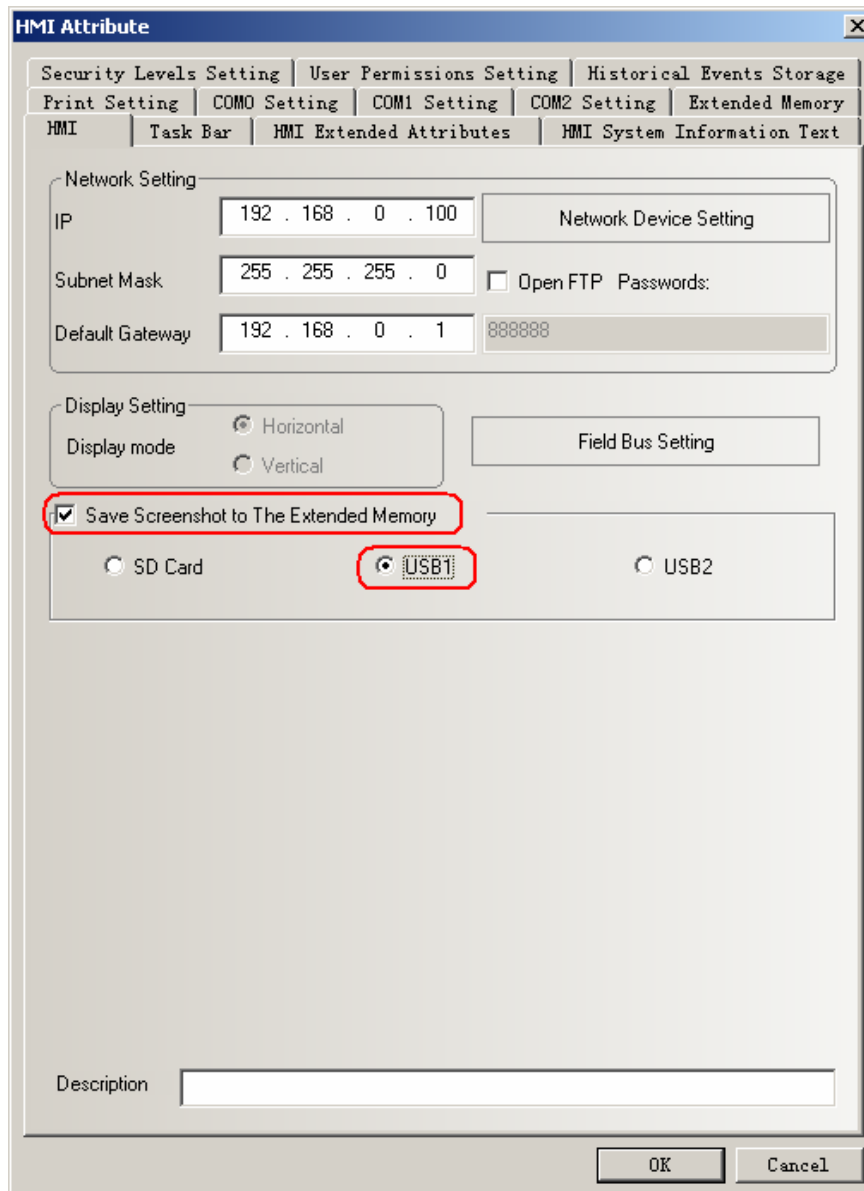
Screenshot function can be achieved by using Function Key or PLC Control. The difference between these two methods is that Function Key can't be triggered by PLC

register,it need touch the key to save the screenshot by manual.PLC Control can be triggered by PLC register,then user can save the screenshot automatically.

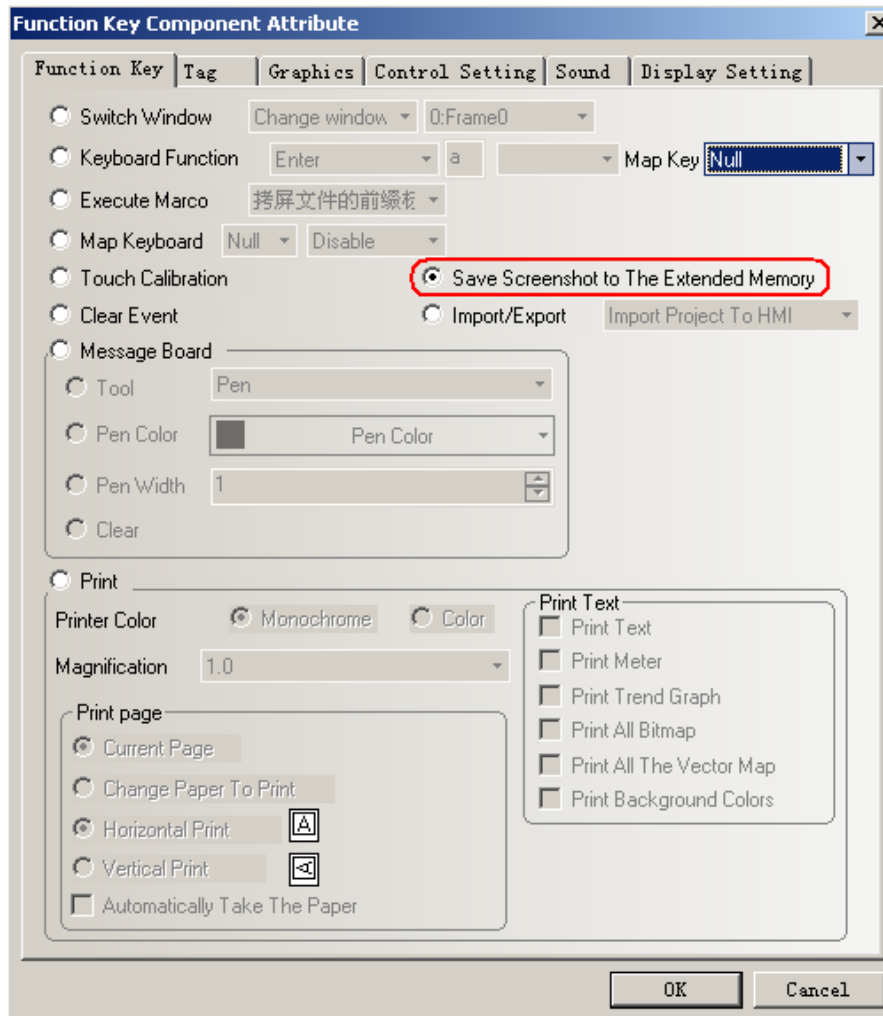
Note After trigger screenshot function, you can't pull out the USB disk or SD card until waiting for more or less than 1 minutes.

The setting of screenshot:

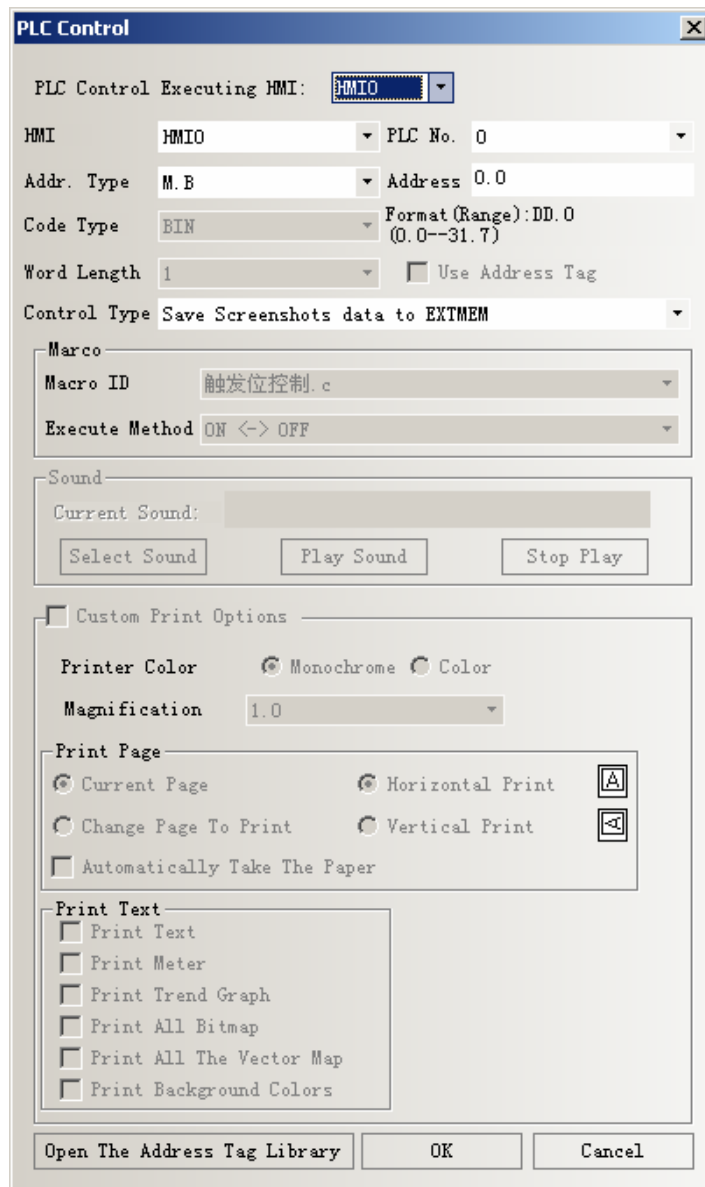
1. Double click the attribute of HMI, then enter **HMI** option to choose the save method as follows.



2. Make a Function Key which set as follows:



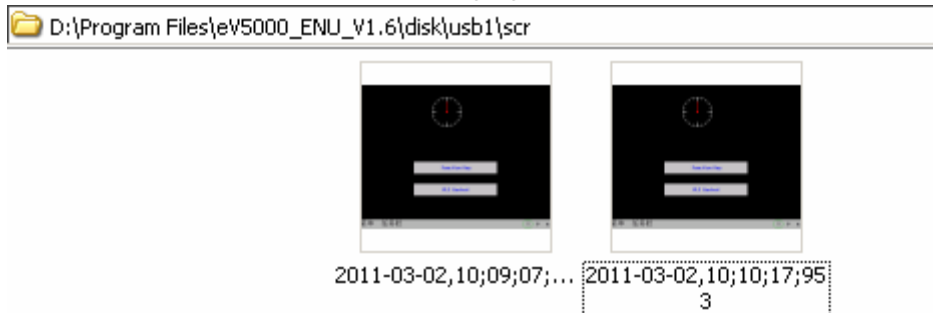
3. Or make a PLC Control component.



4. Off-line simulate, press the Function Key or LBO, then it will save the screenshot.



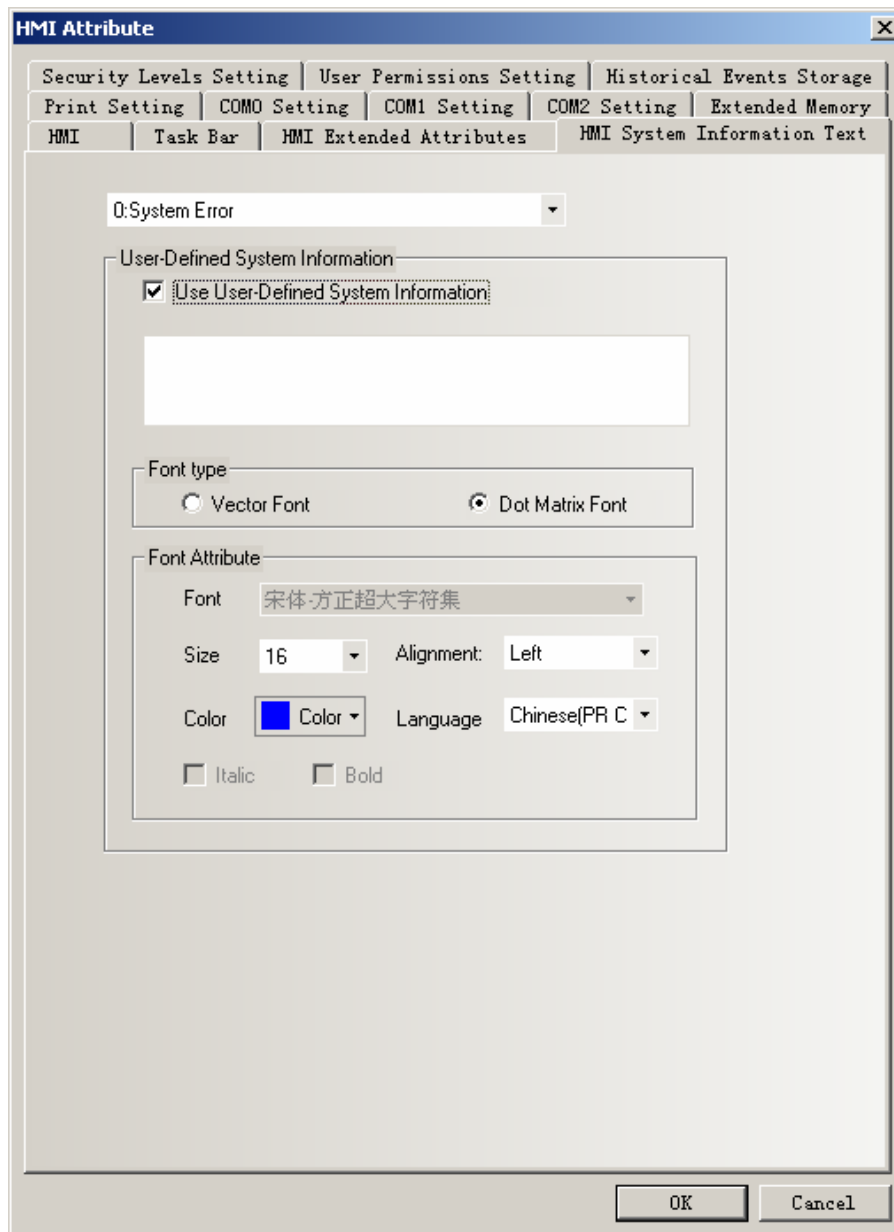
5. Check the files in the route as following figure.



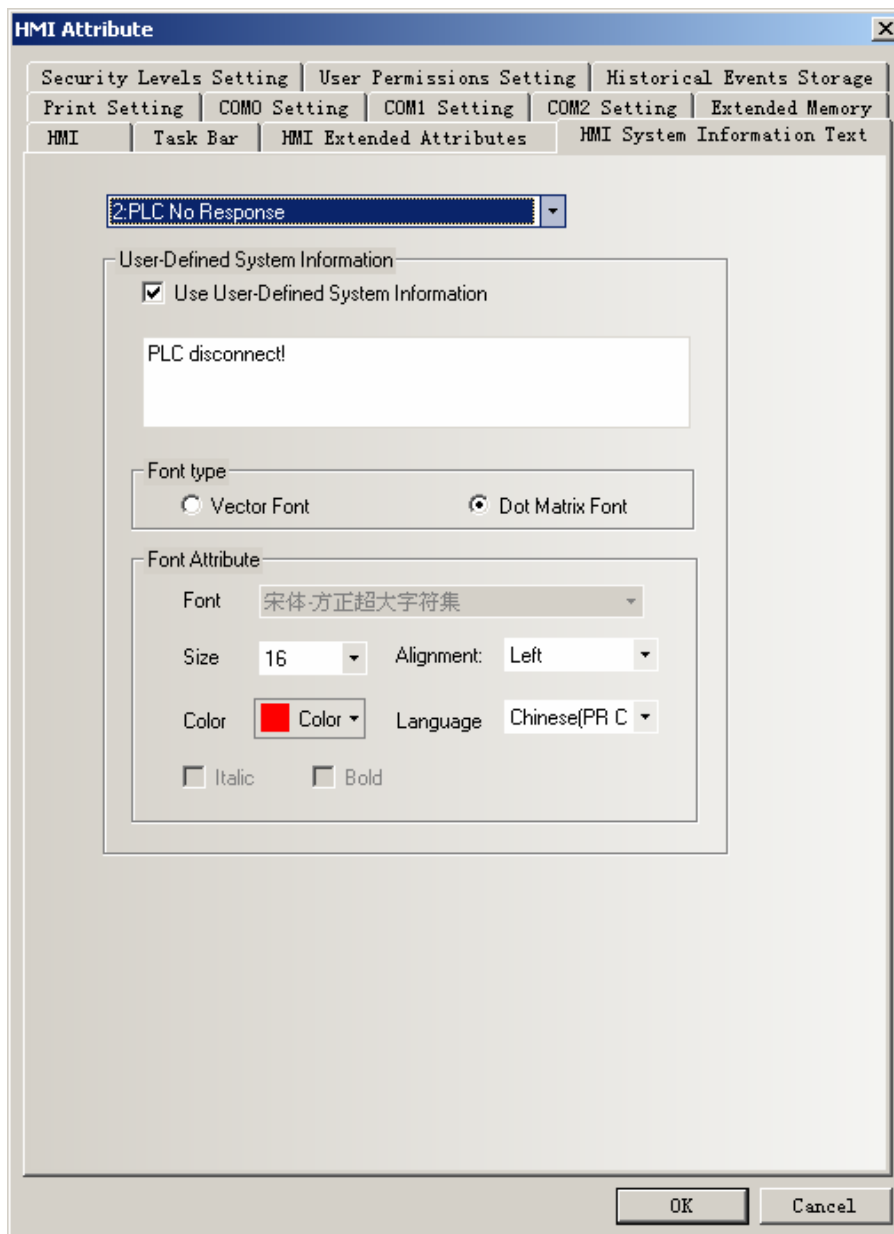
7. User-Defined System Information

User can change the default system information to other information.

Enter **HMI Information System Text** option in HMI attribute, tick **Use User-Defined System Information**, then user can input the information text in following figure:



For example, change the system information “PLC no response” as “PLC disconnect” as follows:



Then when the HMI disconnect to PLC, it will appear this information as follows:



8. Copy/Cut/Paste Files among Extended Memories.

EV5000 v1.6 provide the copy and cut function among files in extended memories. Rcp and pkg files in USB1,USB2,SD card in a same HMI can be copied, cut and pasted among each other.

- 1.This function is only suitable for the HMI that have USB or SD card in it.
- 2.The file operation function is only used for rcp or pkg files in USB or SD card

A special register Lw9366 is provided to execute the operation of copying cutting and pasting, and a File List component is needed to finish this function.

Address	Function	说明
LW9366	Copy ,Cut and Paste	The value is 1 means Copy, value is 2 means Cut, value is 3 means Paste

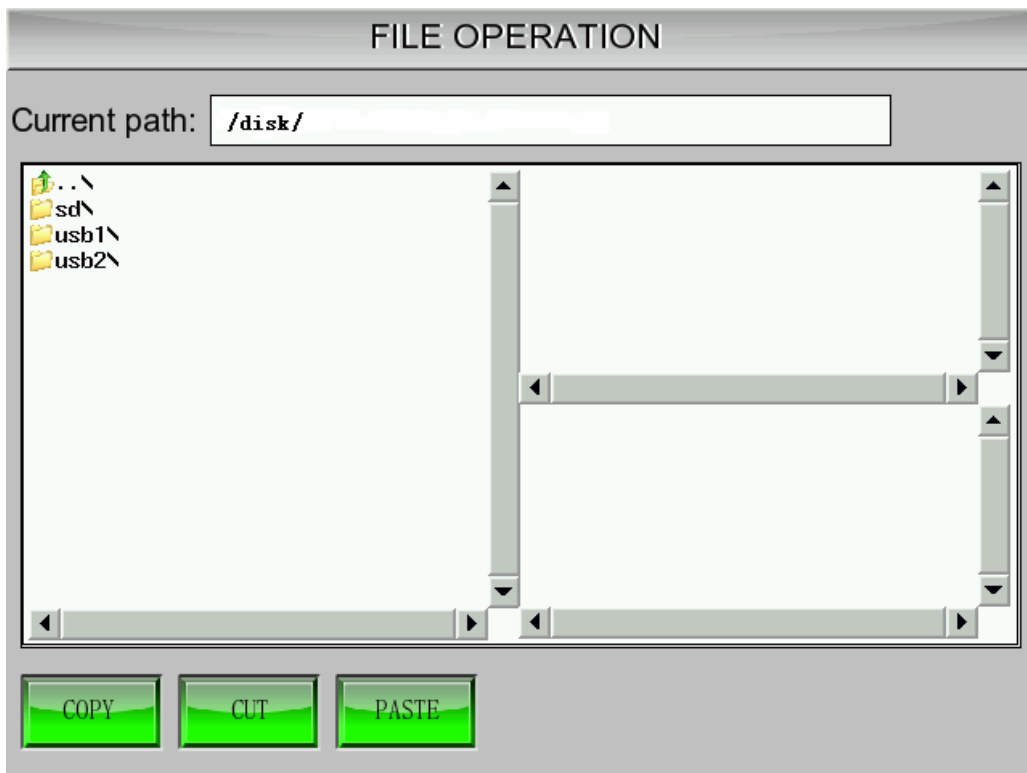
Example:

Step 1: Add a Text Display component, its Read Address is LW9300, Word Length is 16, the function of Lw9300 is to display the currently browsing path of File List component.

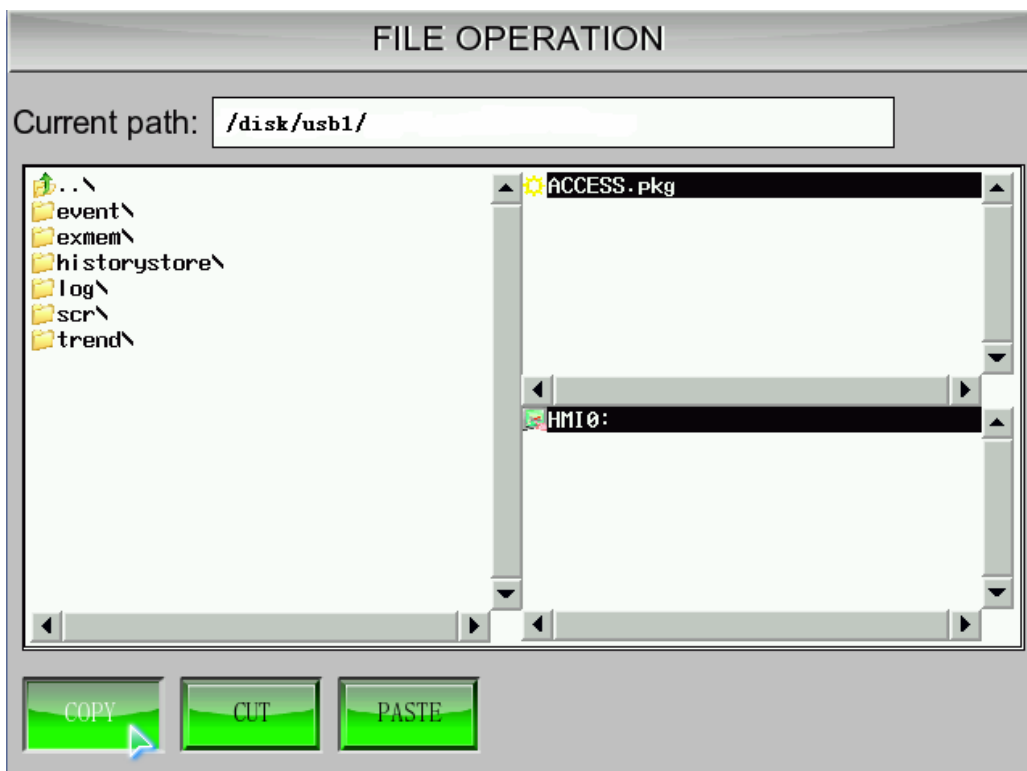
Step 2: Add a File List component . this component is divided into three area: folder information is displayed in the left area, file information is displayed in the right upper area, and HMI information of selected project file(.pkg file) is displayed in the bottom right area.

Step 3: Add three multiple State Setting components, their Write Address is LW9366, Setting Mode is Set constant, their Set Value are 1,2,3, their Tag are Copy ,Cut, Paste

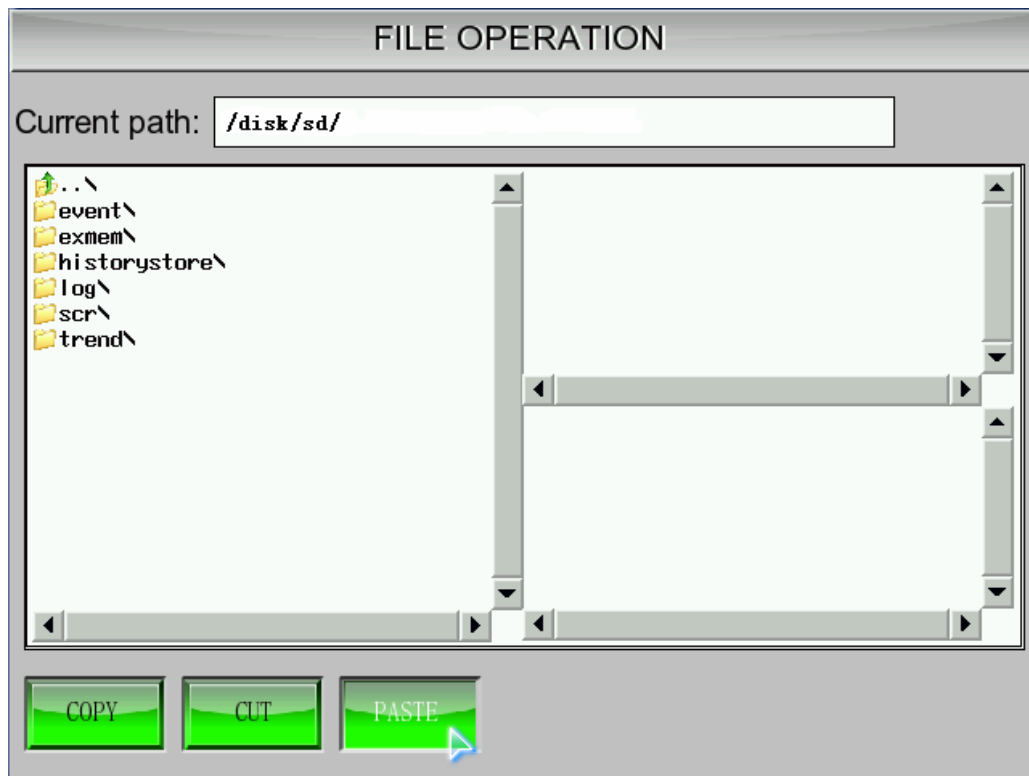
After offline simulation you will see:



Choose the file you want, and click the "Copy" button.



Suppose we need to copy file in USB1 to SD card, switch to SD card path then click "Paste". That is ok.



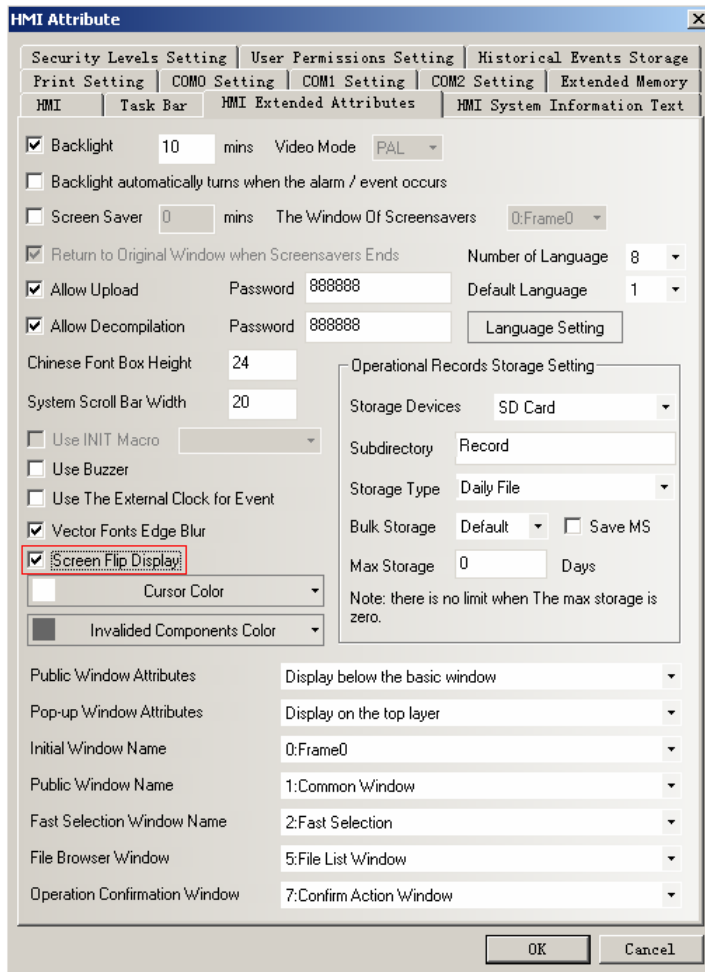
Other operations are the similar.

9. Screen flip display

The best visual angle for a HMI is looking squarely at the screen. In some special situation, we need to watch the screen from upside down, we look down at the screen, but the effect is not very good, so there is a new function of flipping the screen, in this way, it can be the same effect as the squarely view.

There are two methods to turn the screen”

1, In **HMI Extended Attributes option** of **HMI Attribute**, select the **Screen Flip Display**, after you download the project to HMI, it display a flipped screen. And even after the power is off or restart the HMI , it also display a flipped screen,



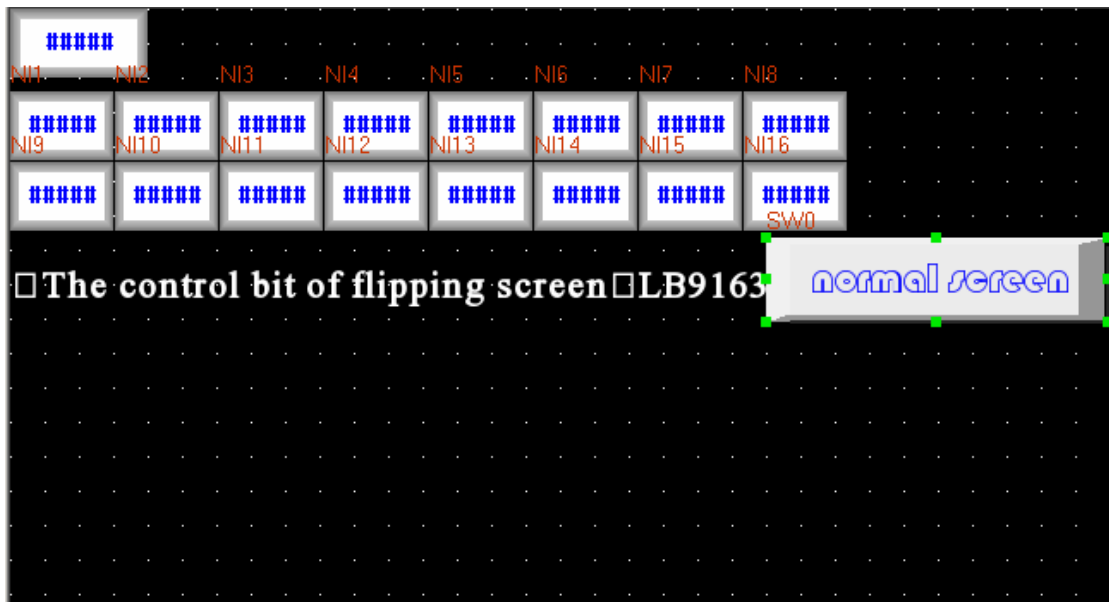
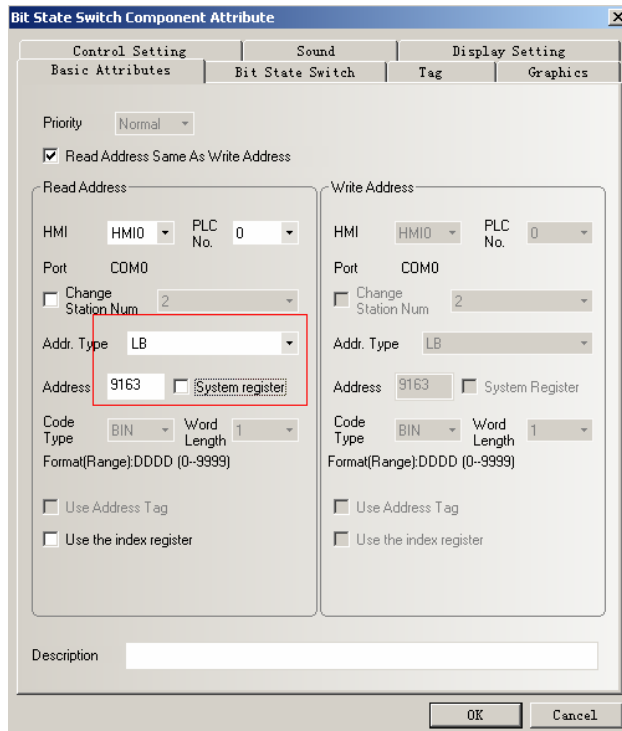
The offline simulation effect :



2, Use a special register LB9163(readable and writeable) to control the screen flipping. When LB9163 is ON, HMI display a flipped screen. By this method, the screen will become normal after the power is off or restart the HMI.

Example:

Place a Bit State Switch component, its **Read Address** is LB9163, **Switch Type** is Toggle.

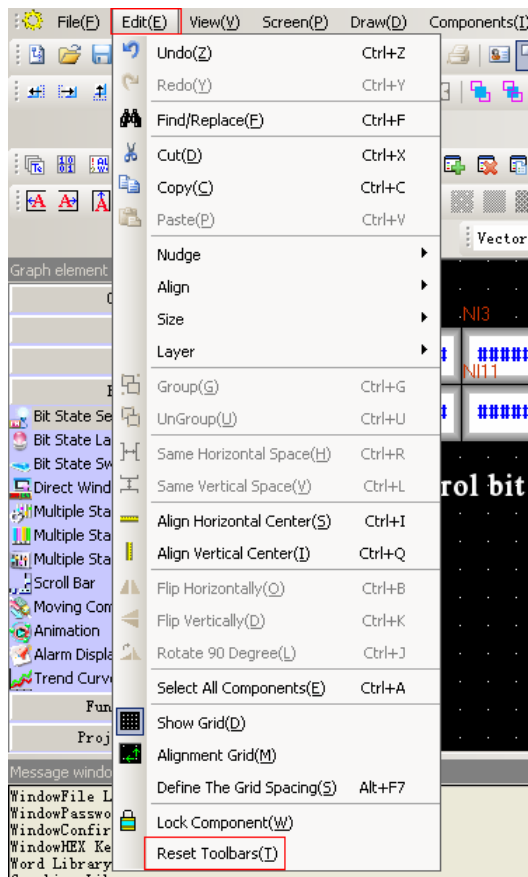


When the LB9163 is ON it display a flipped screen, when the LB9163 is off , it is a normal screen, the offline simulation effect is as follows:



10 Reset the toolbar

When the toolbar is moved to other position, and we want to recover the system default position, you only need to click Menu>>>Edit>>>Reset toolbars, and the toolbar will be reset:



11,User's permission

EV5000 has 32 users and 32 operation permissions, the users and operation permissions can be set respectively, the operation permissions are free of users limit. And you also can add or delete the users, modify permissions in HMI on line .

1,Settings of user's permission

Double click the HMI, in **HMI Attribute window**, click the **User's Permission Setting**, **User Permissions Setting Enabled**. Input the **User Name** , **Password** and **Logoff Time**, select the **Authorization**.

User Name: The name of login, the default is usr0~36, the User Name support any characters.

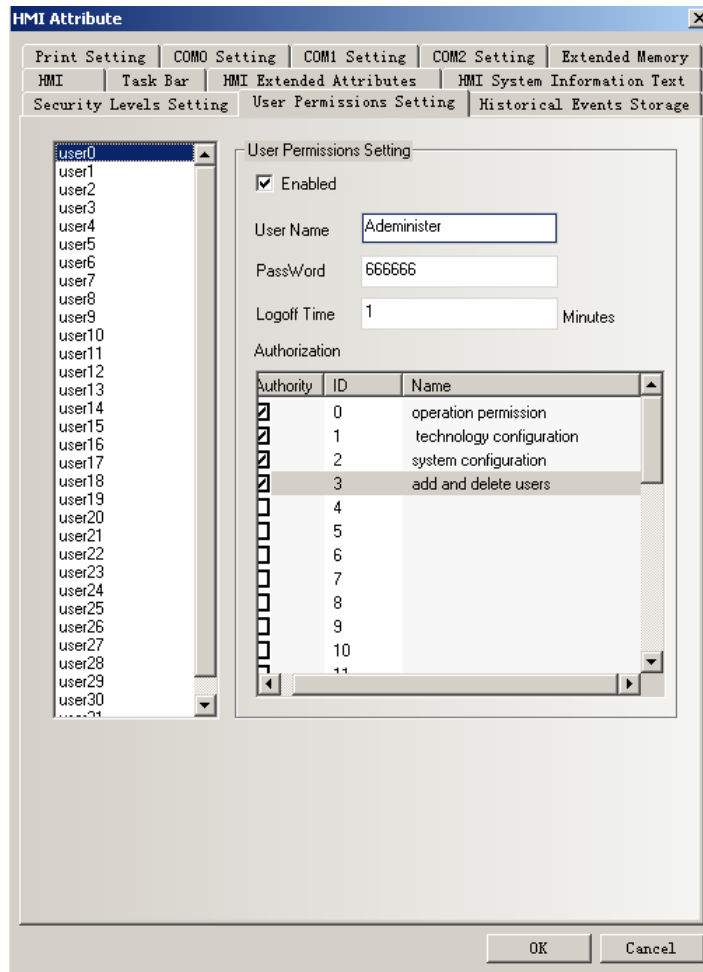
Password: Password of login, the default is 888888, the password supports number only, and other characters are not supported. The range of password is from 0 to 2147483647. when the password is 0 , it means there is no password.

Logoff Time: The effective time of user permissions, the default is 10 minutes, after 10 minutes, the user's permission will be logged off automatically, that is to say, the user has to input the password again to get the operation permission. The range of **Logoff Time** is from 0 to 2147483647, zero means the permission is effective all the time. The Logoff Time is timed begins after the last operation after the user's permission is logged in is executed.

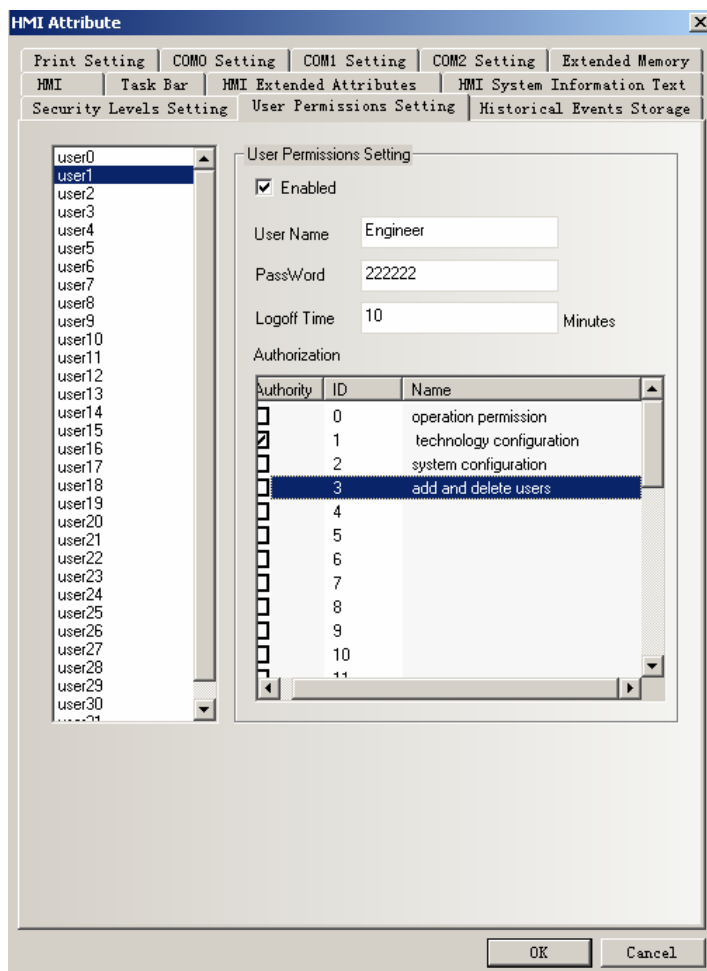
Example: as shown in figure,

1. User 0, settings of user permission information: select the **Enable**, User Name is Administrator: Password is 666666; Logoff Time is 1 minute. Give the user four kinds of

permissions, they are operation permission , technology configuration permission, system configuration permission, add and delete users permission



2. User 1, settings of user permission information: select the Enable, User Name is Engineer: Password is 222222; Logoff Time is 10 minutes. Give the user a permission: Technology configuration permission



Besides the settings in User Permission Setting of the HMI Attribute, the following special registers are also used to build a project of user permission.

Address	Function	Explanations
LW9486~LW9501	Input the user's name	32 characters is the utmost
LW9502~LW9503	Input the corresponding password of the user	Double words
LW9504~LW9505	Display the current user's permission	Double word, read-only component, display the corresponding permission
LB9165	Confirmation of user login	Execute login operation after set on and reset off automatically
LB9166	Confirmation of user logoff	Execute logoff operation after set on and reset off automatically

2, Add and delete user permission dynamically

Users can set user permission not only in software, they can add and delete user permission in HMI dynamically. The following special registers are used to build a related project.

Address	Function	Explanations
LW9486~LW9501	Input the user's name	32 characters is the utmost
LW9502~LW9503	Input the corresponding password of the user	Double words
LW9506~LW9507	Distribute the user permission	Double words, readable and writable, distribution of 32 permission, LW 9506~9507 correspond the 32 permissions numbered from 0 to 31, LW.B correspond each bit in LW 9506~9507, for example: LW.B 9506.0 means the permission numbered 0. LW.B 9506.A means the permission numbered 10
LW9508~LW9509	Logoff time of permission	Double words, the unit is minute
LW9510~LW9511	Confirmation password when adding and deleting user	Double words
LB9167	Confirmation of adding user operation	Finish the operation after set on and reset off automatically
LB9168	Confirmation of deleting user operation	Finish the operation after set on and reset off automatically

3 Example

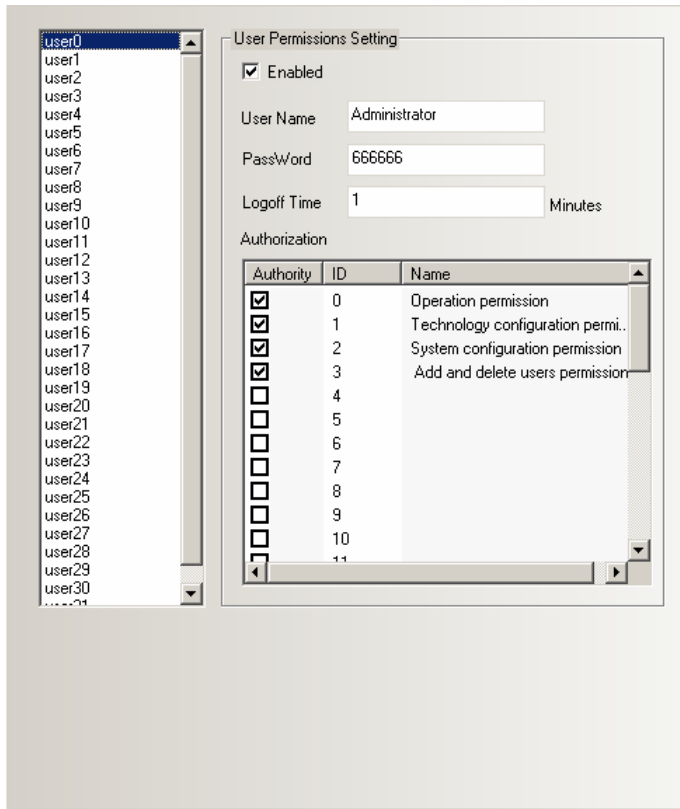
Set three users: Administrator, Engineer, Operator, the three users have different permissions.

User 0: User Name is Administrator: Password is 666666; Logoff Time is 1 minute. This user has four kinds of permissions, they are operation permission, technology configuration, system configuration, add and delete users

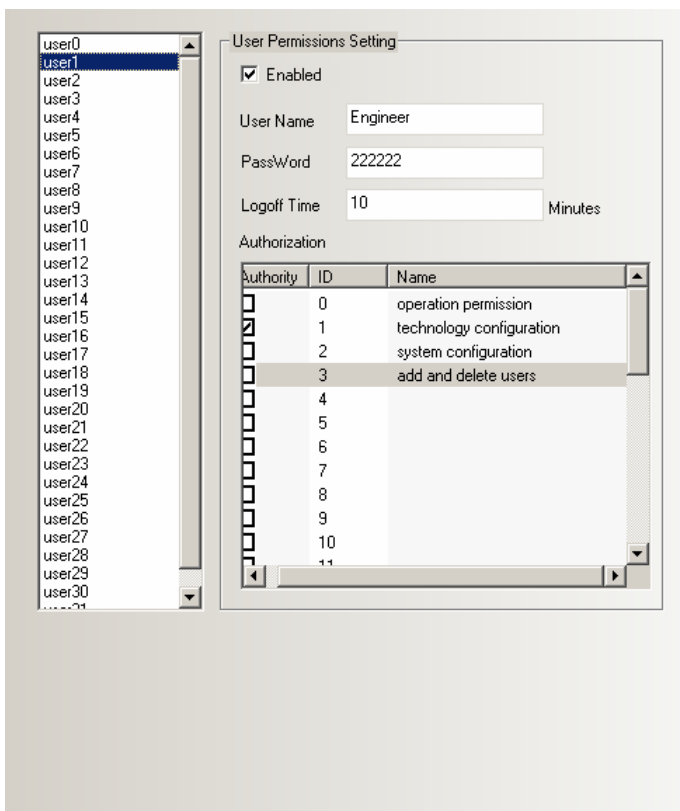
User 1: User Name is Engineer: Password is 222222; Logoff Time is 10 minutes. This user only has technology configuration permission

User 2: User Name is Operator; Password is 111111; Logoff Time is 10 minutes. This user only has operation permission.

The settings are shown in the following figures:



User 0

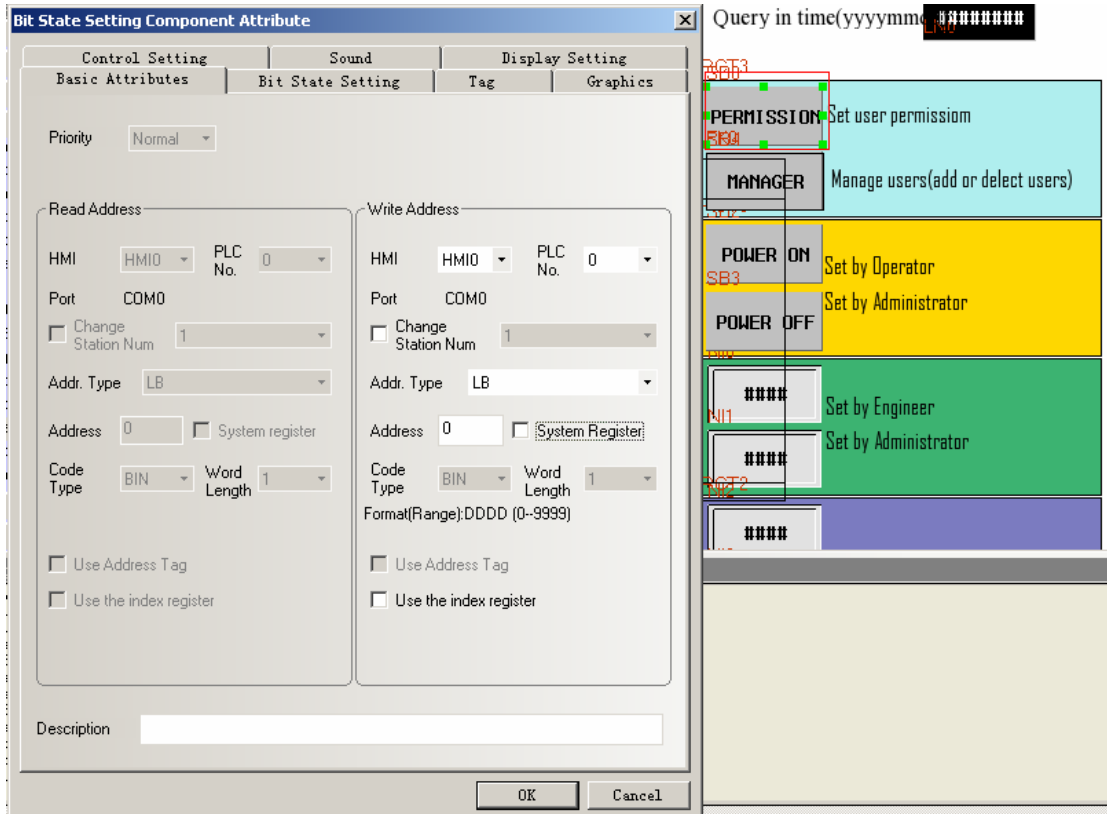


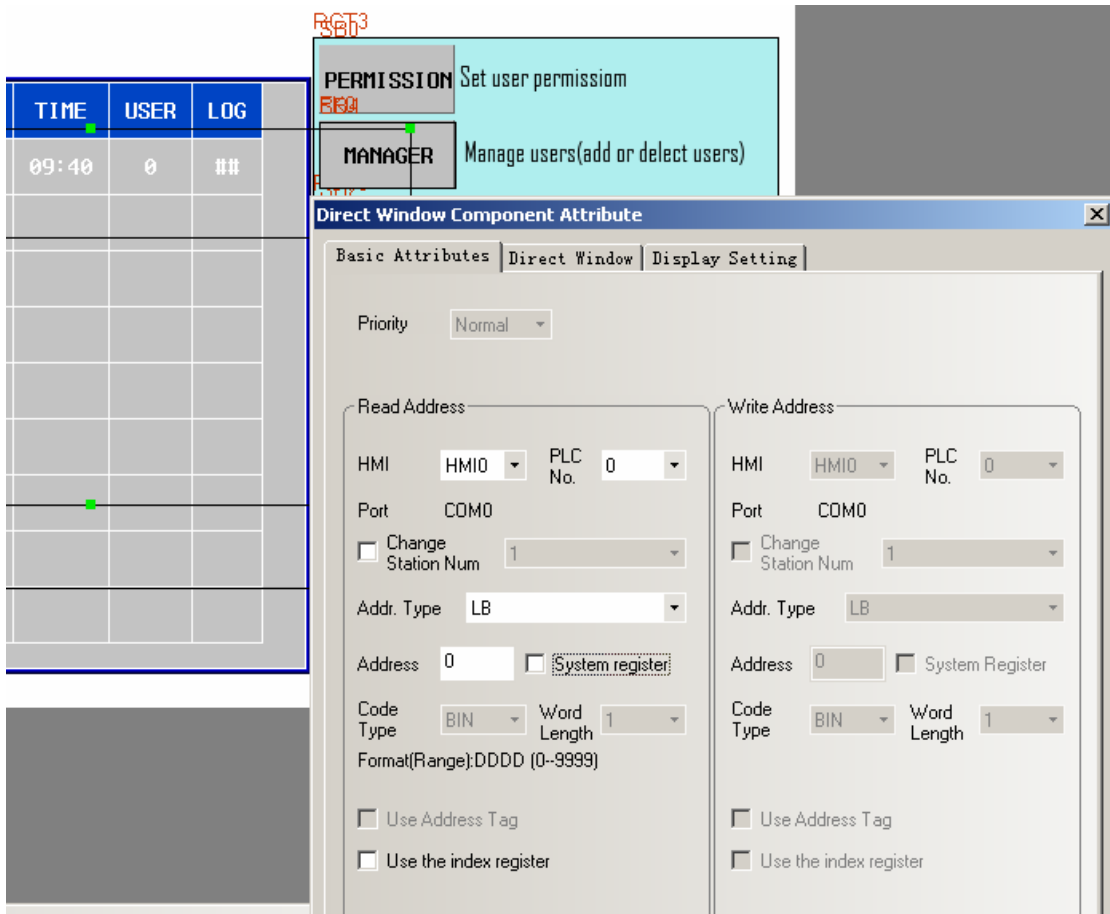
User 1

The components that set **Permission Control** can only be operated by the users who have this permission.

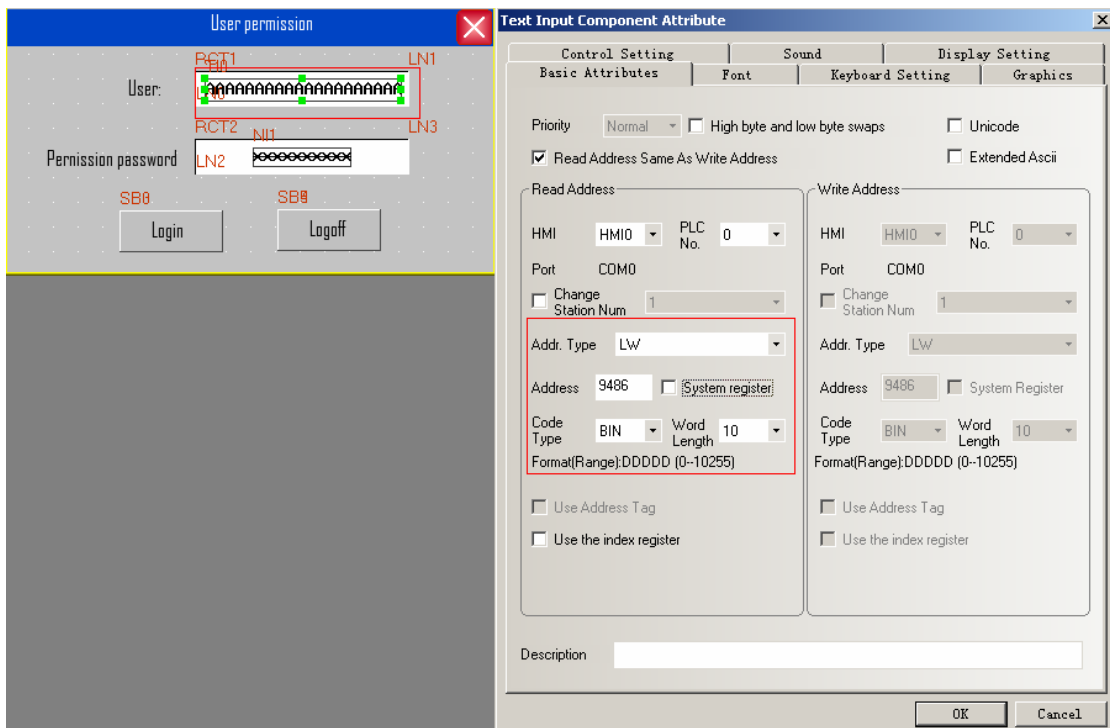
◆ Login page of user permission

Place a Bit State Setting component, suppose the Address is LB 0, Type is On. This component is used to pop up the direct window of User permission.



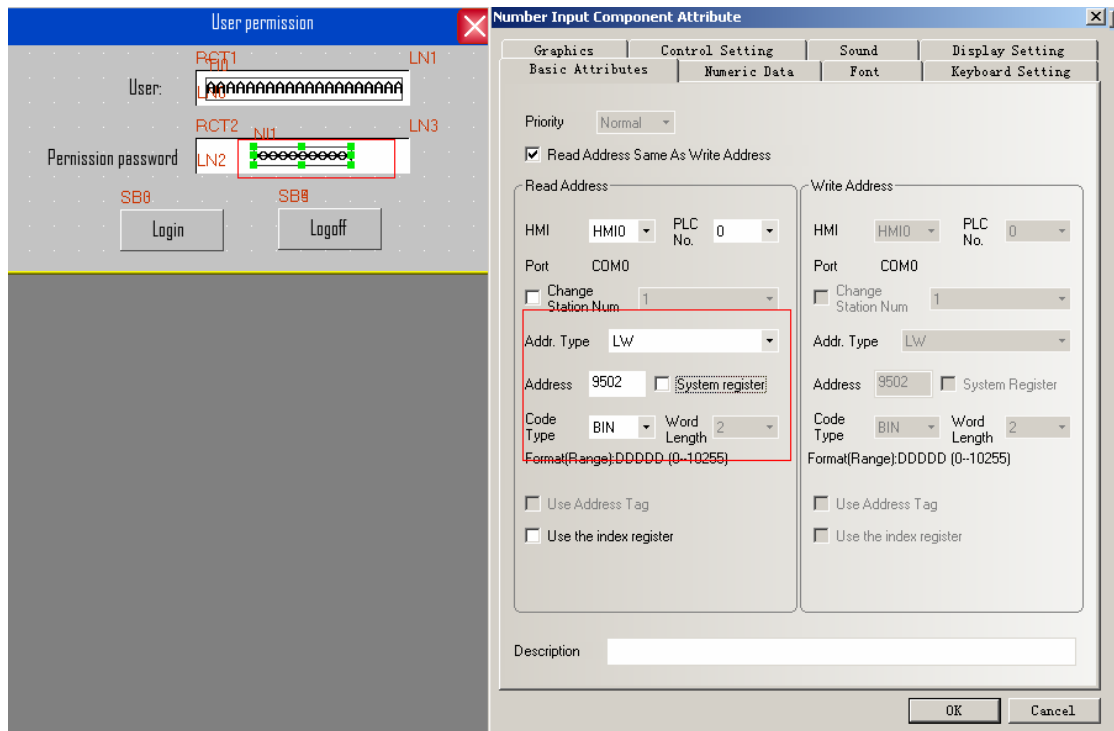


Add a new configuration window to be the User permission window:
Place a Text Input component to input the user's name, the Address is LW9486, Word Length is 10.

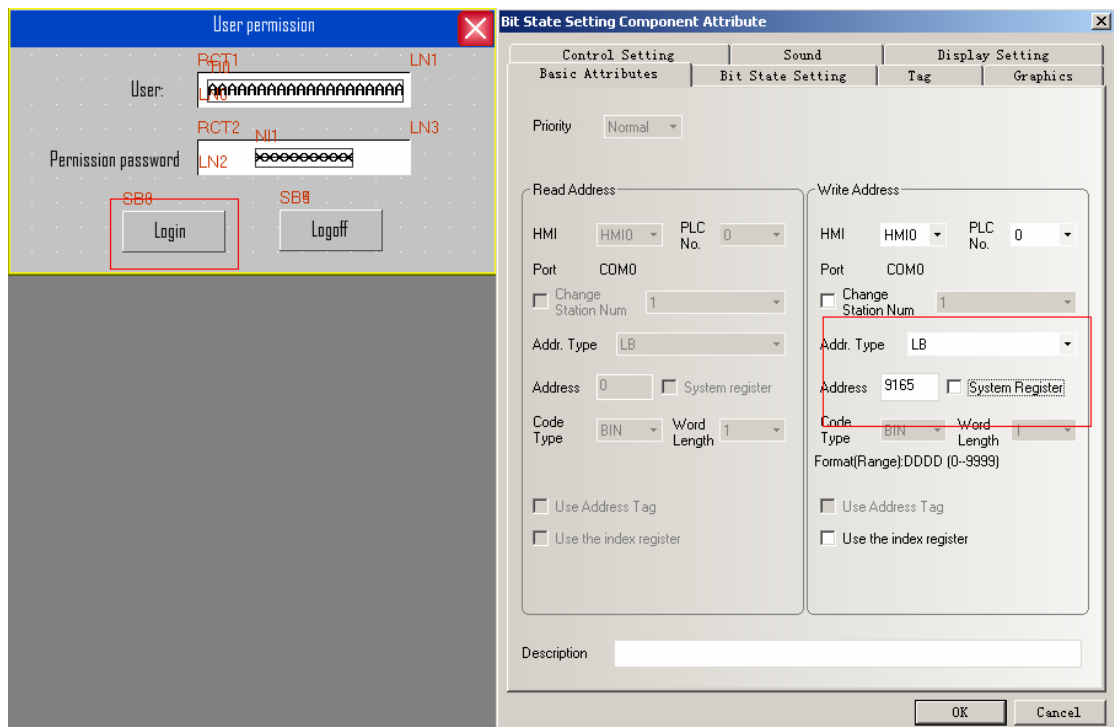


Then place a Number Input component to input the password, the Address is Lw9502,

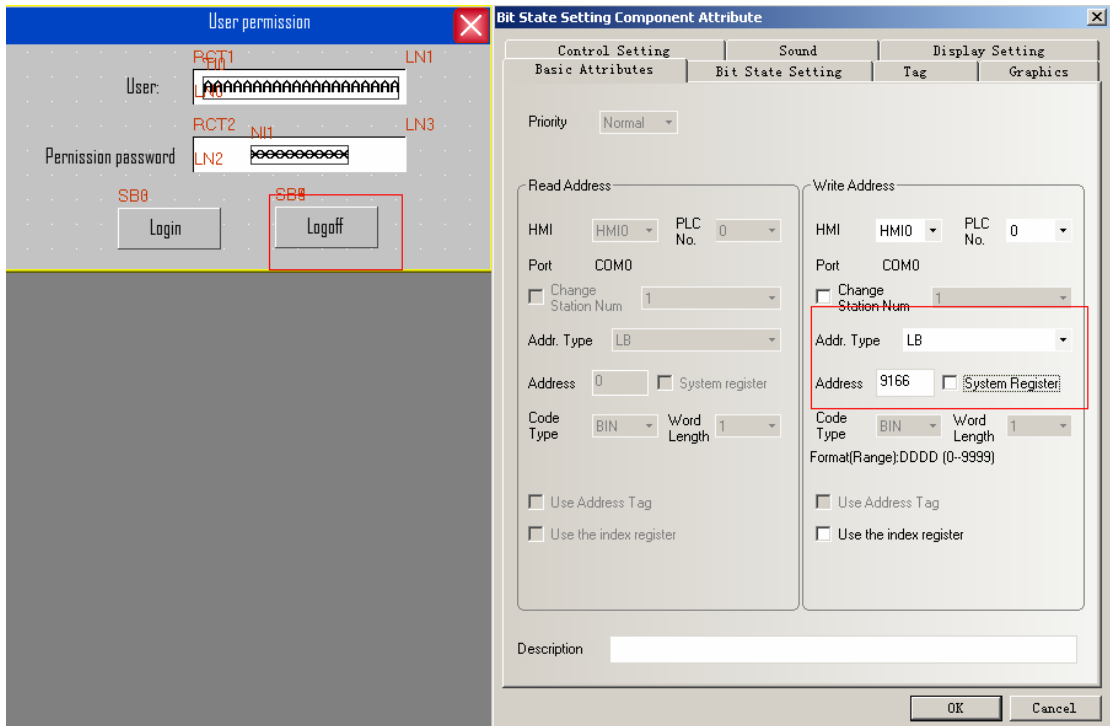
Word Length is 2, Data Type is Password.



Then place a Bit State Setting component to login the permission, the Address is LB9165, Type is On, Tag content is Login

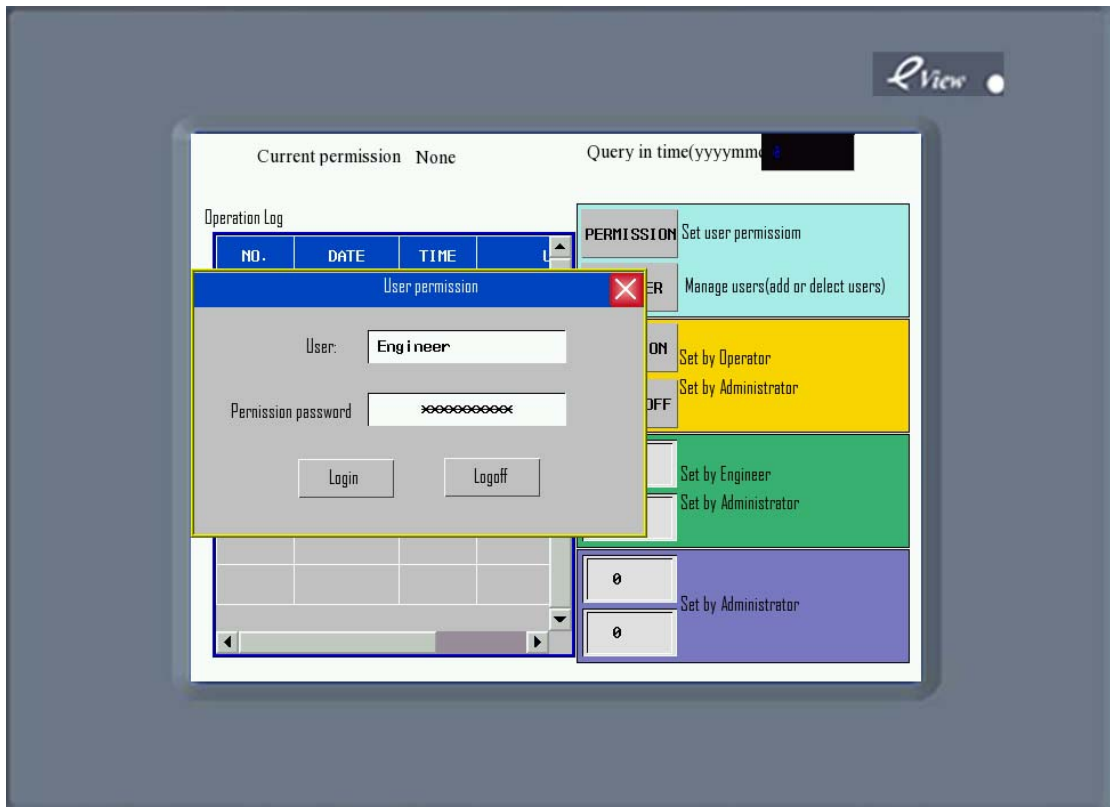


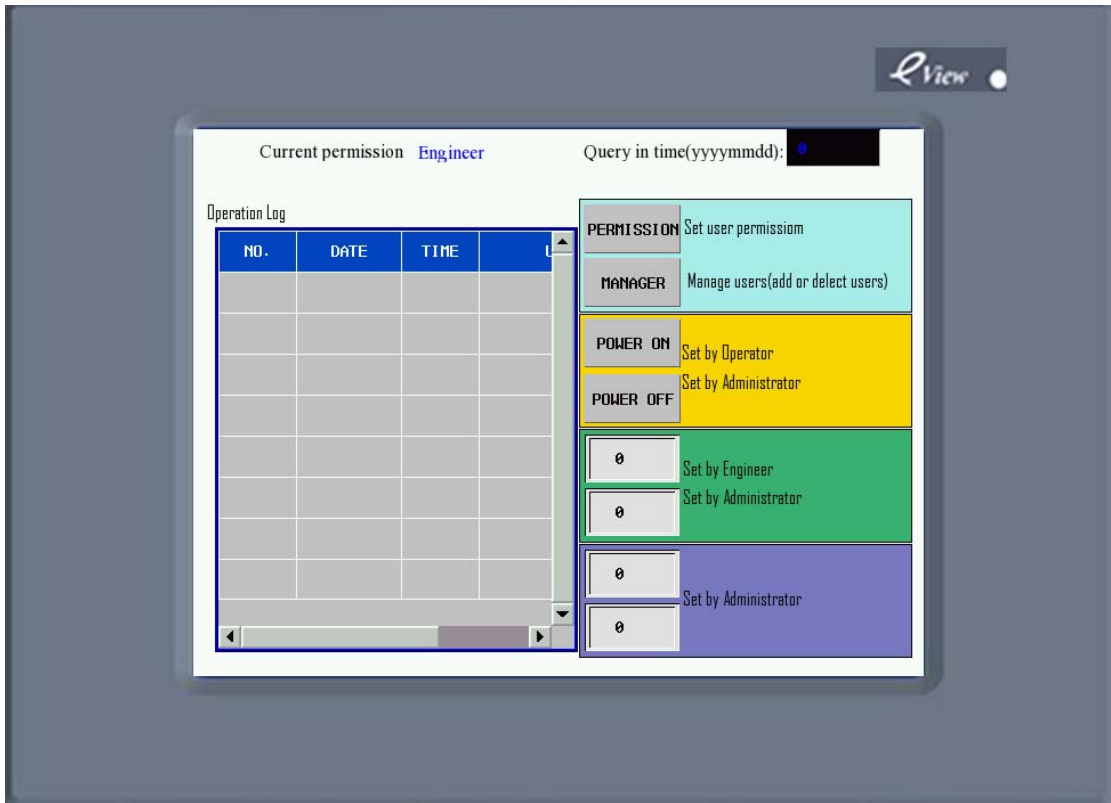
At last, place a Bit State Setting component to logoff the permission, the Address is LB9166, Type is On, Tag Content is Logoff.



The offline simulation effect is as following figure:

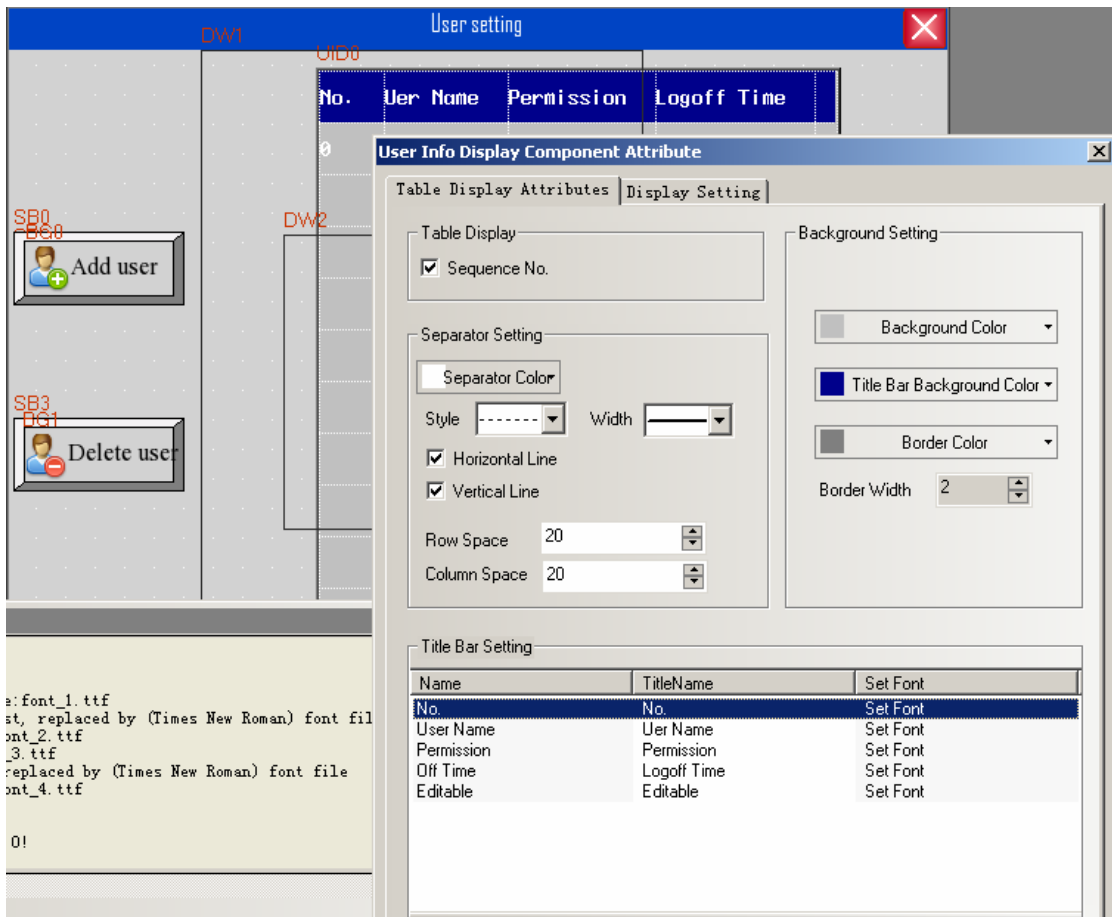
Input **Engineer** in the User and **222222** in the Permission password, then click Login.



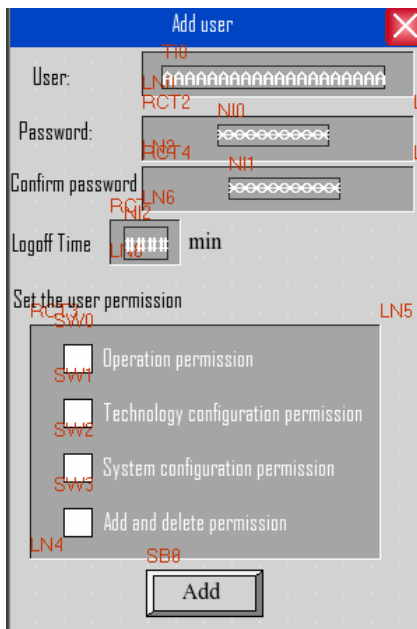


◆ Add and delete user permission

Place a User Info Display component in User setting window, this component is used to display the current user's information, the Table Display Attributes can be set according to the need of User Setting window.

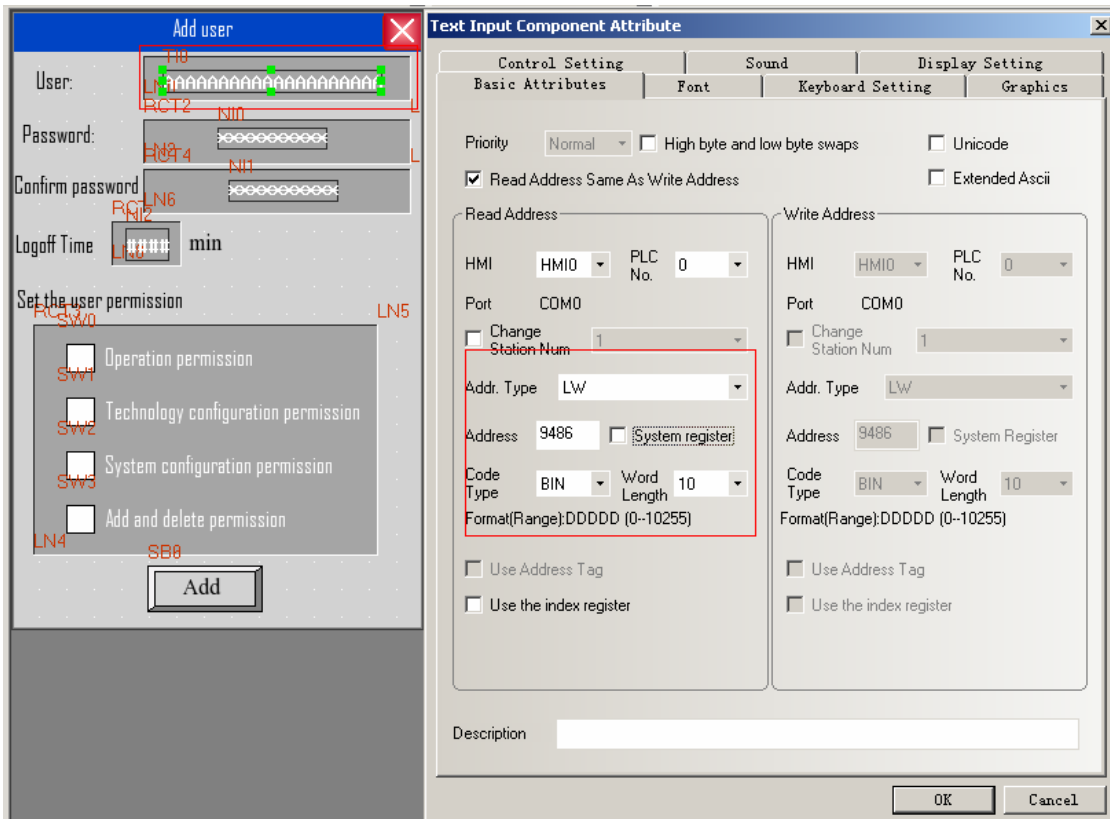


Add user

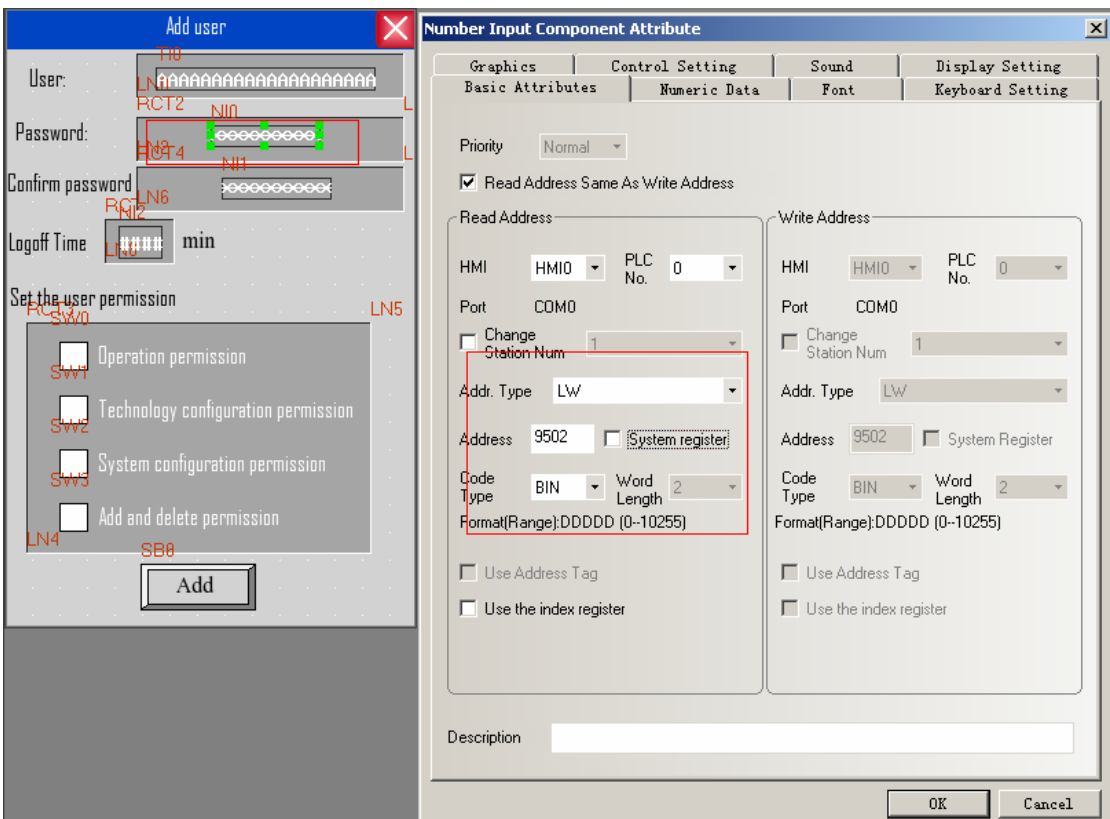


The window of **Add user** contains **User, Password, Confirm password, Logoff Time, Set the user permission.**

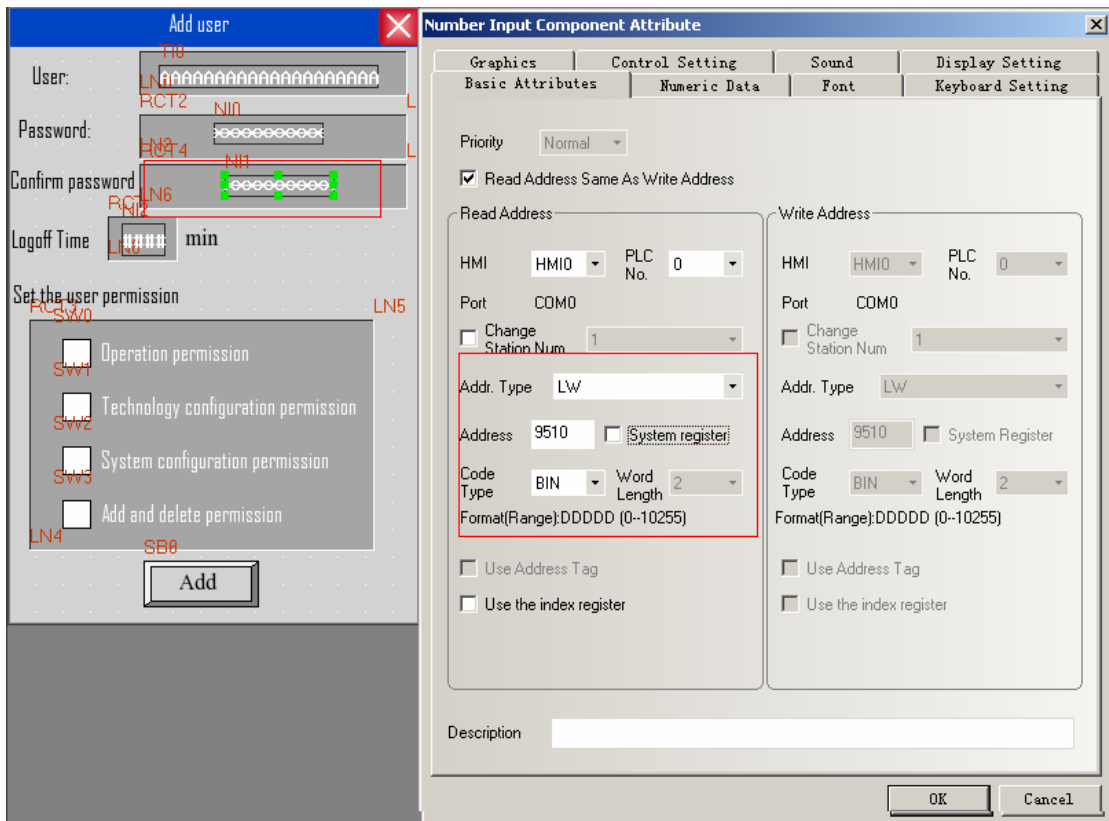
User: place a Text Input component to input the user's name, the Address is LW9486, Word Length is 10, the utmost of Word Length is 16.



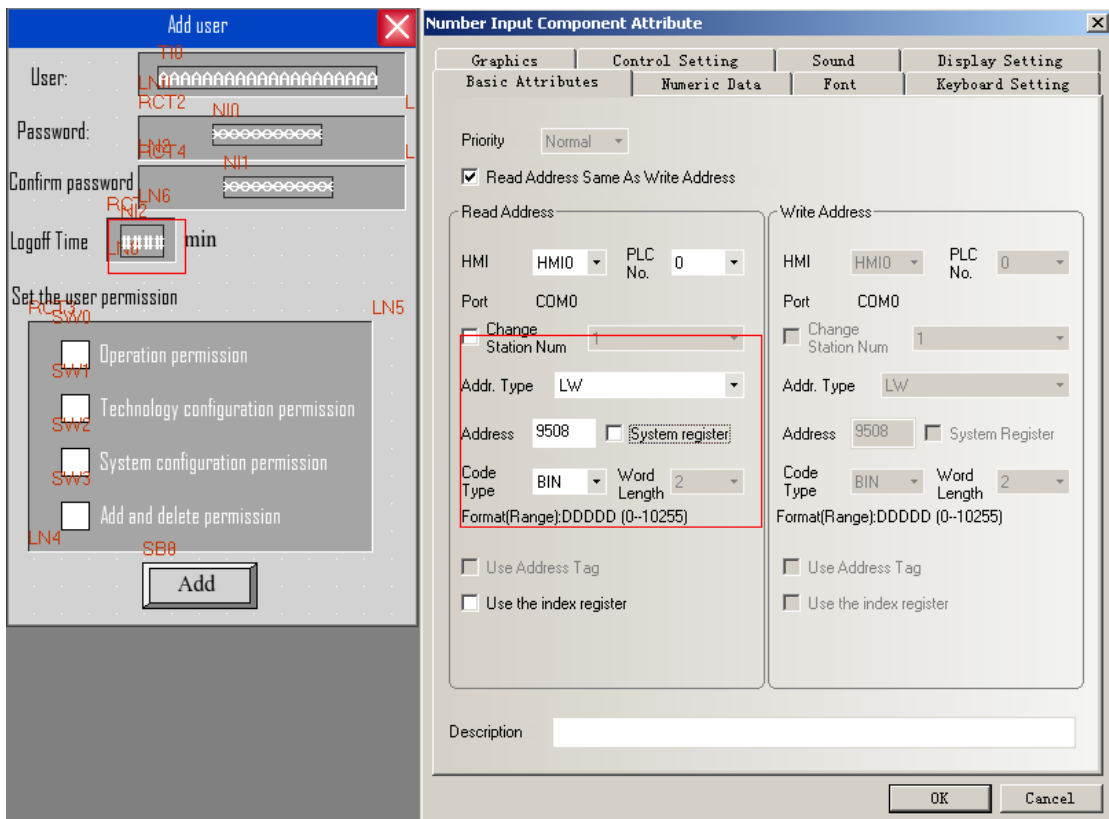
Password: place a Number Input component, the Address is Lw9502, Word Length is 2 ,Data Type is Password.



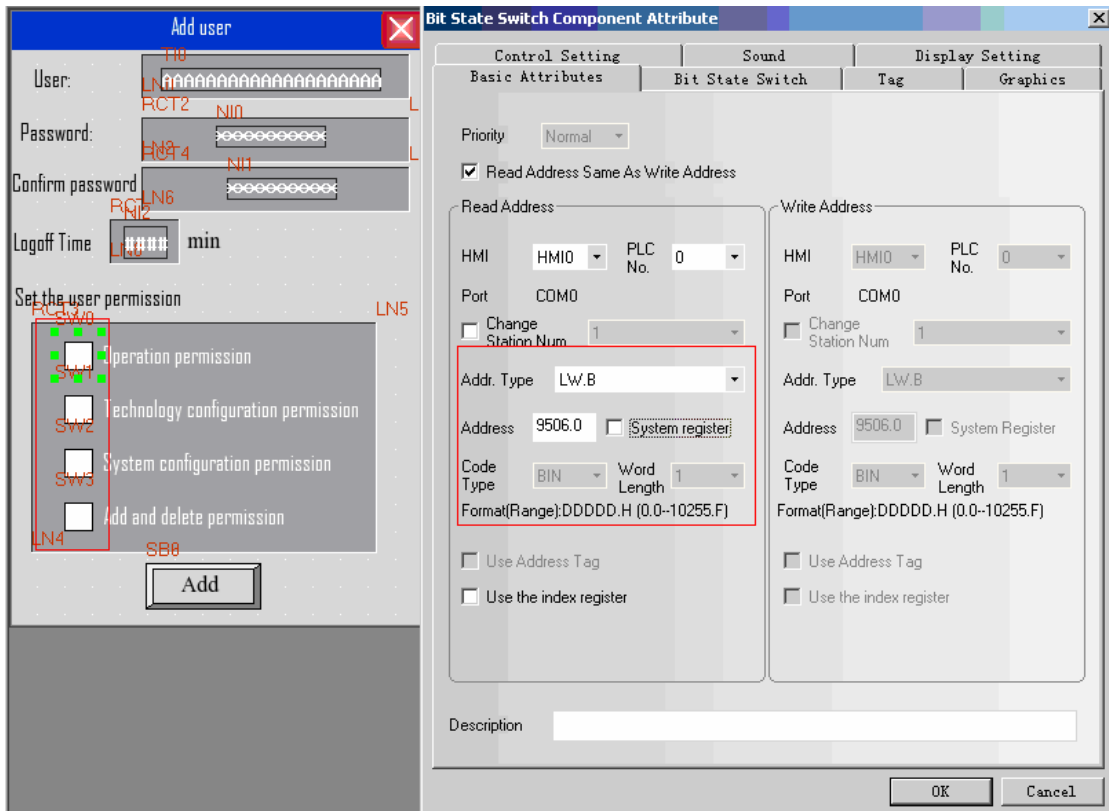
Confirm password: place a Number Input component, the Address is Lw9510, Word Length is 2 ,Data Type is Password.



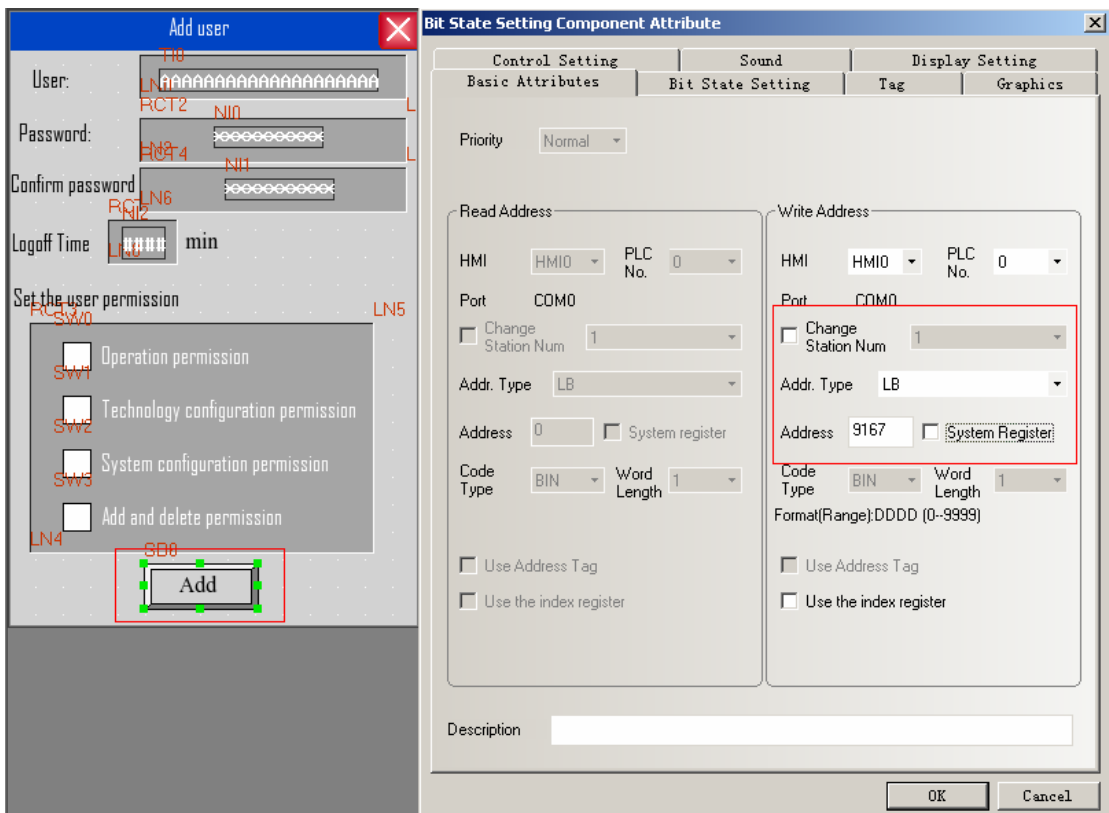
Logoff Time: place a Number Input component, the Address is Lw9508, Word Length is 2 ,Data Type is Unsigned Int :



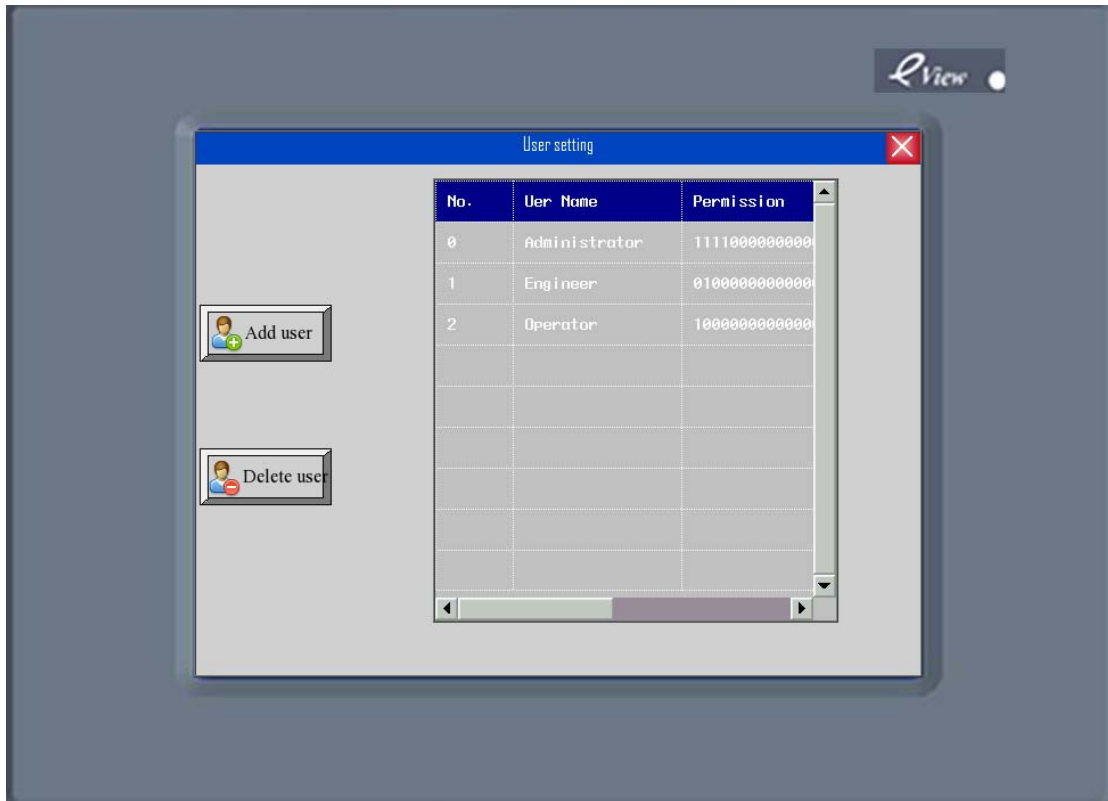
Set the user permission: Place four Bit State Switch , their Address is LW9506.0, LW9506.1, LW9506.2, LW9506.3. Switch Type is Toggle.



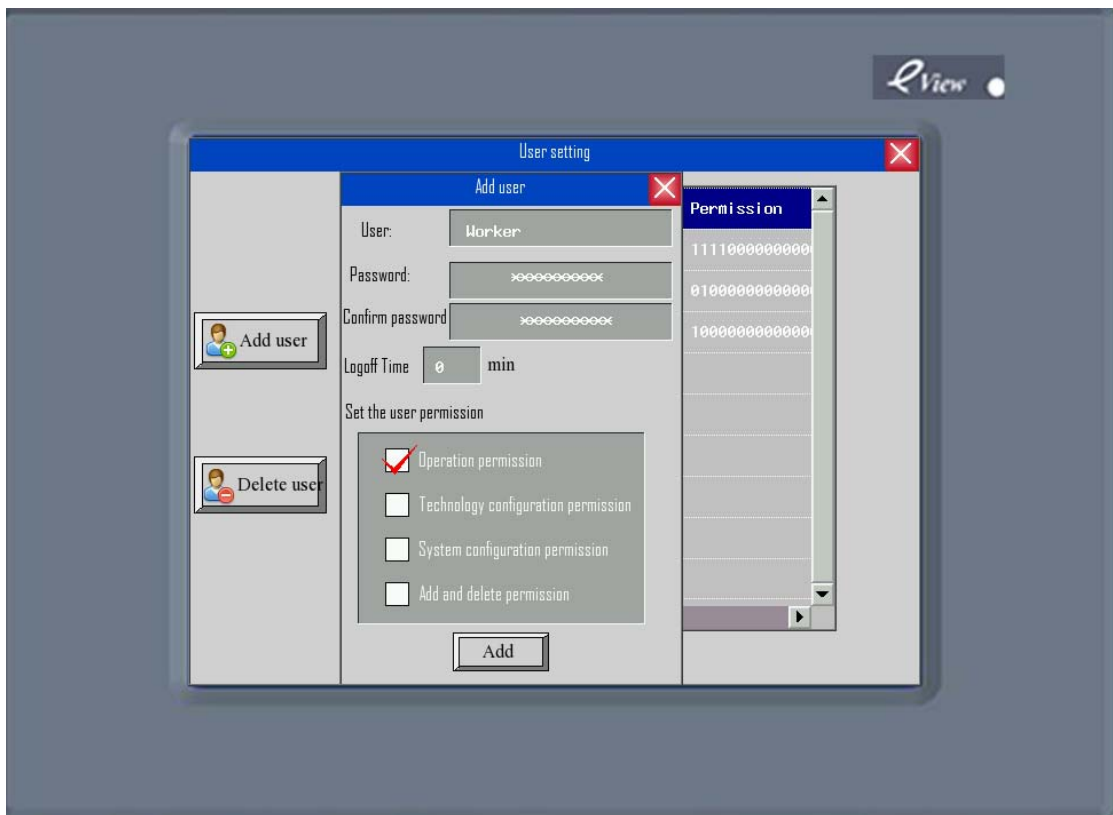
Add: Place a Bit State Switch component, the Address is LB9167., Switch Type is On,. This component is user to add user permission.



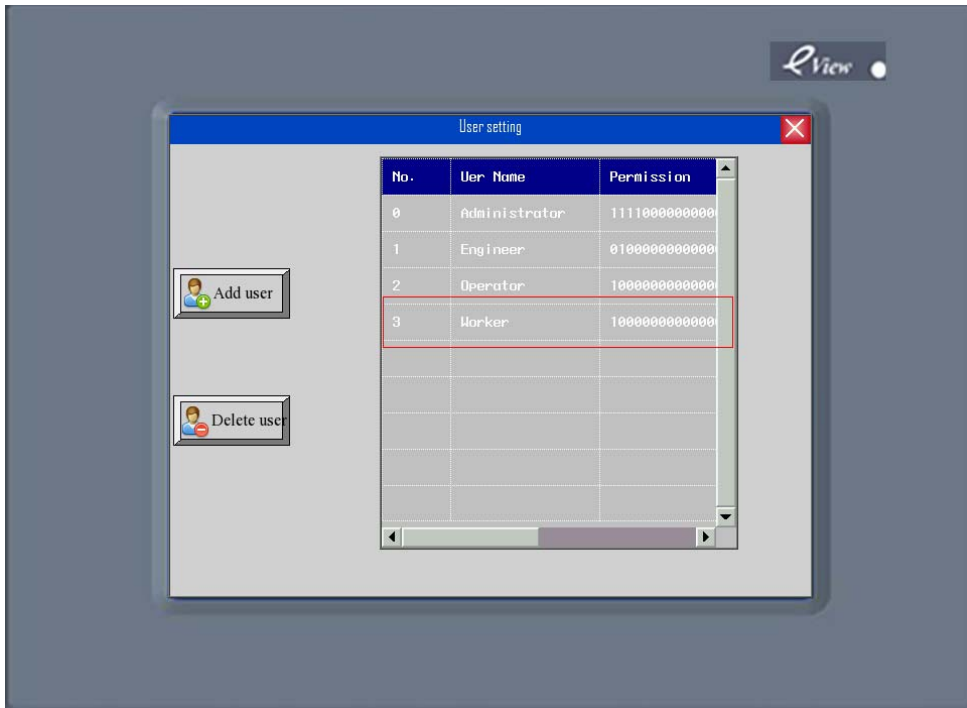
The simulation effect is as the following picture:



Click the Add user. , it will pop up a dialog box like that:

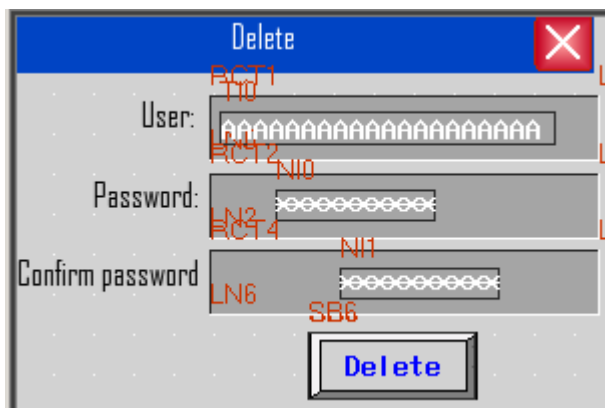


Input user name that need to add, set the password and confirm the password, then set the permission of the user. After the above setting , click Add, so the user is added.



2 Delete the user permission:

The Delete window contains **User, Password, Confirm password, Delete.**



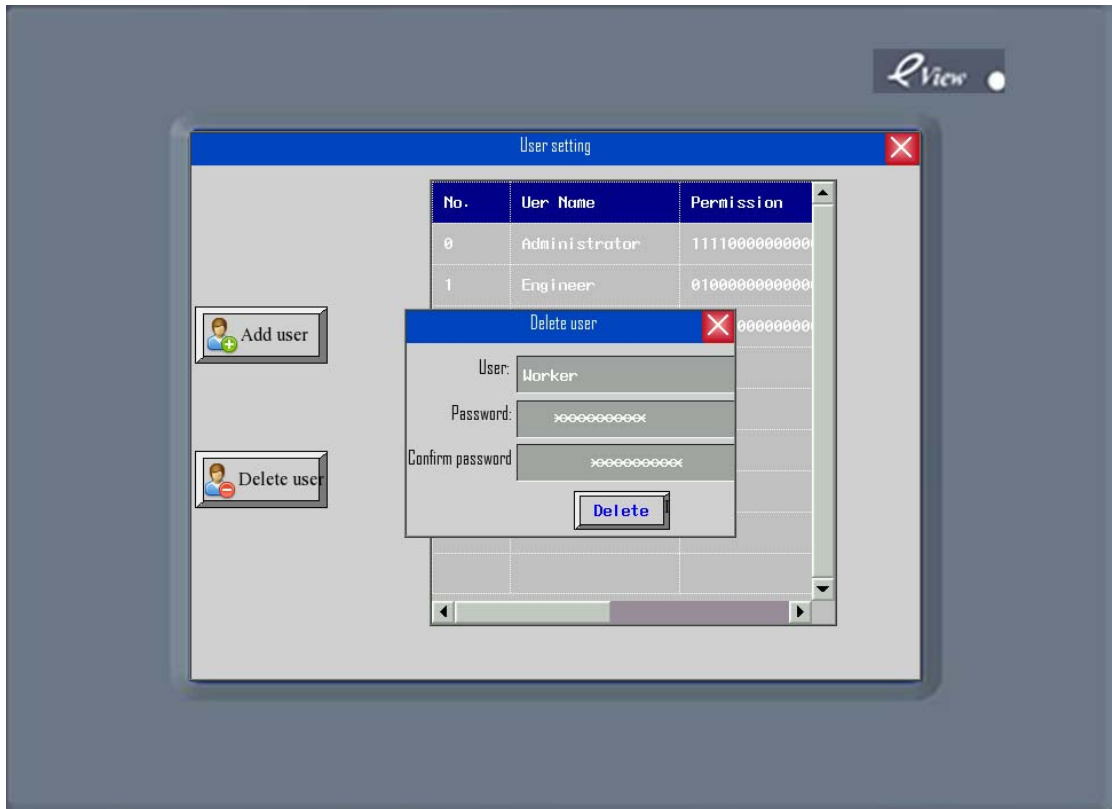
Settings of **User, Password, Confirm password** in Delete window are the same as the User setting window.

Delete: Place a Bit State Switch component, the Address is LB9168., Switch Type is On,. This component is used to delete user permission.

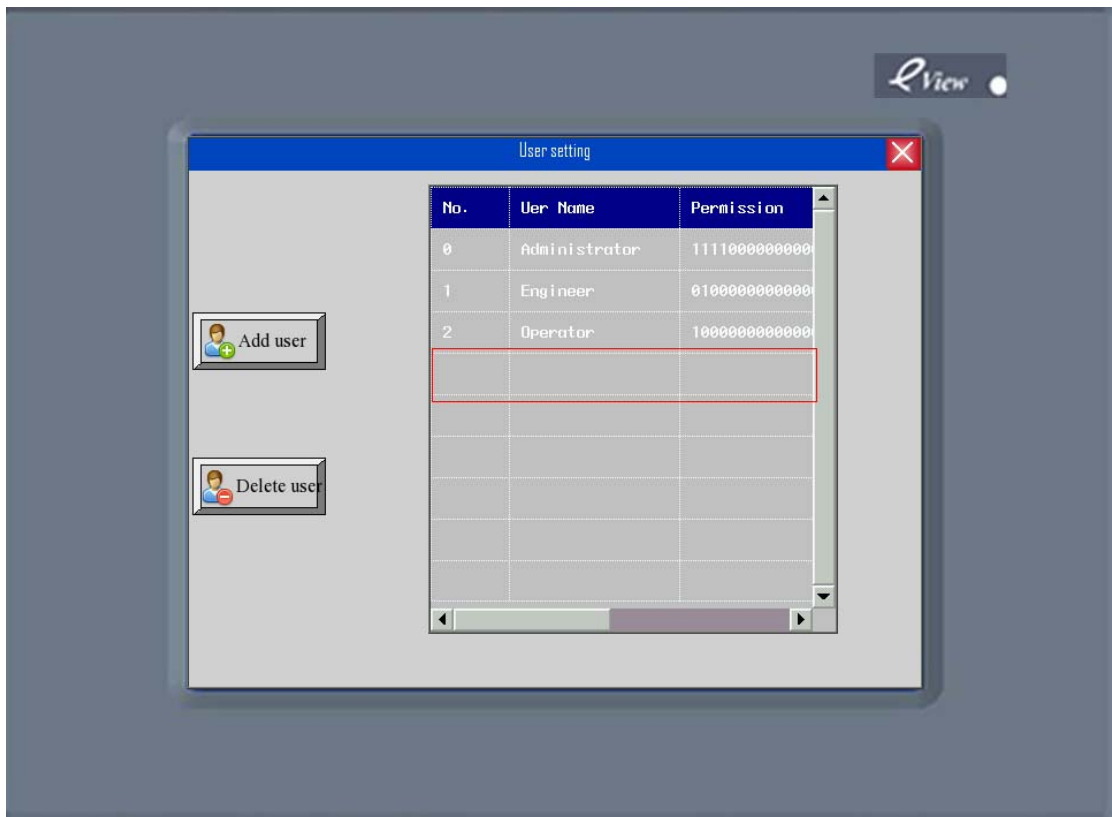
Note Delete user permission is only effective to the users that added via HMI. The users set in the configuration project can not be deleted

The following picture is the effect of offline simulation:

Click the **Delete**, pop up a dialog box named Delete user

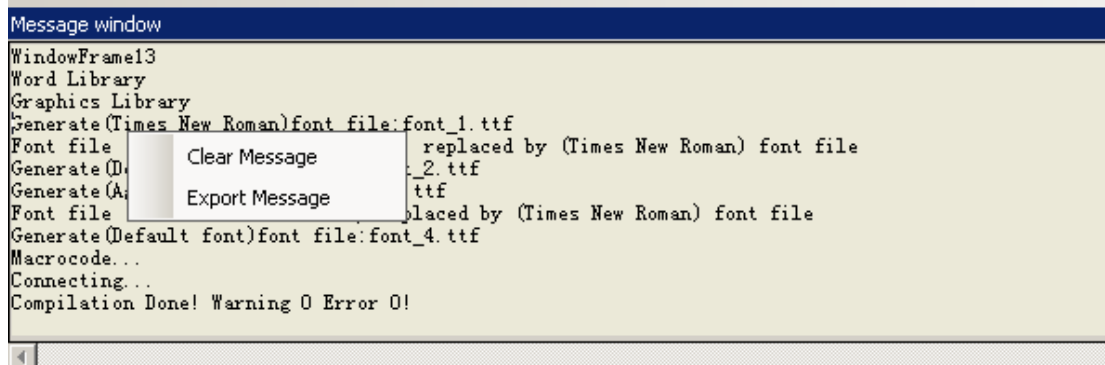


Input the user name ,password and confirm the password, then click the **Delete**, then the user is deleted.



12 Clear/export the compiling message

In the Message Window, you can clear or export the compiling message. Click the right left mouse button in the Message window, it will pop up two options:

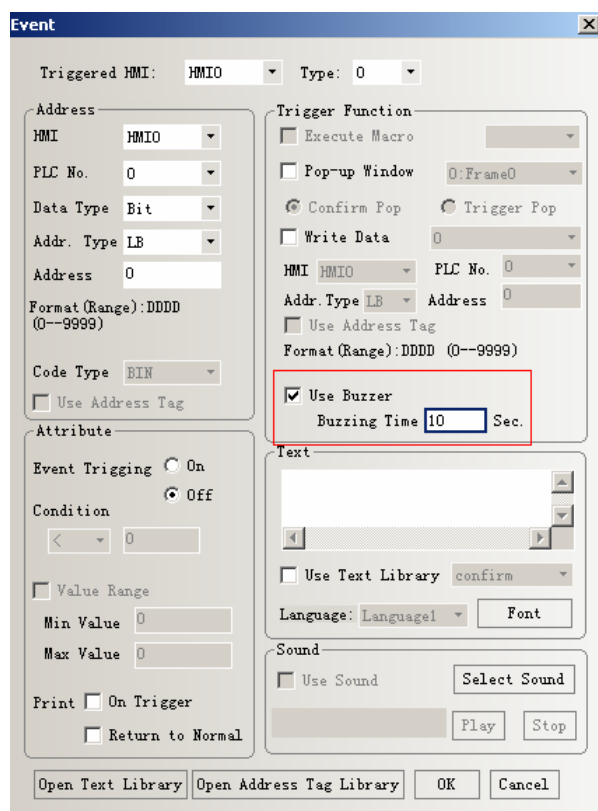


Clear Messages: Clear up all the compiling messages in the Message window.

Export Messages: Export the compiling message to the folder where the current project loaded. The file name is log.txt

13 Event Information can trigger the Buzzer.

In the Event Information, add a new function named Use Buzzer and Buzzing Time can be set. The unit is seconds..

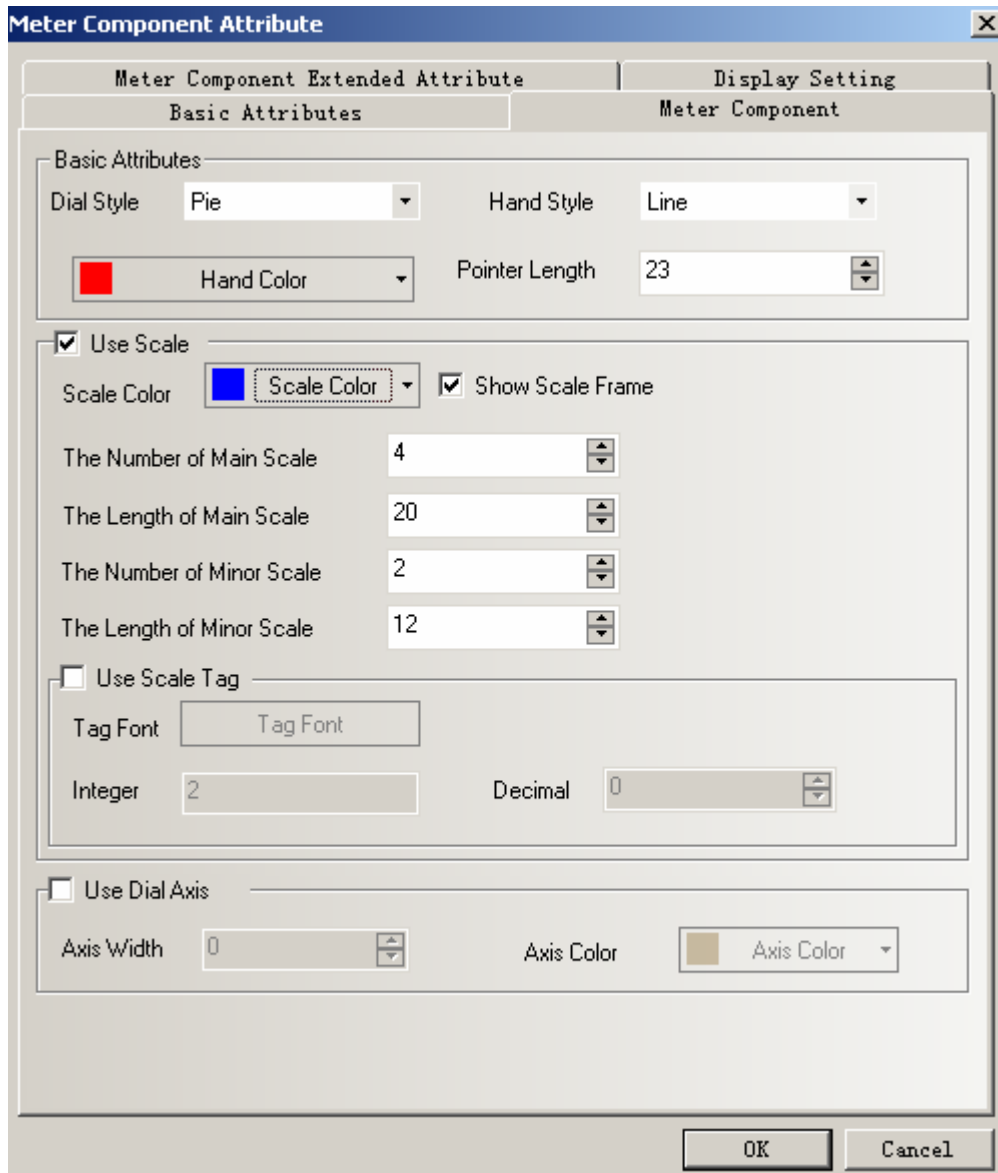


Improvement of components

1 Meter

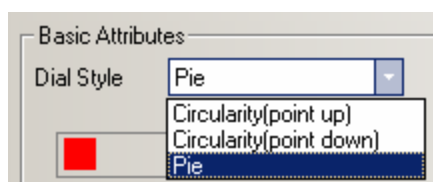
Meter add the function of Using Scale to display, the upper and lower limit in Alarm can be labeled by color block, and Variable Lower / Upper Limit in Meter Component Extended Attribute

(1) Meter

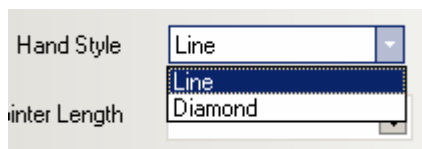


◆Basic Attribute

Dial Style: Choose the dial style of Meter



Hand Style: Choose the hand style of Meter



Hand Color: Chose the hand color of Meter

Point Length: Change the point length of Meter. The utmost length is the radius of the Meter's actual cycle

◆ Scale attribute

Use Scale: Select to display the scale of Meter

Scale Color: Chose the scale color of Meter

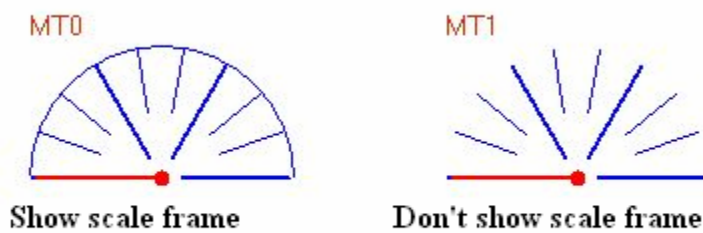
The Number of Main Scale : Change the number of main scale. The range is from 0 to 50

The Length of Main Scale :Change the length of main scale. The utmost length is the radius of the Meter's actual cycle

The Number of Minor Scale: Change the number if minor scale

The Length of Minor Scale; Change the length of minor scale. The utmost length is the radius of the Meter's actual cycle

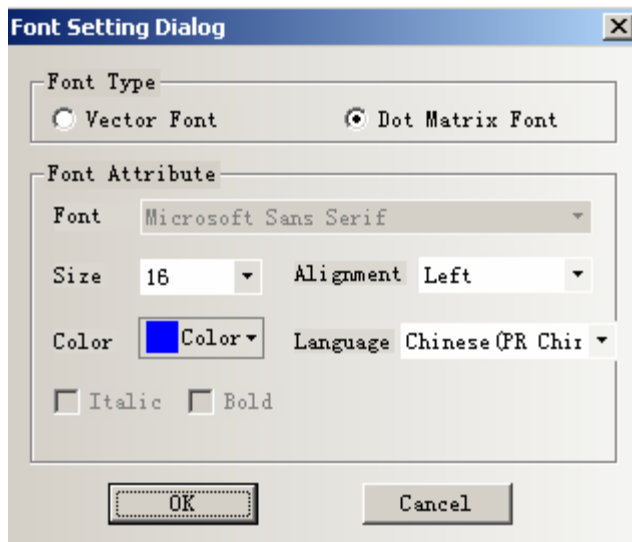
Show Scale Frame: Select to show scale frame



Scale tag

Use Scale Tag: Select to display the scale tag

Tag Font: Click the Tag Font to set the font of Scale Tag



Integer: Integer of scale tag.(Can not be set , but it can be adjusted by the Maximum of the Meter automatically)

Decimal: Change the decimal of scale tag. (Ranges from 0 to 8)

◆ Attribute of Dial Axis

Use Dial Axis: Select to change the size and color of the Dial Axis.

Axis Width: Change the size of the dial axis. The utmost width is the radius of the

Meter's actual cycle

Axis Color: Change the color of dial axis.

2 Meter Component Extended Attribute

◆ Maximum and Minimum:

Minimum: Set the scale's minimum of Meter

Maximum: Set the scale's Maximum of Meter

◆ Variable Min/Max

Variable Min/Max: If checked, means that the scale's minimum and maximum will use variable in

Addr.Type: Address type of the variable register, it is a word register

Address: The first address of variable register

Word Length: Word length of variable register, the default is 2. Suppose the variable register Address of Minimum and Maximum used is Lw1, That is to say LW1 is the variable that **Minimum** used, LW2 is the variable that **Maximum** used.

◆ Alarm

Alarm: If checked, it means the Meter uses color block to label Upper/Lower Limit alarm.

Upper Limit Color: Set block color of upper limit area of the Meter.

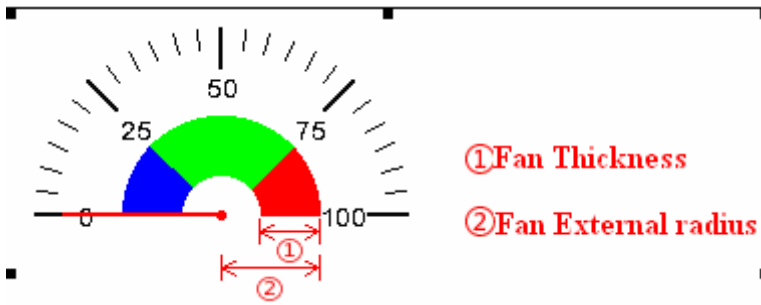
Low Limit Color: Set block color of lower limit area of the Meter

Normal Color: Set block color of normal lower limit area of the Meter.

Fan Thickness: Set the thickness of ring like color block, the utmost is the radius of the Meter's actual cycle and it must be less or equal to the Fan External Radius.

Fan External Radius: Set radius of the ring like color block. The utmost is the radius of the Meter's actual cycle and it must be bigger or equal to the Fan Thickness.

Example:



Lower Limit: Set the lower limit value of the Alarm.

Upper Limit: Set the upper limit value of the Alarm

◆ Variable Lower/Upper Limit

Variable Lower/Upper Limit: If checked, it means the upper/lower limit alarm value uses the variable register..

Addr.Type: Address type of the variable register, it is a word register

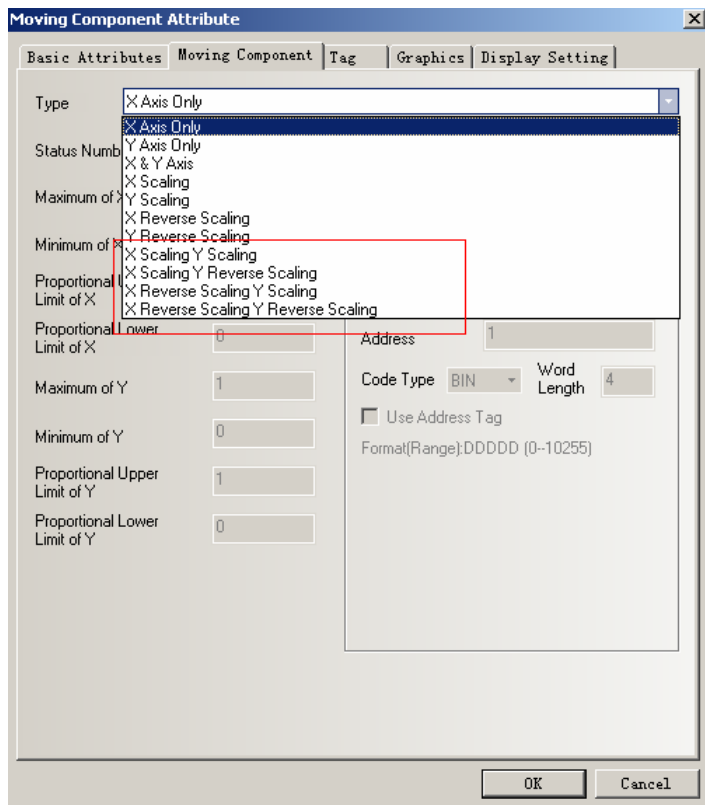
Address: The first address of the variable register

Word Length: Word length of the variable register, the default is 2. Suppose the variable register Address that the Upper/Lower limit alarm used is LW1, that is to say LW1 is the Lower Limit alarm value, then LW2 is the Upper Limit value.

2 New moving ways are added in Moving Component

There are four new moving ways are added into Moving Component. They are:

- 1 X Scaling, Y Scaling.
- 2, X Scaling, Y Reverse Scaling
- 3, X Reverse Scaling, Y Scaling.
- 4, X Reverse Scaling, Y Reverse Scaling.



Related attributes:

	X	Y	X&Y
First address	Graphic state	Graphic state	Graphic state
First address +1	Movement on X axis	Movement on X axis	Movement on X axis
First address +2	—	—	Movement on Y axis

Some explains:

X Scaling, Y Scaling.	Moving component move along the X and Y axis horizontally, we can set the relative movement position by value input and proportional value(For example ,the range X axis read from PLC is from 0 to 640, but the relative position we want to show on HMI is from 0 to 320, and the range Y axis read from PLC is from 0 to 480, but the relative position we want to show on HMI is from 0 to 240. The following are the settings:)
-----------------------	--

<p>X Scaling, Y Reverse Scaling</p>	<p>Moving component moves along the X and Y axis horizontally, we can set the relative movement position by the value input and proportional value. But the Moving component moves along Y axis in the reverses direction.</p>
<p>X Reverse Scaling, Y Scaling</p>	<p>Moving component moves along the X and Y axis horizontally, we can set the relative movement position by the value input and proportional value. But the Moving component moves along X axis in the reverses direction</p>
<p>X Reverse Scaling, and Y Reverse Scaling</p>	<p>Moving component moves along the X and Y axis horizontally, we can set the relative movement position by the value input and proportional value. And the Moving component moves along X and Y axis in the reverses direction</p>

1. Variable Min/Max

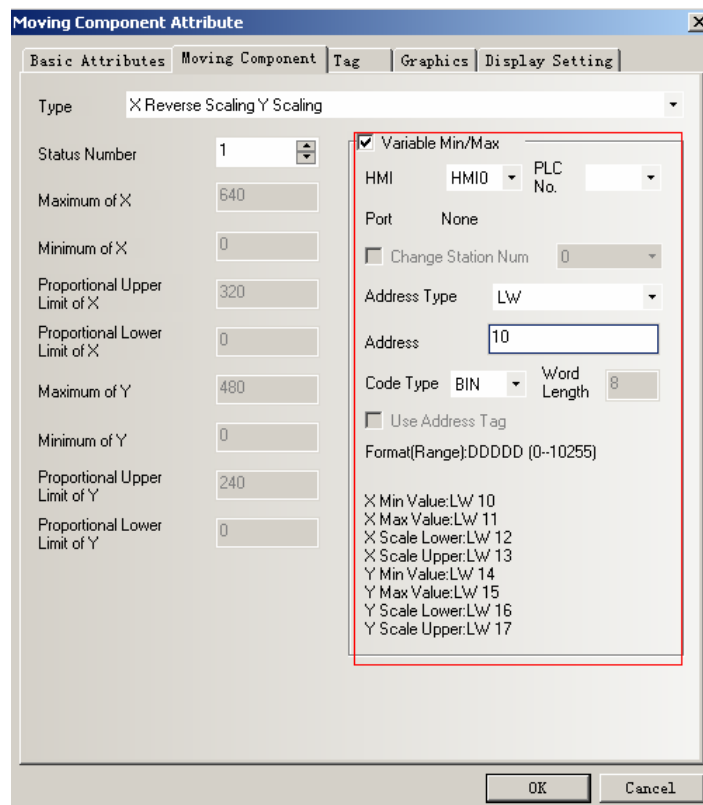
If checked, the values of **Maximum of X**, **Minimum of X**, **Proportional Upper Limit of X**, **Proportional Lower Limit of X**, **Maximum of Y**, **Minimum of X**,

Proportional Upper Limit of Y ,Proportional Lower Limit of Y are read from the register.

Example:

Suppose the moving way of Moving component is **X Reverse Scaling**, and **Y Reverse Scaling**.

The address of Variable Min/Max is LW10, so the values of **Maximum of X, Minimum of X, Proportional Upper Limit of X, Proportional Lower Limit of X, Maximum of Y, Minimum of X, Proportional Upper Limit of Y, Proportional Lower Limit of Y** are the values of LW10,LW11,LW12,Lw13,LW14,LW15,Lw16,LW17. As in the following picture;

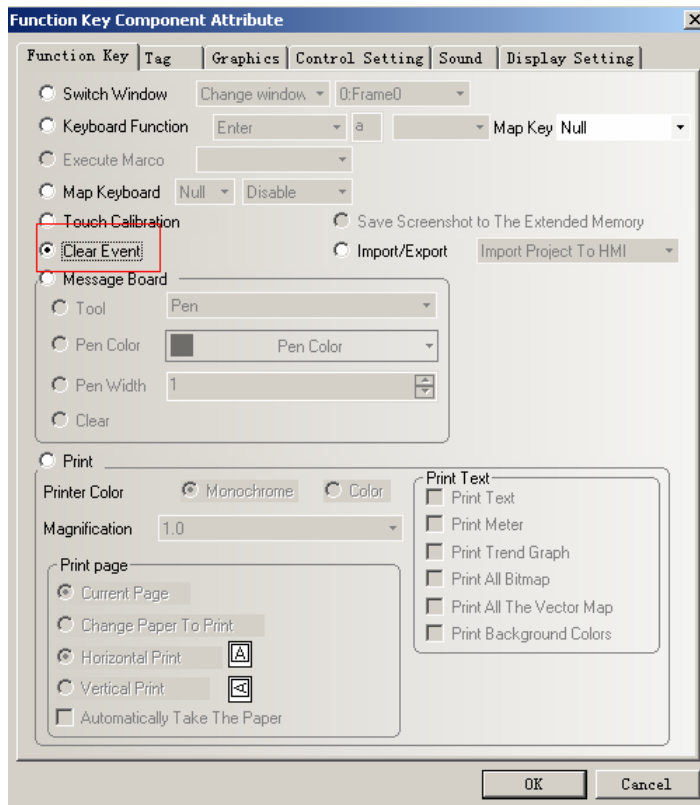


3 Clear the event content

In the Function Key , add a new function called **Clear Event**.

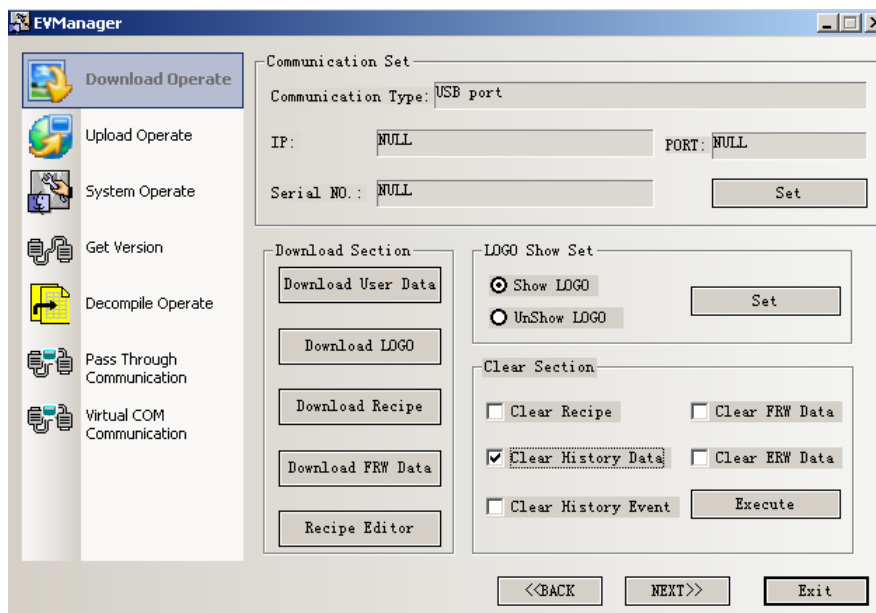
So there are three ways to clear event content.

1, **Clear Event** in the **Function Key**, click the Function Key and then the event content is cleared.



2, A local register LW10015, when the value of LW10015 turn to 0, the event content is cleared. How to use: place a Multiple State Setting component , the address is LW10015, Setting Mode is Set Constant , Set Value is 0.

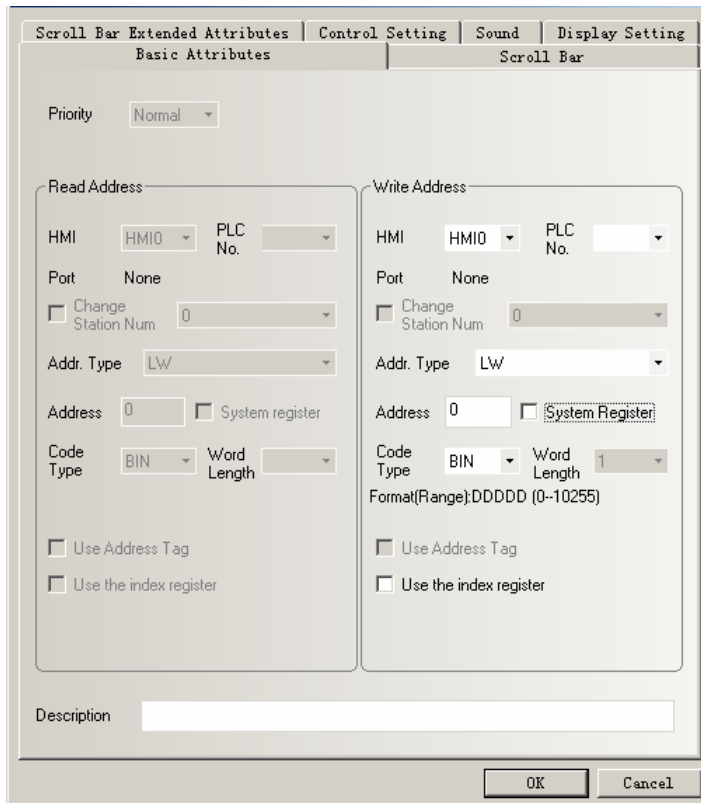
3, When download the project, select **Clear History Event** in the EVManager, as shown in the picture:



4, Scroll Bar

In Scroll Bar, adds a option of Scroll Bar Extended Attributes, it contains **Slider Width** and **Variable Max/Min Value**.

1 Basic Attributes

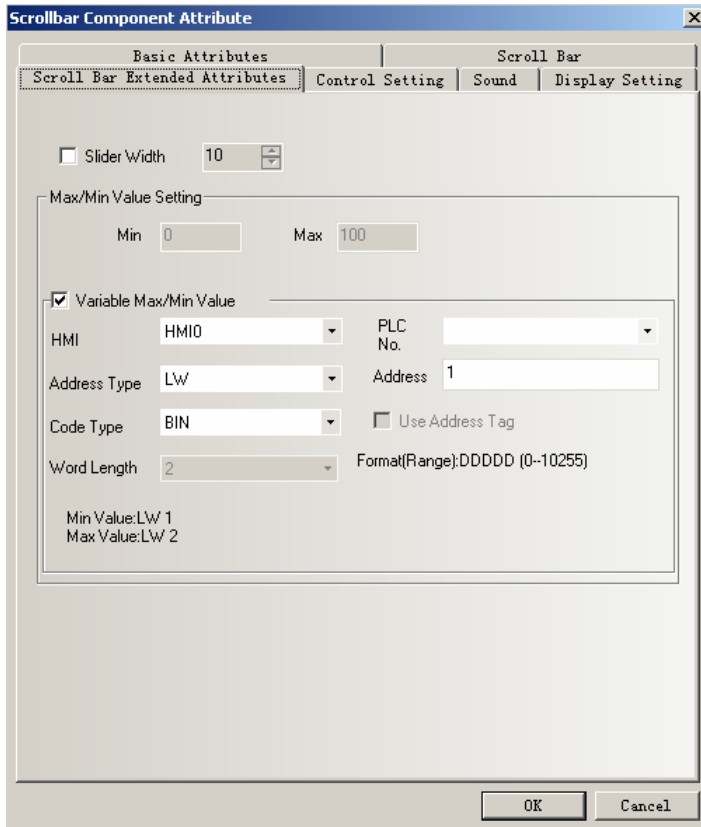


Addr.Type:: Address type of the variable register, it is a word register

Address: Address of Scroll Bar component, that is scanning index address of Scroll Bar.

Word Length: Number of register address for Scroll Bar, the default was 3 before and change to 1 now. The register of the first scanning index value and max scanning index value are changed to Variable Min/Max Value register.

2 Scroll Bar Extended Attributes:



Slider Width: if checked, that is to say you can set the width of Scroll Bar manually (The width ranges from 1 to 30),If not checked, the width is the default value 10(Pixels)



Max/Min Value Setting

Min: The minimum of scroll Bar, that is the first scanning index value.(ranges from -2147483648 to 2147483647)

Max: The maximum of scroll Bar, that is the max scanning index value.(ranges from -2147483648 to 2147483647)



If the **Max/Min Value** are constants, you need not to set the value of them via a register component that you did before

Variable Max/Min Value: If checked, that is to say the **Max** and **Min** of Scroll Bar use the variable value. Suppose the **Address** of **Variable Max/Min Value** is LW1, that is to say the first scanning index value is LW1 and the max scanning index value is LW2.

5 Trend Curve, XY Plot and Oscillograph


Add Extended Attributes option in Trend Curve, XY Plot and Oscillograph: the extended functions are:

- 1 Use Grid , Background Color and so on.
- 2 Connect Style of sampling points
- 3 Variable Period is available in Trend Curve, XY Plot
- 4
- 5 Number of Points can uses variable value
- 6 Trend Curve can be saved in HMI or external device

The screenshot shows the 'Channel Properties' dialog box with the following settings:

- Channel Properties:**
 - Channel: 0
 - Line Style: (empty)
 - Line Width: (empty)
 - Connect Type: (empty)
 - Connect Style: LINE
- Node Properties:**
 - Node Graph: NULL
 - Node Size: 1
 - Node Color: (brown)
- Use Grid:** (checked)
 - Lines: 3
 - Columns: 2
 - Background Color: (green)
 - Grid Line Color: (white)
 - Grid Line Width: (empty)
 - Grid Line Style: (empty)
- Variable Period:** (unchecked)
 - HMI: HMI | PLC No. (empty)
 - Address Type: LW | Address: 0
 - Code Type: BIN | Use Address Tag (unchecked)
 - Word Length: 2
 - Format(Range): DDDDD (0-10255)
- Number of Points:** (unchecked)
 - HMI: HMI | PLC No. (empty)
 - Address Type: LW | Address: 0
 - Code Type: BIN | Use Address Tag (unchecked)
 - Word Length: 1

(If you use variable period, system still using the previous set of cycle parameters when poor communication)

 When period and number of points use the variable value, the variable values are used in priority; if the variable values can not be read because of communication failure, the system will use the default value.

Trend Curve, XY Plot and Oscillograph use the extended function
Setting of **Extended Attributes** in Trend Curve :

The screenshot shows the 'Channel Properties' dialog box with the following settings:

- Channel Properties:**
 - Channel: 0
 - Line Style: (empty)
 - Line Width: (empty)
 - Connect Type: (empty)
 - Connect Style: LINE
- Node Properties:**
 - Node Graph: (blue circle)
 - Node Size: 10
 - Node Color: (yellow)

Use Grid

Lines: 5 Columns: 9

Background Color: Grid Line Color:

Grid Line Width: Grid Line Style:

Variable Period

HMI: HMI PLC No.:

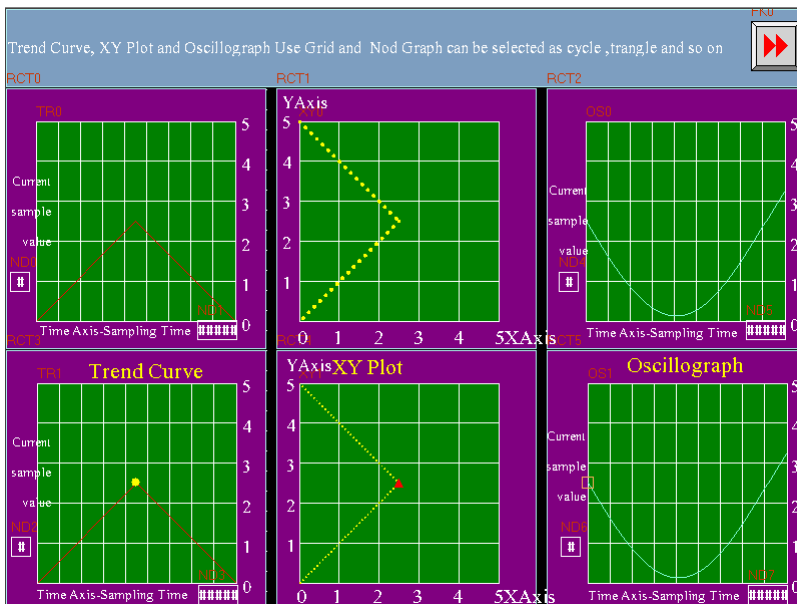
Address Type: LW Address: 1000

Code Type: BIN Use Address Tag

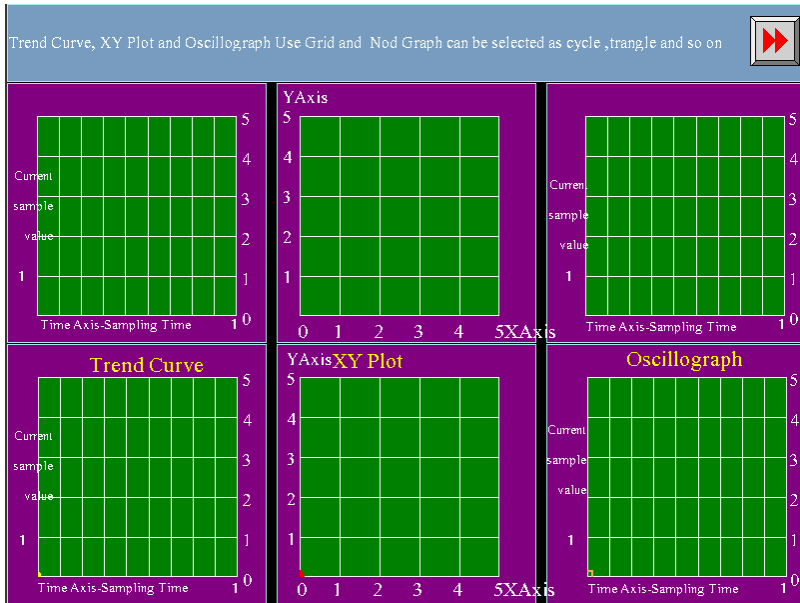
Word Length: 2

Format(Range): DDDDD (0--10255)

The effect of Edit Window is like that:

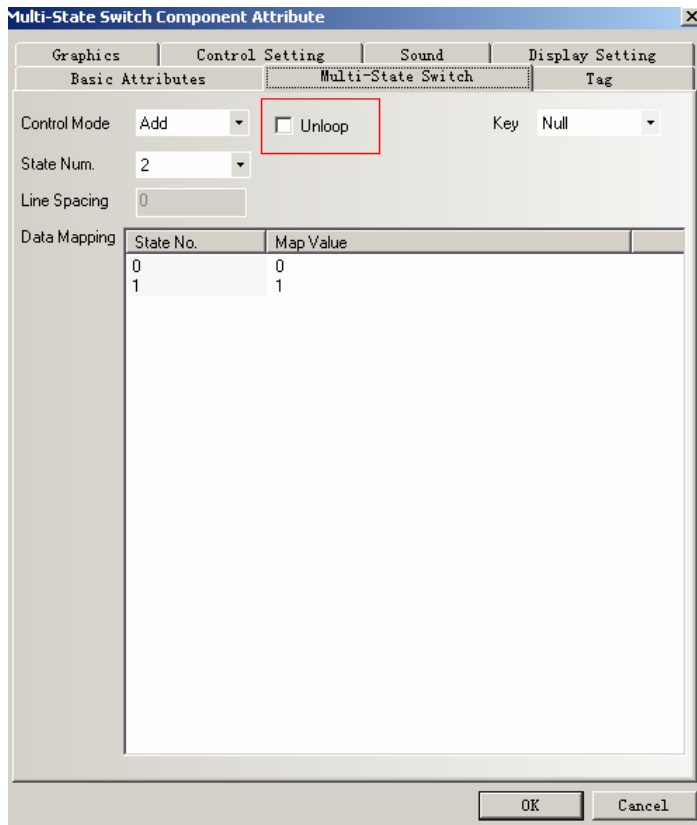


The effect of offline simulation:



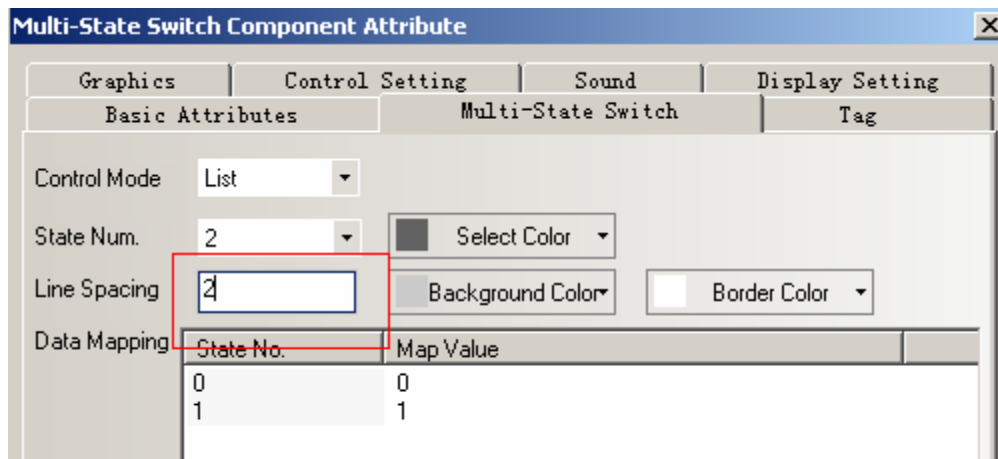
6 Multiple State Switch

1 In the Multi-State Switch option, add a **Unloop** function, the default is uncheck the function



If select the **Unloop**, the Multiple State Switch will not loop when add/sub to the limit.
 If uncheck the **Unloop**, Multiple State Switch will add or subtract repeatedly from the lower limit when it reach the upper limit

2 Line Space of **List** and **Dropdown list** can be set



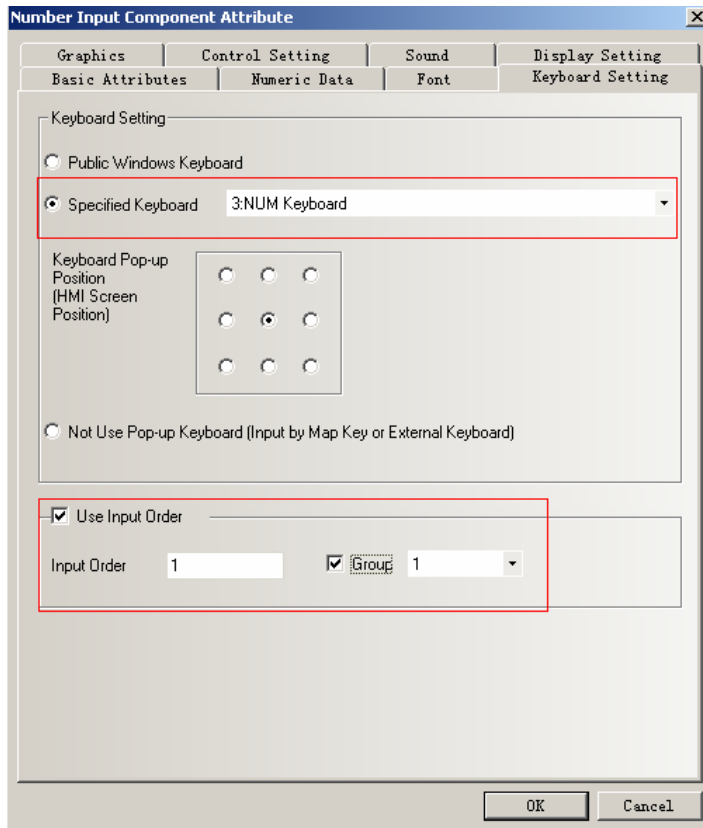
7 For EV5000 V1.6, add a function of **Use Input Order** in Number Input ,Text Input , Note Book component..

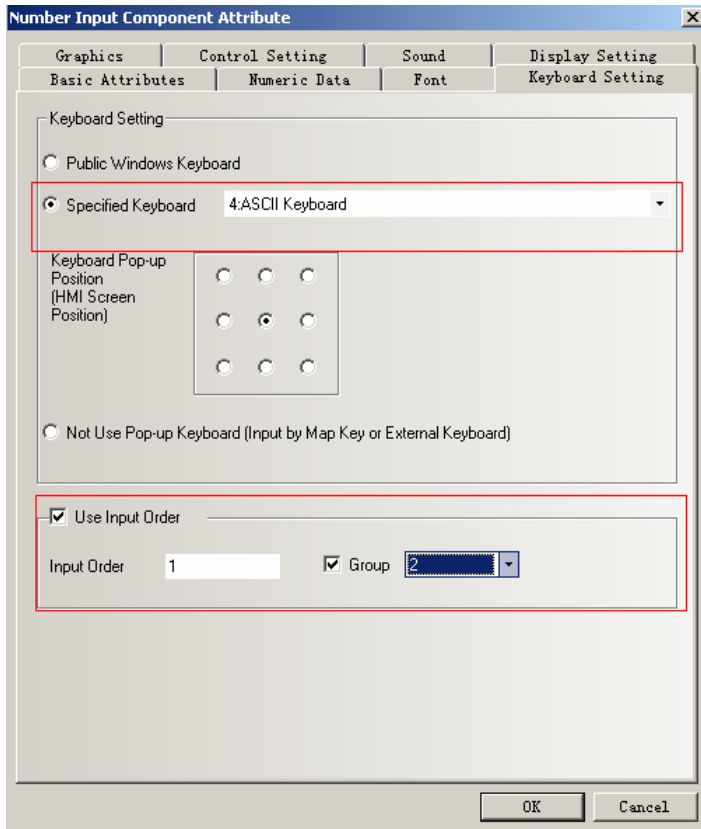
If select the **Use Input Order** in Number Input ,Text Input , Note Book component, you can input values in them continuously. When you finish inputting a value in a component and click Enter, the keyboard will not close automatically, the cursor will blinking among the components that set the Input Order until you click the X button to close the keyboard.

Group: It is used to classify the components that needs to input value continuously, component with same group number are in the same group, the cursor will blinking among the components of same group circularly ,the keyboard will not close even if you click ENTER ,it will close until you click the X button.

Settings of **Use Input Number**

In Number Input ,Text Input , Note Book component, select the **Use Input Number**.





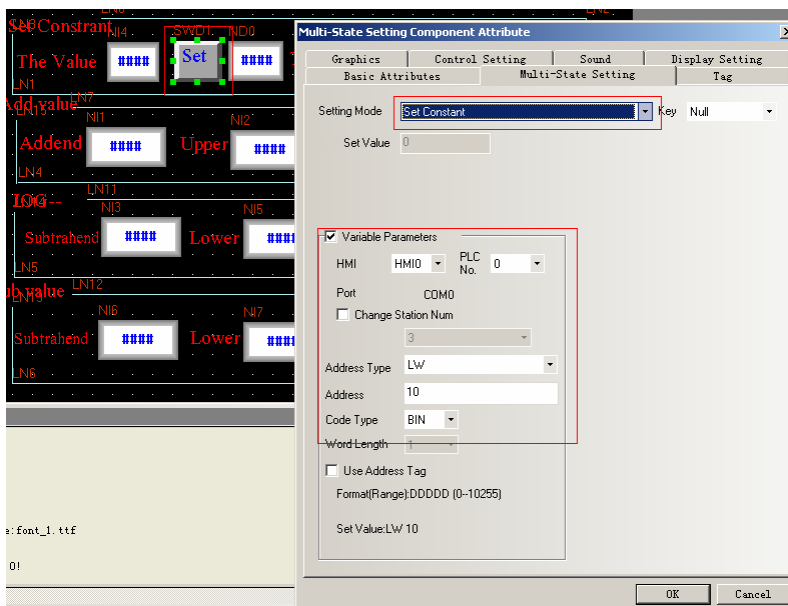
8 Variable Parameters in Multi-State Setting

Add a option of **Variable parameters** in Multi-State Setting of Multiple State Setting component. If checked, that is to say the Upper and Lower can use variable parameters.

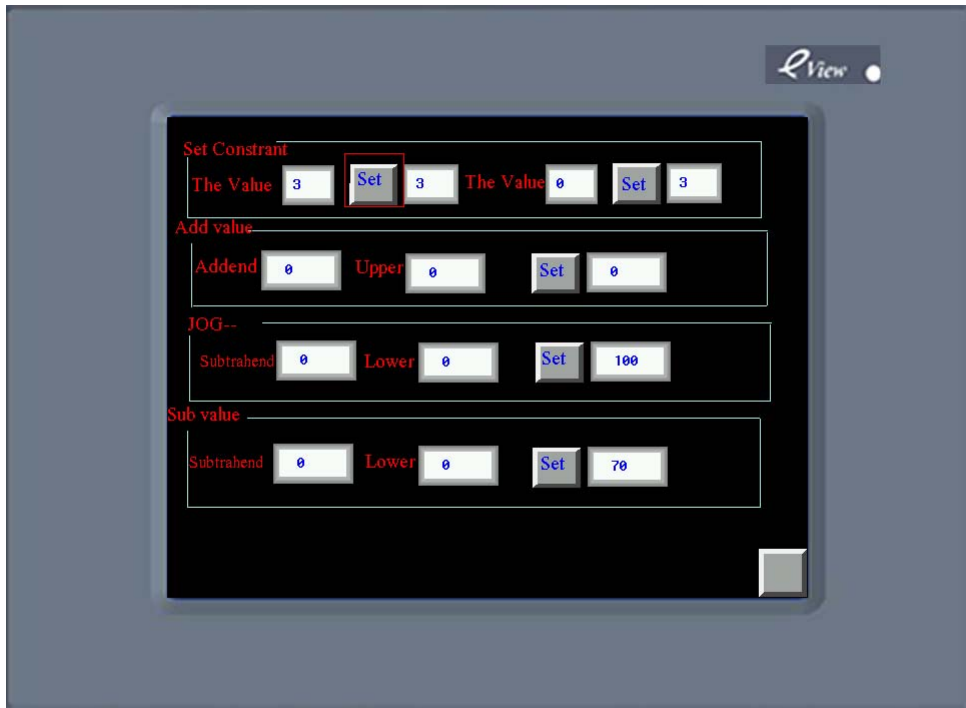
Example :

1 Setting Mode is Set Constant

Suppose the Address in Multiple State Setting component is LW0, Setting Mode is Set Contract, select the Variable Parameters, and its Address is LW10.

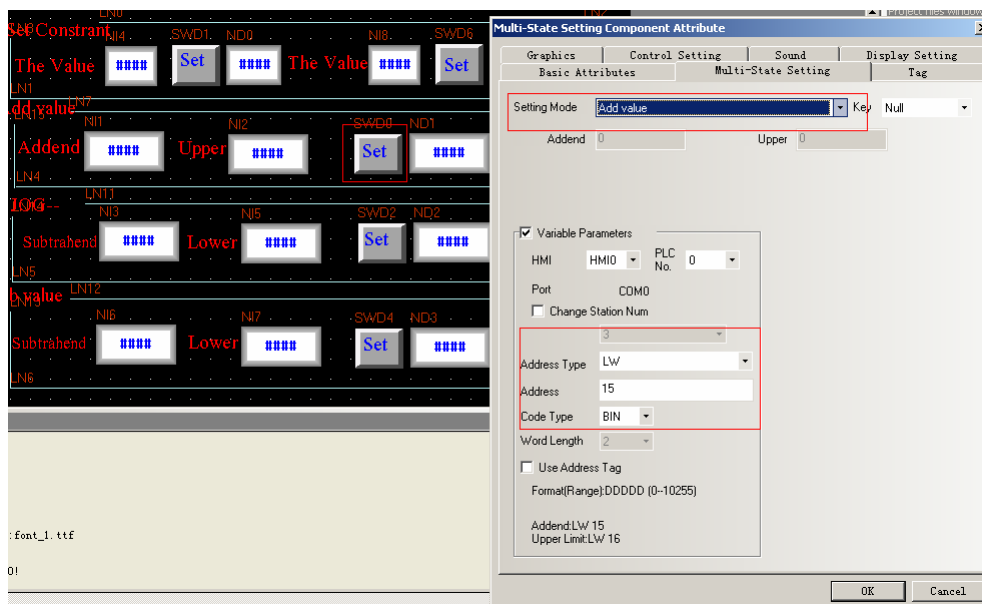


If When Lw10=5, that is to say the constant is 5,click **Set**, 5 in the LW10 will be write into Lw0, the offline simulation effect is :

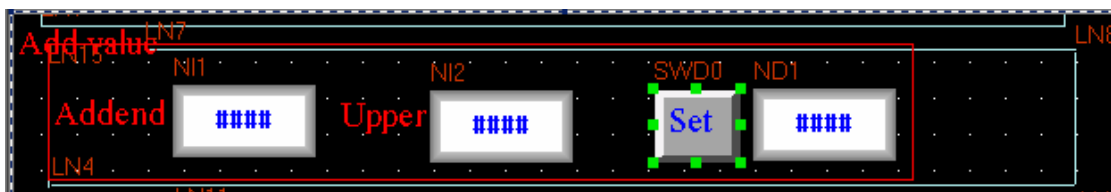


The setting Mode is Add

Suppose the address of Multiple State Setting is LW5, Setting Mode is Add Value, select the **Variable Parameters**, the Address of Variable Parameters is LW15, Word Length is the Default 2, that is to say, the **Addend** is the value of LW15, the **Upper** is LW16.

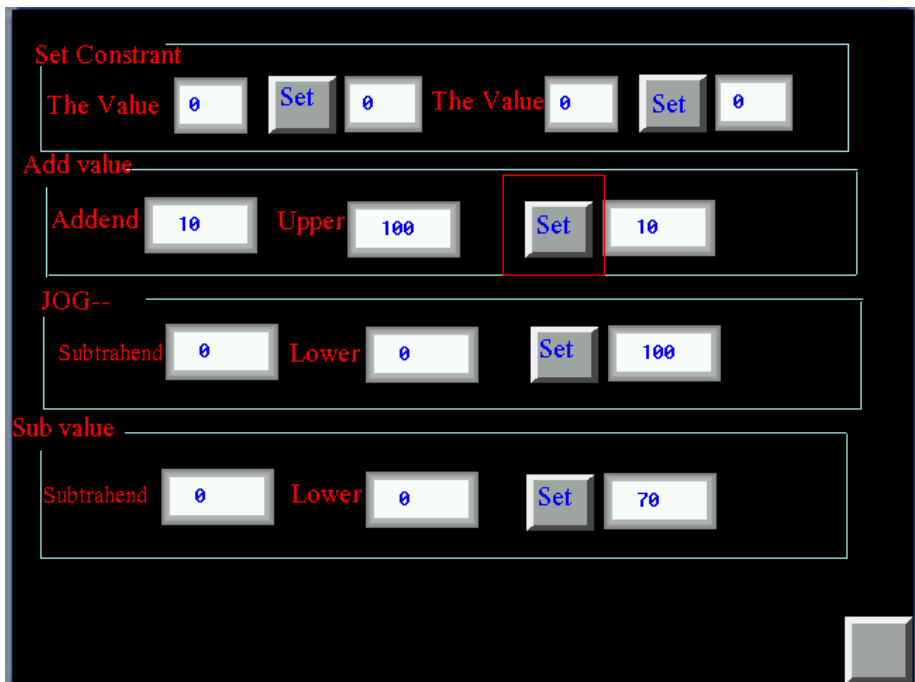


Then place two Number Input components, the Addresses are LW15, LW16. and place a Number Display component, the Address is LW5:



If LW15 =10, Lw16=100, that is to say , the value of LW5 will add 10 every time you click **Set** until it goes to the Upper 100.

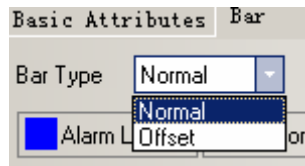
Offline simulation effect:




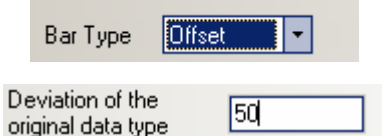


9 Bar Picture

Add a Offset type in **Bar Type**

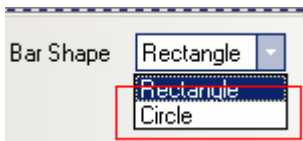
The display effect of offset Bar Picture is the offset between the actual value and deviation of the original data type. For example, deviation of the original data is 50, and the actual value in the register is 60, so the **Bar Picture** display the effect of 10.



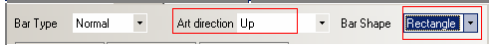
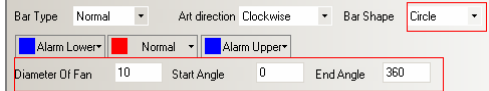
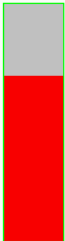
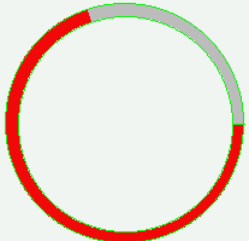
Comparison of effect between the Bar Type of Normal and Offset

Normal	Offset
	
 <p data-bbox="295 1937 782 2016">Display the offset value between current value and Minimum</p>	 <p data-bbox="805 1937 1348 2016">Display the offset value between Deviation of the original data and Minimum</p>

Add a Cycle type in Bar Type



Comparison of effect between Rectangle and Circle of Bar shape

Rectangle	Circle
	
	

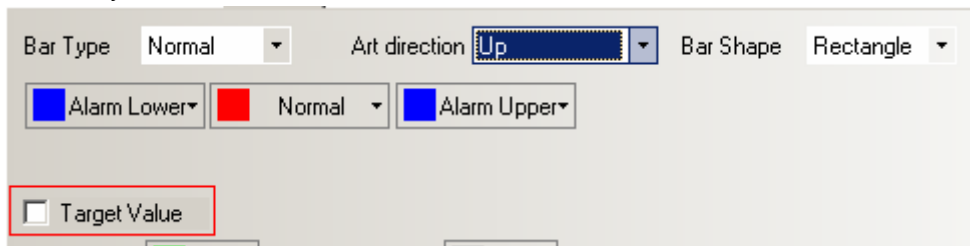
3 Add Target value , Permissible Error and Color

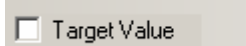
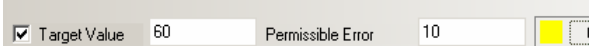
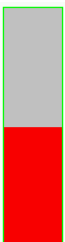
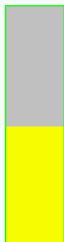
The function of Target value: set a permissible range value, and the set Color can be display in this range.

Permissible Error: the value of Target Value change, for example the Target Value is 60 , the Permissible Error is 10, so the range of Target Value is from 50 to 70.

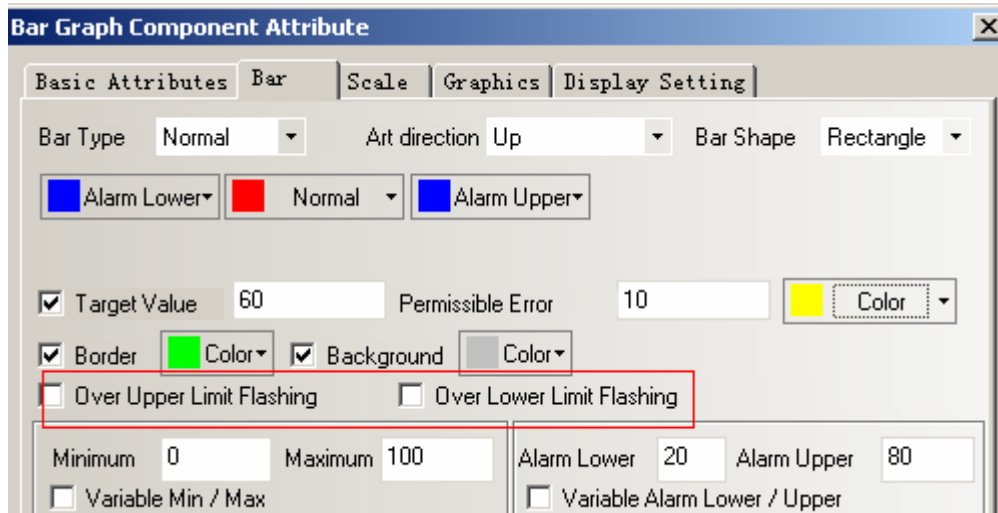
Example:

Target Value is 60, Permission Error is 10, display the yellow color in the Target Value range. That is to say, if the value in the register is between 50 to 70, the Bar Picture display effect is yellow color .



Target Value unchecked	Target Value checked
	
	

3 Add Over Upper Limit Flashing and Over Lower Limit Flashing function.

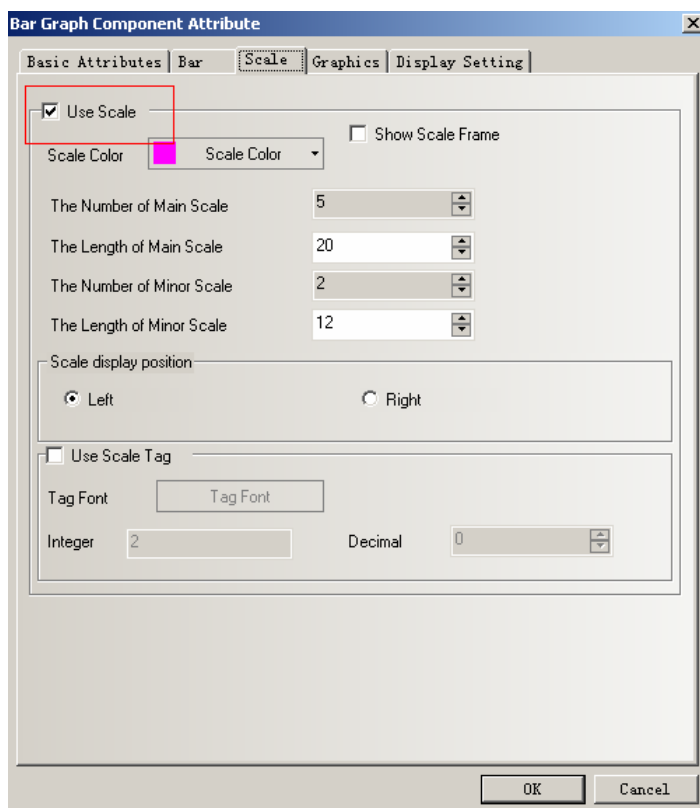


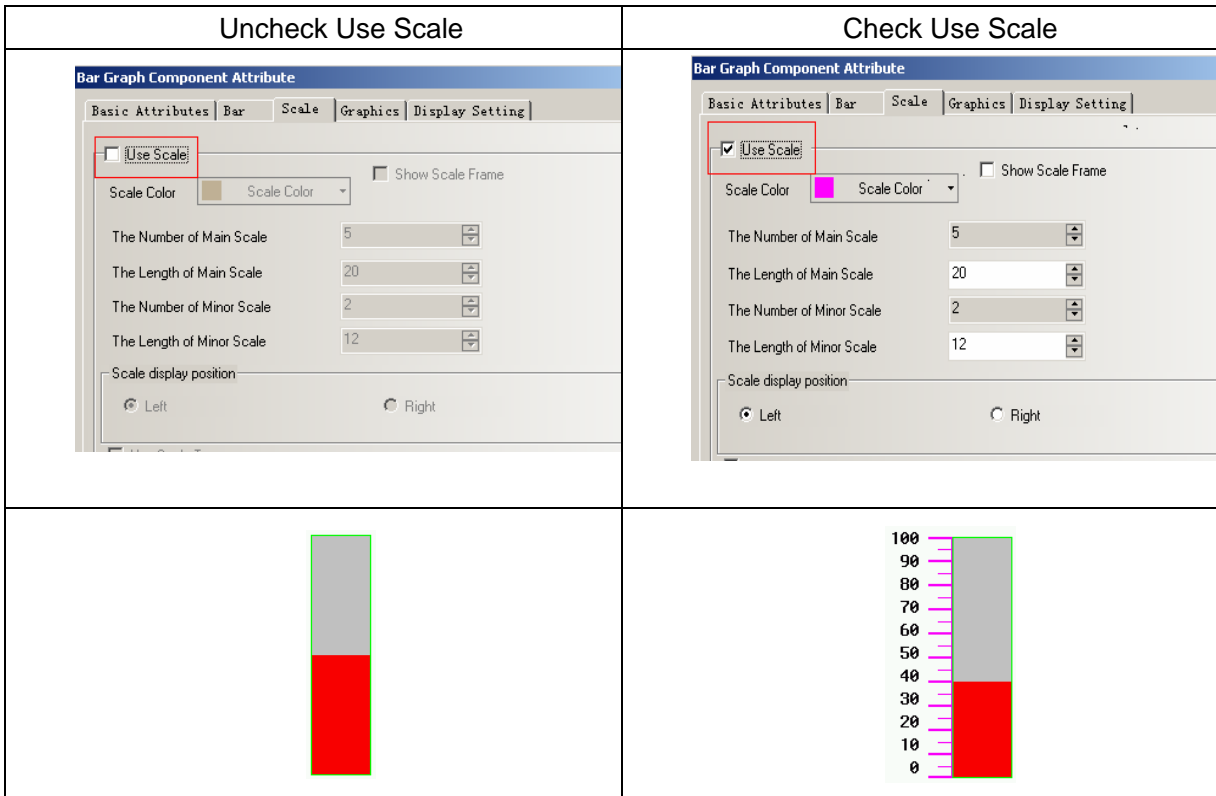
If the **Over Upper Limit Flashing** checked, when the current value is over upper limit , the Bar Picture glitter between **Alarm Upper color** and **Background color**, if unchecked, it will not glitter.

If the **Over Lower Limit Flashing** checked, and if the current value is over lower limit , the Bar Picture glitter between **Alarm Lower color** and **Background color**, if unchecked, it will not glitter.

Add a Scale function

The scale can be displayed conveniently if choose the **Use Scale**, so you need not to add the scale line manually.





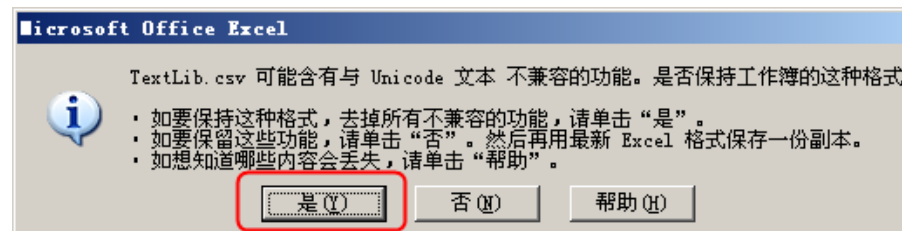
10 Backstage components add function of Import an Export

Backstage components: In Text Library, Address Tag, Alarm Information, Event Information, PLC control, add the function of import and export csv file. The users can edit the content via csv file.

Note

When you save the csv file , please notice that:

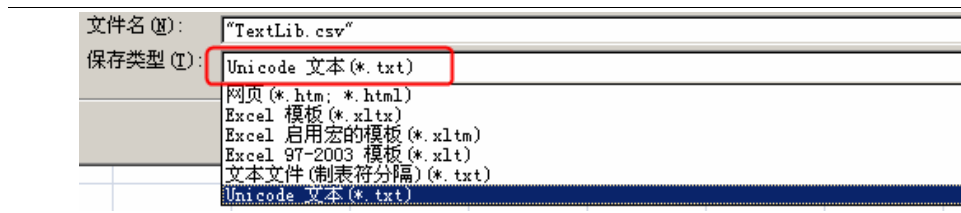
1.Click **Save**, chose **Yes**, as shown in the following picture:



2.Click **Close**, windows suggest you save or not, choose **Yes**, as shown in the following picture:

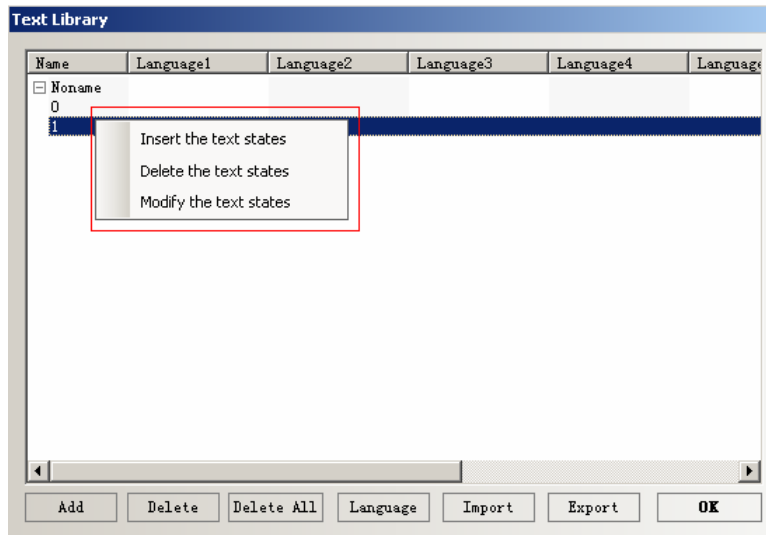


3 **File type** : Do choose **Unicode TXT(.txt)**, as shown in the following picture:



11 Number of text state can be changed in Text Library.

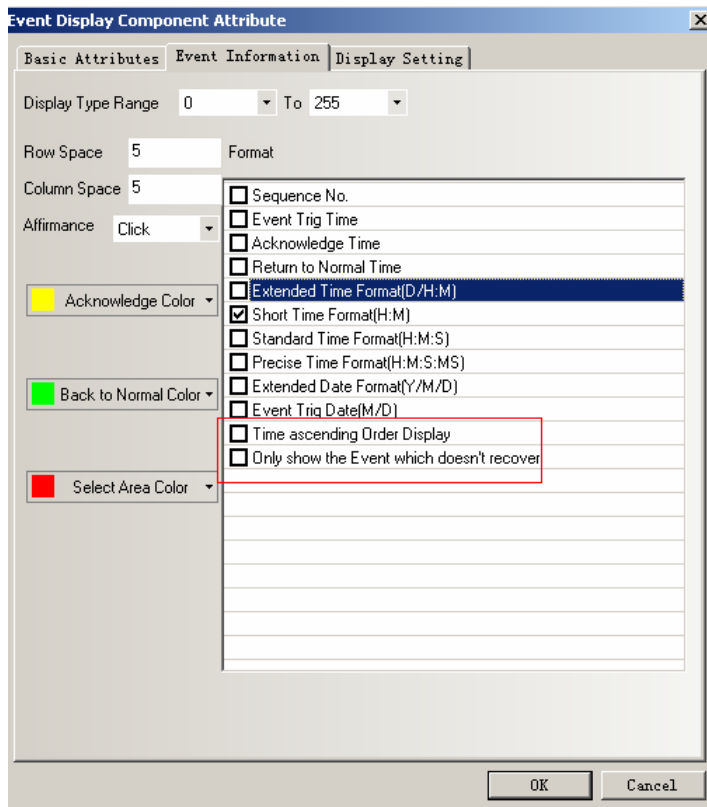
The to change Number of text state in Text Library., click a state and right click. as shown in the following picture.



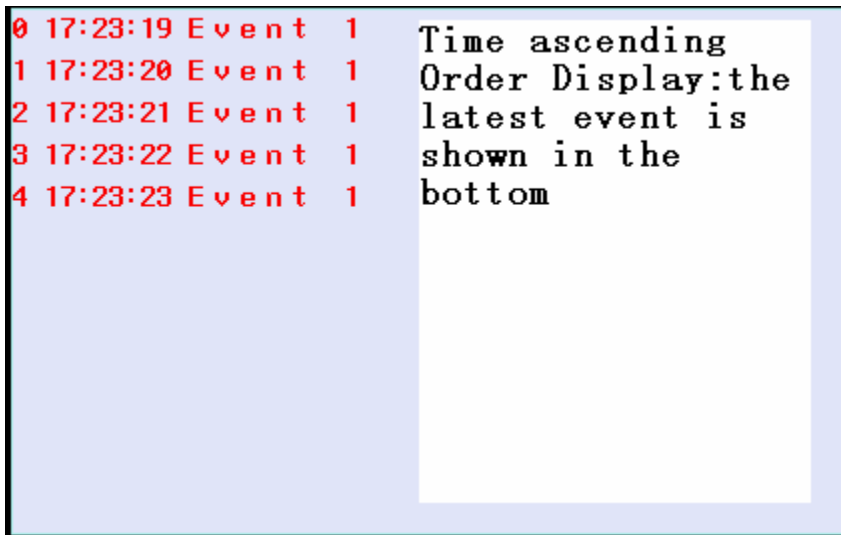
Note Only Language Setting in HMI Extended Attribute and Language Text Library can save the attribute of entire language

12 Event Display component

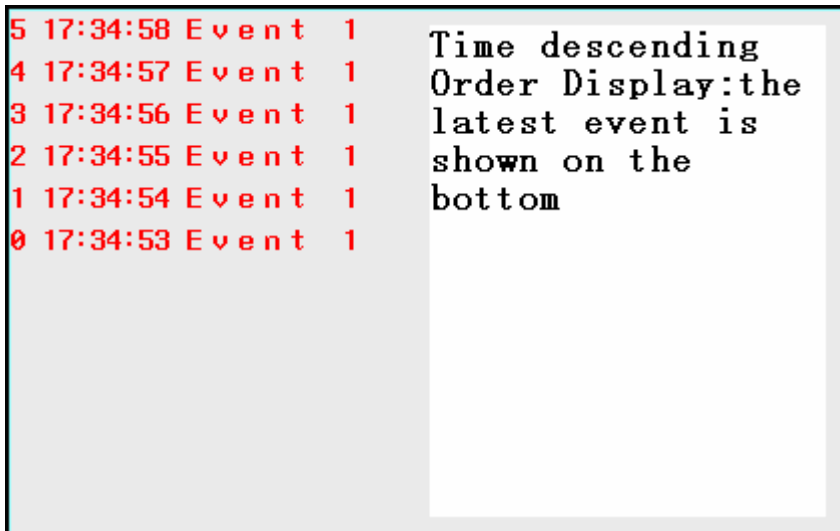
In Event Display, add two formats of **Time ascending Order Display** and **Only show the event which doesn't recover.**



Time ascending Order Display: if checked, the latest event is shown in the bottom, the number and time of a event increase successively from the top to bottom. As shown in the picture:



If uncheck **Time ascending Order Display**, the default is Time descending Order Display, the latest event is shown on the top, the number and time of a event decrease successively from the top to bottom. As shown in the picture:

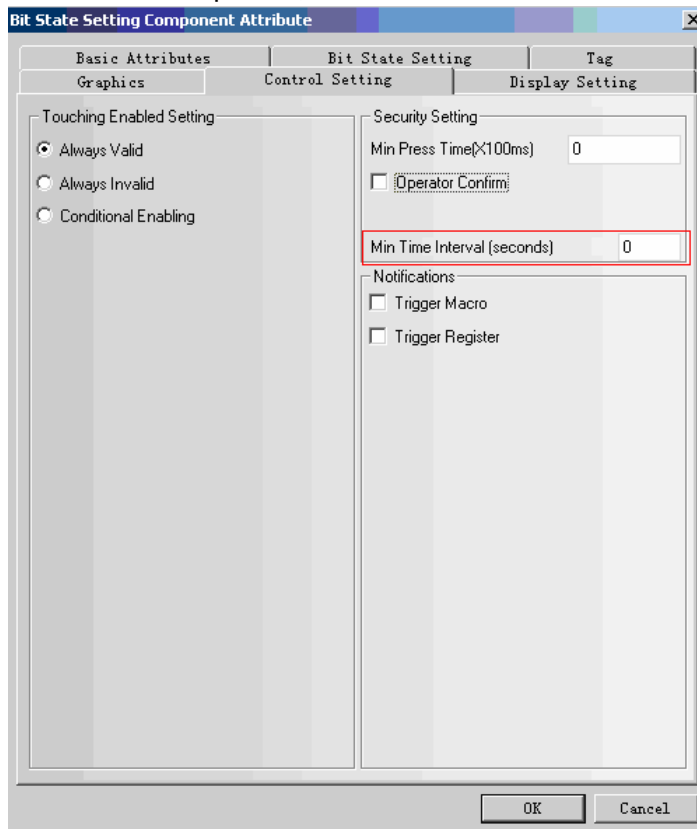


Only show the event which doesn't recover: if checked, so Only show the event which doesn't recover, If a event recovers, it will not be displayed in the Event Display list. If uncheck **Only show the event which doesn't recover**, so the events that were triggered and have recovered are still displayed in the Event Display list, unless clear the Event Display list.

13 Min Time Interval

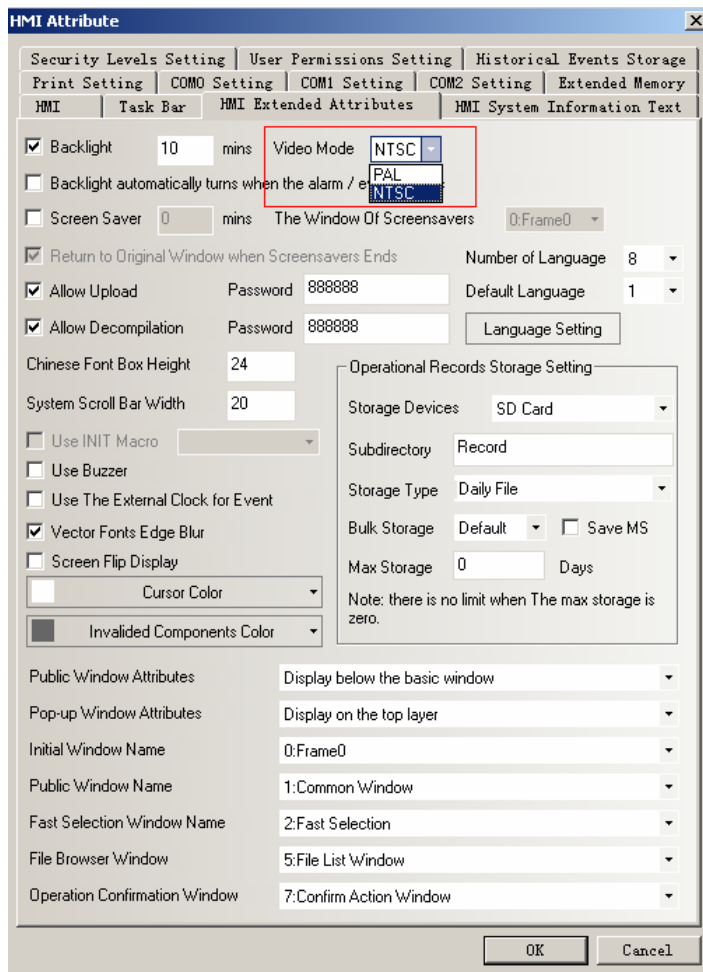
In each setting components ,add a option of **Min Time Interval(seconds)**, it is the effective interval of touching a same component.

As shown in the picture, the default is zero second:



14 Add a Video Mode NTSC

Add a Video Mode NTSC to HMI that support video interface. Industrial camera that support NTSC mode can use this mode., and now our HMI support two video mode: PAL and NTSC.



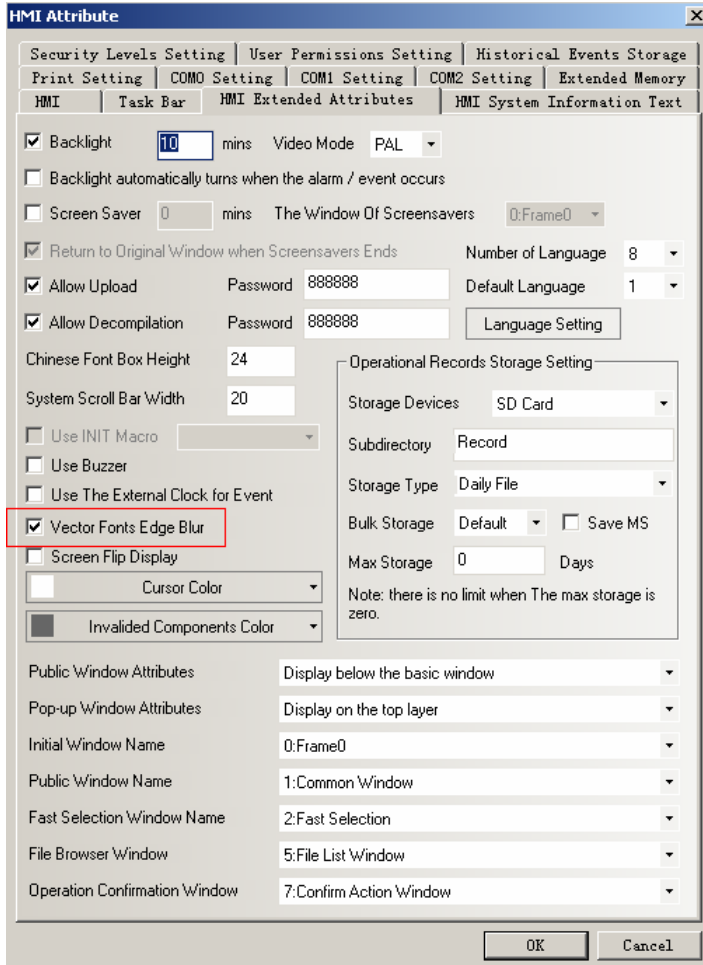
15 Vector Fonts Edge Blur;

Use the **Vector Fonts Edge Blur** can make the words look smooth, beautiful and without toothed shape along the edge, but the computation of HMI will increase if check the **Vector Fonts Edge Blur** function, and it will be slow when HMI refreshing, so if users who don't care much about the effect about the vector fonts, and want the HMI to refresh quickly, uncheck this function, because the default is to select this function.

This function can't support the component of Event Information, Event Display, Alarm Display, Alarm list, History Event Display, Operation Log, the reason is that: this function can not support the component that display word of various color at same time.

Settings of **Vector Fonts Edge Blur**

In the page of **HMI Extended Attributes**, select the **Vector Fonts Edge Blur**



The following two pictures are the effect contrast between select the **Vector Fonts Edge Blur** and unchecked..

1 Uncheck the **Vector Fonts Edge Blur**



2 Select the **Vector Fonts Edge Blur**




It is very obvious that it is more smooth and beautiful and there is no teathed shape along the edge of word if select the **Vector Fonts Edge Blur**

16 Invalided component color

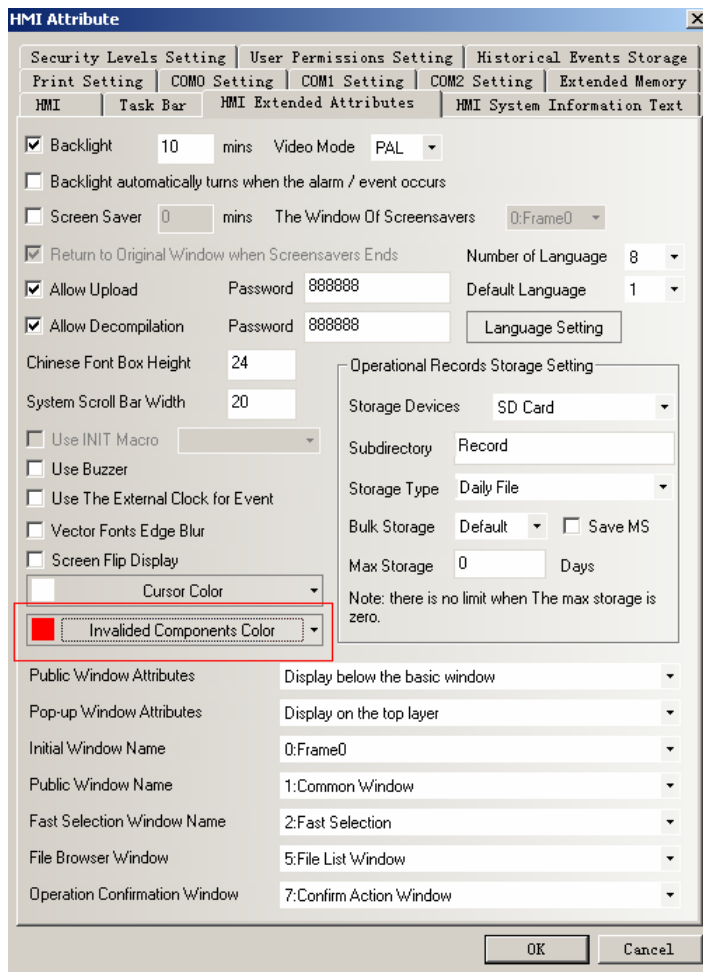
The use of **Invalided component color**: if the enable condition of a component can not be met or be invalid, HMI can set a sign of Invalid for it , it means that the component is invalid, and the touch is invalid. If the enable condition of this component is met, the sign will disappear automatically, so the component can be used. Only control components, like **Switch, Multiple State Setting** etc can use this function , the display components , like **Indicator, Multiple State Display** etc can not use this function

Example for the usage of **Invalided component color**

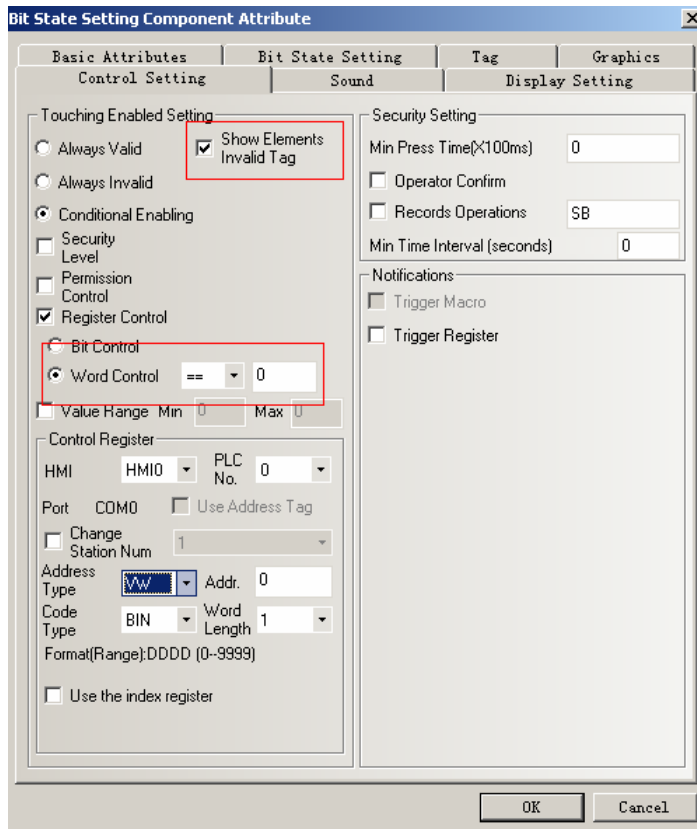
If value of VW0 is 0 , the Bit State Switch M0 can be operated or it can not be

operated, and display the sign of invalid 

1 Set the color of invalid component: double click the HMI, chose the **HMI Extended Attributes** page, select the color of invalid component as red.

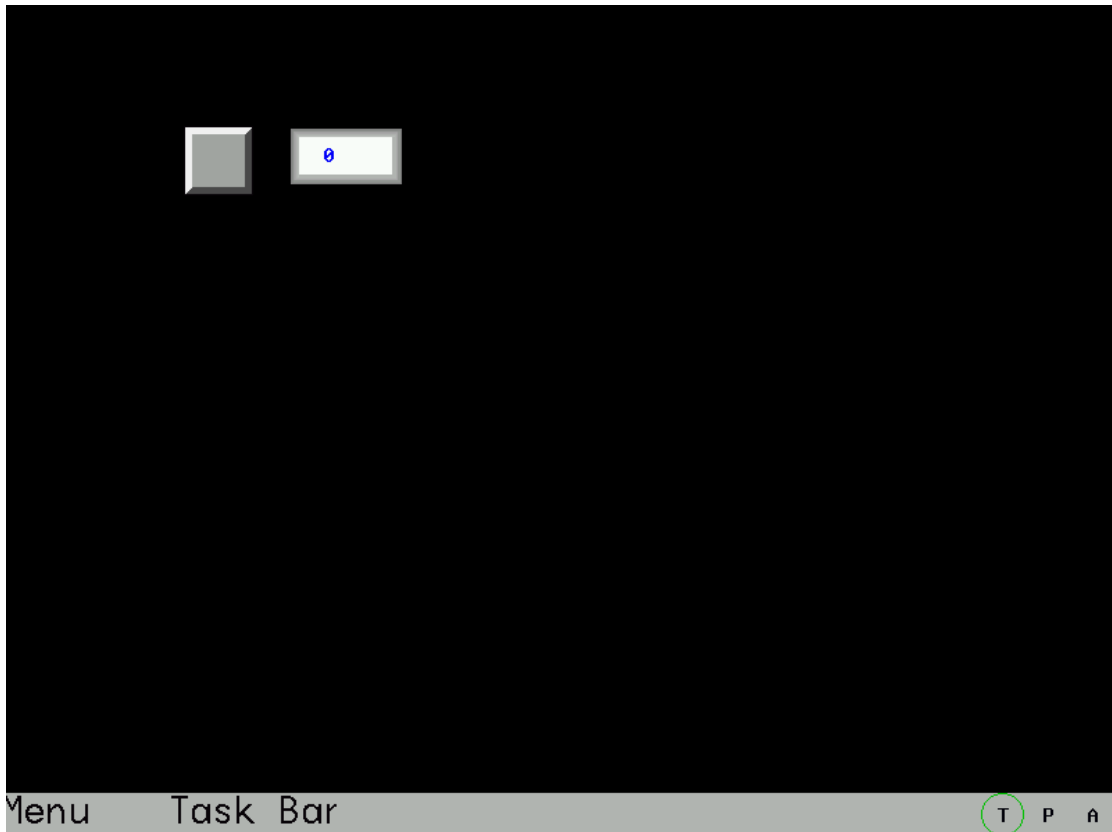


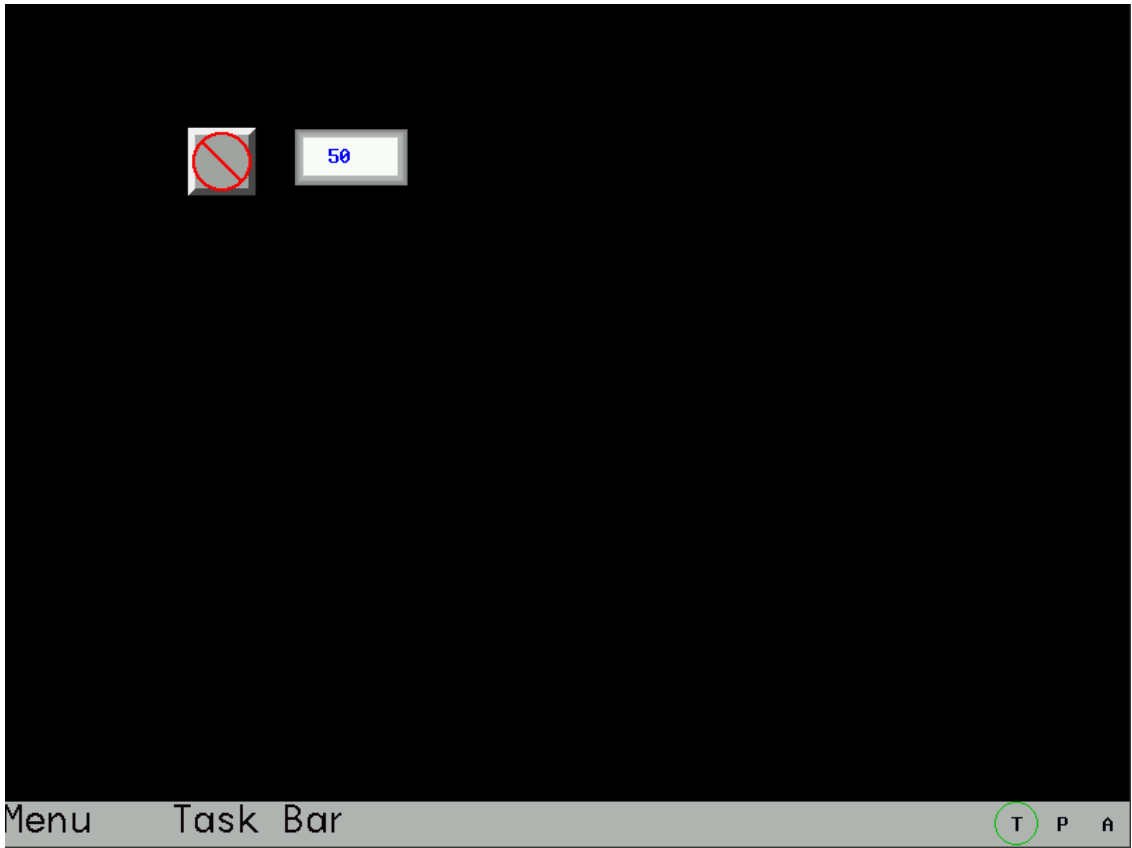
2 Set a Bit State Switch M0, chose the **Conditional Enabling** in **Control Setting** of **Bit state Setting Component Attribute**, chose the **Word control = =0** in the Register Control , then chose the **Show Elements Invalid Tag**.



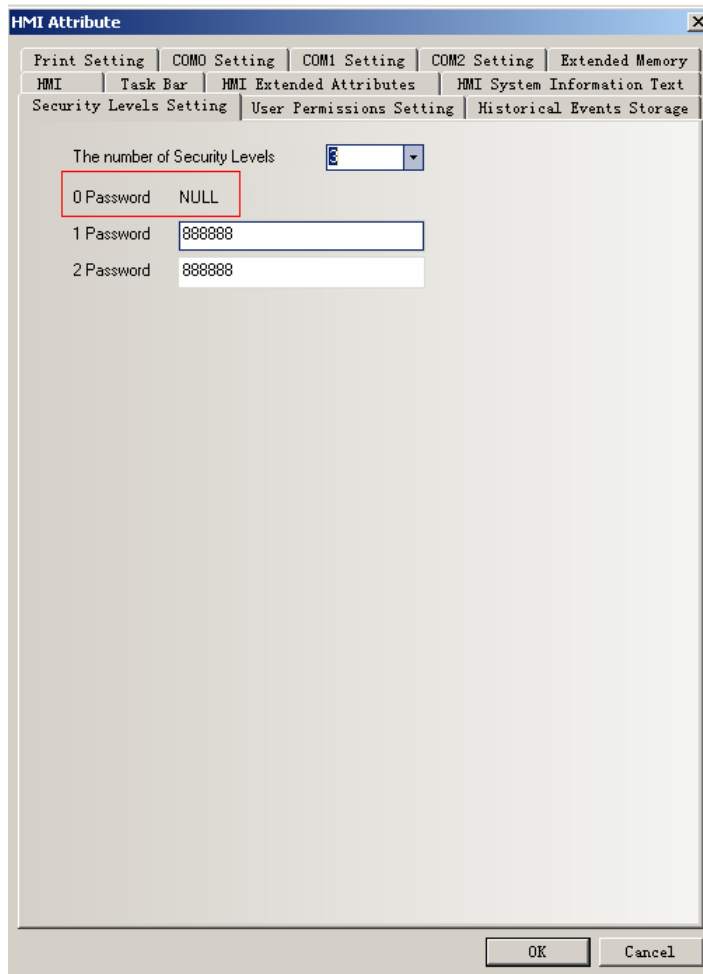
3 Set a Number Input component VW0

4 Offline Simulation , if VW=0 ,M0 can be operated, if VW0=50 , M0 can not be operated , and show the invalid tag..





17 When security level is 0.there is no password

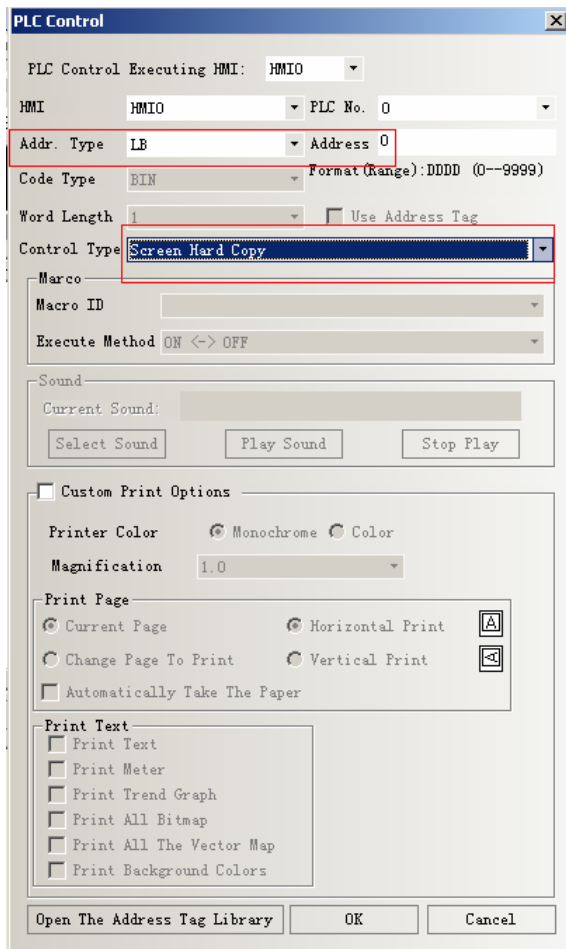


18 Customize the printing in PLC Control component

There are two types of printing in PLC Control: **Screen Hard Copy** and **Report Printout**

1 Screen Hard Copy

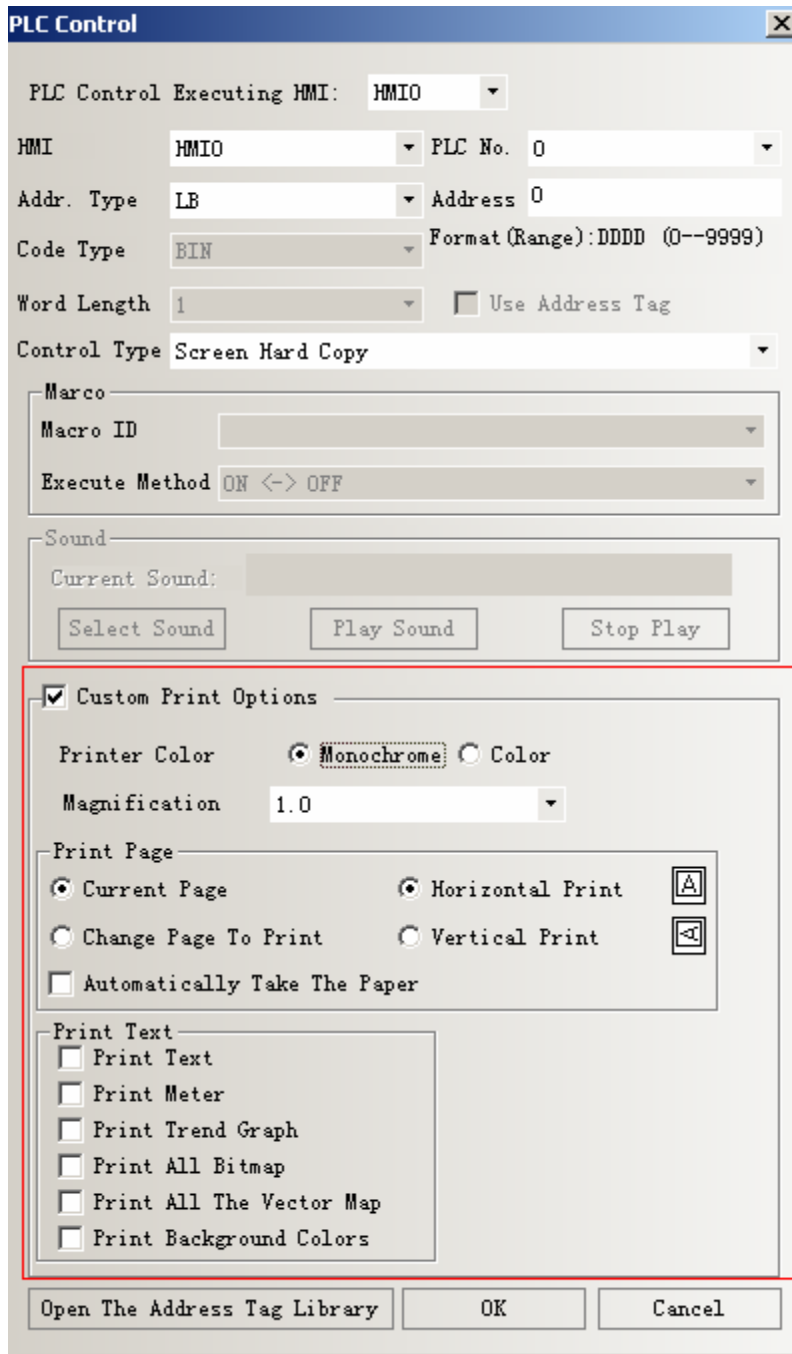
A bit component is used to control the **Screen Hard Copy**, when the component's state switch ON , the current screen is printed out.



As shown in the above picture, use LB0 to control **Screen Hard Copy**, if LB0 switch is ON, the content in the window where the LB0 is set is printed out.

There are two ways to set the output mode of printing content:

- 1 , Use the **Custom Print Options**



Explain for the attributes of **Custom Print Options**:

Custom Print Options		Detail descriptions
Print Color	Monochrome	Only color printer supports the Print Color chose
	Color	
Magnification	Range from 0.1 to 5.0 (Reduce the printing distortion, not recommended)	
Print Page	Current Page	Print the content to the first paper in printer
	Change Page To Print	When the printer receive the print command ,it print a blank paper, then print the content to the second paper

	Horizontal Print	Use the narrow side of paper as the window top of the printing content
	Vertical Print	Use the wide side of paper as the window top of the printing content
	Automatically Take the Paper	It will automatically take the paper if the content in the window printed. This function is only available for the needle printers, micro printer is not support, and laser printers have this function itself ,there is no need to set in HMI
Print Text	Print Text	If checked, print the static text and words in the component tag in current window
	Print Meter	If checked, print the meter component in current window
	Print Trend graph	If checked, print trend graph in current window
	Print All Bitmap	If checked, print all the bitmap in current window
	Print All The Vector Map	If checked, print al the vector map in current window
	Print Background Colors	If checked, print all background colors

If LB0 is ON , the Printer printout the content according to the **Custom Print Options**
2 If uncheck the **Custom Print Options**, use the bits of LW9054 and LW9055 to set the options

LW9054:Bit0; **Print Text**; Bit1: **Print Meter**; Bit 2: **Print Trend graph**; Bit3: **Print All Bitmap**; Bit4: **Print All The Vector Map**; Bit5: **Print Background Color**, set the corresponding bits ON to printout corresponding content.

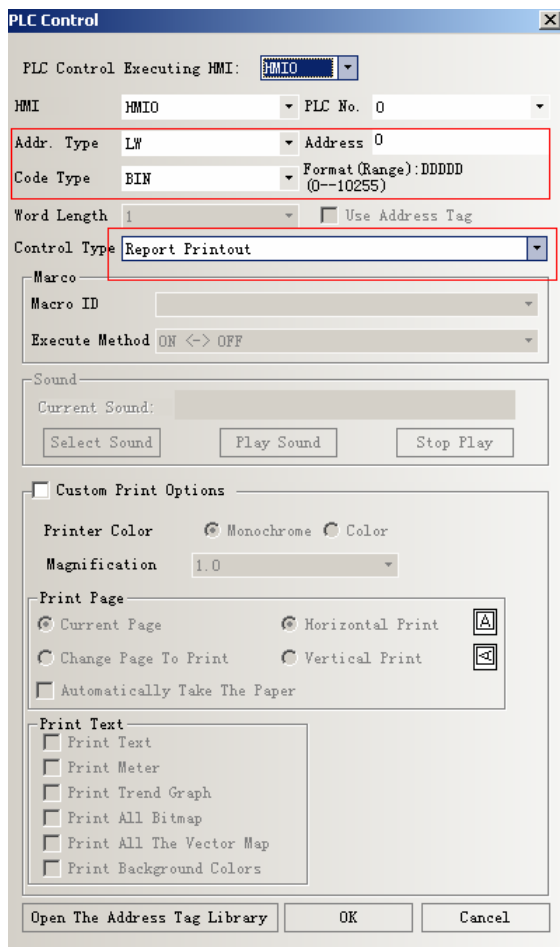
Recommend setting: use Multiple State Setting to set the value of LW905. for example, if you want to print all the content , set the Multiple State Setting component in the common window, **Setting Mode is Set at Window Open, Set value is 255.**

LW9055: Bit0~Bit7, set the **Magnification**(range from 1 to 50 . it means0.1 to 5 times); Bit8: ON means **Monochrome** printing , **OFF** means **color** printing; Bit9: ON means **Automatically Take the Paper**, OFF means print **Current Page**

Example : Magnification is 0.3, **Monochrome** printing, print **Current Page**, so set LW.B9055.0、LW.B9055.1 and LW.B9055.8 ON ; set LW.B9055.9 OFF. In addition, you can use LW9055 to set the options, just to set LW9055 the value 259.

2 Report Printout

Report Printout use a word component to control the printout of designated window, the value write in the component is a effective window number, so the content in the window is printout, the value is set 0 after printing



The printing attributes is the same as the **Screen Hard Copy**, There are two ways to set the output mode of printing content:1 use the **Custom Print Options**, 2 ,use LW9054 and LW9055. For specific instruction, please see the **Screen Hard Copy**

Example: Print all the content of window 9.

1. Control Type is **Report Printout**, address is **LW0**
2. Select the **Custom Print Options**, use the default in **Print Color** , **Magnification**, **Print Page**, select all the options of **Print Text**
3. Set a Multiple State Setting LW0 in window 0, **Setting Mode** is s Set Constant, **Set Value** is 9.
4. Press the Multiple State Setting LW0 in window 0, so printout the content in window 9, after printing , LW0 is reset 0 automatically.

Note 1. when use **Report Printout** function, HMI will not switch to the window which is printed . And the **Screen Hard Copy** is to print screen where the control bit component is set

2. **Report Printout can not** print the content in window 0

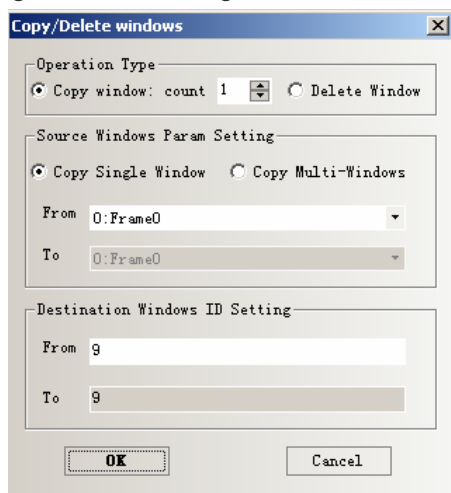
Detail instructions about printing please refer to the EV5000 help menu - EV5000 Manual, the "Print" chapters

19 Copy/Del Windows

In Ev5000 V1.6 there adds copy/delete windows count option in **Copy/Del Windows**

Click **Screen >>> Copy/Del Windows** to copy or delete windows, and it will pop up a

dialog box as following:



Operations: 1. **Copy window** , can be single or multi-windows, it ranges from 1 to 999; 2 .**Delete window**

1.Copy window

◆ Copy Single Window

If the account is 1, set the Source Window's first ID and Destination Window's first ID, that is to say copy the screen and attributes of Source Window to Destination Window

If the account is bigger than 1, set the Source Window's first ID and Destination Window's first ID. And the Destination Window's ID will increase automatically according to the **Copy window** count. That is to say , copy the screen and attributes of Source Window to Destination Windows from the first ID to the end ID respectively.

◆ Copy Multi-Windows.

If the **Copy Window count** is 1, set the first ID and end ID of Source Window and the first ID of Destination Window. And the end ID of Destination Window will increase automatically according to the **Copy window** count. That is to say ,copy the screens and attributes of windows from the first ID to the end ID to the Destination Windows from first ID to the end ID in order.

If the **Copy Window count** is bigger than 1. set the first ID and end ID of Source Window and the first ID of Destination Window. And the end ID of Destination Window will increase automatically according to the **Copy window** count and source window number. That is to say, copy the screens and attributes of windows from the first ID to the end ID to the Destination Windows from first ID to the end ID according to the **Copy Window count** in order.

Note Destination window should be the window that do not exist. The existing window can not be the destination window

2 Delete Window

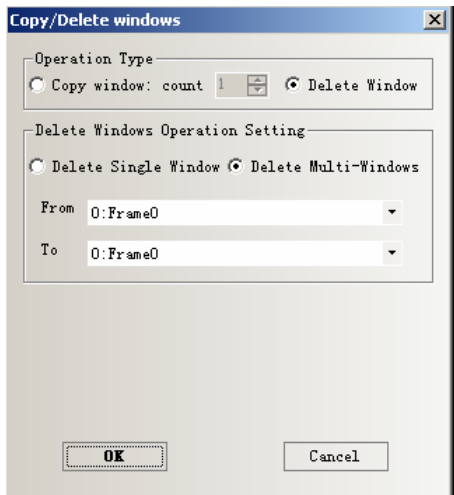
Support **Delete Single Window** and **Delete Multi-Windows**

◆ Delete Single Window

Set the first ID of window, that is to delete the window with the first ID

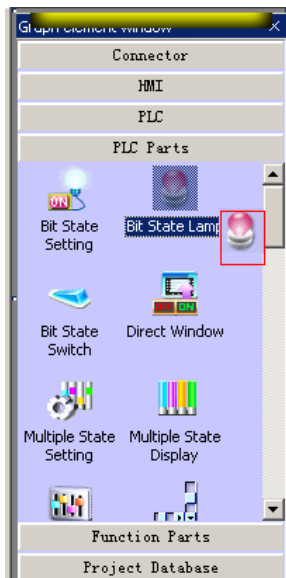
◆ Delete Multi-Windows

Set the first ID and end ID of window , that is to delete the windows from the first ID to the end ID



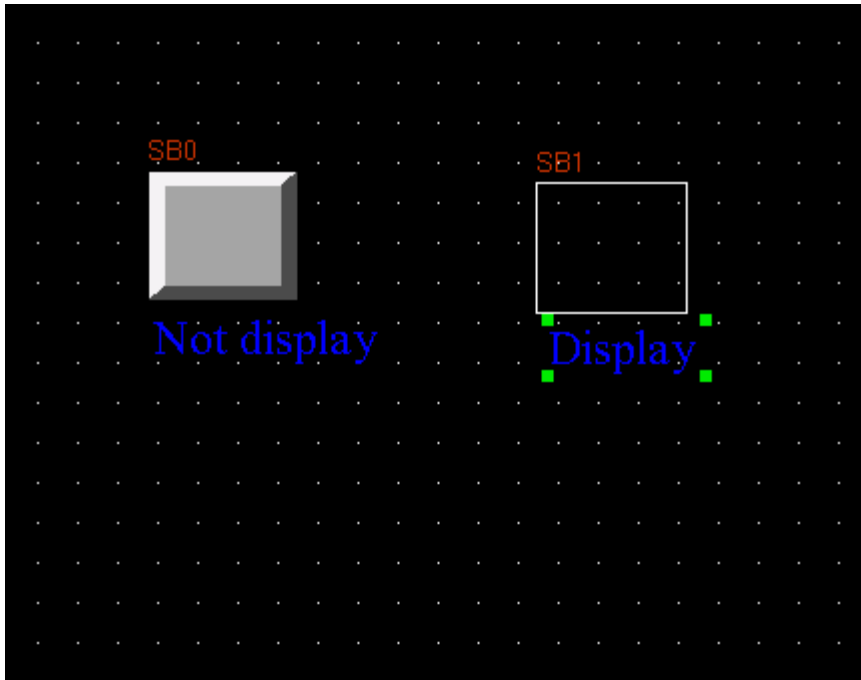
20 There is icon display when dragging the component

When a component is dragging out of the Graph element window, the icon is moving with the mouse, as in the picture:



21 Don't display the border of the components

When the components use graphic, the border is not displayed, and when the components is not use graphic, display the border:

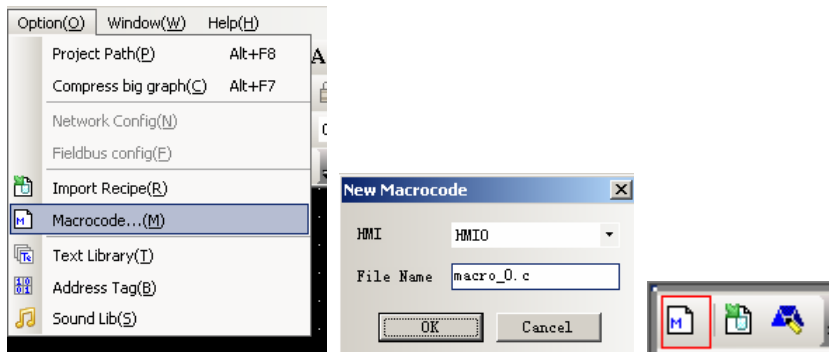


22. Some modifications of macro

There are the following changes of macro:

- 1 Improve the display interface of macro, so it can distinguish the keyword and number and so on.

Click the macro icon in the toolbar or click **Option>>Add Macrocode...(M)** to build a macro:



There adds a length of description words to a newly built macro, these words is used to describe the format of local address which visit HMI directly.

```

1  #include "macrotypedef.h"
2  #include "math.h"
3
4  /*
5  Read,Write Local address function:
6  int ReadLocal( const char *type, int addr, int nRegs, void *buf, int flag );
7  int WriteLocal( const char *type, int addr, int nRegs, void *buf , int flag );
8
9  Parameter:  type   is the string of "LW","LB" etc;
10             address is the Operation address ;
11             nRegs  is the length of read or write ;
12             buf    is the buffer which store the reading or writing data;
13             flag   is 0,then codetype is BIN,is 1 then codetype is BCD;
14 return value : 1 ,Operation success
15               0, Operation fail.
16
17 eg: read the value of local lw200 and write it to the lw202,with the codetype BIN,
18 The code is :
19
20     short buf[2] = {0};
21     ReadLocal("LW", 200, 2, (void*)buf, 0);
22     WriteLocal("LW", 202, 2, (void*)buf, 0);
23 */
24 int MacroEntry()
25 {
26     return 0;
27 }
28

```

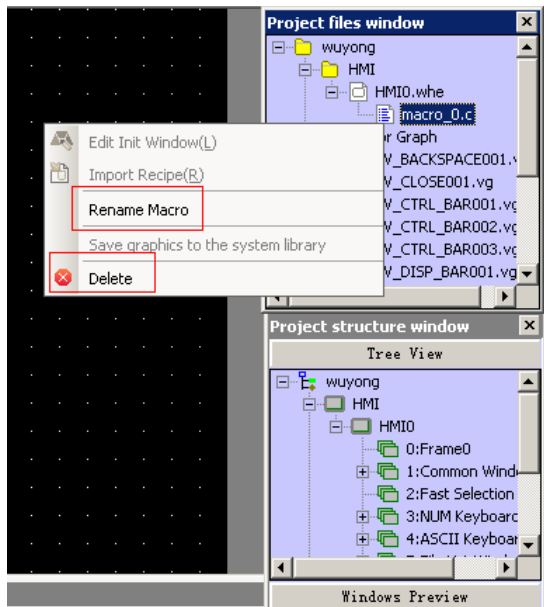
Copy the example of these words to the **MacroEntry** function, the color of this example changes, description words color is black, they are needn't compiling because they are noted by `/* */`, the parts that are not be noted needs compiling. And to some key words, like **short**, **void**, display in blue color, **LW** display in red color, so that they are can be easily distinguished.

```

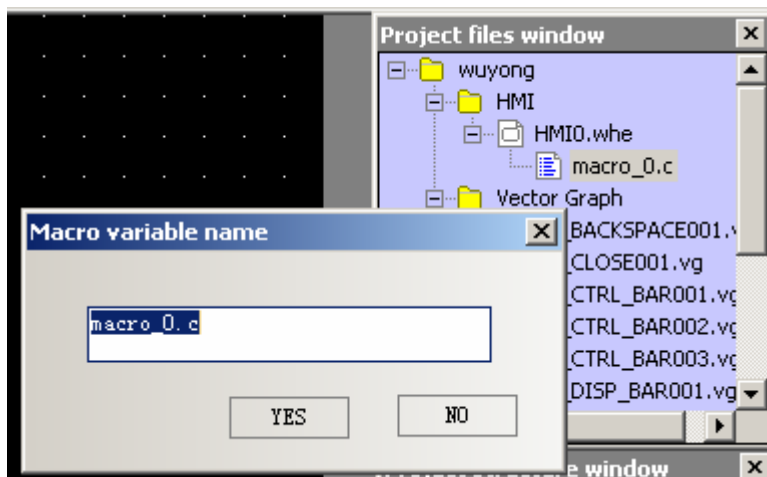
1  #include "macrotypedef.h"
2  #include "math.h"
3
4  /*
5  Read,Write Local address function:
6  int ReadLocal( const char *type, int addr, int nRegs, void *buf, int flag );
7  int WriteLocal( const char *type, int addr, int nRegs, void *buf , int flag );
8
9  Parameter:  type   is the string of "LW","LB" etc;
10             address is the Operation address ;
11             nRegs  is the length of read or write ;
12             buf    is the buffer which store the reading or writing data;
13             flag   is 0,then codetype is BIN,is 1 then codetype is BCD;
14 return value : 1 ,Operation success
15               0, Operation fail.
16
17 eg: read the value of local lw200 and write it to the lw202,with the codetype BIN,
18 The code is :
19
20     short buf[2] = {0};
21     ReadLocal("LW", 200, 2, (void*)buf, 0);
22     WriteLocal("LW", 202, 2, (void*)buf, 0);
23 */
24 int MacroEntry()
25 {
26     short buf[2] = {0};
27     ReadLocal("LW", 200, 2, (void*)buf, 0);
28     WriteLocal("LW", 202, 2, (void*)buf, 0);
29
30     return 0;
31 }
32

```

2 The macro name can be changed after building.



Right click the macro name, there are two options of **Rename Macro** and **Delete**. Click **Rename Macro**, pop up a dialog box, and input the new name to change the name.



3 The local address in HMI can be used in macro , but don't need to define the variables

```

23  */
24  int MacroEntry()
25  = {
26      int i=0;
27      short buf[2] = {0};
28      ReadLocal("LW", 200, 2, (void*)buf, 0);
29      WriteLocal("LW", 202, 2, (void*)buf, 0);
30      return 0;
31  }
32

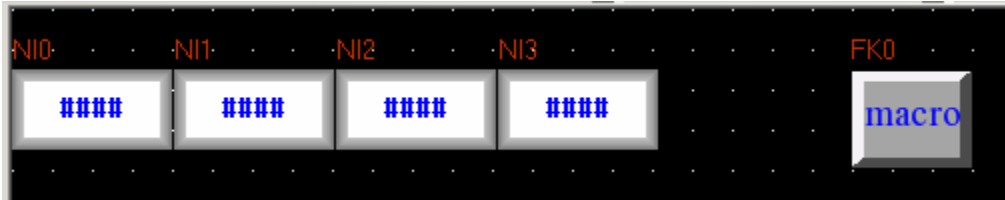
```

Parameters[new.c]				
Data type	Param name	PLC No.	PLC Address...	Address

This is a length of code above, and it can be used , and there is no variables definition, but it meets the format of visiting the HMI local address directly, that is : Read, Write Local address function:

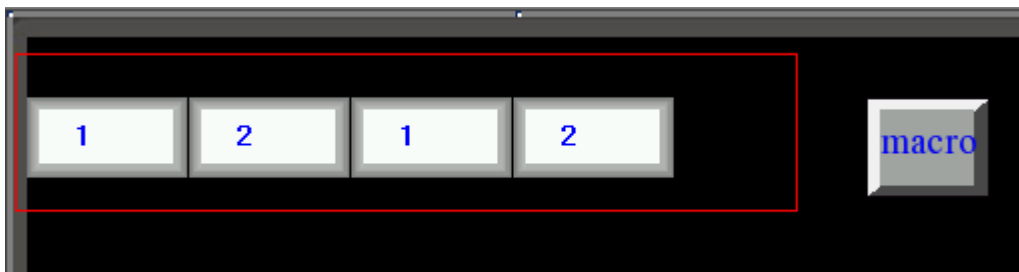
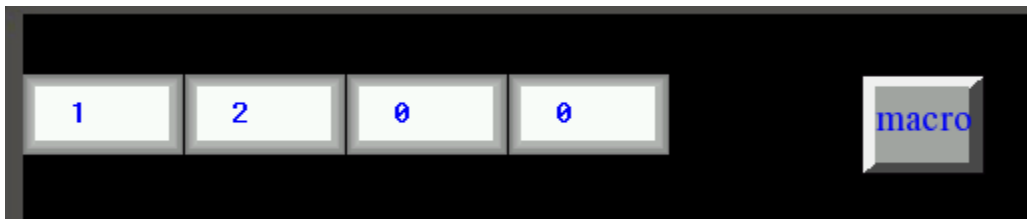
```
int ReadLocal( const char *type, int addr, int nRegs, void *buf, int flag );
int WriteLocal( const char *type, int addr, int nRegs, void *buf , int flag )
```

The function of the above codes is to read two words data from LW200., then write them to the two words from Lw202, in order to prove the codes can be executed successfully, set four Number Input component and a Function Key to execute the macro:



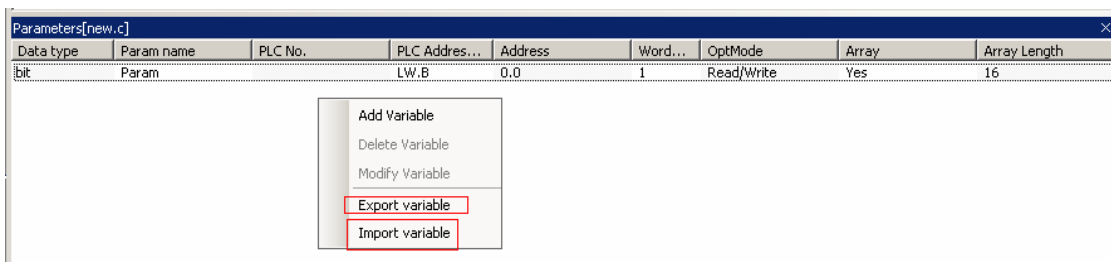
Offline simulation:

Input 1 into LW200, 2 into LW201, then click button tagged **macro**, then LW202 is 1, Lw203 is 2, the macro is executed successfully

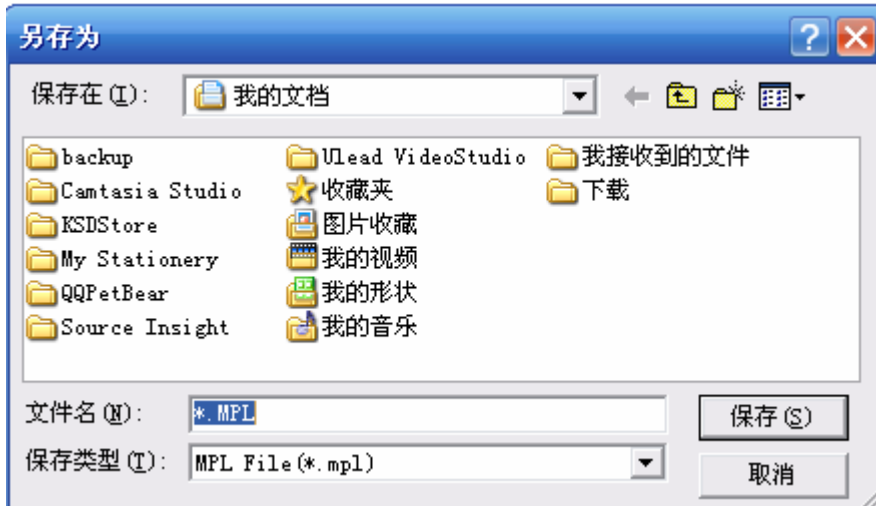


4 Support Import/Export variable function , so that the users can copy variable and code conveniently

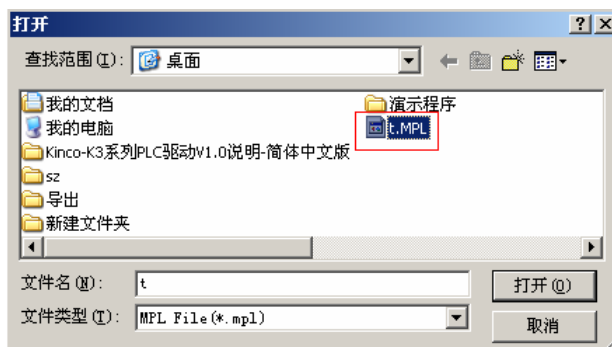
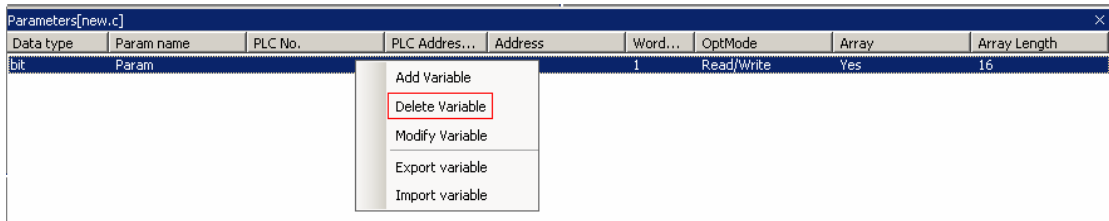
Right the in code window, there pop up a menu , and **Import variable** and **Export Variable** options are in it.



Click **Export Variable**, pop up a save as dialog, input the file name **t**, the suffix is **MPL**, then save it to the designated file:



Click **Delete Variable** , then Import Variable. We can operate like this among different projects, select the code you want ,then Copy ,Paste in the designated location.. As to the former version, copying macro in old project is more easier, and the user need not to define the variable one by one, improve the working efficiency .



```

24 int MacroEntry()
25 = {
26     short buf[2] = {0};
27     ReadLocal("LW", 200, 2, (void*)buf, 0);
28     WriteLocal("LW", 202, 2, (void*)buf, 0);
29
30     return 0;
31 }
32

```

5 Macro variable of bit type support the array data

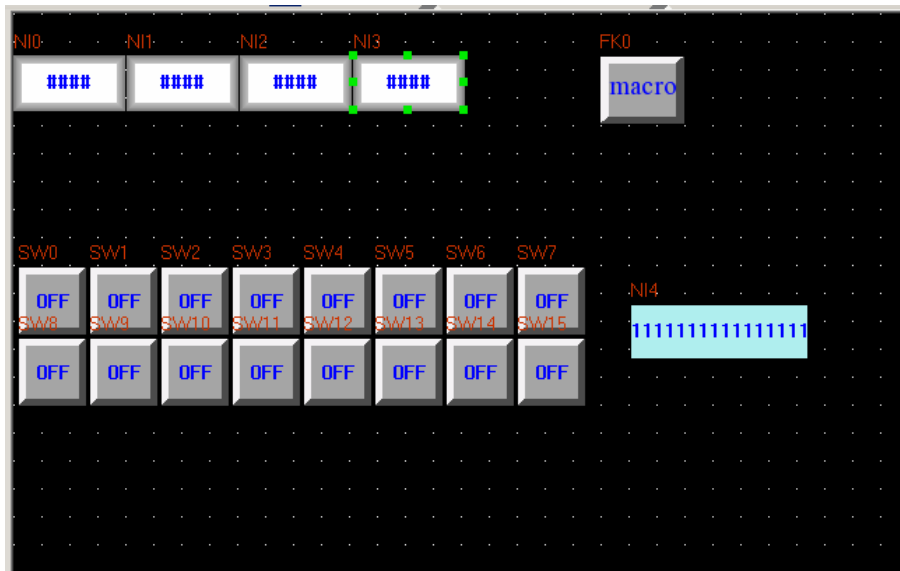
```

23 */
24 int MacroEntry()
25 = {
26     int i=0;
27     short buf[2] = {0};
28     ReadLocal("LW", 200, 2, (void*)buf, 0);
29     WriteLocal("LW", 202, 2, (void*)buf, 0);
30     for(i=0;i<16;i++)
31         Param[i]=1;
32     return 0;
33 }
34

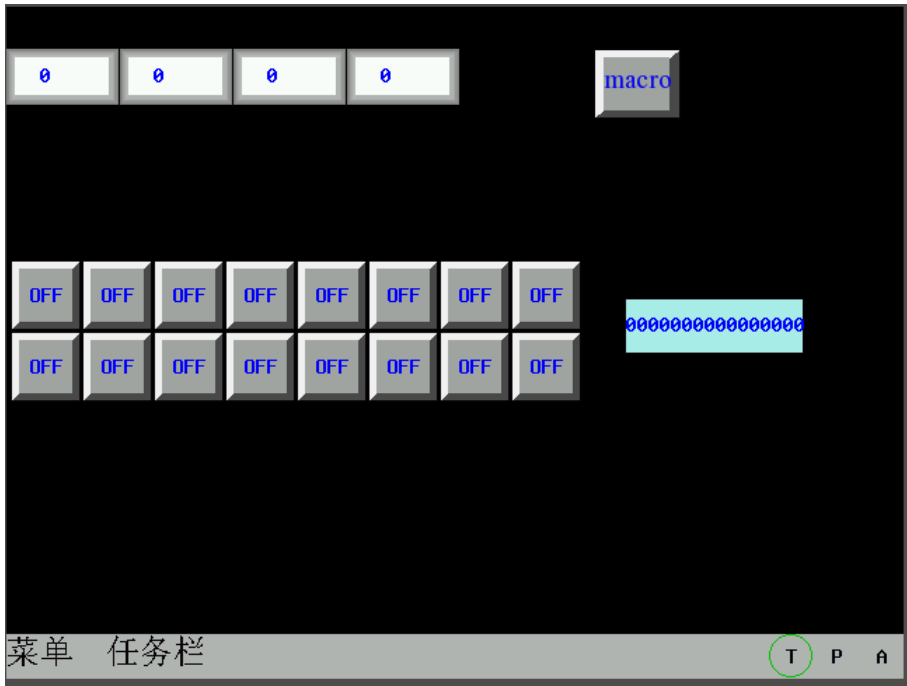
```

Data type	Param name	PLC No.	PLC Address...	Address	Word...	OptMode
bit	Param		LW.B	0.0	1	Read/Write

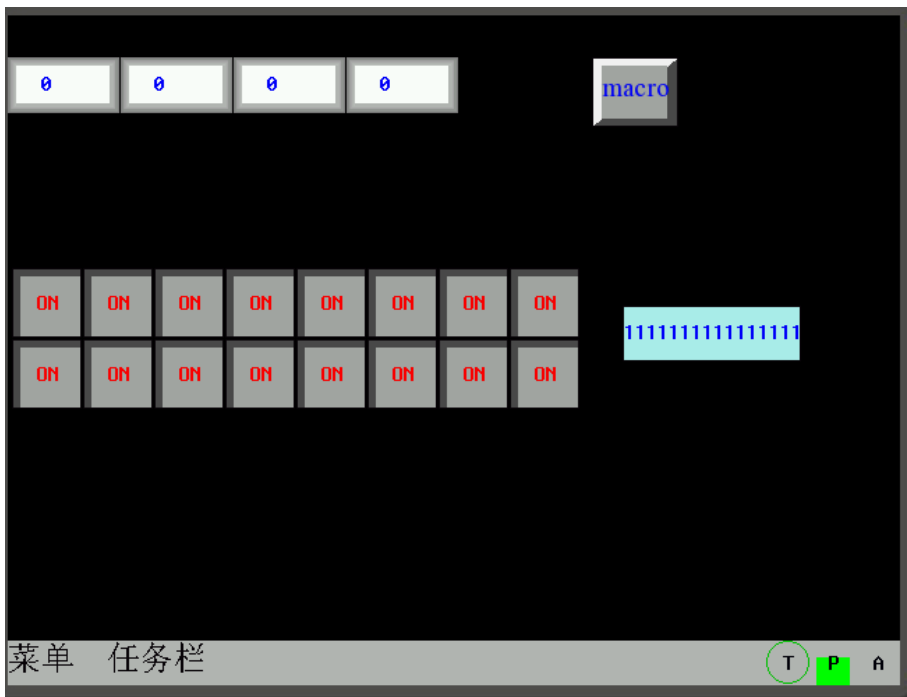
In the above macro, the variable is array data: LW.B 0.0~0.f, the code is to set these addresses 1. Set 16 Bit State Switches in the edit window , their address are LW.B, from 0.0 to 0.f. Then set a Number Display component, Code Type is BIN, address is LW0



Offline simulation:



Click **macro** button, it displays:



6. Draw picture directly on the screen(Descriptions of drawing functions)

In order to facilitate to draw some conventional pictures(like line, cycle and polygon and so on) , there is a group of drawing functions in HMI macro. User can call these drawing functions in MacroEntry function.

The drawing function use HMI rectangular coordinate: the origin is at the top left of screen, X axis increase from left to right , Y axis increase from top to bottom.

1 Structure definition

Add three new structures: **PenParam**、**BrushParam** and **Point**

(1) PenParam structure

```
typedef struct penparam
{
    short type;
    short width;
    int color;
}PenParam;
```







Penparam is used to set the type, width., color attribute of a pen, their ranges are in the following form:

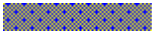
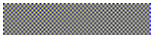























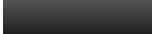
Parameters' name	Value	Explain
Type	PS_NULL	No brush
	PS_SOLID	Smooth linear (—————)
	PS_DASH	Lineation (— — — -)
	PS_DOT	Dotted line(-----)
	PS_DASHDOT	Dot dash line (- - - - -)
	PS_DASHDOTDOT	Double dots dash line(-----)
Width	1~8 (Units: Pixel)	If the input value is smaller than the minimum1, the system set it minimum automatically; If the input value is bigger than the maximum 8, system set it maximum automatically.
Color	0~65535	Suggest using the RGB(r, g, b) to set color, the range of r, g, b is 0~255。 System will switch the RGB(r, g, b) values according to the HMI color parameters


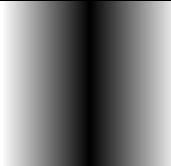
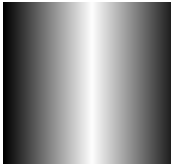

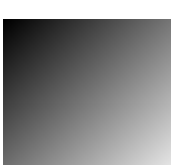
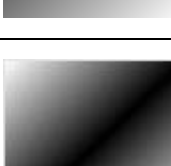
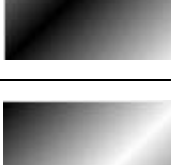
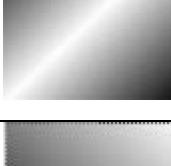
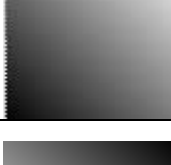
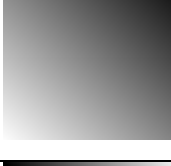
(2) Brush structure:


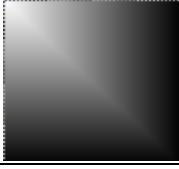



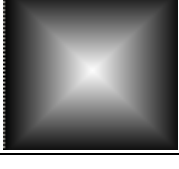
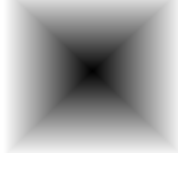
```
typedef struct brushparam
{
    int type;
    int foreColor;
    int backColor;
}BrushParam;
```

BrushParam is used to set the type, foreground color and background color of a Brush, Brush type is used to set the filling mode: Graphics filling and gradient filling. their ranges are in the following form:

Parameters' name	Value	Explain
Type	BFS_NOBRUSH	No filling
	BFS_SOLID	
	BFS_DENSE1	
	BFS_DENSE2	
	BFS_DENSE3	
	BFS_DENSE4	
	BFS_DENSE5	

	BFS_DENSE6	
	BFS_DENSE7	
	BFS_DENSE8	
	BFS_DENSE9	
	BFS_DENSE10	
	BFS_DENSE11	
	BFS_DENSE12	
	BFS_FDIAG1	
	BFS_BDIAG1	
	BFS_FDIAG2	
	BFS_BDIAG2	
	BFS_FDIAG3	
	BFS_BDIAG3	
	BFS_VER1	
	BFS_HOR1	
	BFS_VER2	
	BFS_HOR2	
	BFS_VER3	
	BFS_HOR3	
	BFS_DIAGCROSS	
	BFS_CROSS	
	BFS_HORGRDT_FTTD	
	BFS_HORGRDT_FDTT	
	BFS_HORGRDT_FETC	
	BFS_HORGRDT_FCTE	
	BFS_VERGRDT_FLTR	

	BFS_VERGRDT_FRTL	
	BFS_VERGRDT_FETC	
	BFS_VERGRDT_FCTE	
	BFS_OUPGRDT_FLTRD	
	BFS_OUPGRDT_FRDTLT	
	BFS_OUPGRDT_FETC	
	BFS_OUPGRDT_FCTE	
	BFS_ODWNGRDT_FRTTLD	
	BFS_ODWNGRDT_FLDTRT	
	BFS_ODWNGRDT_FETC	

	BFS_ODWNGRDT_FCTE	
	BFS_CONGRDT_FLTTRD	
	BFS_CONGRDT_FRTTLD	
	BFS_CONGRDT_FRDTLT	
	BFS_CONGRDT_FLDTRT	
	BFS_CENGRDT_FETC	
	BFS_CENGRDT_FCTE	
ForeColor	0~65535	Suggest using the RGB(r, g, b) to set color, the range of r, g, b is 0~255. System will switch the RGB(r, g, b) values according to the HMI color parameters
BackColor	0~65535	Suggest using the RGB(r, g, b) to set color, the range of r, g, b is 0~255. System will switch the RGB(r, g, b) values

		according to the HMI color parameters
--	--	---------------------------------------

(3) Point Structure

Parameters of Point Structure are simple: x means X axis coordinate of point; y means Y axis coordinate of point

2 Drawing functions

(1) Rectangle: **DrawRect**(x,y,w,h,pen,brh)

Explains for the parameters are as follows:

Parameter	Type	Explain
x	int	X axis coordinate of rectangle's top left (units: pixels)
y	int	Y axis coordinate of rectangle's top left (units: pixels)
w	int	Rectangle's width (units: pixels)
h	int	Rectangle's height (units: pixels)
pen	PenParam	Pen of rectangle border
brh	BrushParam	Brush of rectangle filling

(2) Rounded rectangle: **DrawRndRect**(x, y, w, h, radius, pen, brh)

Explains for the parameters are as follows:

Parameter	Type	Explain
x	int	X axis coordinate of rectangle's top left (units: pixels)
y	int	Y axis coordinate of rectangle's top left (units: pixels)
w	int	Rectangle's width (units: pixels)
h	int	Rectangle's height (units: pixels)
radius	int	Round corner' radius
pen	PenParam	Pen of rectangle border
brh	BrushParam	Brush of rectangle filling

(3)Elliptic: **DrawEclips**(x, y, w, h, pen, brh)

Explains for the parameters are as follows:

Parameter	Type	Explain
x	int	X axis coordinate of elliptic outer frame's top left (units: pixels)
y	int	Y axis coordinate of elliptic outer frame's top left (units: pixels)
w	int	Elliptic outer frame's width (units: pixels)
h	int	Elliptic outer frame's height (units: pixels)
pen	PenParam	Pen of elliptic border
brh	BrushParam	Brush of elliptic filling

(3) Linear: **DrawLine**(x1, y1, x2, y2, pen)

Explains for the parameters are as follows:

Parameter	Type	Explain
x1	int	X axis coordinate of linear starting point (units: pixels)
y1	int	Y axis coordinate of linear starting point (units: pixels)
x2	int	X axis coordinate of linear end point (units: pixels)
y2	int	Y axis coordinate of linear end point (units: pixels)
pen	PenParam	Pen of linear

(4) Polygon: DrawPolyg(pts, n, pen, brh)

Explains for the parameters are as follows:

Parameters	Type	Explain
pts	Point *	First address of polygon top coordinate data
n	int	Polygon vertex
pen	PenParam	Pen of polygon border
brh	BrushParam	Brush of polygon filling

(5) Cycle arc: DrawArc(x, y, w, h, start, end, pen)

Explains for the parameters are as follows:

Parameter	Type	Explain
x	int	X axis coordinate of arc outer frame's top left (units: pixels)
y	int	Y axis coordinate of arc outer frame's top left (units: pixels)
w	int	Arc outer frame's width (units: pixels)
h	int	Arc outer frame's height (units: pixels)
start	int	Start angle of arc
end	int	End angle of arc
pen	PenParam	Pen of arc border

(6) Sector: DrawPie(x, y, w, h, start, end, pen, brh)

Explains for the parameters are as follows:

Parameter	Type	Explain
x	int	X axis coordinate of sector outer frame's top left (units: pixels)
y	int	Y axis coordinate of sector outer frame's top left (units: pixels)
w	int	Sector outer frame's width (units: pixels)
h	int	Sector outer frame's height (units: pixels)
start	int	Start angle of Sector
end	int	End angle of sector
pen	PenParam	Pen of sector border
brh	BrushParam	Brush of sector filling

As to drawing functions , the color can use RGB values directly, system will deal with

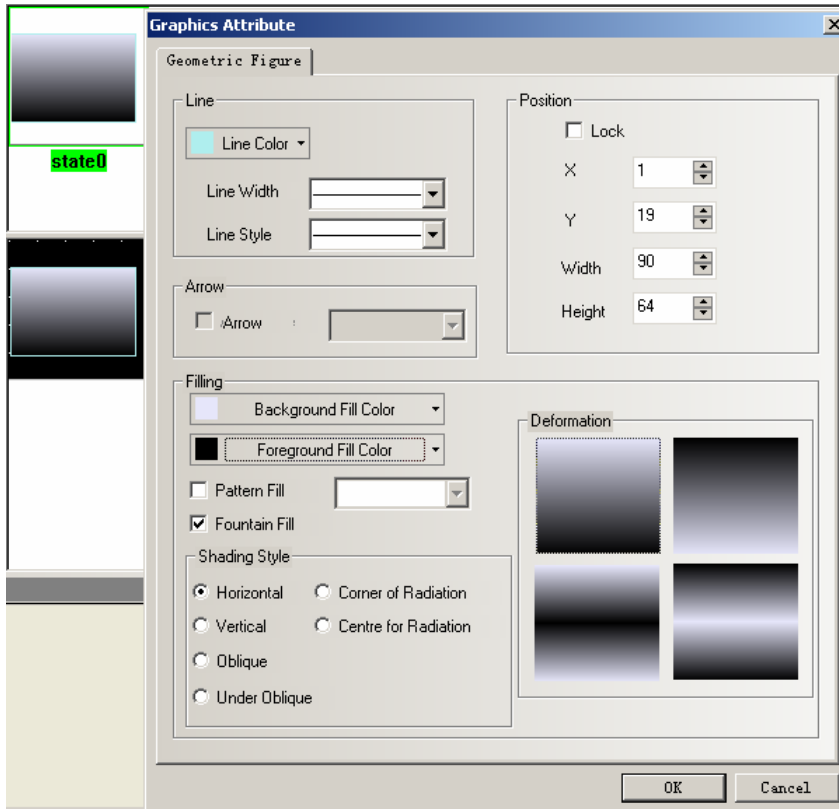
it, because there is a correspondence between 65526 colors and RGB.

```
int MacroEntry()
{
    PenParam pen;
    BrushParam brh;
    Point pts[5];
    short buf[2] = {0};

    pts[0].x = 0;
    pts[0].y = 0;
    pts[1].x = 100;
    pts[1].y = 0;
    pts[2].x = 120;
    pts[2].y = 150;
    pen.type = 1;
    pen.width = 0;
    pen.color = RGB(0, 0, 0XFF);
    brh.type = BFS_ODWNGRDT_FRTTLD;
    brh.foreColor = RGB(0, 0, 0);
    brh.backColor = RGB(255, 255,255);
    DrawRect(0, 0, 400, 400, pen, brh);
}
```



23 Gradient effect of static graphics

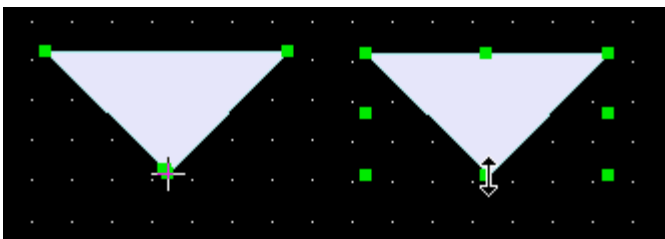
As to the static closed graphics, add a function of **Fountain Fill**, this function is very useful when drawing a vector graphic. For example, draw a channel that has the Gradient effect. As shown in the picture:



24 Polygon scaling entirely

As to polygon, add the function of widening and narrowing entirely, this function can maintain the entire shape when changing the size of graphic .

As shown in the picture, when the mouse shape is , change the vertexes of polygon, when the mouse shape is , change the entire size of polygon.



25 Image Library

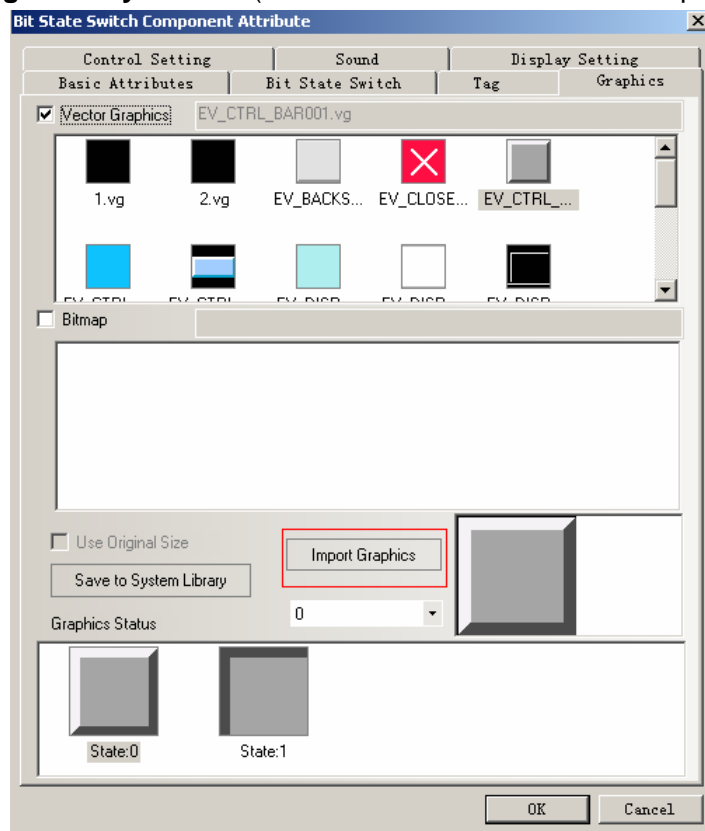
Image Library in V1.6 modifies a lot, change the browsing mode from file tree to image library, so that the users can search the images intuitively,. In this way, using the function of **Import Graphics is more quick and convenient**. At the same time ,divide the display area into two parts, display all the graphics in the upper part, and display the state of selected graphic in the lower part.

EV5000 supports the vector graphic and bitmap, the bitmap's format is .bg, and bitmap is composed of pictures or photos in .bmp, .gif, .jpg, .png format. Too many bitmaps will affect the processing speed of HMI, better not use too many bitmaps, use vector graphics as you can. The vector's format is .vg, and vector can be drawn by points

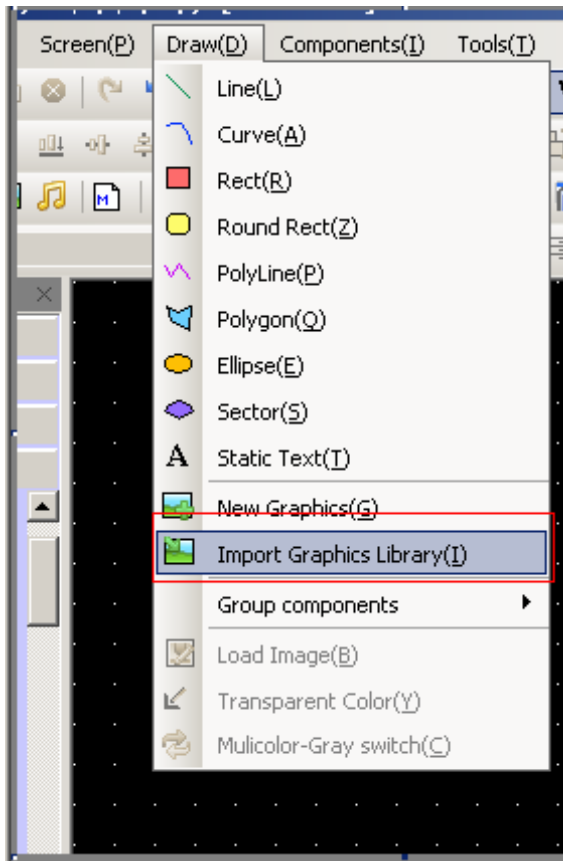
lines cycles and so on in EV5000.

There are three ways to enter the **Image Library** interface:

1, click **Graphics** in component attributes, then click **Import graphics** to enter the **Image Library** interface(take the Bit State Switch for example):



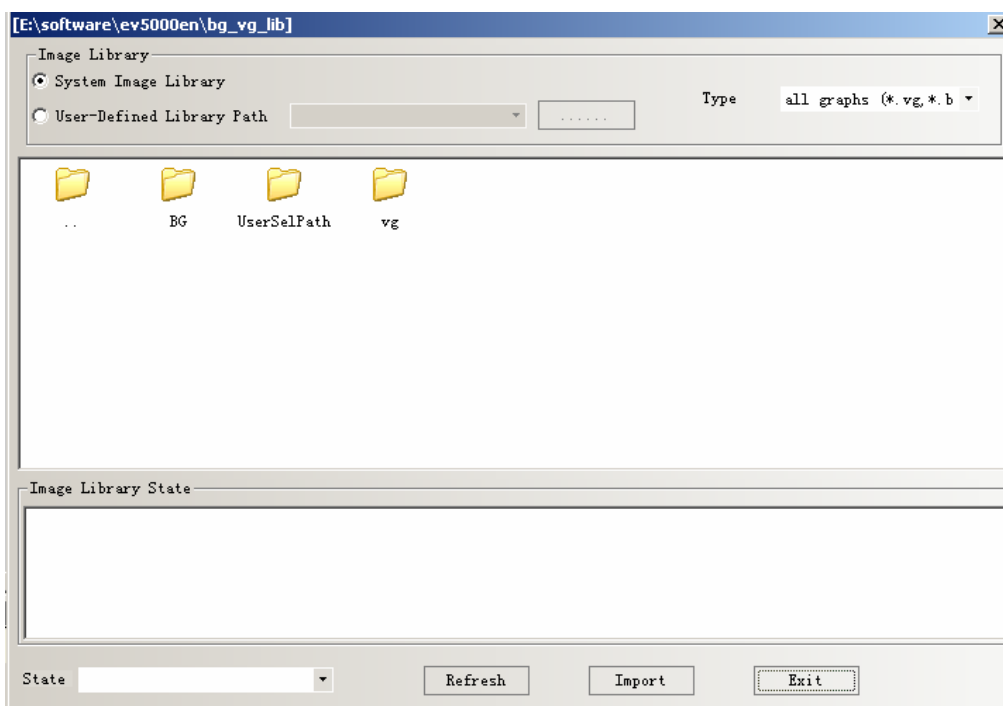
2 Click the **Import graphics Library(I)** in **Draw(w)** menu to enter the **Image Library** interface



3 Click the **New Graphics** button in the toolbar to enter the **Image Library** interface



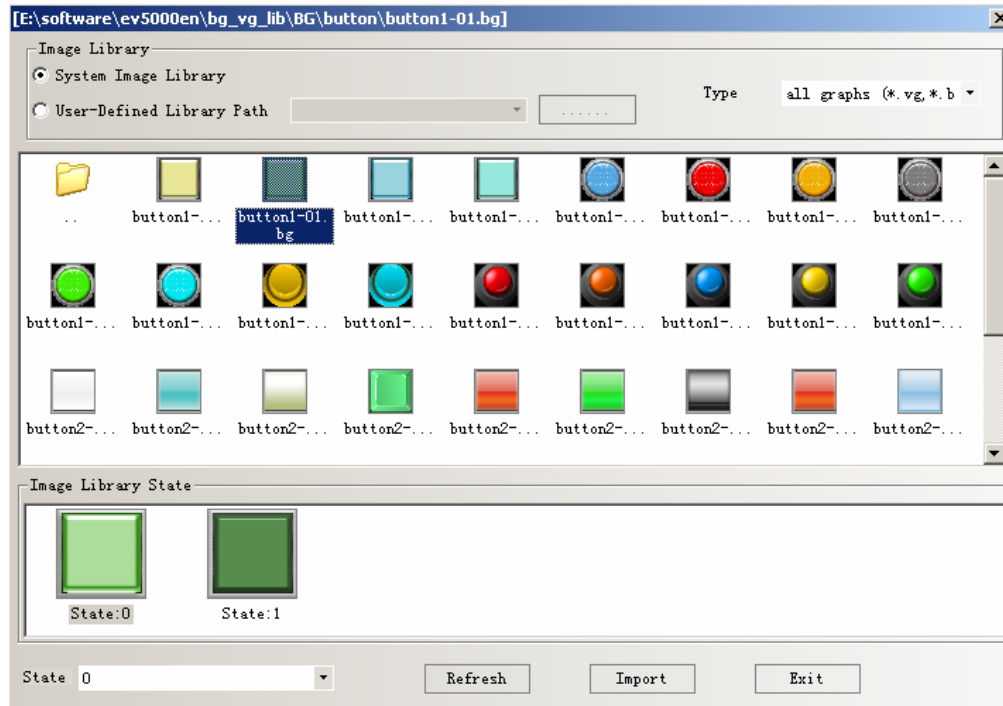
Image Library interface is as follows:




There are two ways of the **Image Library** sources:

1 **System Image Library**: it is the Own graphics library of software, it is in the file named **bg_vg_lib**

Double click the **Bg** or **vg** file, there are all the bitmaps or vector graphics of the system owns. The display area is divided into two parts: all the graphics are displayed in the upper part, and the states of selected graphic are displayed in the lower part., as follows:



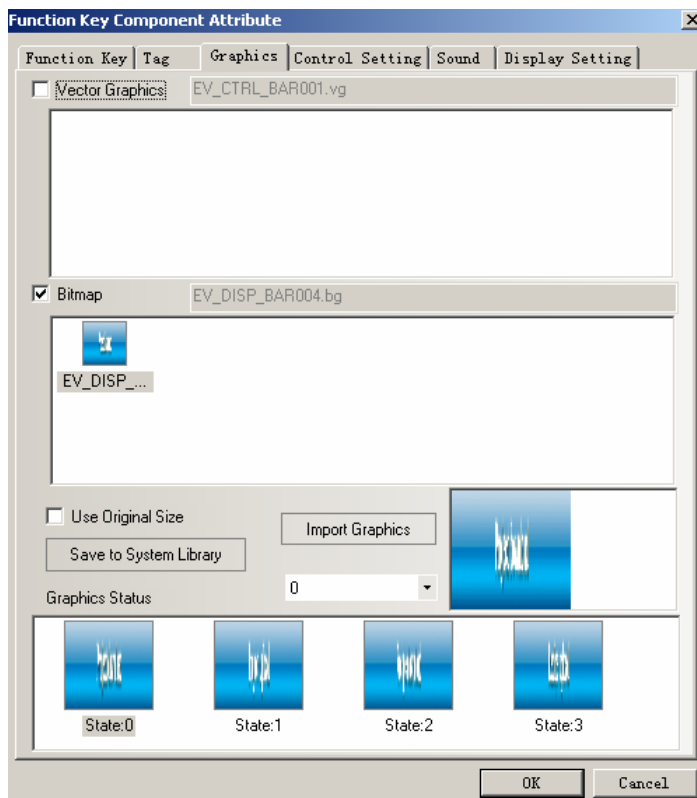
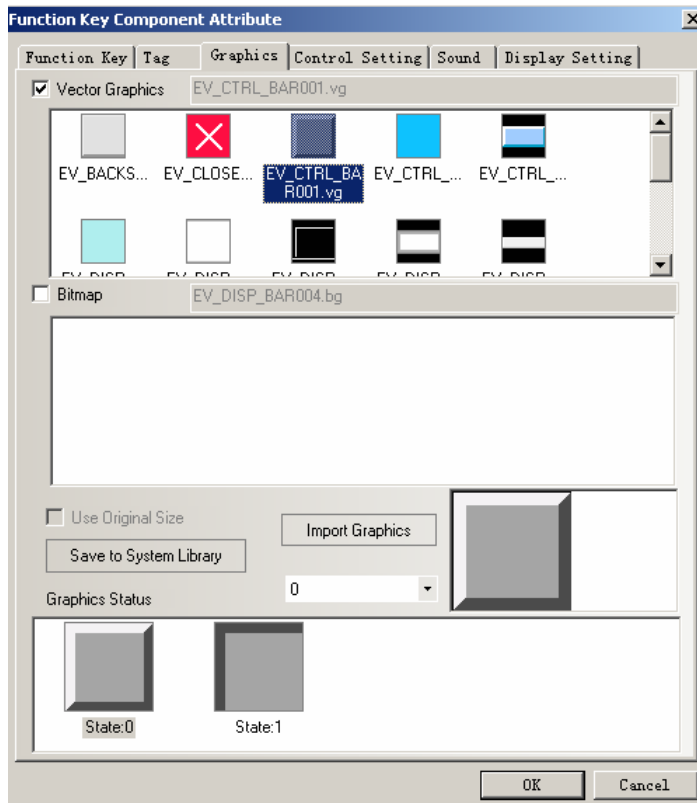
Double click the  to return to the Previous file folder

2 **User-defined Library Path**: it is the directory where users-defined saved image library, this function can used to import graphics from other projects. Graphics of every project saved in the file named **vg**. Click  to browse the file path

The way to import a graphic: chose a graphic ,click **Import**, so the graphic is imported to the project. And you can just import a graphic one time ,import multi- graphics one time is not supported.

The way to use the graphics

Double click the component, in the component attribute, in the **Graphics** option, **Vector Graphics** and **Bitmap** are optional. The default choice is **Vector Graphics**. Choose the **Vector Graphics**, there list all the vector graphics in the current project, and in the **Graphics Status** window, states of selected component are displayed in the lower part. As shown in the following picture:

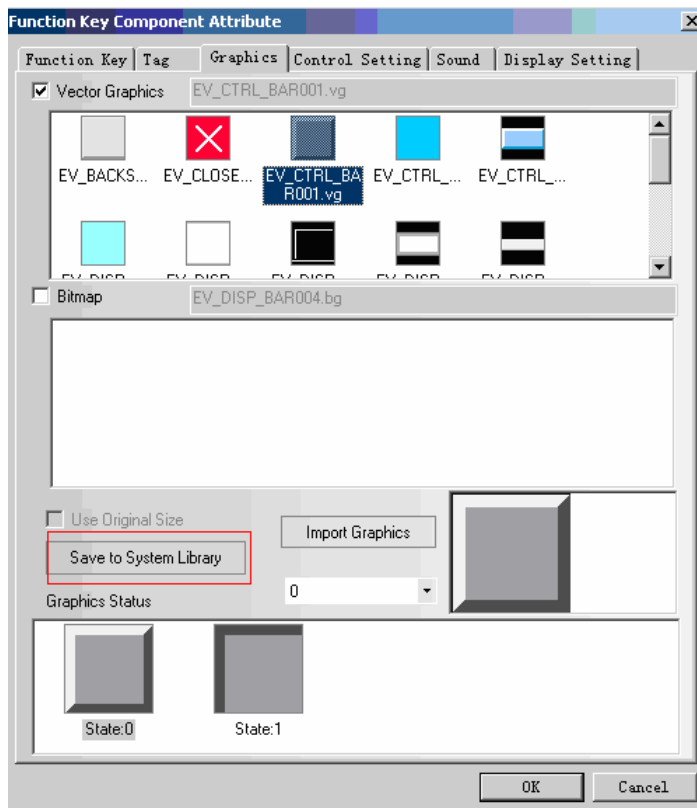


If you want to add new pictures to the **Image Library**, click **Import Graphic**.

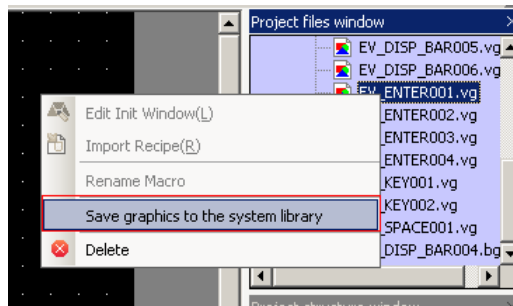
Use of **Save to System Library**: save graphics to the software, and can be called in other projects

There are two ways to use the **Save to System Library**

1 In the **Graphics** option , click **Save to System Library**.



2 **Vector Graphics** in the **Project files Window** , chose a graphic , right click, then choose the **Save to System Library**.



Use Original Size: it is used to recover the original size if users have changed the size of a graphic.

26 Pictures of gif and png format are supported

In V 1.6, Pictures of gif and png format are supported when building a new bitmap

It is very convenient to make animation effect if gif pictures are used

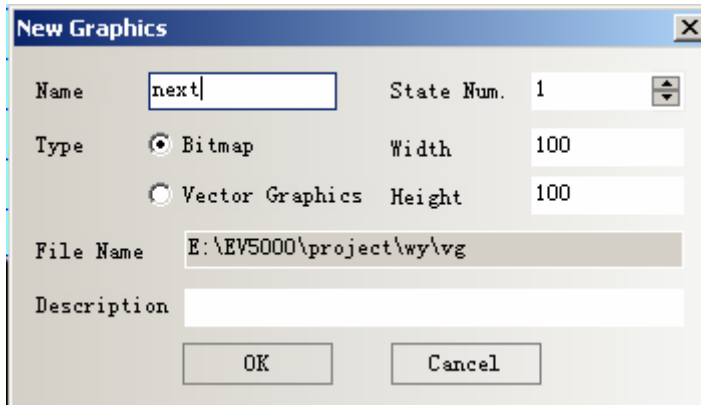
It is very convenient to make transparent effect if png pictures are used. For example , add a bar picture on the reactor to display the liquid level in the actor, so the actor picture would be png format.

Example:

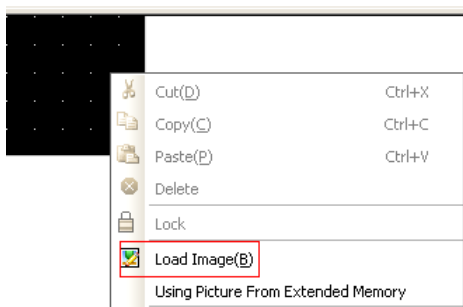


Use a gif picture like that :

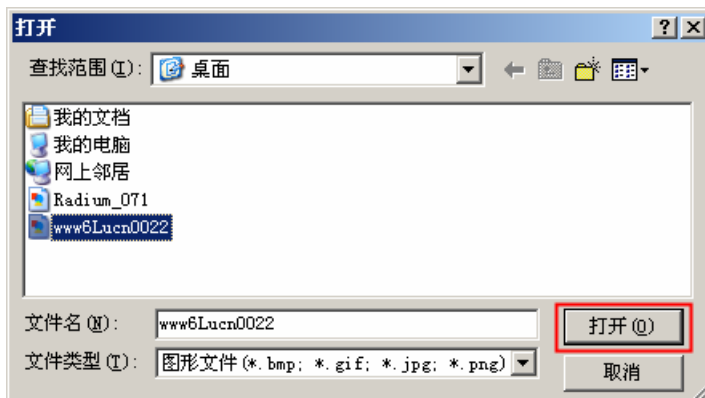
1 Click **New Graphics** in the **Draw(D)** menu, **Name** is **next**, **Type** is **Bitmap**. other are default settings.



2 Click **OK**, pop up a edit box as follows, in the black edit box ,right click, chose the **Load Image**.



Choose the picture:



Import successfully, as shown in the picture

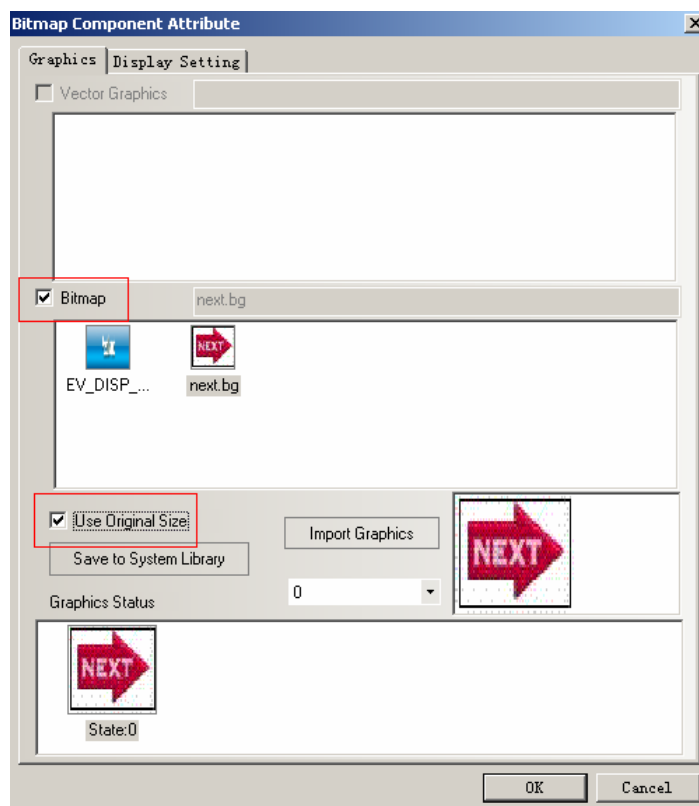


state0

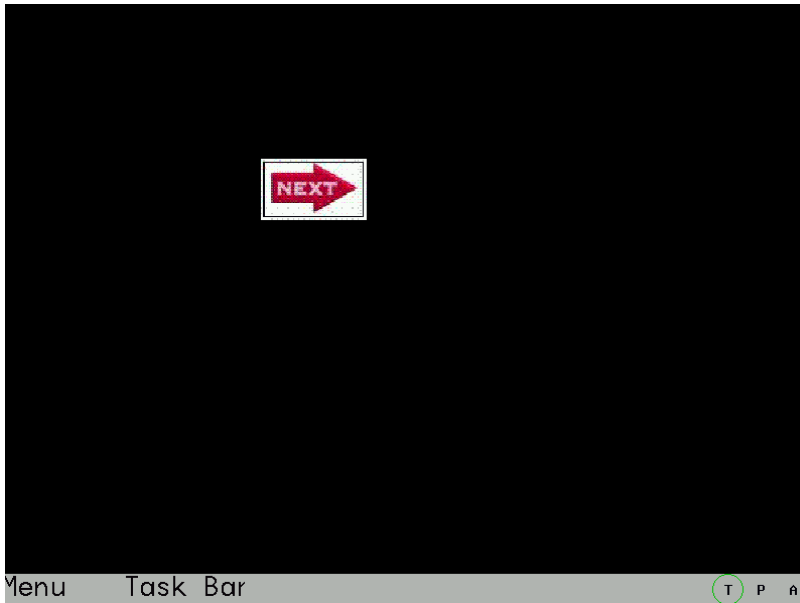


3 Save , then go to the **HMI Edit Window**

4 Set a **Bitmap** component, select the **Use Original Size**



And the offline simulation effect:

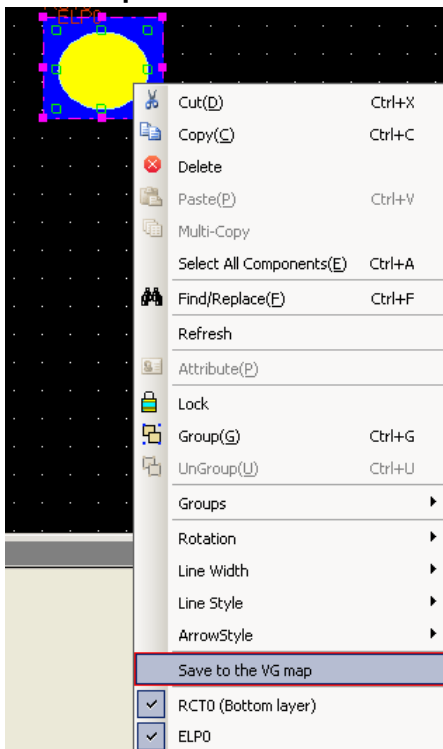


27 Save to the VG map

Pictures drawn in the HMI Edit Window can be saved as vector graphics of VG format, and other projects can call these graphics of VG format.

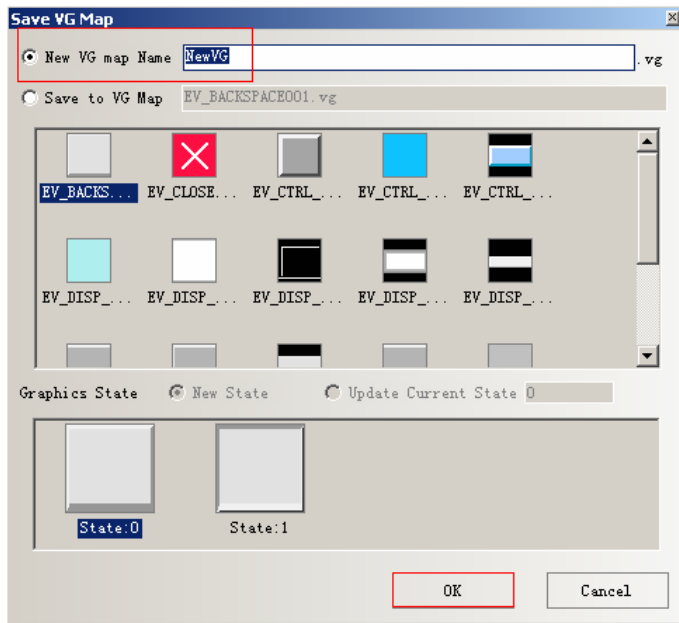
Operational method is as follows:

1 Draw a rectangle and a cycle, select the two components, right-click, choose the **Save to the VG map**

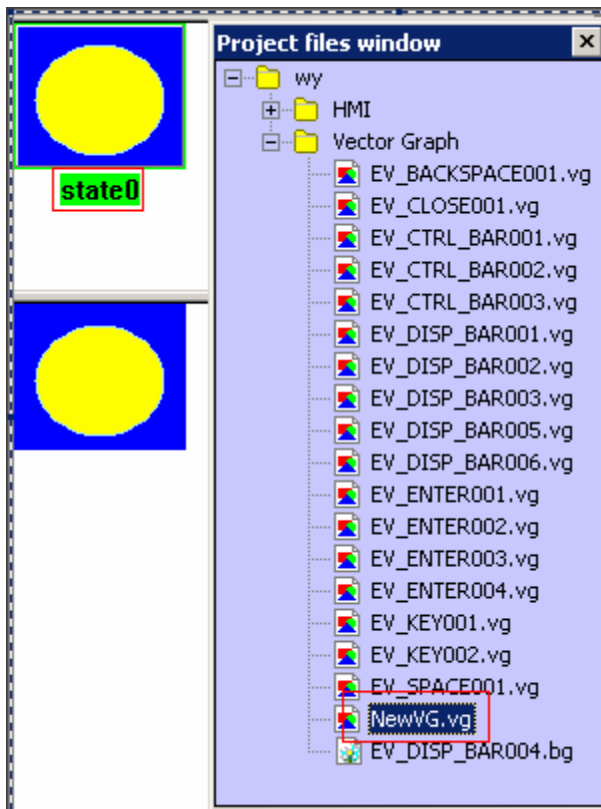


2 Then pop up a dialog box titled Save VG Map

Select the **New VG map**, and the default **Name** is NewVG. And user also can input a new name, click **OK**

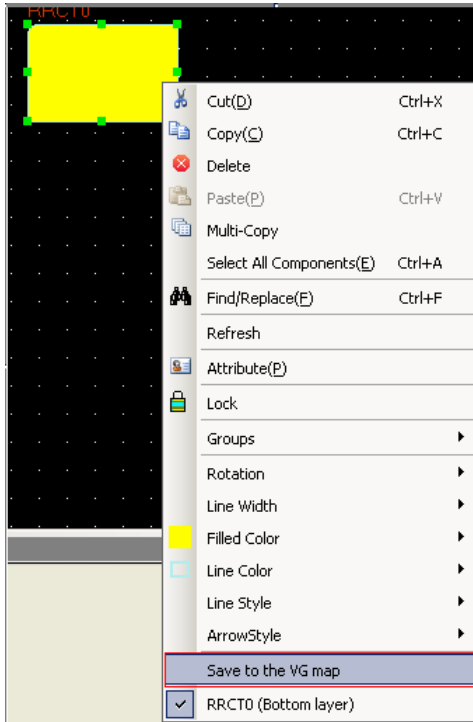


So a new VG graphic with one state is built.



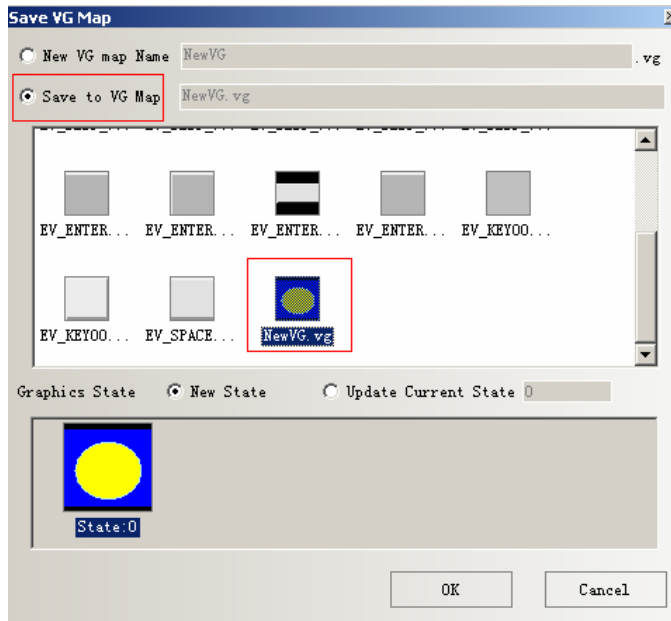
3 if you want to add a round rectangle to the state of new VG

Draw a round rectangle, select the component ,right click. Choose the **Save to the VG map**

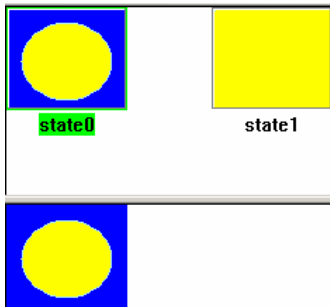


4 Pop up a dialog box named **Save VG map**

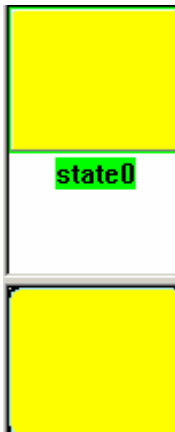
Select the **Save to VG Map**, find the **NewVG.vg** in the box



New State: add a new state (state 1) to the selected VG map

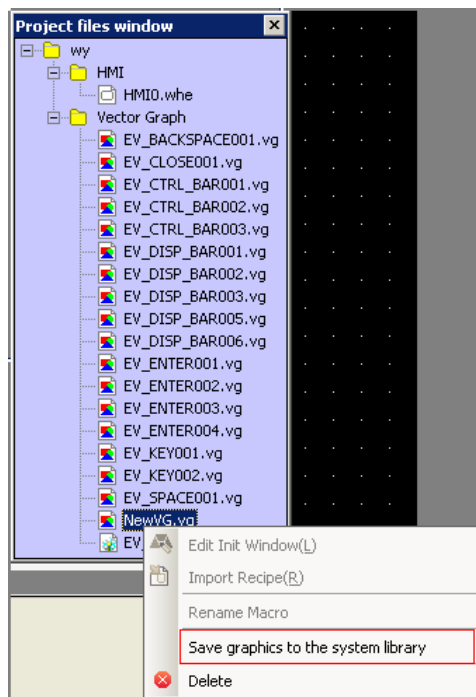


Update Current State: replace the state 0 with the new graphic

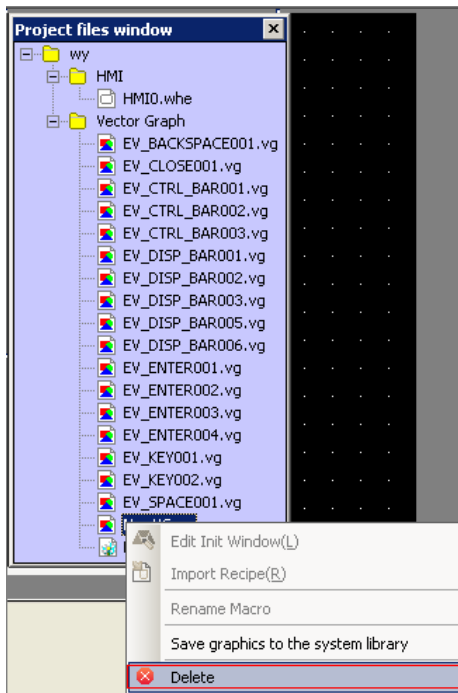


[Save graphic to the system library]: it can save the NewVG.vg to the system library, so that other projects can call the graphic. The method to call a graphic , refer to the **Image Library** part

The method of **[Save graphic to the system library]:** in the **[Project file window]**, select the NewVG.vg, right click ,then choose the **[Save graphic to the system library]**



Delete: delete the NewVG.vg. In the Project file window, select the NewVG.vg, right click, choose **Delete**

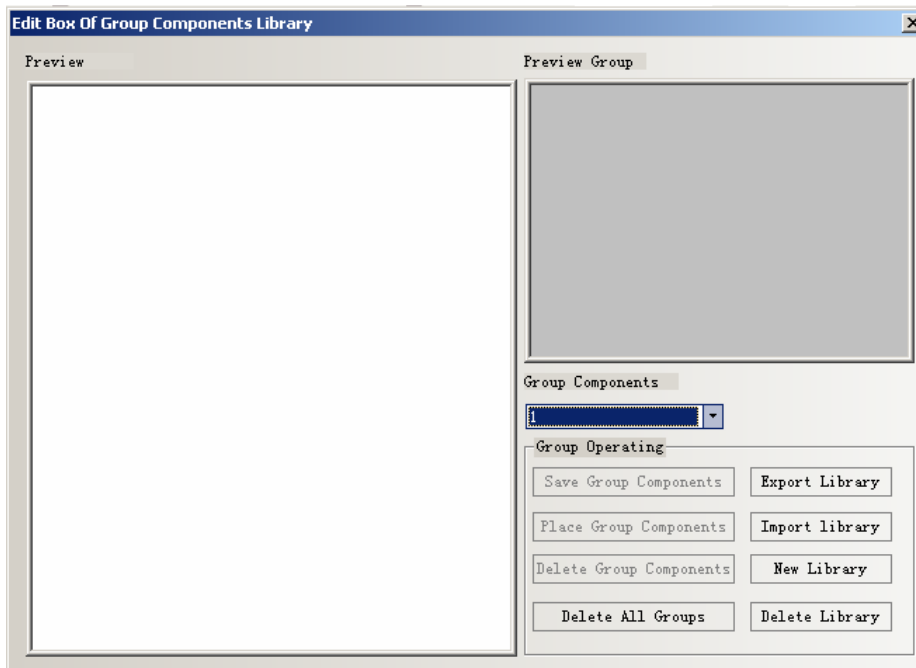


28 Group components

Combine multi components or graphics and save them to the **Group components Library**, so that other projects can use them, the file format of **Group components Library** is **.pgl**.

The method of entering the **Edit Box of Group components Library**:

Click menu , Draw>>>Group components>>>Use the group element, or right click the blank part in the edit window, select the **Group** then ,click the **Use the group element**, then pop up the **Edit Box of Group components Library**



Export Library

Click the **Export Library**, then the current Group components Library is save to the

path users defined. So that it can be imported by other projects

Import Library: the default path of Group components Library is under the Ev5000 installation catalogue named UerLib. And the user can also import the library from the customized path: click the **Import Library**, and find the path where the **Group graphics Library** saved, select the library, then click **Open**, so the library is added to **Group graphics Library** of current project

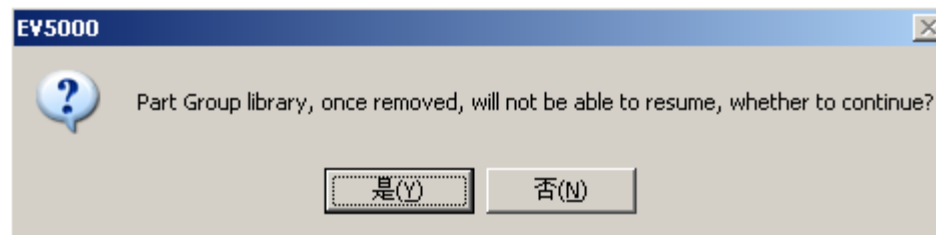
New Library

Click the **New Library**, pop up the following dialog box, input a name for the new library. And the default saving path is the installation catalogue named UserLib



Delete Library

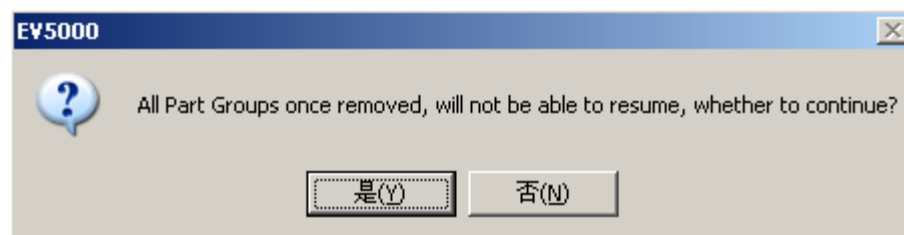
Click the **Delete Library**, the current group graphics library will be deleted



Click (Y) to delete the current group graphics library in the project , and click (N) to cancel the operation.

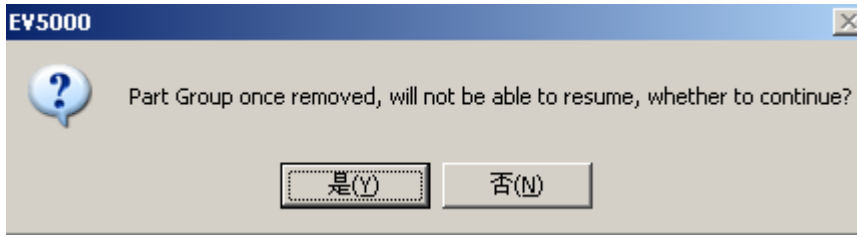
Delete All Groups

Click the **Delete All Groups** to delete the all the groups, and all the graphics or elements in the library will be deleted



Delete Group Components

Click the **Delete Group Components**, the selected component or graphic will be deleted



Note For **Delete Library, Delete All Groups, Delete Group Components** , they delete the corresponding files in the usrlib folder of EV5000 installation catalog directly

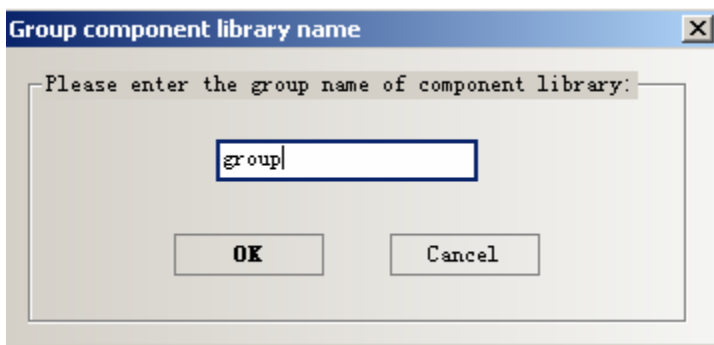
Place Group Components

Click the **Place Group Components**,, the selected graphic will be placed in the **current edit window**.

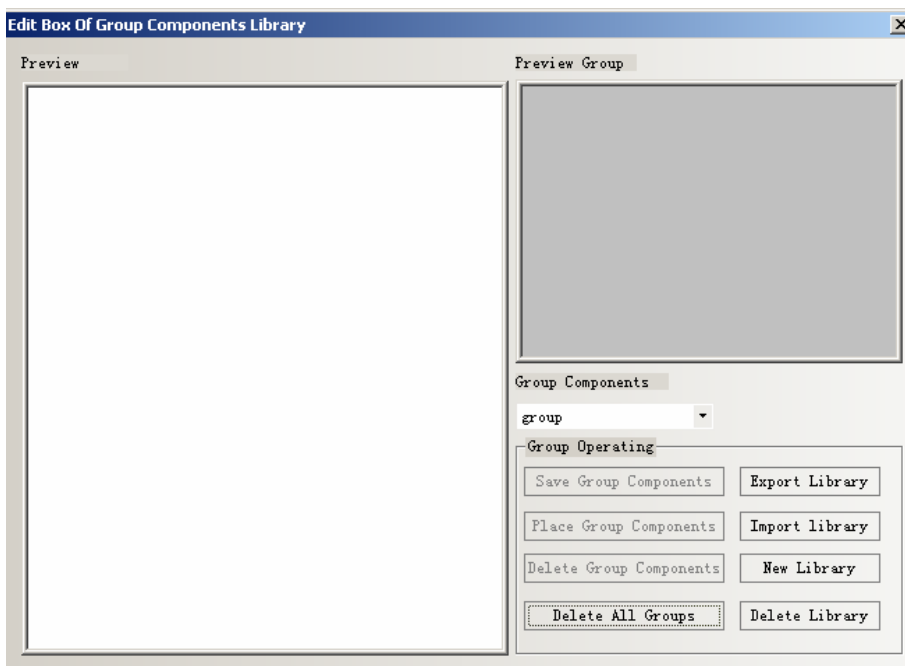
Example:

How to add the group graphics to the new group graphics library:

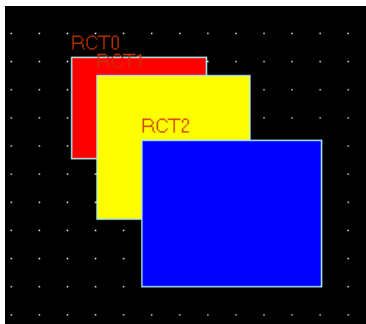
1 Click the menu ,then **Draw>>>Group components>>>Use the group elements**, pop up a dialog box, then click **New Library**, input the name: **group**. As shown in the following picture:



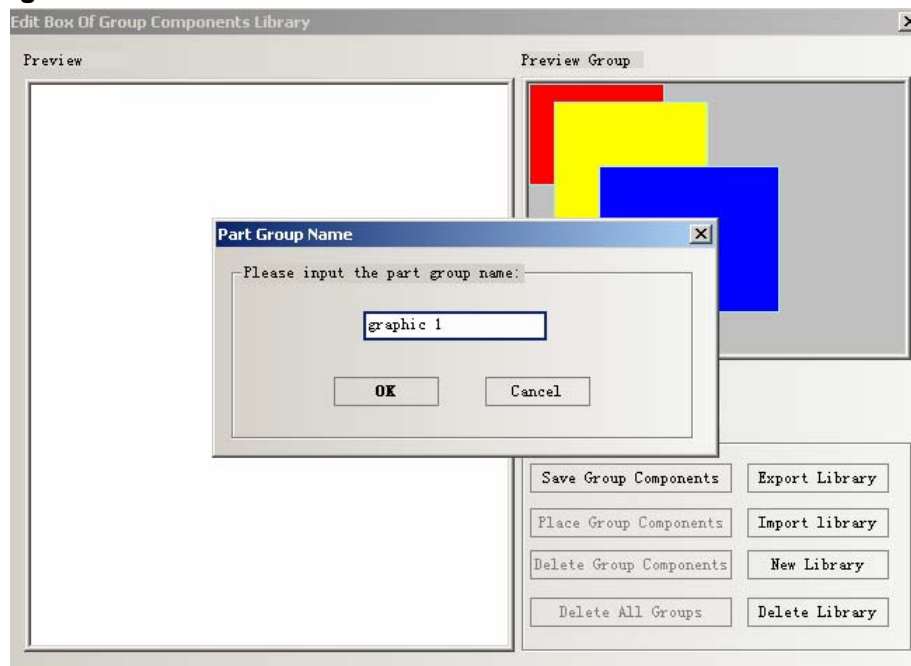
Click **OK**. there will be new blank library., As shown in the following picture:



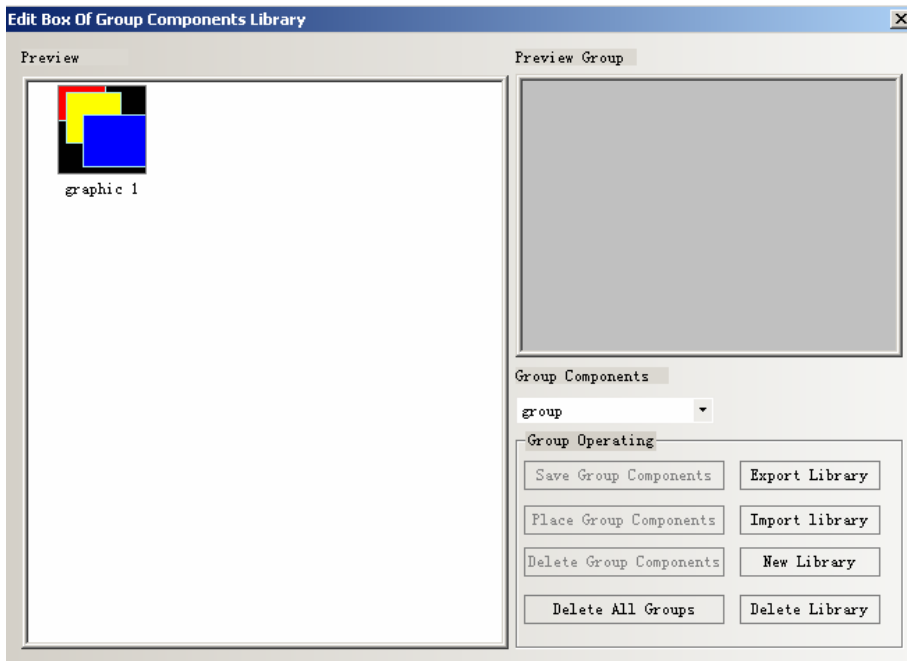
2 Place three rectangle in the edit window. As shown in the following picture:



Select all the three rectangle, right click, **Groups>>>Save the group element** , then click the **Save Group Components** in the **Edit Box of Components Library**, pop up a dialog box as follows:

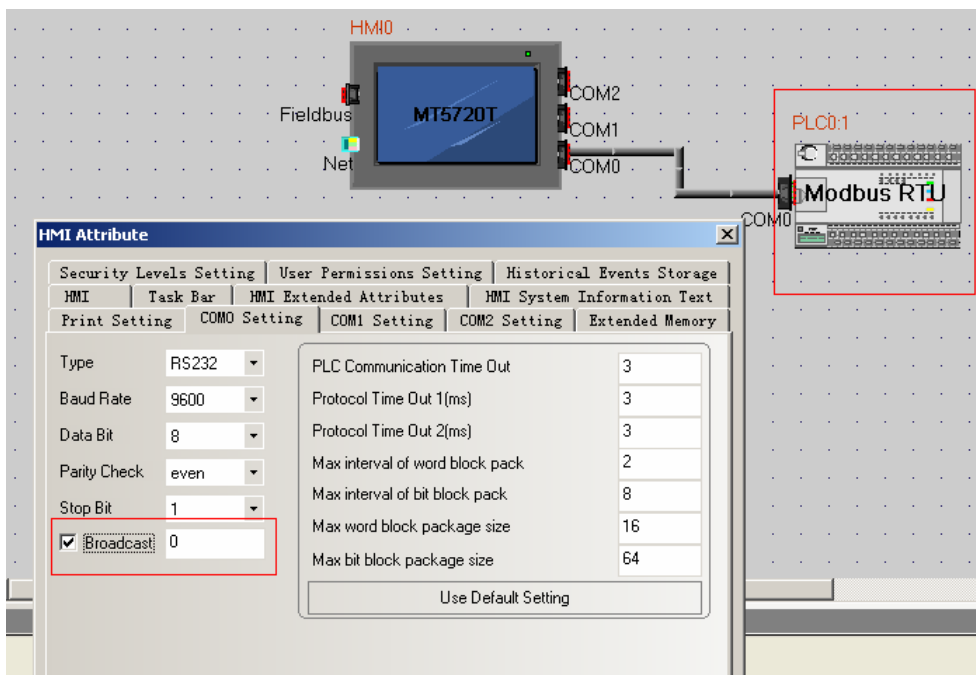


3 Input **graphic 1** in the name box, click **OK**, so the three rectangle named **graphic 1** is added into the library named **group**, as follows:



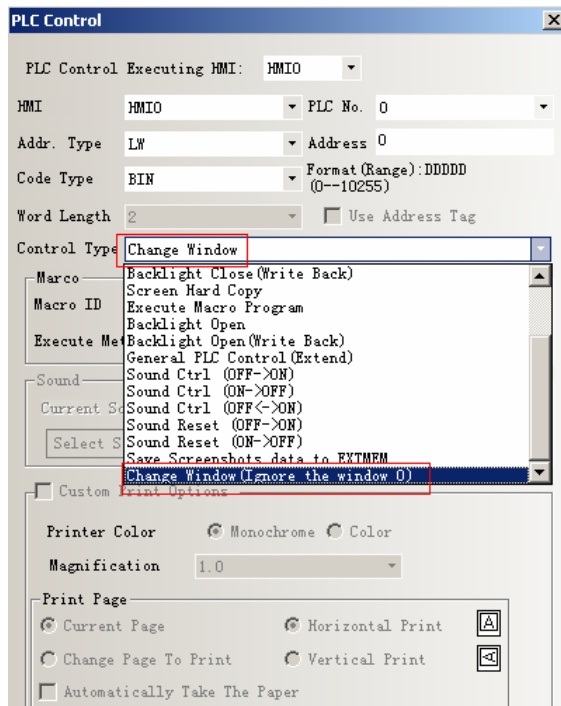
4 If you want to add more group elements to the **group** again , the method is the same as above, when save the group elements ,just select the **group** in the **Group Components** list.

29 Add Broadcast number in Modbus RTU , as in the following picture:



30 Change Window (Ignore the window 0)

In the Plc Control, add a option of Change Window (ignore the window 0),as shown in the following picture:



The difference between the **Change Window** and **Change Window (Ignore the window 0)** in PLC Control:

Change Window: when the window number is 0, change to the window 0

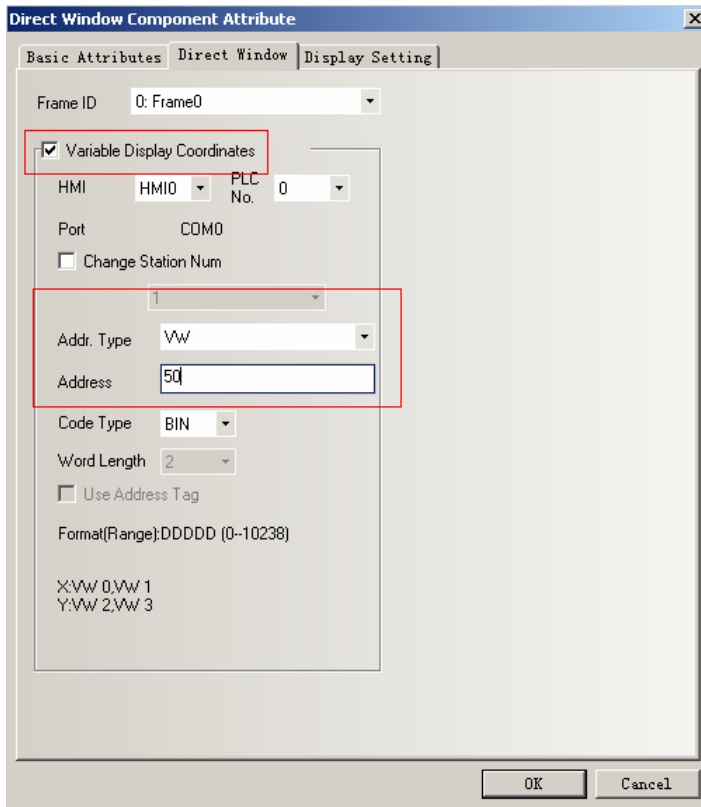
Change Window (Ignore the window 0): when the window is 0, don't change the widow

31 The popped up position of Direct/ Indirect window is variable

The pop up position of Direct/ Indirect window can be controlled by register

The corresponding settings:

- 1 Select the **Variable Display Coordinates:**

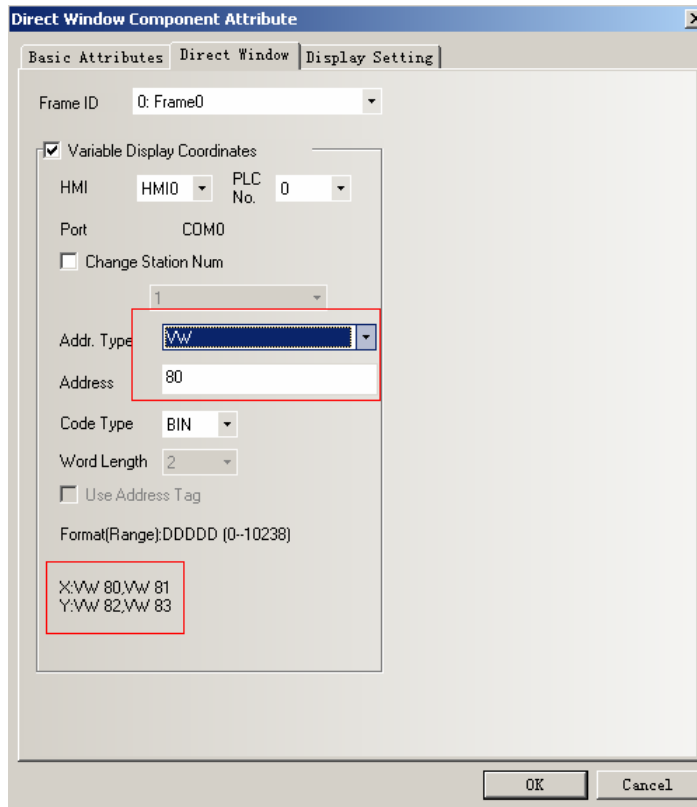


Corresponding attributes are as follows:

X Coordinate of popped up window	Y Coordinate of popped up window
First address	First address+1

So the popped up position of Direct/ Indirect window is controlled by two register addresses , X Coordinate is controlled by the first address, Y Coordinate is controlled by the first address +1,

But for some special PLC, for example.S7-200, the addresses must be even, as shown in the following picture, VW80 controls the X coordinate VW82 controls the Y coordinate.



32 The method to use the keyboard

In **EV5000 Group Components Library**, there are 21 default types of keyboards to choose. They are:

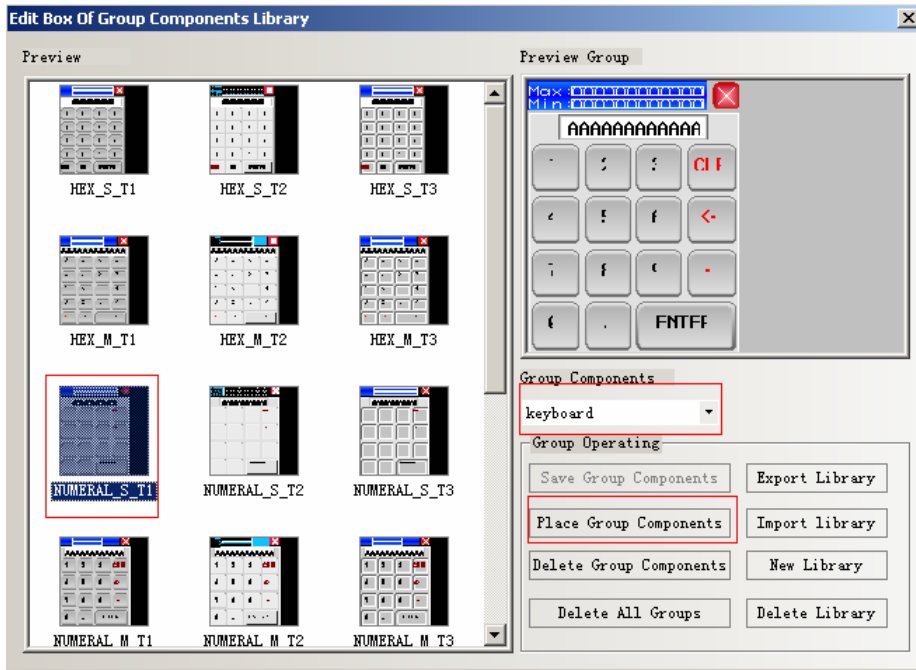
Three different styles of small hexadecimal keyboards: HEX_S_T1~T3; decimal number keyboard of NUMERAL_S_T1~T3; ASCII keyboard: ASCII_S_T1~T3. these keyboards are applicable to the small size HMI under 320*240 resolution ratio

Three different styles of middle hexadecimal keyboards, HEX_M_T1~T3; decimal number keyboard, NUMERAL_M_T1~T3; ASCII keyboard, ASCII_M_T1~T3; these keyboard are applicable to the small big size HMI above 320*240 resolution ratio

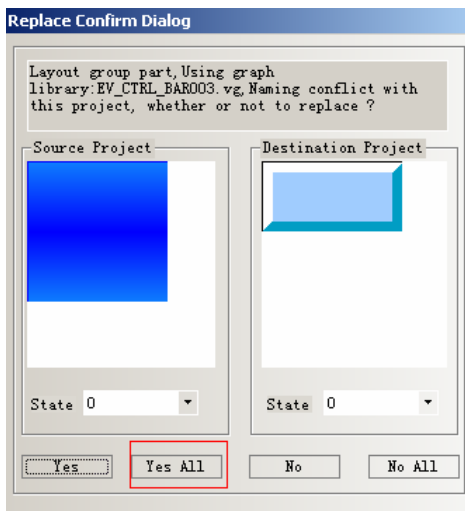
Three different styles of small decimal number keyboards of gray, NUMERAL_S_L1~L3; these keyboards are applicable to 4300M of 320*234 gray scale, HMI of gray scale also can use the color keyboards, and the effect is ok

Then introduce how to call the keyboards in the **Group Components Library**:

1 Click the **Draw** menu>>>**Group component** >>>**Use the group elements** or right click the blank part of the window, then **Groups**>>> **Use the group elements**, so pop up the dialog box titled **Edit Box Of Group Components Library**, chose **keyboard** in the **Group components list**. Choose NUMERAL_S_T1 in the **Preview**, then click the **Place Group components**, as shown in the following picture:



2 Then pop up the dialog box titled **Replace Confirm Dialog**, choose **Yes All**:



3 Close the **Edit Box Of Group Components Library**, so the keyboard is displayed in the window:



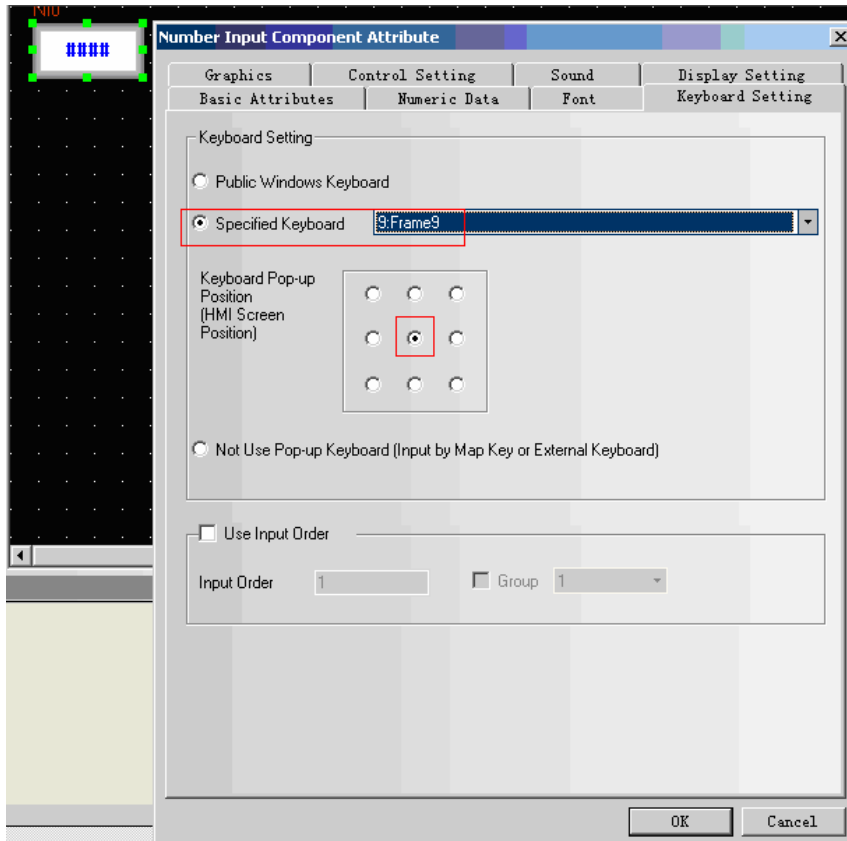
4 Place the keyboard in the frame 9, double click to show the **Window Attribute**,

change the **Width** and **Height** of the window , select the **Keyboard page** in **Special Attribute**

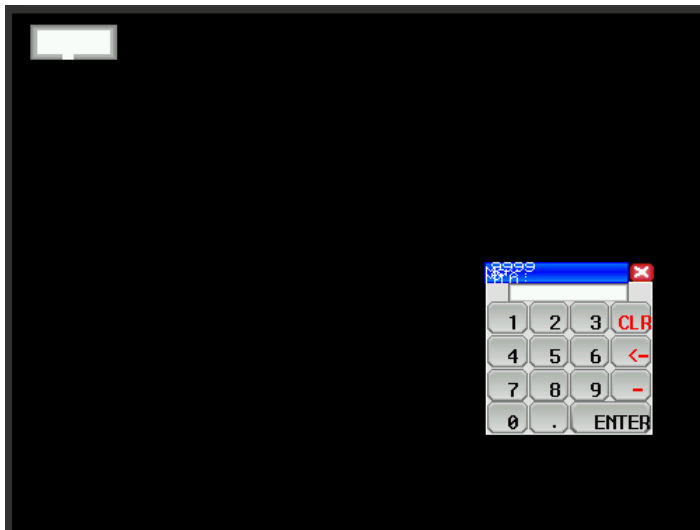
Note

In the window where the keyboard placed, make sure select the **Keyboard page** in **Special Attribute**

5 Place a Number Input component in frame 0, select the **Specified Keyboard 9:Frame 9** in **Keyboard Setting** option. As shown in the followings picture:



5 Offline simulation, click the Number Input component, pop up the keyboard just placed in frame 9.As shown in the followings picture:

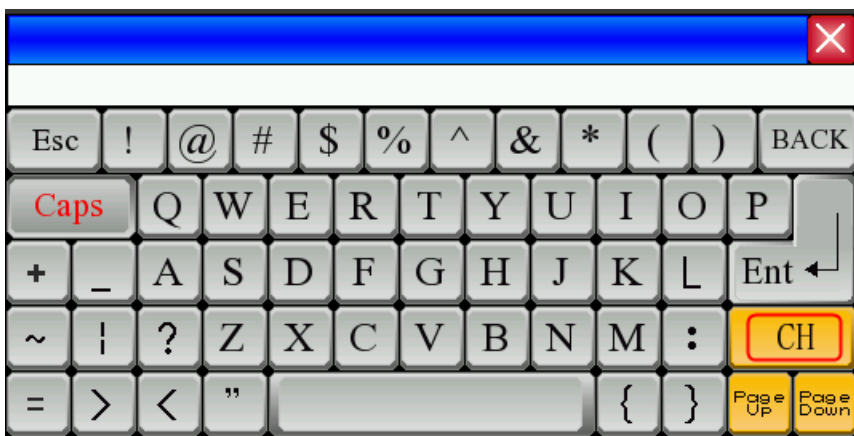


Then introduce the use of ASCII keyboard:

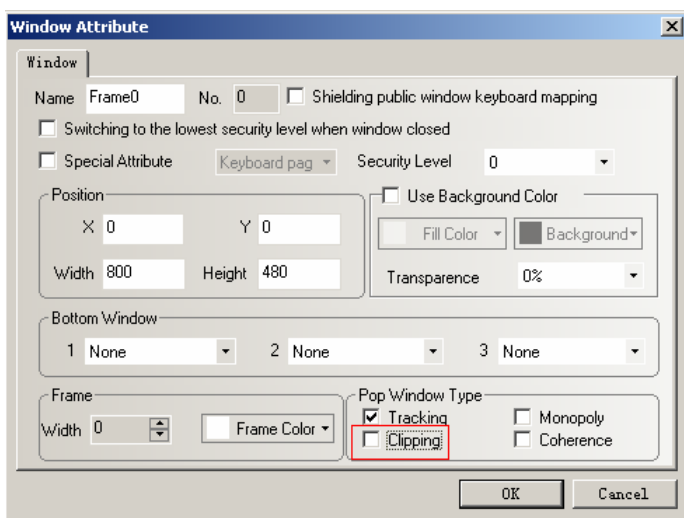
1 Support the case: click **Caps** key to switch the case.



2 Support the input support of Chinese and English , click the **CH** key to switch the input method, as shown in the followings picture:



Note If the pop up window calls the keyboard, don't select the **Clipping** in the Pop up Window Type .



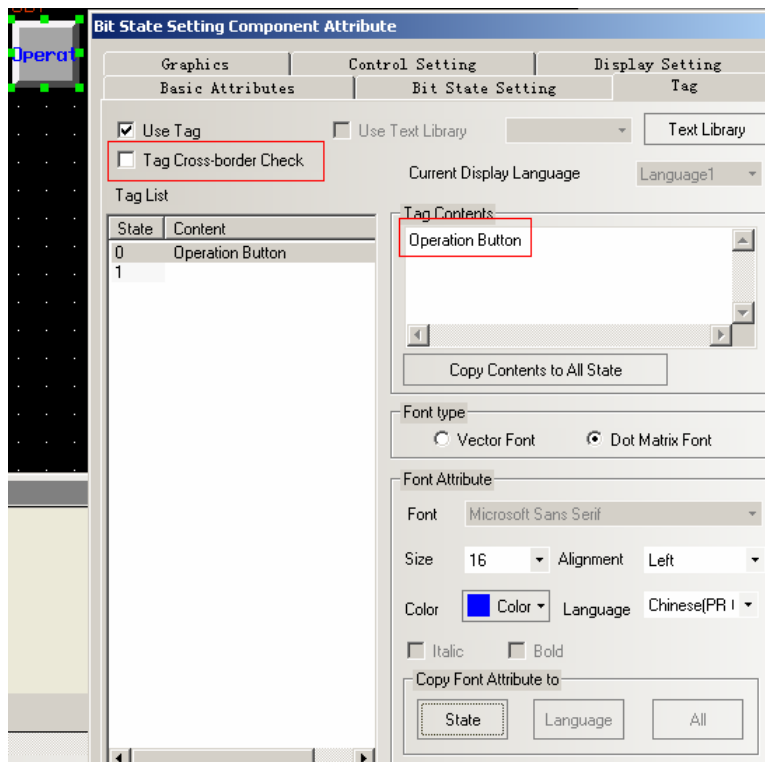
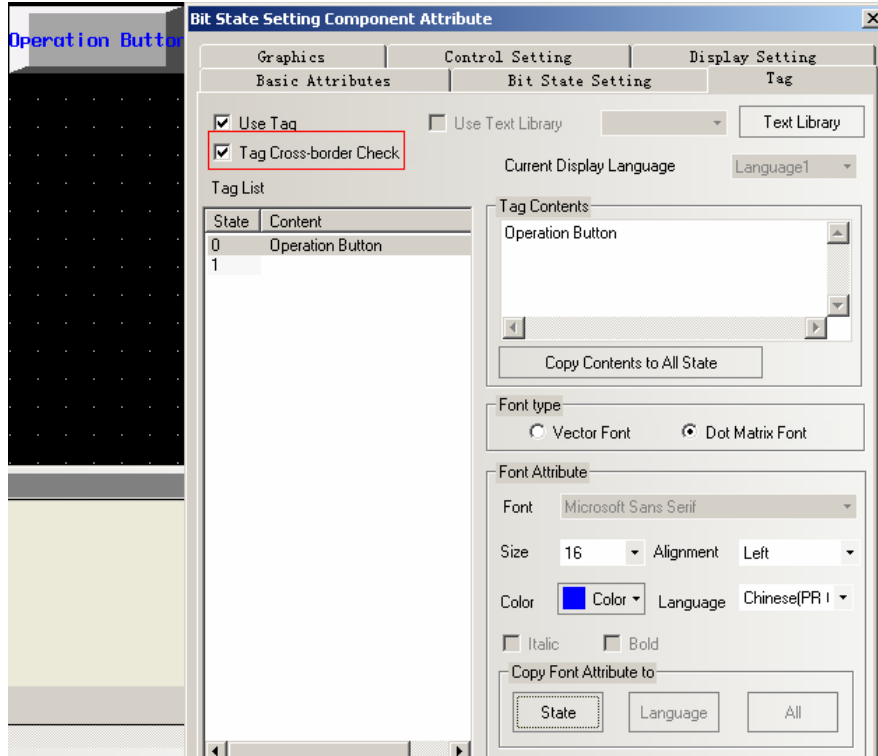
33 Tag Cross border Check

Tag Cross border Check in **Tag** , this function is used when tag is too long, or Multilanguage , because the length of tag is different in different languages. The **Tag Cross border Check** is selected in default.

And if the **Tag Cross border Check** is selected, when the length of tag is exceed the

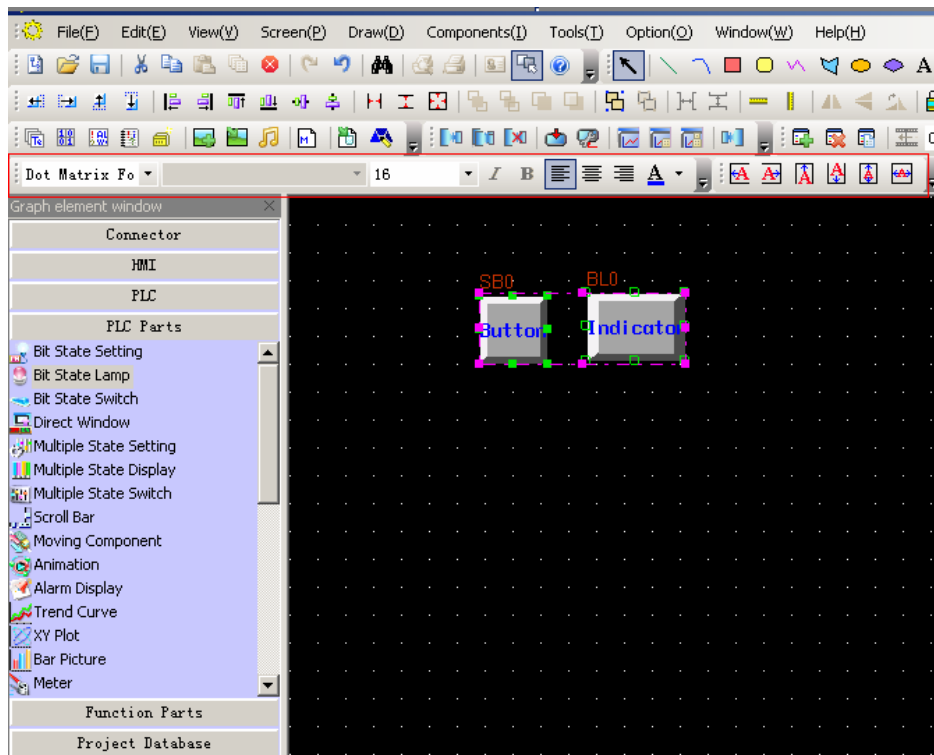
border of component, the component will be lengthen, and display all the content of tag,

If uncheck the **Tag Cross border Check**, when the length of tag is exceed the border of component, the component will not be lengthen, the content that exceed the border is clipped. The effects of select and uncheck the **Tag Cross border Check** are shown in the followings pictures:



34 Modify the font entirelyly

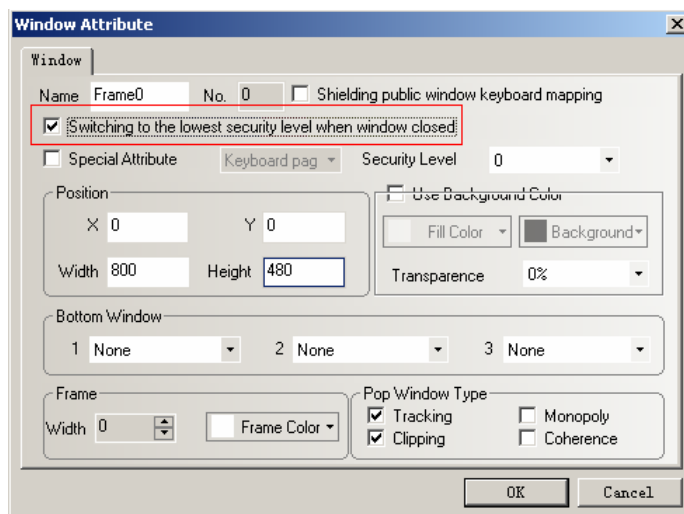
Select the components that need to change font, use the tools in **Font Toolbar** and **Tag Toolbar** to change the tag font.



35 Switching to the lowest security level when window closed

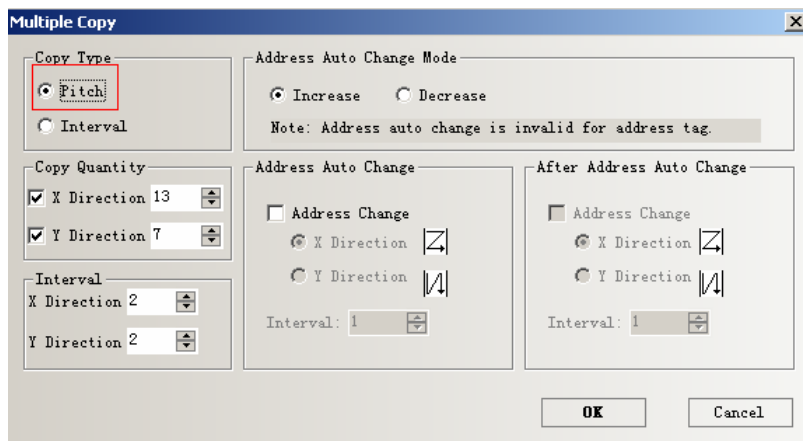
If set the security level to a window, and clear the password when window closed, the password is required again when enter the window. If in the V1.5 or lower version , Multiple State Setting component is required to achieve this function, the address is LW9043, **Setting Mode** is Set at window Open , **Set Value** is 0

In V1.6 add a function of **Switching to the lowest security level when window closed**, the security level is 0 when the window closed. The setting is as follows:

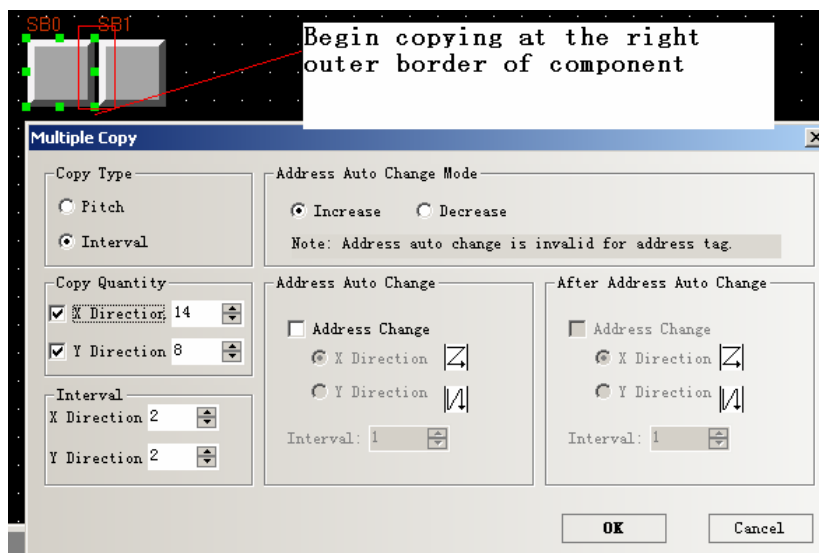


36 Multi-Copy

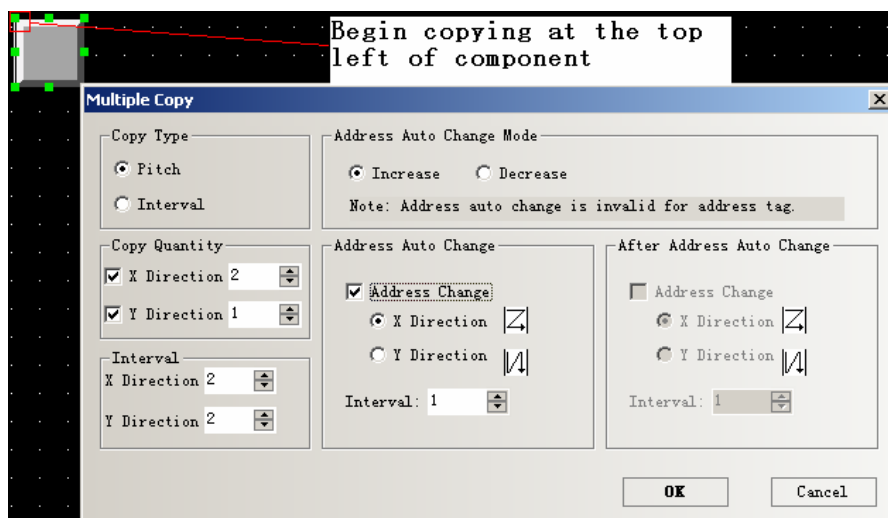
1 Add a new **Copy Type** called **Pitch** in **Multi-Copy**, as follows:



The difference between the **Copy Type: Pitch** and **Interval**
Interval: Begin copying at the right outer border of component



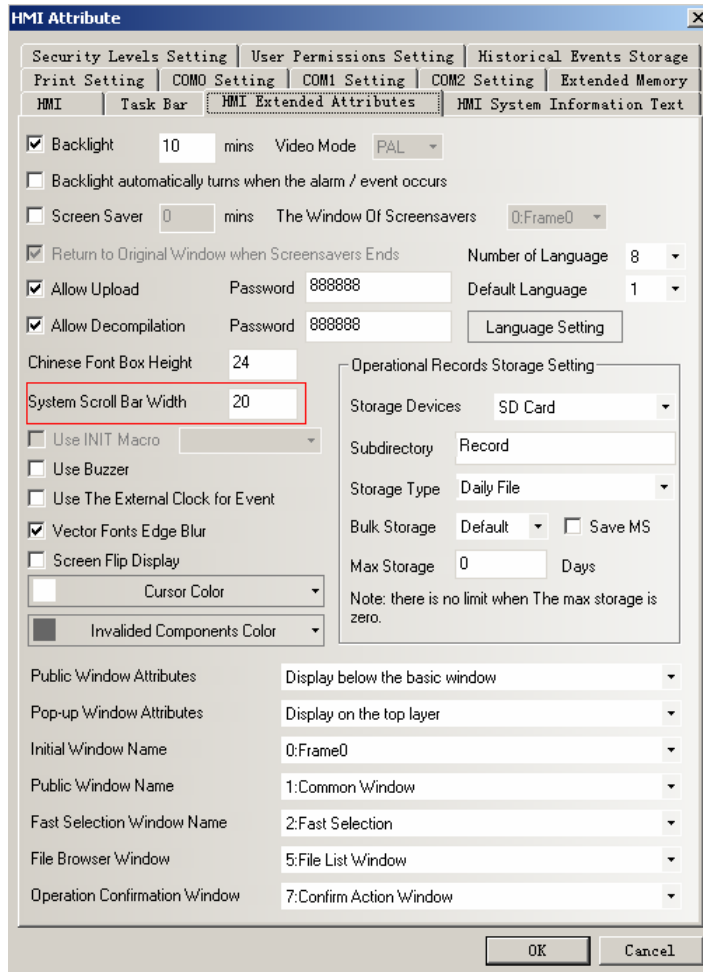
Pitch: Begin copying at the top left of component



2 Add **Decrease** to the **Address Auto Change Mode**, the address range is from 1~9999.

37 System Scroll Bar Width

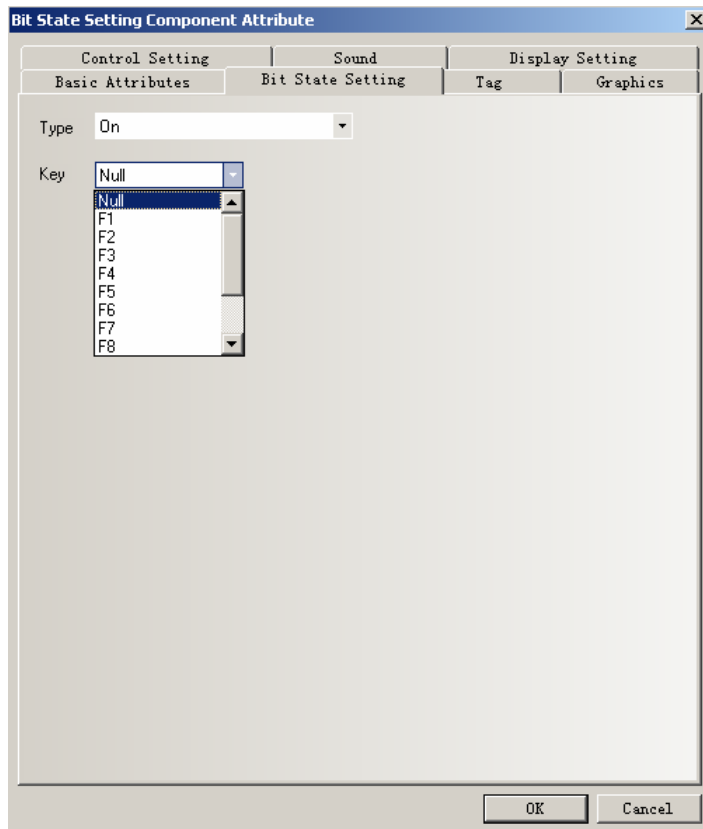
The components have scroll bar themselves, for example Operation Log, the scroll bar width can be set by the **System Scroll Bar Width** in **HMI Extended Attributes**. As follows:



The **System Scroll Bar Width** ranges from 20 to 120 pixels. And the effect is obvious if the interval is bigger than 4. For example, 24, 28, 32.

38 The components correspond to F1 to F12 on the keyboard

Note This function is only suitable to the HMI that support USB host

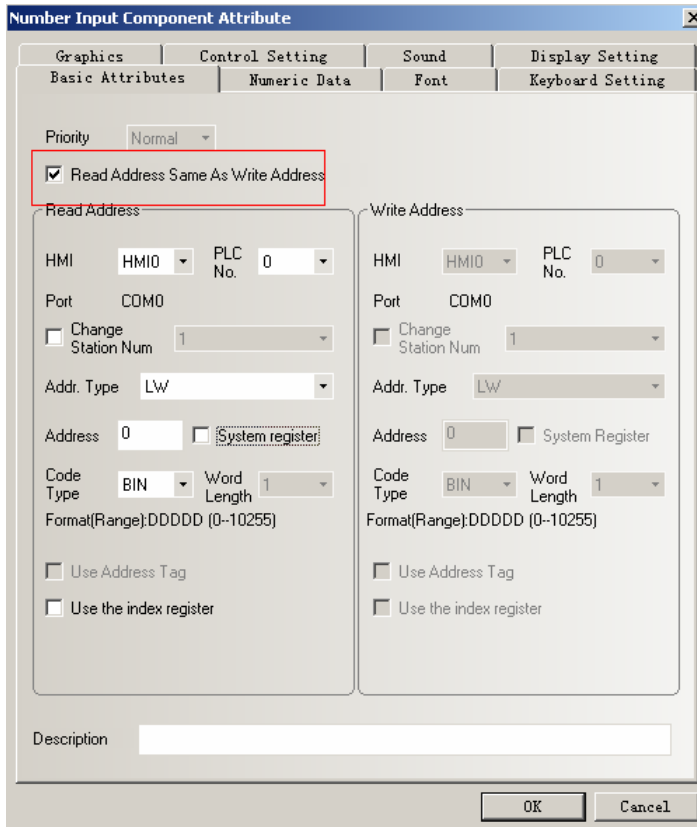


HMI that support the USB host can connect a external keyboard, and every setting component can corresponds to one of F1 to F12 on the keyboard.

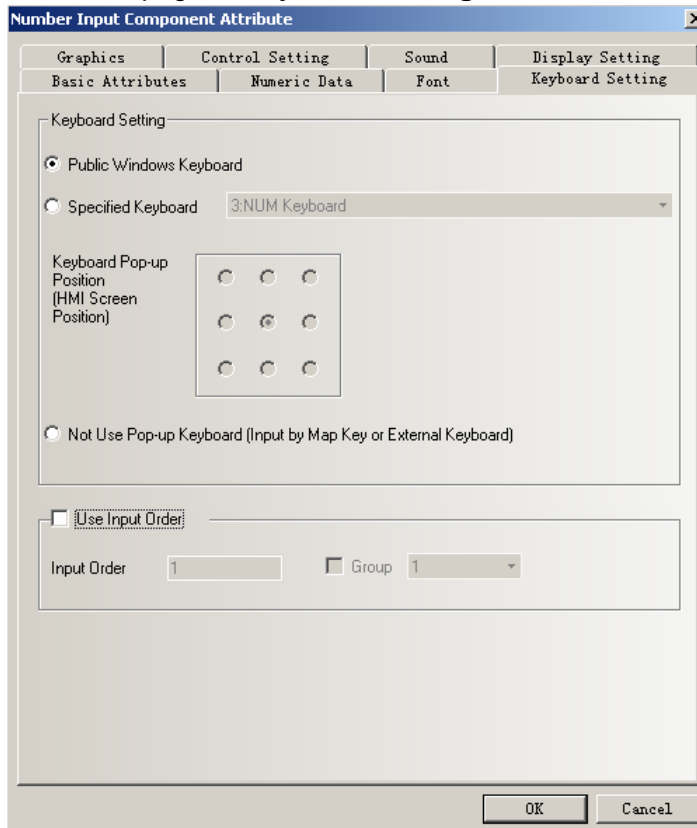
39 Number Input/Text Input/Text Display/Note Book component

The improvements of **Number Input/Text Input/Text Display/Note Book component** are as followings:

Read Address and **Write Address** can be the same or different.



2 Attribute page of Keyboard Setting



Public Window Keyboard: Use the public window keyboard, it is the same as V1.5. all the Number Input component call the keyboard inn window 3. And the default is use the **Public Window Keyboard**

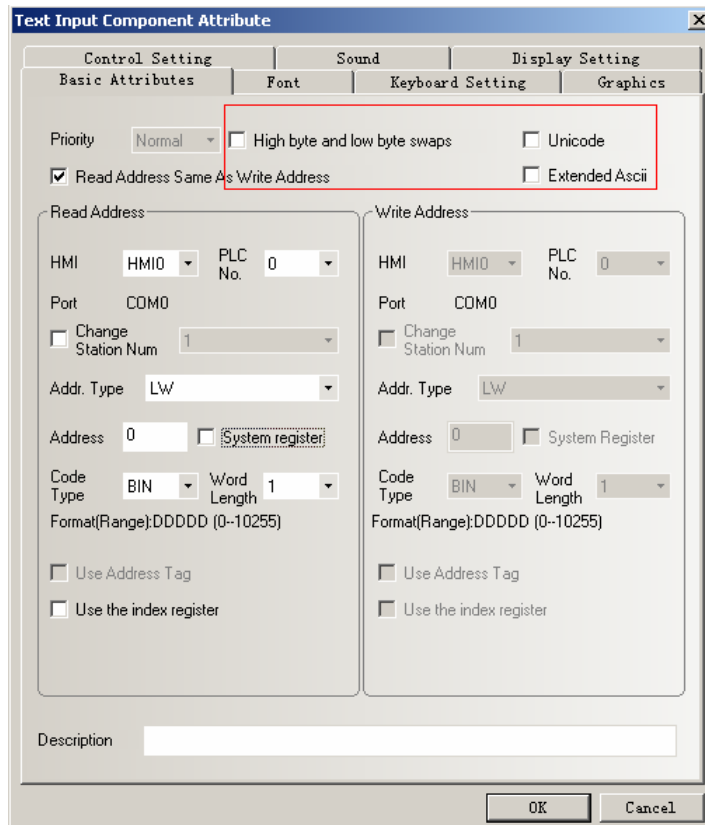
Specified Keyboard: call a specified keyboard. Note : chose the **Keyboard page** in the **Window Attribute** , so that the window where the keyboard set can be saw in the **Specified Keyboard** list.

Keyboard Pop-up Position: 9 positions are available to select

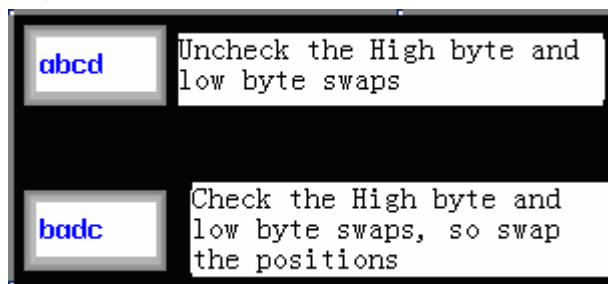
Not Use Pop-up Keyboard: only suitable for HMI that support USB host, and input number via the external keyboard.

Use Input Order: please refer to the **Use Input Order** part

Then introduce the new functions of **Text Input/Text Display/Note Book** component next ,as shown in the followings picture:



High byte and low byte swaps: swap the positions of MSB and LSB of a same byte



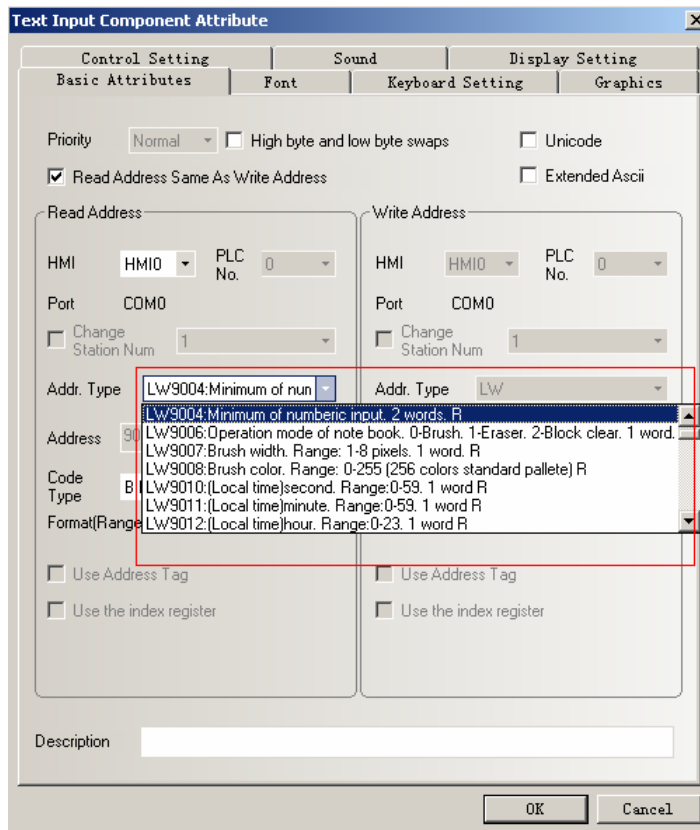
Unicode: can display multi-language

Extended Ascii: if checked, display the extended ASCII characters from 0X80 to 0Xff in ASCII code . The **Text Input/Text Display/Note Book** component can not display Chinese if select this function. It is mutually exclusive to the **Unicode**.

40 Use the Local Register conveniently

If the user want to use or check the local registers, select the **System register** in the bit or word components, all the local bit or word registers are listed in the **Addr. Type**. As

shown in the followings figure:

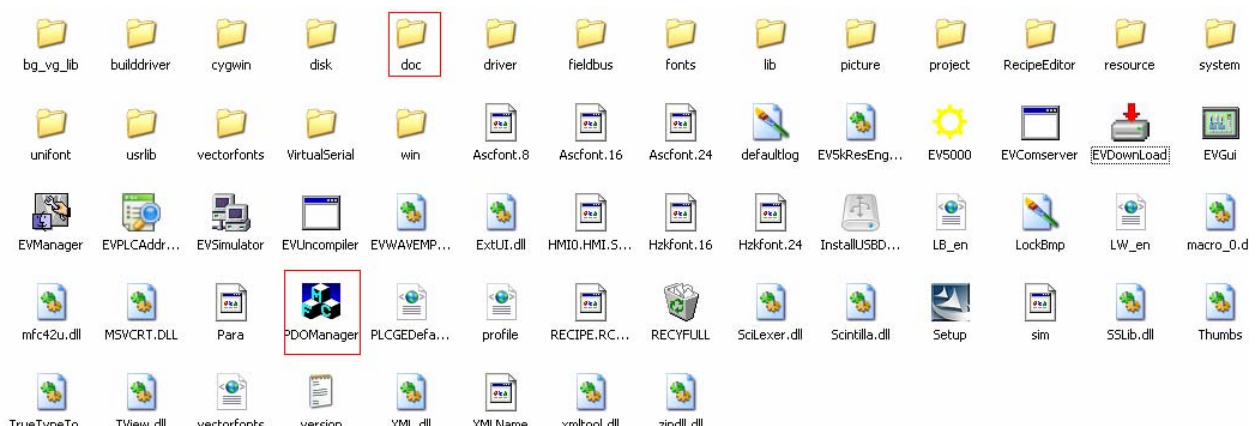


41 Install the USB driver automatically

USB driver in EV5000 V1.6 has passed the Microsoft certification, so the USB software is installed automatically when installs the EV5000, you needn't to install it manually.

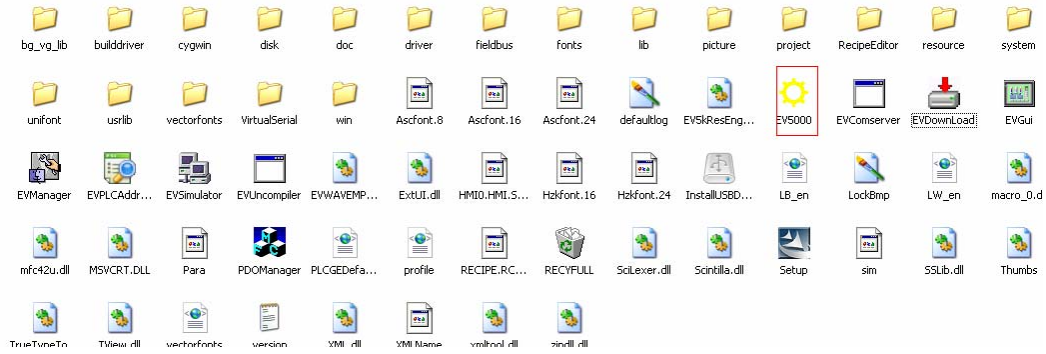
42 Customize the CAN communication protocol

EV5000 V1.6 supports customizing the CAN communication protocol, the user can write his CAN communication protocol. The related saving path is in **doc** of EV5000 installation catalog , and the PDOManager is also in EV5000 installation catalog.



43 Open the multiple projects and copy/paste among different projects:

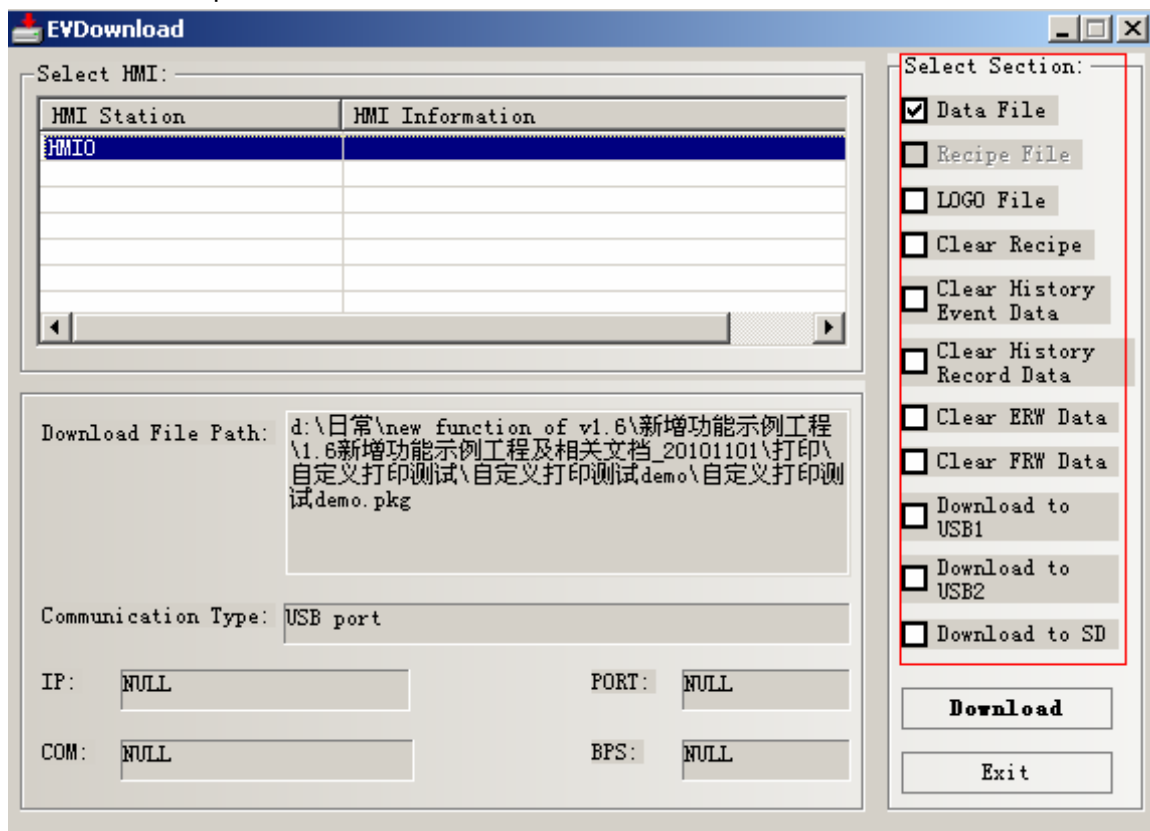
Double click the shortcut of EV5000 or double click the exe file in EV5000 installation catalog twice , as shown in the followings figure:



Open two projects of different names, copy a project to the other by the ways of shortcut CTRL+A or C, CTRL+V, or click the menu **Edit >>>Copy/ Past**

44 EvDownload box

As shown in the picture:



Each function is as follows:

1 Data File: Download current project

2 Recipe File: Download the .rcp file in the project if there is a rcp file in the project

3 LOGO File: Download the initial window picture .logo file. If the user changes the picture in the **Edit Initial Window**, you should select this option ,so that the initial window you edit can be shown.

4 Clear Recipe: Clear all the data in the recipe register, if the Recipe Data component is garbled, select this function to clear the recipe card.

5 Clear History Event Data: Clear the events that saved in HMI

6 Clear History record Data: Clear the record data that saved in HMI

Clear ERW Data: Clear the data that saved in ERW register

Clear FRW Data: Clear the data that saved in FRW register

Download to USB1: Down the project to USB1 , and run it in USB1

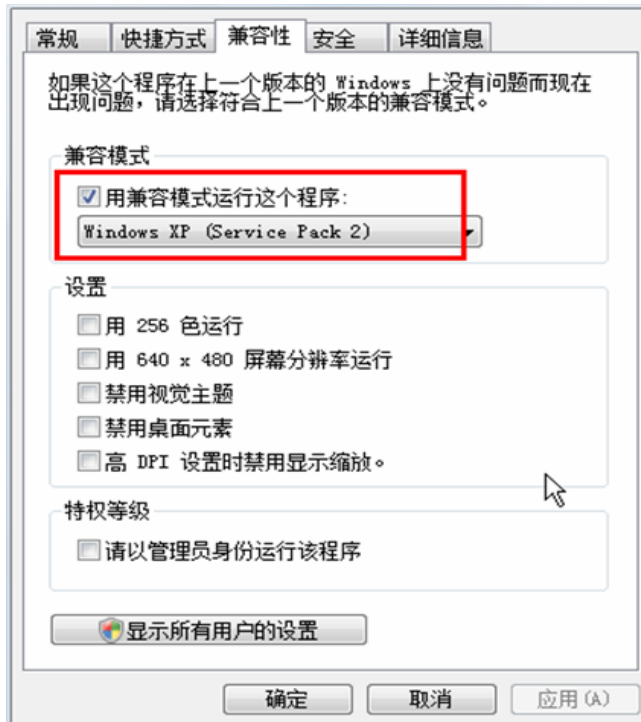
Download to USB2: Down the project to USB2 , and run it in USB2

Download to SD: Down the project to SD card, and run it in SD card.

45 EV5000 V1.6 can run in the vista and win7 operation system

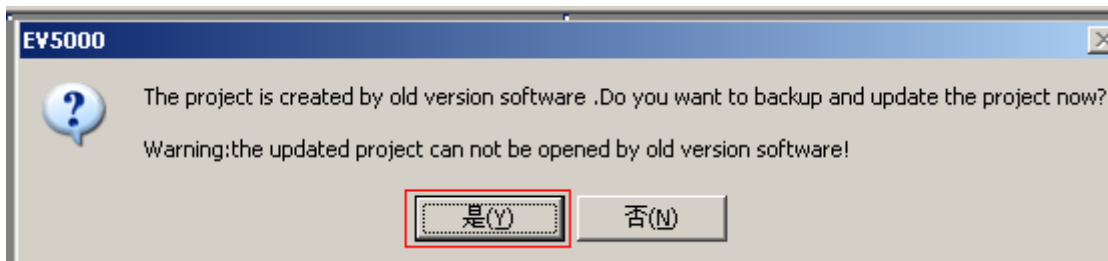
When use the vista operation, please note that:

- Support the 64 bit operation system only
- Don't install Ev5000 in the C disk , and login the system with administrator identity
- Right click the Ev5000.exe choose the **Compatible with XP**

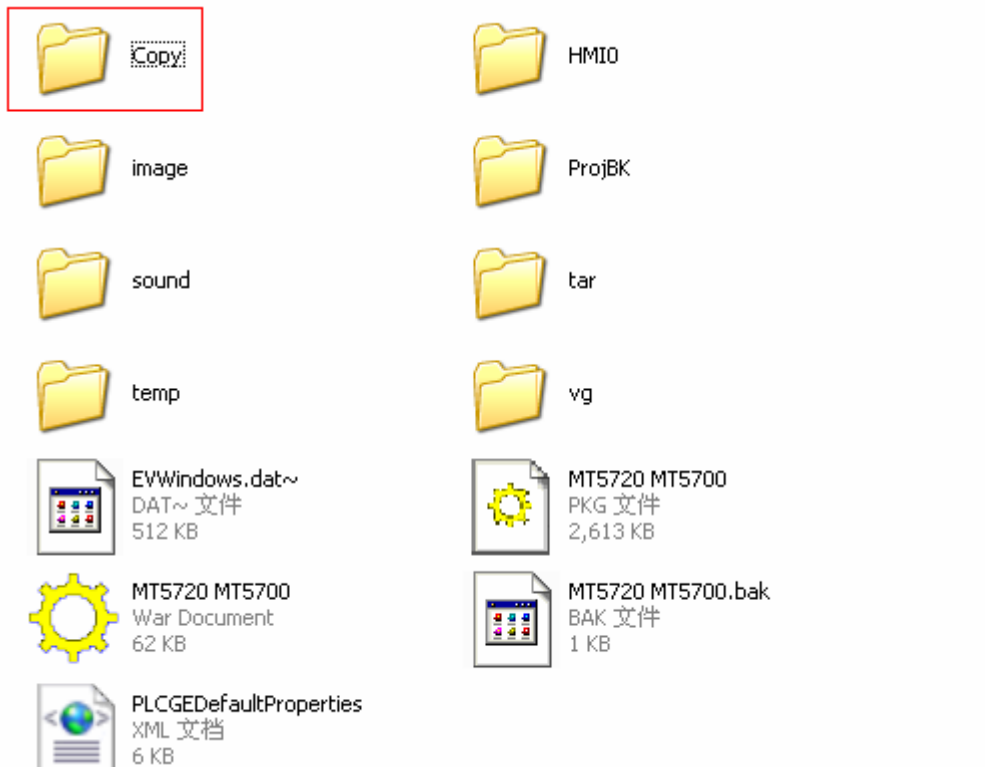


46 Compatibility of EV5000

Ev5000 is upward compatible, but not backward compatible. The new version can open the old version project, but not the reverse. When the new version software open the project create by old version software, EV5000 will backup the project, then open it in high version software.



EV5000 prompt backup the old project or not ,click **Yes** to backup the project, and this backup project will be found in the file named **copy** in the project file. If the user wants to open the project by old version software , the old project can be found in the **copy** file .



If click **No**, cancel the operation.

Explains for the files in the project folder:

temp: Backup project that compiled the last time

ProjBK: If click **No**, system bucks up a old version in the **ProjBK** folder

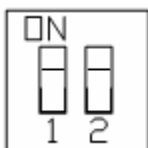
47 Full screen logo is supported

The HMI that support full screen logo are 4424T and 4424TE

48 How to judge if the USB disk and SD card are read by HMI.

Note This function is only suitable for the HMI that support USB host or SD card

Set the dial code switch 1 and 2 to **ON** position, as shown in the picture:

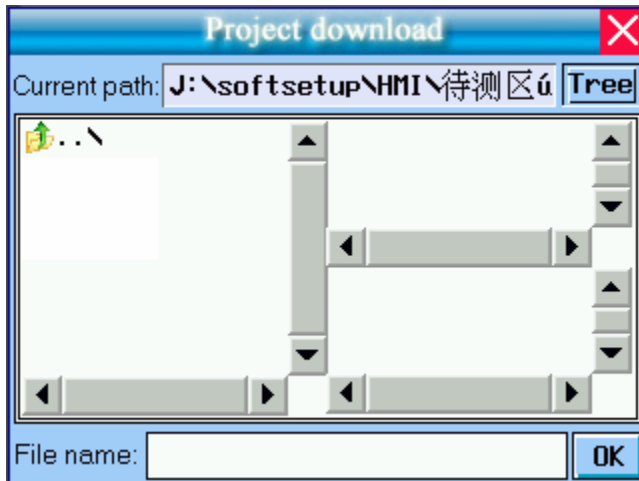


Reset the HMI, HMI display the picture as followings(Take 520T for example)

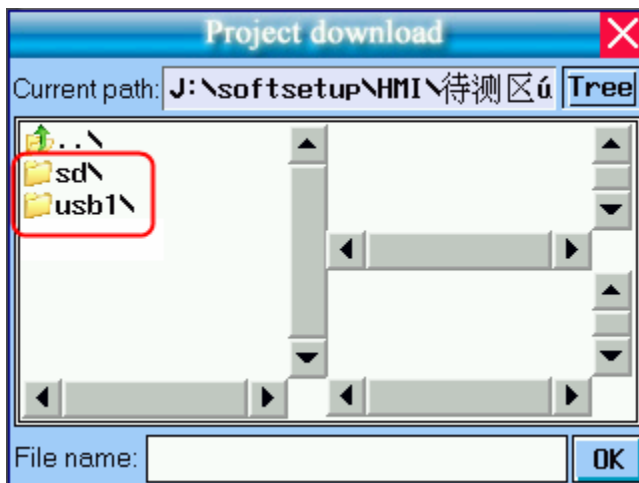


Click  or 

1 If the USB disk or SD card are not read by HMI, it display the screen as follows:



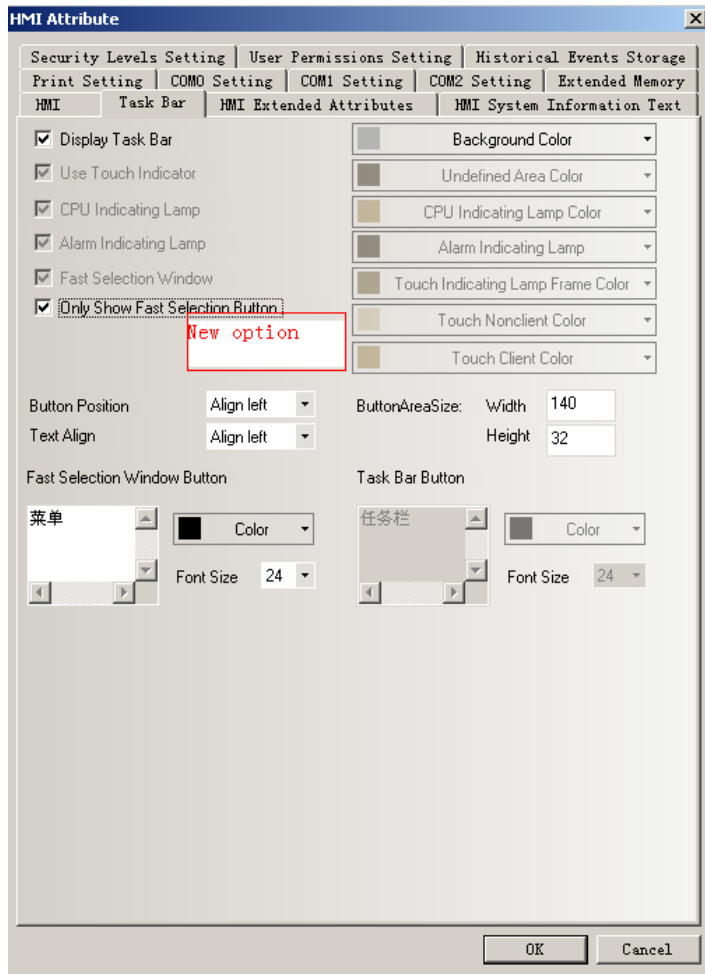
2 If the USB disk or SD card are read by HMI, it display the screen as follows:



There will be a SD card or USB disk sign displayed, that is to say the USB disk or SD card are read by HMI.

49 Only Show Fast Selection Button

In Task Bar of HMI Attribute , click the **Only Show Fast Selection Button**. So the HMI only show the fast selection button.

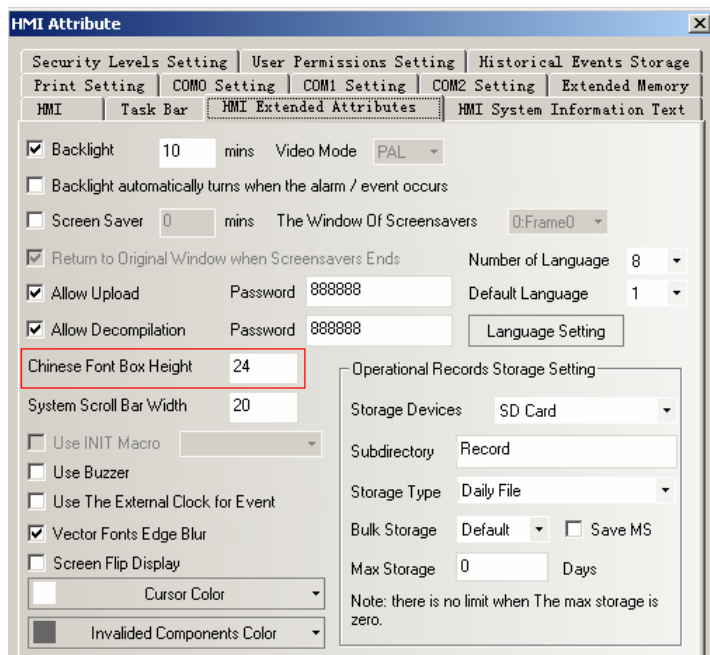


The offline simulation effect:



50 The Chinese font box height is adjustable

When we use phoneticize input methods, the Chinese font box height is adjustable, it is in the **Chinese Font Box Height** of **HMI Extended Attribute** in **HMI Attribute**, and it ranges from 24 pixels to 99 pixels.



The offline simulation effect:

If the **HMI Extended Attribute** is 24:



If the **HMI Extended Attribute** is 34:

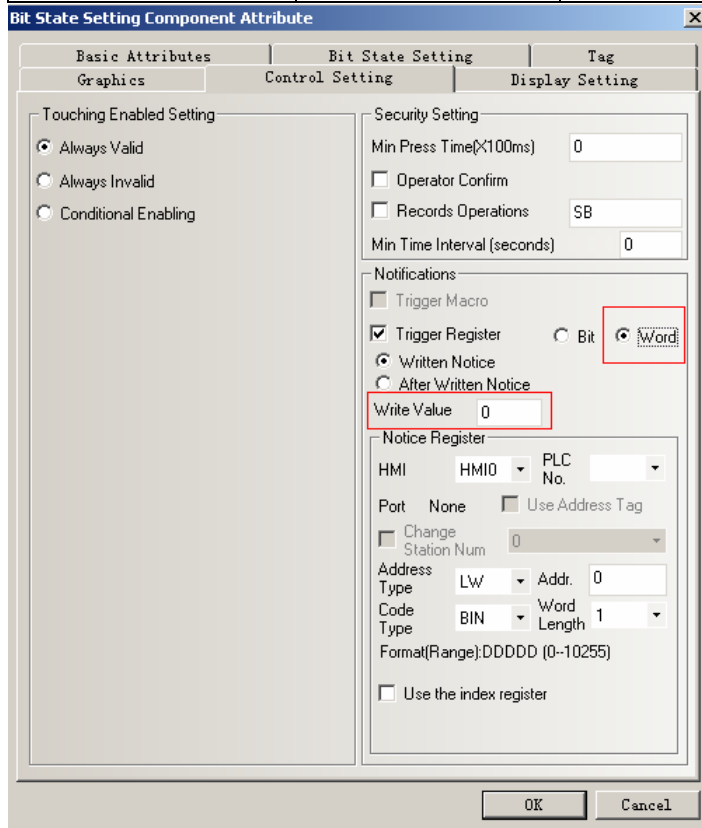


51 The notification function of Controlling component can notice word register

In Bit State Setting ,Bit State Switch , Number Input etc component add the function of noticing word register.

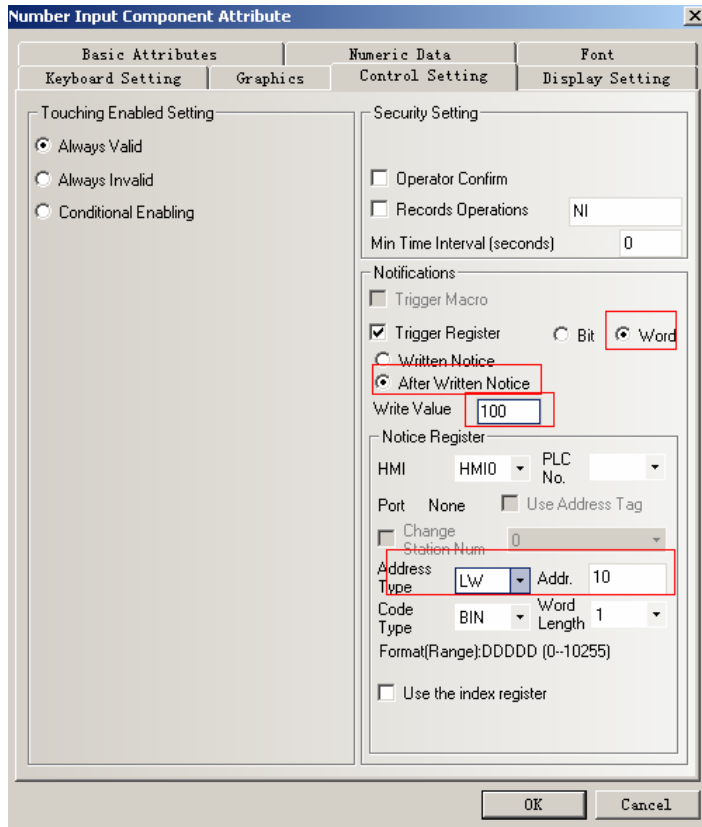
Trigger	Written Notice	Write the Written Value into the specified
---------	----------------	---

Register(Word)		word register address before the signal input the controller
	After Notice	Written Write the Written Value into the specified word register address after the signal input the controller



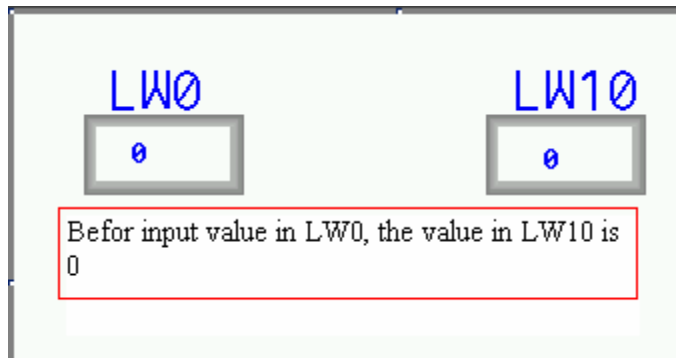
For example: Number Input component LW0, notice the LW10 , the Written Value is 100 after LW0 is written.

The settings of **Notification** in **Control Setting** of Number Input component:

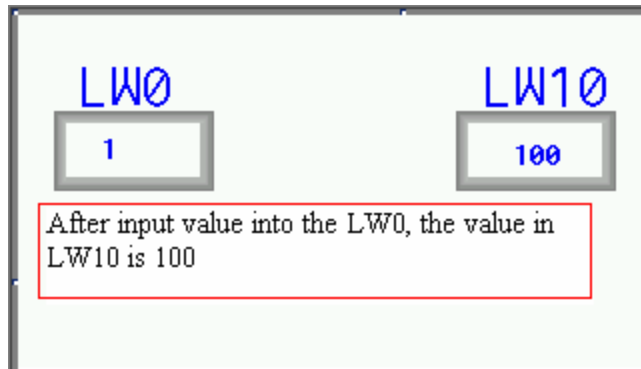


The offline simulation effect is as follows:

Before input value into the LW0:



After input value into the LW0:



Add new PLC drivers

1 Siemens 1200 network driver protocol

- 2 Siemens 300 network driver protocol
- 3 Yokogawa FA-M3 serial port driver
- 4 Yokogawa FA-M3 Ethernet port driver
- 5 Millenium 3
- 6 Parker SLVD
- 7 RKC driver
- 8 Tsinghua Moto field bus driver
- 9 Modrol driver
- 10 Inovance H2u driver

Add new printer driver

Add a new printer(MeiYu), the type is MY-POS80K