

# Chapter 1 Project Management

## I. Add/Switch Project

- 1 Start the HMIkit, Select the project from the system menu, from the System Management options on the menu bar, select the Project Toggle option may open a previous project or create a new project from the new project button.

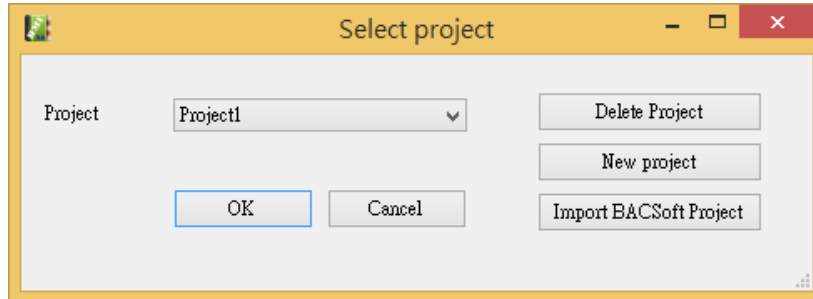


Figure1-1 Switch the project operation window

- 2 Create new project: Click on new project button, it will request user to create a new project name and the resolution of the BOD display (NVT series).  
The project name may not exceed 8 letters include numeric number.  
After enter the new project name and click "OK", user may start to edit the new project.
- 3 If you want to switch the project, just select the required project in the drop-down menu next to the project.
- 4 Click the Delete Project button to delete the selected project.  
**➤ If the deleted project is a running project, please reopen the program to avoid errors.**
- 5 Click to join the BACSoft project button, dedicated to the introduction of BACsoft project, click to select the project folder and product specifications.

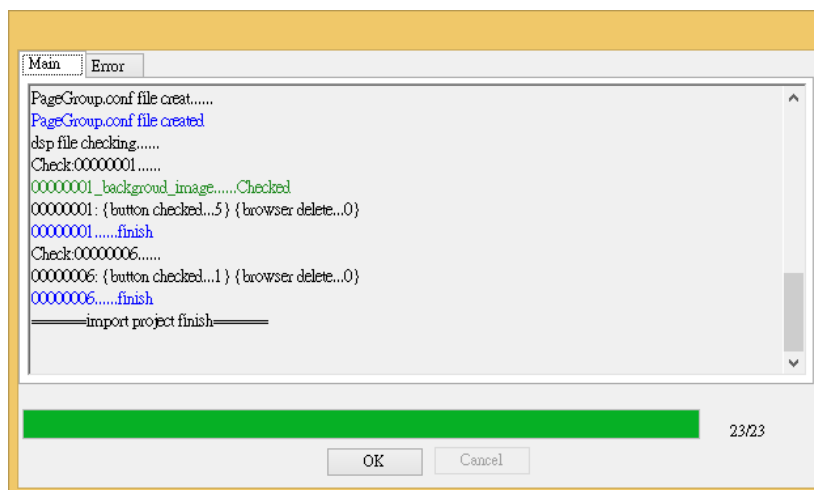


Figure 1-2 Add to BACSoft project

- 1.1 Tag "main" display the add on process
- 1.2 Tag "error" display error message.

## II. Select product specification

Before you add a project, the HMIkit will ask for the specifications of the project to determine the size of the project. If you want to change the product specifications after adding a project, you can select

the "Project Settings" option in the system management options on the menu bar Change product specifications.

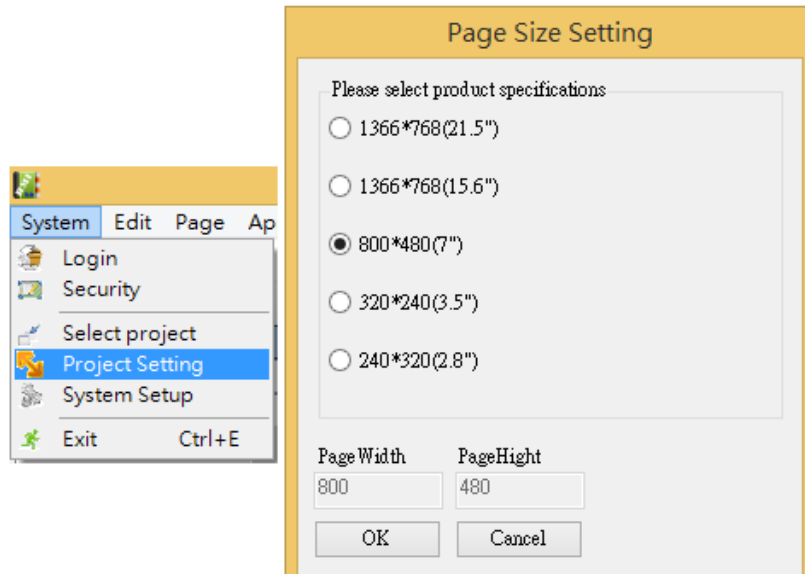


Figure1-3 Page size setting

### III. Project folder path and file description

All new projects will have a project folder with the same name as the user's entry in the Airtek Projects folder under the BACsoft app installation path.

When the need for different projects on the computer design or project data backup, can be copied, moved or modify the contents of the project to complete the folder. The following describes the important contents of the project folder.

- 6 Displays folder: In the process of project design, all the new drawing board will be stored in this folder, if the user would like to use the A project board for B project use, copy the A (.dsp file) required in the project to the B-board of the B project. The next time you Open B project, the drawing list of the B project will increase the drawing board referenced by the A project.
- 7 bitmaps folder: picture folder, in the process of project design, when use picture as the background of the board, graphics buttons and so on. It is suggested that the user will save the image that will be used in the design of the project and direct the picture source to this path, while setting the picture background and graphics button, that will help to improve the project's portability and avoid the project data Folder copy to a different computer job, which may result cannot find the picture source error.

## Chapter 2 System Setting

### I. Open the system settings window

After opening the HMIkit, select the "System Settings" option in the system management options on the menu bar to open the system settings window.

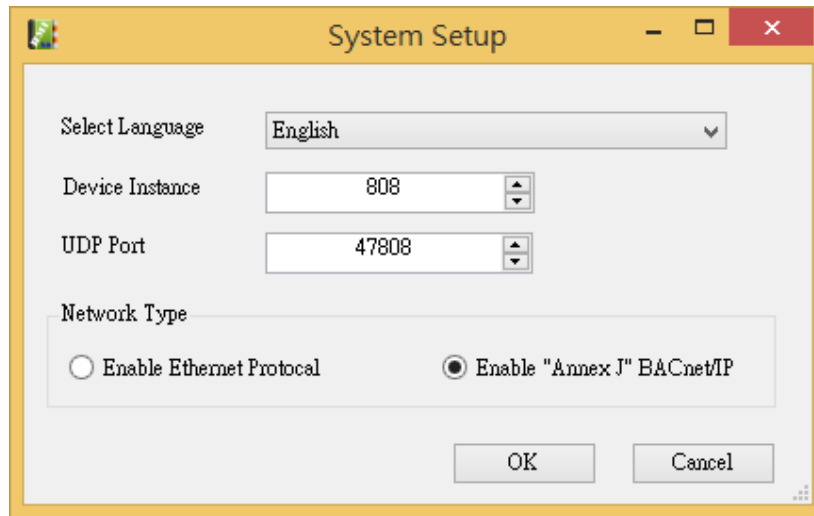


Figure2-1 System Setting Window

### II. Each system setting instructions

1. Select the language: select the language of the operating environment; HMIkit provides Traditional Chinese, Simplified Chinese, English three operating environment for the user to choose, through the drop-down menu selection and press OK to leave the system settings window can immediately change the operating environment.
2. Device number: Set the device number of the HMIkit station. In the BACnet system, the workstation computer on which the HMIkit is installed is also consider a device in the system. It must be given a device that does not identical to the other devices (including other workstations), in order to ensure that the connection with the system is normal.
3. UDP port: when the network communication mode is set to IP mode, in the same area of the network device must set the same UDP port number in order to establish communication.
4. Network communication: HMIkit provides BACnet Ethernet and BACnet \ IP two kinds of communication, regardless of what mode to choose to communicate, should pay attention to whether the currently selected network card is connected with the BACnet system network card, Network card selection error will not be able to complete the connection with the system. In addition, when the IP mode is selected, it is necessary to check whether the IP setting of the computer is the same network segment as the device IP of the router in the system, and whether the UDP port number is the same.

### III. Security Measure Setting

In order to prevent unauthorized operation, the HMIkit can set many user account groups and passwords, and can set different privilege levels and operational function limits for each group. Click the "Password Permissions" option in the system management menu in the menu bar to open the user account password and permission edit window. The operation instructions are as follows:

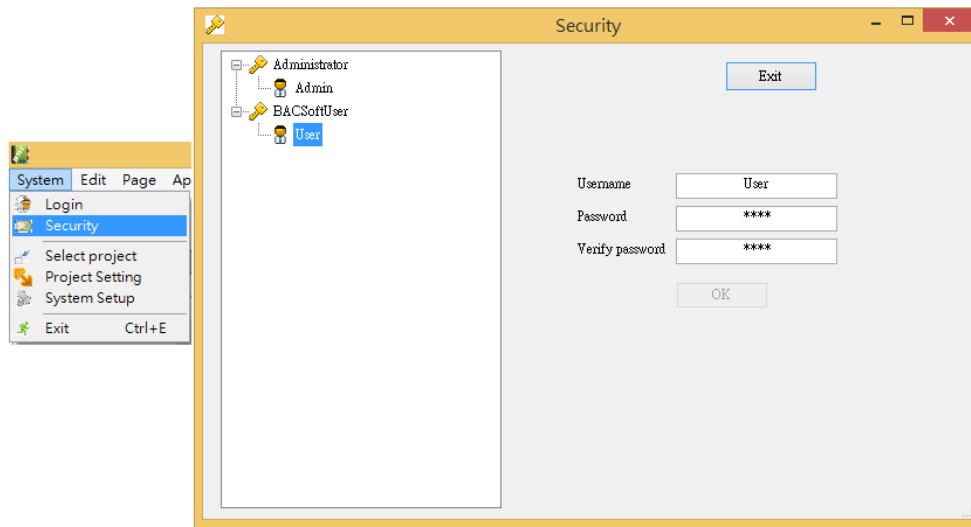


Figure 2-3 Password Setting Window

5. Group and user edit: Move your mouse to any group or user graphics, click the right mouse button, there will be groups or user editing shortcut menu, the user can use this menu control items on the group, to add, delete, copy and other operations.
6. User account password modification: click on any user graphics, you can set the account password.
7. Group permissions set: the user privilege level of the highest order is 10 is the highest, 0 is the lower, when the user edit the control picture control, the individual controls and buttons can be set to the individual operation authority. For example, if you set the control operation level to 6 when editing the picture control screen, the user will need to log in to the HMIkit with the account authorize of 10 ~ 6 to operate the control item. The authorize of 5 ~ 0 user password cannot operate this control after logging in to the HMIkit.

# Chapter 3 Device Management

## I. Device List

1. In the menu bar click on the "design mode" option, you can enter the graphical control picture design mode. The lower left of the design screen position, show the list of devices in this project, as shown in Figure 3-1. Devices registered in the device list are devices that can be selected in the project design. The devices that are actually present in the system must be registered in the device list and can be selected during the design process.

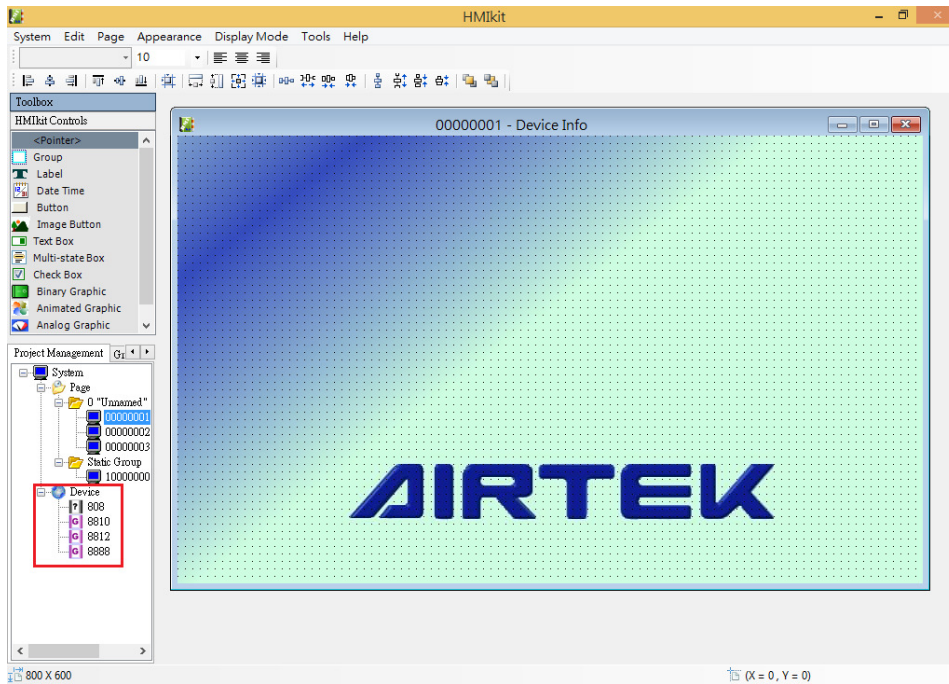


Figure 3-1 List of selected device to manage (Red box)

2. In the device list, BACsoft uses several different icons to represent the type of device, as shown in the following table:

Figure	Description
	BACsoft workstation
	AIRTEK GC, DAC, DSC series controller
	AIRTEK NVP20V network operator
	AIRTEK DPC series controller
	Non-AIRTEK device

## II. Device Management

3. Add devices on the device list, use the scan device function to search for devices that are present in the system, it may only work if the workstation is connected to the system. In addition the scan device function may also use as a system connection test.
4. Right-click on any device icon on the device list and select the Device Patrol option in the shortcut menu for device management related operations. Click the device patrol option to open the device patrol window.

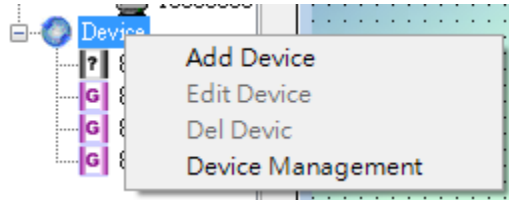


Figure 3-2 Device Management Menu

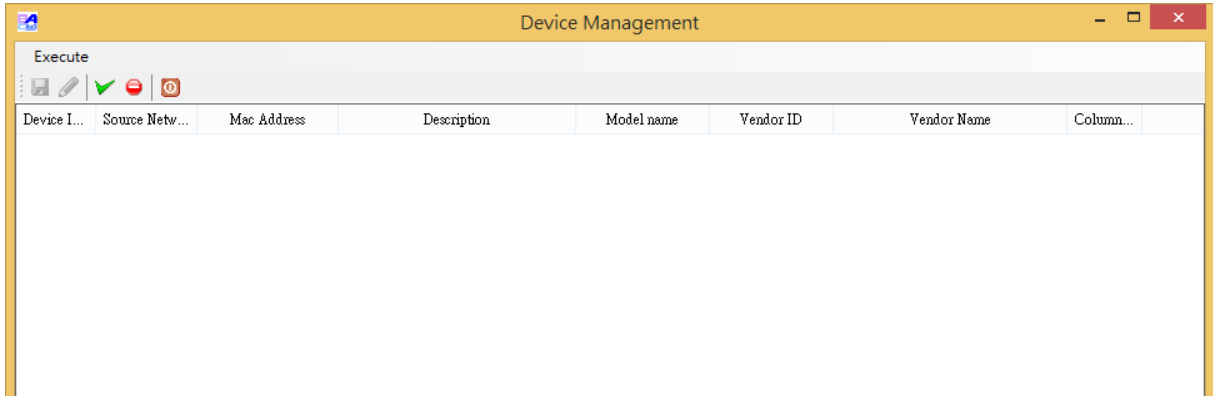


Figure 3-3 Device Management Window

- After entering the device inspection window, click the "start inspection" icon, it will start looking for all the devices in the system, the device inspection window will show the current search device number range and progress. To stop the inspection, click the "Stop inspection" icon to stop the inspection. During the inspection process, BACsoft will be the system to find the device and its related information listed, as shown in Figure 3-4. The information include Device 『Description』、 『Model name』、 『Vendor name』、 『Vendor identifier』

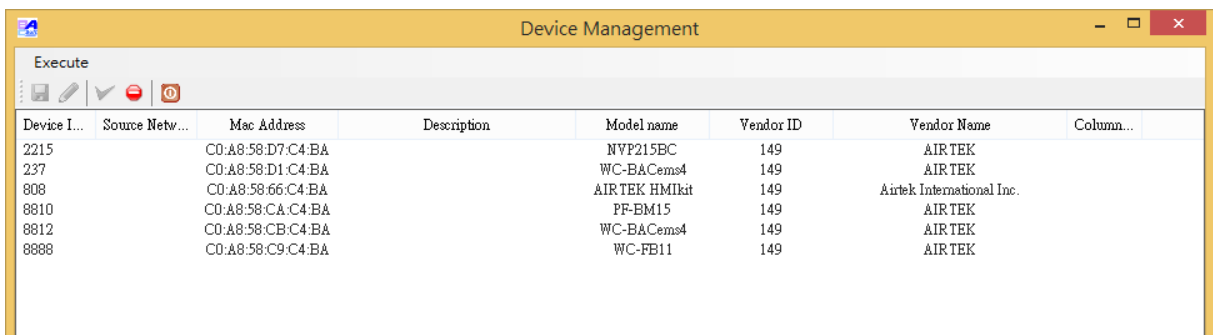


Figure 3-4 Device scan results and device related information

- After the inspection is complete, click on any device and click the "Save Device" icon on the menu bar to add the selected device to the device list. When storing the device, it should be noted that the device complete information need to appear before it stored. If not it will resulted the device can not be identified.

### III. Add, Delete, Edit Device

- When you are working offline, you can take advantage of the "Add Device" option in the device management shortcut menu (the shortcut menu appears on the right mouse button on any device in the device list). Click the "Add Device" option in the shortcut menu to open the new device window, as shown in Figure 3-5.

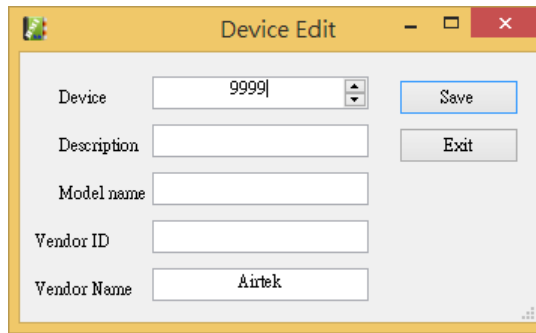


Figure 3-5 Add Device Window

8. When adding a device, the device number is required and the new device number must be the number that does not exist in the current device list. The module name will determine the type of icon displayed by the device in the device list; the description may be appropriate to fill in the annotations of the device, increase the readability of the device management; the manufacturer number and the name are used only to identify the device. Of the equipment, in the system integration, if there is third-party equipment integration problems or in doubt, according to this information query BACnet website to seek the original assistance. Once you have entered the new device-related information, click Save to add the device to the device list.
9. To remove a device, press the Delete key to delete or select the "Remove Device" option in the shortcut menu after selecting the device
10. In the shortcut menu, you can use this option to turn on the device editing window (see Figure 3-5) to modify the device-related information when you are working offline.

# Chapter 4 Development and Design of Graphic Control Screen

## I. Management of Page Graphic template

- 1 Page Graphic template: in the design mode, located in the lower left of the screen that is a list of created page graphic template, as shown in Figure 4-1

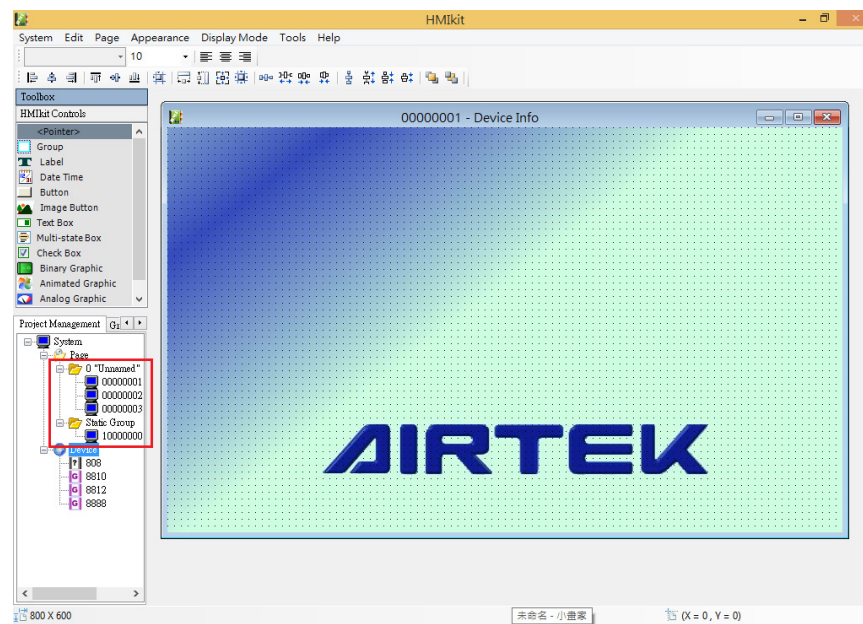


Figure 4-1 Project page graphic template(Marked Red)

- 1.1 In the list of page template, all groups and page template for this project are listed. Double click on the mouse left button on any template to switch the display page in the main screen.
- 1.2 Click the right mouse button on any group to see the "Add, Delete, Copy Group and Rename" option in the shortcut column of the group management. You can add, delete, copy and named groups.
- 1.3 Right-click on any page template to display the shortcut bar of the drawing. There are three options in the shortcut bar, to add, delete or copy the page.
- 1.4 Static Group: When you copy a group, button's position may change, only button in the static group with not change it position.  
When different groups require a common and fix page template, add a page template in the fixed group.
- 1.5 When add a new page template, the new page template will ask the user to enter a number for the new template and the group number to which it belongs. The no. can be 00000000 ~ 90000000 (90000001~ 99999999 AIRTEK reserve for it use) the page template no. can be random but cannot be identical.
- 1.6 Group management: All of the above functions can be used in the menu -> page template -> group management

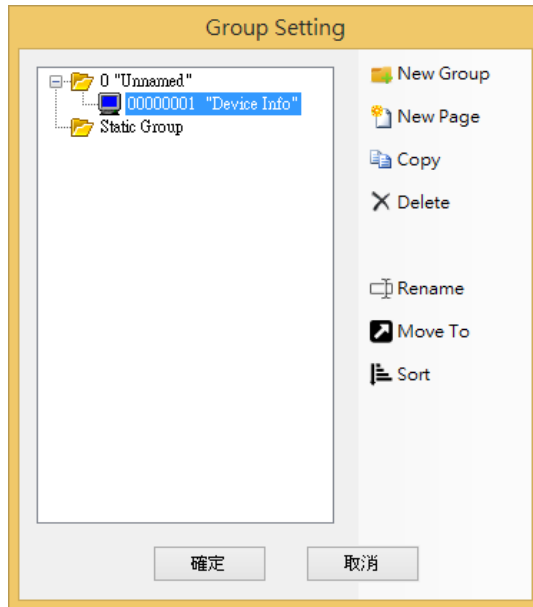


Figure4-2 Group management

- 1.6.1 Copy: Copy the selected group or page template
- 1.6.2 Delete: Deletes the selected group or page template
- 1.6.3 Rename: Rename the selected group or page template
- 1.6.4 Move to: Change the number of the selected page template
- 1.6.5 Sort: Deletes the empty slot in the selected group and move all template accordingly

2 Setting the page: To set the name and background for the page template, select the "Set the current page" option from the "page" option in the upper menu bar to open the drawing page setting window. As shown in Figure 4-3. The setting instructions are as follows :

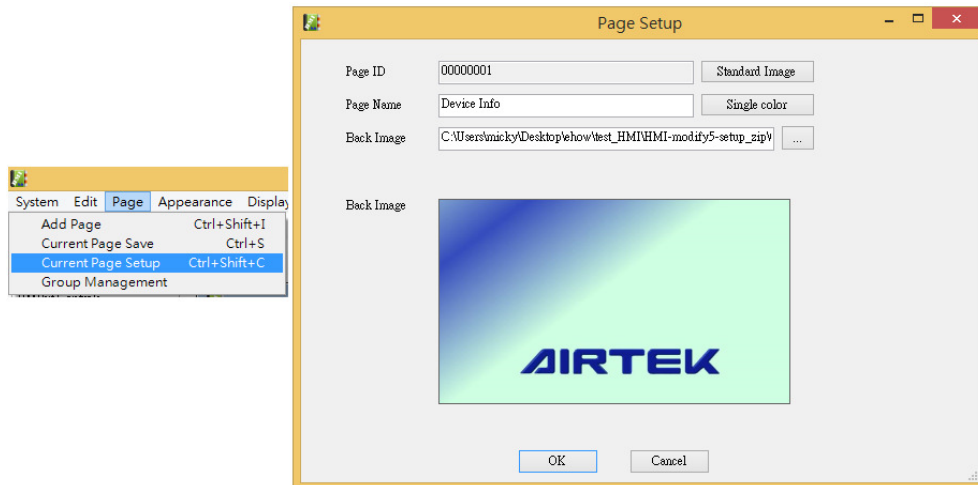


Figure 4-3 Page Setup

- 2.1 Page Number: This shows the number of the page in the current setting. The page number allowed to be set only when the page is added. When use the button to switch between the page, if one of the page number had modified, it may cause the switch button unable to find the selected page (in this situation, it will switch back to the first page).
- 2.2 Page name: May provide a name instead of number for the page, the name is for the convenience of identification, should try to name the page associated with the contents of the page to facilitate identification.

- 2.3 Background setting: The background of the page can be set. The background of the page can be either set as monochrome color or a picture. The source of the picture can be from third party or select the picture in the standard library. The background of the page can be preview in display mode.
- 3 Save page data : When the contents of the page are modified, the system will ask the user if they need to save the page when the user leaves the design mode to return to the display mode, or when the other page is clicked through the page list. If you want to store the page data directly, you can also select the "Save the current page" option in the "page" option on the menu bar to save the page data.

## II. Create a standard graphic data base

In the process of the development of a control graphic for a project, usually involve a large number of pictures to be use, and most of the picture can be use and implement to the next similar projects. So in addition to this project dedicated to the pictures need to be stored in the project folder, other commonly used, common pictures can create a standard library to store these pictures, increase the efficiency of the project design.

- 1 standard image storage path : Within the standard folder under the installation path, there is a bitmap folder where the user can store the frequently used images. Standard has four standard library files, Namely the standard picture library for the general picture (SinglePic.stn: chart background and graphical button control items), digital standard library (BinaryPic.stn: digital graphics control items used), animation standard Gallery (AnimatePic.stn: used for digital motion control), analogical standard library (AnalogPic.stn: used for analog graphical controls).
- 2 Open the standard gallery : In setting of the page background, or the picture button control items and other settings window, click the "standard library" button, may open its corresponding standard library, as show in figure 4-4. In addition to providing users with the desired image, this window also provides easy classification management.

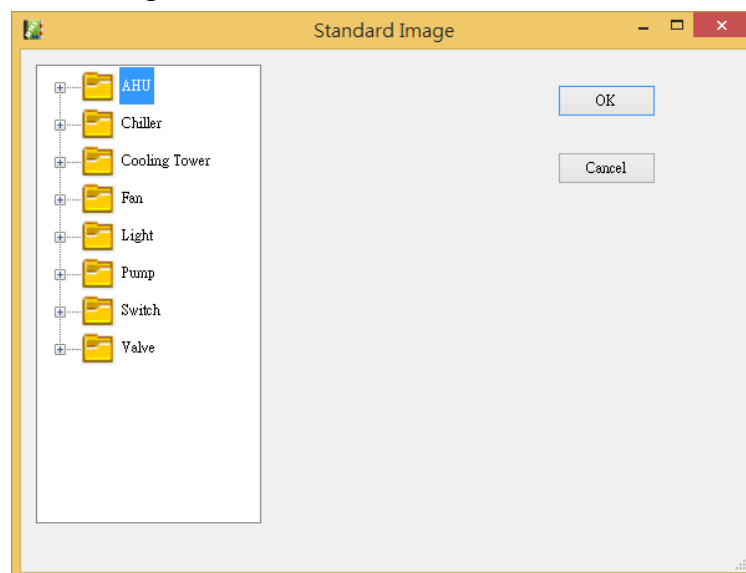


Figure 4-4 Standard Graphic Gallery Settings window

- 3 Set the standard Gallery: : Select any folder t in left side of the standard gallery, right click on the mouse may open gallery edit shortcut menu. As figure 4-5. The shortcut menu provides the following library editing functions :

- 3.1 Add new group : add a new group in the graphic gallery, the new group need to be name when added.
- 3.2 Deleting a group: Deletes the selected group of pictures.
- 3.3 Add Components: Add a new picture to the selected group; enter a new picture name when adding, that is, specify a new image source. The default picture source for the standard gallery is the picture in the bitmap folder under the standard folder.
- 3.4 Group Rename: Modify the selected group name.

### III. Control Description

The main operation of the graphic control design is placed a variety of controls and buttons in the page, to design the complete control picture. This section describes the use of the controls and the points of use. List of controls on the left side of the design mode screen, as show in figure 4-6. To add controls item from the list to the page, click the mouse on the selected control item or drag the selected control item directly into the area of the page. The detailed use of each control is as follows:

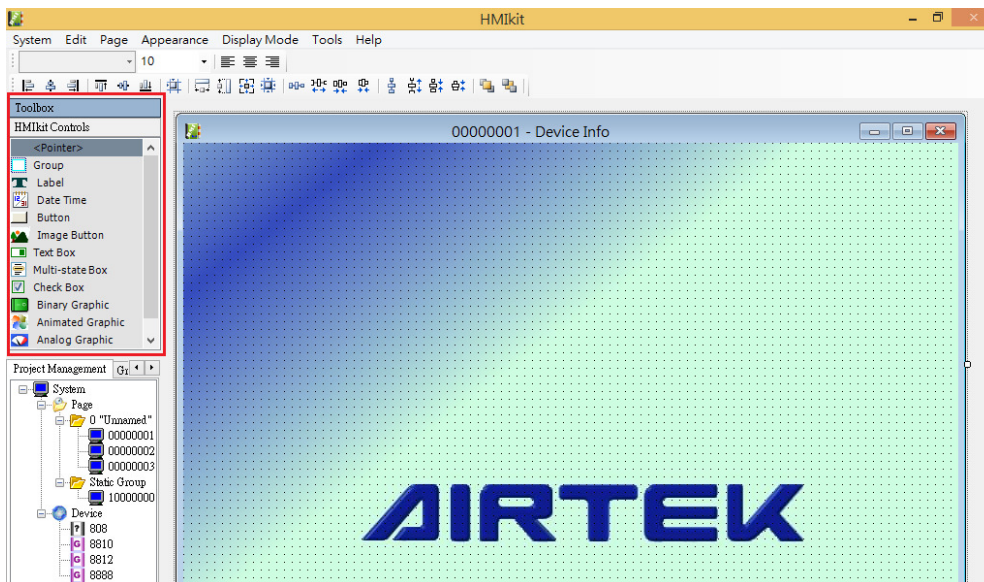


Figure 4-6 BACsoft lists of control items

- 1 Group control items: group control items are not actually connected with the system device control items, belonging to the control design of the auxiliary project. Its function is to treat the control items in its box as a group, In addition to facilitating the segmentation of the controls, the controls in the boxes are dragged or deleted as long as the group controls are dragged or deleted. In the set group control items to provide the user name and font editing, just use the left mouse button to double-click the group control on the board, it will pop up the settings editor window for the user to edit.

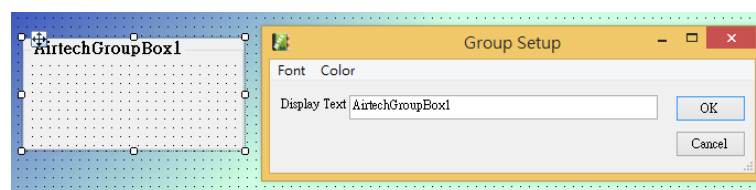


Figure 4-7 Group controls and settings window

- 2 Static text : Equivalent to the function of the text box, in fact, most of the control items in the display mode is unable to display the relevant information, and therefore need to rely on the static text

information make the control screen easier to understand and operate.

Double-click the static text control on the left mouse button, the settings window will appear for the user to edit the text content, as well as font, color and other details of the settings

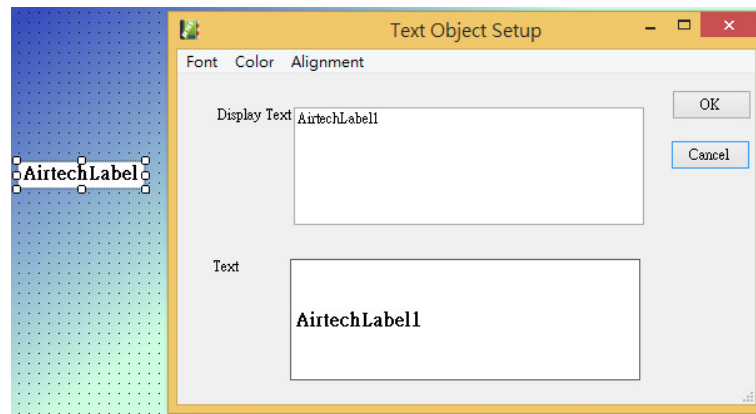


Figure 4-8 Static text setup windows

- 3 System Time : Graphical control screen can be displayed on the current installation workstation computer time. The time display format is fixed as "YYYY year MM month DD day up / afternoon HH:MM:SS" cannot be changed, the user can change the font and color of the time displayed by setting the window.

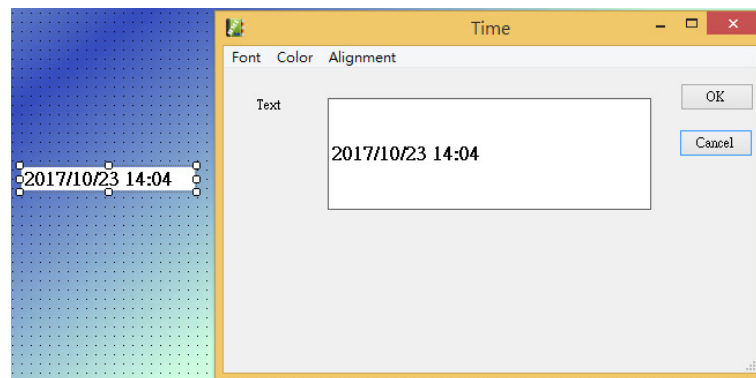


Figure 4-9 System time and its setting window

- 4 button control : Create this control item can toggle the control screen or open the file. The setting of the button control items consist of :

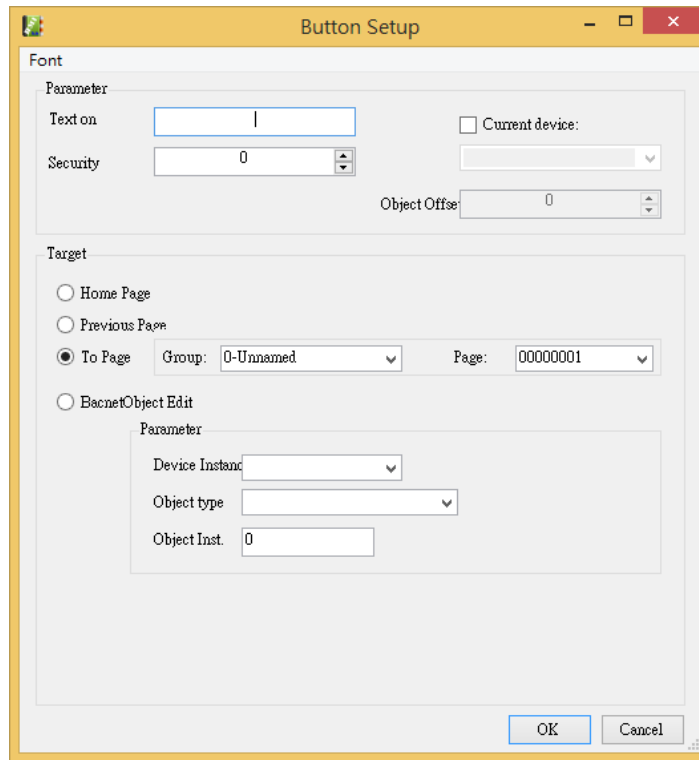
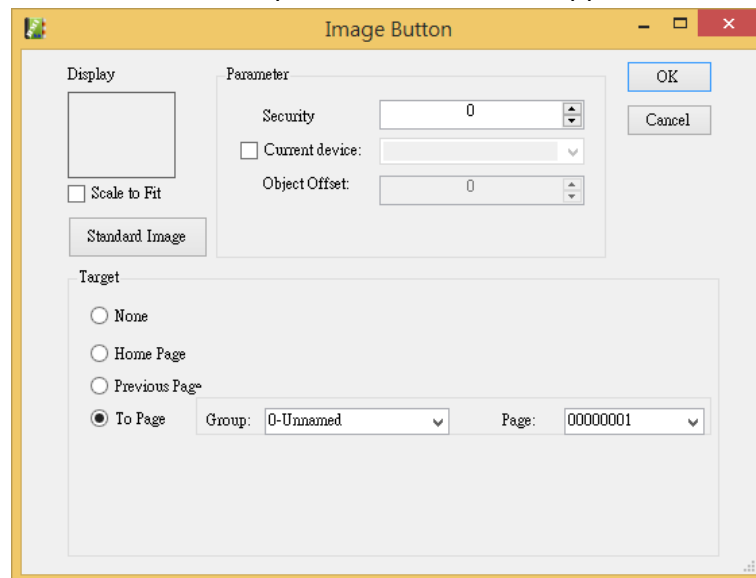


Figure 4-10 Button control and its setting window

- 4.1 Button Text : May enter the text displayed on the button in the display mode, the font of the text is set by the user.
  - 4.2 Password authorization : Users can set the button level; login users can set the level of use of 0 to 10, In general, 0 is the lowest privilege, 10 is the highest privilege. If you set the password privilege of the button to 6, this means that you can use this button to switch pages only when you log in to the account with the privilege level of 6 to 10. The user level is 0 ~ 5 account cannot use this button.
  - 4.3 To Home: Set this button to switch the screen to the first page when pressed.  
The homepage is forcibly set by the system, and the first page is fixed as the home page when it is remitted
  - 4.4 Previous Page Button : When this button is pressed, the screen switches to the previous page's graphic.
  - 4.5 To Assign Page : The assign page toggles when the specified button is pressed.  
When setting it can only select the same group or the static group page.
  - 4.6 When a specified page is assigned, if the "Predefined Devices" option in the upper right of the setting window is checked, a device can be selected as the default device for the page. If there is a control device items on the page are set as the "default device", the default device number set in the button is automatically taken into the device source of the control item when the page is switched. This feature is often used in the create of device on page.
  - 4.7 Tips: Use Ctrl + C to copy the control item, Ctrl + V to paste the control item, but if you need to make more than one control item, and the items and attributes are the same between each control item, part number or when the priority level is incremented, the duplicate copy command Ctrl + R can be used.
- 5 Graphic button control item : Function same as control button, The difference is that the

graphic control can choose a picture source as the appearance of the button.



6

Figure 4-11 image button setting window

5.1 Display graphics : You can view the graphics displayed on the buttons in the display mode. The source of the graphics can directly specify the source path or select from the standard gallery by double click the left button of the mouse. Set the display graphics check the box "Auto Resize", when the user zoom in the graphical button control size, the control of the graphics will automatically zoom.

6 Text Control Item : Directly read / write the contents of the device's properties and display the value / status on the page Items. This is the most commonly used control when making control screen page, the setting as follow:

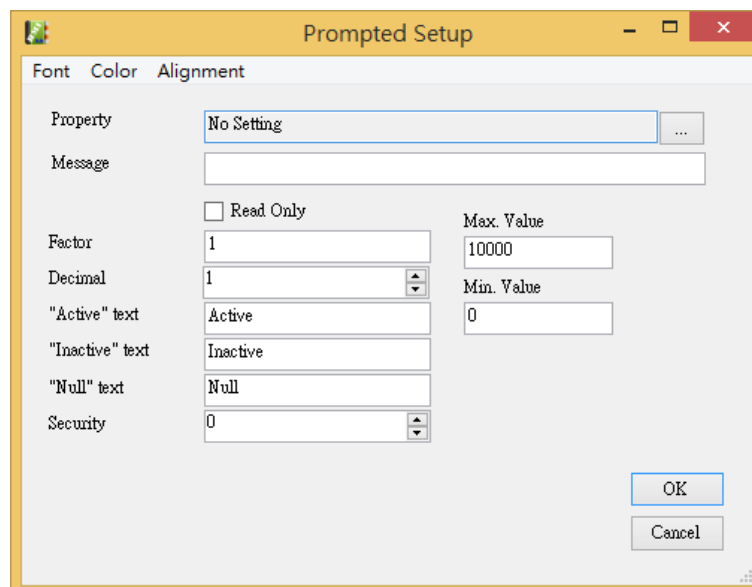


Figure 4-12 Text control and it setting window

6.1 Properties : Specifies the target for this literary control read / write. Click the "..." button on the right side of the property setting bar to open the "Object Properties Selection" window, where you can select the target data source for the text control item, including device ID, object type and object number, attribute.

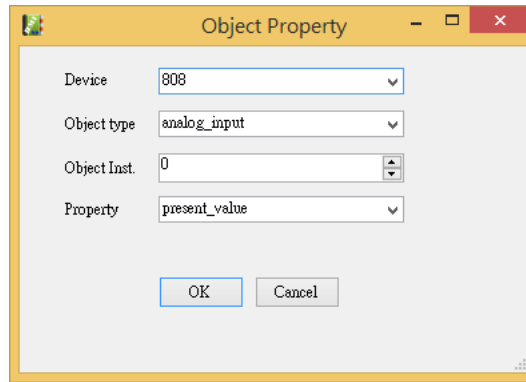


Figure4-13 Object Properties Selection window

- 6.2 Message : You can enter a description message for a text control. The description message appears in the display mode. The user can type in the text entry's input window or the point's message window.

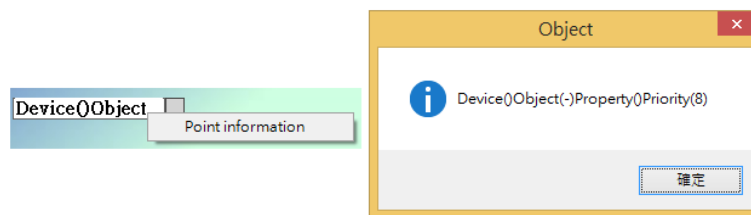


Figure4-14 Text button control message settings and display

- 6.3 Read only : If this option is checked, this text control item will not be able to be input on the page control screen.
- 6.4 Display multiple : Set the magnification of the target value displayed in the text control ; For example, if you set the display multiplier to 0.5, the value of the object property actually read by this text control is 100, the value displayed on the graph control screen will be 50 (100 \* 0.5). This setting will be ignored if you set the target non-numeric data for the attribute.
- 6.5 decimal places display : Set the target value of the number of decimal places displayed in this text control item; if the decimal point display is set to 3, the actual read value is 100, actually 100.000 will be displayed. This setting will be ignored if you set the target non-numeric data for the attribute.
- 6.6 Max / Min Value : This text control item can limit the range of values that can be displayed. When the content of read / write data after the ratio calculation is greater than / less than the maximum / minimum value, the text control item will display / write only the setting value of maximum / minimum value. This setting will be ignored if you set the target non-numeric data for the attribute.
- 6.7 "Active / inactive / Null" This article: The text control items displayed in the (Active), (Inactive), (Null) three states, users enter their own text instead. This setting is ignored if you set the target attribute non-status / digit type data.
- 6.8 Password permission : Users can be restricted to edit the text without permission right, if the password is set to level 6 permissions, which means that only the use of the level of 6 to 10 account number can be entered in the text control entry, user level 0 to 5 account cannot be entered.
- 6.9 Priority : If the user-specified attribute target is Present Value, this value will determine the Priority Array Index written by the user when the graphic is written to a value or a status ; For

example, if the read attribute of the specified attribute is the Present Value of the device 9001 Ao0 and the priority is set to 8, when the user actually enters a value in the text control item in the display mode, the value is written into the Priority Array of the device 9001 Ao0 Index 8. If the set attribute has no priority index, the set value will be ignored.

- 7 List controls : The specific values of the target properties can be replaced by user-defined text and presented as a drop-down menu in the display mode; all other settings are the same as the text control items.

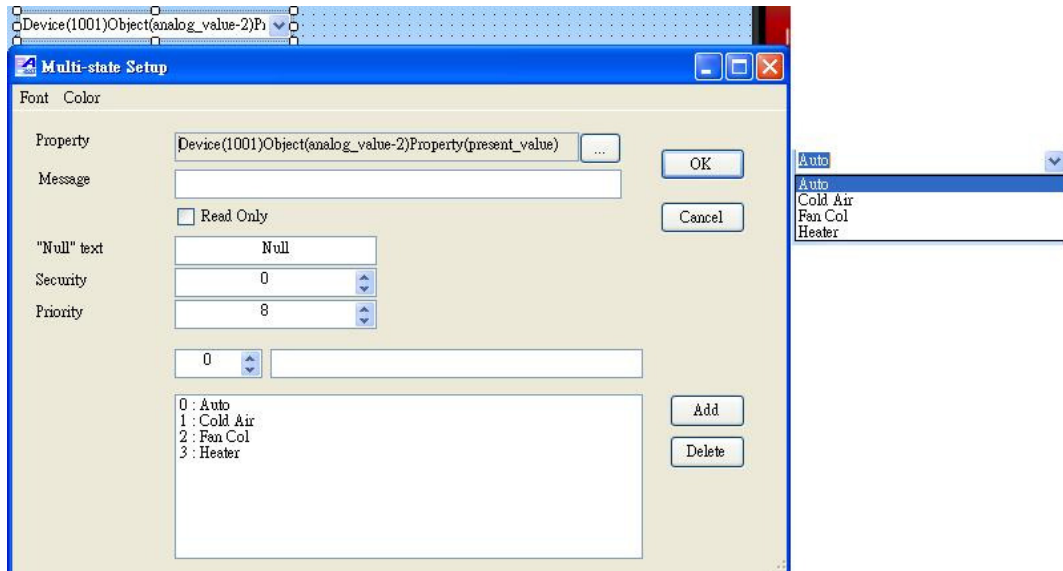


Figure 4-15 List the setting items of the control items and their execution results

- 8 Checkbox control item : Digital type of data can be selected by way of a checkbox for user input, If the target attribute is analogous data will not be able to change the value of the control item ◦ The setting items are as Figure 4-16

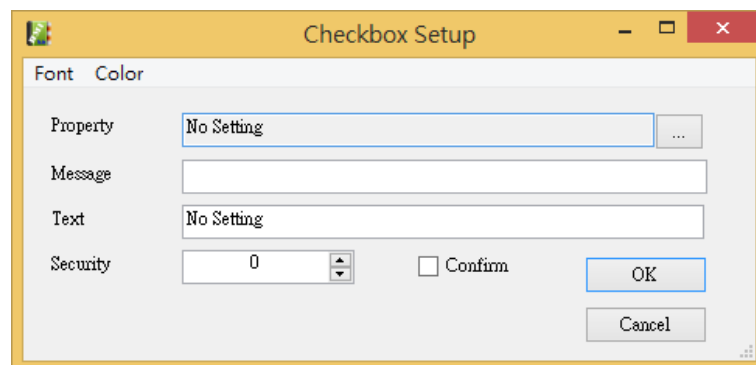


Figure 4-16 Checkbox setup

- 8.1 Properties : The source for specifying this control item.
- 8.2 Message : Appear in the point information or check box confirmation window on the supplementary information.
- 8.3 Text : The caption that appears to the right of the checkbox.
- 8.4 Password permission : Limit the user access permissions. For details, please refer to "Password Control" in "Text Control".
- 8.5 Priority : When the target attribute is Present Value, specify the priority index into which the command is written. For details, refer to the "Text Control" priority setting instructions.

- 8.6 Confirm the entry : If this option is checked, when the user clicks the check control item, a confirmation window will pop up, and the user needs to confirm again to complete / uncheck the check box of the control item.
- 9 Digital graphics control item : The digital type data can be presented graphically for the user to enter or display on the operator display panel. If the target attribute is analog data, the digital graph control item cannot change its value.

The setting as follow:

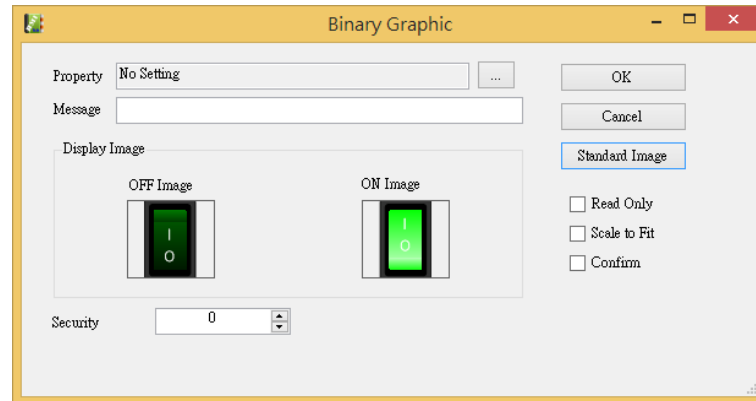


Figure 4-17 Binary Graphic Setting Window

- 9.1 Properties : Select the source of the digital graphic control item.
- 9.2 Message : Appear in the point information or check box confirmation window on the supplementary information.
- 9.3 Display graphics : Select which figure to display when the digit data is inactive and Active. Graphical Source Selection You can directly select the source path by clicking on the graph preview or directly from the standard gallery. The benefits of using the standard library is that commonly used graphics can be stored as the same group of graphics, select the source through the standard library, only the group of graphics can also be included into the stop and action graphics at the same time, do not need further individual source specified.
- 9.4 Password Access : May restrict unauthorized access ◦ For details, please refer to "Password Control" in "Text Control".
- 9.5 Priority : When the target attribute is Present Value, specify the priority index into which the command is written. For details, refer to the "Text Control" priority setting instructions.
- 9.6 Read Only : If this option is checked, the digital graphic control will not be able to be input on operator display screen ◦
- 9.7 Automatically resize : Check this option user may zoom in and out of the control items.
- 9.8 Password Input : If this option is checked, when the user clicks the digit graphic control item, a confirmation window will pop up, and the user needs to confirm again to change the target attribute.
- 10 Digital dynamic graphics control item : Digital data can be presented as a dynamic graphic for the user to input or display on the operator display screen. Most of the setting items are the same as the digital graphic control items. The only difference lies in the setting of the action display graphic. The user can specify three picture sources in the graphic and the digital graphic control items will automatically

switch from the three graphic, forming animated effects. Similarly, if you use a standard library to store frequently used dynamic picture sources as a group, you can use the standard library to set the selection of all the picture sources at once, without specifying the source of pictures individually.

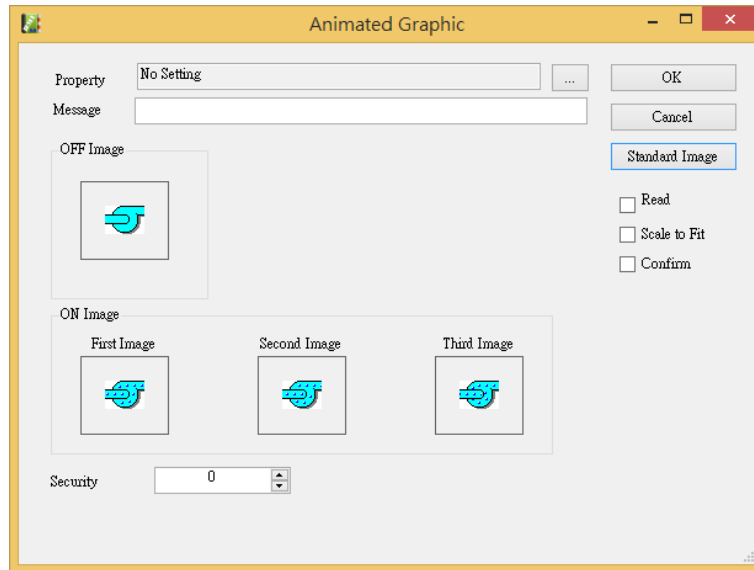


Figure 4-18 Digital dynamic graphic control item setting window

- 11 Analog graphics control : Analogy data can be displayed in segmented graphics on the display screen. Most setting items are also the same as the digital graphic control items, Setting can refer to the description of digital graphics control items; The biggest difference lies in the segmentation of the picture and the corresponding numerical settings, described as follows:

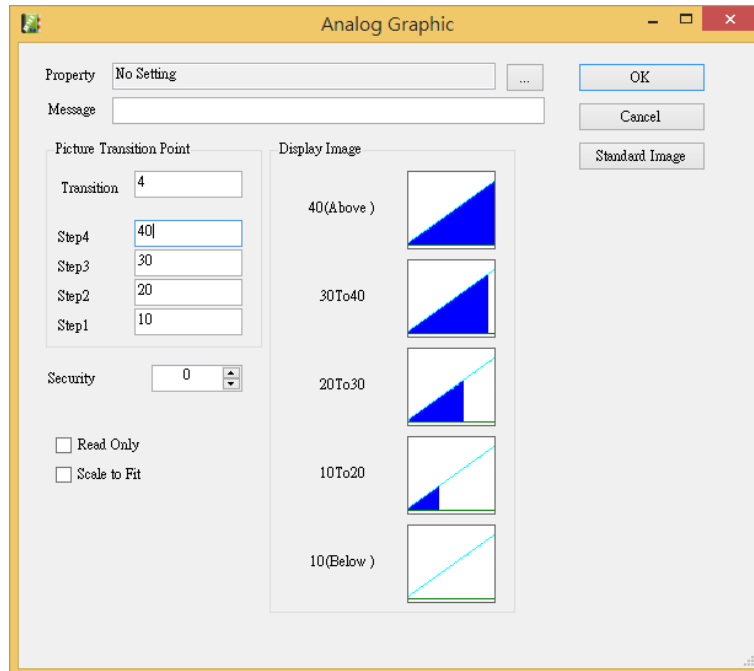


Figure 4-19 Analog graphic control item setting window

- 11.1 Graphic transition point : Here you can set the target property of the analog data corresponding to the number of graphics and the number of segments, the maximum number of segments is four segments, each segment can be set to its corresponding numerical range, the display screen, the range of values will corresponding to the graphics .

- 11.2 Alarm graphics : If the target attribute point has been set as a reference point for the alarm, when the alarm occurs, the alarm status will be corresponding to its graphical representation.

#### IV. BACSoft Graphic Gallery Synchronization

To avoid errors when importing BACSoft projects, you can synchronize the library before re-importing. The system will copy the BACSoft library to the HMIkit library. The synchronization function is at the top of the menu-> Tools-> BACSoft Gallery Synchronization.

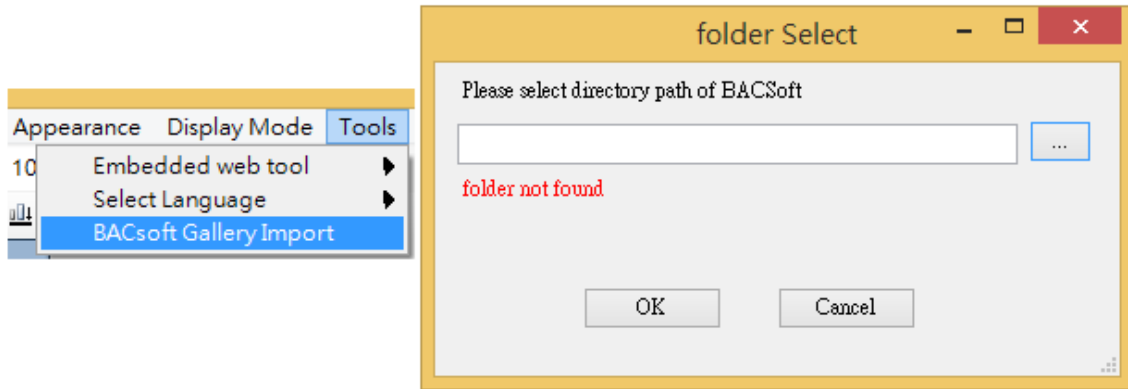


Figure 4-20 BACSoft Gallery synchronization and select the folder

- 1 After BACSoft Gallery synchronization, click BACSoft's Installation Paths folder (usually located in C: \ Airtek), or copy the path to the central text box.
- 2 Press OK to display the process window, please wait for the process to complete or press the middle to cancel the interrupt replication process.

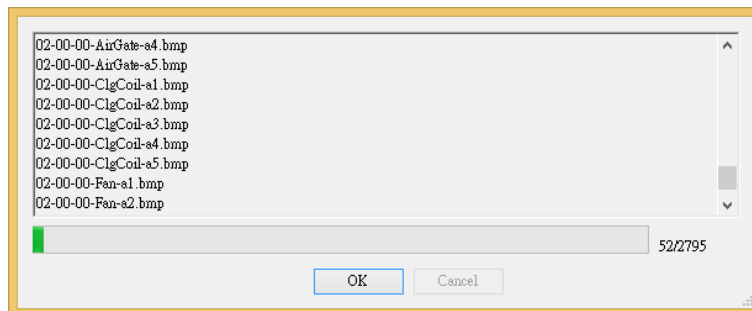


Figure 4-21 Copy process window

## Chapter 5 Export To HMI

The main purpose of HMIkit is the development and design of human-machine interface control. After the development of graphic control is completed, it can be exported to human-machine interface by exporting to human-machine function. The exported functions include "export to human-machine "And" Export to WC Web Server ".It can be selected in the tool menu from the upper menu. In accordance to the specifications of the hardware selected. This chapter will introduce the above two export functions.

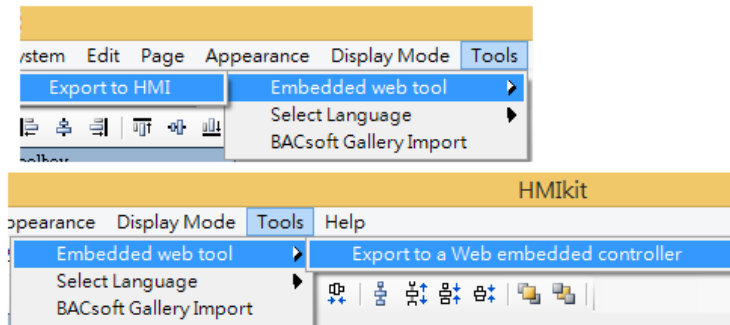


Figure 5-1 『Export to HMI』 and 『Export to WC web server』

### I. Export to HMI

Export to HMI may export the compile project graphic to the file and transfer it to the 2.8 inch, 3.5 inch and 7 inch HMI. The process as follows :

- If you want to change the project's hardware specifications, please refer to the first chapter project management Section II project settings. Or click on the menu option in the system management options.

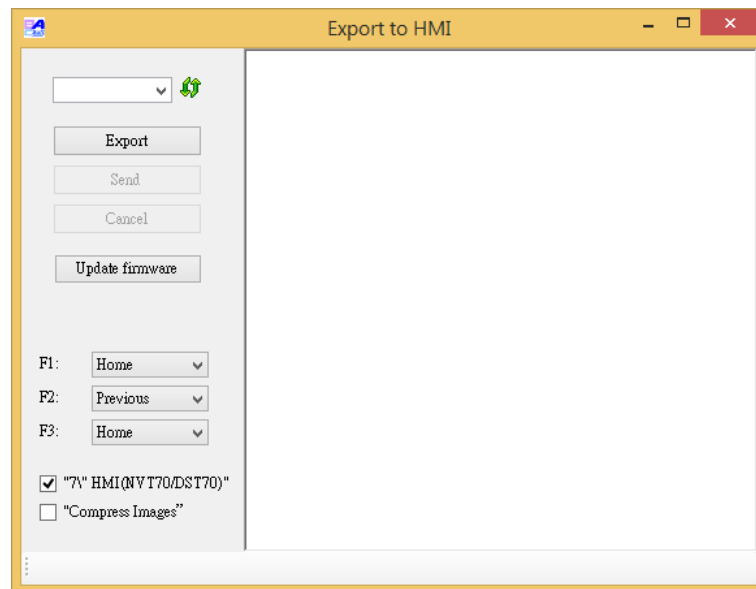


Figure 5-2 Export to HMI

- 12 Communication Port: Auto detect the communication port of the computer, if there is no communication port to select, it will not be able to click the send button.
- 13 Export: The project will be exported into bin file, the file is located in the project folder>easyweb folder.
  - 13.1 Select export page: Click the Export button to select the page you want to export, as shown in Figure 5-3 ◦

13.2 Figure 5-3 The left is the group of selectable page, the right is the group of exported page.

13.2.1 Select one of the groups on the left and click the ">>" button to add the group to the right export group.

13.2.2 Select one of the groups on the right and click on the "<<" button to remove the group to the left for Unexported group

13.2.3 Click the All button to add all the groups to the right to export the group

13.2.4 Click the Clear button to remove all the groups to the left not exported.

13.3 Please note that the top left HomePage, The homepage will be always be the first page of the right side in the export plate ◦

13.3.1 Click the up and down arrow buttons on the right to adjust the group order to determine the homepage.

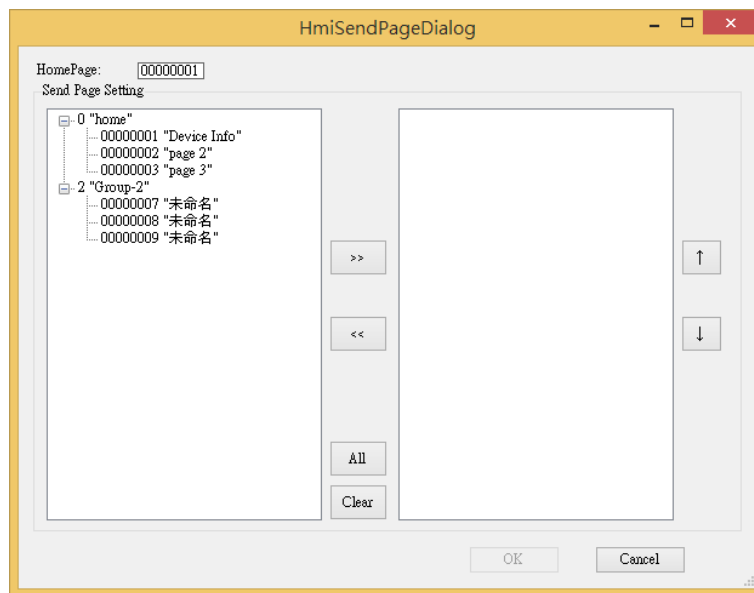


Figure 5-3 Select export page group

14 Send: Export file is completed, May click the send button to send the file content to the HMI if the comm. port of the HMI is communicating

- Before sending, please re-power the HMI, otherwise it will not be able to detect the communication port

15 Button function selection: AIRTEK NVT series BOD have F1 to F3 three buttons, Figure 5-2 show the selection of the first page and the previous page quick access functions. The function button may designate a specific page too.

## II. Export to WC web server

The HMIKIT may export the created project to a 15.6-inch,21.5 HMI(BOD Panel)

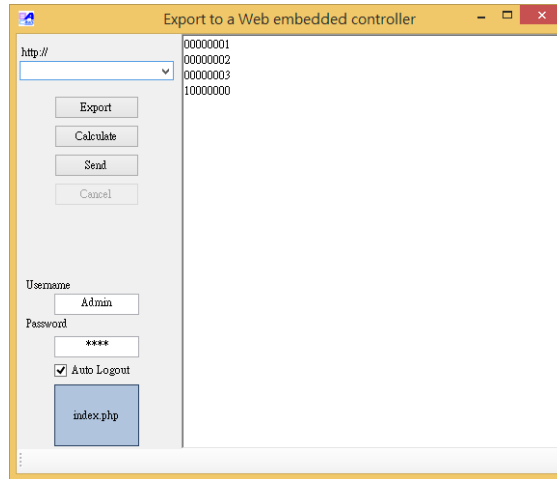


Figure 5-4 Export to WC web server

- 16 Website: Please enter the IP address of HMI.
- 17 Export: Export the created project into a web page, the file is located in the easyweb folder in the project folder °
  - 17.1 Select Export Page Group: Please refer to Export to HMI Panel Group, as shown in Figure 5-3 °
- 18 Calculate: Calculate whether the memory is enough, whether it needs to save to SD card.
- 19 Send: After the export file is completed, you can click the send button to send the file to Web server.
- 20 index.php: HMI settings of background image please set before export.