HSC-300
HSC-200
HSC-100
HMP-100
HMS-100;HSC-50

Advanced Scenario Hub/Music Server
HomeScenario

User Manual

Chapter 1   **What you can do**

With HSC-200, you can

- Distribute audio to the whole house(HSC-200 only).

- Control the lights, power adaptor or other devices according to the pre-defined schedule or from PC, PDA, Microsoft Mobile phone, iPhone or any devices with flash-lite player.

- Create scenarios which will control your lights, power switches or IRDA compatible devices according to the user-defined rules. Users can change the rules from the built-in web interface.

- Create user interface for the LCD panel, TV or other devices.

All of these are included in the HSC-200. No extra software or equipment is required to build your own home automation project.

Chapter 2   Getting Started

The HSC-200 can be accessed by using any flash-enabled devices, such as touch screen　or your personal computer. Many smart phones, such as iPhone/HTC dream/magic/hero,　provide enough capability to access the HSC-200. Please refer to our website for all tested equipments. If your device is not in the list, it can be still supported if it has flash-lite player or browser. It is welcome to post your experience in our custom forum so that we can put it into the supported list.

If you are using personal computer, PDA or smart phone to access the HSC-200, you need to input the ID and password that is usually printed in the bottom of the device by the installer.

The HSC-200 can be served as audio transmitter out of the box. It will broadcast the audio from the input 1 and USB to the network if the input is available. The HSC-200 will not send any data unless it detects audio data in the input. Therefore, it will stop sending data if the input is muted.

In order to enable the light and home theater control, we must enter the web interface to configure the system. The HSC-200 will use DHCP to acquire the IP address. If there is no DHCP server available in the network, the default IP address is 192.168.10.100.

Usually, under the environment with DHCP, the HSC-200 will broadcast itself by using UPnP protocol. The DHCP Host in the XP or Vista can detect it and display it in the network controller. Double click the icon will enter the configuration page. The configuration system of the HSC-200 use flash. Therefore, we must install the flash

player in the PC. If the flash player is not available, it will ask users to install one automatically.

After we enter the configuration page, we can include lights, AV equipments, power adaptors and other devices in your house. Please refer to the scenario definition for the details.

In addition, you can create your own home automation user interface by using the page composer, which is part of the HSC-200 UI. The page composer can help you to create pages that are used to control and show the status of your devices. Please refer to the page composer chapter for the details.

2.1 Enable installer account

Usually, the installer account is disabled for safety issue. If we want to allow install to check the condition of the HSC-200 temporarily, please follow the below procedure to enable the installer account. Please remember to follow the same procedure to disable the installer account.
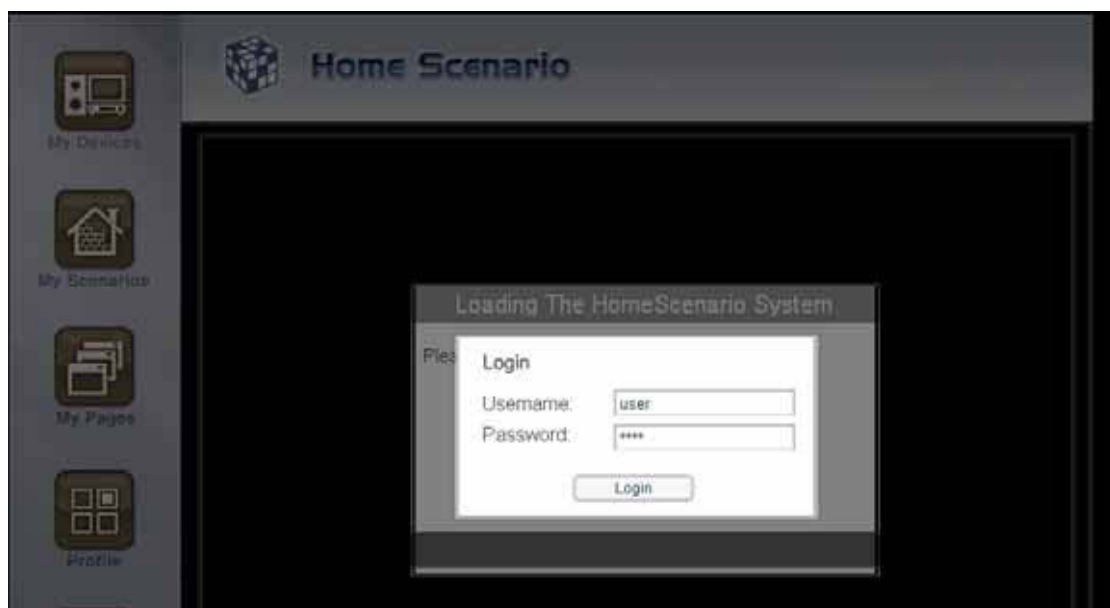
The default Username and Password are both installer. Installer should change it to the value which is only known by the installer.

1. Touch the setup button.

2. Touch the button 1.

3. Touch the button 2.

4. Touch the button 3.

5. You will hear the beep once.

Chapter 3 Device management

HSC-200/300 can support variant types of devices. Each device has different setup procedure and options. It will be tremendous job for users to understand the details of them individually. Fortunate, the device manager plays an important role here to help users to understand each device in the user-friendly interface.

No matter we use Z-wave/O-net/Zigbee/RS232/three wire/four wire devices. The setup procedure is roughly the same. The device wizard will remind users to do the right job step by step.

3.1 Device association procedure

Device manager divide the association procedure into three steps.

- Select device profile

- Activate the device into learning mode

- Notify HSC200 the device has been learned.

For the first step, HSC-200 uses the barcode in the devices to recognize the model of the device. It will look up the internal database to decide if we can support this device or not. If the barcode can not be supported, an UI will be used to remind users.

Once the barcode is input correctly, the HSC-200 will show setup pages for each device. Users can follow the instruction in this page to figure out how to make the device into the learning mode.

For bi-directional devices, such as Z-wave or ZigBee, the third steps will be done automatically. For others, the UI will explain to the users how to verify the device has been learned or not.

3.2 Add new device

Except the built-in audio transmitter, all devices need to be added before they can be controlled by the HSC-200. For the security reason, we need to press a physical button in the devices in order to put them into the association mode. Devices under the association mode will allow the HSC-200 to build association. In this way, we will not learn the device in your neighborhood by accident.

In order to associate a node, we need to follow the below steps.

1. Enter the node viewer

2. Select the 'Learn' icon

3. Enter the barcode of the device

4. **Press the association button in the device.**
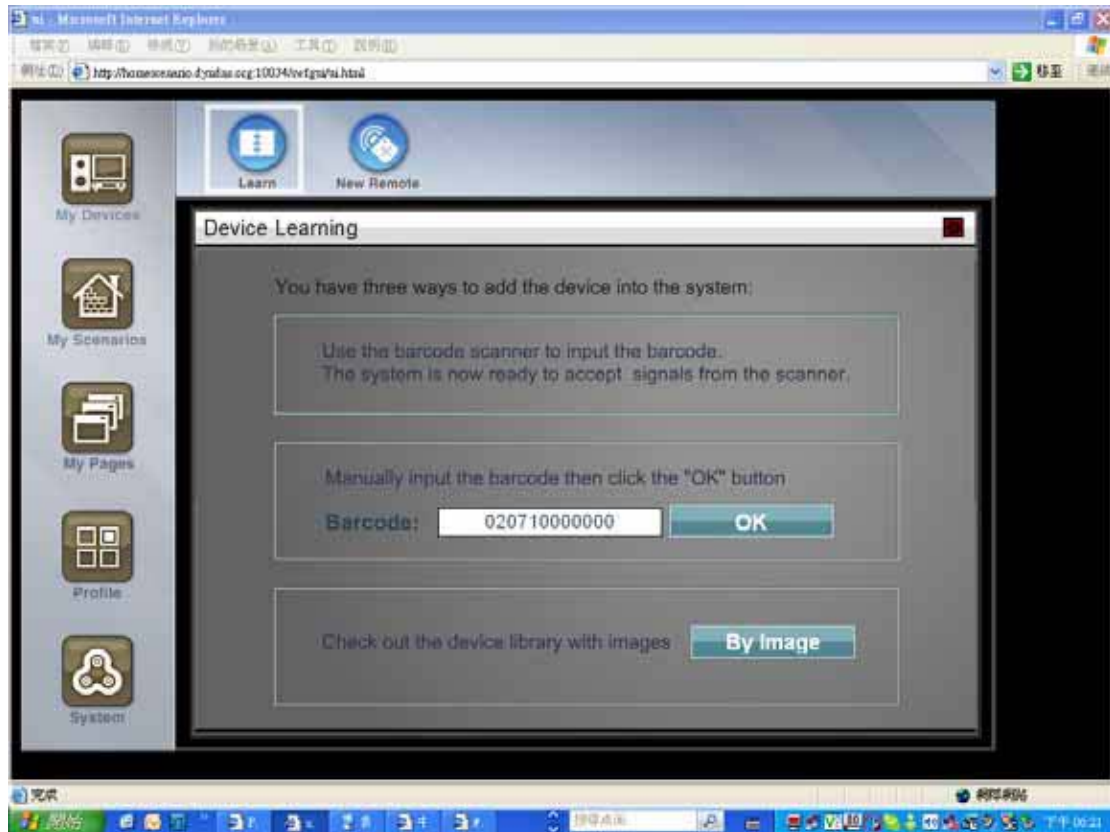
5. Confirm the association.

Please note that the step 4 must be done in the device. After the step 3, the UI will tell us the look and feel of the device and mark the location of the association button according to the barcode entered in step 3.

3.2.1 Press **to enter the device panel**
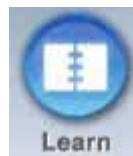
3.2.2 Select the **icon**

3.2.3 Enter the barcode of the device

All devices have a barcode in the physical unit. We can use the barcode scanner to input the barcode to the HSC-200. In the step 3, the following UI will be displayed,

The barcode scanner will fill the barcode field and then enter the step 4 automatically if the barcode is correct. Without the HSS-100, we can input the barcode manually. The human-readable barcode is located in the bottom the barcode stick. It includes 11 digits. Please input all of them into the barcode field. If the input is correct, the 'Start association' button will be enabled. Please click it to start the association procedure. The barcode number can be input manually if the barcode scanner is not available.

In addition, we can select the type of devices to add. Please click the 'By Image' button. The photo and model name of each device will be listed as the below picture.

3.2.4 Press association button in the device

According to the barcode input in step 3, the UI will display the look and feel of the physical device and mark the location of the association button. Please follow the instruction in the screen to associate the devices.

If your device does not match the graphic in the UI, please check if you input the right barcode. Please contact your local technology support or the official support forum to verify it. HSC-200 may not support devices from other vendors. Please make sure your devices are supported.

### 3.2.5 Confirm the association

Most devices will blink their LED when it is associated with HSC-200 successfully. For uni-directional devices, we need to press the confirm button in the screen to notify the HSC-200 that device has been added successfully so that the HSC-200 will leave the learning mode.

For bi-directional devices, such as Z-wave, this step is done automatically since it can acquire the status of the devices via RF-link. Please refer to the setup screen of the devices to know if we need to do this step or not.
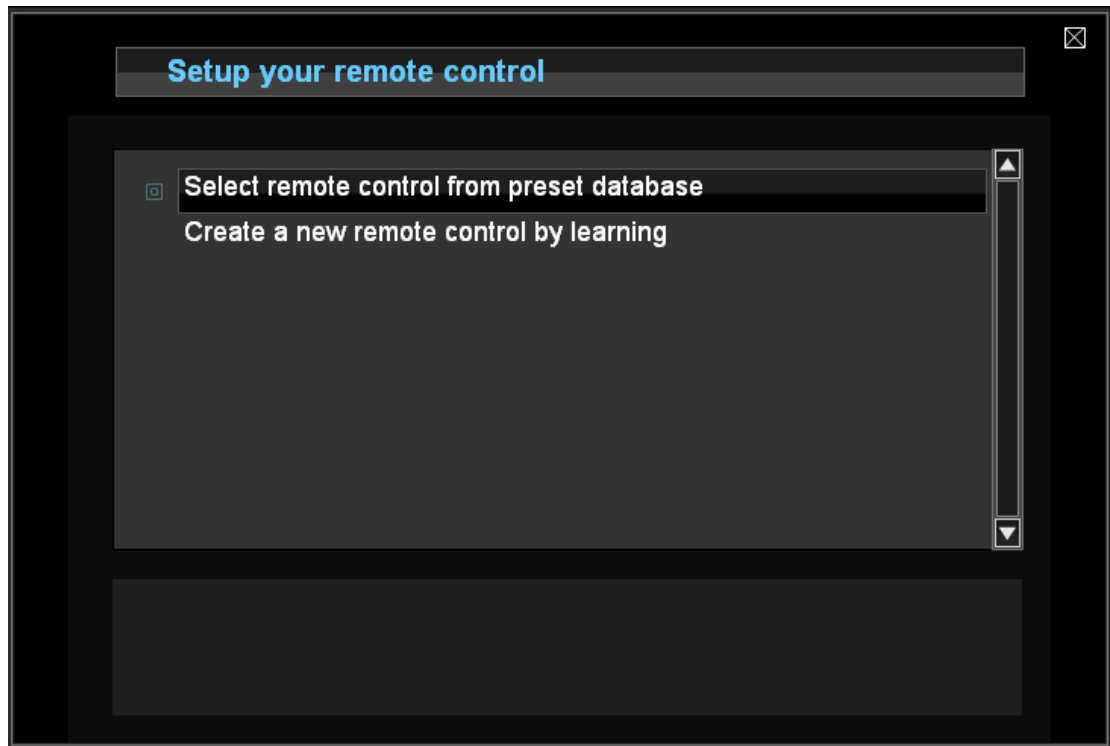
3.3 Add IR device

In order to add a IR transmitter device, we need to choice the "new remote" icon in the top of the screen. An IRDA wizard will be used to help us to configure an IR device.

3.3.1 Select "New Remote"
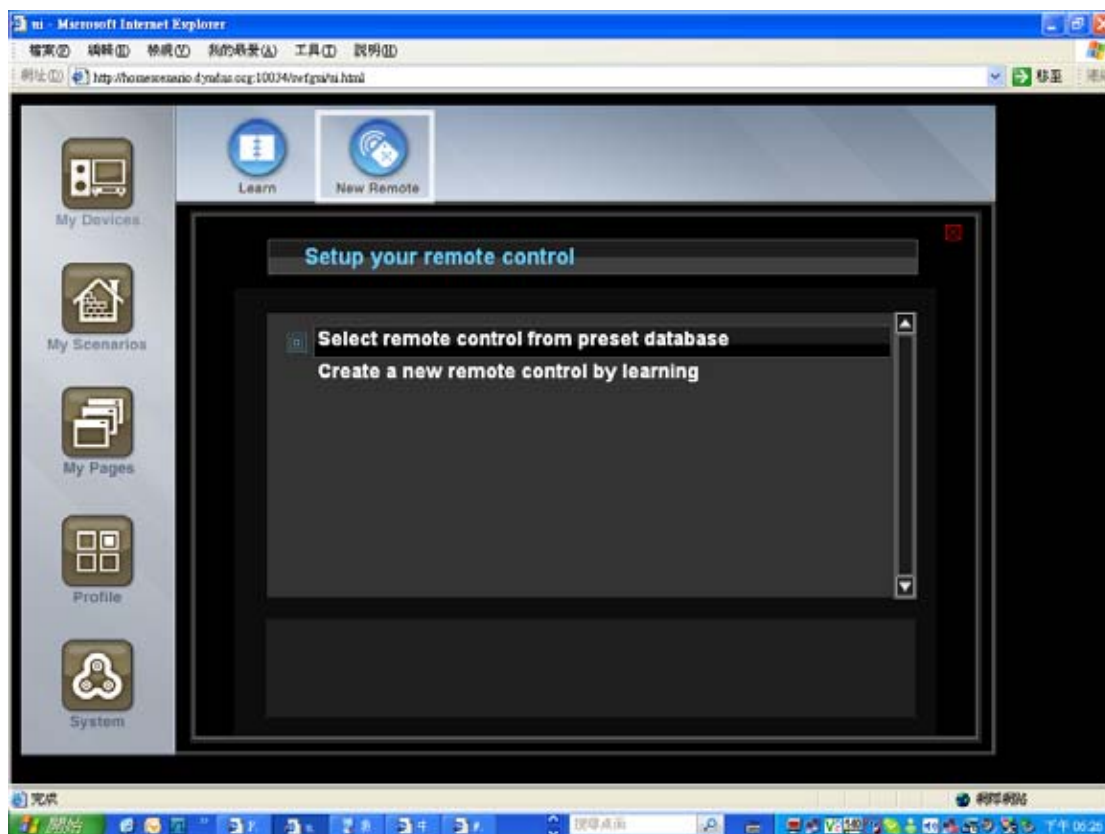
3.3.2 Add IR device from the built-in database

The HSC has built-in database, which allows us to select a IR device by using device type, vendor or model name.


3.3.3 Add IR device by using IR learning

HSC can built-in an IR device by IR recording. The built-in IR recorder can capture the IR signal of the original IR transmitter.

The HSC provides the capability to mix the builtin database with a couple of learned keys. We can choice one remote from the internal database and change some of keys with IR learning. Typically, there are a couple of keys in the builtin database, which does not match the real device since the model name is not 100% match. For example, when we choice a TV, the built-in database is for old models so that most keys works fine except the PVR function which is available in the new model only. In this case, we can use IR learning to add these extra keys.
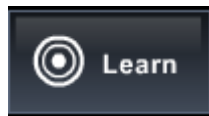
3.3.4 IR customization

Arrange | Rename | Learn | Delete | Add

Arrange
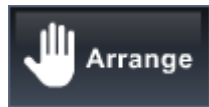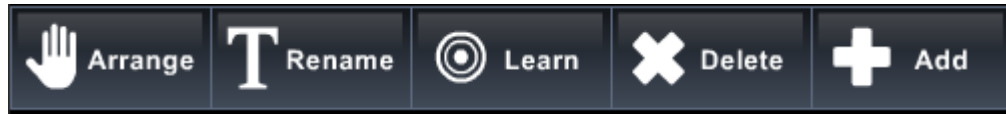
Move the location of the keys. The location is only for presentation only. It won't chanfge the key at all.

Rename

Change the name of the key. Please click this icon and then the cursor will change to rename mode. We can click any key and then the key will become edit mode.

Learn

This is used to change a key to be learning mode. Please notice that this action can not be reversed. Once it become learning key, it can not be recovered to be key in the database any more. If we still want to use the database key, we need to create a new remote from scratch again.
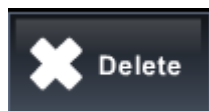
Delete

Delete an IR key.

Add a new key. Initially, the key is not associated to any IR signal. We need to use "Learn" function to associate an IR signal to a new key.
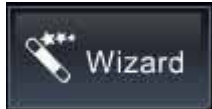
Use the IR remote wizard to select another remote. Please be warned that all setting will be dropped after we change the remote.

3.4 Browse device

After the device is added, it will be listed in the node viewer. The node viewer is available under the 'My Devices' section.

Each device is listed as a single line. Please look at the picture. There is an icon in the right side to invoke the preview and setting view of the device.

3.4.1 Setting mode

Some devices, such as light and power switch, have online widget which can operate it from the device panel directly. Most devices can not be controlled without entering the setting view.

3.4.2 UI device

In addition to the physical devices, the device panel will list the UI devices as well. The UI device is created to call actions of the scenarios so that we can execute multiple

operations among all devices. For example, we can turn on a group of lights by click the UI button. Please refer to the scenario chapter for the details of the UI devices.

Since the UI device is listed in the device manual, users can execute scenario actions by clicking the UI widget in the device panel. For example, the following UI switch is named as 'master room light control' and it can be used to turn on/off all lights in the master room.

The device panel provide very primitive user interface to control the devices. In order to build a more user friendly environment, the HSC-200 provides two functions

- We can use the scenario editor to create very complex scenario to execute actions in certain time or conditions. The Scenario Editor provides a user friendly CAD-like interface to group devices and create complex logic without writing any program.

- We can use the page composer to create final user page which is more user friendly than the device panel. The page composer can create as many pages as possible by using built-in widgets to collect information from the devices and send

control command to them. It can work with the scenario editor to build very powerful scenarios or macros to control all devices.

Before we introduction the scenario editor and the page composer, let's take a tour of all functions provided in the HSC-200. If you are eager to understand the most decent building system of the Home Scenario Builder, please skip the following chapters and go to chapter xxx for it.

3.5 Context menu

In the node viewer, each device has context menu with the following items.

- Rename Node

- Refresh state

- Delete Node

- Change Location

- Swap Node
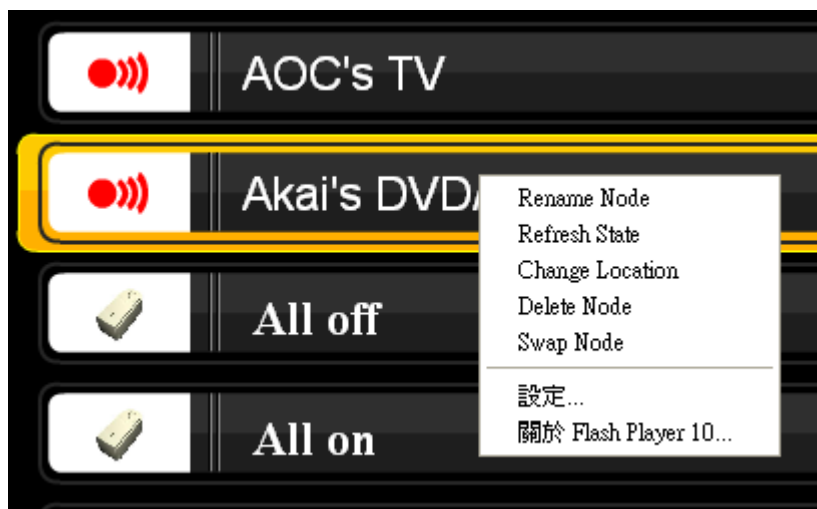
3.5.1 Rename Node

This function will show an inline text editor to change the name of the device. Since the node viewer will sort the device by name, change the name of the device will invoke a screen refresh and you may not be on top of the original node after the rename.

In the end of text editing, press an enter will close the inline text editor and show the original node viewer again.
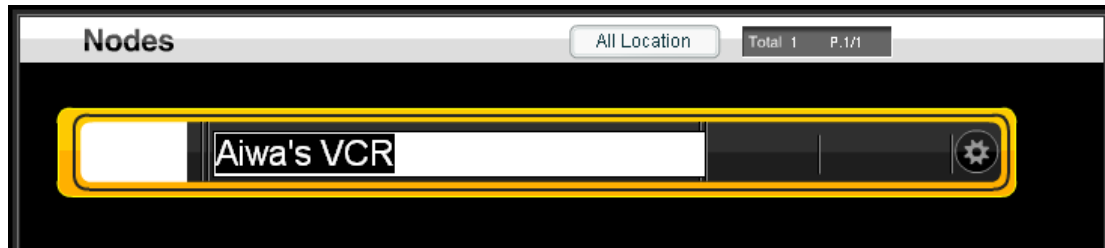
3.5.2 Delete Node

This function will delete the current node form the node viewer. Please notice that it may not delete the setting in the underline network in the same time. Please refer to the chapter of devices to find how to delete device from their network.

3.5.3 Refresh state

This function will try to get the latest state of the selected device. If we suspect that the display status is not up-to-date, we can use this function to fetch the current status of it.

This is useful for some devices which will not report its status when it is change manually. For example, the Z-wave switch will not report its state change when we use the button on the device to change it from on to off or from off to on.

This feature works for bi-directional devices, such as IP or Z-wave devices only. For the Z-wave device, it must be always-on devices or FLIRS.

3.5.4 Change Location

Each node has a location property. This property can be used to filter devices from the location button.

This function will invoke a inline text editor. Please press 'Enter' in the end of editing to confirm the input.

3.5.5 Swap Node

If a device is broken, we may want to add a new device to replace it. However, it will be very inconvenient if we need to replace each node in all scenarios. Therefore, the node viewer provides the Swap Node function, which can help users to replace the node in all scenarios at once.

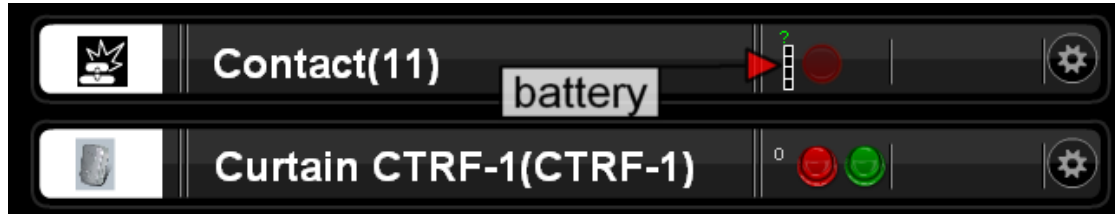Select this function will be a list box as
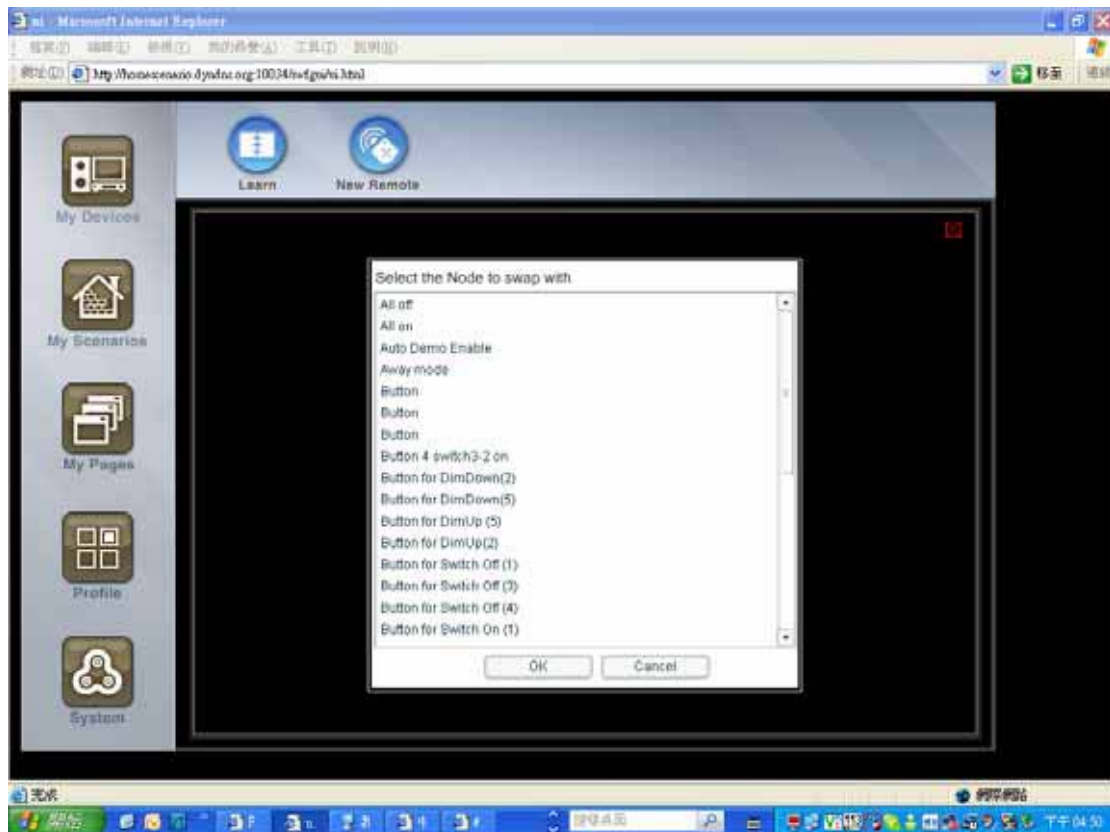
This function will search all scenarios and replace the original device with the new one.

Please remember to delete the old node.

3.6 Battery

If the battery status of the battery-power device is too low, a log will be added with the device name. In addition, we will show an icon in front of the device in the device manager.

In the battery icon . The '?' means that the device has not reported its battery status yet. The device will report battery status every 30 minutes. When its battery level is low, HSC-200 will generate a message which need to be confirmed by the users.

Chapter 4   Scenario Editor

The scenario editor is the most powerful feature of the HSC-200. It provides a much advanced replacement of the macro definition of other systems. Although HSC-200 provides python-based framework which allow users to download new plug-ins to extend the functionalities, the scenario editor should be the preferable solution most of the time. The system building by scenario editor is easier to maintain and extended. The scenario editor is the most power home automation CAD so far and the function is continuous to grow.

4.1 What is scenario?

A scenario is a set of rules which defines how the system responses for input events. For each input events, such as motion events or human input events, we can define it to trigger one or more actions. For example, we can define a rule which call the **action on** of the light switch when the motion sensor is triggered.

Signal	Action
Motion is triggered	Light switch turns on

In addition to simple connections between physical devices, we can insert logical devices between them to perform more complex functions. In the scenario editor, we provides the following logical devices

- Loop device

  - Sequencer

- Timer devices

  - 24x7 timer

- - real-time timer

    - countdown timer

- Logic devices

    - XOR

    - AND

    - OR

- Value comparator

    - Max

    - Min

    - Range

The scenario editor is a complete visual programmer environment, which enable us to compose program to control the equipments without a line of code. The scenario editor will enable non-programmer to implement the function they want.

4.2   Visual programming

Traditionally, a sophisticated home automation system is composed by a programming language. Typically, it is a scripting language. Therefore, a programmer is required for the home automation project.

It might not be problem to hire a programmer to write the program. However, it's hard to hire a programmer which understands the home automation system. The HSC provides the visual programming environment, called scenario editor, to allow non-programmer to setup the system. Under this environment, HSC provides a CAD to help installers to write the program. Like the traditional CAD, HSC represent all devices as a block and then allow installers to build connections between pins of the

block. The function of a connection is actually decided by both ends of the connection as well as the mapping of signals and actions.

Each connections contains the following parameters

- Origin signal or state

- target action

- Mapping from the signal or states to the actions.

The scenario editor provides visual representation of the all connections and editor to change these parameters.

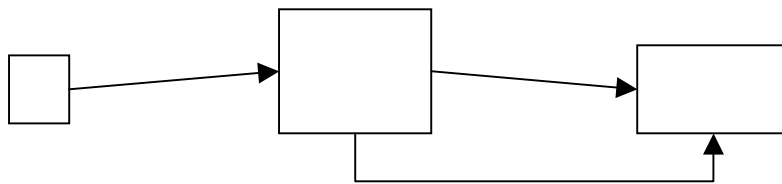A programming language need to provide the following entitles

- Value calculation

- Condition

- Loop

- Variables

- Functions

4.2.1 Condition

The condition devices, such as MIN/MAX/RANGE/AND/OR/XOR provides the condition statement of the usual programming language.
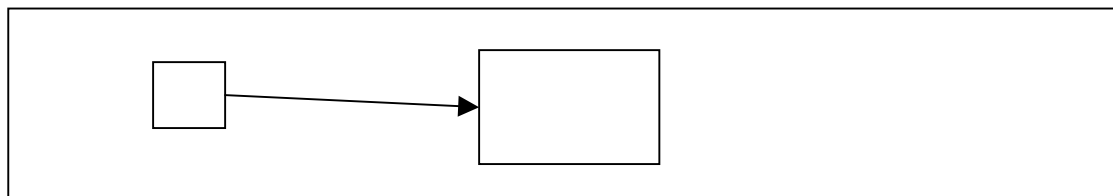
```
if (a>10)

     light.position = 'on';

else

     light.position = 'off';
```
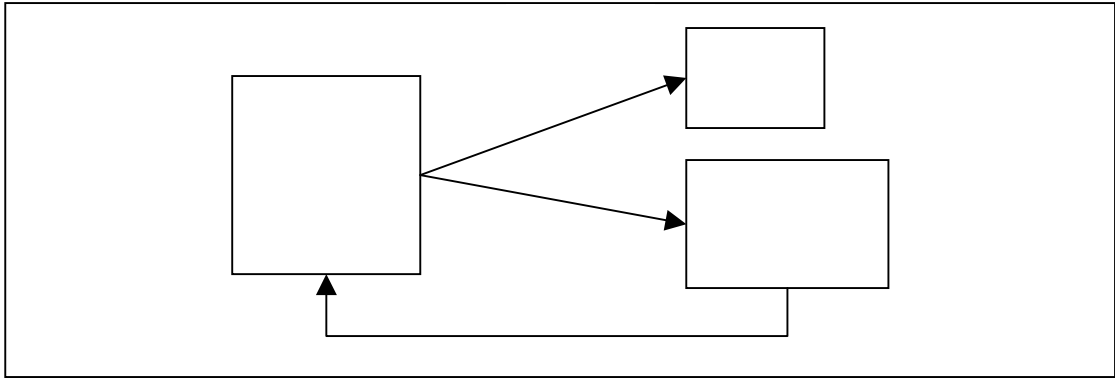
4.2.2 Variables

The state of a node provides the variable storage. The variable node can be used to keep the state permanently. This node can be used to convert a signal to a state.

4.2.3 loop

```
While(stop) {

     Light.toogle();

}
```

4.2.4 Function

Each node provides several actions which can be called by connected to any signals. In addition, a scenario can be treated as the function in the traditional language as well. Each scenario can be enabled or disabled by its enable action.

[FIXME: Add an example here]

4.3 Scenario list

In order to make the scenarios more readable, we can separate rules into different scenarios. In the Scenario viewer, all scenarios are listed. We can add/delete/enable/disable them individually.

4.3.1 Add a new scenario

We can add a new scenario by clicking the "Add" icon in the top of the screen.

[screenshot of the scenario viewer]

4.3.2 Edit existing scenario

Click the scenario will enter the scenario editor.

4.4 Scenario editor

The scenario editor is used to change the settings of the node and build connections between the nodes.

4.4.1 Add node

The device icon will list all nodes in the node viewer. Or we can select the Logic icon to create virtual nodes.

4.4.2 Delete node

We can use the context menu to delete a node from the scenario. However, this node will not be deleted from the node viewer. It is only deleted from the current scenario.

4.4.3 Add connection

In order to build a connection between nodes, we need to do the following steps.

Firstly, we need to highlight the origin node by single click on it. A select frame will be displayed
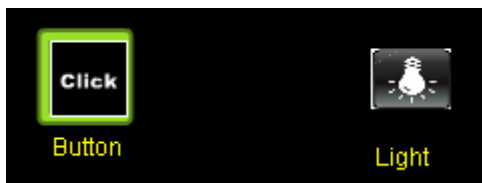

Secondly, select the target node. A wizard will guide you to input the parameters required by a connection. We need to provide the following information

● The signal of the origin node

● The action of the target node

● The mapping table from the signal to the action.

After we click the second node, the wizard will be displayed.

The left side list all signals and the left side will list all action. Initially, all actions are disabled. When we click the signal at the left side, all actions which can be connected to the select signal will be enabled.
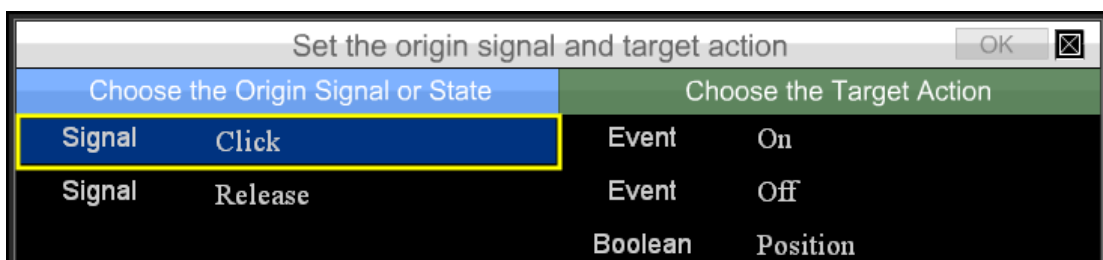
In the above screen shot, the click signal is selected so that all three actions are enabled. When we select one of the target action and then select the OK, the mapping table will be displayed.
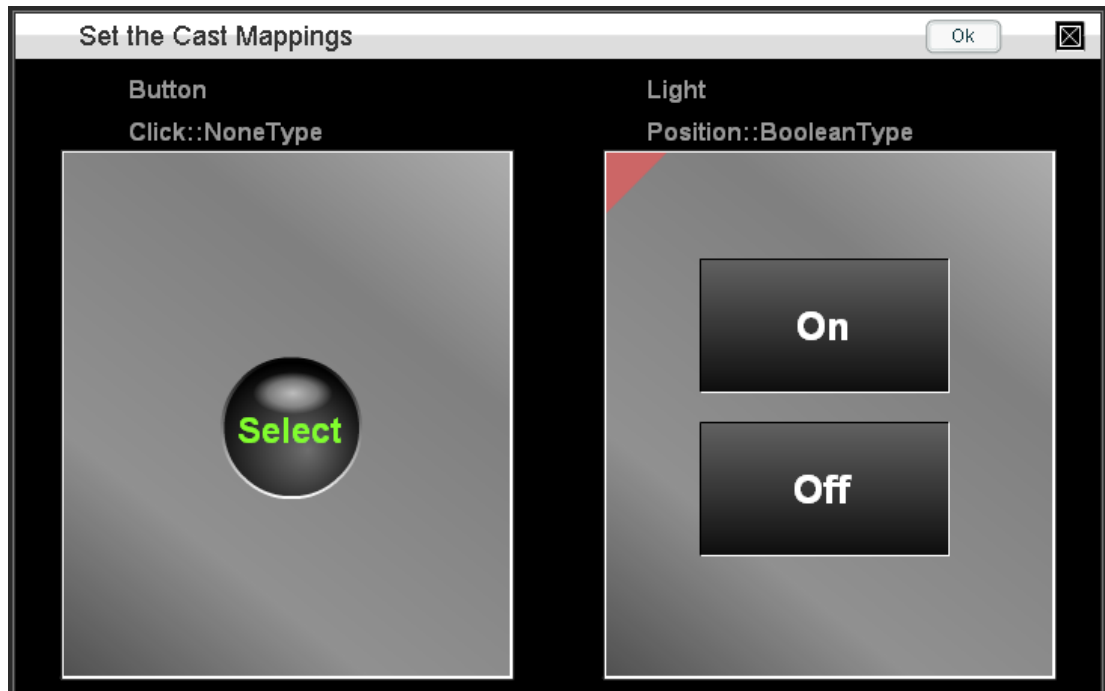
We can check the mapping from the left to the right and then click OK to finish the connection.

4.4.4 Delete connection

We can right click the square box in the connection to get the context menu for the connection. The "Delete Connection" is used to delete the connection.

We can click the "Edit mapping" to change the mapping. However, we can not change the signal or action of a connection. Instead, we need to delete the old one and create a new one from scratch.

4.5 Annotation box

The annotation box is used to display the detailed information of nodes and connections. When the mouse is over the node, the details information of a node will be displayed in the annotation box.
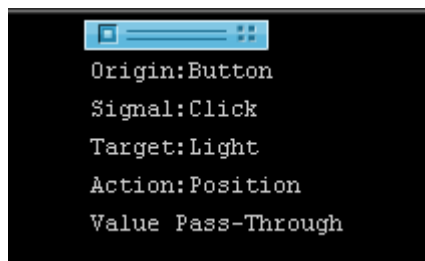
When the mouse is over the dragbox or connection line of a connection, the information of the connection will be displayed in the annotation box.

4.6 Virtual Devices

The scenario editor allows us to forward signal from one device to the action of the other one. We can connect a motion sensor to a switch to turn on the light when the motion is detected. However, this is almost all we can do traditionally. In order to support more advanced control, HSC-200 introduce the virtual devices which can provide advanced scenario control.

The virtual devices are used to control the behavior of devices according to the definition of the user scenario. For example, a countdown timer device is used to delay a signal for certain timers and relay it to other devices.

The following virtual devices are provided in the current version of firmware. We will continue to develop more virtual devices which can simplify the design of the scenario. Please check the website for more details.

- Countdown timer

- AND/OR/XOR logic device

- Real time timer

- 24x7 time scheduler

- Range

- min/Max

- Data logger

4.7 Timers

4.7.1 Count down timer

The count down timer can be used to queue an event for pre-define time and then send out a signal. The counting is started by the **start** action. After it is started, it will wait for **duration** seconds and set the state Position to be true. The signal **on** will be emitted as well. The Position will remain in the true state for **alarm** seconds and become false. In this timer, the **off** signal is sent as well.

The **duration** and **alarm** can be configured in the setting mode of the count down timer device in the scenario editor. Please look at the picture below for the details.
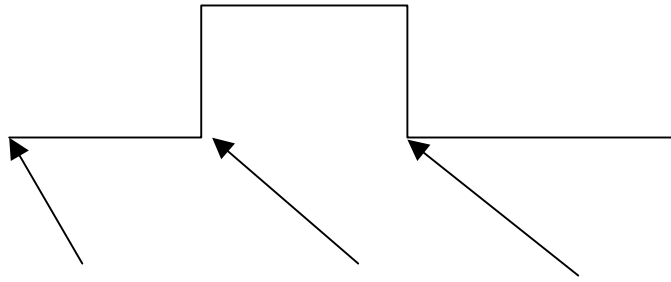
The alarm is usually used in two ways. When the duration is zero, we call it sustain mode. After the timer is started, it will maintain in the true position for alarm seconds. We can use it to enable some logic or position for **alarm** seconds. For example, we can use it to detect if two motion sensors are both triggered in 10 seconds by connect two count down timer to the motion detector and then use a AND logic device to combine the Position of two count down timers.
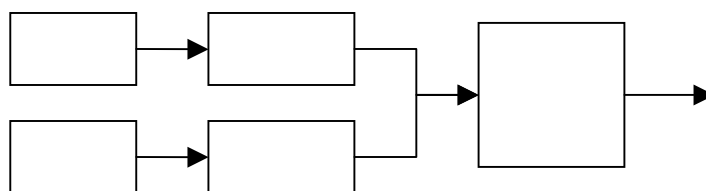
We can set the duration to be 0 and alarm to be 5 for both timers. Therefore, the Position of the timer will be true for 5 seconds after the motion is triggered. By AND both Position together, the output of the AND device will be true only if both motion sensors are triggered within 5 seconds.

If the duration is not zero, we call it as delay mode. Under this mode, the input signal will be delayed for **duration** seconds and reemitted as the **on** signal. For example, we

can use it to add sleep function for any devices. After we press a button, it will be connected to the start of a count down timer. The timer will wait for duration seconds and then send the signal out. We can connect the on signal to any device which need to be turned off.
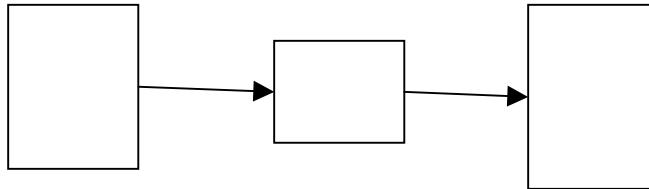
States

- Position

- Phase

  - ■ This state is a string that represent the status of the countdown timer.

Signals

- On: The on signal will be sent when the counter become zero.

- Off: The off signal will be sent after the on signal is sent for **alarm** seconds.

Actions

- Start: Start the timer.

- Stop: Stop the timer. The counter will be reset.

- Pause: Pause the timer. The counter will not be reset so that the resume can be used to continue the counting.

- Resume: Restart the countdown procedure from the last paused position.

Properties

- duration: The initial value of the timer.

- alarm: The period that the value of the position state will remain in on.

4.7.2 7x24 timer

[Ask iap provide description]

4.7.3　real-time timer

[Ask iap provide description]

4.7.4　daily timer

[Ask iap provide description]

4.8　Comparator

The comparator device is used to compare the value of two inputs.

[Ask iap provide description]

4.8.1　Min/Max

[Ask iap provide description]

4.8.2　Range

[Ask iap provide description]

4.9　Logic devices

Logic device provides LogicJoin action that we be connected to several states. It will emit state and signal change when the result of logic operation of the devices changes. For example, an AND device will perform logic AND operation for its input and generate signals when the result is changed from True to False or from Fase to the True.

Currently, we support the following virtual logic devices.

- AND

- XOR

- OR

4.9.1 State

- Position: The value of the logic operation.

4.9.2 Signal

- On: This signal is sent when the state Position change from off to on.

- Off: This signal is sent when the state Position change from on to off.

4.9.3 Action

- LogicJoin: This is used to connect the input of the logic operation. We can connect to this action for multiple times to defined multiple inputs.

4.10 Boolean sequencer

The Boolean sequencer is used to switch a group of devices between two states. It is very useful to serve as a single point to control a group of devices. As its name, the Boolean sequencer can be controlled by using Position, On or Off actions. When it transits from one state to the other, it will send signals all devices connected to sequencer in the pre-defined order and interval.

Chapter 5 **Profile editor**

The profile editor is used to define how the scenario is enabled and disabled. The HSC can use any button to enable or disable a scenario or use 7x24 scheduler to enable/disable the scenarios.

Chapter 6 **Page composer**

The page composer can define user interface for the end-users. It provides WYSIWYG screen editor to draw and drop widgets in the screen. Every widget can be fully customized. If it is not enough, the page composer can include any SWF files into it as well.

When the pages are defined, they can be accessed as flash file or HTML files. If at least one page is defined, we will show the first page in flash format. The following links are used to invoke flash,HTML and setup menu.

- Configurator

  - http://192.168.0.100:2080/ui.html

- Flash Page Viewer

  - http://192.168.0.100:2080/vp?s=userpages&n=1

- HTML Page Viewer

  - http://192.168.0.100:2080/swfgui/mypage.html?s=userpages&n=1

- iPOD-style page viewer

  - http://192.168.0.100:2080/swfgui/ipod.html

If user input an error link, we will show a menu with the above links to let users select one of them.

page set 1   page set 2
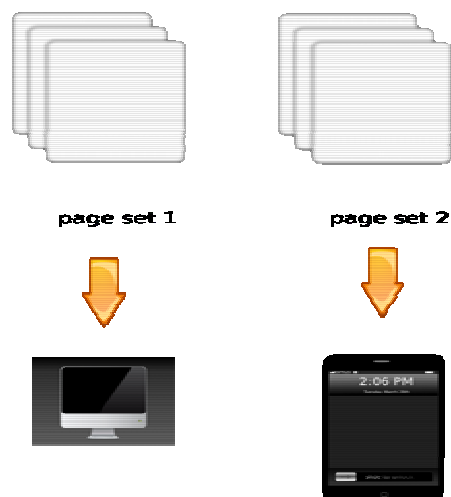
The page composer is a widget-based graphics editor for the HMI device, such as touch screen or iPOD. The content of the HMI is defined by a set of pages. Each page is composed of one background and a number of widgets.
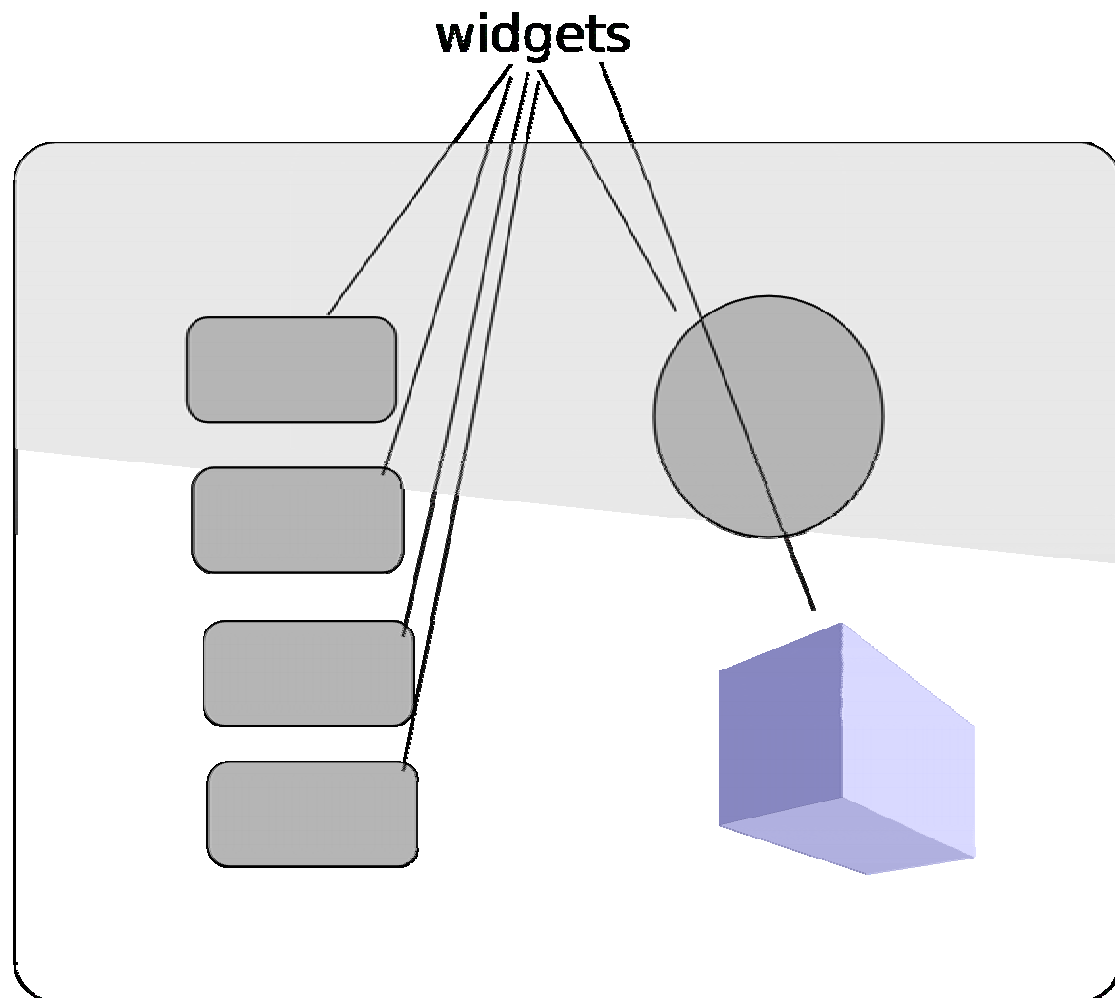
widgets

Each widget can be move and resize individually. The looks and feel of each widgets can be altered by modifying their properties. For example, a button widget has the following properties.

- Title

- Font style

- Text color

- Text position

- Background image for normal state

- Background image displayed when the widget is clicked.

The page composer provides a lot of tools which is available in standard graphic tools, such as copy/paste/duplicate/delete or alignment. In addition, all image property can be set as an SWF file so that the full flash capability can be used to improve the quality of the screen.

In the rest of this chapter, we will introduce each tools and widgets in the page composer. However, we will use an tutorial to illustrate the capability of the page composer. If you want to know the tools and widgets quickly, you can skip the next section and jump to the sections for tools and widgets.

6.1 Tutorial

The page composer is available in the My Pages section

6.1.1 Mother page

When you enter the page composer, it will load the first page. If the first page is not available, the Mother page will be loaded.

The Mother page contains background and widgets that will be duplicated in every page. A common usage is to put all page buttons in the Mother page so that we can switch to any page from any page.

In addition to the widgets, we can put the background in the Mother page as well. If any page is not defined a background, we will use the background of Mother page.

In this tutorial, please place two page buttons in the Mother page and load the background on it.

[Put the screen shot here]

Since there is no page yet, the page button will be empty. Don't worry. We can assign the page to it latter.

6.1.2 Add/delete/edit user pages

The goal of the page composer is to create UI for the HSC-200. It can create multiple pages and link those pages by using the page button widget. A page button looks like a normal button on the UI. It can show the name of the page inside it. When user click it, the UI will load the page associated with the button as the current page.

All page related functions are grouped in the page tool button.

[Put the screenshot of the page tool button here]

Initially, we have only one Mother page only. We need to create a new page by selecting the 'Add new page' inside the page tool. Once a page is created, we can place widgets inside it.

Please create two pages.

6.1.3 Associate page button with page

Now, we can associate the page button to the newly-created page. Please jump to the Mother page. We can switch to another page by press the page tool button and select the 'Select another page'. Please select the 'Mother page' now.

Please select the page button and press the page tool button again. The following menu will be shown.
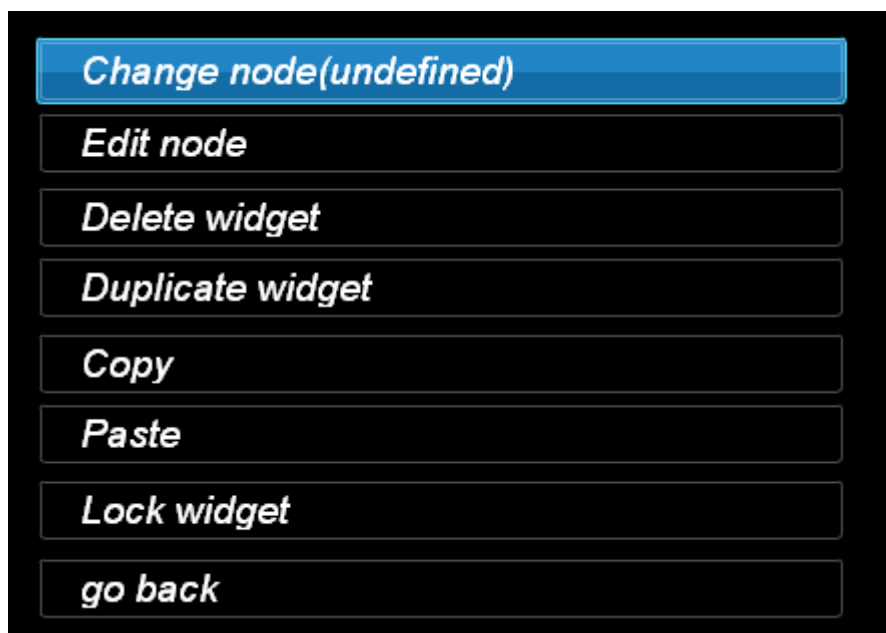
Please select the 'Change node'. We will see the following screen. Please select 'Page 1' from it.

Repeat this to the other page button. We have composed a page set with two pages. Of course, those two pages looks exactly the same now. In order to differentiate two pages, we will change the background of the page 2.

6.1.4 Change the background

Now, we will explain how to change the background. By default, we will show the background of the mother page. However, we can use different background for each page. In the HSC-200, we have several built-in background images for selection. However, it's free for users to download their own image.

In order to change the background, press the 'page tool' and then select the 'Change page background'.
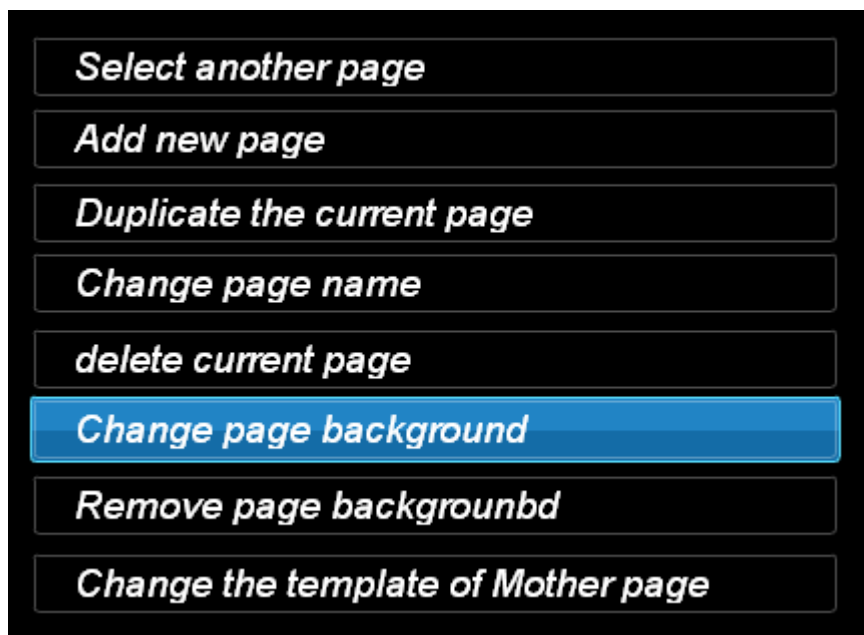
  A file manager will be shown on the screen. If you move the cursor to over the file, we will show the preview in the left bottom corner. When you double click on it, we will select it as the background. You are free to load either image or SWF files to be the background. However, you must be very careful to select a SWF file as background because it may make the whole UI very confused.

Now, the page 1 and page 2 has different background. We can try to test our work now.

6.1.5 Test the user page

The page composer allows us to preview the user page in the editor directly. We can press the test tool button any time to generate and show the page in the screen. It will be exactly the same as the final UI except the leave icon in the top right corner.

By default, the current page will be shown on the screen. We can press the page button to switch between page 1 and page 2.

Till now, we have introduced how to create pages and test the generated pages. In the rest of the tutorial, we will introduce how to add widgets and customize them.

6.1.6 Add Switch widget to control the light

6.1.7 Add UISwitch to control the scenario

6.1.8 Copy and paste

6.2 Widget

Currently, we support 10 widgets in the page composer. The number of the widgets might be changed from version to version. A page is defined by the widgets. Each widget may be connected to one of the physical or logical devices in the scenario editor. Once the connection is built, the page composer will update the content of the widget according to the status of the devices in real-time. When the state of the devices changes, the system will notify all widgets in different output devices to refresh its display.

6.2.1 Add widget

The 'Add' icon is used to add a new widget into the page. We can select one of the widget from three categories.
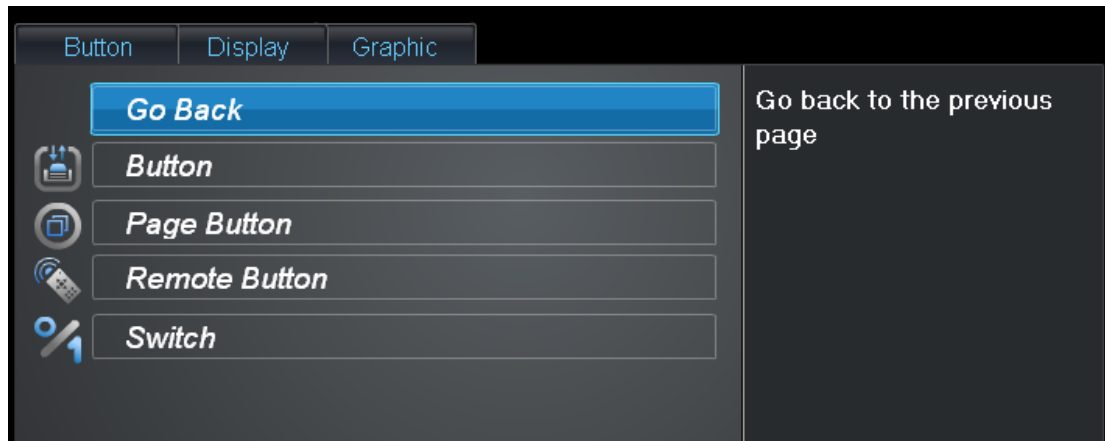
Once a widget is selected, we need to select an associated device. Each widget will define a filter so that only compatible devices will be displayed. For example, if the button widget is selected, only button devices will be listed. If no button device is available, we can select no associated device to create a widget without associated device.

**6.2.2 Move and resize widget**

Once the widget is added into the page, we can use mouse to drag it to any place in the same page. In addition, we can use the resize point in the right bottom corner of the selected frame.
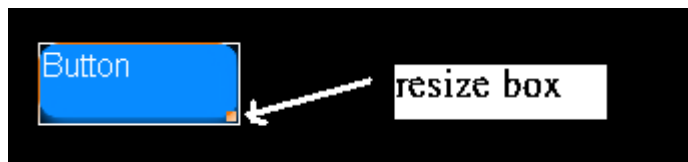
The behavior of the resize is defined by the widget. Most widget will scale its content to fit the new size. However, some content, such as text, will not scale its content. Usually, all text will not be scaled. If we want to scale the font, please use the style property to adjust the size of the font.

6.2.3 Edit widget

Each widget will define a couple of properties. This function will show a content menu for each widget. We can double-click the widget to display this menu as well.
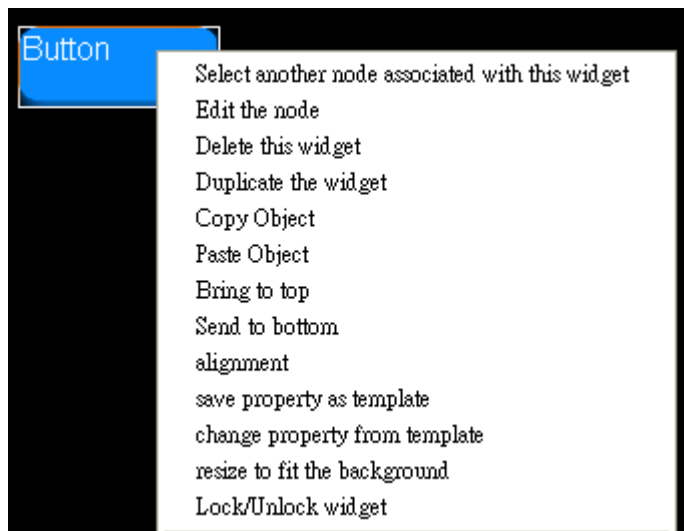
Please refer to the next chapter for the definition of the properties of every widgets.

6.2.4 Change the associate node

Each widget may be associated with one node or device in the node viewer. The renderer of the widget can show different UI according to the status of the associated node. For example, the number widget will change the number according to the associated node, such as the temperature of the temperature node.

Please choice Node->Change node to access this function.

When this function is chosen, all eligible nodes will be listed. Each widgets can define their criteria to filter eligible nodes.
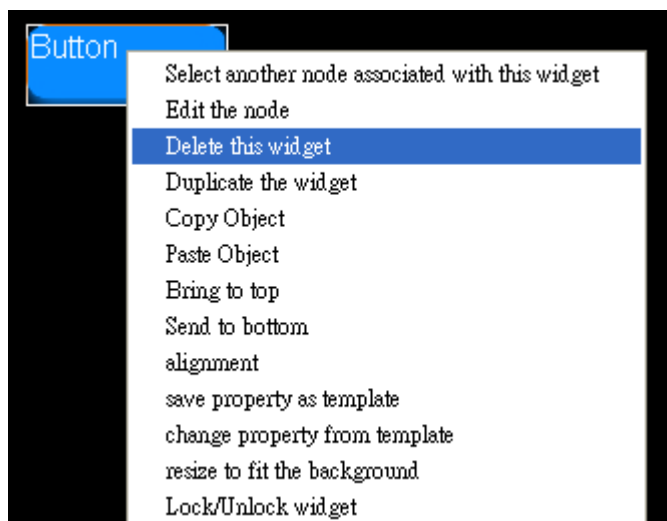
6.2.5 Edit widget properties

This function will display a widget property menu. The content and layout of this screen is different for different widgets. Please refer to the individual widget document for the details.
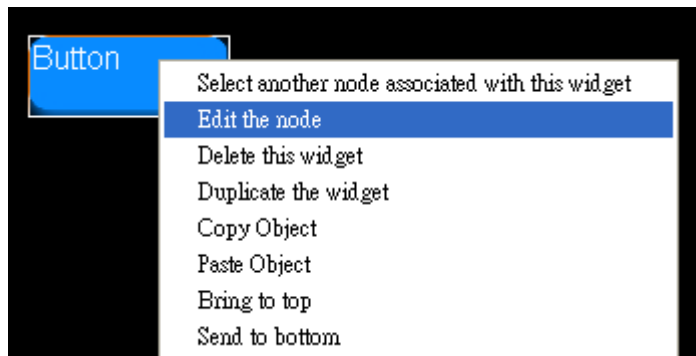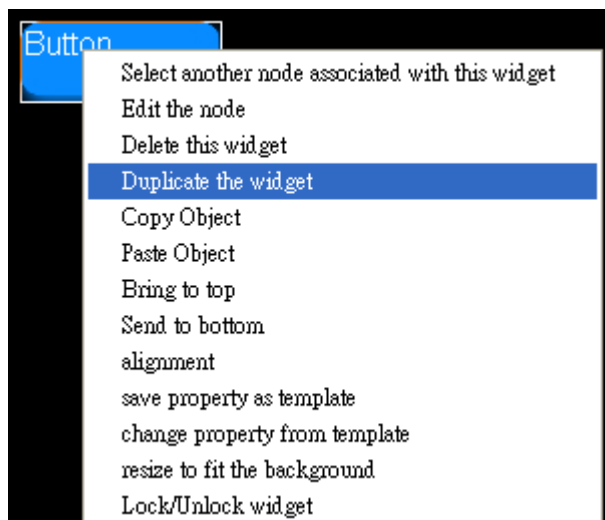
6.2.6 Delete widget

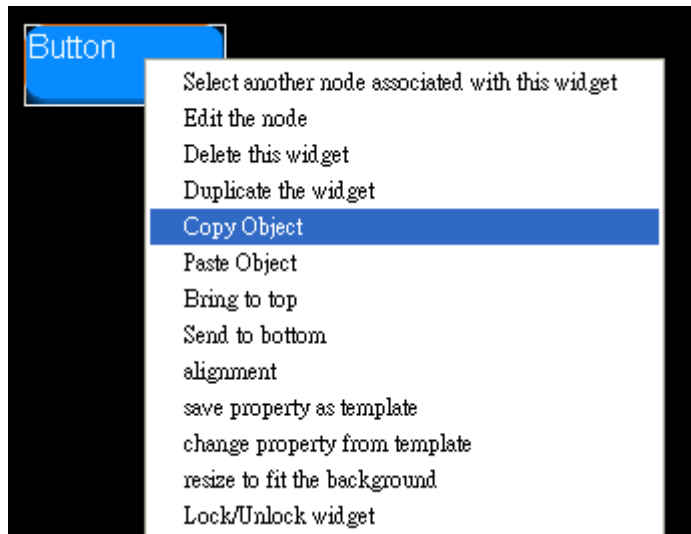Delete the current selected widget or widgets.

6.2.7 Duplicate widget

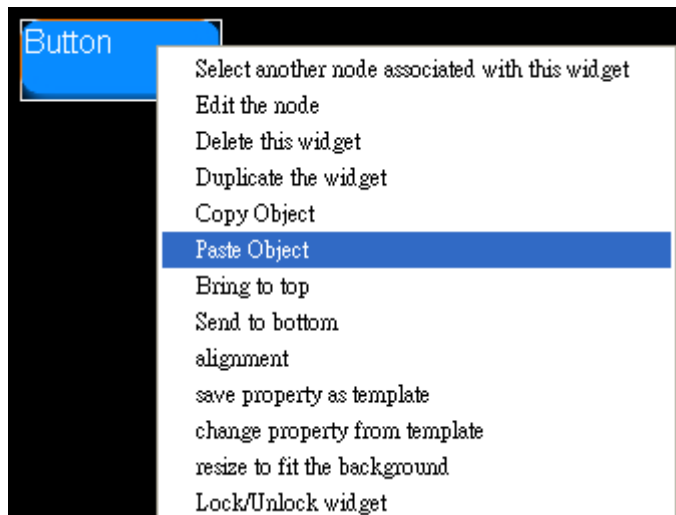Duplicate the current selected widget or widgets.

6.2.8 Copy the widget

Copy the current selected widget or widgets into the widgets pool.

6.2.9 Paste the widget

Paste the widget or widgets in the widget pool into the current page.

6.3 Page

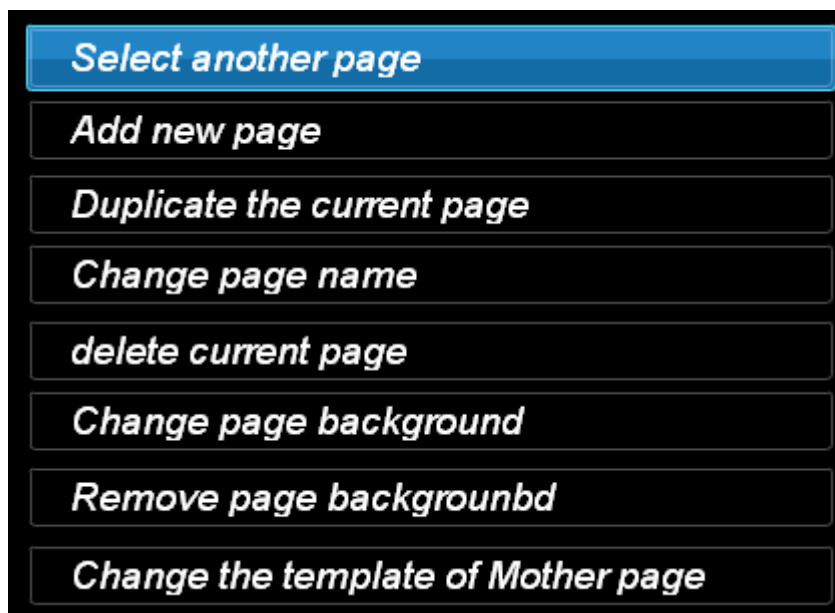The page menu allows us to change the page properties and manage the page set as well. It is available in the page section.

6.3.1 Switch to another page

Press this option will bring a menu to list all available pages in the current page set.

We can choice one of them and then the select page will be displayed in the

workspace.

6.3.2 Add new page

Add a new page from the template.
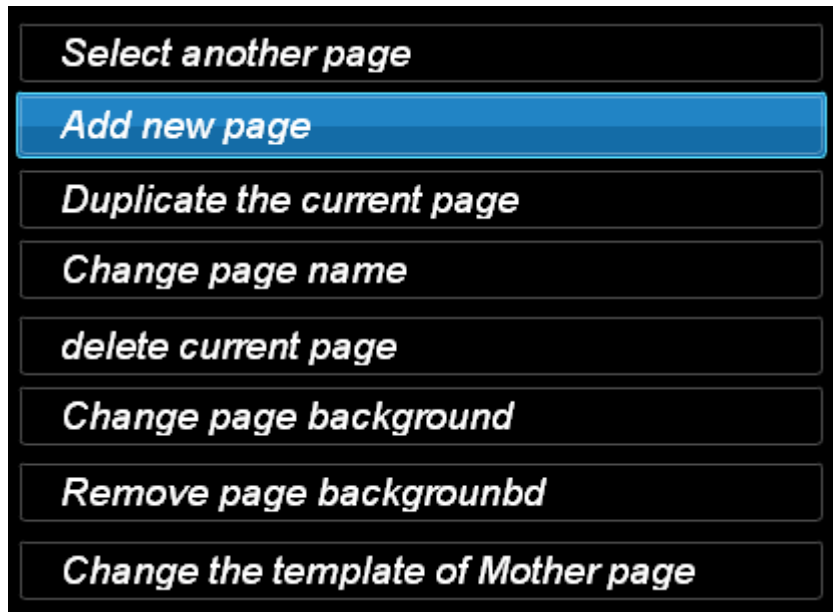
A list of page template will be listed.

We can create new template by using the "Save as page template". However, we can not assign the page preview as the builtin ones yet. This future will be implemented in the future version of the page composer.

After you select a template, a new page will be created according to the template.

6.3.3 Change page name

Change the title of the current page.

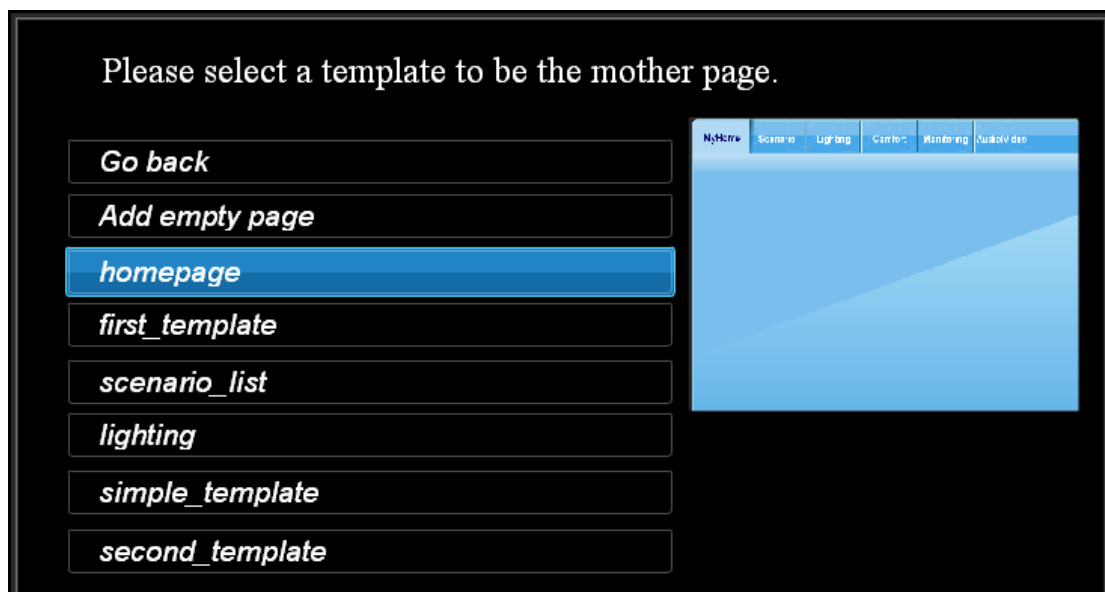| Select another page |
|---|
| Add new page |
| Duplicate the current page |
| **Change page name** |
| delete current page |
| Change page background |
| Remove page backgrounbd |
| Change the template of Mother page |
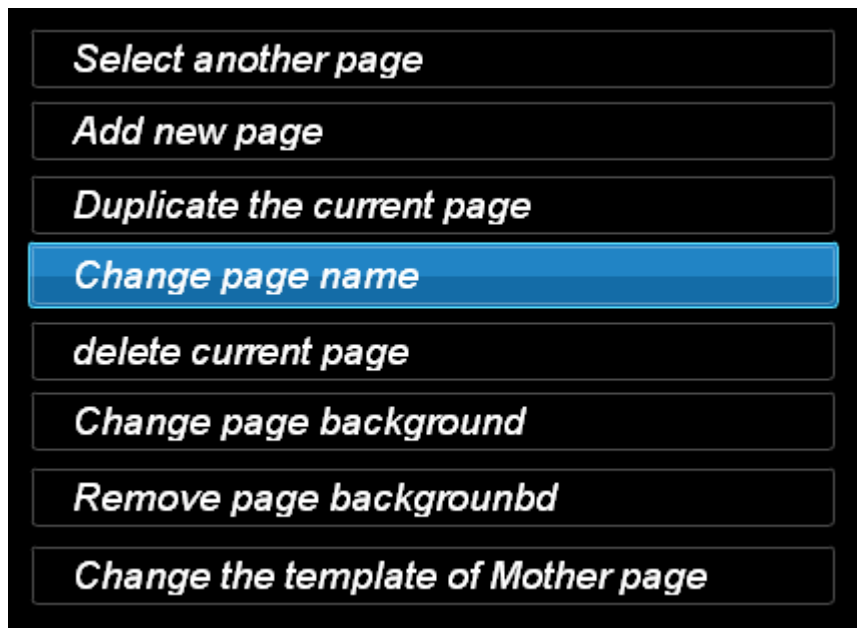
6.3.4 Delete current page

Delete the current page.

Select another page
Add new page
Duplicate the current page
Change page name
delete current page
Change page background
Remove page backgrounbd
Change the template of Mother page
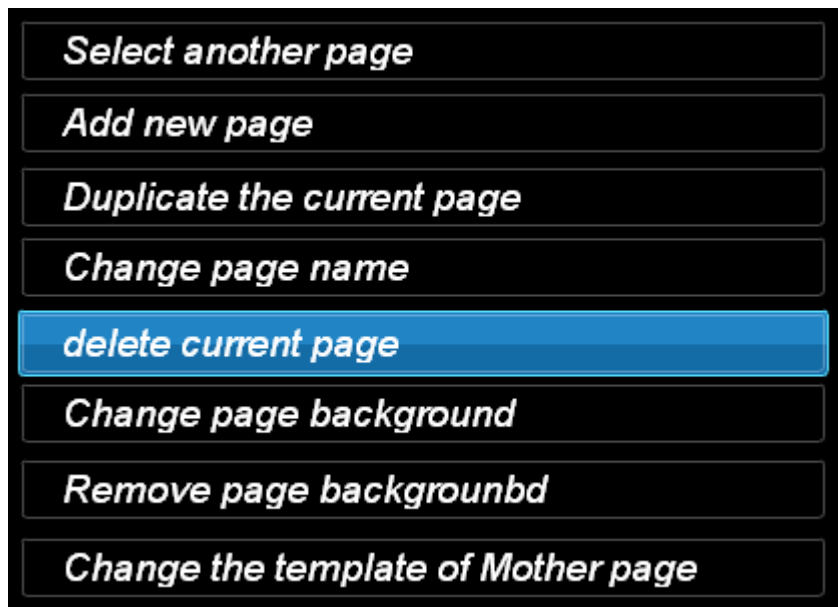
6.3.5 Change page background

Change the background of the current page.
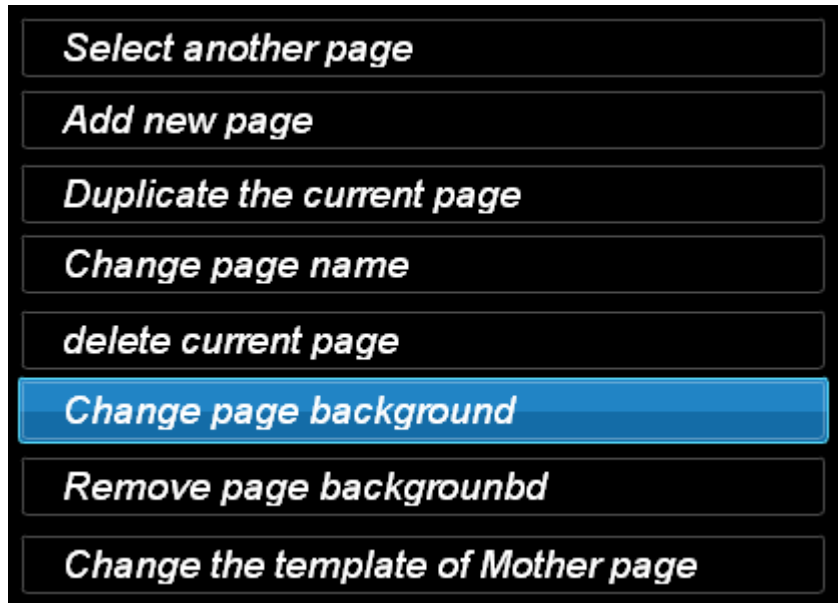
In this function, a file manager is used to select a new background image.

If we want to upload a new image, the 'Upload' button will allow us to upload a new image from the computer to the HSC-200.

6.3.6 Change the template of the mother page

Select a template for the mother page. This function may remove/add some widgets in the mother page. It will delete all widgets added from the previous template.

6.3.7 Save as page template

Save the current page as a page template. This is useful for installer to design their own template so that they can reuse it in the future projects.

6.3.8 Manage Page Set

HSC-200 can define multiple page set for different users or HMI devices. For example, we can define a simple interface with common features for your father and mother and define another pageee set with full function for yourself.

Change page set

Change the current page set.
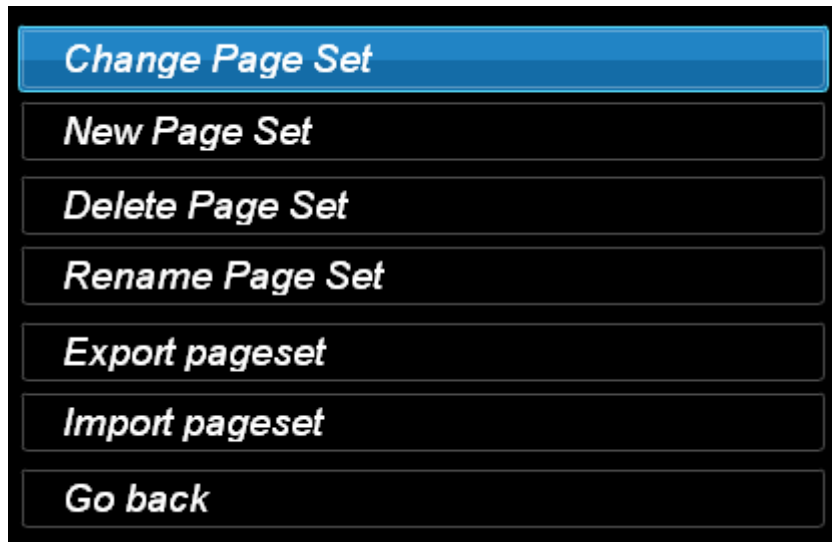
New page set

Create a new page set.
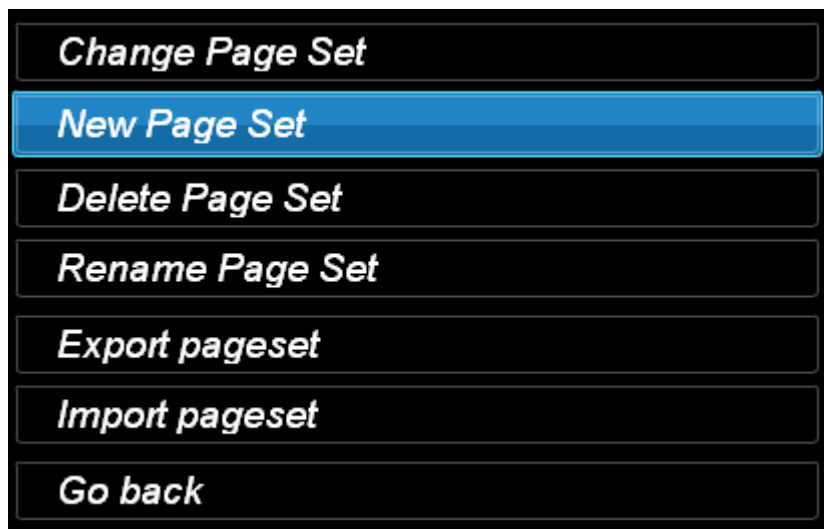
Please remember to save the page set after it is created.

Delete page set

Delete the current page set.
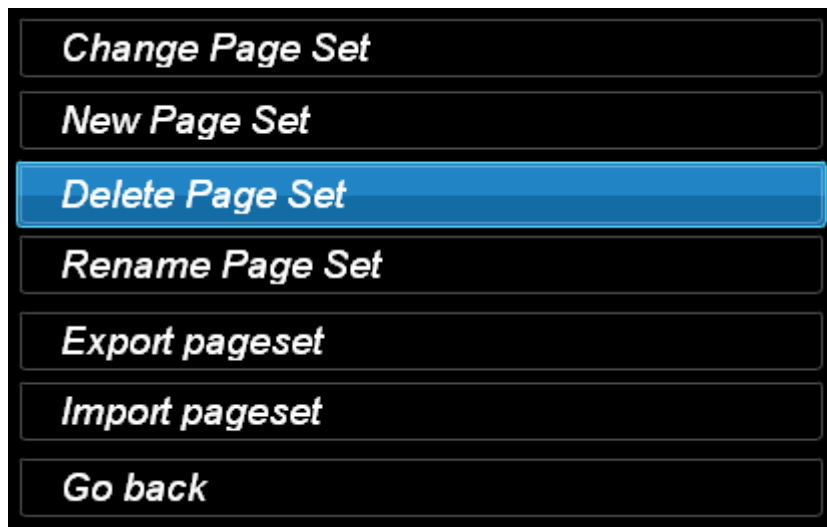
Rename page set

Rename the current page set.
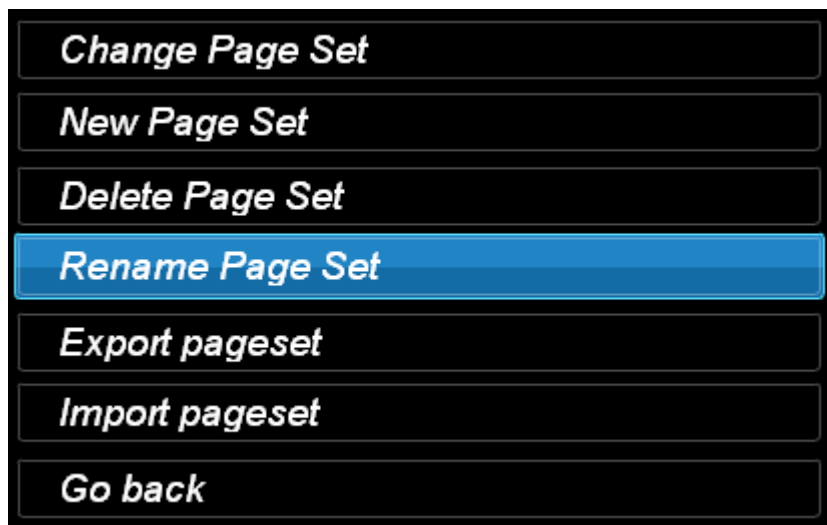
The name of each page set must be unique. Otherwise, the old one will be deleted without notification.

Export page set
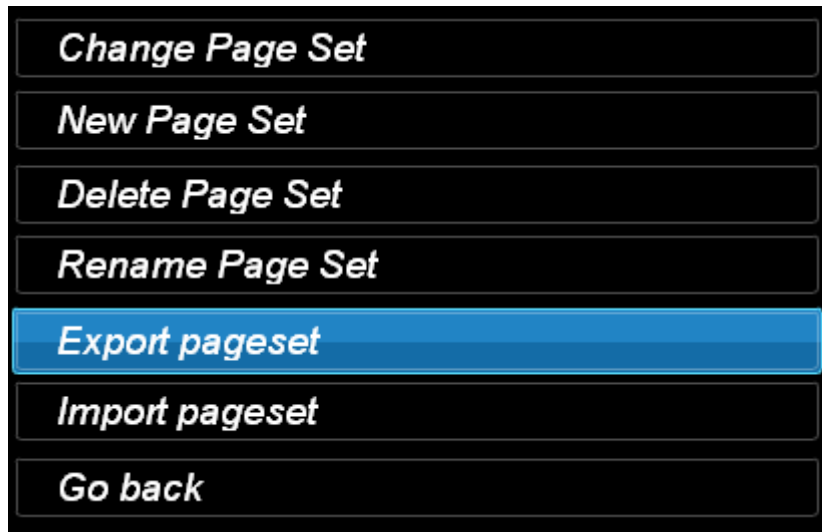
We can export the designed page set so that it can be reused in other project in the future.

Import page set
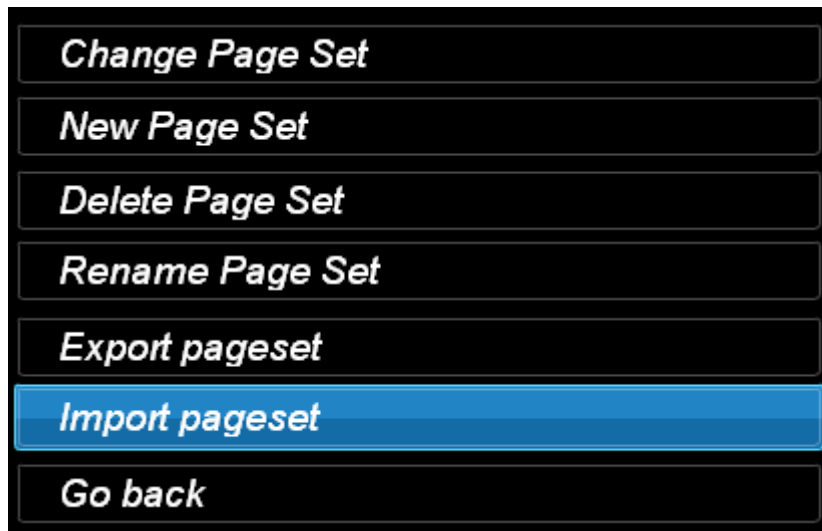
We can import some existing page designs. This is very useful for the installer to design a couple of page template.

6.3.9 Show/Hide Mother page

Hide/Show the mother page for the current page. This is used in page we don't want to show the content of the mother page. If we still need some contents from the mother page, we should copy and paste them from the mother page.

6.4 Save project

Save the current page set. Since the page compose is executing in the browser, it is a good idea to save the editing result periodically.

6.5　Context menu

6.5.1 Select another node associated with widget

Change the associated scenario node of the widget.

6.5.2 Edit the node

Edit the property of the selected widget.

6.5.3 Delete widget

Delete all selected widget.

6.5.4 Duplicate widget

Duplicate all selected widget.

6.5.5 Copy Obejct

Copy all selected widget.

6.5.6 Paste Object

Paste all widgets in the copy buffer to the workspace.

6.5.7 Bring to top

Bring all selected widgets to the top of other widgets.

6.5.8 Send to bottom

Put all selected widgets to be lower than other widgets.

6.5.9 Alignment

This function will show the alignment menu in the top of the screen.

6.5.10   Save property as template

Save the property of the current widgets as template. This is useful to change the property of other widgets latter.

6.5.11   Change property from template

This function will apply the previous saved widget template to any widget. Please remember that each widget may reject some properties since it does not make sense to copy it usually. For example, the title is not copied in most widgets. In general, the background, text color, text position and font style will be applied in all widgets.

6.6 Status bar

The status bar provides convenient tools to adjust the location of size of widgets. It can help us to input precise number of coordinate and size of widgets. The status bar can be minimized if it blocks any widgets.

6.6.1 Adjust widget

When we change the value of the x,y,w,h in the status bar, it will be used to change the location and size of the selected widgets. These parameters will be applied immediately.

6.7 Test the pages

This function will simulate the page viewer to look at the current page set. In this function, we can send the real signal out to trigger the scenarios or devices.

6.8 HTML Viewer

For devices without flash support, we can use the HTML viewer instead. The HTML viewer is implemented according to the Flash widgets. However, it will not 100% the same as the Flash widgets because of some limitation.

They should looks similar enough for most application. Please use the following URL to access the HTML viewer of the pages.

http://xxx.xxx.xxx.xxx/swfgui/mypage.html?pageno=1

6.8.1 Vieweing pages in the iPod touch or iPhone

In the iPod touch or iPhone, we can use the following procedure to generate an application icon for it.

1. Open Safari

2. Input the above URL or we can use the portal URL
    http://portal.homescenario.com/IPOD. This page will require to input an account and password. And use this user to get the real URL of the HTML page.

3.   Click the '+' icon to enter the bookmark screen.

4.   Select the 'Add to Home Screen'.

5.   Change the name of the icon to be 'My Pages'.

Chapter 7 Widgets for the page composer

7.1 Introduction

Widget is the basic drawing unit of the page composer. A page contain one background and a couple of widgets. Each widget has a few properties, such as text color, text position, title, font style and etc.

The widgets can be divided into three categories. The button widget is a clickable unit which has one or two buttons inside it. We can click any button to send a signal out so that the CORE can react according to the defined scenarios. We have four different button widgets.

● The Page button is used to switch to different pages.

● The remote button is used to control a IRDA remote controller node.

● The switch has two buttons for on and off inside it.

● The button is a generic button which can be attached to any scene key pad or UIButton.

The display category is used to display the status of the widgets,

● The status widget can display different images and titles for different states.

● The alarm widget is a bi-state status widget, which can display image and title for Boolean-type state of a node.

● The digital number display can display an Int-Type state up to three digitals.

Graphics is a static widget which does not attached to any node.

● Text widget is used to display a static text.

- Current clock time widget is used to display the current time.

- Image display widget is used to display a built-in image or an image from an internet URL.

- HTML widget is used to display an HTML page. This widget can be used to display the generic web page. It is typically useful for the IPCAM or DVR integration.

In the rest of this chapter, we will explain every widget in details.

7.2 Background image

Most widgets allow us to define background images for different states. We can show one image when the Position of the node is '**on**' and show another one when it is in '**off**' state. These images can be static image as GIF.JPG or PNG. In addition, we can use the SWF file as background image as well.

The SWF can provide animated background. Actually, it can be another full-featured flash application, such as weather or news widgets. The SWF can access the information of the widget by using the _parent to refer the widget. The _parent.Node can be used to access the associated node as well. For example, we can use '_parent.Node.States.Position' to get the Position state variable of the associated node. We can different images according to the state of the node.

7.3 Page switch button

The page switch button is used to switch between different pages generated by the page composer. When users click on the page button, the screen will load the new page.

In the node property menu, we can change the associated page by clicking the 'Select another page' item. All pages will be listed.

The page switch button is composed of

- One normal background image

- One click background image

- One title: The name of the associated page.

We can hide background or the title in the setting page.

The page switch button is often used at the mother page so that users can click them to switch between all pages. However, we can use them to switch back and forth between two pages as well.

7.3.1 Add a page switch button

7.3.2 Setting page of the page switch

In the setting page, we have the following options.

- Change the normal background

- Change the click background

- Hide background or title

- Change text color

- Change font

- Change text position

Change the background

[snapshot here]

This option allows us to change the background of the page switch. You can use the file manager to pick the image. The page switch widget will scale the image to fit the defined size. However, it's better to keep the original size for the performance and quality issue.

Please refer to the file manager section for the usage of the file manager.

Hide background or title

The page switch allow us to disable title or background individually. If both are disabled, this widget will become invisible. However, it will still capture the mouse events. This is useful to define a click area around the buttons in the background.

Change text colot

[snapshot here]

The color of the title can be changed here.

Change font

The font used to show the title can be changed here.

Change text position

This option can change the location of the title in the widget. You can set the location manually or select the align left/right/up/down/center for both vertically and horizontally.

7.3.3 Use SWF file as background

The page switch widget can accept the SWF file as the background. Under this mode, the SWF will be loaded as MovieClip bg in the page switch widget. Therefore, you can access all variables and functions defined in the widget. The following is a list which you may be interesting. The complete list is available in the page widget authoring guide.

- _parent.Node

- _parent.Click()

    - Call this function will switch to the page defined by the page composer.

7.4 Text widget

The text widget will display a text string. We can change its color, size, font family, bold, italic and underline.

The text widget can be connected to a Node with text state. In this case, the content will become the value of the state variable.

7.5 Remote widget

The remote widget is used to send a IRDA signal out when it is clicked. The background of the widget can be changed.

7.5.1 Change background image
Change the background of the remote button.

7.5.2 Remove background image
Remove the background image.

7.5.3 Change text color
Change the color of the text.

7.5.4 Change text position
Change the location of the text.

7.5.5 Change text style
Change the text font.

7.6 Current clock widget
The current clock widget will display the current time. We will display the value of the onboard RTC. Please adjust the time in the system setting.

7.6.1 Change the time zone

We can change the current time zone here.

7.6.2 Change the clock style

7.7 Image widget

The image widget will display an image. The image can be from the built-in storage or from an internet URL. The widget can reload the image according to the 'reload interval' setting. Therefore, we can use it to display real-time JPEG image generated by the webcam or IPCam.

7.7.1 Setup Image Path

7.7.2 Setup reload interval

7.8 Alarm widget

The alarm widget is used by the contact or motion sensor. It is actually a status widget. However, it will list only the sensor nodes. In addition, this widget will blink the background image while it is in active mode. If you don't want this feature, please use the status widget instead.

7.9 Switch widget

The switch widget will display three images, the on image, the off image and the background image. Both on image and the off image have two states. Therefore, we can define up to five different images for the switch widget.

Each switch widget is composed of two buttons. The button in the top is called on button and the button in the bottom is called off button.

Each button has two associated images for normal and click state as the usual button widget. There is totally four images.

7.9.1 Change normal background for on

Select an image which will be displayed in the on button while it is in normal state.

7.9.2 Change click background for on

Select an image which will be displayed in the on button while it is in click state.

7.9.3 Change normal background for off

Select an image which will be displayed in the off button while it is in normal state.

7.9.4 Change click background for off

Select an image which will be displayed in the off button while it is in click state.

7.9.5 Hide/Show the title

Show/hide the title of the switch.

7.9.6 Change the text color

Change the color of the title.

7.9.7 Change the text color and position

Change the text position of the title. The location is realted to the origin of the top button.

7.10 Button widget

The button widget will display image, title and send actions when it is pressed and released. It does not have on and off state like the switch image. It is usually used with the scene button or the virtual button node.

Normal background	This image is displayed when the button is not pressed by the user.
Click background	This is image is displayed when the button is clicked by the users.
Title	This title is display by using the font define by the below properties.

Font style	The font family/size/style.
Text color and position	The color and position of the title related to the origin of the background image.

7.10.1 Change normal/click background

This property can change the normal or click image of the button.

7.10.2 Show/Hide the title

This property can control if the title is displayed or not.

7.10.3 Show/Hide the background

This property can control if the background is displayed or not.

7.10.4 Change the text color

This property can control the color of the text.

7.10.5 Change text position

This property can control the location of the title in the button.

7.11 HTML widget

The HTML widget can display any HTML page inside a the area occupied by the widget. This widget can accept a block of HTML codes or an URL started by http://.

If an URL is specified, the entire page is put inside an iframe tag. The width and height of the iframe is set to be the width and height of the widget.

If a code block is input, it means that the setting is not started by 'http://', the HTML code block will be put inside a div tag. This is useful for the widget from internet sites, such as Google or Yahoo.

7.11.1 Change the URL

The Edit URL option can be used to input an URL or HTML code block. Please remember that the URL must start by 'http://'. The RTSP or other URL will not be supported.

7.11.2   Support IPCAM

Most IPCAM has a special link which display the video inside a small window so that users can put multiple IPCAM in a single page easily. Please try to figure it out from the user manual or local support staff. Once you have the link, input it in the Edit URL and the IPCAM is integrated into the user's page easily.

Please remember that the widget can not scale the image. When you resize the widget, it change the visible area only. If the size of the widget is larger than the image size, it will show empty area. If the widget size is smaller, it will short portion of the image only.

Currently, there is no way to define offset for the image. You must do it in the HTML layer.

7.11.3   Support Motion JPEG video in iPhone/iPod

The browser in the iPhone/iPod/Andriod can support Motion JPEG video under progressive download mode. Therefore, we can use the following code block in the HTML widget.

<img src="http://192.168.0.139:8080/?action=stream">

For D-link DCS-3410, you can use the following code block

<img src="http://http://192.168.0.139/video/mjpg.cgi?profileid=3">

7.11.4 Support Yahoo widgets

7.11.5 Support Google widgets

7.12 Write a new custom widget

The page composer allows users to upload their own widgets. This section will explain the design and implementation of the page composer widget in details.

7.12.1 Structure of the widgets

Each widgets need to put declaration script in the first frame.

The following variables must be defined in this section.

- tag:

- Description: The details multiline description.

- Title: The title of the widget which will be used as title of the widget list.

- videourl: The video URL of the video which explain this widget. Users can access it via the video button below the description of the widget.

- Argument: It is an object that contains parameters specific to this widget. It will be serialized as in the page XML. The widget can use it to store any data. Currently, only simple type, such as string, integer, boolean' are supported.

Each widget need to support Four modes.

- icon mode: It should be an 40x30 icon.

- inactive mode: This mode is used in the editor mode. It should not handle any events at all. All user function must be disabled. However, the outlook should be as close to the ui mode as possible.

- ui mode: This is used in the viewer. It must provide all user facility and call HSCORE if it is necessary.

- setting mode: This is the property editor for the widgets. It is usually used to change the look and feel of the widgets.

Every widget needs to implement the **setMode** to switch between the above modes.

7.12.2   The size of the widget

A widget can be resized to any size to fit the screen design. The widget must define its original size in the first frame. The page composer will use the _width and _height to get the size of the widget and then draw the select frame of it if it is necessary. Therefore, the widget must define its original size in the first frame.

This may not an issue for static widgets. However, if widgets needs to load extra stuff into the stage dynamically, please scale it into the range defined by the original size. Otherwise, the select frame will become incorrect.

Usually, Each widget will define a original size and then create an pseudo content of the defined size. For example, the following codes will create a widget whose original size is (100,50).

```
var stagte = this.createEmptyMovieClip('stage', 0);
```

```
stage.beginFill(0);

stage.lineTo(100,0);stage.lineTo(100,50);stage.lineTo(0,50);stage.lineTo(0,0);
```

If we load an background dynamically, we must be very carefully to make sure it will not exceed the (0,0) to (100,50).

```
bg = this.createEmptyMovieClip('bg',1);

lis = new Object();

lis.onLoadInit=function(target) {

    target._width=100;

    target._height=50;

}

loader.addListener(lis);

var o = bg.createEmptyMovieClip('pic',0);

load.loadClip('xxxxxx', o);
```

In the above example, when we load an image file, we will resize it to (100,50) so that it will fit into the nature size.

Chapter 8 System utilities

The system section provides functions to check the current status of the controller itself.

8.1 Log

The HSC will log some important system status and notification here. If we suspect there is something happen, we can check the log to see more details.

8.2 Message
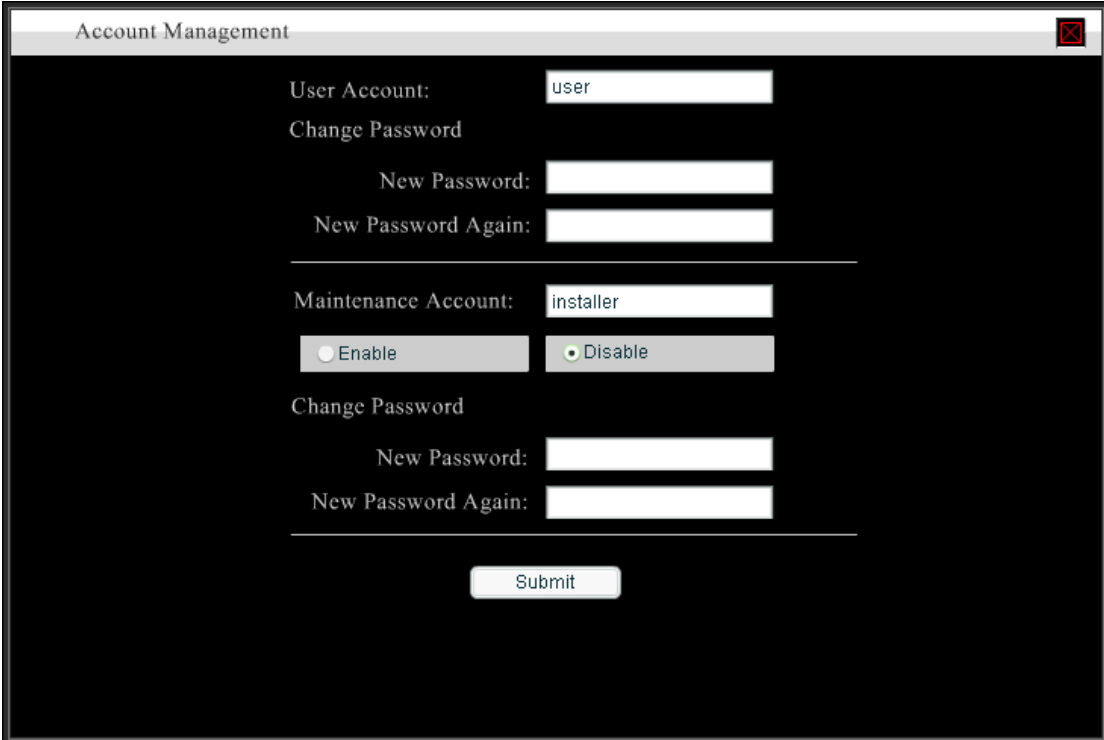
The message contains some important events, which need user attentation. When we enter the setup screen, a message box will be shown if there is any unread messages.

Installer can put a special virtual system node which will has message state. We can use this state to display some UI or send SMS in the scenario.

8.3 Network

In this page, the network information will be displayed.

8.4 Account

In the account section, we can configure the password of user and installer account. The installer account is disabled by default. When we want to let installer check our system, we can enable the installer account here. In addition, for customers which does not know how to use browser to enter setup mode. We can ask them to press the maintainse button and then press the pin code on the touch button panel in the top of the device to enable the installer account.

8.5 Advanced
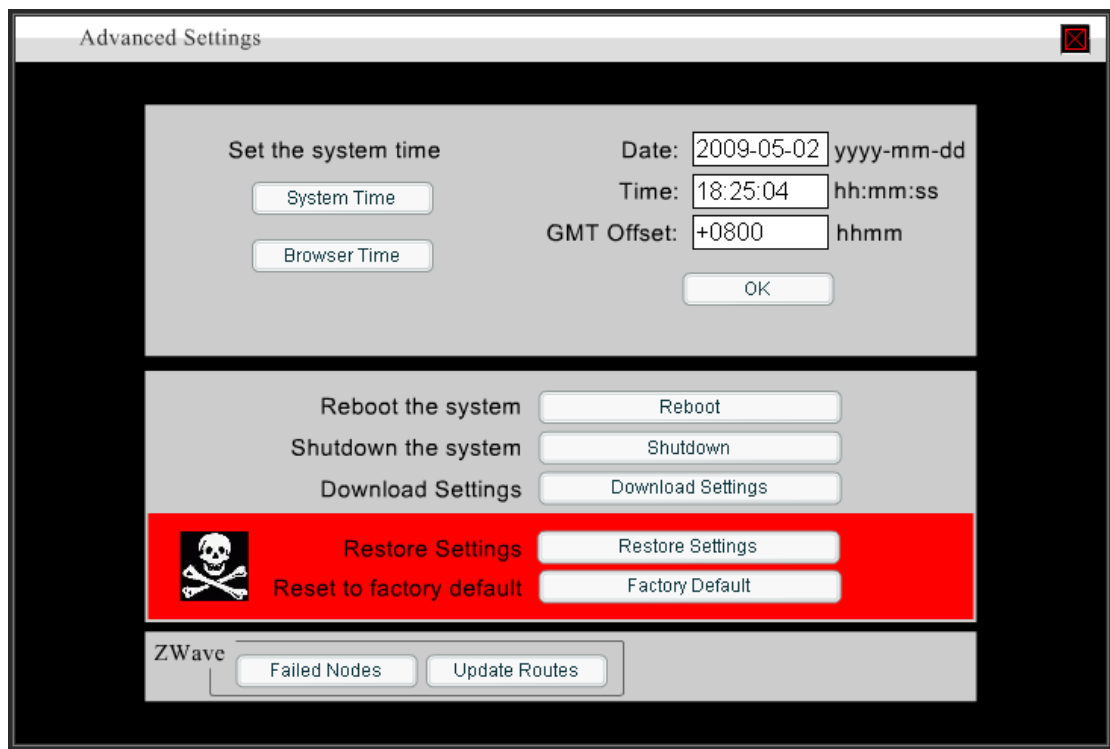
In the advanced section, we put some rare to use functions for the end users here. In this section, we can

- Change the system time

- Reboot the system

- Shutdown the system

- Download the current settings

- Restore the previous saved settings

- Reset to the factory default value.

- Z-wave maintainse function.

8.5.1 System time

The HSC-200 has builtin RTC. The time can be adjusted from the Advanced menu within the system section.

We can input the time manually or get the time from the browser or HSC-200. The update button will save this time to the RTC.

8.5.2 Reboot and shutdown the system

8.5.3 backup/restore setting

This function can save the all of the current settings including

- Nodes

- Scenarios

- Profiles

- User Pages

- Upload Images

- Zwave node information

- IR learning data

to a local file, which can be restored latter.

8.5.4 Delete failed nodes

The failed node button is used to manage unused Z-wave nodes. When we delete a node from the node viewer, it will not delete the node from Z-wave network automatically since delete a Z-wave node need to touch the physical button on the Z-wave devices.

We can delete a node from Z-wave network from any Z-wave device learning page. However, it the device is broken or missing, there is no way to delete it. The failed nodes button can help us to delete it from the Z-wave directly.

After we click this button, we will see
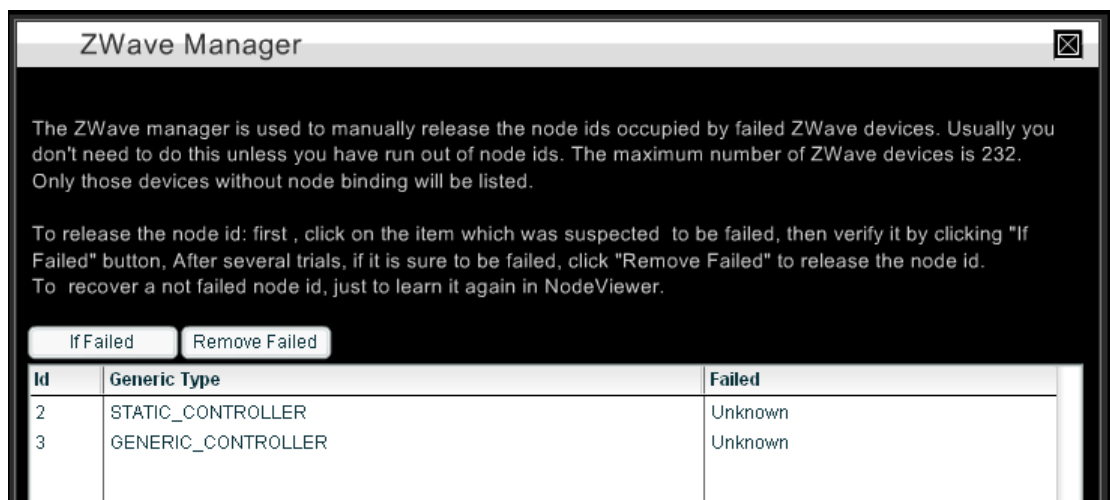
We can select any device and then click the "If Failed" button. The Failed field of the device will become Failed if it is not available in the Z-wave network. In this situation, we can use "Remove Failed" button to delete it. If the device is available, the Z-wave controller will not allow us to delete the device here. We need to go through the normal "remove from the network" function to delete the Z-wave devices.

The Update Routes is used to update the routing table of all devices in the Z-wave network according to the current situation. It will flood the Z-wave network so that the Z-wave network will not work for a while. Please use it with cation.
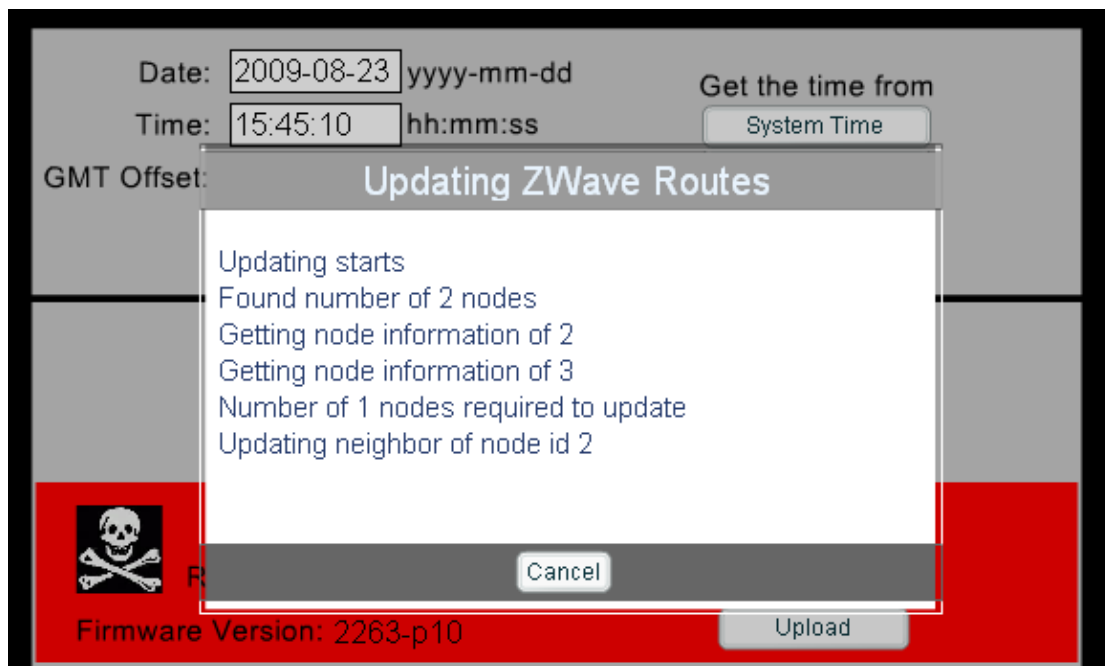
We can cancel the operation by click the Cancel button at any time. In the end of the process, a report will tell us the situation.

Updating ZWave Routes

Number of 1 nodes required to update
Updating neighbor of node id 2
Updating of node id 2 failed
---- Results ----
Failed node:unknown(#2)
Updating finished.(Failed nodes:1)

Ok
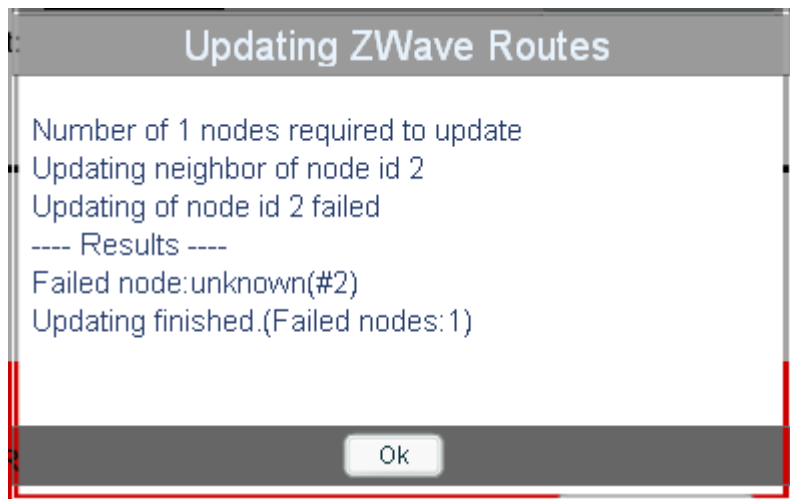
In the case, there is one failed node, which can not be access from any node.

Chapter 9　**Access from the internet**

HSC-200 can allow users to access it from the internet. For security reason, the internet access is disabled by default. It can be enabled from the preference menu. The internet access wizard inside the preference menu will guide us to setup internet access account to access this device.

9.1　Enable the internet access

The internet access can be enabled by the 'internet access wizard'. This wizard will do the following job for us.

- Detect the internet gateway.

- Setup the port forwarding rule.

- Detect the existence of internet access.

- Ask users to pick a name for your HSC-200.

After this procedure, we should be able to access the HSC-200 via an URL, such as http://portal.casaiq.com/myhome.

The myhome is the name of your HSC-200. Usually, the HSC-200 will update its IP address to the portal every minute. If the information in not updated, the above link will report an error page instead.

9.2　Internet access wizard

9.2.1 Detect the internet gateway

The HSC-200 will get its IP from the DHCP server. If this is impossible for you, please contact the professional installer to setup the IP for you.

If HSC-200 can not contact the portal site www.casaiq.com, it will report this error to you. Please check your internet configuration and click the retry button.

9.2.2 Setup the forwarding rule

If you have **UPnP compatible** router, this step will be done automatically. Otherwise, a manual setup screen will help you to setup the router. If you are not familiar with this procedure, please contact the professional installer to do this job for you. The UI will give you all information about the forwarding rule.

For professional installer, you need to either enable the UPnP service in the router or setup a forwarding rule for the HSC-200. The external port is 2280 and the internal port is 2280 as well. Please remember to setup your router to assign the same IP to the HSC-200 every if you choice to setup a static port forwarding rule since it won't work if the IP of the HSC-200 changed.

If the port forwarding rule is not setup properly, you will see different error message when you access it from http://portal.casaiq.com/myhome. Please refer to the appendix for the complete list of error message.

9.2.3 Check the existence of internet

In this step, the HSC-200 will contact the portal site and determine the status of the internet access. If the port forwarding is not setup properly, it will warn you to change it.

9.2.4 Setup an account

Till now, your HSC-200 can be accessed from the internet directly. Setup an account in the portal can help you to access the HSC-200 more easily. The wizard will ask you to input an account name and a password. The portal will help you to access solve many routing issue of HSC-200.

9.2.5 Generate access USB drive

In this step, we can optionally create an USB drive which can access the HSC-200. When you insert the USB into a PC, it will execute the browser to connect to the HSC-200 automatically. If you disable the autorun for security issue. Please execute the starthsc icon in the USB drive.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the installation. , May cause harmful interference to radio communication. However, there is no guarantee that interference

Will not occur in a particular installation. if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Increase the separation between the equipment and receiver

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio / TV technician for help

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC RF radiation exposure statement:

1.this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter .
2.this equipment complies with FCC RF radiation exposure limits ser forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body .

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions
(1)This device may not cause harmful interference and
(2)This device must accept any interference received, including interference that may cause undesired operation