Hanwha Vision

IP AUDIO SERVER

User Manual

SPA-S1000

CE

IP Audio Server

User Manual

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※ **Appearance, specification, etc. of the product is subject to change for performance improvements without prior notice.**
The latest update is available on the official Hanwha Vision website. (www.HanwhaVision.com)

※ **The ID for the initial login is "admin," and a password should be set.**
Please change your password every three months to protect your personal data and prevent identity theft.
Please note that users are responsible for the security and other issues caused by insufficient password management.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.

CAUTION

CAUTION

RISK OF ELECTRIC SHOCK.
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

EXPLANATION OF GRAPHICAL SYMBOLS

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

ATTENTION

IL Y A RISQUE D’EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The ITE is to be connected only to (PoE/PoE+) networks without routing to the outside plant.

The wired LAN hub providing power over the Ethernet (PoE/PoE+) in accordance with IEEE 802.3af/at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.

Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102. As such, associated Ethernet wiring shall be limited to inside the building.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth.
   (Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
7. Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/ accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

13. To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions..
14. Unplug this apparatus during lighting storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. This product is intended to be supplied by isolation power.
17. If you use excessive force when installing the product, the product may be damaged and malfunction.
    If you forcibly install the product using non-compliant tools, the product may be damaged.
18. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table.
    This may cause damage to the product.
19. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance.
    Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
20. If you install/disassemble the product in a manner that has not been recommended, the production functions/ performance may not be guaranteed.
21. Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
22. Do not place this apparatus near conductive material.
23. Do not attempt to service this apparatus yourself.
24. Do not place a glass of water on the product.
25. Do not install near any magnetic sources.
26. Do not place heavy items on the product.
27. Please wear protective gloves when installing/removing the product.
    The high temperature of the product surface may cause a burn.
28. This device has been verified using STP cable. The use of appropriate GND grounding and STP cable is recommended to effectively protect your product and property from transient voltage, thunderstroke, communication interruption.
29. In particular installation environments, there might be interference in radio communications.
    When interference of electromagnetic waves occurs between the product and radio communication device, it is recommended to keep a certain distance between the two or change the direction of the receiving antenna..
30. An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
31. Batteries(battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like. The battery cannot be replaced.
32. Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.
33. Select an installation site that can hold at least 5 times the product's weight.
34. Stuck-in or peeled-off cables can cause damage to the product or a fire.
35. For safety purposes, keep anyone else away from the installation site.
    And put aside personal belongings from the site, just in case.
36. We do not guarantee the quality of third-party products (e.g. accessories) that you separately purchase.
37. When a PoE+ power supply is being used, high volume output may affect the system stability.

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

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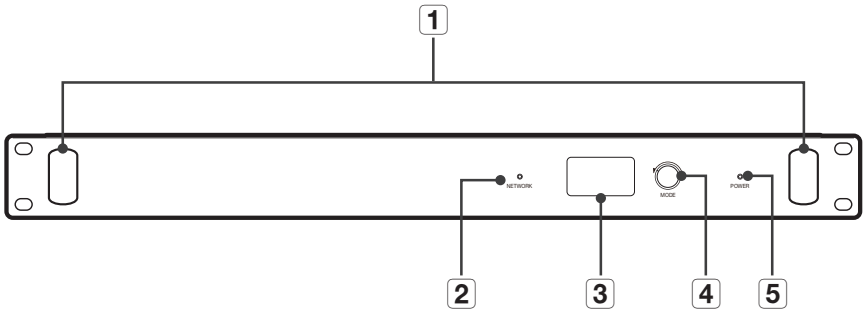
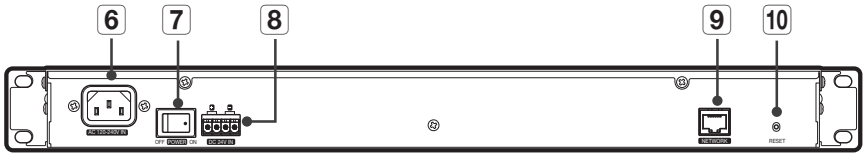
AT A GLANCE

Front



Rear



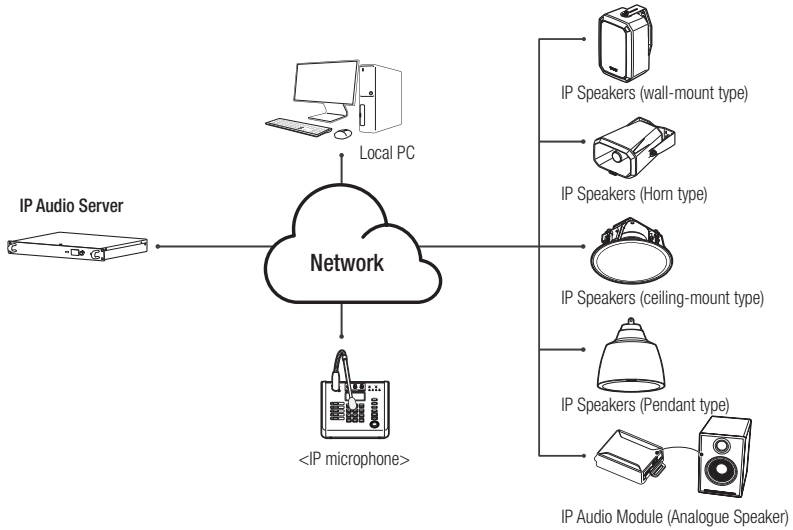
Name	Function Description
1 Rack handle	Use it when installing Audio Server.
2 Network Status LED	Indicates Network connection status.
3 Status indicator	Indicates Network information.
4 Mode selection dial	Network information can be checked with dial.
5 Power status LED	Indicates power connection.
6 AC Power code connection terminal	Provides AC Power.

Name	Function Description
7 Power switch	Power on/off switch.
8 Power input terminal (DC 24 V) DC	Power input terminal (DC 24 V) DC
9 Network Terminal	Connects Network cable.
10 RESET	A button that returns the product settings to the factory default values. Press the button for approximately 12 seconds to reset and reboot the product. ! Do not disconnect the power until product resetting is complete. Doing so may cause malfunctions. It will take up to 10 minutes to reboot the product after initializing it.

BROADCAST SYSTEM CONFIGURATION DIAGRAM

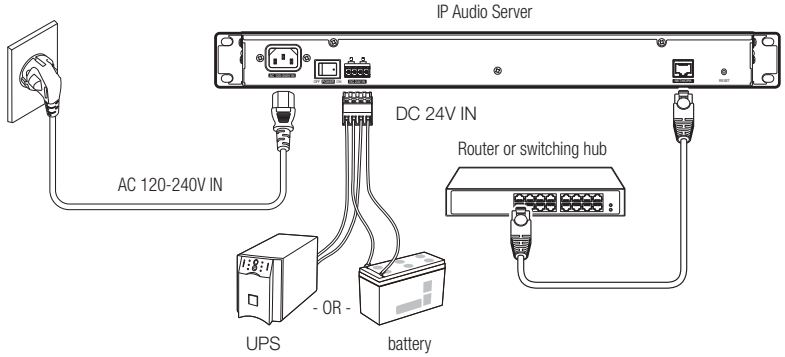
You can configure the broadcast system by connecting speakers or microphones to the audio server.

The audio server provides the same operating GUI with the controller mode speaker and it can control multiple speakers via button mode or the event & preset menu.



- There should be only one controller mode product in the broadcast system. If there are multiple controller mode speakers or audio servers and they are repeatedly registered, proper broadcasting cannot be performed.
- The IP audio module can be used as an IP speaker when connected to an analog speaker with a permissible input of 10W or higher and an impedance of 8 ohms.
- For the speaker, connect and use a switching hub that supports PoE or PoE+.
- Use PoE+ switch hubs that support the IEEE 802.3at standard.
- Use PoE switch hubs that support the IEEE 802.3af standard.

CONNECTING TO POWER AND A NETWORK



Connecting to Network

Connect the router or switching hub to the NETWORK port of the product using a network cable.

Connecting to Power

Connect the provided power cord to the power input socket (AC 120-240V IN).

- If auxiliary power is used, connect the output of the UPS or battery to (DC 24V IN).

Network Cable Specification

Item	Contents	Remark
Connector	RJ45 (10/100BASE-T)	
Ethernet	10/100BASE-T	10/100 Mbps
Cable	Category 5e	
Max Distance	100 m	DC Resistance ≤ 0.125 Ω/m

CONNECTING TO A PC

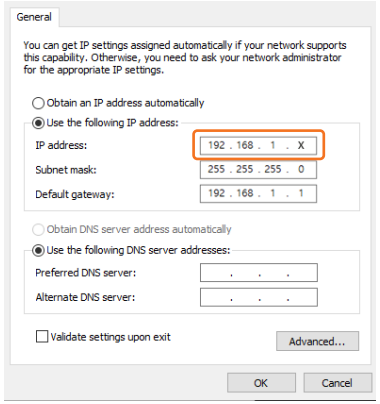
The PC should be connected to the same network as the product when accessing the product for the first time.
Use a network cable to connect the product to the switching hub that is connected with the PC.

- The Network microphone can receive power via PoE, or the DC power adapter can be used.

ACCESS PRODUCT

Various functions, including Operation Mode, System Settings, Maintenance, Environment Setting, and Operation Settings, are available on the product website.

1. Set an IP address to 192.168.1.x, the same band as the product, in the Network Property of the PC.



2. Run a web browser on the PC.

- An available web browser is Google Chrome (Version 92.0.4515.131 or higher).
  Google Chrome is available at www.google.com/chrome.
- It can be used in Chrome as it is a supported web browser. For the computer OS, it can be used in Windows 10 or Mac 11.6 (Big Sur) or 12.2 (Monterey).

3. The initial IP address of all products is 192.168.1.100.
   Before installing the product, it is recommended to set a static IP address for separate products.

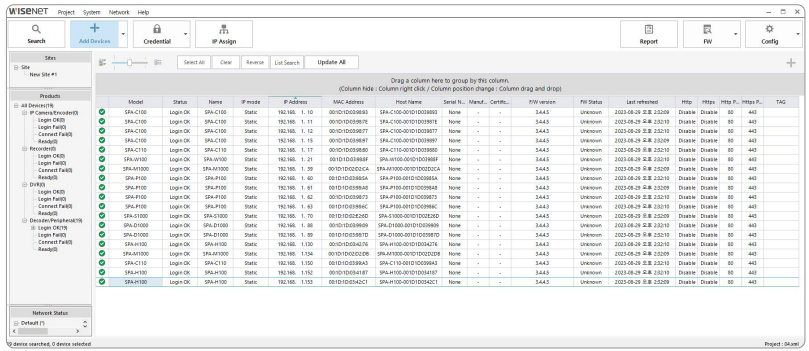
- If multiple products are connected concurrently to the same switch hub with the initial IP addresses, the web page cannot distinguish the IP addresses, resulting in failing to set passwords.
  Use Device Manager to set the initial password and IP address to use.

Registering using Device Manager

If the product is connected to a network which includes a computer where the device manager is installed, you can search products, set up passwords, change IP addresses, upgrade firmware, and access web pages.

Please refer to the manual of the Device Manager Program for more information.

- The Device Manager Program ( ) is available on the official Hanwha Vision website (https://www.HanwhaVision.com) by clicking <**Support**> - <**Online Tool**>.



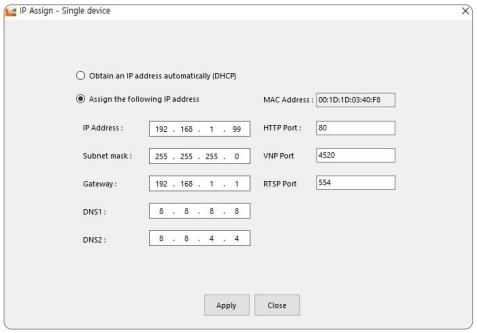
1. When you connect multiple products to the switch hub, their IP addresses are 192.168.1.100, and their status information are queried as <**Need PW**>.
2. Select one or multiple products and set a password to use for each product.
   - If they are not queried as <**Need PW**>, click <**New Project**> ➞ <**Search**>, and set the passwords after they are queried as <**Need PW**>.
   - If you set a password in the [**Credential**] menu and press [**Search**] on the list screen, the status information is queried as <**Connect Fail**>.
   - If you press <**New Project**> ➞ <**Search**>, the status information is queried as <**Ready**>. And if you press <**Search**> again, it is queried as <**Connect Fail**>.
3. When the password is set, the <**MAC Address**> of each product is queried.
   - The <**Host Name**> and <**Serial Number**> are queried when you log in using the [Credential] menu after an IP address is assigned to each product.

- A password should contain 8 or more characters, and if it contains fewer than 9 characters, then a combination of 3 or more English uppercase/lowercase letters, numbers, or special characters must be used. If it includes 10 to 16 characters, a combination of 2 or more types must be used.
- It is recommended not to use the same character repeatedly or consecutive keyboard inputs as passwords for enhanced security.
- If the initial password setting in the [**Credential**] menu fails due to a <**Timeout**>, set the initial password again after assigning the IP addresses of other products with <**Success**> in password setting.

4. Select a product to set its IP address, and enter the IP address to use (e.g., Set Static IP).

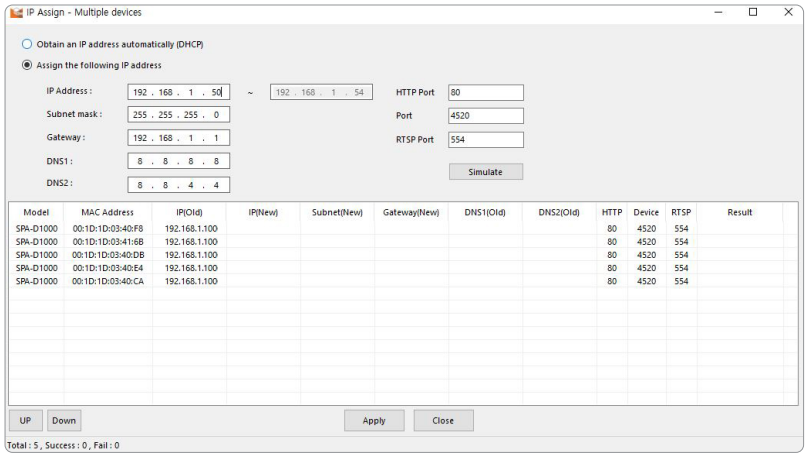
When you select products one by one

- Select <**Assign the following IP address**> from the [**IP Assign**] menu, then set its IP address.
- The DNS server address is automatically set as the product's initial DNS address (DNS1 8.8.8.8, DNS2 8.8.4.4).



When you select multiple products

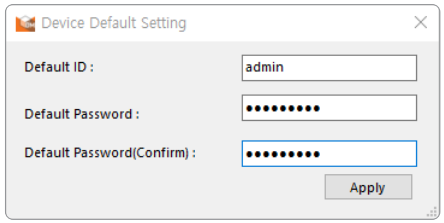
- Select <**Assign the following IP address**> from the [**IP Assign**] menu. Then apply the starting address in the range of IP addresses to be assigned.



- When you select <**Obtain an IP address automatically (DHCP)**> from the [**IP Assign**] menu, the DHCP IP address is automatically assigned.
- The HTTP port supports only the number 80, and the VNP and RTSP ports are not used in the IP audio product.

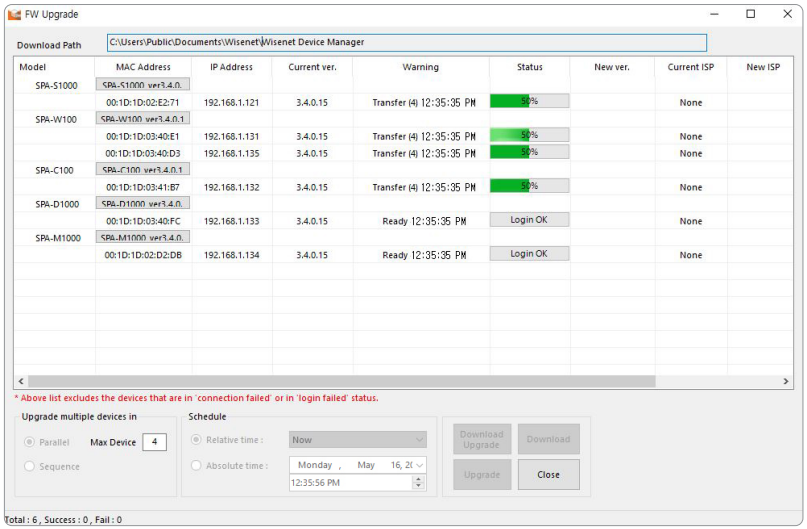
5. Products with IP addresses must be logged in from the [**Credential**] menu to be queried as <**Login OK**>.
   - When you execute <**New Project**> ➞ <**Search**>, authentication is canceled and the product is queried as <**Login Fail**>.

- If you apply the product password in <**System**> ➞ <**Device Default Credential setting**> in the device manager, it is automatically queried as <**Login OK**> even when you search for it as a new project or re-execute the device manager.

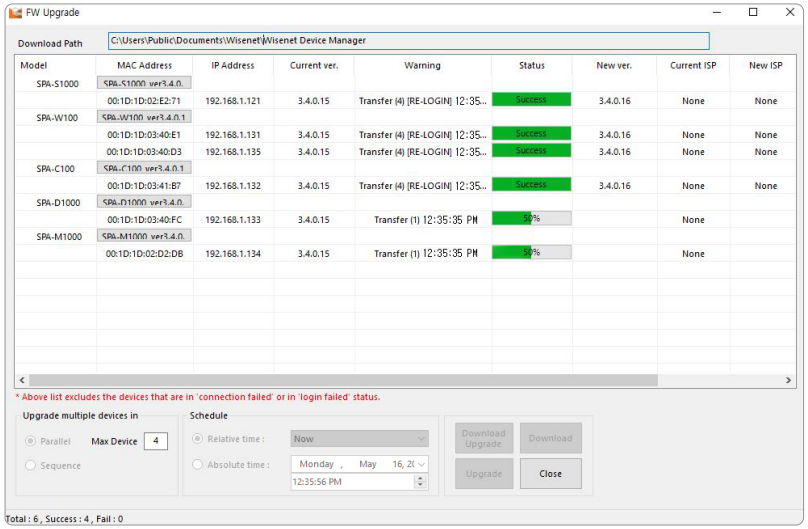


- You can update to the latest firmware for the product using the device manager.
  Select the searched product in the Device Manager and run <**FW Status Check**> in the [**FW**] menu to get the firmware status (the latest or previous version).
- Check the firmware distribution information for each product on the Hanwha Vision website (https://www.HanwhaVision.com) and download the latest firmware (modelname_version.imkp) to your PC.
  You can also download the latest firmware to your PC from Device Manager.

1. When selecting firmware for each product and running [**Upgrade**], the status will change from <**Login OK**> to <**Progress %**>.



2. When the firmware update and reboot are complete, <**Progress %**> is displayed until 100% and then <**Success**> is displayed.
3. If you update multiple products at the same time, the update will proceed sequentially by four units at a time.

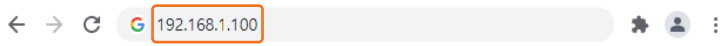


- The speakers share firmware, while the microphones and servers have their own firmware.
  The update will fail if inappropriate firmware is selected for the product.
  In such cases, please check whether suitable firmware has been chosen for the product and restart the update.
- The update failure status is indicated as follows:
  Speaker: The status LED on the main body blinks rapidly.
  Microphone: The 'Upgrading Wait' notification is displayed on the screen of the main body.
  Server: The 'Upgrading Error' notification is displayed on the screen of the main body.

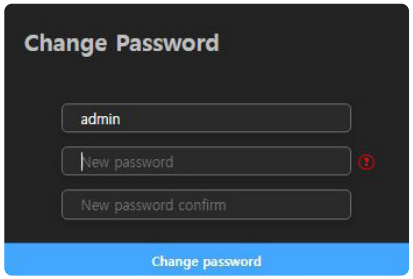
Registering with the product's initial IP address

If you connect only one product to the switch hub, it is possible to set up the password even on the web page.

1. Enter the product's initial IP address into the web browser's address bar.

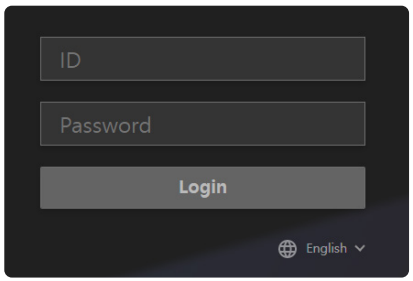


2. The admin account password must be registered when accessing the product for the first time. When the <**Change Password**> window appears, please enter a new password.



- A password should contain 8 or more characters, and if it contains fewer than 9 characters, then a combination of 3 or more English uppercase/lowercase letters, numbers, or special characters must be used. If it includes 10 to 16 characters, a combination of 2 or more types must be used.
- It is recommended not to use the same character repeatedly or consecutive keyboard inputs as passwords for enhanced security.

3. A product login screen appears after successfully setting the password.



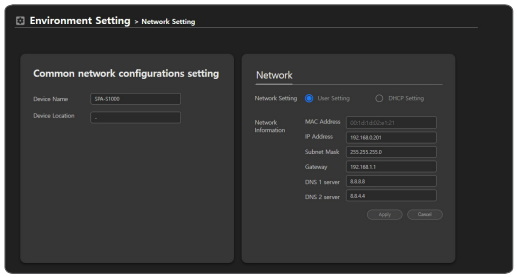
LOGGING IN

Use the password set for the admin account.

1. Enter "**admin**" in the **<ID>** field.
2. Enter a password in the <**Password**> field.
3. Click the **[Login]** button to move to the Home screen of the product.
   After 30 minutes of inactivity on the website, you will be automatically logged out.

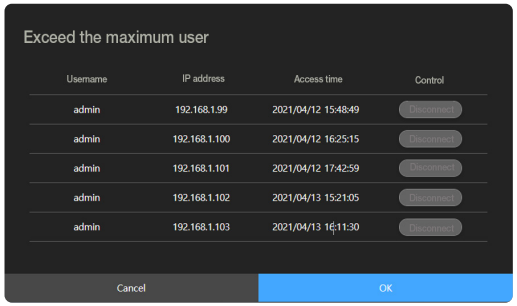
- If you forget the password, the product has to be initialized by pressing the RESET button for about 12 seconds. Therefore, make sure to write your password down or remember it.
  If you have already logged in, the system can be initialized in the <**Environment Setting**> ➞ <**System Management**> menu of the web page.
- **Do not disconnect the power** until the system initialization is complete after pressing the [**RESET**] button of the product or during product resetting. It will take up to 10 minutes to reboot the product after initializing it.

- To change the network settings according to the user's network connection configuration, use the <**Network Setting**> function in <**Environment Setting**>. (Page 15)



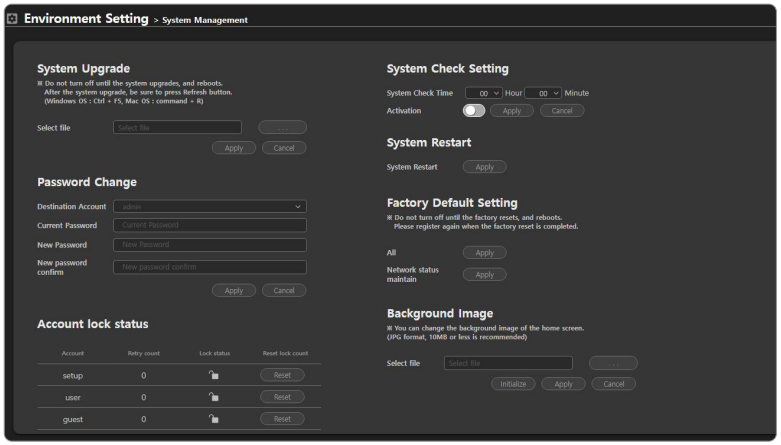
- Available accounts are divided into admin, setup, user, and guest by access authority level. Go to <**Environment Setting**> ➞ <**System Management**> ➞ <**Change Password**> to change the passwords of each account. (Page 12)

- A maximum of five users can log in to the product at the same time. The <**Exceed the maximum user**> screen will appear if there is an attempt to log in while the maximum number of users are logged in, and it will show the currently connected PC IP addresses.



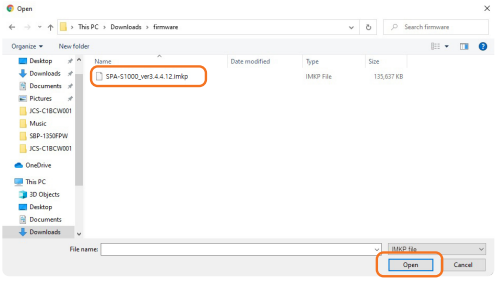
SYSTEM MANAGEMENT

Various functions are available, including System Upgrade, Change Password, System Check, Restart, and Reset.



Upgrading the System

1. Click **<Environment Setting>** ➞ **<System Management>** on the Home screen.
2. Click the [...] button in **<System Upgrade>**.
3. Select the upgrade file (model name_version.imkp) that you downloaded from the official Hanwha Vision website (https://www.HanwhaVision.com) in advance and click **[Open]**.



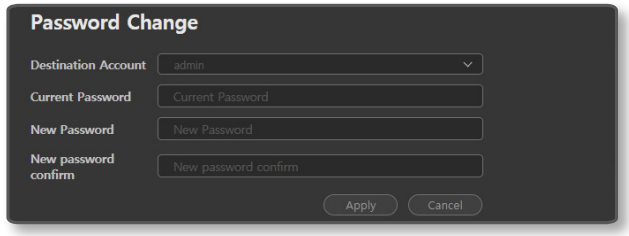
4. Click **[Apply]** to start System Upgrade. Click **<OK>** when the "**System Restart**" window appears after up to five minutes.

- If you close the web browser or move to another menu before the "Restart the Program" message pops up, it may not be updated.
- **Do not disconnect the power** in the middle of a system upgrade. Doing so may cause malfunctions.

5. It will take up to 10 minutes to upgrade the system and reboot the product.
   The software version information of the product is available in the upper-right corner of the Home screen.

Changing the Password

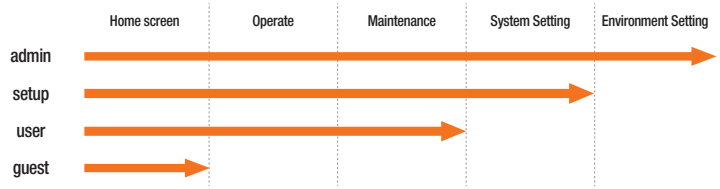
You can change the passwords of each account.



1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. By clicking <**Destination Account**> from <**Password Change**>, select the account you want to change and set the password.
3. Click the [**Apply**] button after entering a new password in the two input fields.
4. The admin account can be changed if you enter the previous password.
   If you forgot the previous password, the product has to be initialized, and the passwords for all the accounts will be initialized during the process.
5. The password of the setup, user, and guest accounts can be set, changed, or reset from the admin account if they are forgotten.

Viewing the supported menu by account

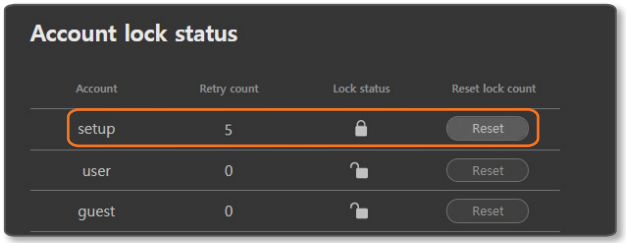
To prevent any confusion due to arbitrary changes to the settings and to continue stable maintenance of the system, access rights are differentiated by account, and all restricted features for each account are disabled on the screen.



- admin: You can use all the functions of the product.
- setup: You can use all the functions except for environment settings, such as System Upgrade, Change Network, Change Time, etc.
- user: Broadcast ON/OFF operation and product monitoring are available, and log records can be checked.
- guest: You can check the product information on the home screen.

Unlock Account

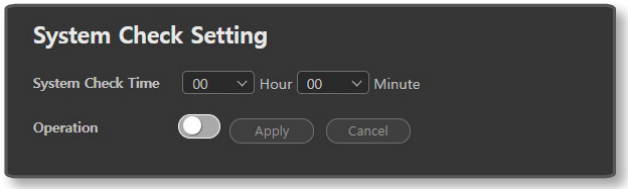
For all accounts except the admin account, if you enter the wrong password more than 5 times when logging in, the account will be locked for 30 seconds and you will not be able to log in.
The admin account can reset the number of retries by checking the number of login retries for each account and whether the account is locked.



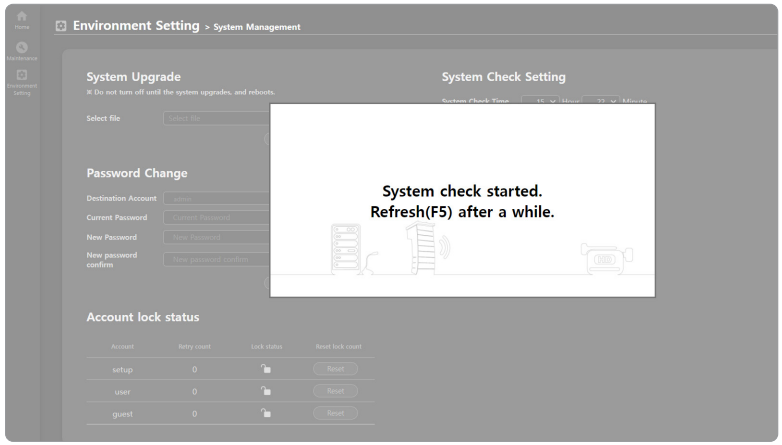
1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. Click **[Reset]** after checking the locked account on **<Account lock status>** The lock icon is changed to unlocked and the number of retries for the account is reset.

Setting the System Check Time

Sets the time for the system check. The system reboots automatically at the set time every day.

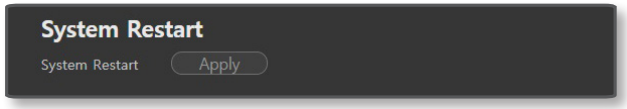


1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. Set the time to start checking in **<System Check Settings>**
3. Click **[Apply]** after clicking the [ ] button of **<Operation>**.
4. The system will be checked and be rebooted at the set time➞ it will take approximately 5 minutes.



Restarting System

You can restart the system without disconnecting the power when a system reboot is needed.



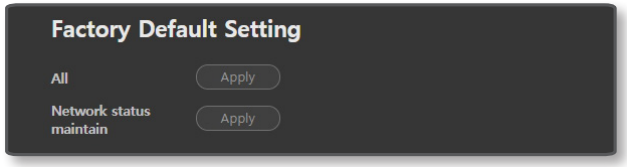
1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. Click the **[Apply]** button in **<System Restart>**.
3. Click **<OK>** when the system restarting window appears.
   It will take approximately 5 minutes to reboot the system.

Resetting the System

Initializes every system setting to the factory default values.
An IP address of the product is also initialized to the initial status, which is 192.168.1.100.

Please re-open the web page and access 192.168.1.100.

1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. If you click the [**Apply**] button of the <**All**> item on **<Factory Default Setting>**, all set values will be reset, and if you click the [**Apply**] button of the <**Network status maintain**> item, all set values except for network information will be reset.



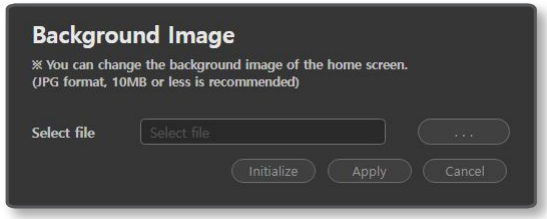
3. Click **<OK>** when the factory default window appears. Product initialization starts.
4. Click **<OK>** when the system start window appears on the web browser.

- **Do not disconnect the power** until the factory default settings are restored.
  It will take up to 10 minutes to restart and complete the execution of the internal daemon program after product initialization.

- When the system initialization is completed, previously registered product information should be deleted from the controller mode speaker or audio server (SPA-S1000), and you must register if you wish to use the product.
- As the log information will be deleted when the product's system is initialized, please download it in advance.

Applying Background Images

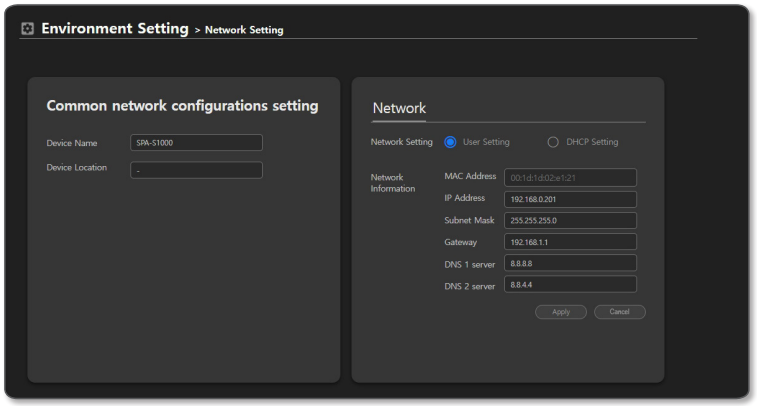
1. On the Home screen, click **<Environment Setting>** ➞ **<System Management>**.
2. Under <**Background Image**>, press the [...] button to select an image file, then click the [**Apply**] button.
3. Click the [**Initialize**] button to apply the initial image.



NETWORK SETTINGS

You can change the network settings according to the user's network connection configuration.

1. On the Home screen, click **<Environment Setting>** ➞ **<Network Setting>**.



- On the <**Common network configurations setting**>, the <**Device Name**> is displayed as <**Name**> on the device manager's query list.
- You can enter the location of installation in <**Device Location**> in <**Common network configurations setting**> (e.g. 6th floor, Main Building)
- You can enter the IP address, subnet mask, gateway, DNS 1 and DNS 2 server addresses for the product by selecting <**User Setting**> in <**Network Setting**>.
  - MAC address: The unique physical address of the product. (e.g. Starts with 00:1d:1d.)
  - IP address: Enter the IP address available in your network band.
  - Subnet mask: The subnet mask of the set IP address is indicated.
  - Gateway: The gateway of the set IP address is indicated.
  - DNS 1 server, DNS 2 server: Enter the primary DNS address and secondary DNS address.
- The IP, subnet mask, gateway, DNS 1 and DNS 2 server addresses for the product will be allocated automatically from the DHCP server by selecting <**DHCP Setting**> in <**Network Setting**>.

- When changing back to user settings after DHCP setting, you should enter an available IP address.

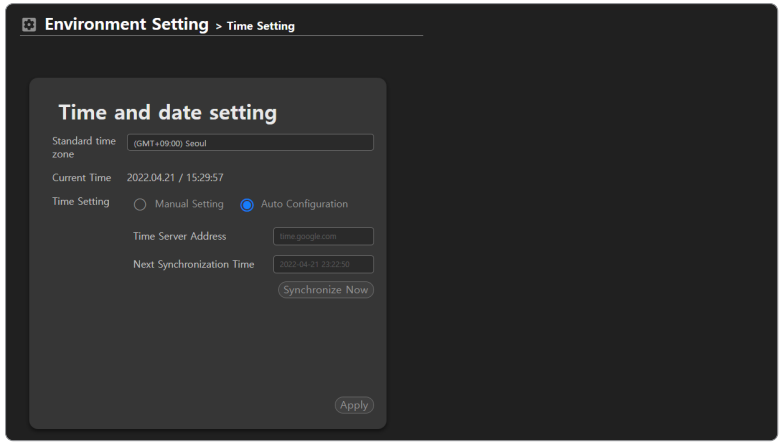
- Click [**Apply**] to apply the set network information to the product.
- Click [**Cancel**] to return to the most recent status before changing settings.

- The system restarts automatically if the network settings are changed.

TIME SETTINGS

Set the time and date accurately or it may cause problems in operating the broadcast.

1. On the Home screen, click **<Environment Setting>** ➞ **<Time Setting>**.



- The current time is set if you select GMT of your location on <**Standard Time Zone**>
- For the local network which is not connected to the external Internet, select <**Manual Setting**> in <**Time Setting**> and enter the time manually to use it.
- If it is connected to the external Internet, select <**Auto Configuration**> in <**Time Setting**> to synchronize the time to the standard time of the time server.
- For the domain address in the <**Time Server Address**> input field, use time.google.com / time.apple.com / pool.ntp.org / north-america.pool.ntp.org / time.bora.net / clock.isc.org.
- Please check if the domain address provides time information which reflects Daylight Saving Time.
- <**Next Synchronization Time**> automatically changes from the previously synced time every 8 hours.
- Click [**Synchronize Now**] to synchronize the time to the time server.

2. Click [**Apply**] to apply the set Time and Date information.

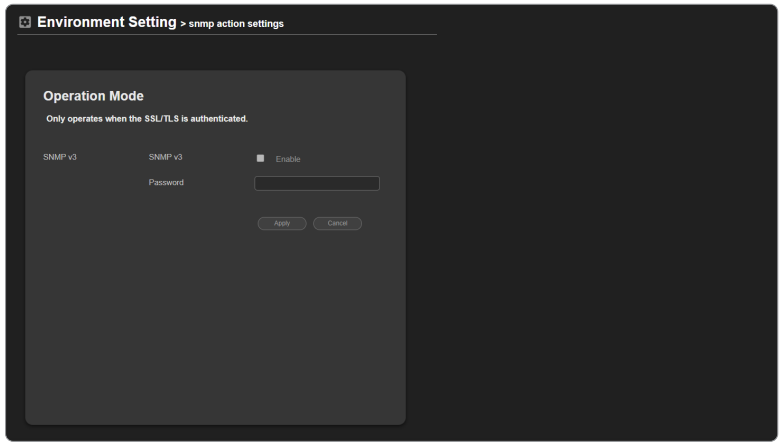
- If the product is used in a local network environment without an external Internet connection, the time information may become incorrect due to the product's accumulated time errors. To accurately schedule the broadcasting time, we recommend installing a separate time server device using GPS signals or enter the audio server IP (SPA-S1000) with high time accuracy into the <**Time Server Address**> field of other products to synchronize the time information with the audio server.
- If there is a product connected to an external Internet, enter the IP address of the product in the <**Time Server Address**> field of other products before using them.
- IP audio products are not synchronized with the OS time of the PC.

- If the product is used in a local network environment without the external Internet connection, Daylight Saving Time is not automatically reflected as it is not synchronized with an external time server.
- In countries where Daylight Saving Time is applicable, it is recommended for the system administrator to use the product by changing the time manually for the start and end dates of the Daylight Saving Time.

SNMP ACTION SETTINGS

The SNMP protocol allows system or network administrators to remotely monitor and configure the network devices.

1. On the Home screen, click **<Environment Setting> ➞ <snmp action settings>**.



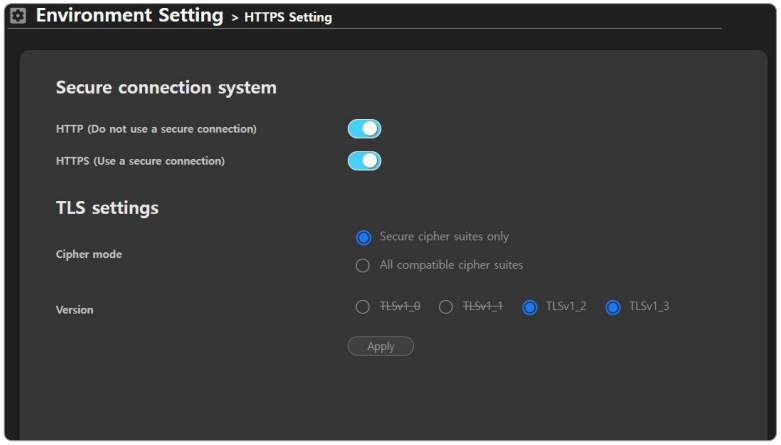
- Use SNMP v3: SNMP v3 is used.
  - Password : Set the initial user password for SNMP v3.
    The initial password is insecure, so we recommend that you change it to a new password.
    The password must be between 8 and 16 characters long, and some special characters (\, l, <, >, ', ", /, ?) are not allowed.

- To use SNMP v3, select <**HTTPS (Use a secure connection)**> from <**Environment Setting**> ➞ <**HTTPS Setting**> ➞ <**Secure connection system**>. If SNMP v3 is not used, it may result in a security issue.

HTTPS SETTING

Select a secure connection system. When you complete the configuration, click the [**Apply**] button.

1. On the Home screen, click **<Environment Setting> ➞ <HTTPS Setting>**.

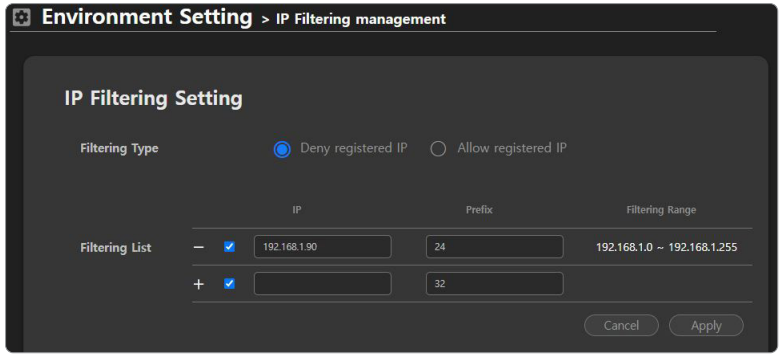


- Secure connection system : Select an appropriate secure connection system in consideration of the security level. HTTPS (Hypertext Transfer Protocol over Secure Socket Layer) sends and receives data through the process of encoding/decoding users' page requests over SSL sub layer under hypertext transport agreement layer. Therefore, this mode is safer than HTTP mode in terms of security.
  - HTTP (Do not use a secure connection) : Select this to send data without HTTP encryption.
  - HTTPS (Use a secure connection) : Select this to connect in HTTPS secure connection mode.
- TLS settings : Sets Cipher mode or TLS version to use for encrypted communication.
  - Cipher mode: Provides cipher suites by combining various algorithms to use for TLS-encrypted communications, such as key exchange, authentication, and encryption. To use only cipher suites with a high level of security, select <**Secure cipher suites only**>. To use cipher suites with backward compatibility although less secure, select <**All compatible cipher suites**>. <**All compatible cipher suites**> includes both secure and not secure cipher suites.
  - Version : Selects the TLS protocol version to use for encrypted communication.
    If <**Secure cipher suites only**> is selected for <**Cipher mode**>, you can select only TLS 1.2 or TLS 1.3. If <**All compatible cipher suites**> is selected, you can select any option you want out of all TLS versions.

IP FILTERING MANAGEMENT

You can prepare an IP address list to allow or reject the connection for a specific IP.

1. On the Home screen, click **<Environment Setting> ➞ <IP Filtering management>**.



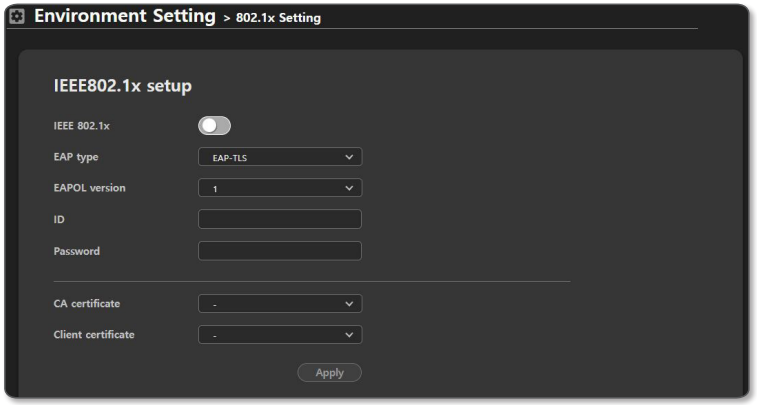
- Filtering Type
  - Deny registered IP: Denies access for a registered IP.
  - Allow registered IP: Allows access for a registered IP
- Filtering List : Enter the IP and Prefix information. The filtering range for the entered information will be displayed.
  - IP address : Displays the registered IP address.
  - Prefix : Displays the prefix to be filtered.
  - Filtering range : If you enter an IP address or prefix, then the range of IP addresses blocked or permitted will be displayed.
- Click the [**Apply**] button to save the entered information in the list.

- To register an access-allowed IP, you must register the IP currently connected to the device.
  The currently connected IP address cannot be registered as [**Deny registered IP**].

802.1x SETTING

You can select whether or not to use the 802.1x protocol when connecting to a network.

1. On the Home screen, click **<Environment Setting>** ➞ **<802.1x setting>**.

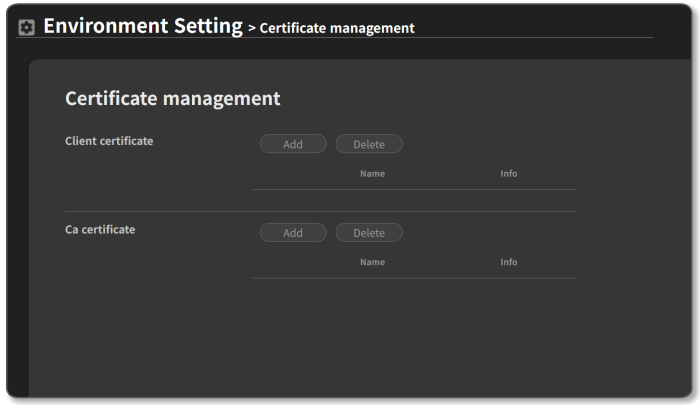


- IEEE 802.1x : To use the IEEE 802.1x protocol when connecting to a network, click the button to enable it.
- EAP Type : EAP (Extensible Authentication Protocol) is a protocol that allows easier extension using the authentication method defined by wireless network and Point-to-Point Protocol. It is recommended to be used only in an environment where EAP-TLS, PEAPv0/MSCHAPv2 cannot be used since LEAP is an insecure authentication method.
  - EAP-TLS: EAP-TLS (Transport Layer Security) carries out mutual authentication that requires a client certificate with the server➞ a dynamic WEP key is used for security after connection is made.
  - LEAP: LEAP (Lightweight Extensible Authentication Protocol) does not require certificates and uses only a dynamic WEP key, so a strong password should be used.
  - PEAPv0/MSCHAPv2: PEAP/MSCHAPv2 (Protected Extensible Authentication Protocol/Microsoft Challenge Handshake Authentication Protocol) authentication performs authentication based on the ID and password of user through an EAP-TLS session generated from the server-side authentication only.
- EAPOL version : Select the version of **[EAPOL]** (EAP over LANs) between **<1>** and **<2>**.
- ID : Enter your client certificate ID for **[EAP-TLS]** and enter your user ID for **[LEAP]** and **[PEAPv0/MSCHAPv2]**.
- Password: Enter your client private key for [EAP-TLS] and enter your user password for [LEAP] and [PEAPv0/MSCHAPv2]. This is not necessary if an unencrypted key is used in [EAP-TLS].
- CA certificate : Select the CA certificate you want from the certificate list.
  The CA certificate displayed is the one registered in <**Environment Setting**> ➞ <**Certificate management**>➞<**CA certificate**>.
- Client certificate : Select the client certificate you want from the certificate list. The client certificate is a certificate created/applied and used by users.
  The client certificate displayed is the one registered in <**Environment Setting**> ➞ <**Certificate management**>➞<**Client certificate**>.

CERTIFICATE MANAGEMENT

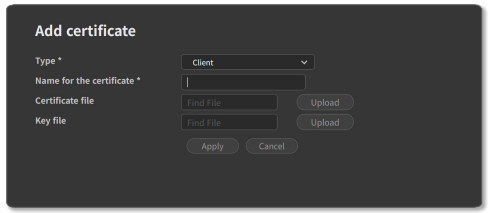
Certificates may be added or deleted. They can be divided into either CA certificate or client certificate and managed separately.

1. On the Home screen, click **<Environment Setting>** ➞ <Certificate management>.



Client certificate

User certificate may be installed or deleted. If the user has a certificate file and key file, the certificate can be registered. The user can also create a certificate file by filling out the certificate details.
i Clicking the button shows the certificate information.



Adding a client certificate

1. Click the [**Add**] button.
2. If you have a certificate file, select <**Client**> from the <**Type**> options in the <**Add certificate**> dialog, and perform the following:
   - Name for the certificate: Enter the certificate name. You can enter up to 31 characters, and special characters, Korean, Chinese, and blank spaces are not allowed.
   - Certificate file: Click [**Upload**] and select the certificate file.
   - Key file: Click [**Upload**] and select the auth key file.

3. To create a certificate, select **<Self-signed>** among **<Type>** options in the **[Add certificate]** dialog and set each item.

4. In the <**Add certificate**> dialog, click the <**OK**> button to save the entered information in the list.

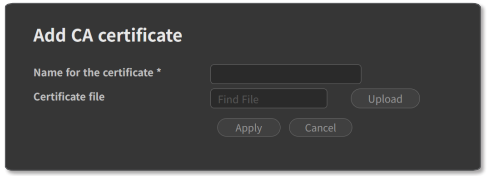
Deleting a client certificate

1. Select the client certificate to delete.

2. Click the <**Delete**> button.

CA certificate

CA certificate may be installed or deleted. CA certificate is a certificate issued by the Certificate Authority (CA). [i] Clicking the button shows the certificate information.



Adding a CA certificate

1. Click the [**Add**] button.

2. In the <**Add CA certificate**> dialog:
   - Certificate name: Enter the certificate name.
   - Certificate file: Click [**Upload**] and select the certificate file.

3. In the <**Add CA certificate**> dialog, click the [**OK**] button to save the entered information in the list.

Deleting a CA certificate

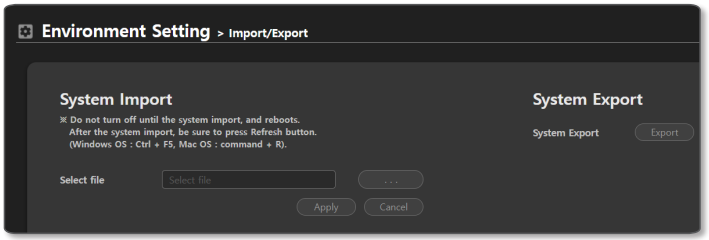
1. Select the CA certificate to delete.

2. Click the <**Delete**> button.

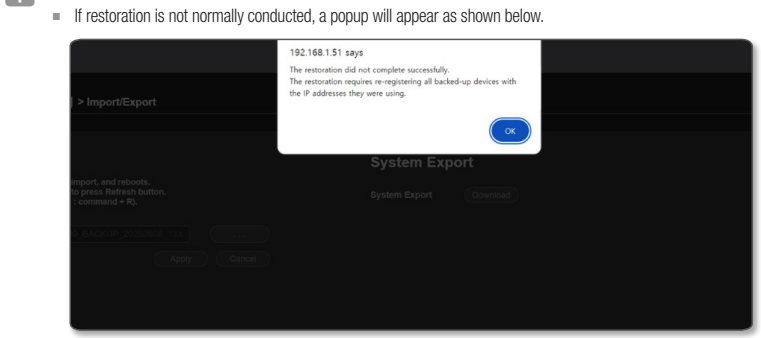
IMPORT/EXPORT

You can backup and save the current product setup or restore a desired configuration. You can create a number of backup files for desired configurations, or restore and use a desired configuration according to the purpose or environment when using the product.

1. On the Home screen, click **<Environment Setting>** ➞ **<Import/Export>**.



- When you click the [**Export**] button, a backup file of 'model name Config.bin' will be created.
- When you click the [. . .] button, a window where you can select a backup file to restore will appear. When you select a backup file and press the [**Apply**] button, the configuration will be restored based on the relevant backup file.



- To restore settings, be sure to re-register the devices that were registered before backup.
- If restoration is not normally conducted, a popup will appear as shown below.

This is a server which can control audio products connected in the network.
To use it as a controller device, the CP of the speakers, the functions of BGM, CHIME, and TTS, have to be set up in advance.

HOME SCREEN CONFIGURATION

The product settings are available on the web page.

	Name	Function Description
1	Home	Goes to the Home screen.
	Operate	You can turn broadcast operation ON/OFF using the device, Audio Monitoring, Button mode, and control mode.
	System Setting	Registers the device, source, and zone and sets the Event & Preset and annual schedules.
	Maintenance	Checks Failure History Management and Logs of the device.
	Environment Setting	The System Management, Network, Time, Device Information, HTTPS Setting, IP Filtering Management, 802.1x setting, Certificate management, Import/Export etc. can be set.
2	Product Model Name	Displays the device's model name.
3	Product Information	The IP address, device name, device location, and firmware version are displayed.
4	Connected Account/Login	Shows a connected account and its login status.
5	Time Information	The connection time to the web page menu, product cumulative operating time, and product time will be displayed.
6	License	The open source license notification is displayed.
7	Language	Shows the language options supported on the website. (Korean, English supported)
8	Go to the Official Website	If you click <**Hanwha**>, the screen will move to the Hanwha Vision Official Website.

- The optimal monitor resolution is 1920x1080.

OPERATION MODE

Device Monitoring

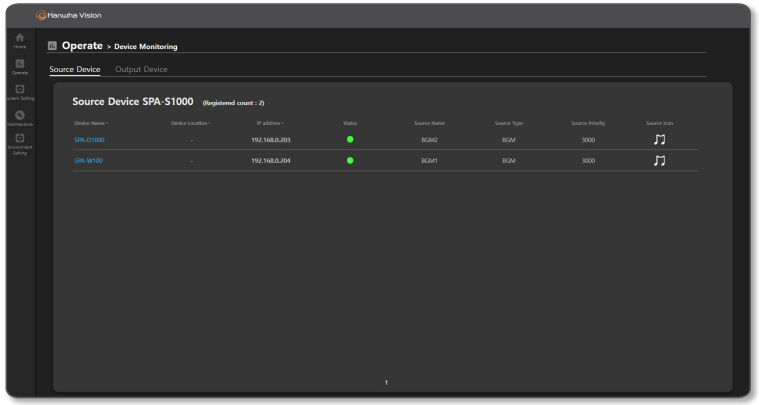
You can monitor the status of the source device and output device connected to the product.

- To monitor a device, the <**Device Registration**>. <**Source Registration**>, <**Zone Registration**> should be set in <**System Setting**>.

Source Device

The speakers registered as the audio <**Source**> will be displayed in the Source Device list. <**Source**> means one speaker set as a source device.

1. On the Home screen, click **<Operate> ➞ <Device Monitoring>**.
2. Click the **<Source Device>**.
   - The number of the devices registered as the Source Device will be displayed.

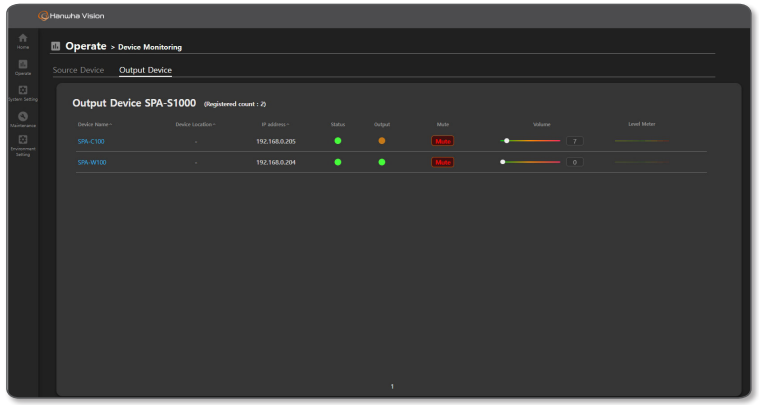


- Device Name: Displays the name of the source.
- Device Location: Displays the location of the source device.
- IP address: Displays an IP address of the source device.
  If you click the IP address, you can go to the website of the device.
- Status: Displays the connection status of the source device.
  - : When the device is connected normally
  - : When there is interference with device connection
- Source Name: The name of the Source Device will be displayed.
- Source Type: The source type of the Source Device will be displayed.
- Source Priority: The priority of the Source Device will be displayed.
- Source Icon: The setup icon of the Source Device will be displayed.

Output Device

The speakers registered as the <**Zone**> of the area for broadcasting will be displayed in the Output Device list. <**Zone**> refers to one speaker set as an output device.

1. On the Home screen, click **<Operate>** ➞ **<Device Monitoring>**.
2. Click the **<Output Device>**.
   - The number of devices registered as the Output Device will be displayed.

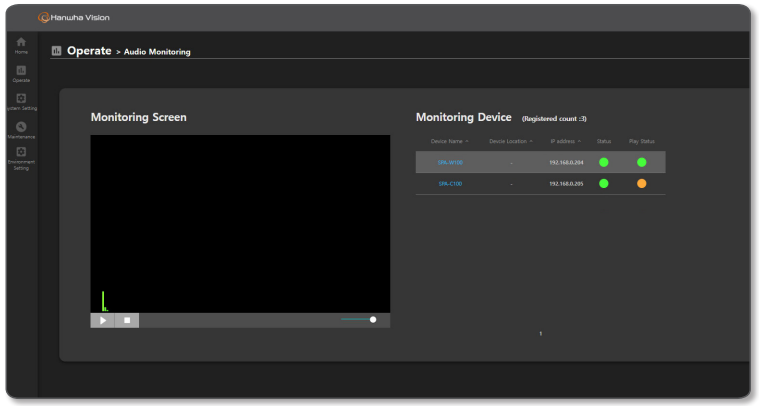


- Device Name: Displays the name of the output device name.
- Device Location: Displays the location of the output device.
- IP address: Displays the IP address of the output device.
  If you click the IP address, you can go to the website of the device.
- Channel : The channel will be displayed.
- Status: Displays the connection status of the output device.
  - : When the device is connected normally
  - : When there is interference with the device connection
- Output: Displays the play status of the output device.
  - : When the device plays audio
  - : When the device does not play audio
- Mute: If the [**Mute**] button is turned on, the audio source will not play in <**Operate**> ➞ <**Button Mode**>.
- Volume: Move a control bar to adjust the volume.
  If the volume is adjusted, the speaker volume of the <**Button mode**> property is reflected on the same level.
  When the volume is adjusted, its output volume will be reflected at the same level in the <**Operation Settings**> ➞ <**DSP Setting**> of the Output Device speaker.
- Level Meter: A signal value being played is indicated as a level meter.

Audio Monitoring

You can monitor the status of the Output Device speakers registered in the <**Zone**> of the area to broadcast.

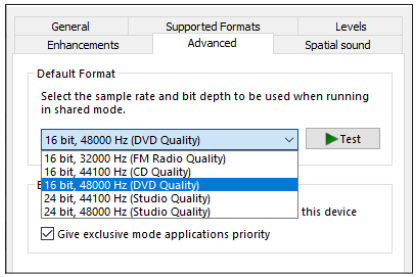
1. On the Home screen, click <**Operate**> ➞ <**Audio Monitoring**>.



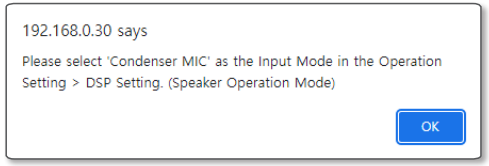
- Device Name: Displays the name of the output device.
- Device Location: Displays the location of the output device.
- IP address: Displays the IP address of the output device. If you click the IP address, you can go to the website of the device.
- Status: Displays the connection status of the output device.
  - : When the device is connected normally
  - : When there is interference with the device connection
- Play Status: Displays the amp output status of the speaker.
  - : Amp output is On
  - : Amp output is Off
- Monitoring Screen: Select a device to monitor and press the [**Play** (▶)] button, then the audio signals detected by the device microphone will be visualized.
  You can also listen to sound sources detected by the device's microphone from speakers connected to your PC.
- Volume Control: The monitoring volume can be adjusted.

■ The SPA-D1000 audio module requires an external microphone to be connected to the microphone terminal on the bottom of the product for audio monitoring.

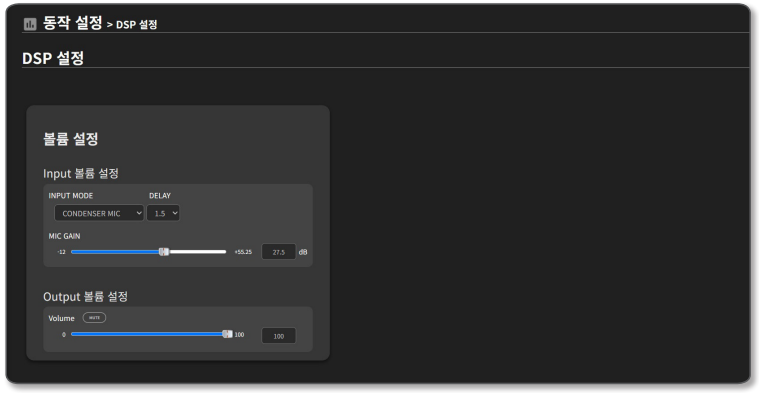
- The output monitoring device can be controlled by clicking [**Play**] and [**Stop**].
  - The audio automatically stops 1 minute after it starts playing.
  - Repeatedly clicking the [**Play, Stop**] buttons within a second may cause abnormal operation.
  - When you click the [**Play**] button, if there is a pop-up message stating that "The sample rate of the output device is not currently set to 48 kHz. Please change the settings.", please change the sample speed and the bit level to 16bit, 48000hz in the Audio Device Management Setup Menu of the PC Control Panel.



- After seeing the "**Please select 'Condenser MIC' as the Input Mode in the Operation Setting > DSP Setting. (Speaker Operation Mode)**" pop-up message when you click the [**Play(▶)**] button, connect to the device and run it.



- In Speaker Mode, select **CONDENSER MIC** for **INPUT MODE** in Operation **Setting** > **DSP Setting**. In **Controller Mode**, switch to **Speaker Mode**, select **CONDENSER MIC** for **INPUT MODE**, and switch back to **Controller Mode**.
  - DELAY : You can set the operation delay time of the MIC mounted on the IP speaker from 0 to 3 seconds in 0.5 second intervals.



Button Mode

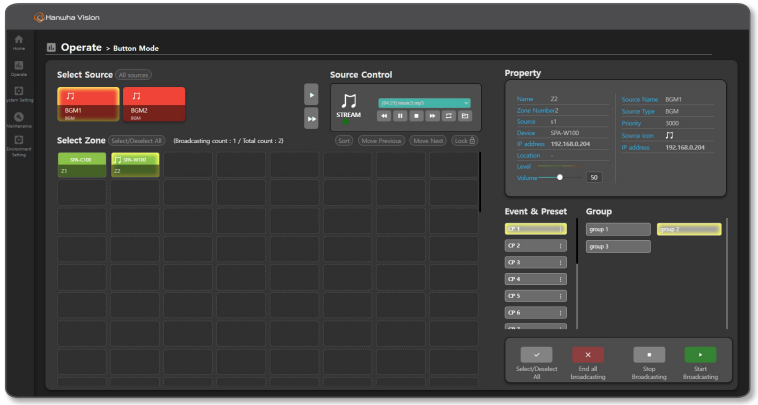
You can broadcast either by selecting the buttons of the source device and output device connected to the product or by the set Event & Preset and Group formats.

If you set the transmission mode of the source device to Multicast and broadcast the BGM sound source of the source device to the output device, the Multicast IP address and the port information of the source device will be sent to the zone device and appear on <**BGM Streaming**> ➞ <**Broadcast Client**>.

If you want to use a button mode in a controller mode speaker or server, you must not change the transmission method or operation information of the source or zone speaker in <**BGM Streaming**> ➞ <**Broadcast Server**> or <**Broadcast Client**>.

If you press an ID number that is set for a zone or a group on the microphone (SPA-M1000) while broadcasting a sound source in <**Button Mode**>, the output device can transmit the microphone instead of the sound source.

1. Click <**Operate**> ➞ <**Button Mode**> on the Home Screen.



- Select Source: Connected source devices can be selected.
  - The Source Name and Source Type set up in the <**Source Registration**> will be displayed. The selected source device will be displayed as highlighted.
  - If you click the [**All Sources**] button, all connected source devices will be displayed.
  - If you click [▶], the source device will be shown as being moved one by one. If you click [▶▶], it will switch to the last source device.

- Source Control: BGM or TTS lists of the selected source device are displayed.
  When you select a zone speaker to broadcast and select <**Start Broadcasting**> or <**Stop Broadcasting**>, the broadcast readiness will be displayed in the source control window.
  - ● : When the <**Start Broadcasting**> button is pressed (Button Mode broadcasting Standby)
  - ● : Initial status or when the <**Stop Broadcasting**> button is pressed

<BGM Control Window>

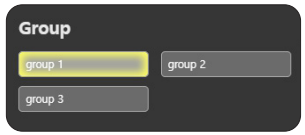
<TTS Control Window>

  - ◀◀ ▶▶ : While all the audio sources in the BGM list are played by pressing the [ ] button, if you press either the [◀◀] button or [▶▶] button, the previous or next audio will be played.
  - ▶ : It will play or temporarily pause the selected audio source.
  - ■ : It will stop playing the audio source.
  - : It will repeat playing the current audio source or all the sound sources.
  - : It will play from the first audio source in the list to the last one.

- Check the <**CTRL**> box in the <**System Setting**> ➞ <**Source Registration**>, and select the <**Source Type**> and <**CTRL Type**> to display the Source Control Window.
- When you play the sound source in <**BGM Control Window**>, the <**Broadcast Client**> operation of the zone output device is executed, and it is displayed in the level meter. When you stop playing the sound source or pause it, the level meter also stops.

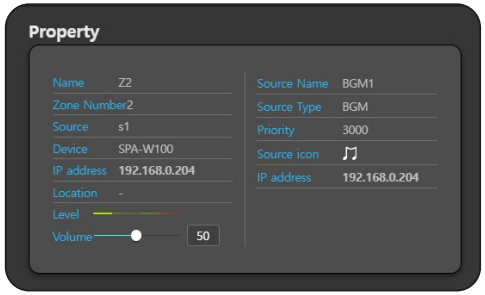
- Select Zone: An output device in the connected zone can be selected. The selected zone will be displayed as highlighted. When you select the Source Device and Output Device and click the [**Start Broadcasting**] button, the BGM or TTS icon will be displayed in the Output Device.
  - If you click the [**Select/Deselect All**] button, all connected zones will be selected or deselected.
  - When you click the [**Sort**] button, they will be sorted in the order of <**System Setting**> ➞ <**Zone ID**> of <**Zone Registration**>. The Zone button can be moved by drag and drop.
  - If you click the [**Move Previous**] and [**Move Next**] buttons, it will switch to the selected devices one by one.
  - If you click the [**Lock**] and [**UnLock**] buttons, the zone selection layout can be locked or unlocked.

- Group : You can select an output group among the set groups, and duplicate selection is also possible.
  The selected group will be displayed as highlighted.
  When you select the Source Device and group and click the [**Start Broadcasting**] button, the BGM or TTS icon will be displayed in the Output Device.



- Property: If you select a source device or zone device, information for each device will be displayed.
  The output of the audio being played is indicated by a meter, and the volume can be adjusted.

- When you press each [**Zone**] button, its speaker information value will be displayed on the <**Property**> menu, and you can directly control the <**Volume**>.
- The speaker volume of the <**Property**> menu is linked to the volume of <**Device Monitoring**> ➞ <**Output Device**>.
- The speaker volume of the <**Property**> menu is linked to the volume of <**Output Volume Setting**> of the <**Operation Setting**> ➞ <**DSP Setting**> of the device.
- When you click only the source, its details are displayed in the source portion of the <**Property**>. When you click a zone, details on the zone and broadcasting source will be displayed if it is on air, while only details on the zone will be displayed if it is not on air.

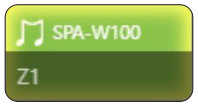


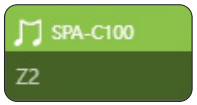
- If you click the [**Select/Deselect All**] button, all connected zones will be selected or deselected.
- If you click the [**End all broadcasting**] button, all the regions' broadcasting which use the source will stop broadcasting. Broadcasting to the region does not stop by pressing the <**Event & Preset**> button. The [**Event & Preset**] button must be clicked and disabled to stop broadcasting.
- If you click the [**Start Broadcasting**] button and play audio on the STREAM or TTS window of the <**Source Control**>, the selected audio of the source device will broadcast through the output device of the selected zone.
- If you click the [**Stop Broadcasting**] button, the selected region's broadcasting will stop.

- Feedback is caused if you adjust the <**DSP Setting**> ➞ <**Input Volume Setting**> of zone output speakers after TTS audio broadcasting is over or while it is paused. (Only when the same speaker is selected for the source and zone purposes in button mode.)
  Make sure to adjust the <**DSP Setting**> ➞ <**Input Volume Setting**> of the zone output speakers only when they are in the [**Stop Broadcasting**] status.

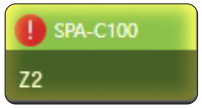
- Event & Preset: Select the contact closure (CP) number set in the <**Event & Preset**> menu to use this menu.
  - When contact closure events (up to 16) are registered in <**System Setting**> ➞ <**All Event & Preset List**>, the contact closure number will be displayed.
  - If you click the Contact Closure Number, the event broadcasting configured to the zone will be transmitted without running [**Start Broadcasting**].
  - If you click the Contact Closure Number, a musical note will be displayed on the zone device button selected in the <**Broadcasting Routing**> or <**Local File Play**> of <**Event & Preset**>.
  - The contact closure output signal can be turned off by turning Off the contact closure number.
  - If you click the [⋮] button on the right of the preset number, you can change the preset name.

- As the zone with the musical note in the zone button box is broadcast even if they are not highlighted, ensure running [**End all broadcasting**] and reconfigure it.
  The zone device which can be broadcast is displayed as (Broadcasting count / Total count).





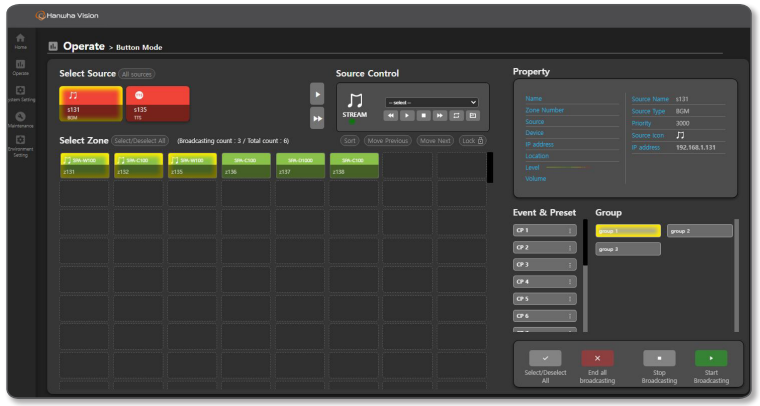
- If the ! icon is displayed on the registered device, please check the network status of the device.

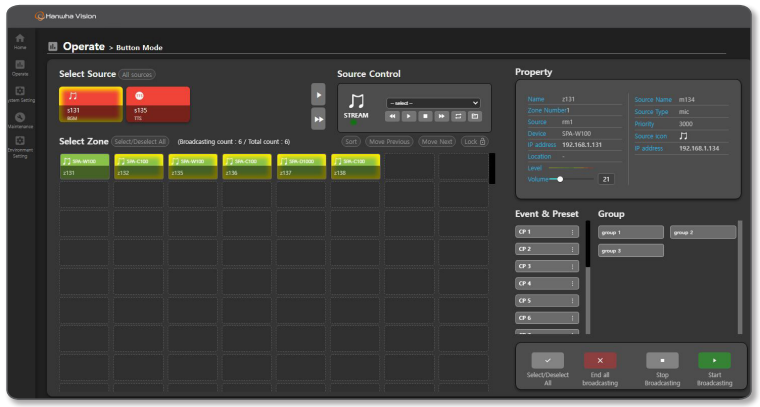


- If you manually control the speakers in <**Speaker Mode**> while running all the broadcasts with the <**Controller Mode**> speaker, an error may occur, so please be cautious.

- Even if the Controller Mode speaker is turned off during a Button Mode broadcast, the source speaker and zone speaker work normally, so the sound source continues to play.
  If the Controller Mode speaker (if set as a zone speaker) is subsequently turned on, the sound source is skipped.
- If the source speaker is turned off during a Button Mode broadcast, all zone speakers stop broadcasting the sound source.
  If the source speaker is subsequently turned on, the sound source automatically plays again from the beginning.
- If the zone speaker is turned off during a Button Mode broadcast, only that zone speaker stops broadcasting the sound source.
  If the corresponding zone speaker is subsequently turned on, the sound source plays in synchronization with the other speaker.
- During a Button Mode broadcast, if the PAUSE button is pressed to pause playback or the STOP button is pressed to stop playback, auto play does not work.

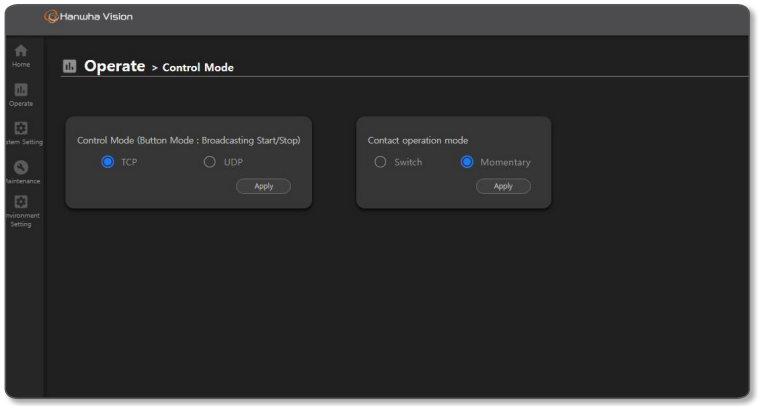
- If you press the number which is set as Zone or Group mode on the microphone device during the broadcast of the sound source in <**Button Mode**> and run the <**Talk**> function, the speaker transmits the microphone's audio instead of broadcasting the sound source.
- In order for the microphone to transmit the voice inputs while broadcasting, the microphone's priority must be higher than that of the source speaker running in the <**Button Mode**>
- The speaker which transmits the microphone's audio displays the microphone's information in the source information of <**Property**>, and it is converted to the speaker information when <**TALK**> is stopped in the microphone.





CONTROL MODE

Functions such as Control Mode (to control zone devices in Button Mode) and Contact Closure Operation Mode (to control event contact closure) are available.



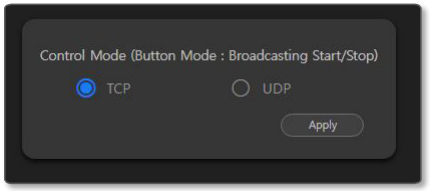
Setting Control Mode

When you run <**Start Broadcasting**>, <**Stop Broadcasting**> from the <**Operate**> ➞ <**Button Mode**>, you can control the zone devices with either the TCP or UDP method.

Depending on the UNICAST, MULTICAST setting of <**Source Registration**> ➞ <**Transmission Method**>, the number of zone devices which simultaneously broadcast in the <**Button Mode**> changes.

<**Control Mode**> is only provided to the admin account.

1. Click <**Operate**> ➞ <**Control Mode**> on the Home screen.

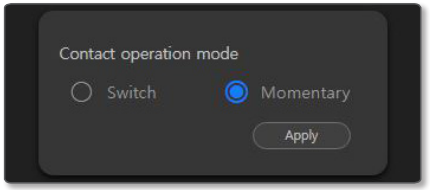


2. Set <**Control Mode**> as TCP.
   - In a UNICAST network, if you set the <**Source Registration**> ➞ <**Transmission Method**> to UNICAST on the source device, you can simultaneously broadcast to up to 20 zones (20 output speakers).
   - In a MULTICAST network, if you set the <**Source Registration**> ➞ <**Transmission Method**> to MULTICAST on the source device, you can simultaneously broadcast to up to 50 zones (50 output speakers).
3. Set <**Control Mode**> as UDP.
   - In a UNICAST network, if you set the <**Source Registration**> ➞ <**Transmission Method**> to UNICAST on the source device, you can simultaneously broadcast to up to 20 zones (20 output speakers).
   - In a MULTICAST network, if you set the <**Source Registration**> ➞ <**Transmission Method**> to MULTICAST on the source device, you can simultaneously broadcast to up to 256 zones (256 output speakers).
4. You have to select <**Control Mode**> and <**Transmission Method**> in consideration of the number of zone devices which simultaneously broadcast and the used network environment.
5. Depending on the network environment configuration, the maximum broadcasting count might be limited.

Setting Contact Operation Mode

When the device receives the event contact closure signal set in <**Event & Preset**>, the event sound broadcast and contact closure output work in the mode selected in <**Contact Closure Operation Mode**>.

1. Click <**Operate**> ➞ <**Control Mode**> on the Home screen.



2. Set <**Contact Operation Mode**> to <**Switch**>.
   - The sound broadcast and contact closure output only work when the event contact closure signal is turned on.
   - When the event contact closure signal is turned off, the sound broadcast and contact closure output stop immediately.
3. Set <**Contact Operation Mode**> to <**Momentary**>.
   - Even if the event contact closure signal is turned on and off, the sound broadcast and contact closure output stop after they reach the end.
   - When the event contact closure signal is turned on continuously, the sound broadcast and contact closure output work repeatedly.

- Changing modes during event operation may cause malfunction.

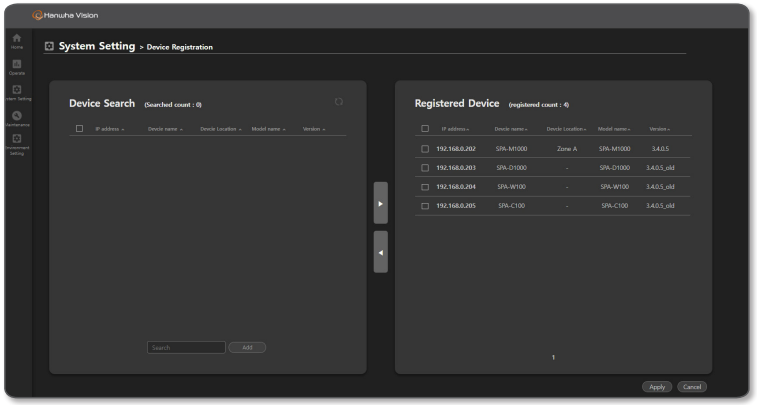
SYSTEM SETTINGS

Registers the device, source, and zone and sets the Event & Preset and annual schedules.

If the system is initialized or the network setting (User, DHCP) is changed after you register the device, you should delete the device before registering it again.

Register Device

Controllable devices can be searched, and you can register or delete the devices by selecting them.



1. On the Home screen, click **<System Setting>** ➞ **<Device Registration>**.
2. Devices connected to the network are listed in <**Device Search**>.
   If you click the [ ] icon, the device list can be updated.
3. If you select a device to register from the <**Device Search**> list and click the [▶] button, the device is moved to the <**Registered Devices**> list.
   - If you select the moved device and click the [◀] button, it returns to the <**Device Search**> list.
   - If you click the [**Cancel**] button, the selected device will be deselected, or devices moved back to the <**Device Search**> list will be recovered.
     The <**Searched count**> and <**Registered count**> will change depending on the device registration status.
4. If you select devices and click the [Apply] button, a password prompt for authentication will appear.
   - You can enter up to three passwords for authentication.

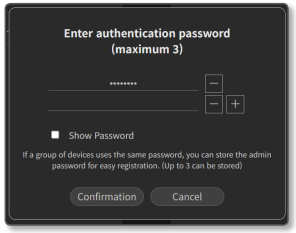
5. After entering the password, click the **[OK]** button.
   - Devices that failed authentication will display a popup saying "Registration failed."
   - As only one <**Controller**> mode speaker should exist in the same network, register all the other speakers as <**Speaker**> mode.

- You can use the <**Controller**> mode speaker as the zone device after performing <**Device Registration**> as with other speakers.
- You should not use the <**Controller**> mode speaker and audio server (SPA-S1000) simultaneously in the same network. If a speaker and microphone are repeatedly registered, the device may not be controllable.

Manual Device Registration

1. If the device is not searched, enter the IP address in the search box and click the **[Add]** button.

2. A password prompt for authentication will appear.
   - You can enter up to three passwords for authentication.

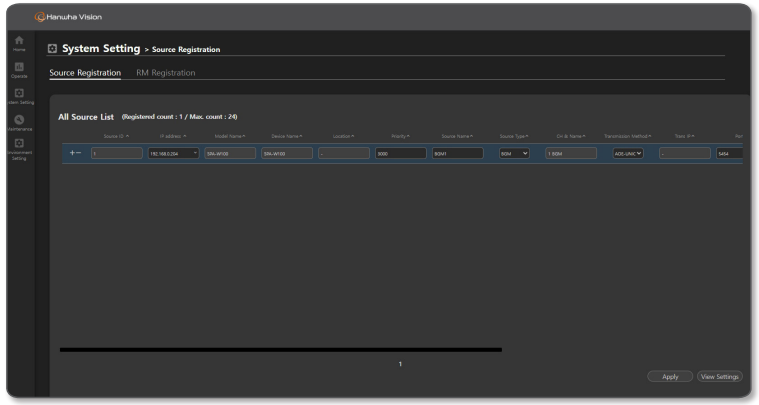


3. After entering the password, click the **[Apply]** button. Once password authentication is complete, the device will be registered.
   - Devices that failed authentication will display a popup saying "Registration failed."

Register Source Device

Speakers can be registered as source devices for broadcasts. <**Source**> means one speaker set as a source device.

1. On the Home screen, click **<System Setting>** ➞ **<Source Registration>**.
2. Select **<Source Registration>** and set the following items:



- Source ID: Up to 24 source devices can be registered while the registered count is displayed. Click the **[+]** icon to create a list, and click the **[-]** icon to remove the list. Names such as s1, s2, and s3 are displayed on the website menu.
- IP address: An IP address of speakers to be used as a source. If you select an IP address, Model Name, Device Name, and Device Location will be displayed.
- Priority: The user prioritizes sources. The smaller the number is, the higher its priority is. (Initial value 3000, input value 1000~9999)

- While broadcasting by selecting either source speakers (with 3000 source registration priority) or zone speakers in <**Button Mode**>, if a schedule time of an event priority is set as "2000" in the <**Scheduler**> comes up, the <**Button Mode**> broadcast will stop and the schedule broadcast will start.
  Conversely, if you select a speaker that a priority of a source speaker is "1000" in <**Button Mode**> and broadcast, the <**Button Mode**> broadcast will be kept since the schedule priority in <**Scheduler**> is higher.

- Source Name: Inputs or changes the name of a source.
- Source Type: Selects BGM or TTS.
- CH & Name: If you select BGM, 1 BGM will be shown. If you select TTS, 2 TTS will be shown.

- Transmission Method: If you select UNICAST, <**Trans IP**> will be deactivated, and the device's IP address will be used. You can enter the <Port> number in the input window automatically or manually, and it should not overlap with another device.
  If you select MULTICAST, a MultiCast IP address (e.g., 224.124.0.*) and <**Port**> number are automatically allocated to the <**Trans IP**>.
  If you enter the IP address and port directly in the device, be cautious that it does not overlap with automatically assigned information.
  - UNICAST : Up to 20 broadcasts are possible with the UNICAST network.
  - MULTICAST : In a MULTICAST network, you can simultaneously broadcast to up to 512 devices (when the control mode is set to UDP).

- The maximum broadcasting count can change depending on the setup of <**Operate**> ➞ <**Control Mode**>.
- You have to select <**Transmission Method**> in consideration of the network environment being used.
- The maximum broadcasting count may be limited depending on the network environment's configuration.

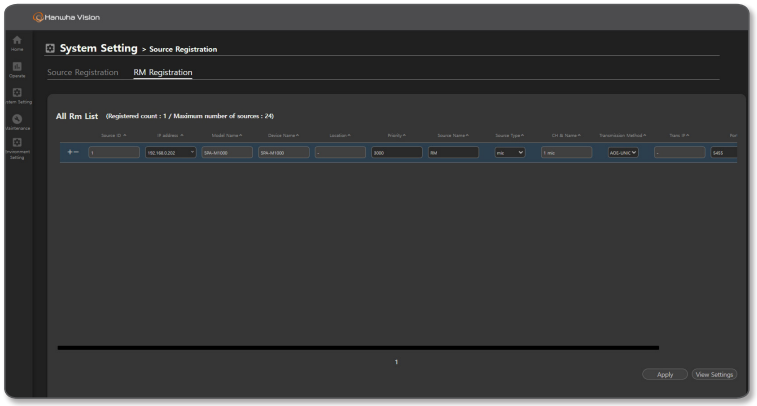
- CTRL: The CTRL box should be checked to activate the <**Source Control**> window of the source Device in <**Operate**> ➞ <**Button Mode**>.
  - To use it as the sound audio device in the <**System Setting**> ➞ <**Scheduler**>, the CTRL box should be deactivated.
- CTRL IP : The device List for remote control is provided in the <**Button Mode**>, so select the same IP as the registered device.
- Device Name: Displays the name of a control device.
- CTRL Type : If you set a source type as <**BGM**>, select <**file_player**>, and if you set a source type as <**TTS**>, select <**tts_player**>.
- I/O CH : If you set a <**CTLR Type**> as <**file_player**>, "**1**" will be displayed, and if you set as <**tts_player**>, "**2**" will be displayed.
- Icon: Selects an icon (BGM or TTS) and color of a source.
  If <**User Icon**> images are directly uploaded on PC, you can select one from the <**Icon**> list.

3. Once set, click the [**Apply**] button.
4. If you click the **[View Settings]** button, the set value can be saved as a CSV file.

Registering an RM Microphone

Register a microphone to broadcast via speakers.

1. On the Home screen, click **<System Setting>** ➞ **<Source Registration>**.
2. Select **<RM Registration>** and set the following items:



- Source Id: Up to 24 RM microphones can be registered.
  Click the **[+]** icon to create a list, and click the **[-]** icon to remove the list.
- IP address: An IP address to be used as a microphone. If you select an IP address, Model Name, Device Name, and Device Location will be displayed.
- Priority: The user prioritizes sources. The smaller the number is, the higher its priority is.
  (Initial value 3000, input value 1000~9999)

■ While broadcasting by selecting either the source speakers (with 3000 source registration priority) or zone speakers in <**Button Mode**>, if you select the same zone speakers and talk with a microphone device (with 2000 RM registration priority), audio will be transmitted.
Conversely, if you select a speaker that has a source speaker with a priority of "1000" in <**Button Mode**> and broadcast, the <**Button Mode**> broadcast will be kept since the priority of the microphone is higher.

- Source Name: Inputs or changes the name of a source.
- Source Type: Displayed as "mic."
- CH & Name: Displayed as "1 mic."

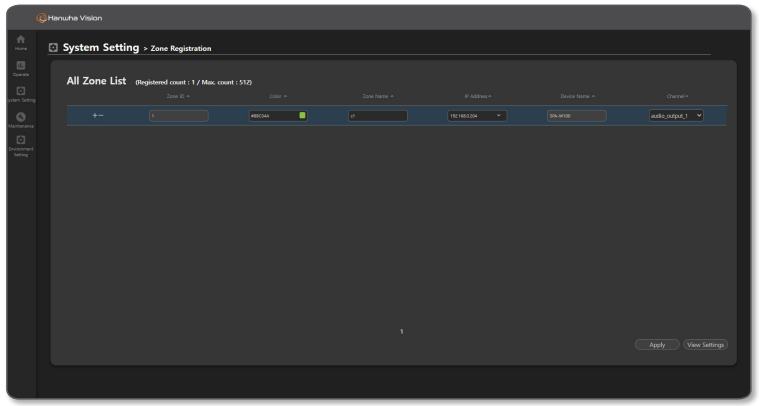
- Transmission Method: If you select UNICAST, <**Trans IP**> will be deactivated, and the device's IP address will be used. You can enter the <**Port**> number in the input window automatically or manually, and it should not overlap with another device.
  If you select MULTICAST, a MultiCast IP address (e.g., 224.124.0.*) and <**Port**> number are automatically allocated to the <**Trans IP**>.
  If you enter the IP address and port directly in the device, be cautious that it does not overlap with automatically assigned information.
  - UNICAST : Up to 20 broadcasts are possible with the UNICAST network.
  - MULTICAST : In a MULTICAST network, you can simultaneously broadcast to up to 512 devices (when the control mode is set to UDP).
  - Depending on the network environment configuration, the maximum broadcasting count might be limited.
- Icon: Selects an icon (mic) and color of a source.
  If <**User Icon**> images are directly uploaded on PC, you can select one from the <**Icon**> list.

3. Once set, click the [**Apply**] button.
4. If you click the **[View Settings]** button, the set value can be saved as a CSV file.

Register Zone

You can register the speaker to the <**Zone**> of the region for broadcasting. <**Zone**> refers to one speaker set as an output device.

1. On the Home screen, click **<System Setting> ➞ <Zone Registration>**.



- Zone ID: Up to 512 zones can be registered, and the registered count is displayed.
  Click the **[+]** icon to create a list, and click the **[-]** icon to remove the list.
  Names such as z1, z2, and z3 are displayed on the website menu.

- If you click the [**Sort**] button in the <**Select Zone**> menu of the <**Operate**> ➞ <**Button Mode**>, they will be sorted in the order of z1, z2, z3.

- Color: You can select the color of the zone from the color chapter or create colors you want.
- Zone Name: You can enter the zone name or change it. It is displayed on the <**Operate**> ➞ <**Button Mode**> screen of the device.
- IP Address: If you select the Speaker IP address, the <**Device Name**> is displayed.
- Channel: Displayed as audio_output_1.

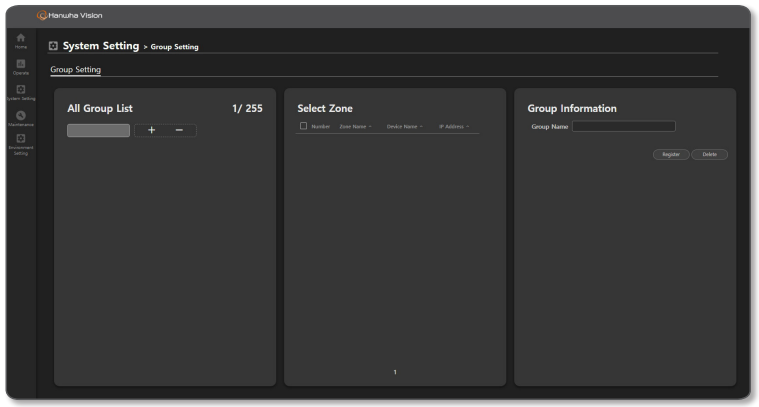
2. Once set, click the [**Apply**] button.
3. If you click the **[View Settings]** button, the set value can be saved as a CSV file.

- As the same speakers can be registered more than once as <**Zone**>, click <**IP address**> to sort them in order.

Group Setting

You can set the <**Zone**> to be broadcast by grouping it.

1. On the Home screen, click **<System Setting> ➞ <Group Setting>**.



- Group Setting: Up to 255 groups can be set.
  Click the **[+]** icon to create a group, and click the **[-]** icon to remove the group.

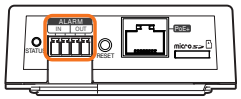
- The set group number is used as the <**Group**> button in the <**Operate**> ➞ <**Button Mode**>.
- For the set group number, after selecting the [Menu] button and switching <**Talk Type**> ➞ <**Talk Protocol**> in <**Isis Group**>, if you input numbers with the ten key button in the middle of the microphone device, it will be broadcasted with the same group number.

- Zone Select: You can select registered zones (speakers) and set them to the same broadcast group.
- Group Name: You can enter the group name and change it.

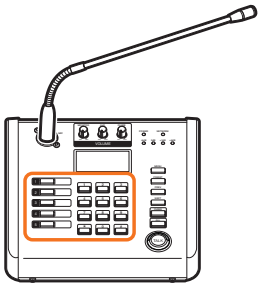
2. Once set, click the [**Register**] button.
   - Click the [**Delete**] button to delete the registered group.

All Event & Preset List

<Event & Preset Button>

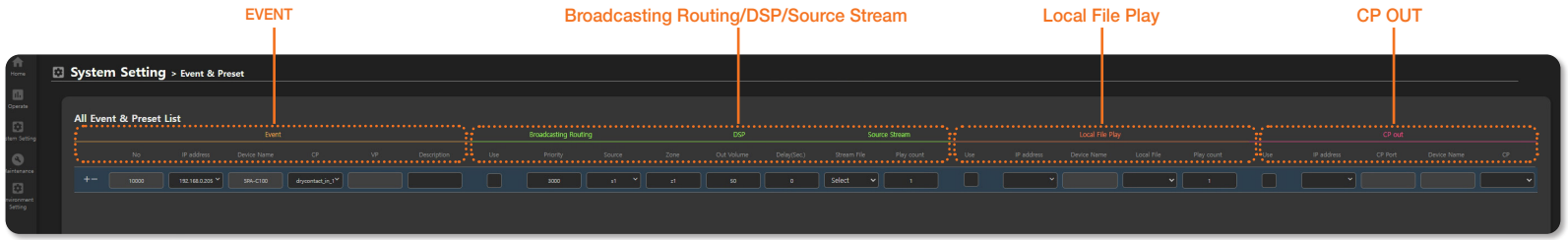


<Audio Module Contact Closure Input>



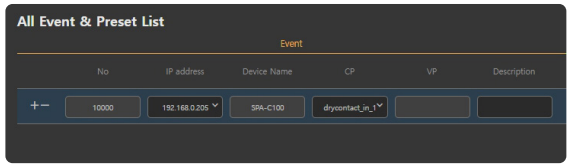
<RM Microphone Button>

In the broadcast system, you can broadcast as per the scenario set in the <**All Event & Preset List**> if an event, such as the Event & Preset of the button mode, RM button of the microphone device, or an external signal (CP) of the audio module, occurs.
There are too many menu properties to fit in a screen, so scroll to set all items.



1. On the Home screen, click **<System Setting> ➞ <Event & Preset>**.
2. Scroll down to set events, such as fire, contact point, external signals, etc. are detected, broadcasting routing, DSP, source stream, local file play, and contact point output (CP Out).
3. The scenario used when an event occurs can be configured as three operations, such as Broadcasting Routing, Local File Play, and Contact Closure Output.

Event Registration Setting



- NO: If you click the [+] icon, a list is created, and if you click the [-] icon, the list is removed.
- IP Address: Select an IP address of the device to register.
  You can register the following three event types.

1) Event registration using the event & preset button

- If you select [**127.0.0.1**] for the IP address, the device name will be displayed as <**Controller**>, and the CP can be selected from CP 1-16.
  If you press the contact Closure Number in the <**Event & Preset**> of <**Operate**> ➞ <**Button Mode**>, an audio source will be broadcast via the speaker set in <**Broadcasting Routing**> or <**Local File Play**>.

  - Clicking a Contact Closure Number will broadcast the sound source as many times as you set in <**Broadcasting Routing**>, <**Local File Play**> ➞ <**Play count**>.
  - If the device is registered in the <**Contact Closure Output**> setting, the Contact Closure Output signal is active until the Contact Closure Number is turned off.
  - If the Contact Closure Number is turned off while a sound source is being broadcasted, both the broadcasting and the Contact Closure Output signal will stop.

2) Event registration using the contact closure input of the audio module

- If you select the IP address as the speaker, the model name of the <**Device Name**> will be displayed while the CP is displayed as drycontact_in_1.
  When an input signal is generated from a contact closure device connected to a speaker, the audio source will be broadcast to the speaker set in **<Broadcasting Routing>** or **<Local File Play>**, and the contact closure output signal will operate as **<CP OUT>**.

  - When the contact closure mode is Switch, **<Broadcasting Routing>**, **<Local File Play>**, and **<CP OUT>** will operate only when the event contact closure signal is on.
    When the event contact closure signal is off, **<Broadcasting Routing>**, **<Local File Play>**, and **<CP OUT>** will stop immediately.
  - When the contact closure mode is Momentary, even if the event contact closure signal is turned on and off, <**Broadcasting Routing**>, <**Local File Play**>, and <**CP OUT**> will stop after the set audio source is played to the end.
    If the event contact closure signal is kept on, <**Broadcasting Routing**>, <**Local File Play**>, and <**CP OUT**> will repeat playback.

3) Event registration using the RM microphone button

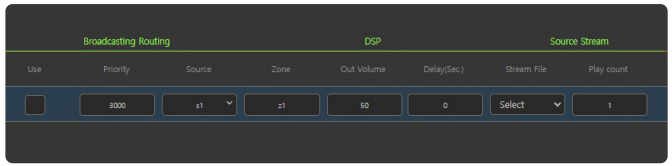
- If you select the IP address as the microphone, the model name of the <**Device Name**> will be displayed and the CP can be selected from button_1~5.
  If you press the Contact Closure Number from among the five buttons on the left side of the microphone and press the <**TALK**> button, the sound source will be broadcasted to the speaker you set in <**Broadcasting Routing**> or <**Local File Play**>.
  Microphones can use a VP, and if you enter a VP number, the Contact Closure Number will be disabled.
  Press a VP Number mapped to a combination of 10 buttons (0 - 9) on the middle of the microphone and press the <**TALK**> button, and the sound source will be broadcasted to the speaker you set in <Broadcasting Routing> or <**Local File Play**>.

  - If the microphone status display shows <**Talking...**>, the sound source will be broadcast as many times as you set in <**Play count**>.
  - If the device is registered in the <**Contact Closure Output**> setting, the Contact Closure Output signal will be active until the <**TALK**> button is turned off.
  - If the <**TALK**> button is turned off while a sound source is being broadcasted, both the broadcasting and the Contact Closure Output signal will stop.

- Device Name: Displays the name of the device automatically upon the selection of an IP address.
- CP: Select a channel and a type of event that can occur to the device.
  As a CP channel and its use are individually designed as per device, the selectable menu of each device will automatically be displayed.
- VP: If you select the IP address as the microphone, you can set either the CP or VP.
  For the VP input value, you can directly enter a number between 1 & 9999.
- Description: The user's description can be input.

Broadcasting Routing/DSP/Source Stream Settings

When an event occurs, you can broadcast the BGM sound source (mp3, wav) and TTS of the registered source device to the designated zone.



- Use: Choose whether to use a broadcasting routing scenario.
  When you set the broadcasting routing as <**Use**>, you cannot use Local File Play.
- Priority: A lower number has a higher priority. If the priority is “1000”, it will be on air prior to any other broadcasts. (The initial value is 3000, the input value is 1000 - 9999)

- While broadcasting with a source speaker that has a source priority set as "2000" in <**Button Mode**>, if an event that with an event priority set as "1000" in the <**Event & Preset**> occurs, the <**Button Mode**> broadcast will stop and the event setting broadcast will start. Conversely, if the event priority in <**Event & Preset**> is "3000", the <**Button Mode**> broadcast will be continue.
- During broadcasting, if a schedule that has a schedule priority set as "2000" in the <**Scheduler**> is broadcasting and an event that has an event priority set as "1000" in the <**Event & Preset**> occurs, the <**Scheduler**> broadcast will stop and the event setting broadcast will start. Conversely, if the event priority in <**Event & Preset**> is "3000", the <**Scheduler**> broadcast will continue.

- Source: Select a speaker IP address to use as the source sound (supporting BGM, TTS).
  If the event device is a microphone, you can transmit sound with the microphone by selecting the microphone's IP address.
- Zone: To use it for broadcasting routing, please enter your zone ID set in <**Zone Registration**>.
  (e.g. z1 / z1, z2 / z1-z3 / all)

- You can select other speakers for [**Source**] and [**Zone**]. If you press a configured [**CP Number**] or an input signal occurs from the connected CP device, the audio source of the speaker which is selected as [**Source**] is played from the speaker selected as [**Zone**].
- The speaker IP address in [**Source**] is displayed if you check the <**CTRL**> box in the <**System Settings**> ➞ <**Source Registration**> and set the BGM to file_player and TTS to tts_player in the <**Source Type**> and <**CTRL Type**>.

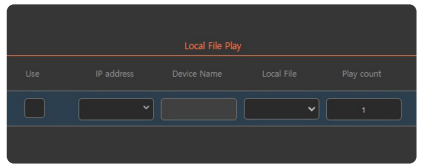
- Out Volume: A speaker's audio output volume can be set. (Initial value 50, input value 0~100)
  The output volume is reflected only to <**Event & Preset**>.
- Delay: Enter the delayed time before starting scenario broadcasting once the event has taken place.
  (Initial value 0, input value 0~300)
- Stream File: Select a file to stream from the audio list of the selected source. Depending on the source registration type (BGM, TTS) of the selected speaker, BGM and TTS sound sources are provided respectively.
- Play count: Input the number of repeats to play the audio file repeatedly. (Initial value 1, input value 1~99)

- The sources registered as schedulers cannot be used for broadcasting routing.

Setting Local File Play

When an event occurs, the BGM audio stored in the speaker which is selected as zone will be played.
Local file playback does not support TTS sound sources, and is unrelated to the speaker's source registration type.

If you press a set [**CP Number**] or an input signal occurs from the connected CP device, the audio will be played from the speaker.



- Use: Choose whether to use a local file play scenario.
  When Local File Play is set as <**Use**>, you cannot use broadcasting routing.
- IP address: Select the IP address of the speaker to play a local file.
- Device Name: Displays the device name of the selected speaker.
- Local File: Select an audio file (that supports BGM) to play from the audio list registered on the speaker.
- Play count: Input the number of repeats to play the audio file repeatedly. (Initial value 1, input value 1~99)

Setting Contact Point Output (CP Out)

You can set scenario operation for Contact Closure Output.
You can use it as an external device (warning light, power supply) switch through the CP device.
When an event occurs, the Contact Closure Output switch of the configured speaker or audio module will be closed.

- Use: Choose whether to use a contact point scenario.
- IP address: Select an IP address of the speaker to output the contact point.
- CP Port: Indicated as 20028.
- Device Name: Displays the device name of the selected speaker.
- CP: 1 will be displayed.

4. Once set, click the [**Apply**] button.
5. If you click the **[View Settings]** button, the set value can be saved as a CSV file.

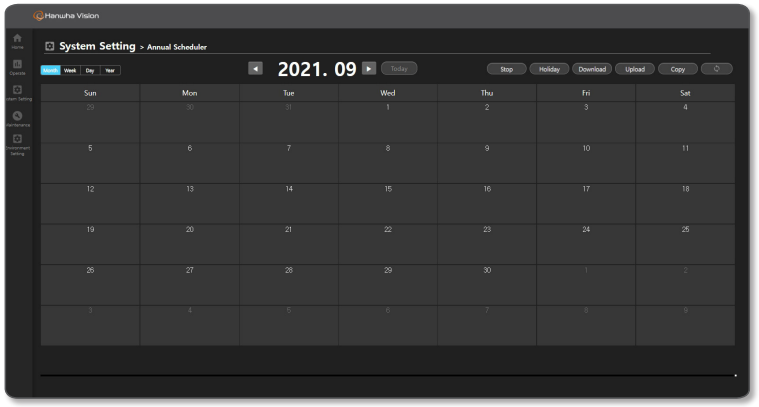
- You can use the CP OUT (Contact Closure Output) portion with the selected broadcasting routing or Local File Play. Or you can also use it alone.

Scheduler

Broadcast reservations can be set.
With the scheduler, you can perform scheduled broadcasts to as many zones (output speakers) as you want using the audio source of the speaker selected as a source device in the <**Source Registration**> menu.

The broadcast sound source can be used by directly entering sound source files (mp3, wav) or TTS phrases stored in the source device registered for the Scheduler.

It is possible to create daily, weekly, monthly, and annual loop schedules, and it will not broadcast on days set as holidays.

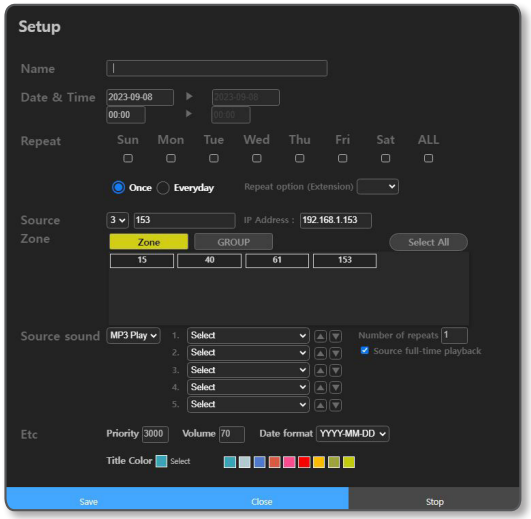


1. Click <**System Setting**> ➞ <**Scheduler**> on the Home screen.
   - Registered schedules can be viewed by month/week/day/year.
2. The scheduler's additional functions can be used.
   - Stop: The currently playing broadcast will stop.
   - Holiday: Holidays can be set.
   - Download: Registered schedules can be downloaded as "xml" files.
   - Upload: A downloaded schedule can be uploaded to other speakers.
     If there are both weekday and holiday schedules, the holiday schedule will not be reflected even if you upload a downloaded file.
     For holiday schedules, use the download and upload functions of the <**Holiday**> menu.
   - Copy: Schedules for each month can be copied.
     When the Copy Settings window appears, click the [**Copy**] button.
     The selected year automatically resets to the fifth year from the pertinent year.
   - : Renews a schedule list.
3. Schedules registered on each date are shown, and if you select a date where you want to create a schedule, the schedule setting screen will appear.

■ If you register 4 or more schedules for one day, it will be indicated as <**+2**>.

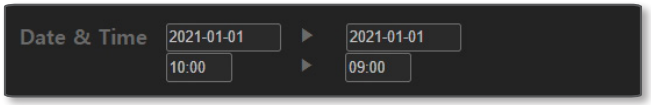
Schedule Setting Screen

It is a screen where you can set schedules.



1. Name: Input a name for a schedule.
2. Date & Time: Select a date when a schedule is to take place.
   Select or input a time when a schedule is to take place.
   If you click the [**Now+1(min)**] button, the start time of the schedule is set to a minute after the current time.

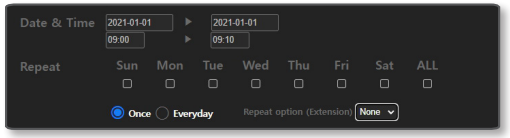
■ If it is set to Date (2021-01-01 / 2021-01-01), Time (10:00 / 09:00), an input error window (time error) pops up.



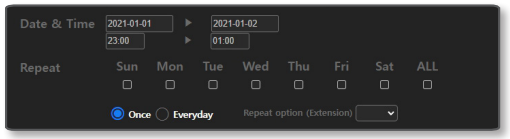
■ If it is set to Date (2021-01-02 / 2021-01-01), Date (09:00 / 10:00), an input error window (date error) pops up.

3. Repeat: Select a day, a period, etc. you want to set.
   - Select Day: During the set dates, it runs only on selected days of the week. If you select days of the week, <**Everyday**> and <**Once**> are deactivated.
   - Once: Even during the set period of the dates, it runs only once on the first date.

- If you set it to the date (2021-01-01 / 2021-01-02), time (09:00 / 09:10), <**Once**>, the broadcast schedule is set up for 10 minutes from 9:00 to 9:10 on January 1st.

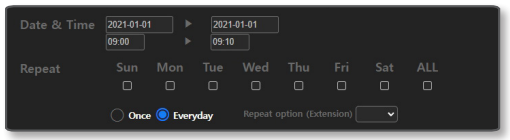


- If you set it to the date (2021-01-01 / 2021-01-02), time (23:00 / 01:00), <**Once**>, the broadcast schedule is set up continuously from 23:00 on January 1st to 1:00 on January 2nd.

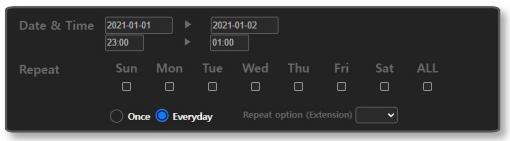


   - Everyday: During the set period of dates, it runs repeatedly every day.

- If you set the date (2021-01-01 / 2021-01-02), time (09:00 / 09:10), <**Everyday**>, the broadcast schedule is set up for 10 minutes from 9:00 to 9:10 from January 1st until January 2nd.



- If you set the date (2021-01-01 / 2021-01-02), time (23:00 / 01:00), <**Everyday**>, the broadcast schedule is set up twice from 23:00 on January 1st until 1:00 on January 2nd and from 23:00 on January 2nd until 01:00 on January 3rd.



   - Repeat Option (Extension): Sets the set schedule to repeat on a weekly, monthly, or yearly basis.

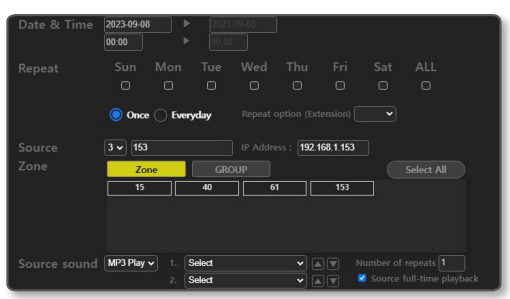
- If you set up the <**Once**> or <**Everyday**> function, check that the set schedule is accurate on the [**Weekly Calendar**], [**Daily Calendar**] screen.
- When setting the <**Repeat Option (Extension)**>, the schedule period should not exceed one week for <**Week**>, 28 days for <**Month**>, or 365 days for <**Year**>.
- For <**Week**>, a schedule is set every week from the selected day of the week.
- For <**Month**> and <**Year**>, if you select a specific day, the schedule is set on the specific date for every month or year.
- If you specify a date range in <**Month**> or <**Year**> and select days of the week in [**Everyday**], the schedule is set only for those days of the week which exist within the date range.
- You can delete a specific day from the schedule date range or delete all recurring events.

4. Source: Indicates registered source ID and IP Address.

- To be registered as the source of Annual Scheduler, the <**CTRL**> menu's checkbox of the <**Source Registration**> should be deactivated.

5. Zone: Indicates a registered <**Zone**> or <**Group**>.
   - A <**Zone**> or <**Group**> can be selected individually, or all zones or groups can be selected and deselected.
   - All zone speakers selected in a <**Zone**> or <**Group**> are set as the output speakers.
6. Source sound: Select an audio source type to be broadcast from schedules.
   - MP3 Play: Displays a list of audio sources registered in BGM Play.
     The length of the selected audio will automatically be reflected to the end time of <**Date & Time**> and displayed as being deactivated.
     If you input the <**Number of Repeats**>, an audio source will play repeatedly and automatically displayed at the end time.
     If you uncheck <**Source full-time playback**>, you can directly enter the end time so that it is broadcast only at the time you want.
     The playing order of the audio can be changed using the [▲▼] button for each file.

- If the date is 2021-01-01 / 2021-01-01, the time starts at 23:55, and the length of the selected audio source is 10 minutes, the end date and end time will be set to 2021-01-02 and 24:05 automatically.
  If it is set to <**Once**>, the broadcast schedule is set from 23:55 on January 1st to 0:05 on January 2nd continuously.
  If it is set to <**Everyday**>, the continuous broadcast schedule is set twice from 23:55 on January 1st to 0:05 on January 2nd and from 23:55 on January 2nd to 0:05 on January 3rd.



- TTS: Enter sentences with the language to be used in the <**Text for TTS**> and select the language and gender in Select Speaker.
  - Select language: English (US, GB), German, Spanish, French, and Russian are supported.
  - Select gender: You can select a male or female voice.
  - TTS input language and the language the speaker has chosen should be the same to play TTS-converted audio normally.
    If they are not the same, there will be a pop-up window that says <**A TTS conversion error has occurred. Please check the contents.**>
  - When you enter a special character, please refer to the following content.
    - In the TTS input window, you cannot enter **&** or `.
    - You can enter **^ ( ) _ | ‘ “**, but they are not converted to audio.
    - If **@ # $ % = \ / *** are located alone or in the middle of sentence or numbers, they will be converted to audio.
    - Depending on the supported language or sentence structure, a special character may not be converted to audio.

7. ETC.: You can set other schedule settings.
   - Priority: A lower number has a higher priority. If the priority is “1501”, it will be on air prior to any other broadcasts.
     As the priority of a general audio broadcast is set to 3000 by default, the priority of the Scheduler is recommended to be set at a value lower than 3000. (The initial value is 3000, the input value is 1501 - 9999)

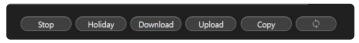
- While broadcasting with a source speaker that has a source priority set as "2000" in <**Button Mode**>, if the schedule time that a schedule priority is set as "1501" in the <**Scheduler**> occurs, the <**Button Mode**> broadcast will stop and the schedule setting broadcast will start. Conversely, if the schedule priority in <**Scheduler**> is "3000", the <**Button Mode**> broadcast will continue.
- During broadcasting, an event that has an event priority set as "2000" in the <**Event & Preset**>, if the schedule time for a schedule that has a priority set as "1501" in the <**Scheduler**> comes up, the <**Event & Preset**> broadcast will stop and the schedule setting broadcast will start. Conversely, if the schedule priority in <**Scheduler**> is "3000", the <**Event & Preset**> broadcast will be kept.

   - Volume: You can set the volume when the schedule is operated. (Initial value 70, input value 0~100)
     Output volume is reflected only to <**Scheduler**>.
   - Date Format: You can select the date format displayed on the scheduler.
   - Title Color: You can select the color displayed on the scheduler.

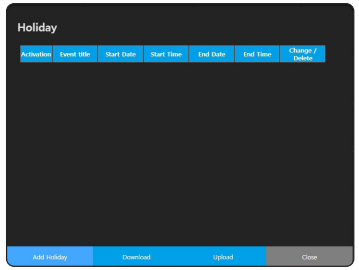
- If the Controller Mode or source speaker is turned off during the scheduled broadcast and then turned on within the scheduled broadcast time, it automatically plays the first sound source among the selected sources and stops at the scheduled end time.
- If the zone speaker is rebooted during scheduled broadcasting, the sound source is skipped and plays, and then stops when it reaches the scheduled end time.
- If the speaker is turned off and then turned on after the scheduled broadcast time has passed, the scheduled broadcast does not resume.

Holiday Setup Event

Click the [**Holiday**] button on the scheduler settings screen and the **<Holiday>** screen will appear.

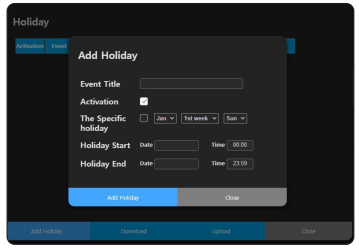


- Add Holiday : You can set holidays in <**Add Holiday**>.
- Download : You can download the created holiday settings as an XML file.
- Upload: You can upload the downloaded holiday settings files.

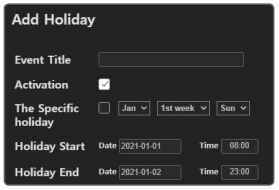


Add Holiday screen.

1. Click the [**Add Holiday**] button and the <**Add Holiday**> screen will appear.
2. Enter the holiday title to be set.
3. Set up the date and time to start and end the broadcast.
4. If you select a month, week, and day under <**Specific Holiday**>, that day is set as a holiday every year.
5. <**Activation**> must be checked to operate the holiday settings.
6. Click the [**Add Holiday**] button when the setting is complete.
7. Set holiday settings are displayed on the scheduler.
8. You can change or delete set holidays.



- If you set the date and time to start as 2021-01-01, 08:00 and the date and time to end as 2021-01-02, 23:00, the scheduled broadcast will be suspended from 8:00 on January 1st to 23:00 on January 2nd.

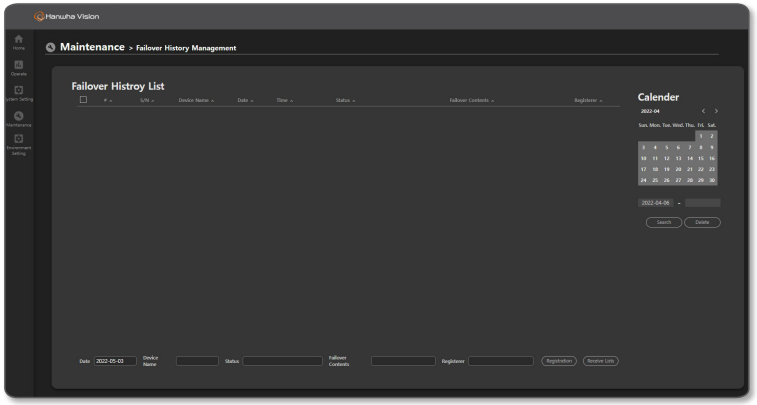


MAINTENANCE

Failover History Management

The failure history for the product can be input and managed.

1. On the Home screen, click **<Maintenance>** ➞ **<Failover History Management>**.



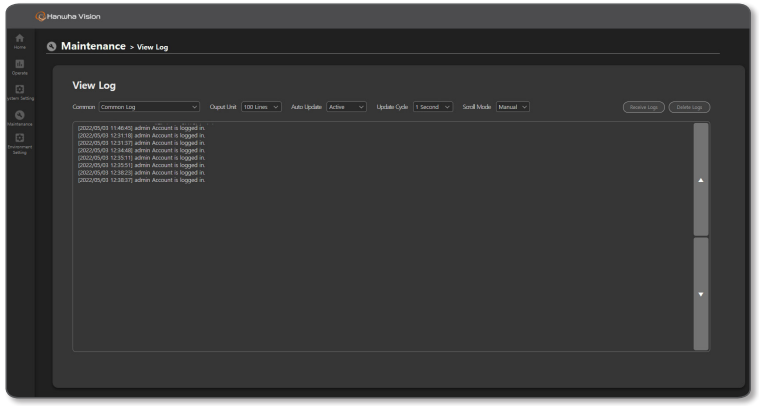
- If you click the [**Search**] button, you can search the results by date.
- Click the [**Delete**] button to delete the selected fault history.
- Lists of Failure History: Shows the entire history of registered failures.
- Register After inputting fixes and status of the failure history, they can be registered.
  - Date: Only the today's date can be entered as an input, and the date cannot be changed.
  - Device Name: Enter the name of the device where a failure occurred. (Max. 20 characters)
  - Status: Enter the failure status. (Max. 20 characters)
  - Failover Contents: Enter the processing details. (Max. 70 characters)
  - Registerer: Enter the name of the user. (Max. 20 characters)
- Receive Lists: The registered history of actions for malfunctions can be downloaded in the "csv" file format.
  As the history of actions for malfunction will be deleted when the product's system is initialized, please download it in advance.

- Every input field must be filled in.
- Special characters (', ") cannot be input in the input field.
- Locate a mouse pointer on a failure history item to see all the registered details.

View Log

You can check logs generated in the product.

The log items are different for each product, and they are recorded when the log operation occurs.



1. On the Home screen, click <**Maintenance**> ➞ <**View Log**>.
2. The action log history for the device is shown by item.
   The Log menu will appear on the View Log when its function is activated.
   - The logs of each menu are queried up to 1000 lines, and if they exceed 1000 lines, the oldest logs are deleted first.
3. If you click the [**Receive Logs**] button, a file can be downloaded in HTML format.
   Check HTML files via Google Chrome.
   - As the log information will be deleted when the product's system is initialized, please download it in advance.
4. If you click the [**Delete Logs**] button, all logs displayed on the screen will be deleted.
5. The Output Unit, Auto Update, Update Period, and Scroll Mode can be set.
   If you activate <**Auto Update**>, logs will be displayed in accordance with the <**Update Cycle**>.
   - If you auto select <**Scroll Mode**>, the screen will be moved downward to show recent logs.
   - Press the [**Top/Bottom**] button to view the upper and lower logs.

Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

eco
RoHS compliant

Hanwha Vision cares for the environment at all product manufacturing stages, and is taking measures to provide customers with more environmentally friendly products.
The Eco mark represents Hanwha Vision's devotion to creating environmentally friendly products, and indicates that the product satisfies the EU RoHS Directive.

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.
Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.
Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.
To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

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