VDM-4051

AV over IP Controller

User Manual



Issue Date: Jan 2023 | Firmware Version: V1.2.0

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4K Over IP Matrix Encoder / Decoder

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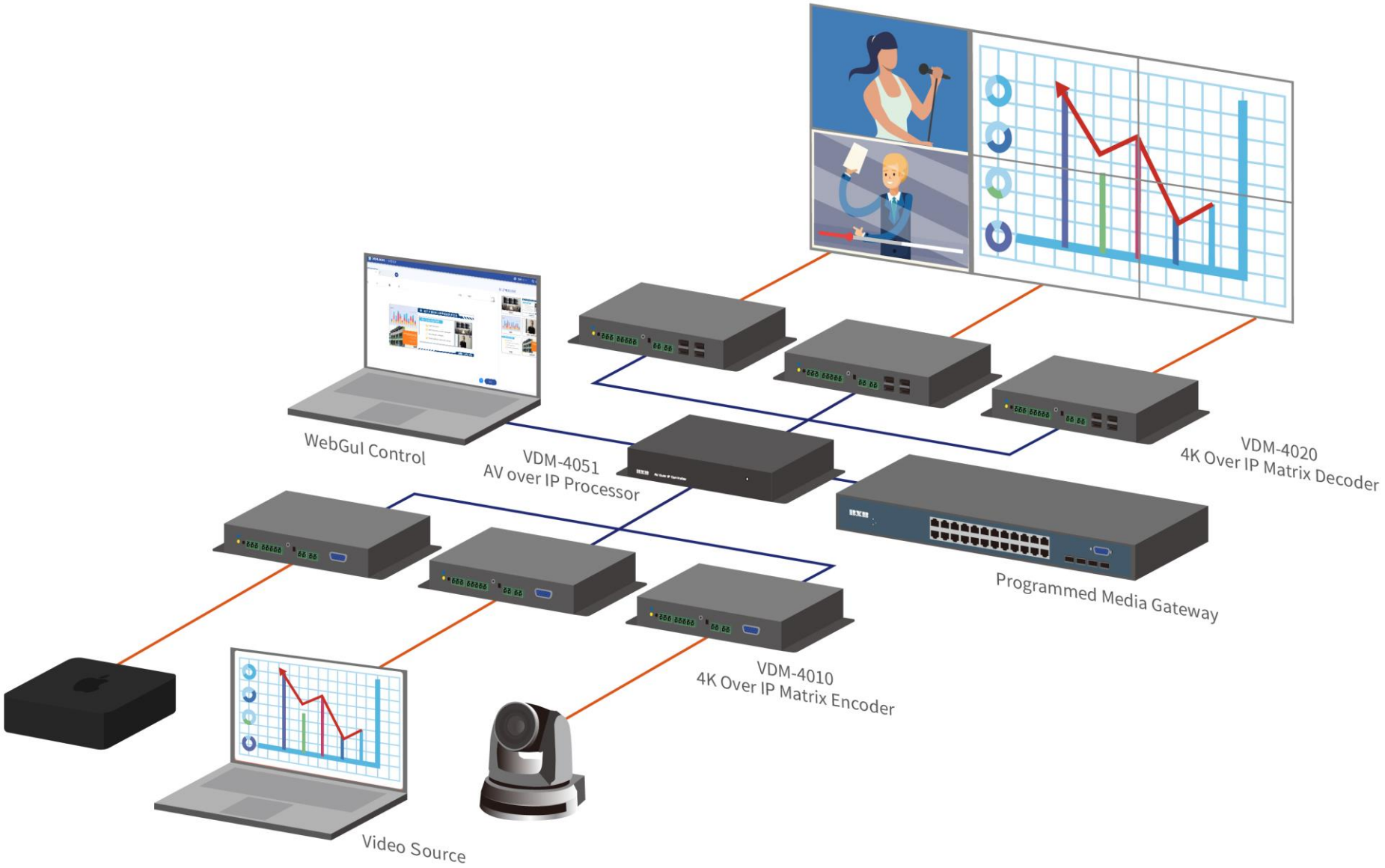
Safety Instruction

1. Read the instruction manual carefully before installing and using this unit and keep this manual properly preserved.
2. Please follow the instructions and be aware of warning indications.
3. Do not use any spare parts without the recommendation of your dealer. Please use the fixing accessories offered by BXB. If the system is broken due to the improper fixing, BXB would not bear the responsibility for compensation.
4. Make sure the power cord has been fixed properly. Do not use any extension cords as this would result in fire or short circuit.
5. Do not stuff anything or spill liquid of any kind onto or into this unit.
6. Contact maintenance technicians if the conditions occur: A. Power cord or plug is damaged; B. Liquid has been spilled into the unit; C. The product does not work normally; D. The unit has been dropped or the cover has been damaged; E. The function cannot work completely.
7. Install this unit carefully. Impacting and fierce shaking should be avoided.
8. Do not disassemble or remodel this unit:
   A. High voltage and sensitive electrical circuit are inside of the unit. Do not disassemble it to prevent electric shock.
   B. The specification of any replaced spare part should be validated by manufacturer, or it may cause fire and short circuit.
9. Do not use this unit in the environment with improper temperature, moisture, and power level to avoid component damage. The adequate operation temperature is 0°C ~ 40°C (32 °F ~ 104 °F); relative humidity below 90%.
10. Do not expose the apparatus to rain and moisture. Please put it at a dry location to avoid any damage of the inside components. Adequate coverage is requisite if the unit is used outside.
11. Do not clean this unit and its accessories with liquid or chemical detergent. Just use a damp cloth for cleaning.
12. Do not switch on/off the power rapidly no matter it's operating or off. It can avoid the operation problem from the sensitive electronic circuit.

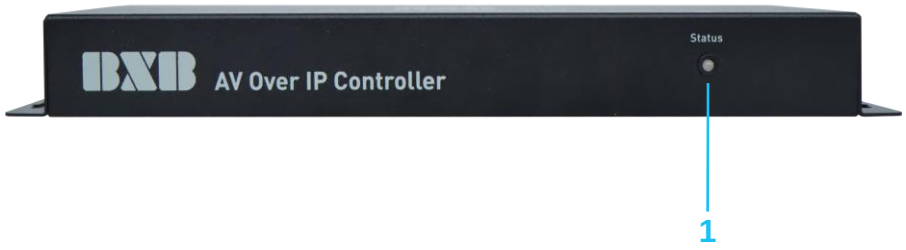
Caution: The static electricity treatment of printed circuit boards should follow ESD safety measure. Ground connection should be done well.

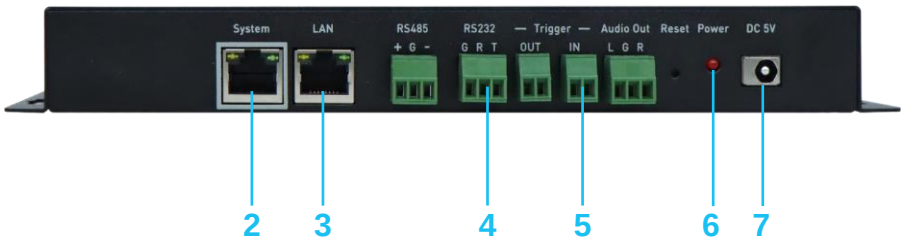
Caution: Please be aware of the voltage accordance with that in your country.

Connection Diagram



Physical Description





1. Status indicator light: the light will be on with red as turning on; the light will flash with green when it functions well.
2. System network port: for private network.
3. LAN port: for the network on site to control and configure settings via WEB GUI.
4. RS-232: integrates with environmental control devices
5. Trigger IN: get shorted as turning on to restore to the default settings.
6. Power indicator light: the red light remains on if the power connection is normal.
7. Power: connect the transformer (AC100-230V to DC-5V) for power supply.

Using the Web UI

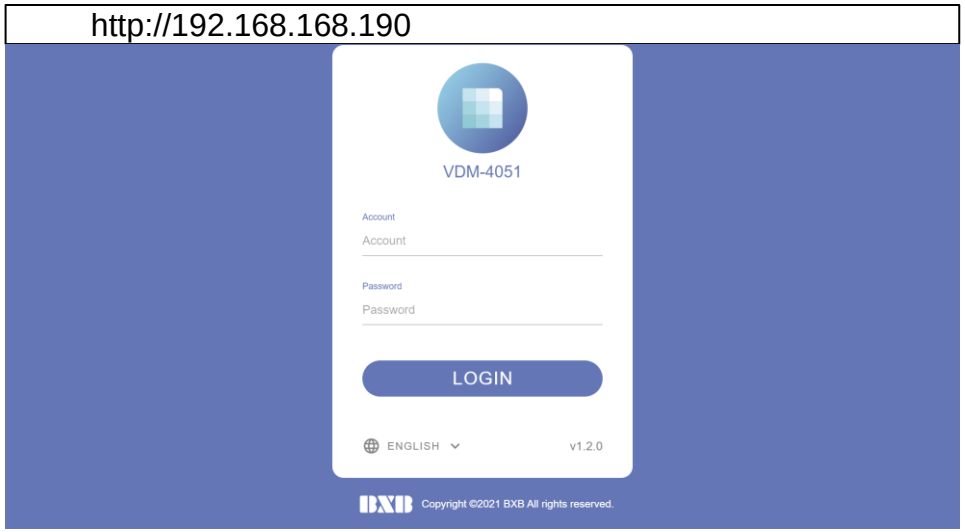
Log In

1

Choosing a Web Browser



2



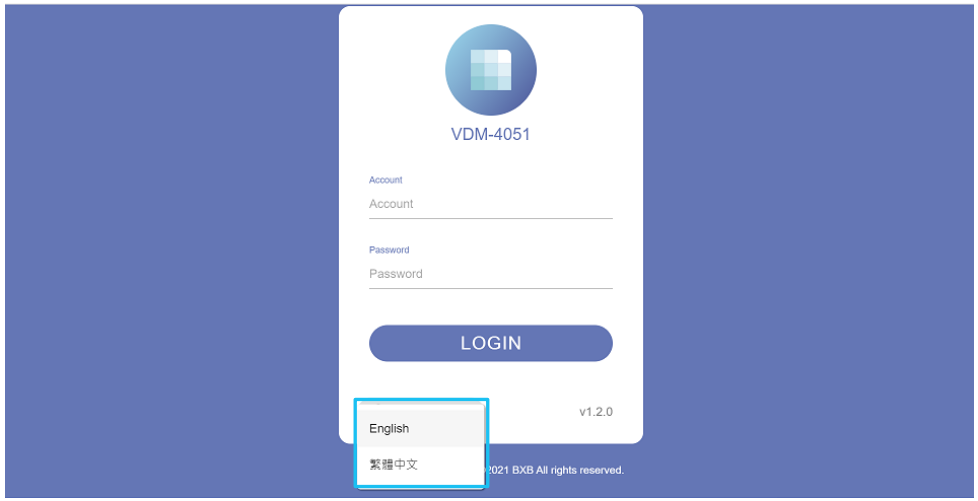
VDM-4051 is compatible with browser-based interfaces including Chrome, Safari, Microsoft Edge, Firefox, etc.

Key in the IP address (default: DHCP or 192.168.168.190) into the URL bar.

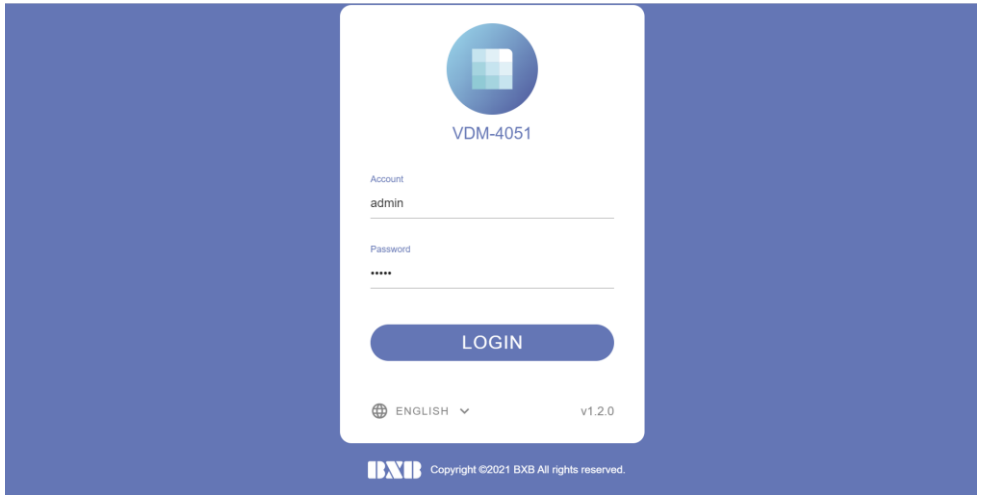
Using the Web UI

Log In

3



4



Select a language: supports Traditional Chinese and English.

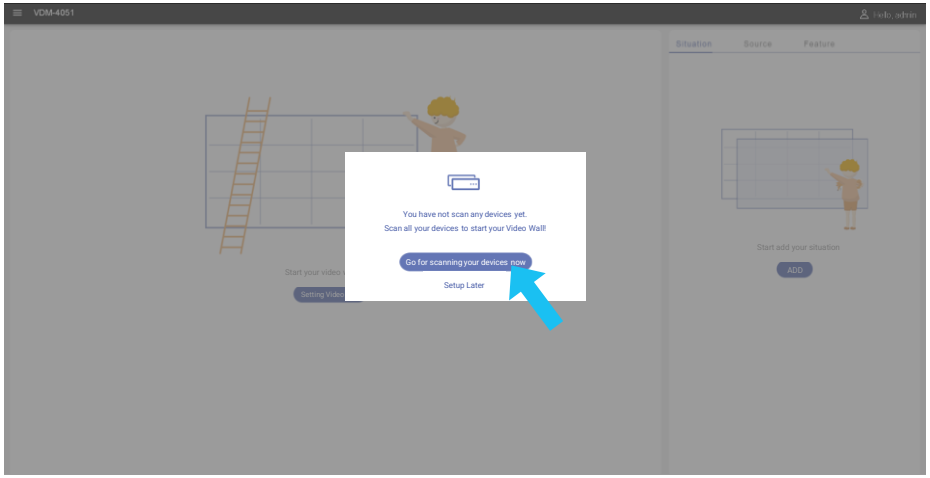
To enter the dashboard of the VDM-4051, just log in with the default ID “admin” and password “00000”.

To change the password, please refer to the descriptions on P72 - Account.

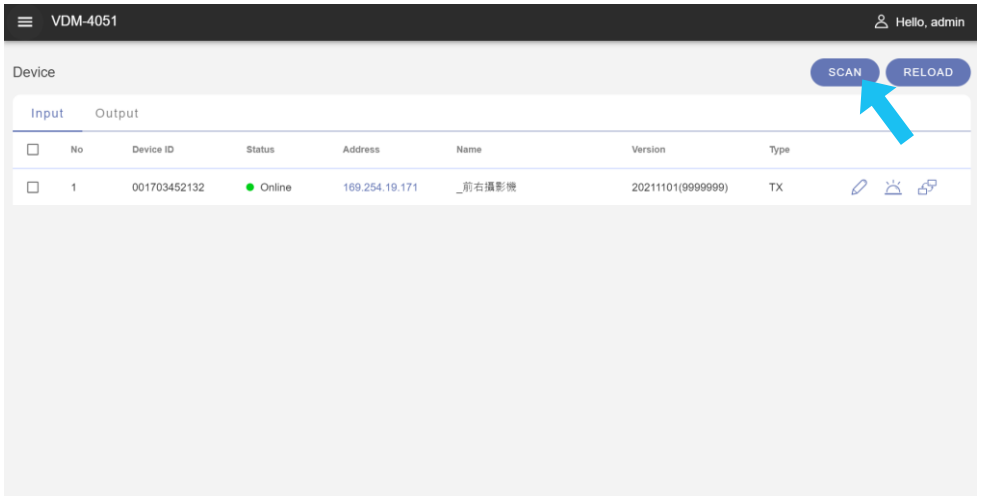
Using the Web UI

Device_Device List

1



2



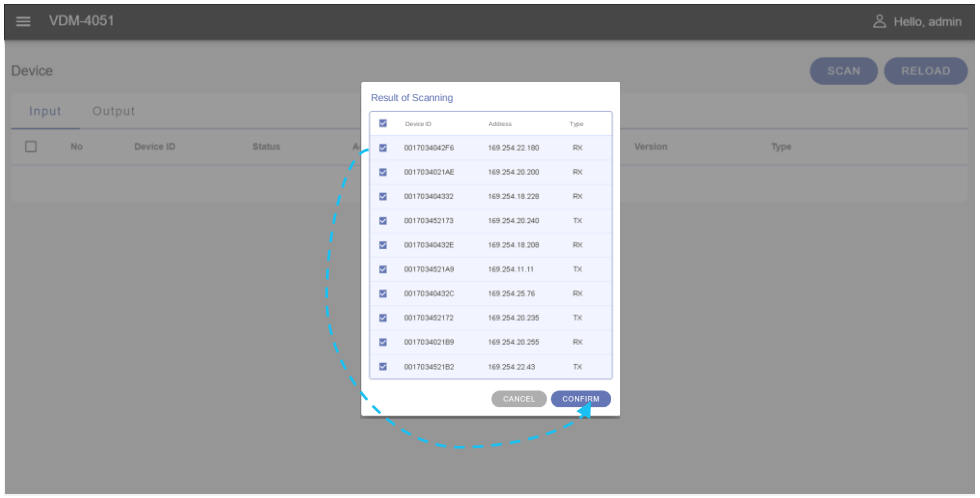
Click “Go for scanning your devices now”.

Click “Scan” to open the device list.

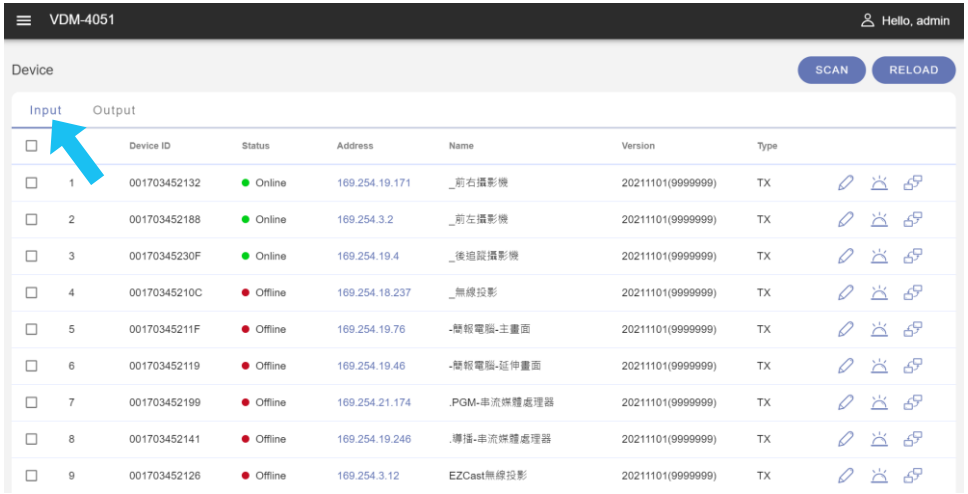
Using the Web UI

Device_Device List

3



4



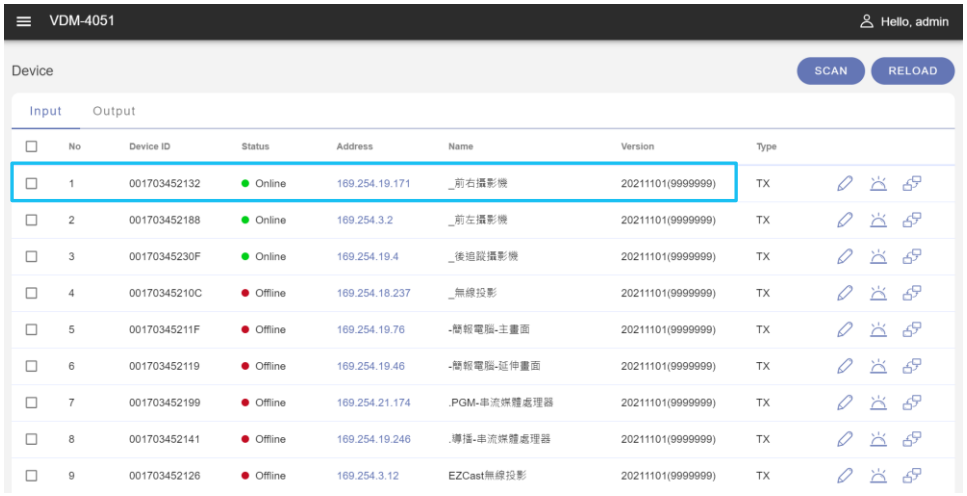
Select the required VDM-4010 and VDM-4020 and add them to the device list. 。

You can manage the VDM-4010 on the “Input” page and manage the VDM-4020 on the “Output” page.

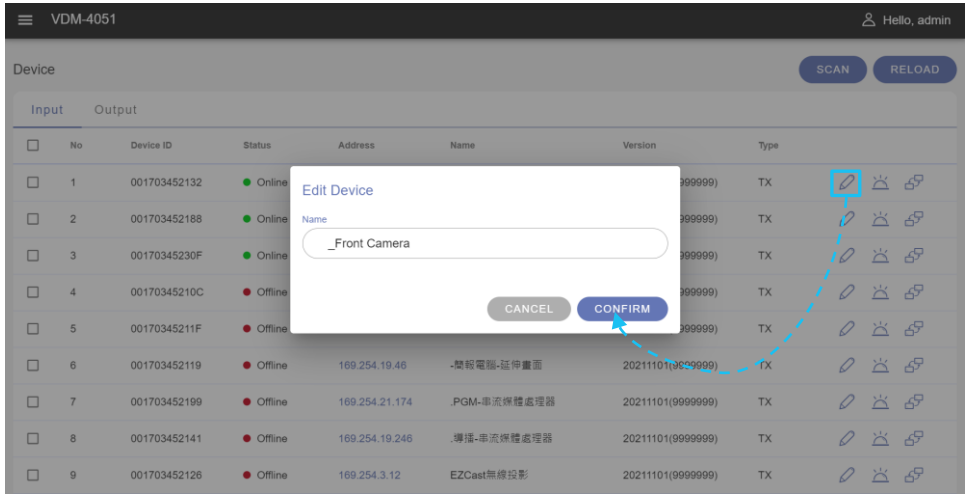
Using the Web UI

Device_Device List

5



6



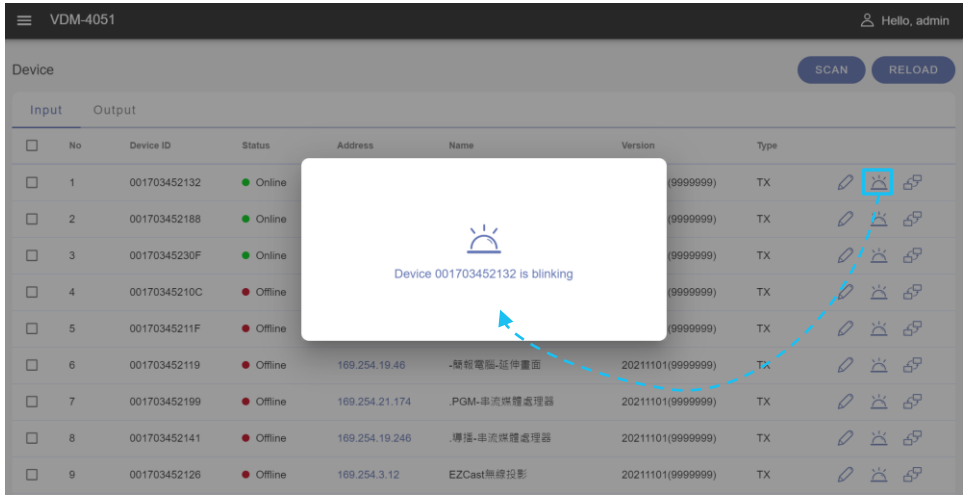
On the device list, you can check the MAC, connection status, IP address, device name, and device version.

Click “Edit” icon to change the device name. Click “CONFIRM” after setting.

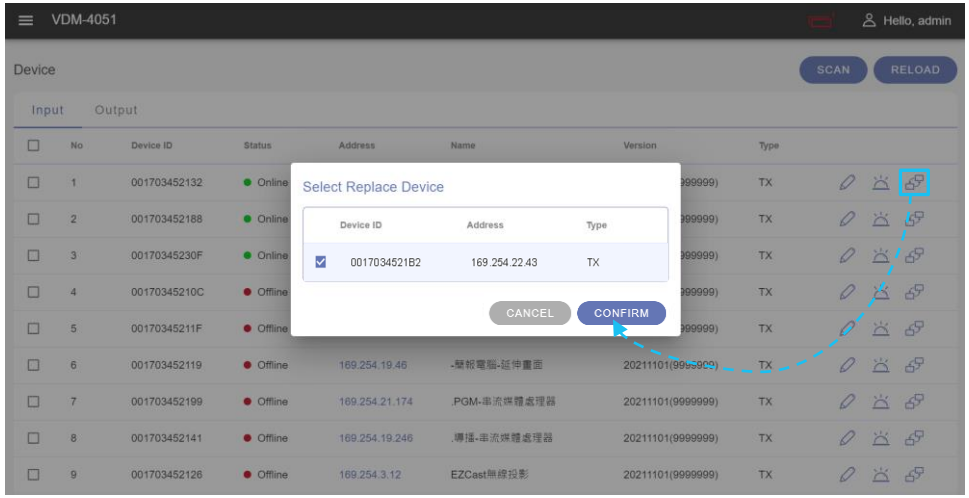
Using the Web UI

Device_Device List

7



8



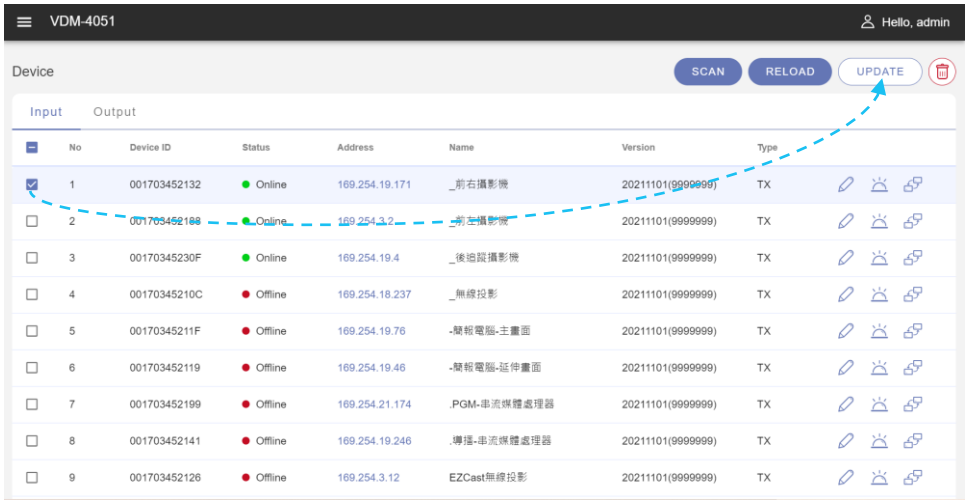
Click “Blink” icon, the indicator light of the device would blink for 5 seconds for identifying its position and settings. To turn off the blinking, just click anywhere else of the page.

If the device is out of work and replaced by another device, click “Replace” icon and then select the replaced device on the device list. After clicking “CONFIRM”, the new device would replace the original device.

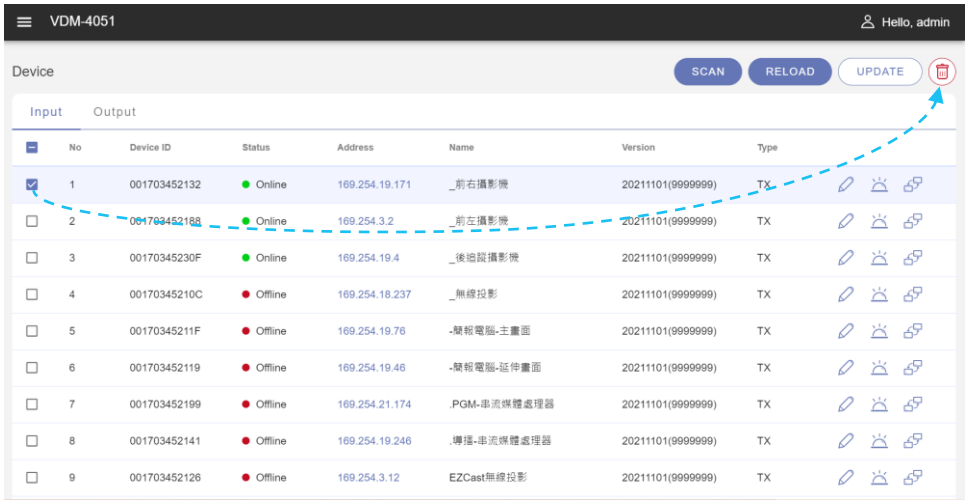
Using the Web UI

Device_Device List

9



10



Select a device and then click “UPDATE” to update its firmware version.

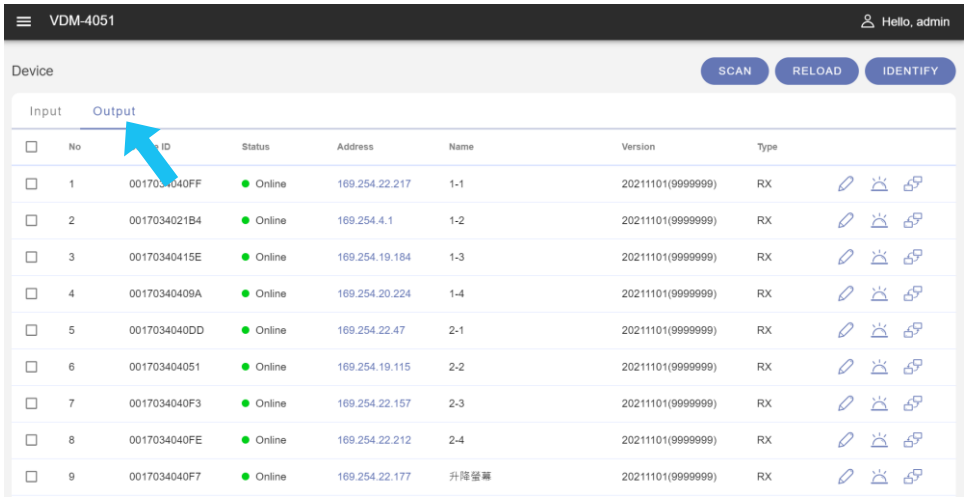
Select a device and then click “Delete” icon to move out the device from the list.

※ Notice: delete devices at random may affect the related situation settings.

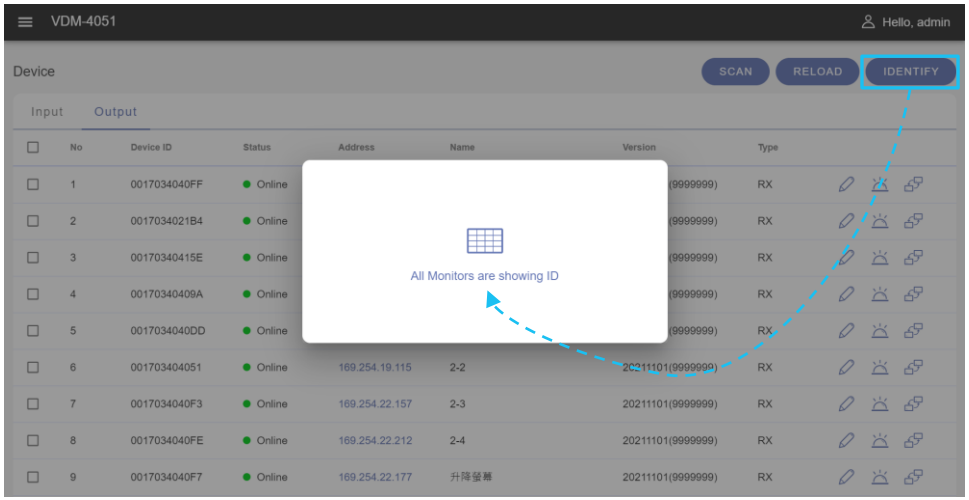
Using the Web UI

Device_Device List

11



12



Click “Output” to switch to VDM-4020 list.

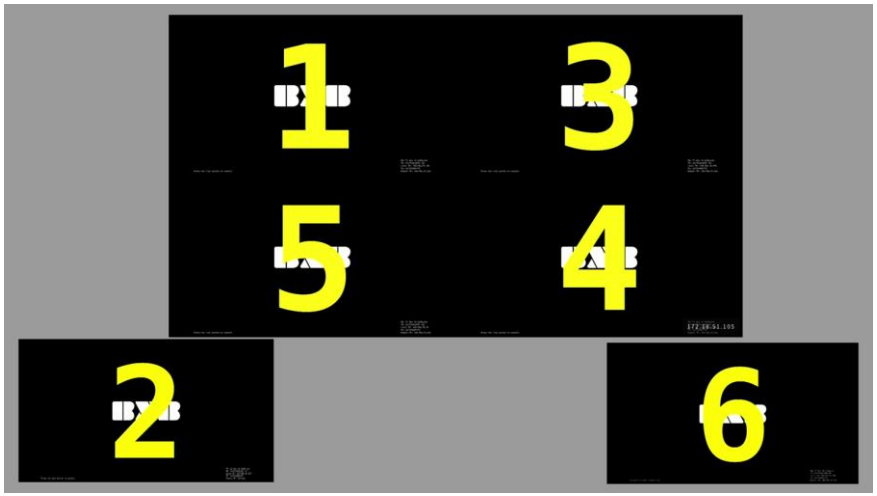
Click “IDENTIFY” , the connected HDMI output monitor would display the number of VDM-4020 for the ease of further settings. To turn off the pop-up window, just click anywhere else of the page.

※ Notice: delete devices at random may affect the related situation settings.

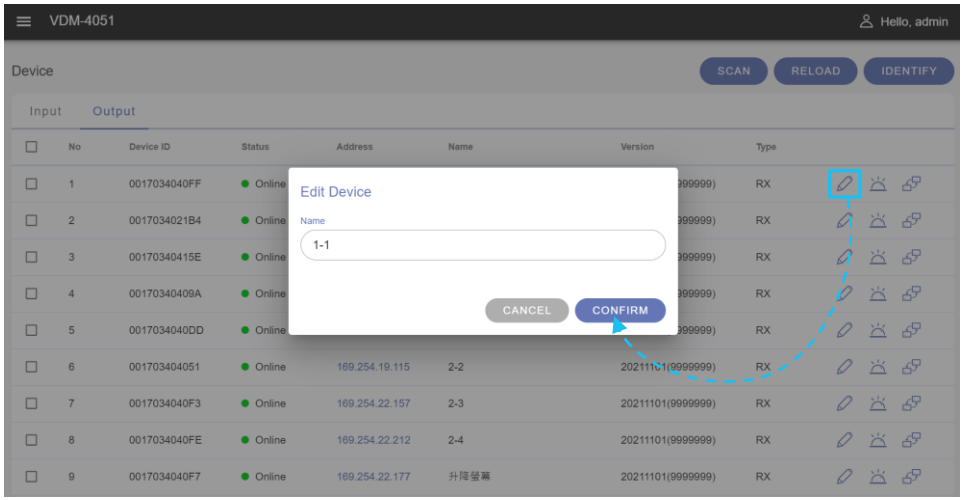
Using the Web UI

Device_Device List

13



14



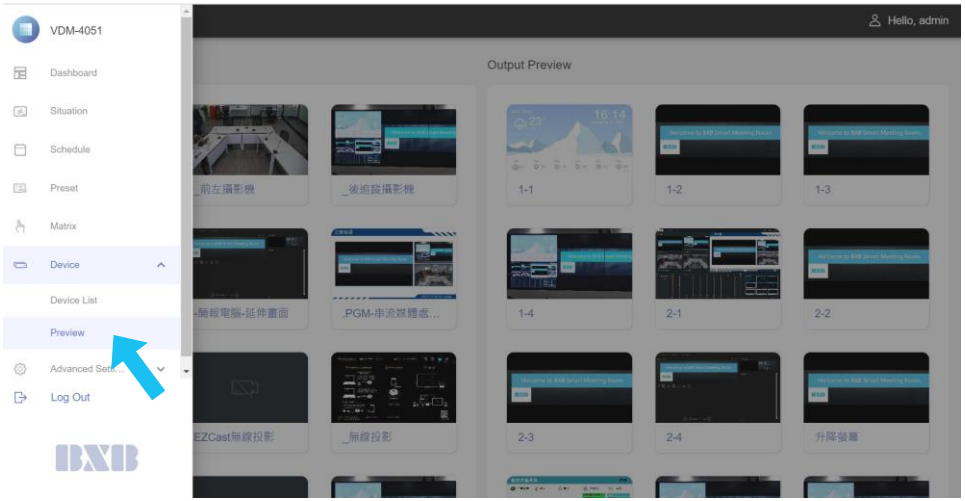
As performing the Identify function, the HDMI output monitor displays the number of the connected VDM-4020.

Based on the displayed device number, you can configure the further settings such as device name.

Using the Web UI

Device_Preview

1



2



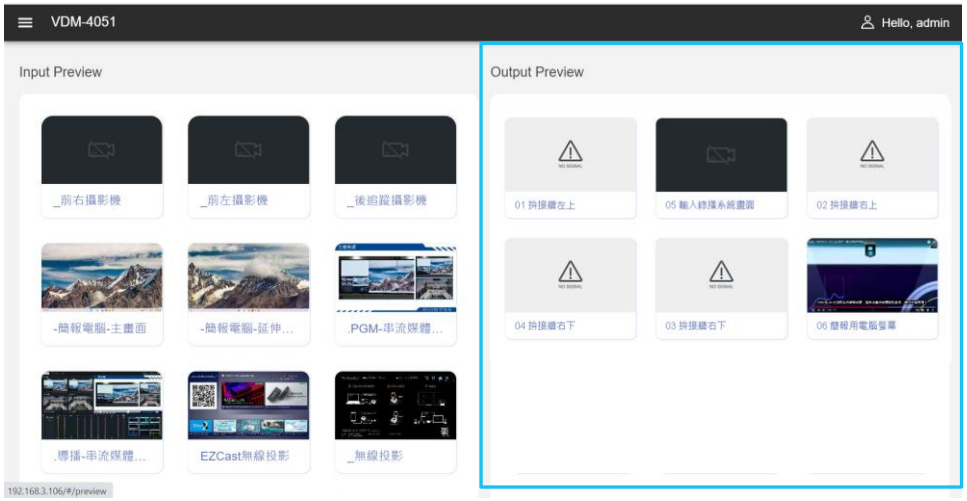
Go to “Device” > “Preview” to preview the images of VDM-4010 and VDM-4020.

The preview images of input devices are shown at the left side. If the devices are disconnected or out of signal, the preview image would show the icon of abnormal status.

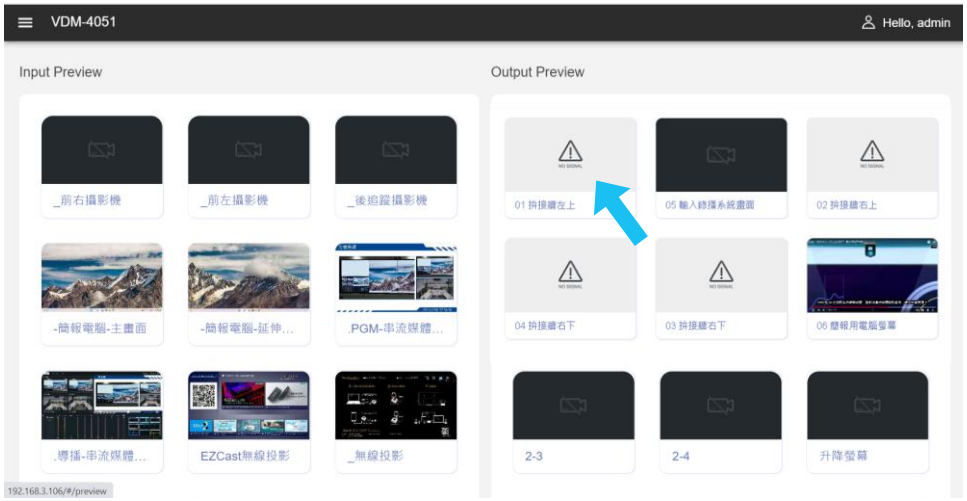
Using the Web UI

Device_Preview

3



4



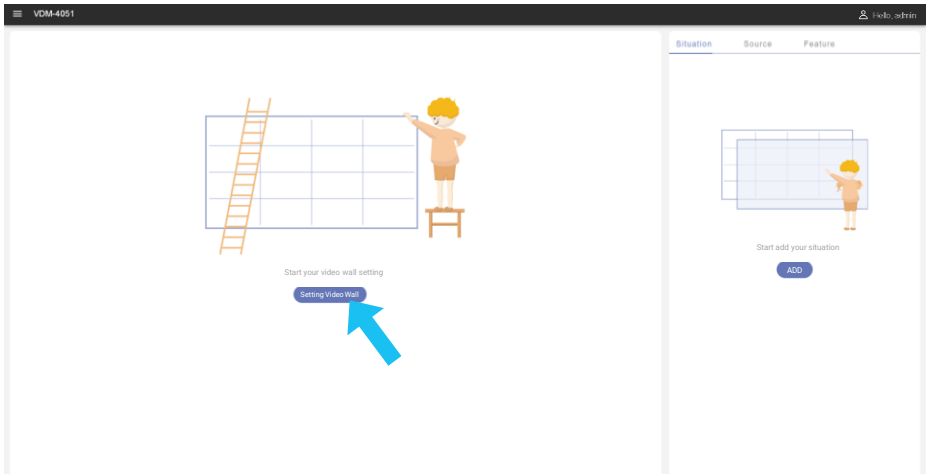
The preview images of output devices are shown at the right side. If the devices are disconnected or out of signal, the preview image would show the icon of abnormal status.

If the output device is not corresponded with any input devices, the preview image would show the icon of “NO SIGNAL”.

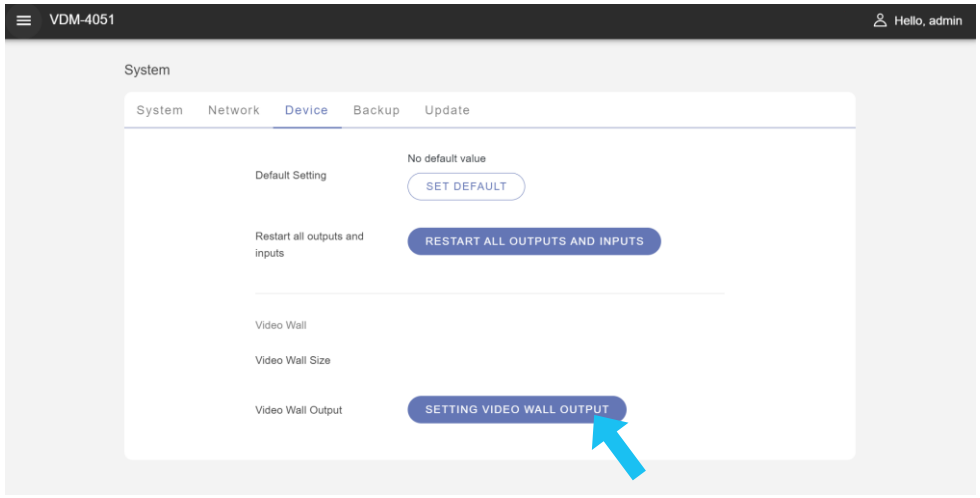
Using the Web UI

Setting Video Wall

1



2

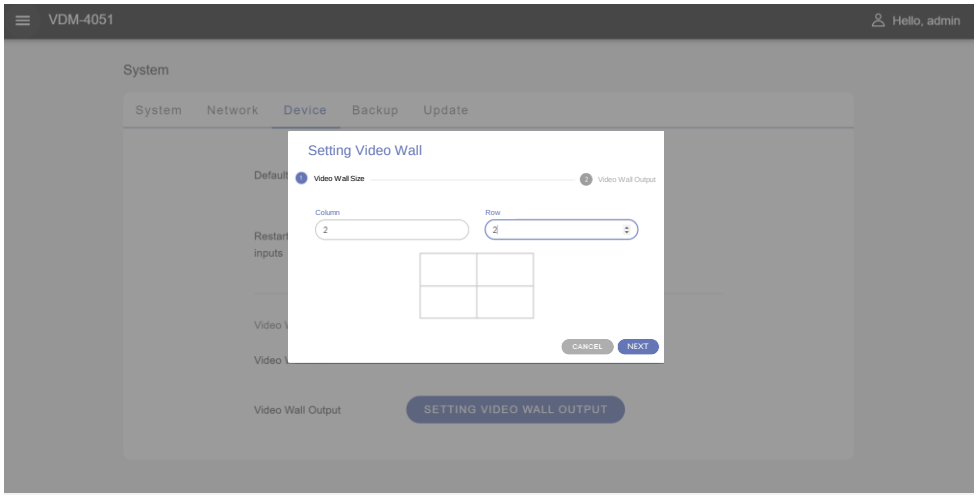


On the Dashboard, click “Setting Video Wall” to enter the setting page.

Click “SETTING VIDEO WALL OUTPUT” to start settings.

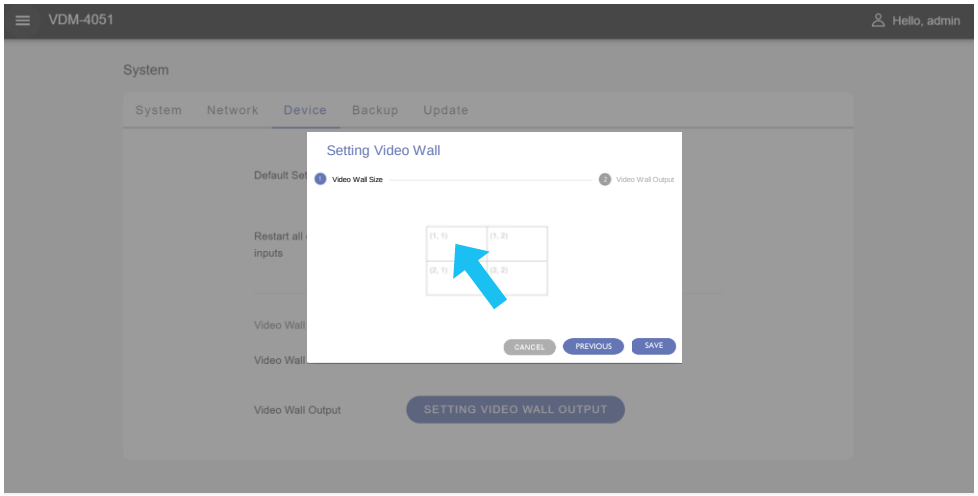
Setting Video Wall

3



Set the quantity of row and column for the video wall (e.g., row x 2 and column x 2 for 2 x 2 video wall).

4

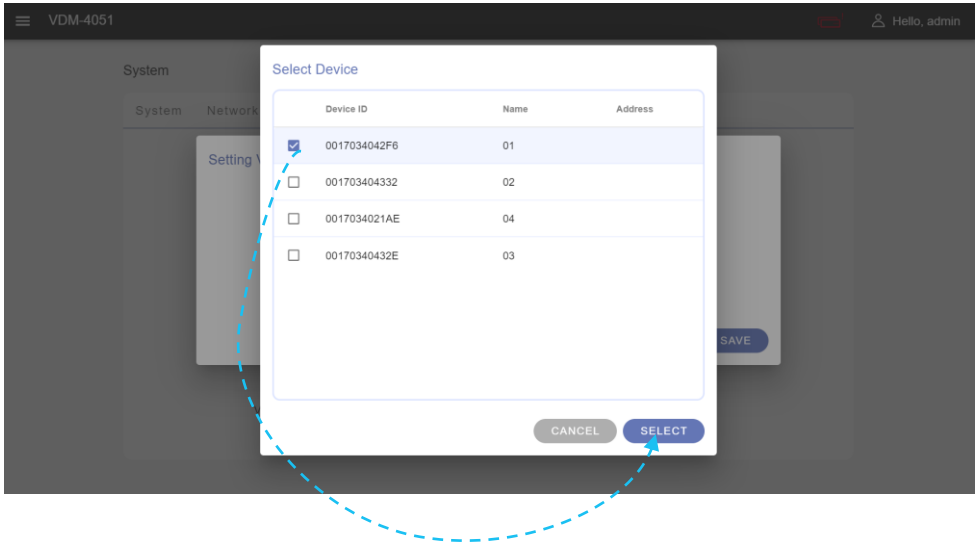


Click a position of the video wall to open the output device list.

Using the Web UI

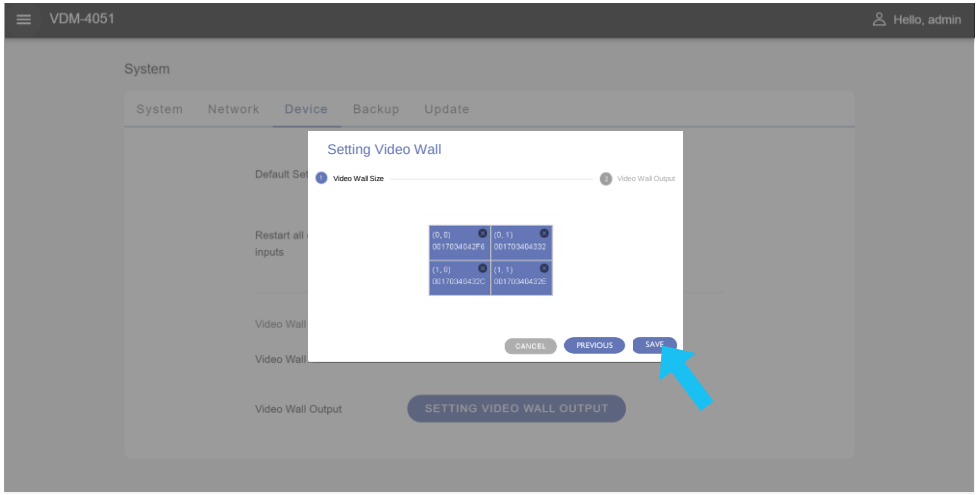
Setting Video Wall

5



Select the corresponding output devices from the list in sequence for binding.

6

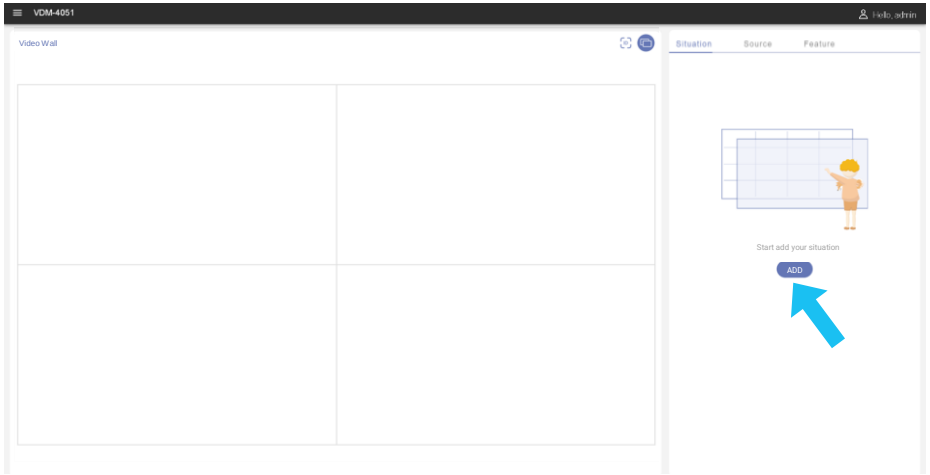


Click “SAVE” to finish setting the video wall.

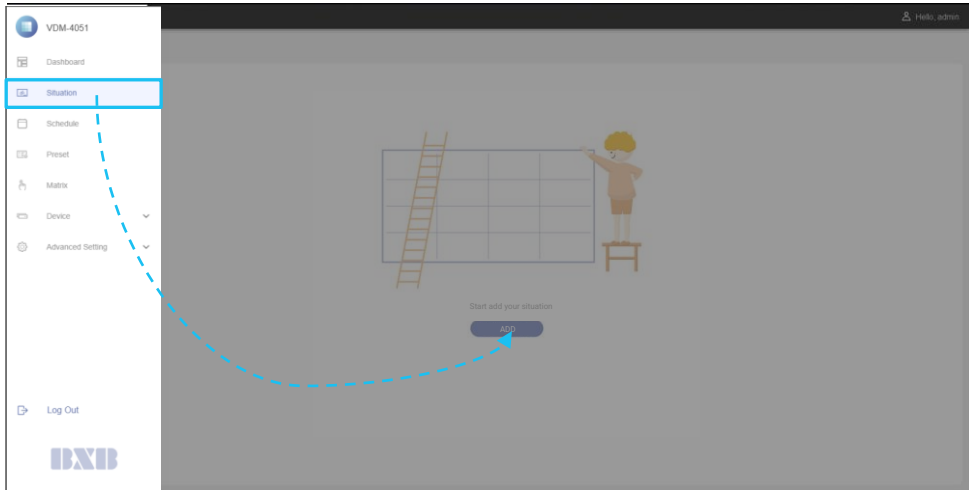
Using the Web UI

Add a Situation

1



2



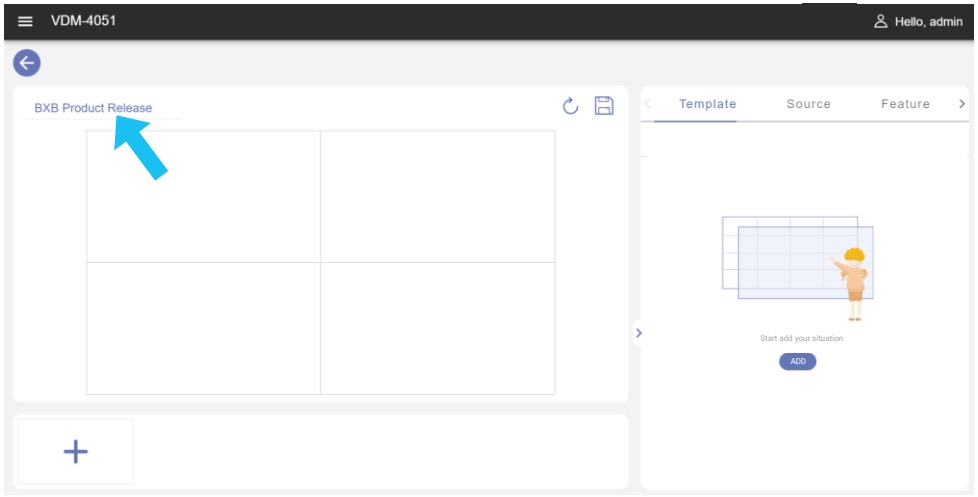
On the dashboard, click “ADD” on the “Situation” page.

Or you can click “Situation” on the menu to add a new situation.

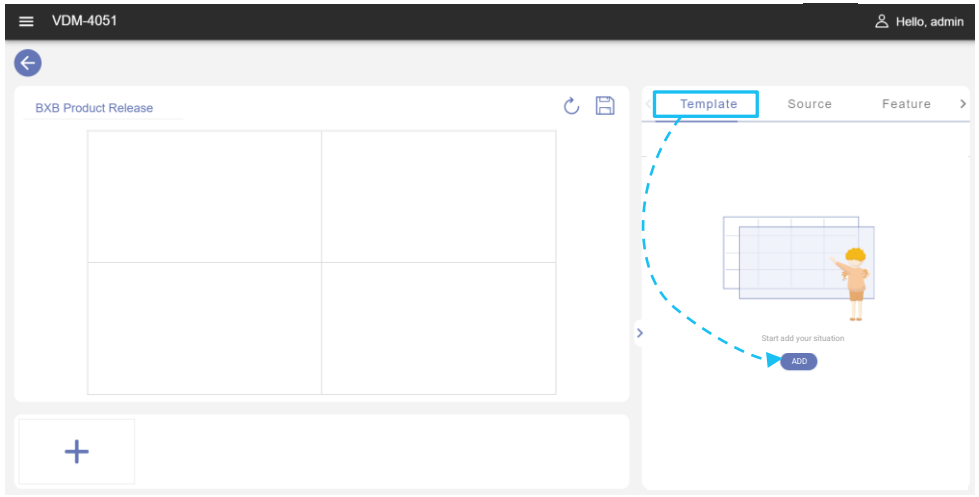
Using the Web UI

Add a Situation

3



4



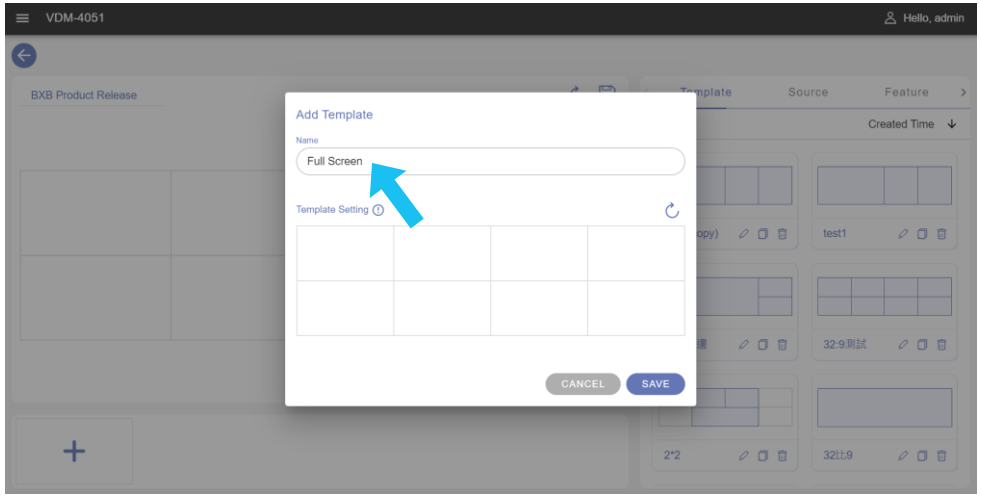
Enter the name of the situation for easy identification as switching situations.

On the “Template” tab, click “ADD” to open the window of setting templates.

Using the Web UI

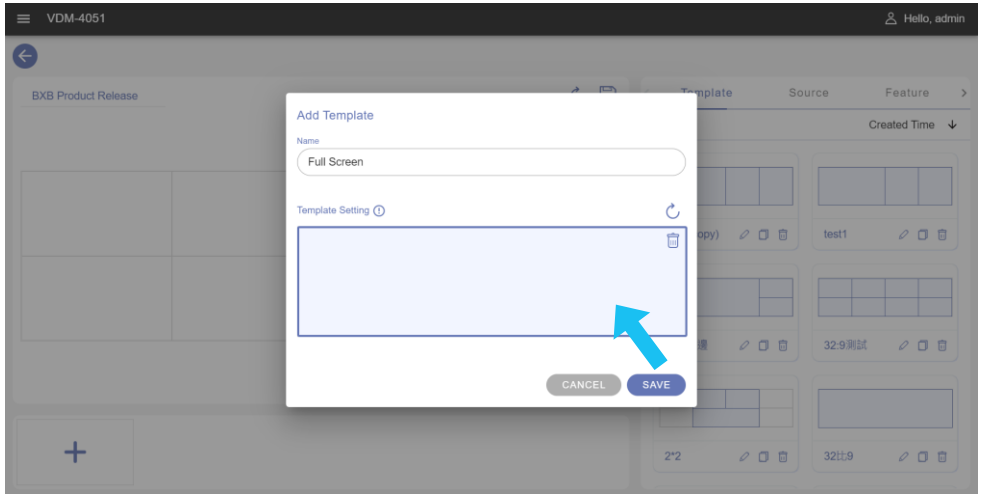
Add a Situation

5



Enter the template name for the ease of editing the situation.

6

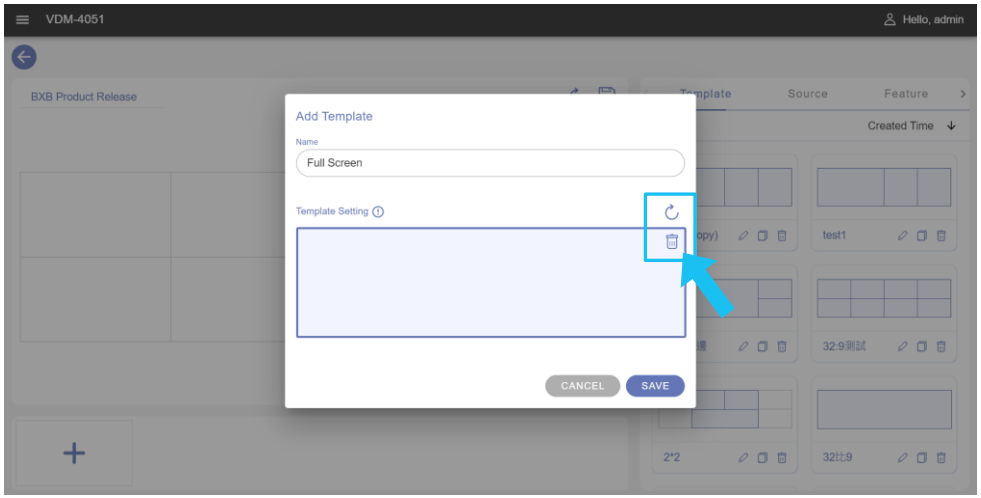


Drag to set the display range.

Using the Web UI

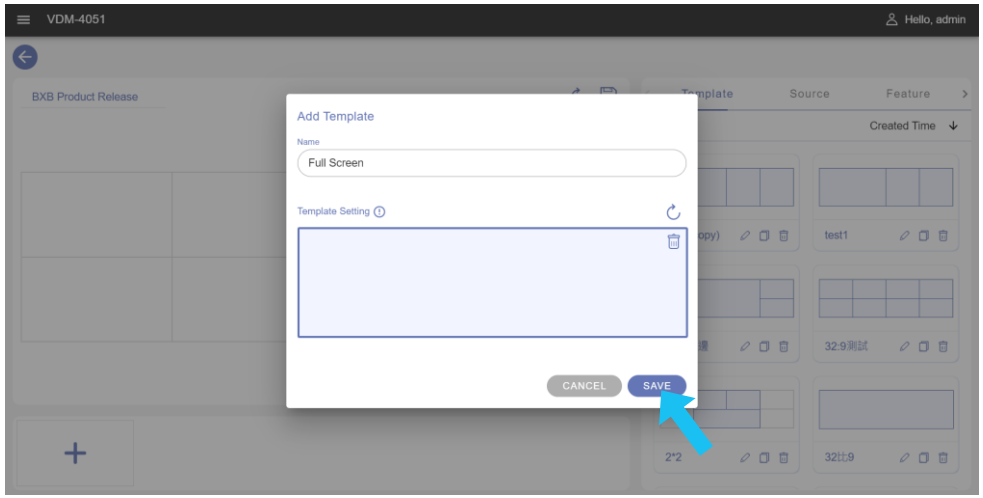
Add a Situation

7



To reset the template, you can click “Delete” icon to delete the template or “Clear” icon to delete all templates.

8

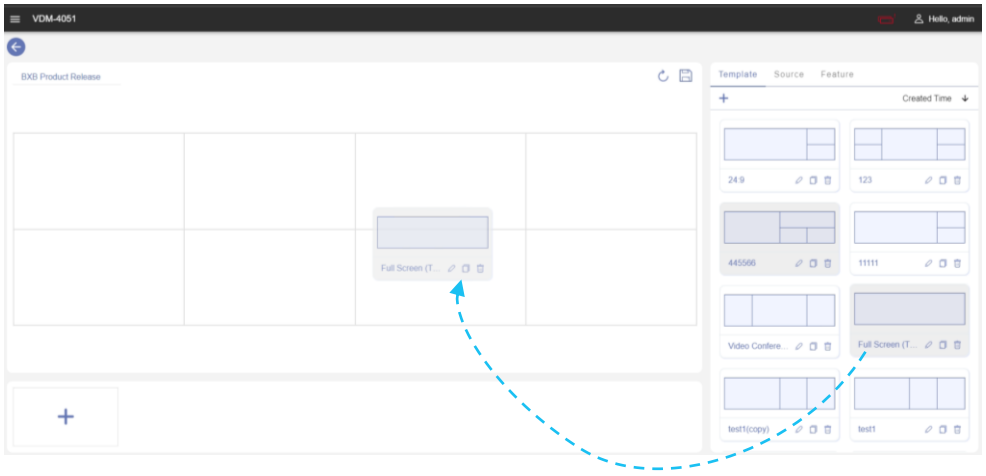


Click “SAVE” after setting.

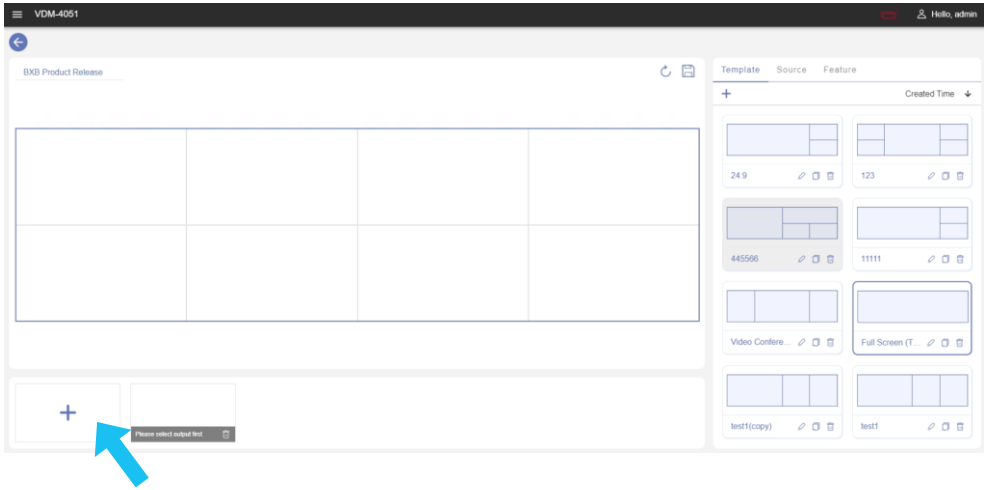
Using the Web UI

Add a Situation

9



10



Drag the template into the editing area of video wall.

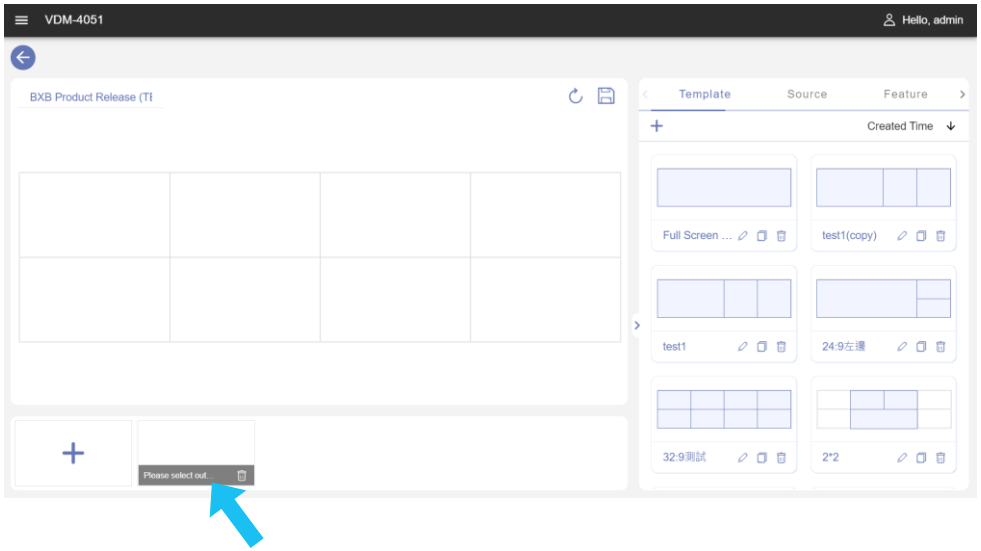
※ One template can be applied to different situations.

Besides video wall, if there’re other connected output devices, you can click “ + ”on the bottom column to add the device corresponding with the situation.

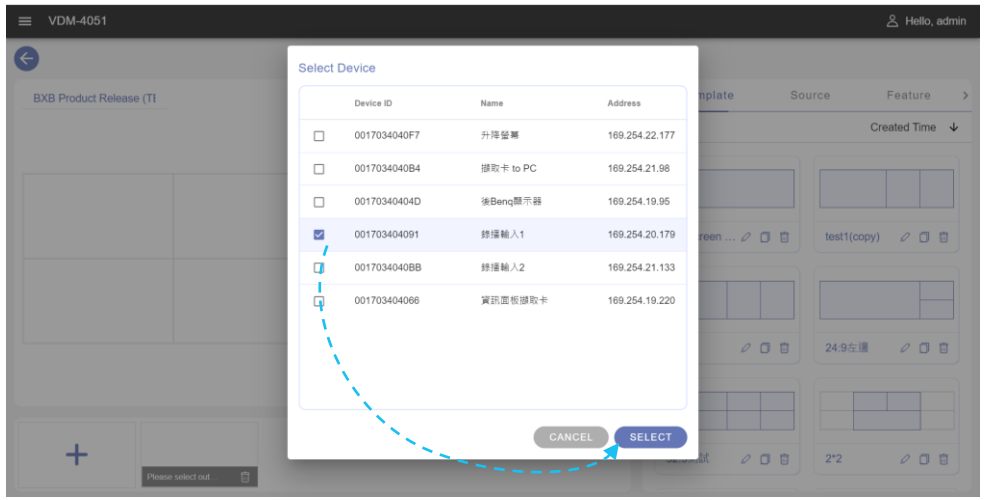
Using the Web UI

Add a Situation

11



12



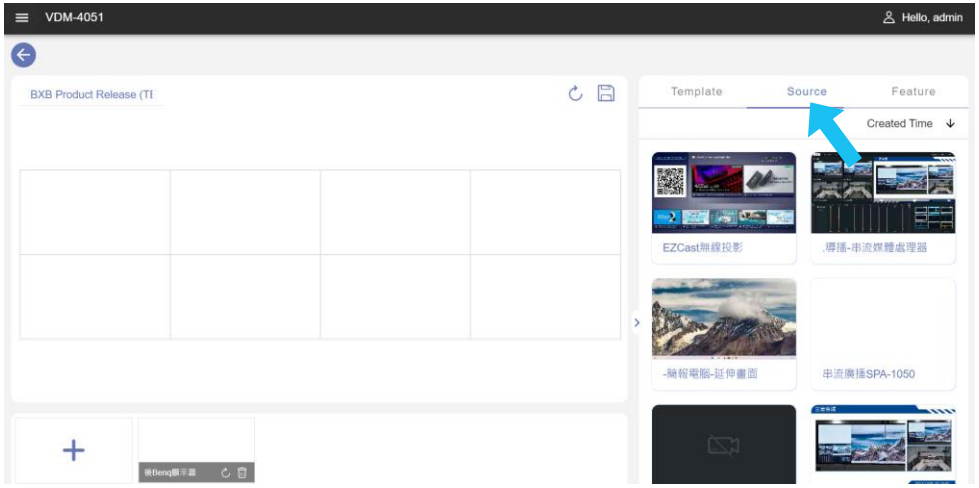
Click “Please select output first” for binding devices.

Select a VDM-4020 and then click “SELECT” to finish the binding.

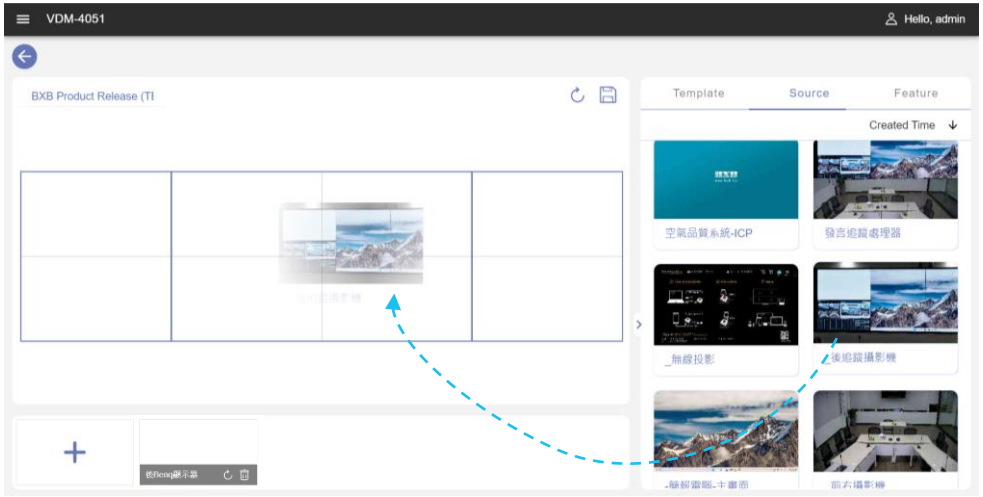
Using the Web UI

Add a Situation

13



14



Click “Source” to switch to the VDM-4010 list.

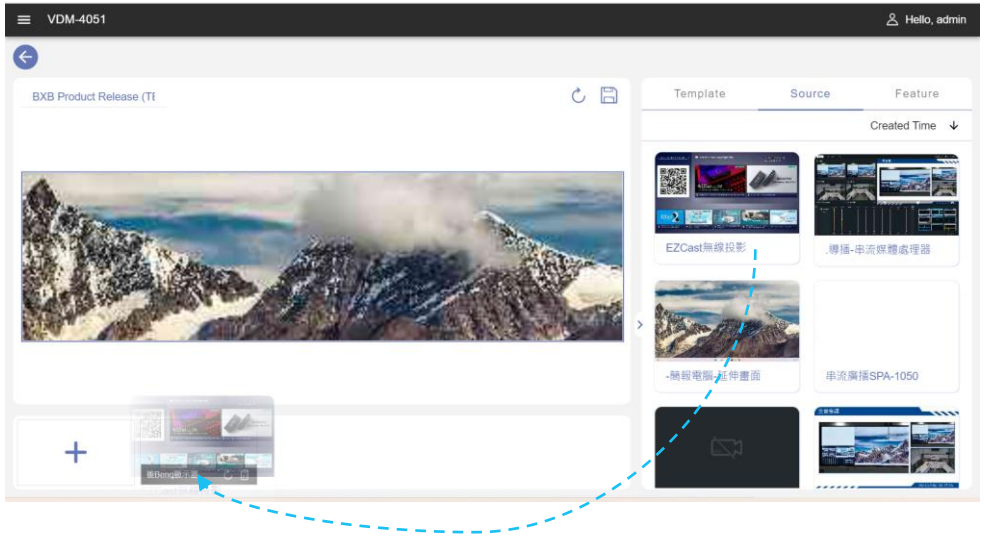
Drag the preview image of the source to the editing area.

If the selected output device is not binding with the corresponding input device, the output image would remain as the original.

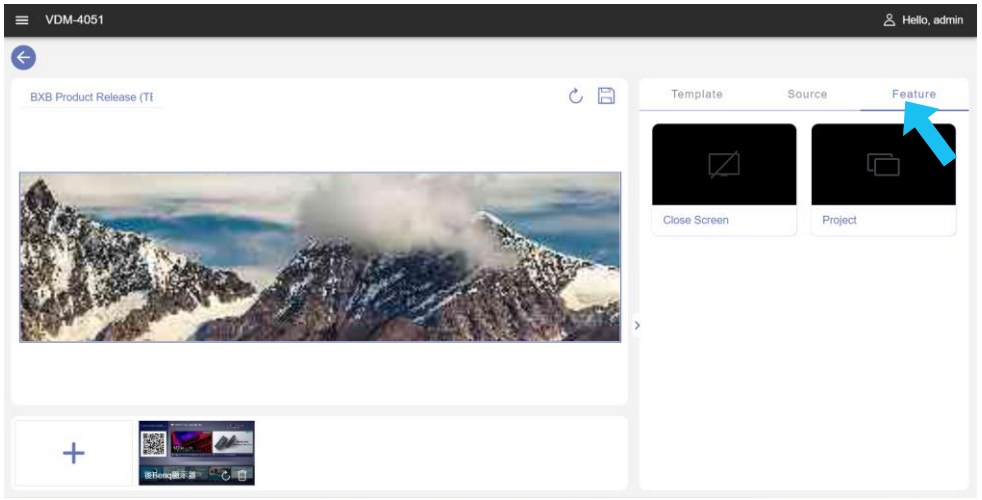
Using the Web UI

Add a Situation

15



16



Drag the source image for the display of another output device.

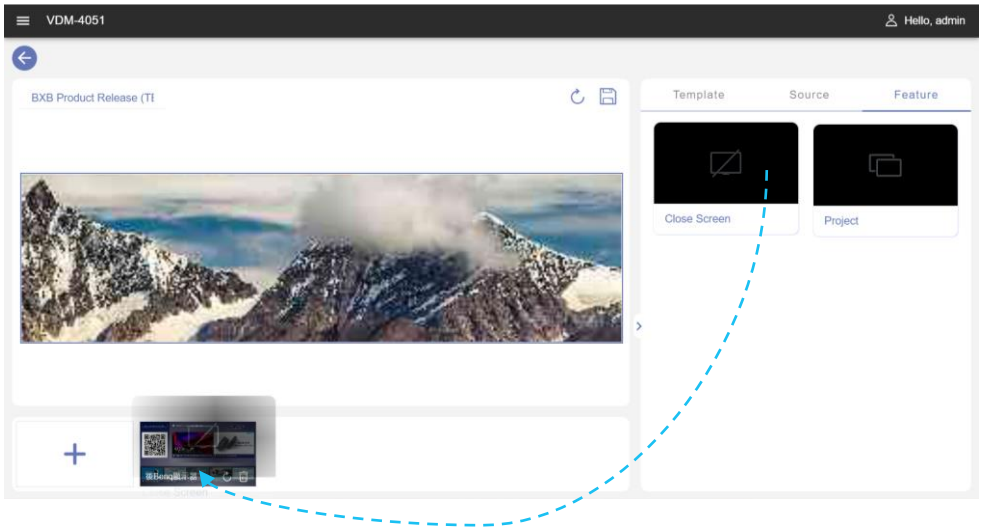
Click “Feature” for further settings.

If the selected output device is not binding with the corresponding input device, the output image would remain as the original.

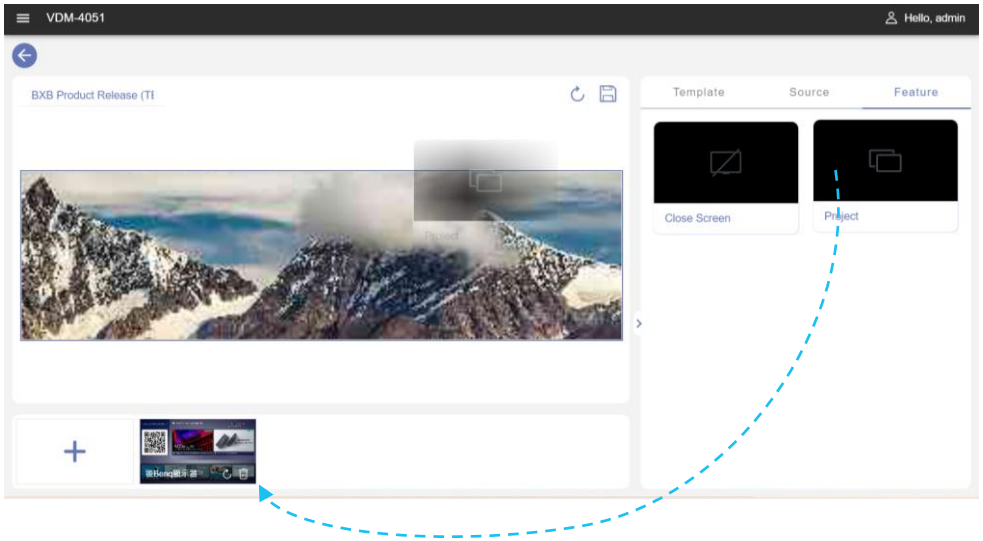
Using the Web UI

Add a Situation

17



18



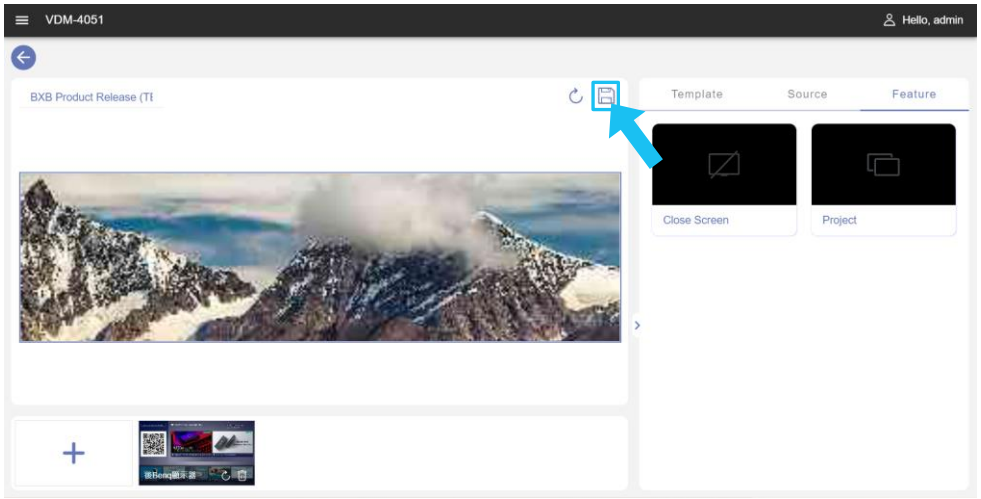
Drag “Close Screen” feature to the display of output device. The image of that output device would be turned off.

Drag “Project” feature to the editing area. When the VDM-4010 connects with wireless display device, the image would be shown on the corresponding position of the video wall.

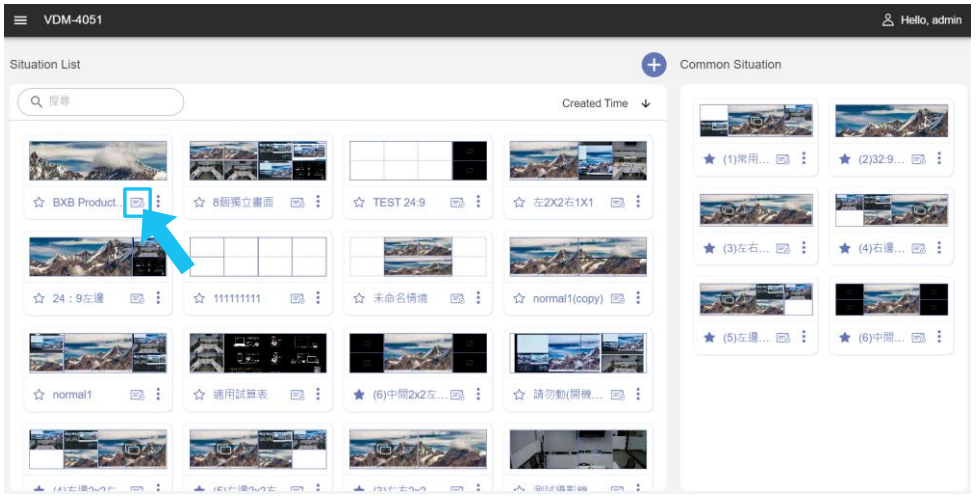
Using the Web UI

Add a Situation

19



20



Click “Save” icon to save the situation.

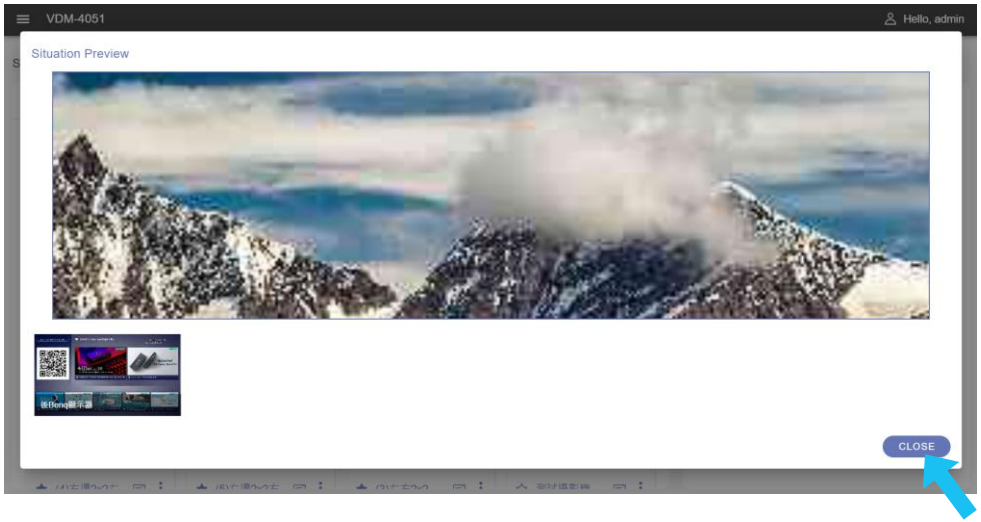
After saving, the page would turn back to the situation list.

Click “Preview” icon to check the situation settings.

Using the Web UI

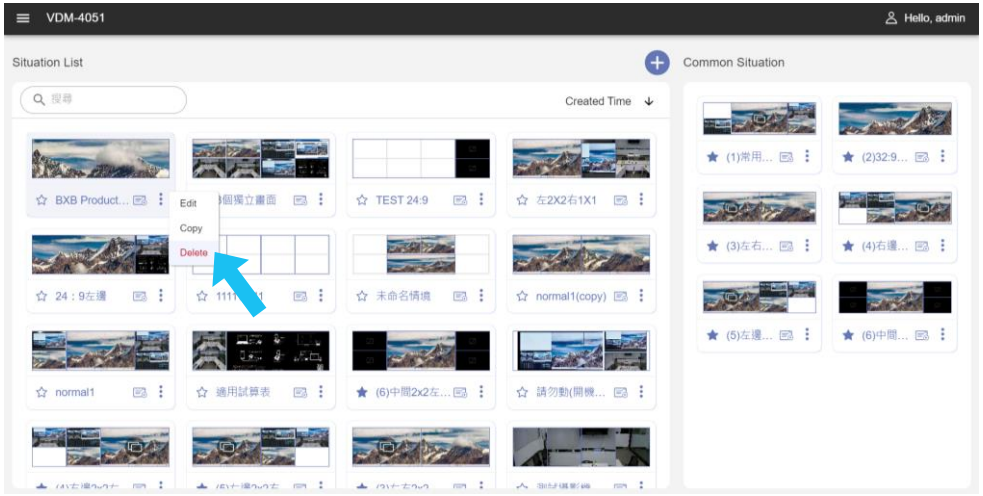
Add a Situation

21



Click “CLOSE” to close the preview page.

22

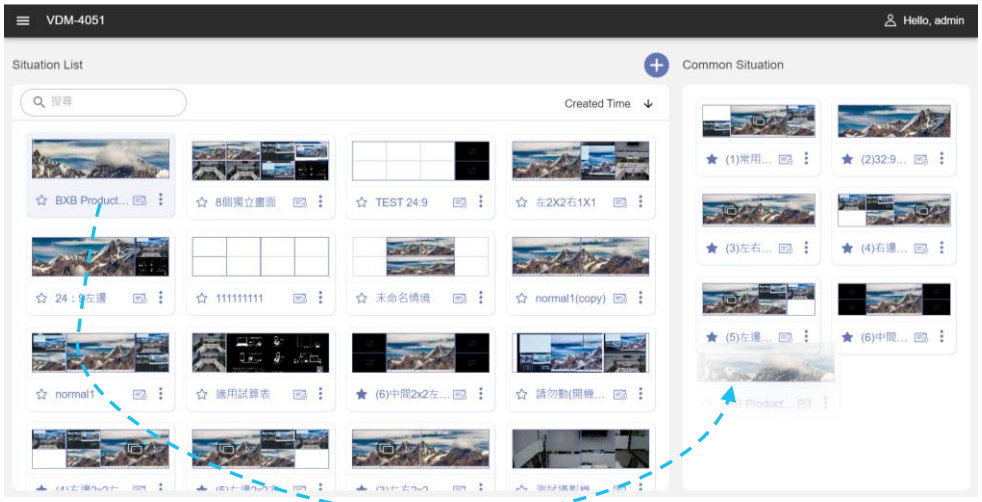


Click the hidden menu to edit, copy, or delete the situation.

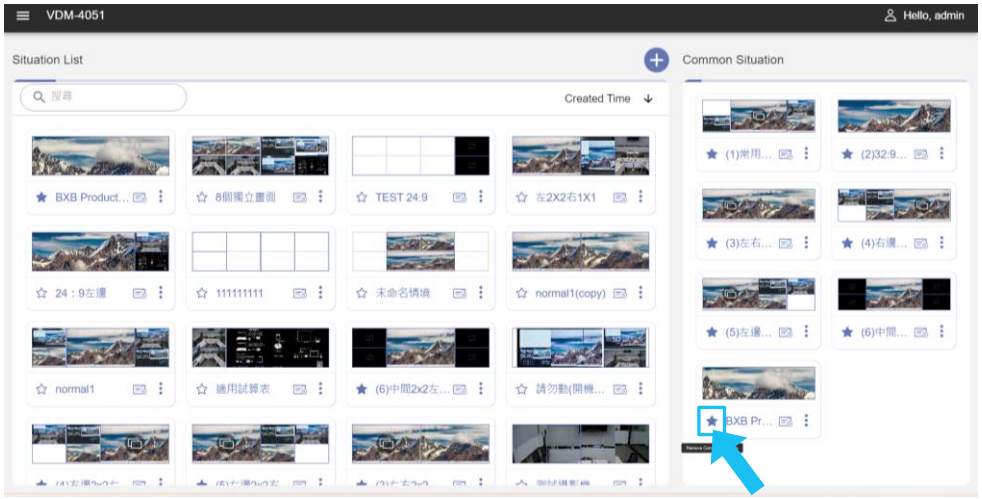
Using the Web UI

Add a Situation

23



24



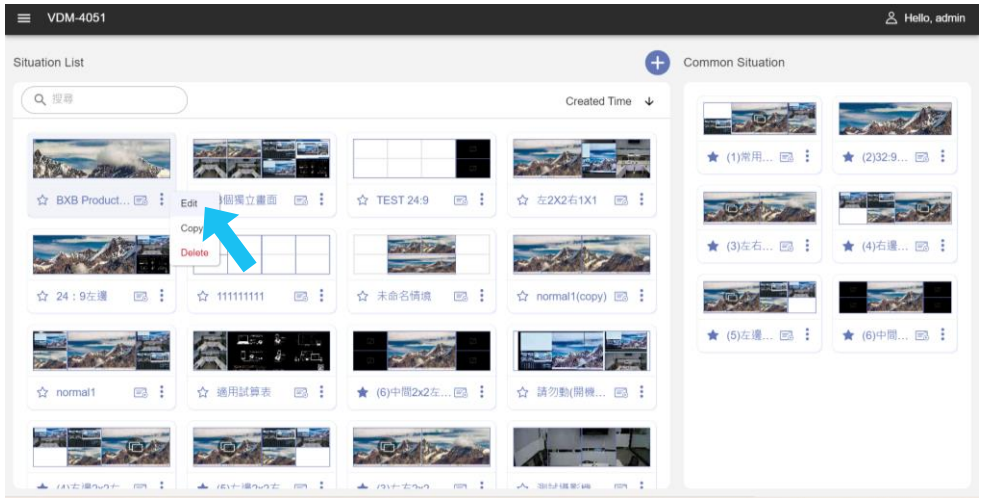
Drag the added situation to the “Common Situation” list or click on the star icon. The situation would be shown on the dashboard page for the ease of situation switch in the future.

Click on the “star” icon of the situation which has been added to the Common Situation list or drag the situation out of the list to move it out from the dashboard page.

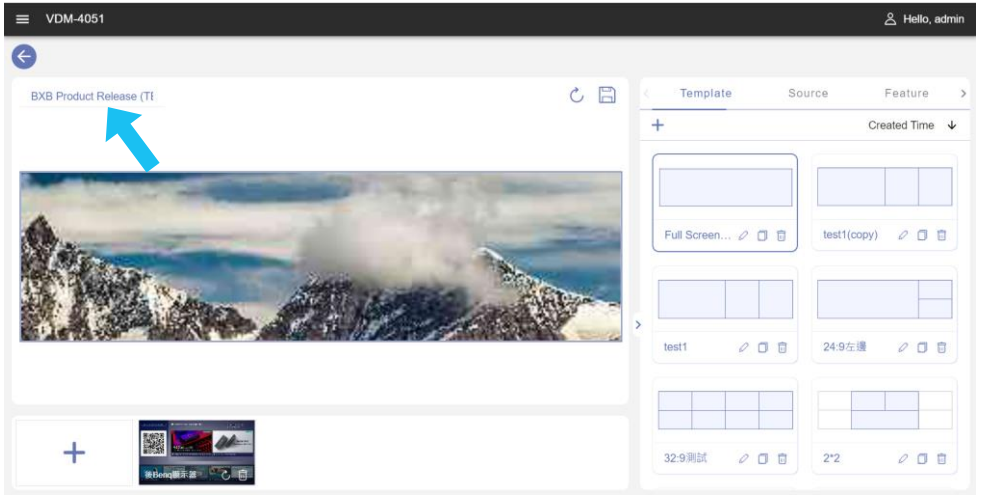
Using the Web UI

Edit Situation

1



2



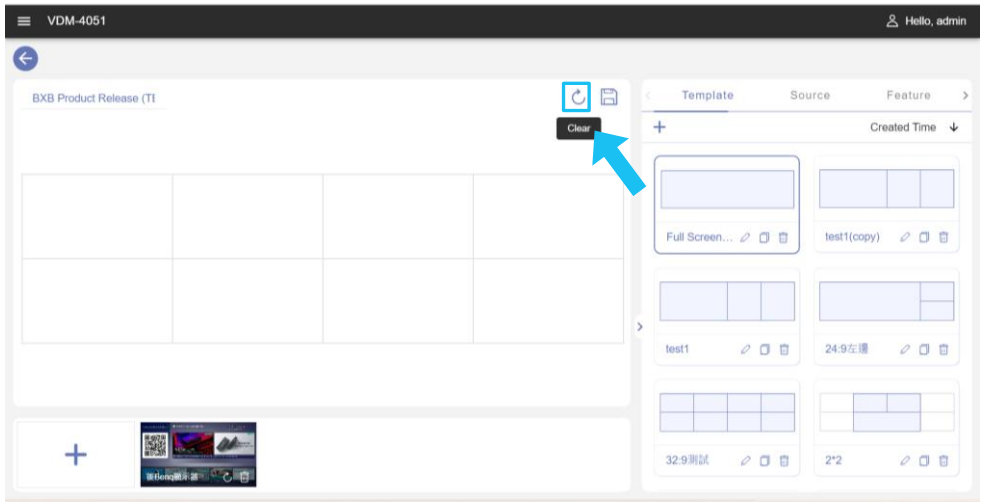
Click “Edit” to enter the editing page to modify the original situation.

Change the name of the situation.

Using the Web UI

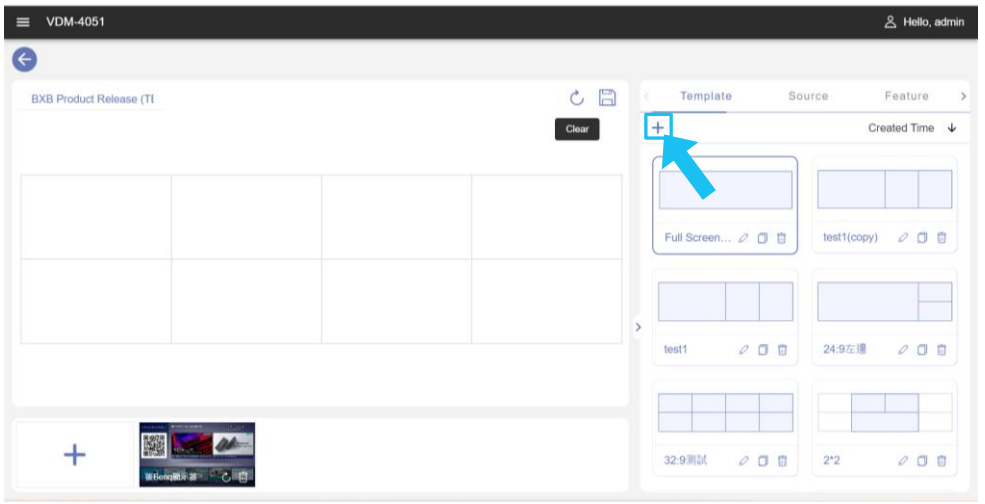
Edit Situation

3



Click “Clear” icon to clear the original video wall template.

4

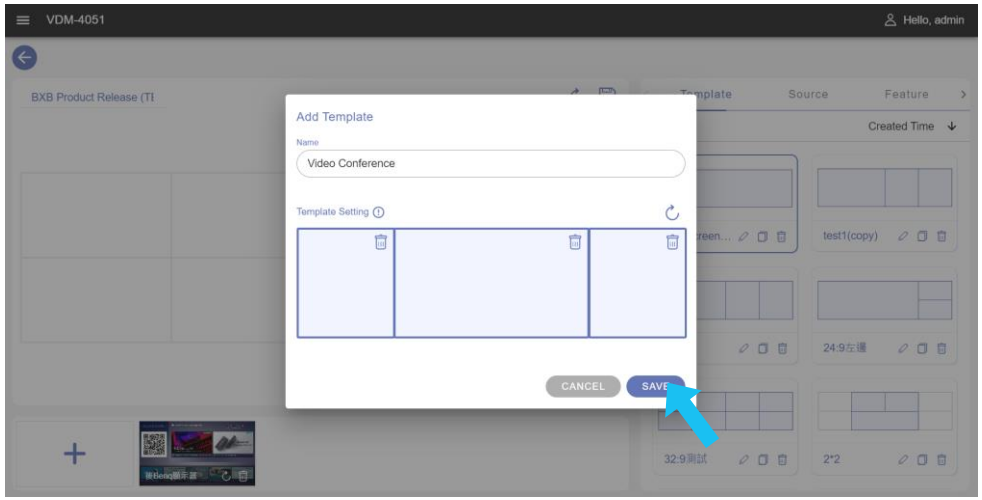


Click “Add” icon to add a new template.

Using the Web UI

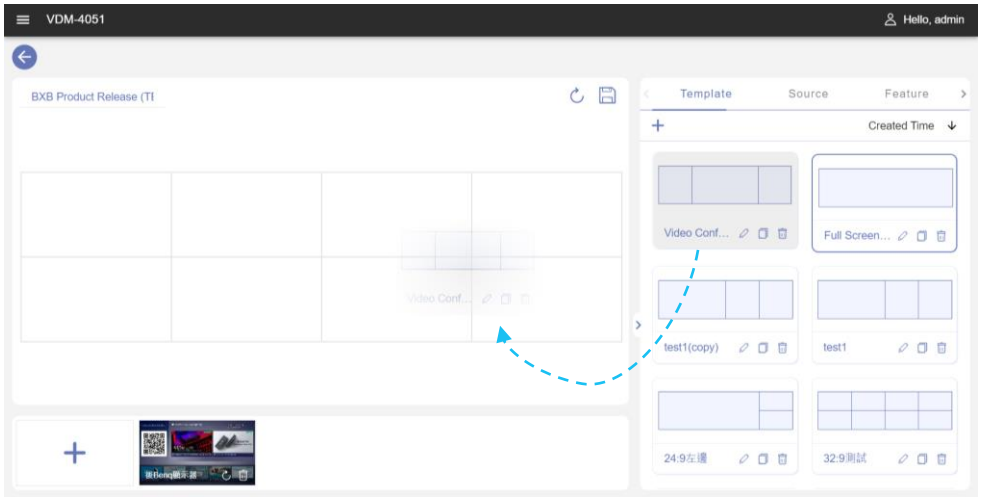
Edit Situation

5



Set and design the template. After setting, click “SAVE” to save the template

6

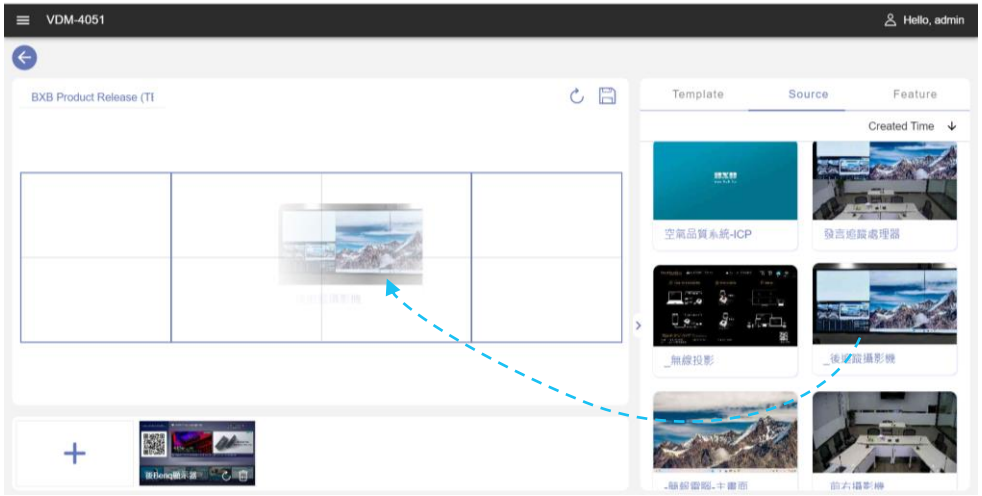


Drag the template to apply for the video wall.

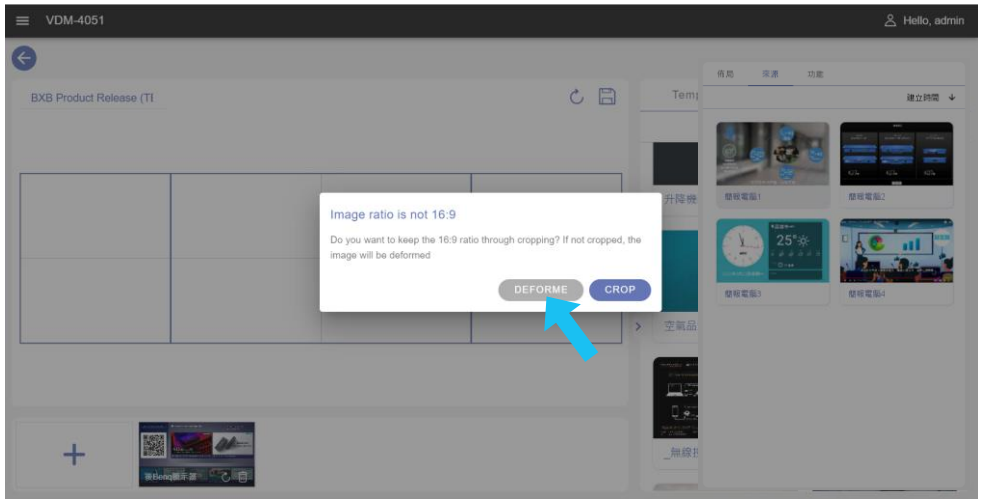
Using the Web UI

Edit Situation

7



8



Drag the required source images (input) to the display area.

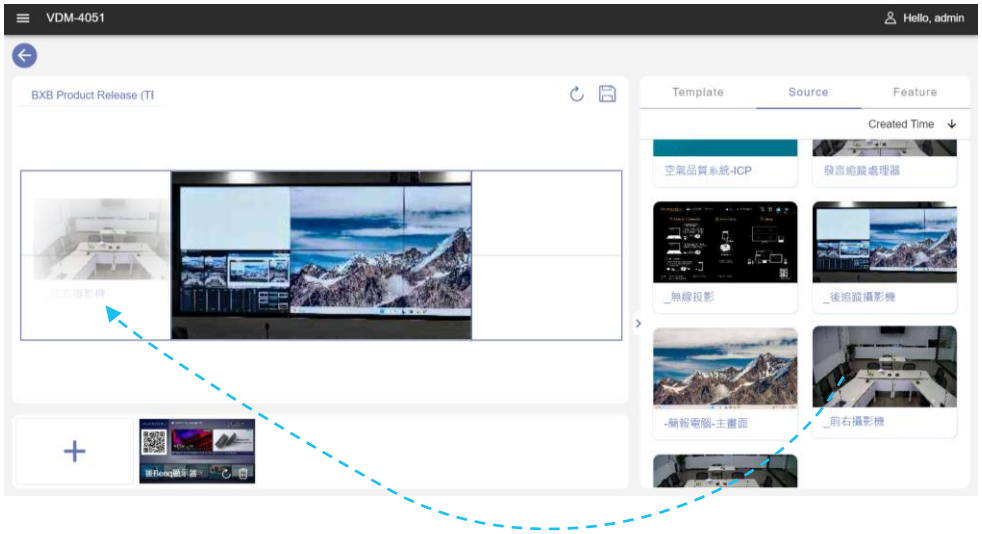
When the image ratio is not the standard 16:9, a pop-up window would be display for selecting display mode.

If you click “DEFORME”, the image would be extended to fit the original template ratio.

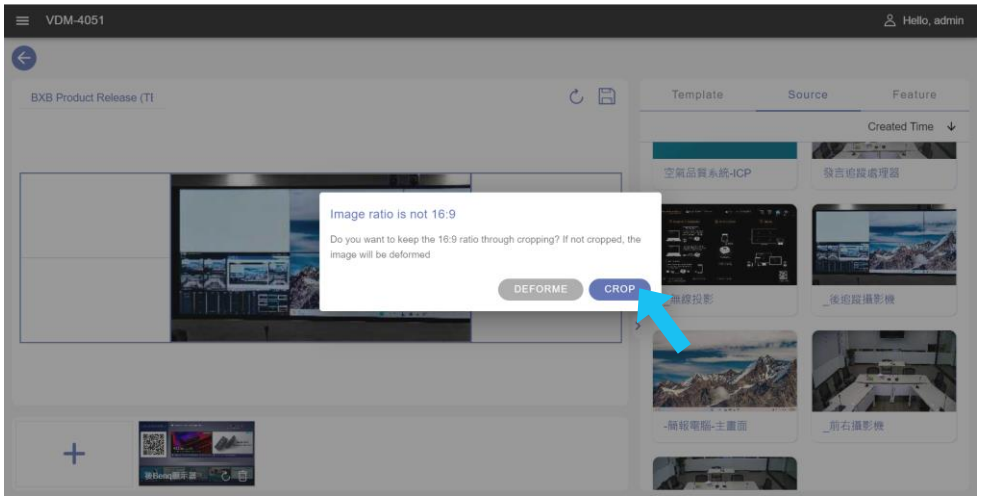
Using the Web UI

Edit Situation

9



10



Drag another source image.

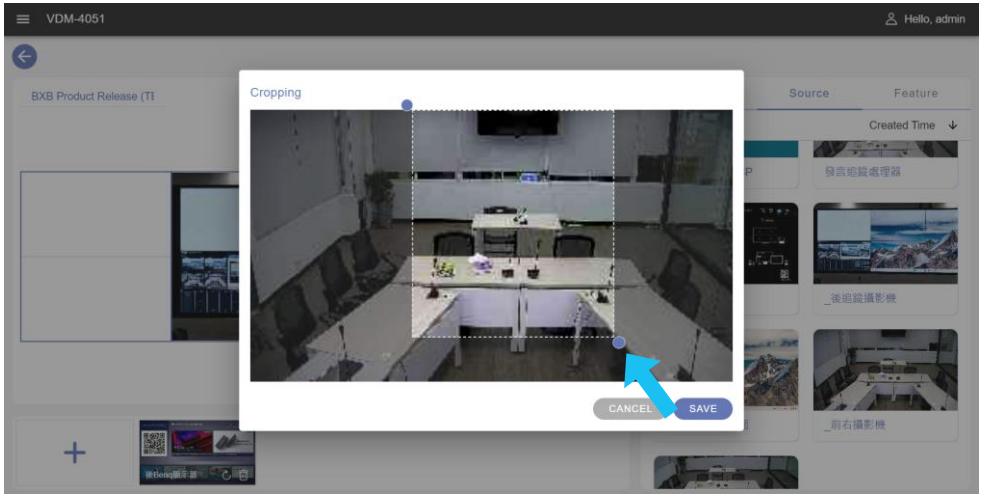
When the image ratio is not the standard 16:9, a pop-up window would be display for selecting display mode.

If you click “CROP” , the image can be scaled by your own.

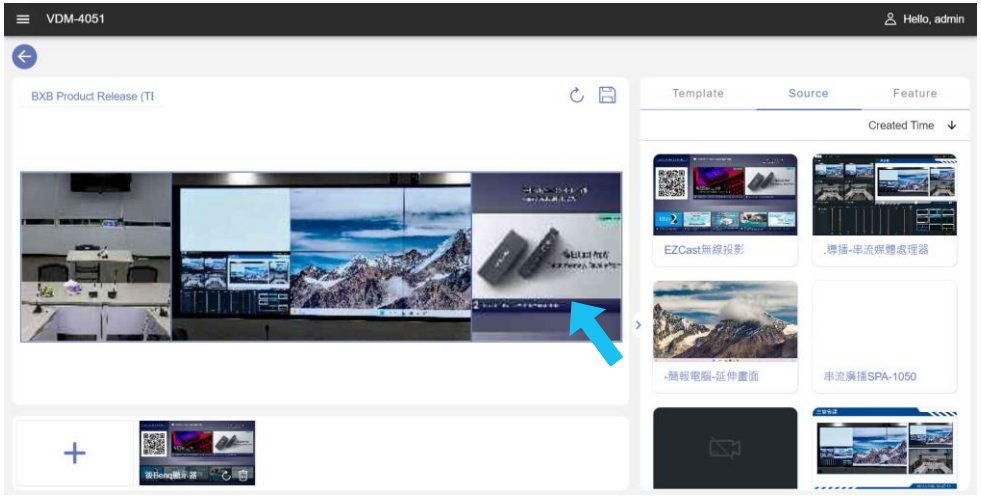
Using the Web UI

Edit Situation

11



12



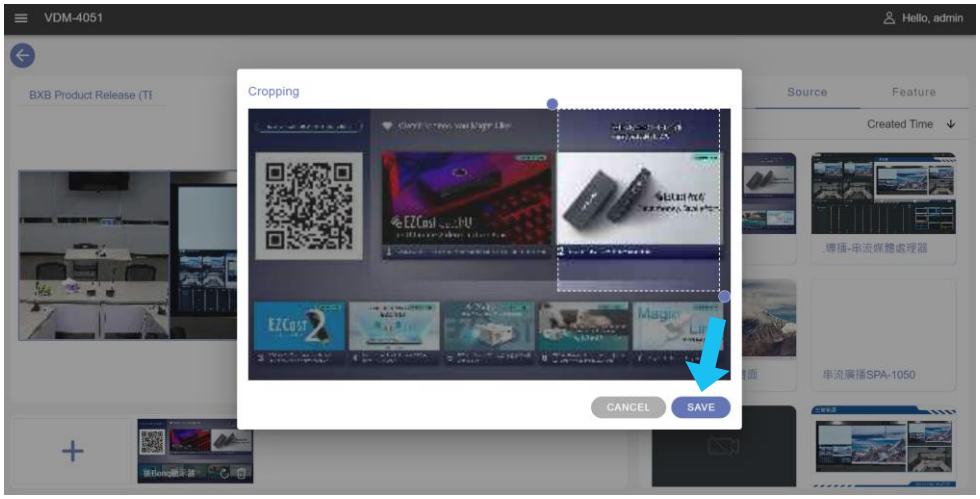
VDM-4051 would lock the area for the standard display ratio. You can drag and move the required display area of the image.

If you want to modify the display area or crop a specified area of the image, just click twice on the editing area.

Using the Web UI

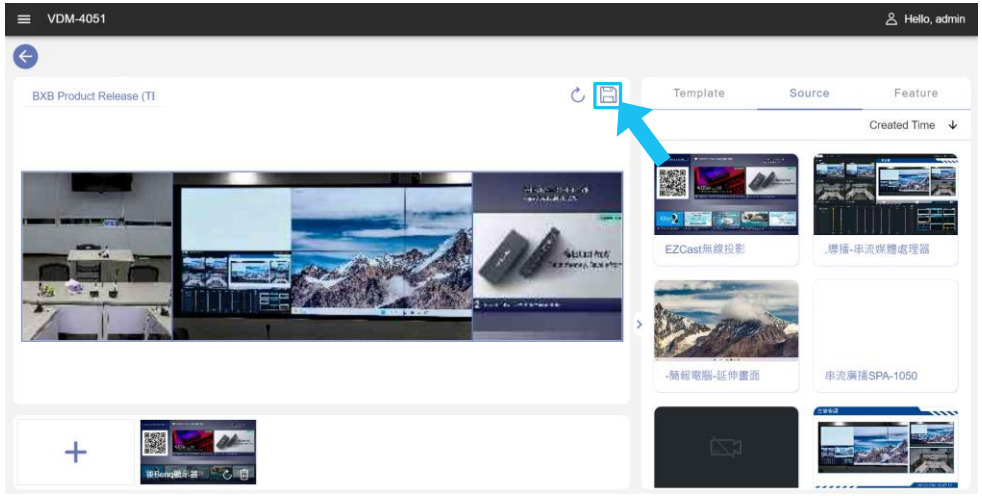
Edit Situation

13



Adjust the range for the displayed image and then click “SAVE” to finish the setting.

14

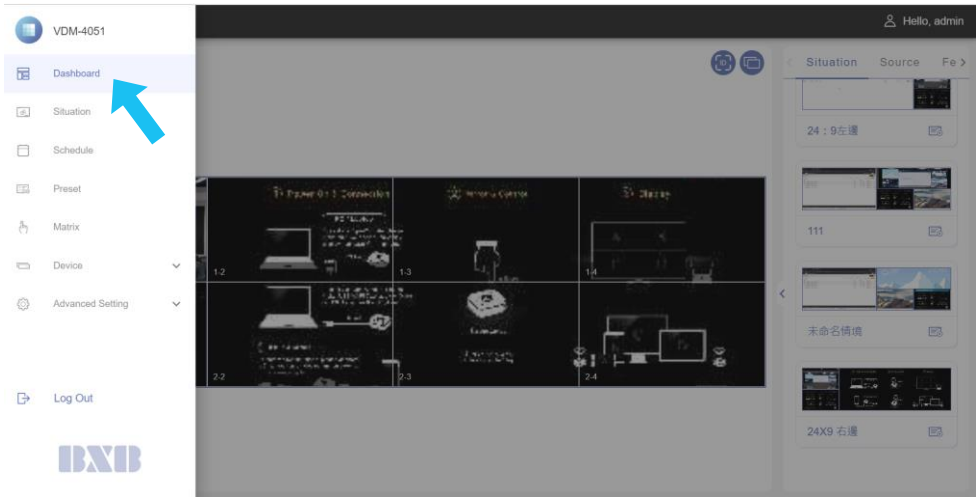


After finishing the template setting, click “SAVE” icon.

Using the Web UI

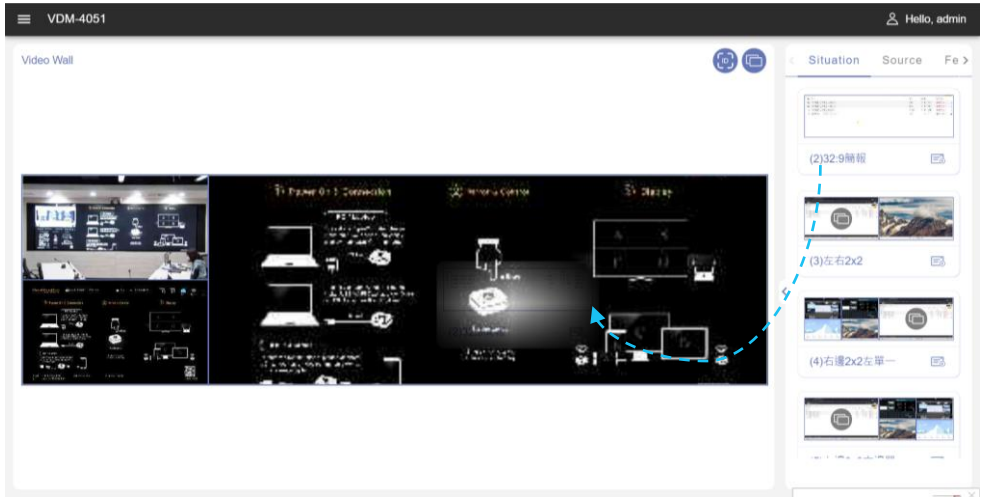
Dashboard

1



Click “Dashboard” on the main menu.

2



Drag the required situation to apply.

Using the Web UI

Dashboard

3



4



Click “Display Output Name” icon to display or hide the name of output devices.

※ As the output name is displayed, you are not able to perform “cropping” function.

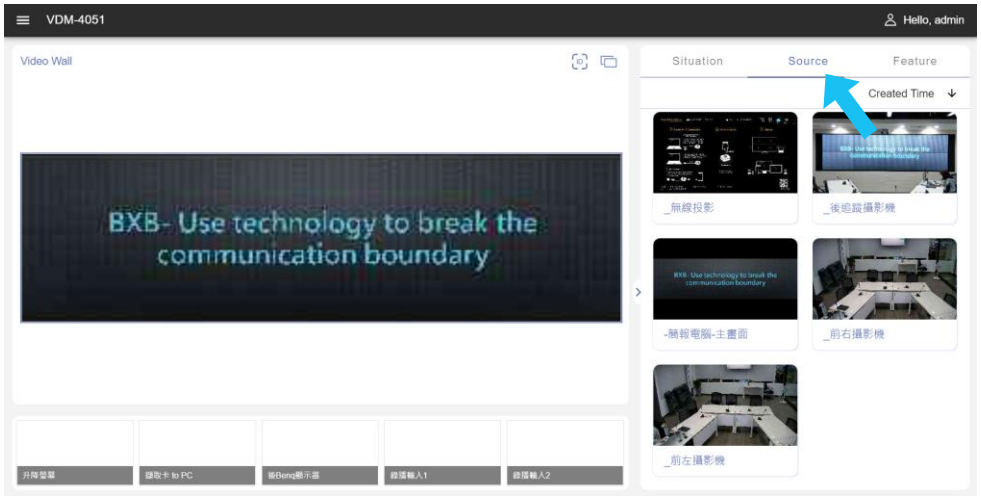
Click “Projection” icon to turn on/off the projection function.

※ As the projection is turned off, the image from the input device cannot be projected.

Using the Web UI

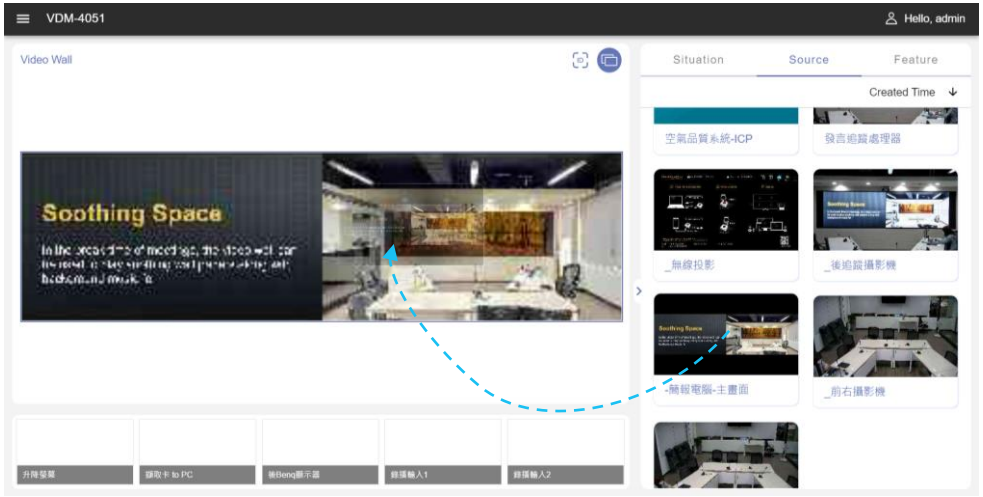
Dashboard

5



Click “Source” to open the preview images of all connected VDM-4010.

6

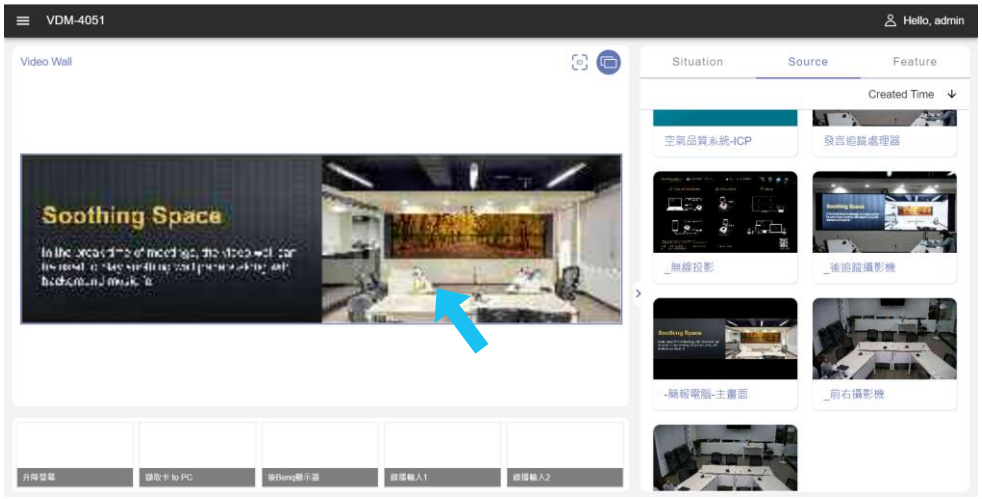


Drag the required source images to apply.

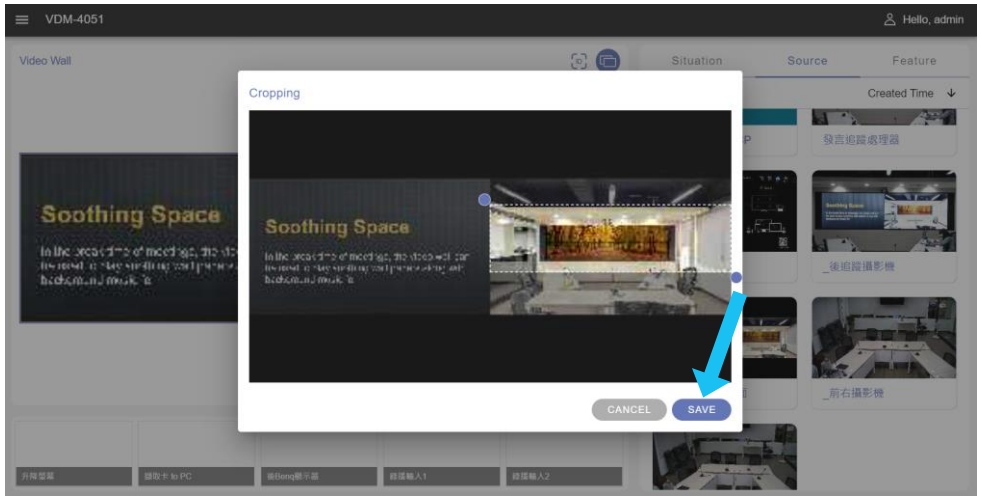
Using the Web UI

Dashboard

7



8



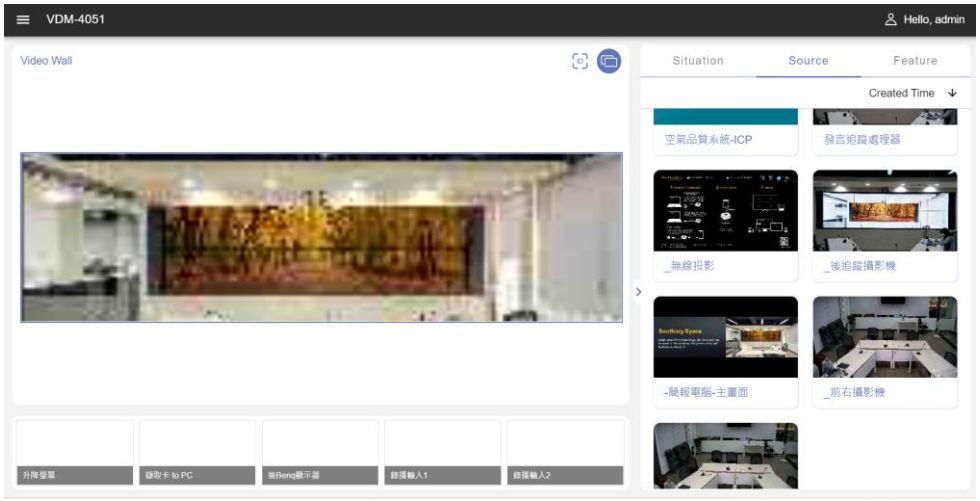
Click the display area twice to open the setting window of “cropping”.

Configure the cropping range and then click “SAVE” to apply.

Using the Web UI

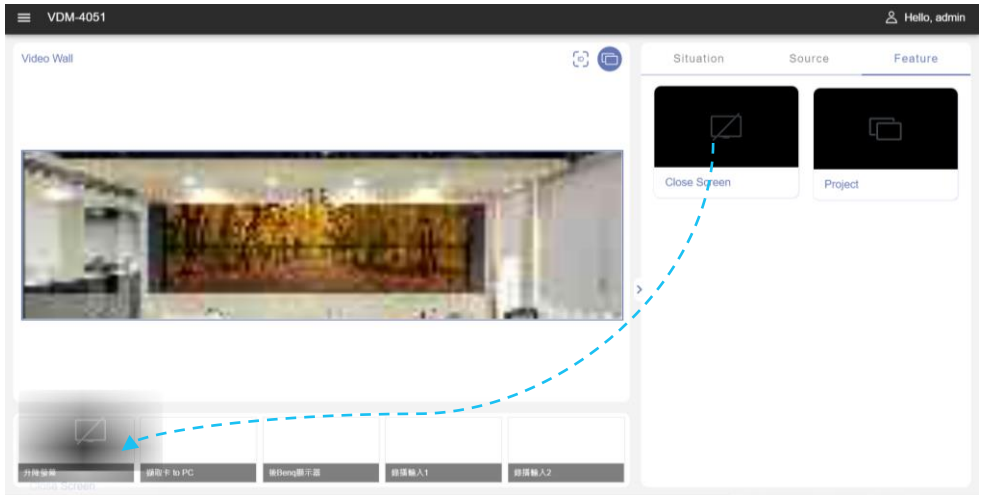
Dashboard

9



After setting, the image would be displayed with scale-up mode.

10



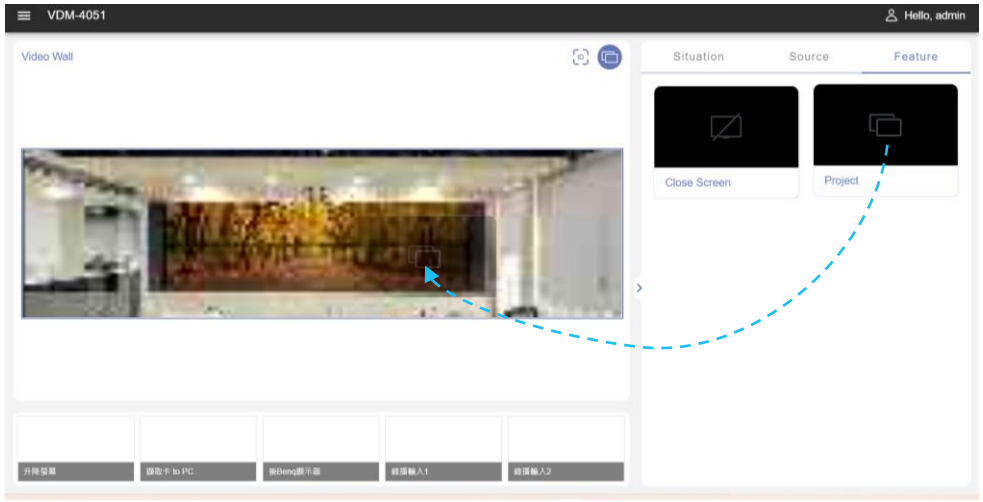
Switch to the “Feature” menu and then drag “Close Screen” to a specified output device to turn off the screen.

※ After applying a new situation or source image, the screen of the output device would be turned on again.

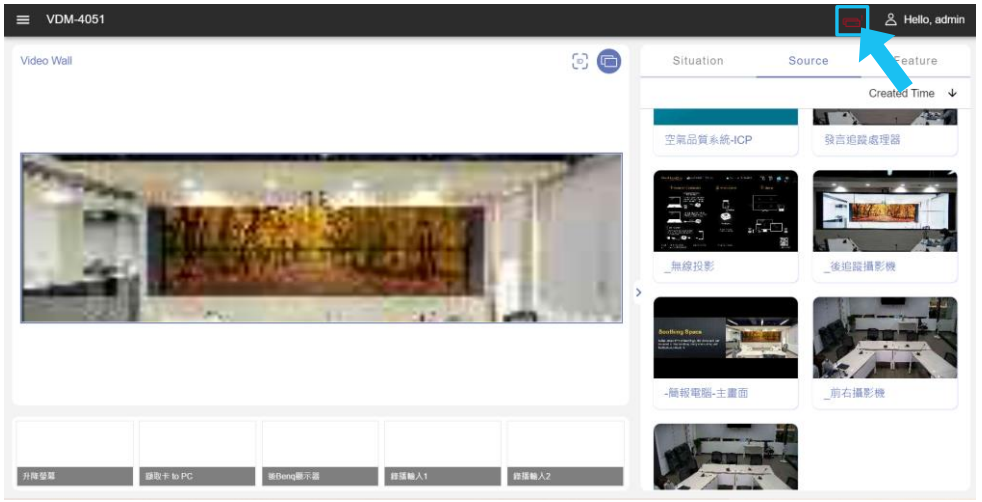
Using the Web UI

Dashboard

11



12



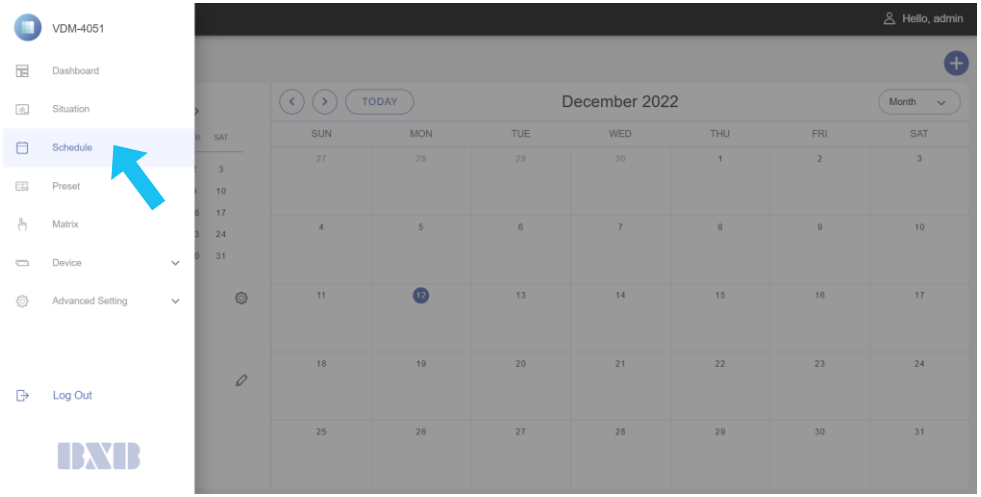
Switch to “Feature” menu and then drag “Project” to the display area. As the “Projection” icon is on, the image from the VDM-4010 would be projected on the specified screen.

When there is connection failure of VDM-4010 or VDM-4020, a caution icon (Device Disconnect) would be displayed. You can click the icon to view the device status.

Using the Web UI

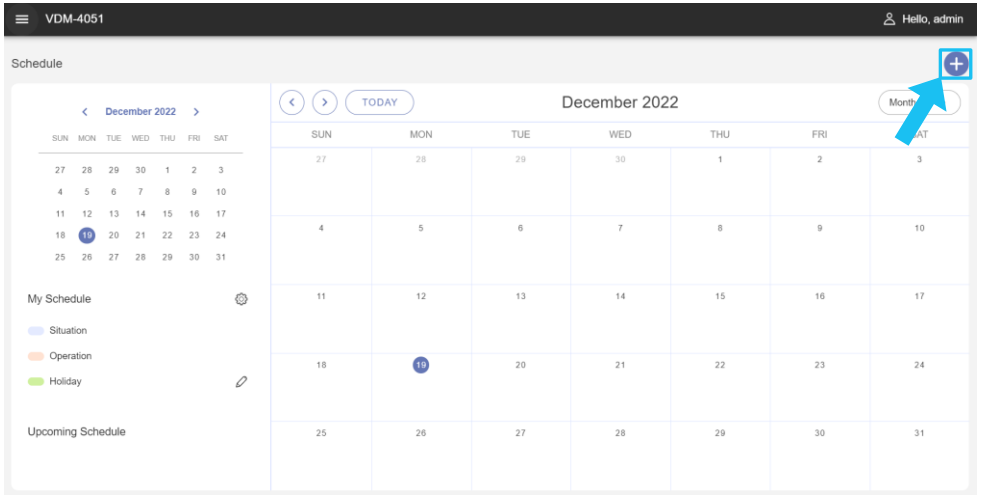
Scheduling

1



Click “Schedule” on the main menu to enter the setting page.

2

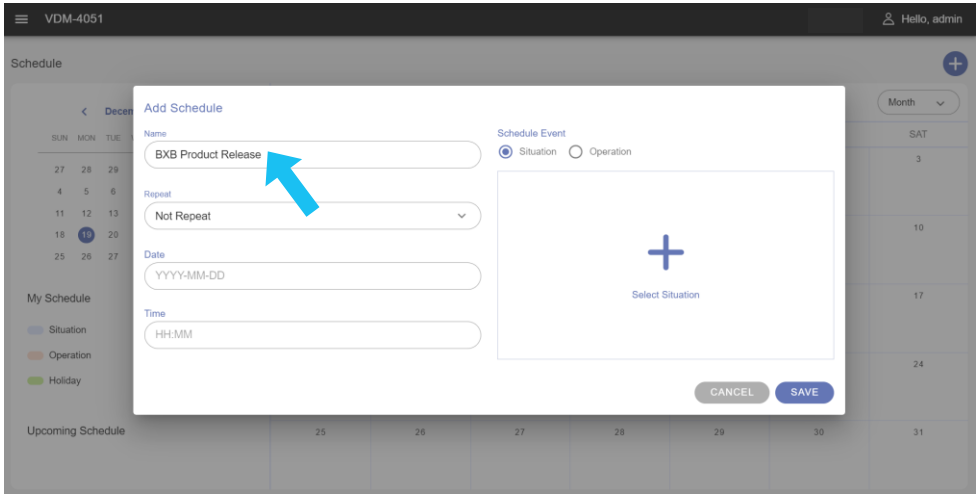


Click “Add” icon to add a schedule.

Using the Web UI

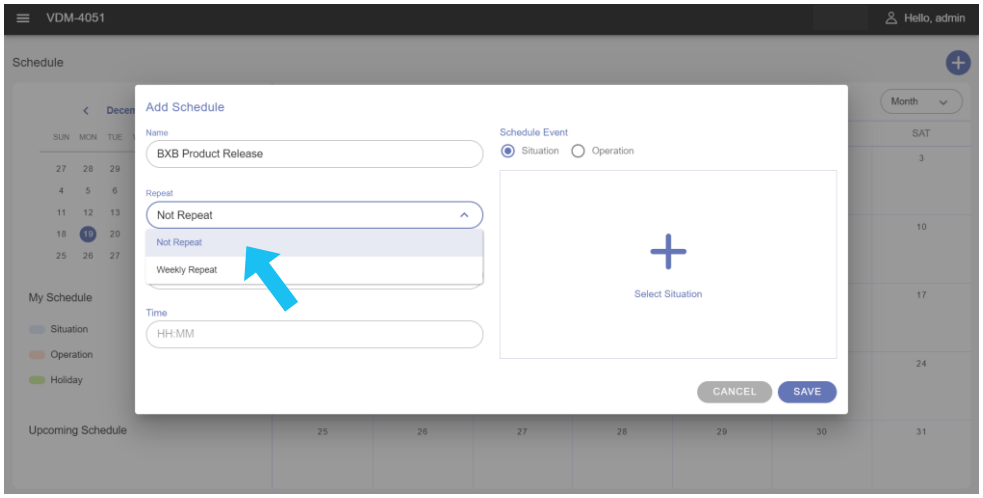
Scheduling

3



Enter the name for the schedule.

4

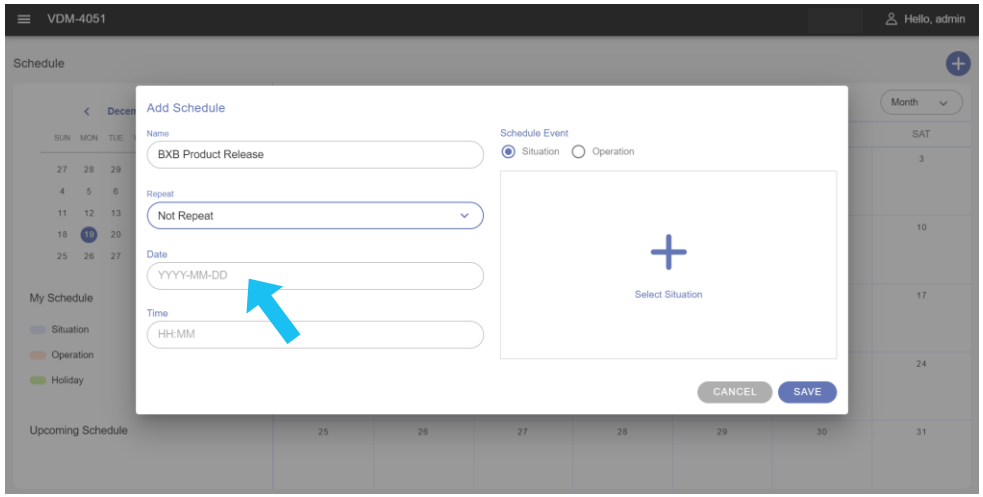


Select the repeated mode: “Not Repeat” for one-time execution; “Weekly Repeat” for regular execution. This example is set as “Not Repeat”.

Using the Web UI

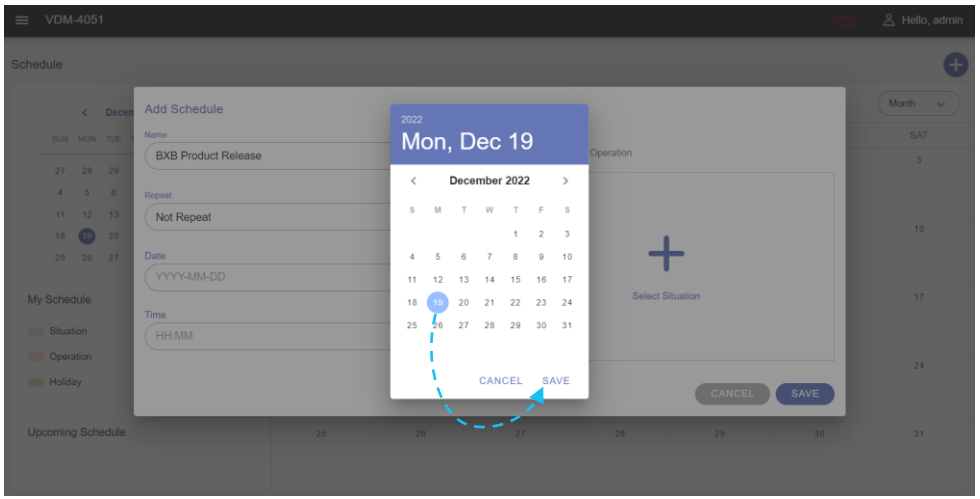
Scheduling

5



Click to set the execution date.

6

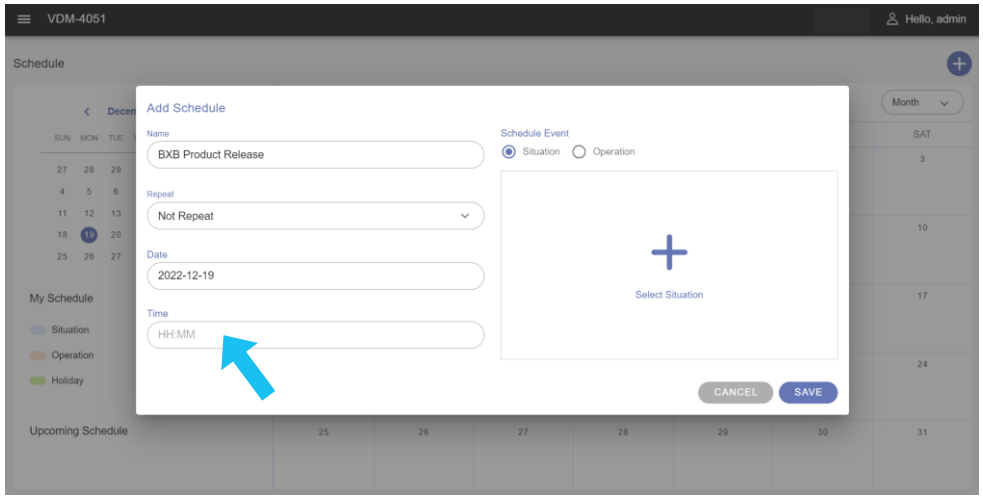


Select the required date and then click “SAVE” to apply.

Using the Web UI

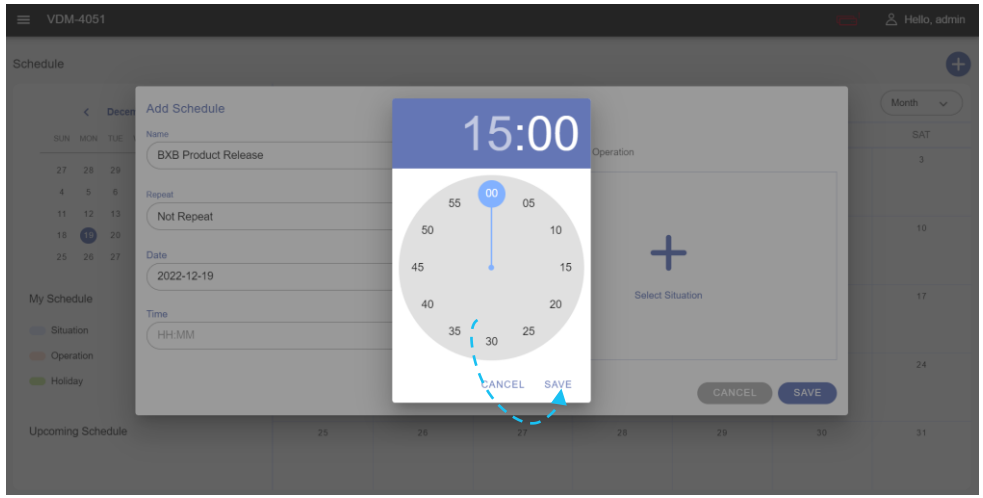
Scheduling

7



Click to set the execution time.

8

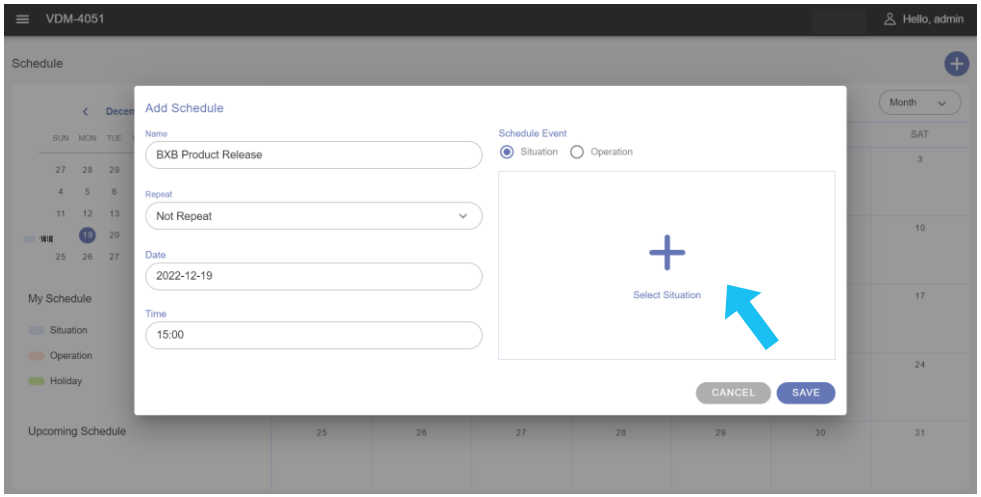


Select the required time and then click “SAVE” to apply.

Using the Web UI

Scheduling

9



10

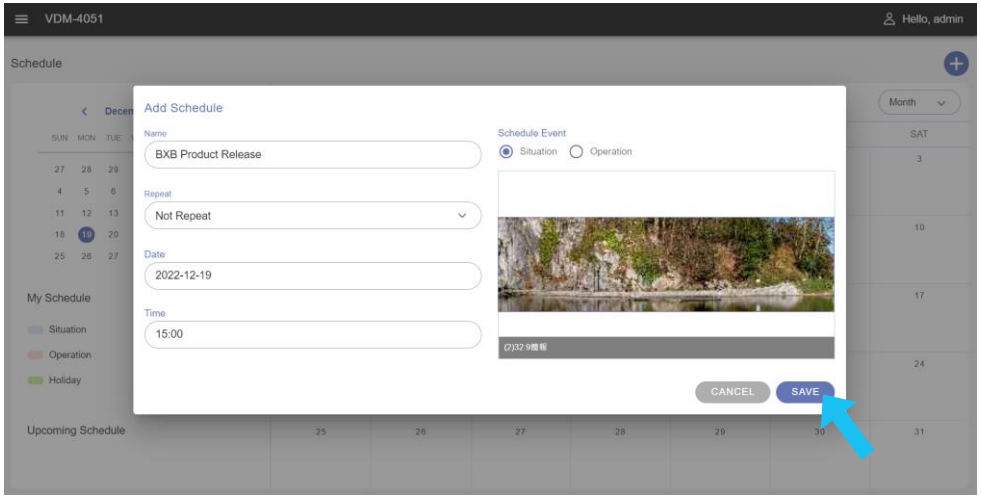


Set the event for the scheduling. Click “+” to select the required situation.

Select the situation from the list and then click “SELECT” to finish setting.

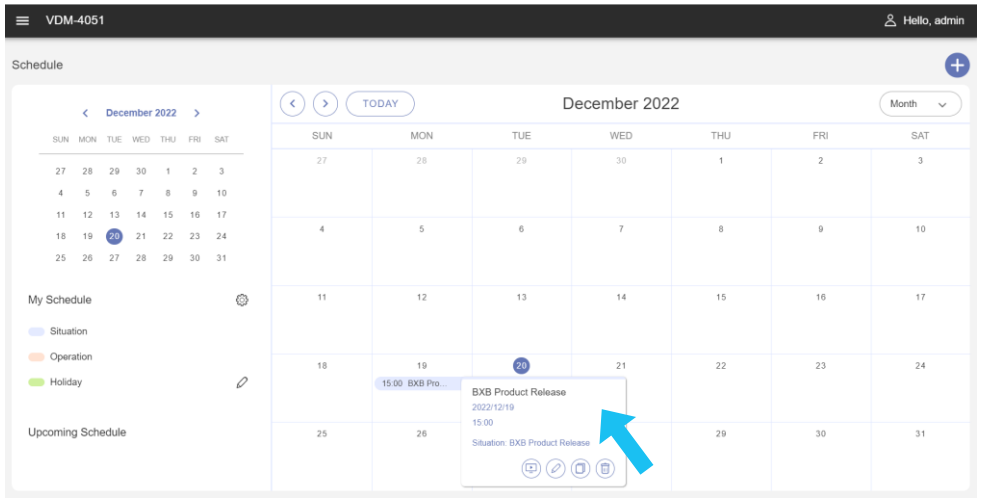
Scheduling

11



Click “SAVE” to finish scheduling setting.

12

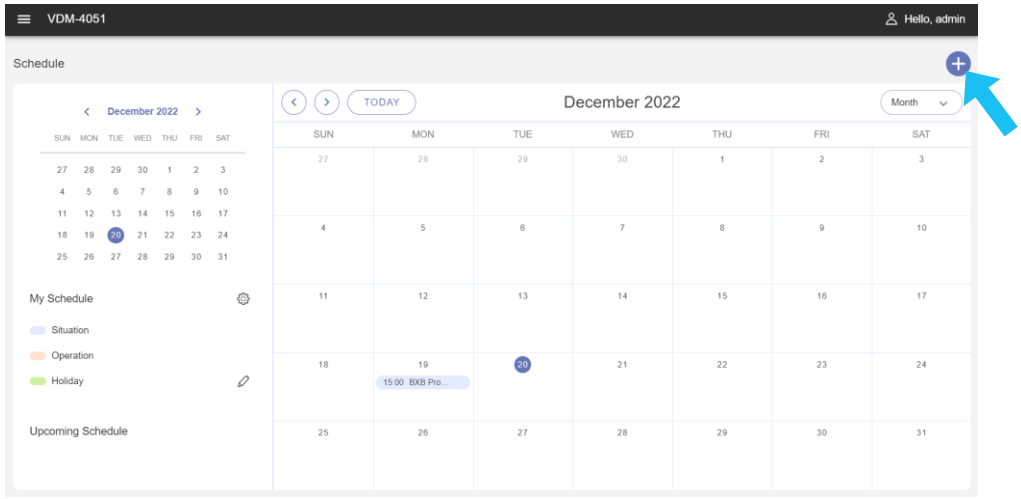


The added schedule is shown on the calendar. You can “Execute Immediately”, “Edit”, “Copy”, or “Delete” the schedule.

Using the Web UI

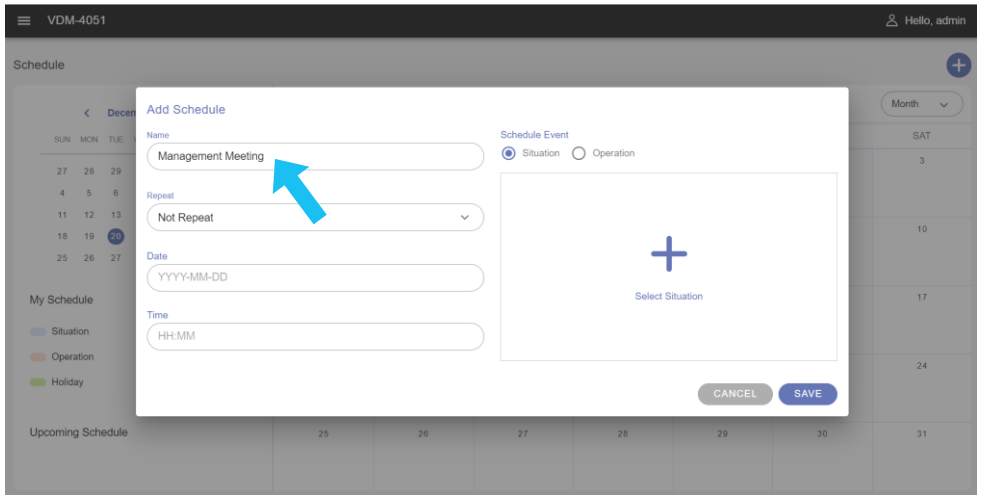
Scheduling

13



Click “Add” icon to add another schedule.

14

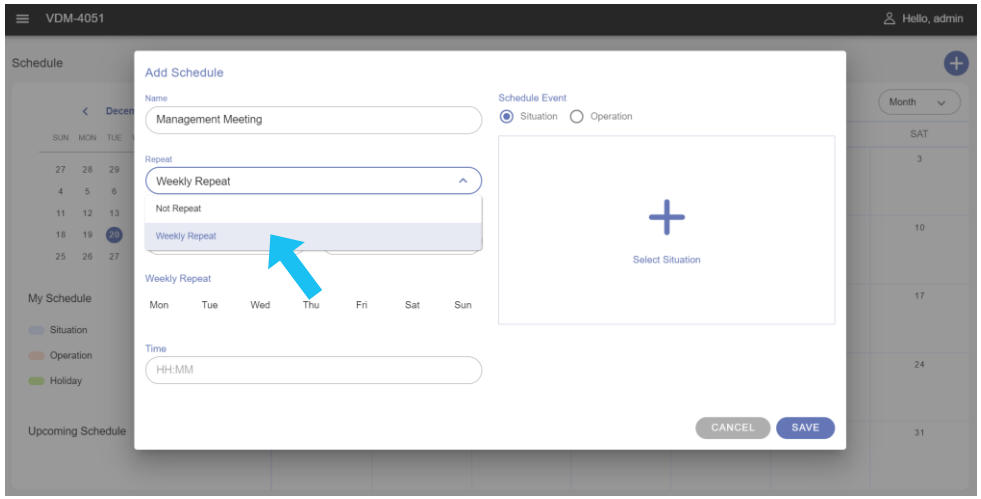


Enter the name for the schedule.

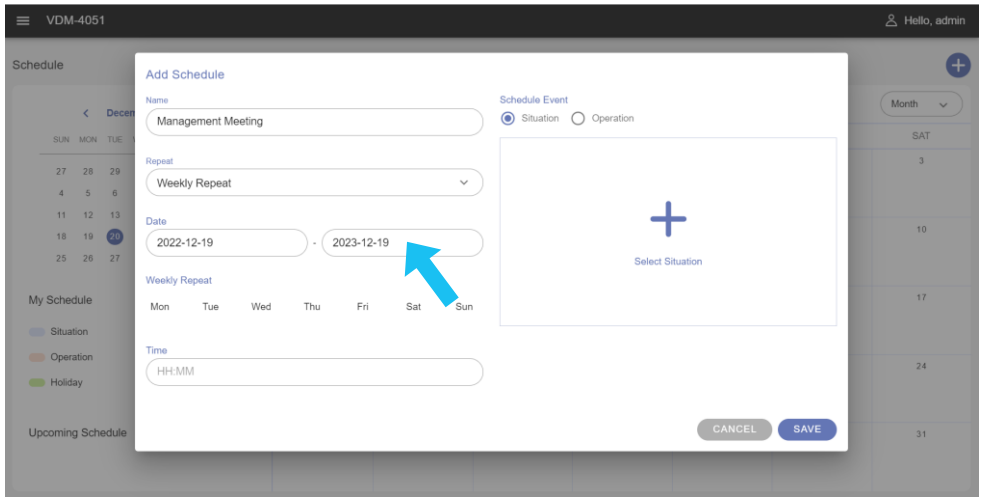
Using the Web UI

Scheduling

15



16



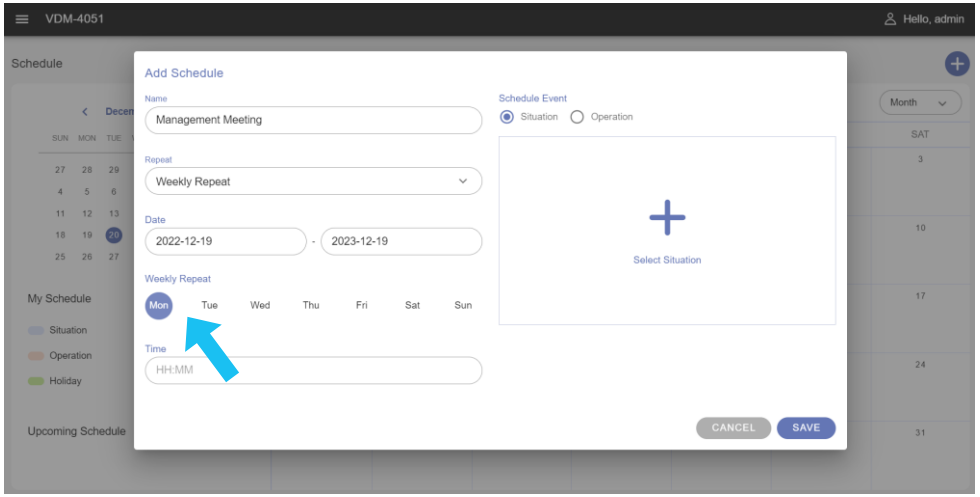
Select “Weekly Repeat” for regular execution.

Set the start/end date of the schedule.

Using the Web UI

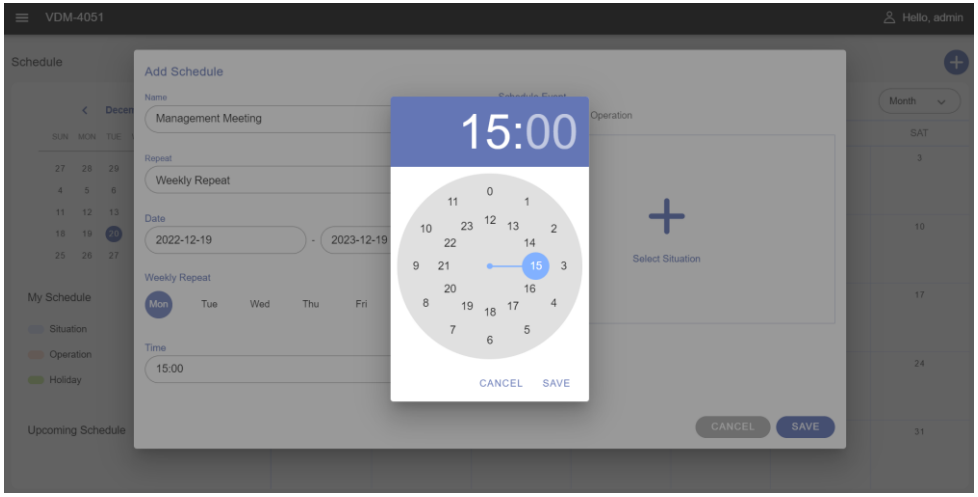
Scheduling

17



Check the days for the execution. The scheduled event would be performed on these days.

18

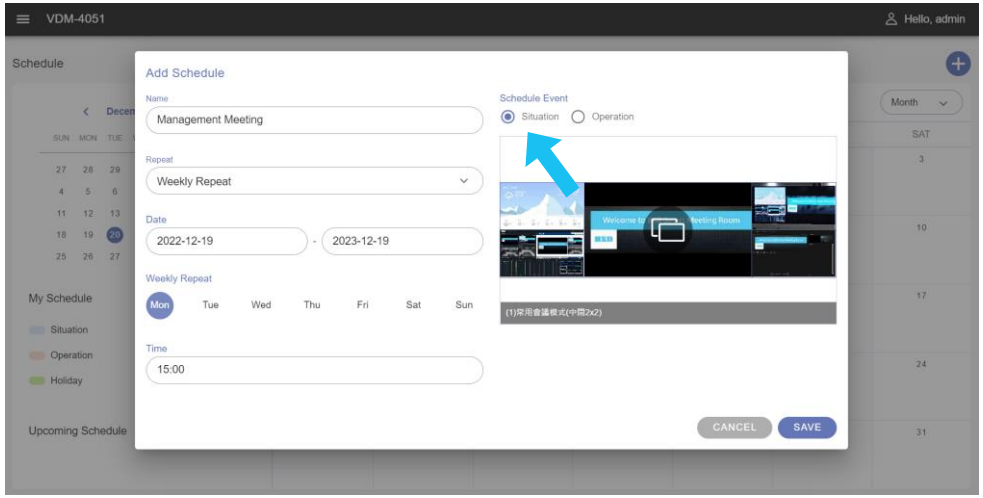


Set the execution time.

Using the Web UI

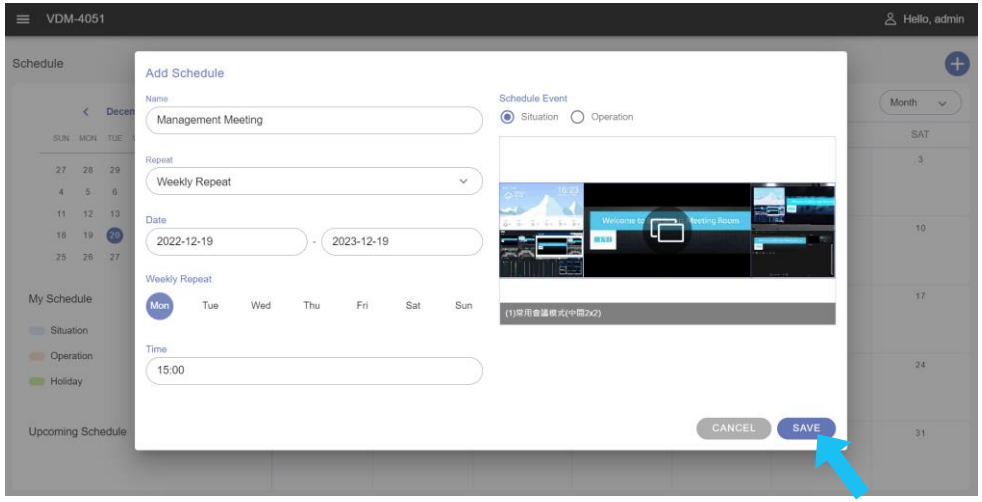
Scheduling

19



Set the event for the scheduling.

20

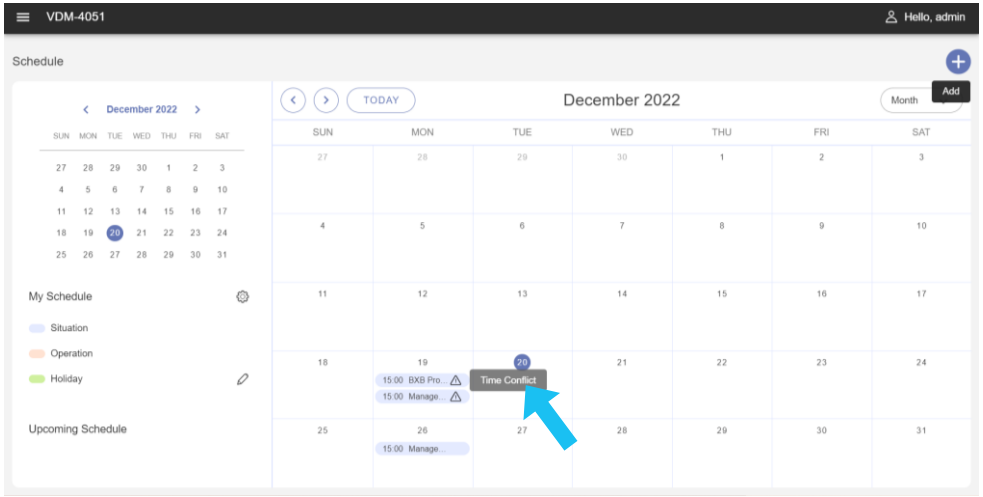


Click “SAVE” to finish scheduling setting.

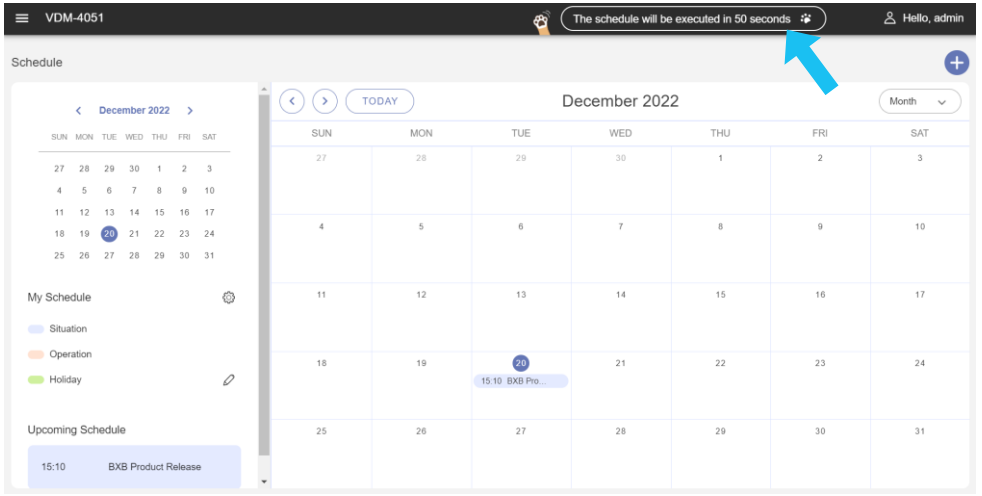
Using the Web UI

Scheduling

21



22

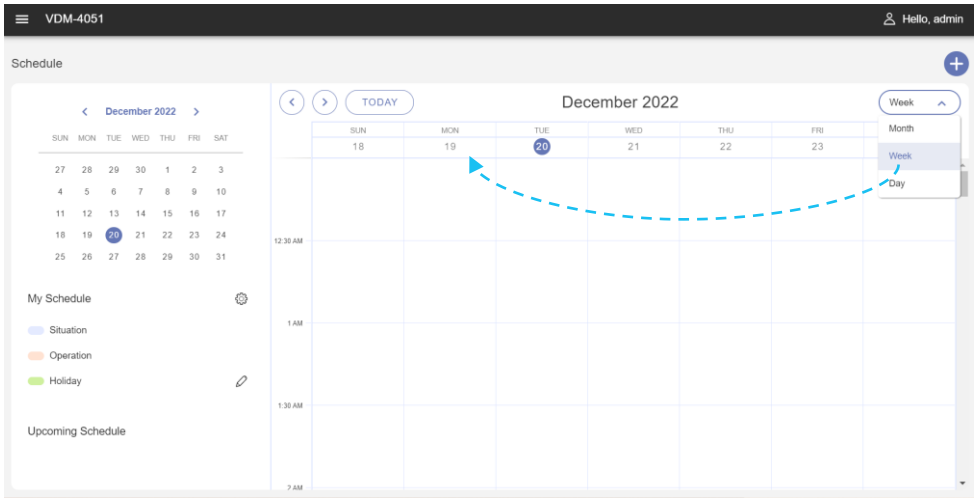


When there are schedules set on the same date/time, the caution icon of “Time Conflict” would be shown.

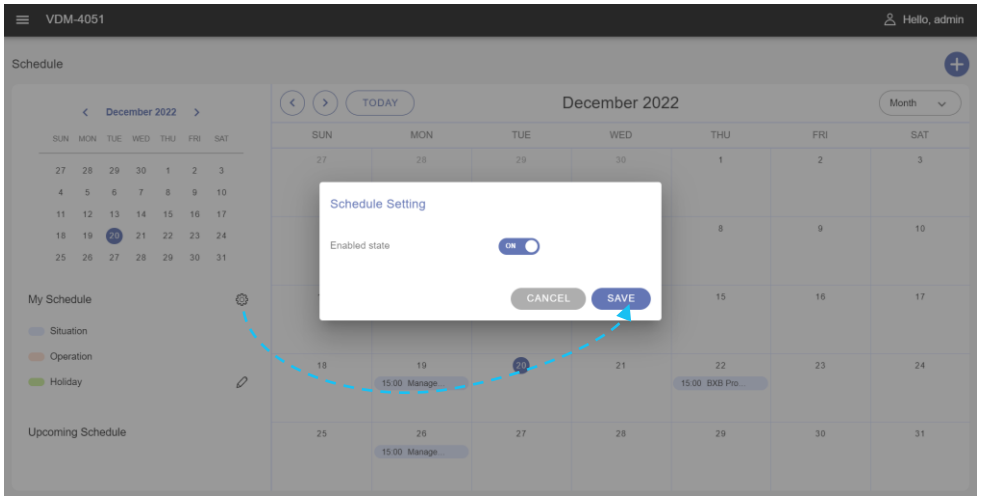
When the system time is almost up to the scheduling time, the reminder of “The schedule will be executed in” would be shown 1 minute before at the upper right of the dashboard.

Scheduling

23



24



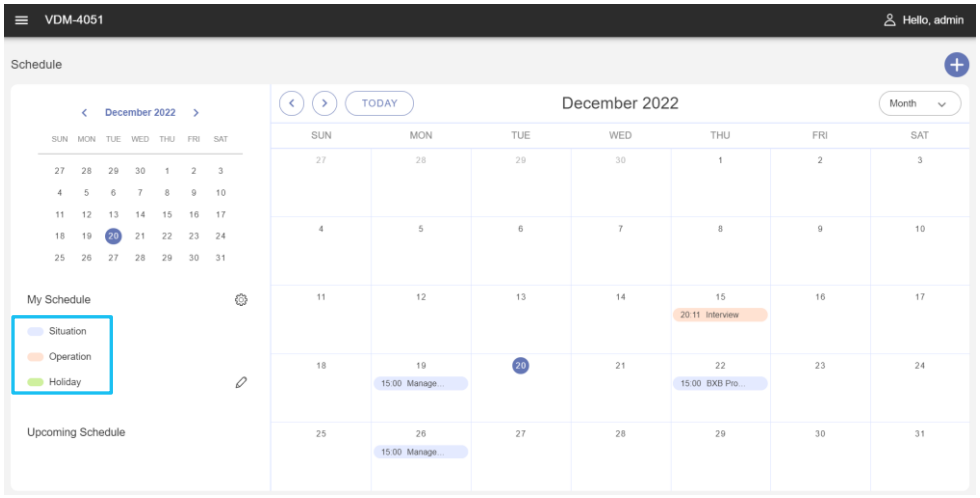
The calendar's view mode can be switched to "Month", "Week", or "Day". You can also click on the date directly to view the schedule.

Click "Schedule Setting" icon to turn on/off the execution of scheduling. As the execution is off, all the schedules would be shown with "gray" color.

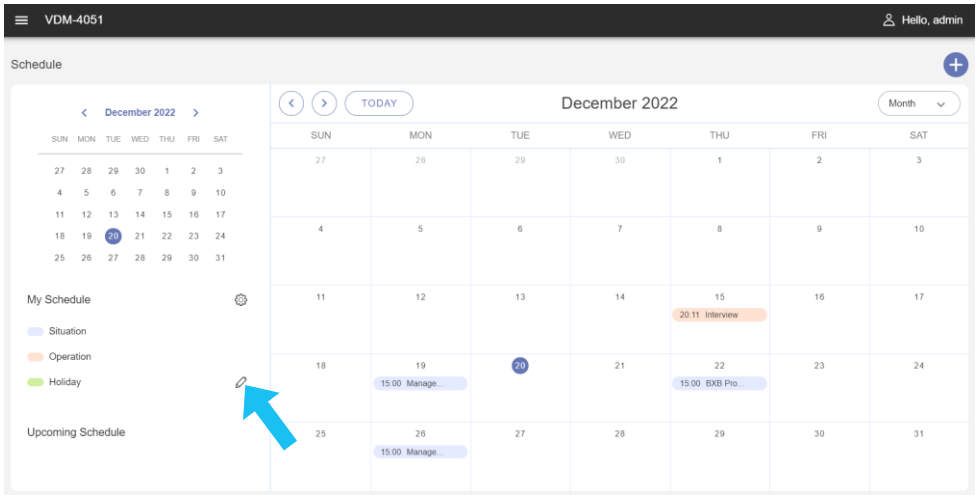
Using the Web UI

Scheduling

25



26

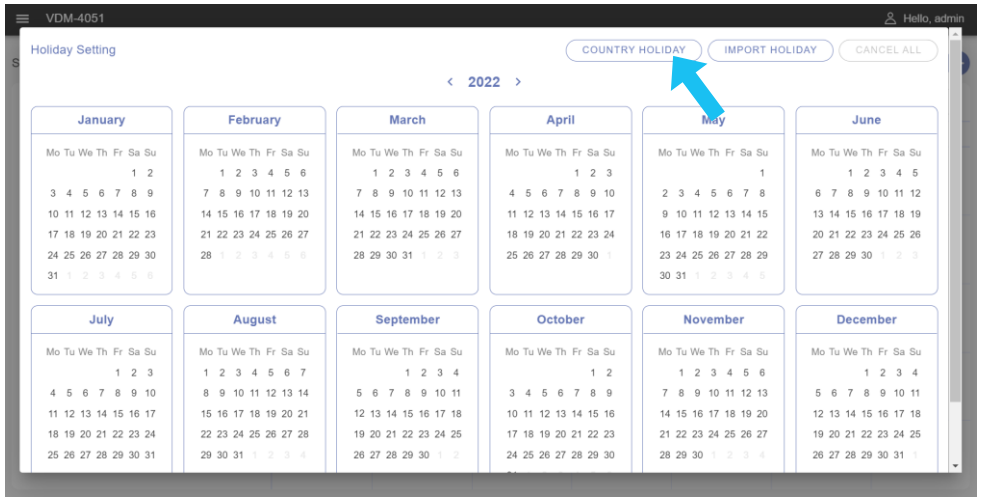


Color indication of schedule: “Blue” is for “Situation”; “Red” for turn on/off the “Operation”; “Green” for “Holiday”. Scheduling would not be executed on holidays.

Click “Holiday Setting” to set the holidays that are not available for scheduling execution.

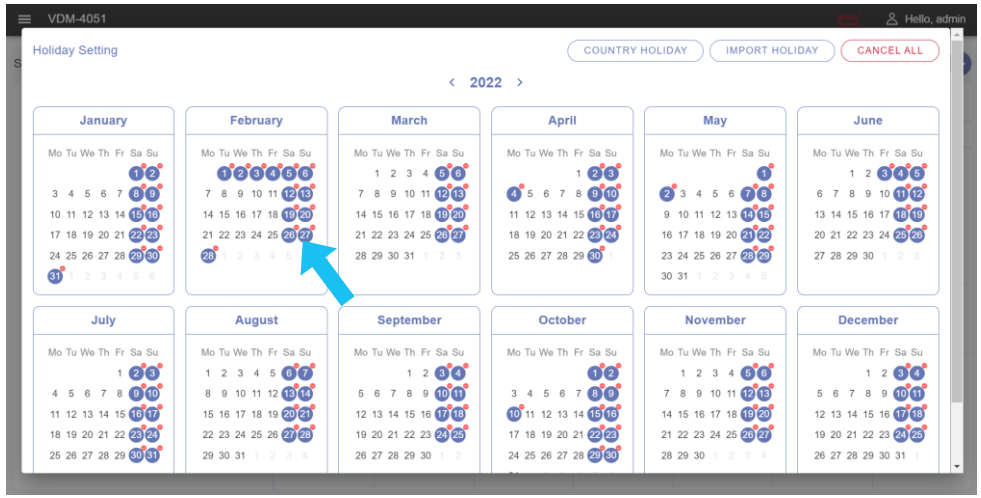
Scheduling

27



Click “COUNTRY HOLIDAY” to import the holidays from the cloud data.

28

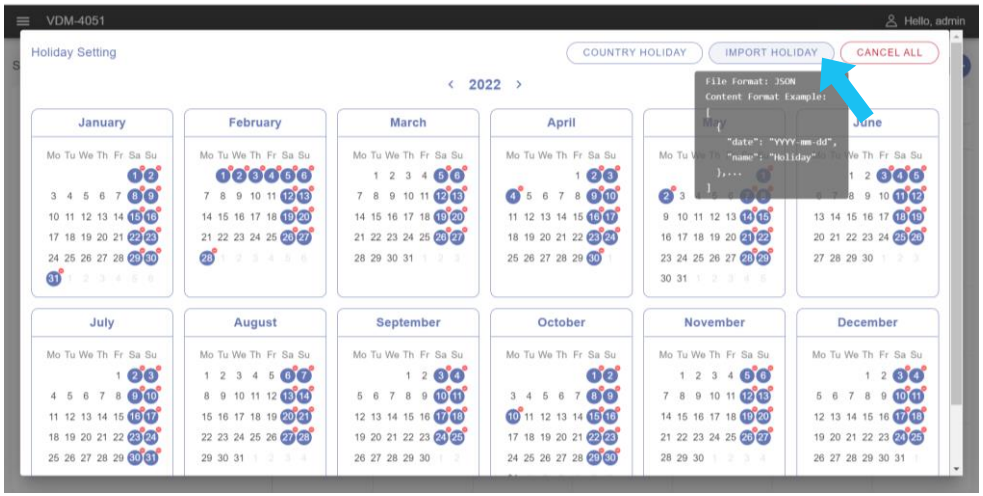


The holidays would be indicated with blue color. Scheduling is not executed on these days. If you want to cancel the holiday setting, just click on the date again.

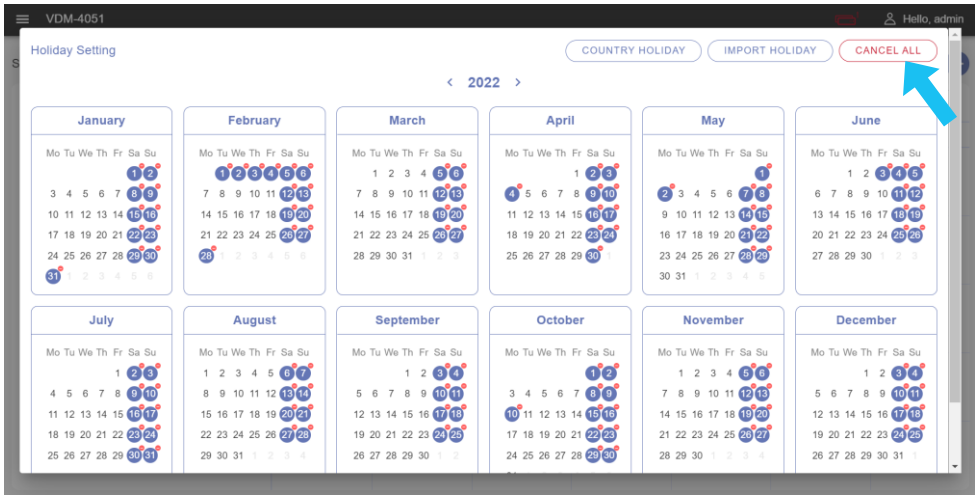
Using the Web UI

Scheduling

29



30



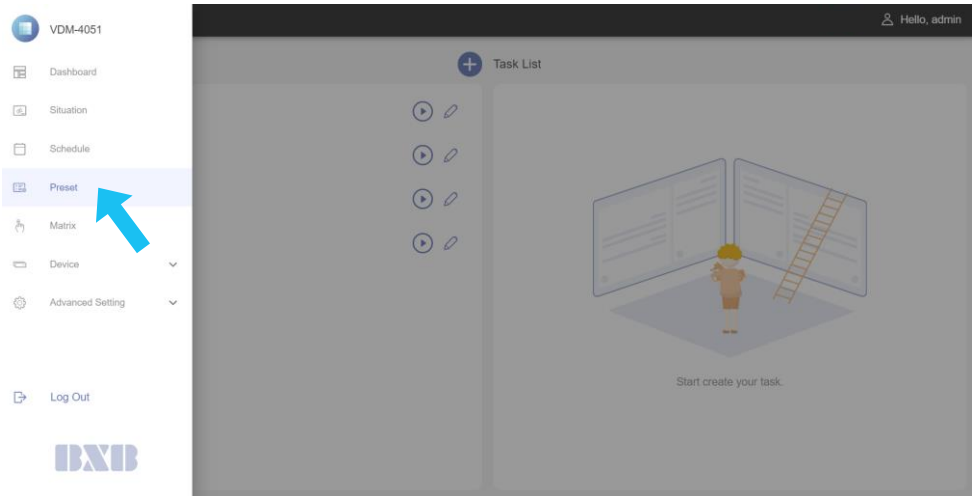
To edit the .JSON file, please refer to “P84 Appendix-Holiday Configuration File Setting”.

Click “CANCEL ALL” to cancel all holiday settings. Click “SAVE” and then close the setting window.

Using the Web UI

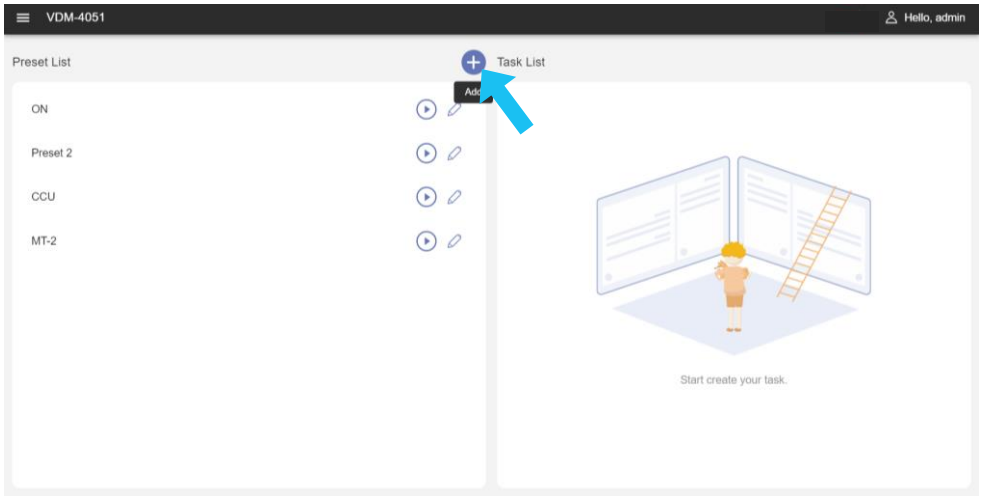
Preset

1



Click “Preset” to enter the setting page.

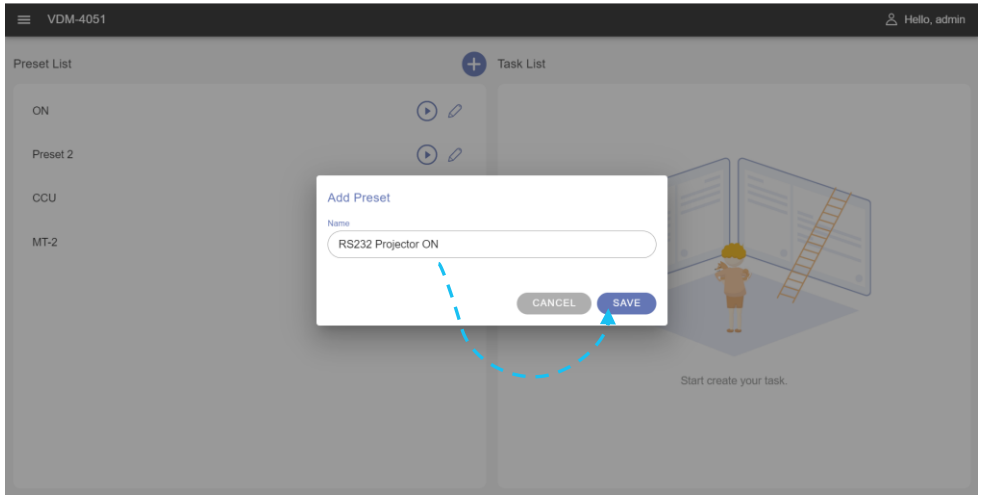
2



Click “Add” icon to add a preset action.

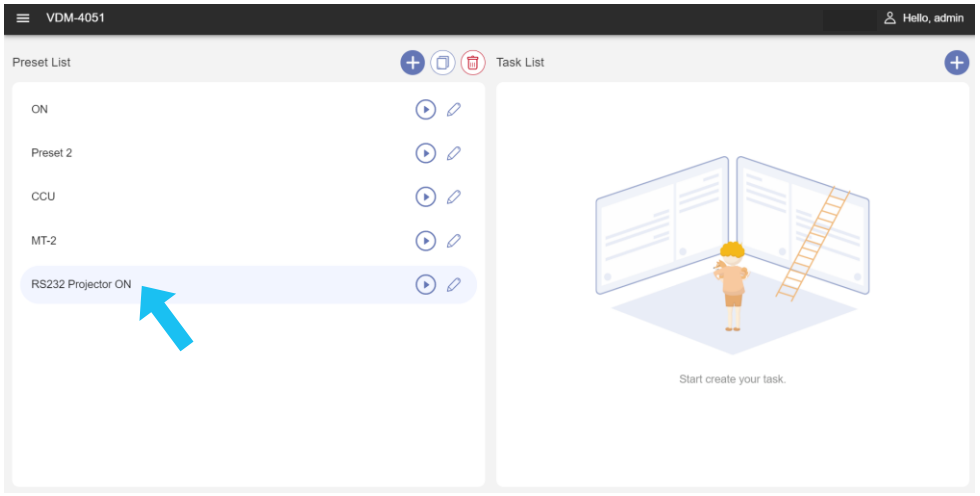
Preset

3



Enter the name for the action for easy identification. Click “SAVE” to save the action.

4

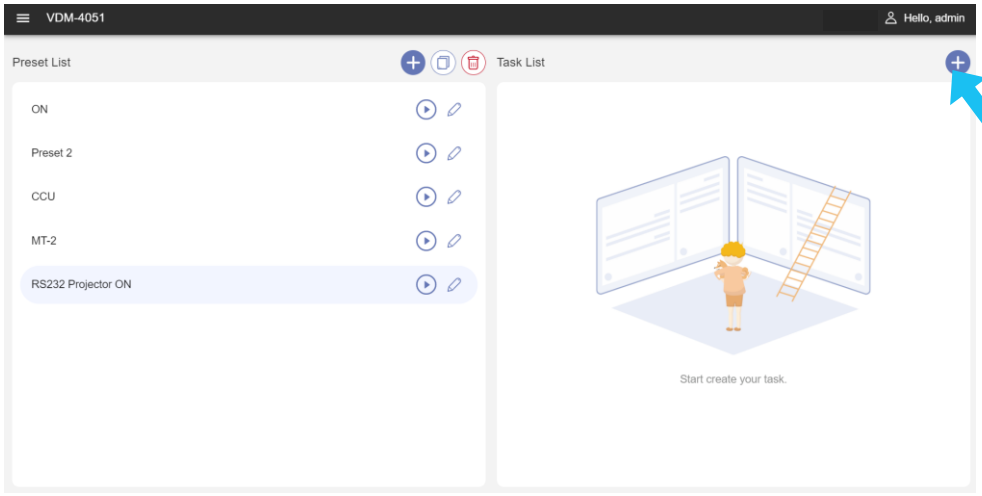


The added preset action would be shown on the preset list.

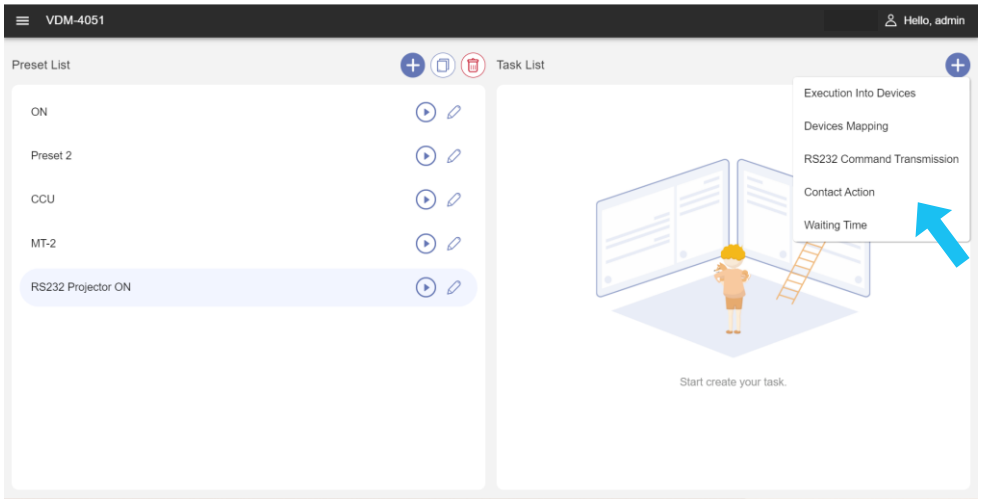
Using the Web UI

Preset

5



6



Click “Add” icon to add the corresponding task.

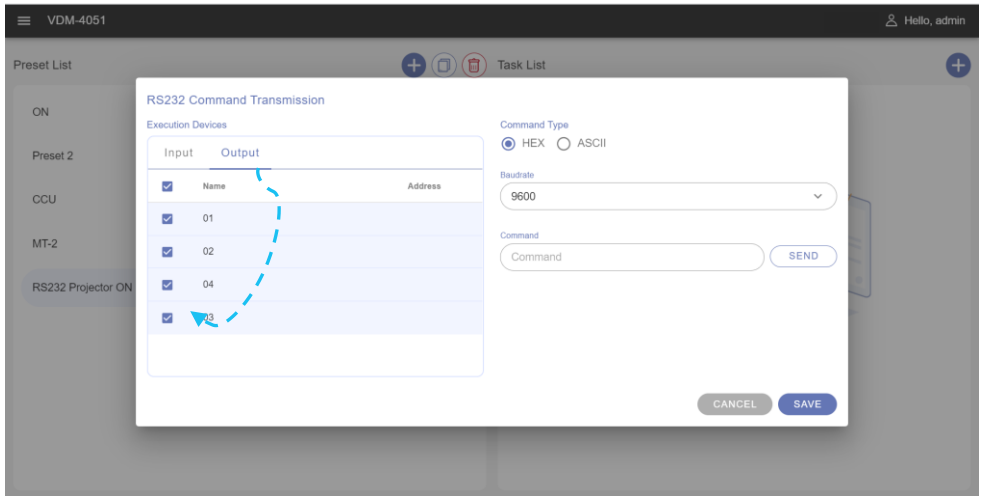
The tasks include “Execution Into Devices”, “Devices Mapping”, “RS232 Command Transmission”, “Contact Action”, and “Waiting Time”.

For this example, “RS232 Command Transmission” is added. The command would be delivered via the RS-232 devices that connect with VDM-4010/VDM-4020.

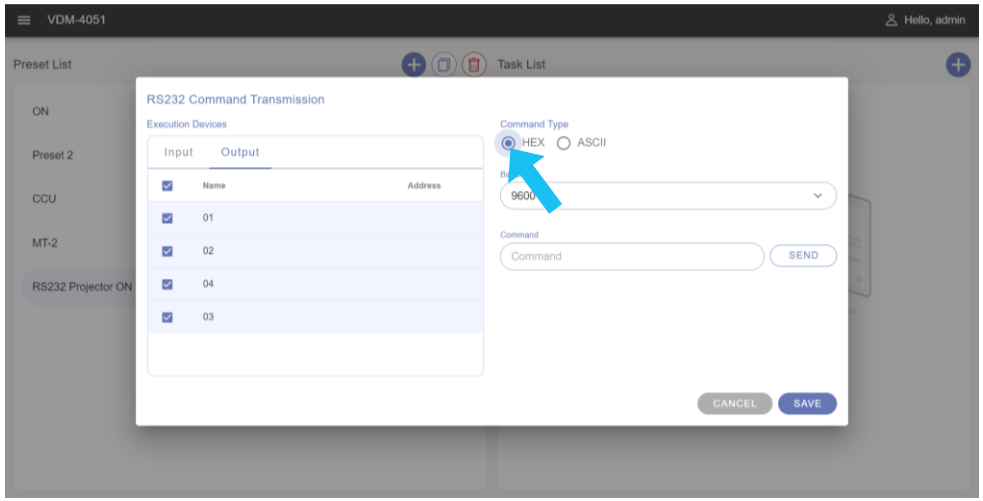
Using the Web UI

Preset

7



8



You can select the corresponding input or output device on the execution devices list.

The output device (VDM-4020) in this example is selected. If the VDM-4020 works with a projector, the power of the projector would be controlled via RS-232 command.

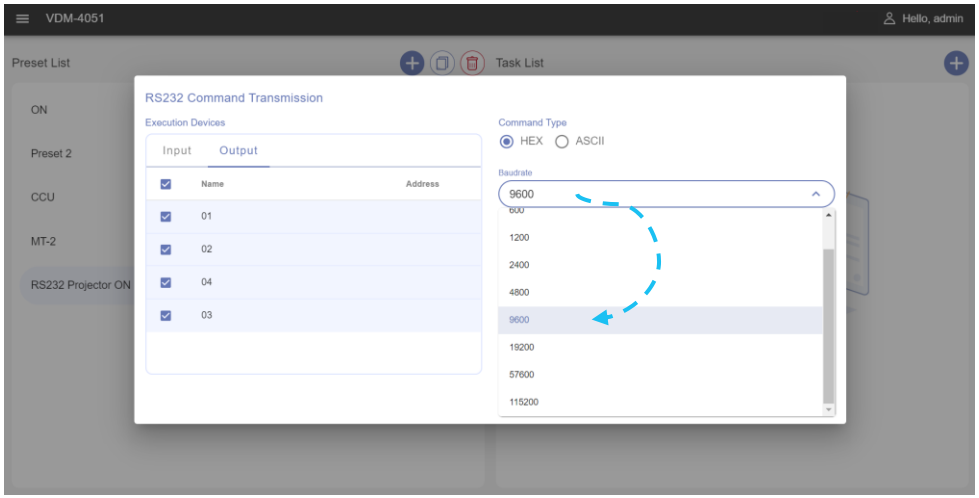
You can select ”HEX” or “ASCII” as the RS-232 command type.

”HEX” command is selected in this example.

Using the Web UI

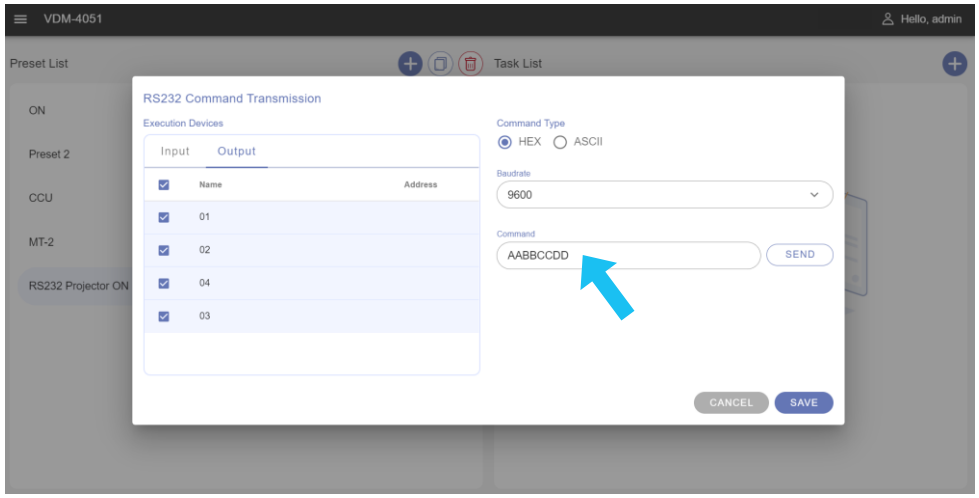
Preset

9



Select the baud rate for the connected device.

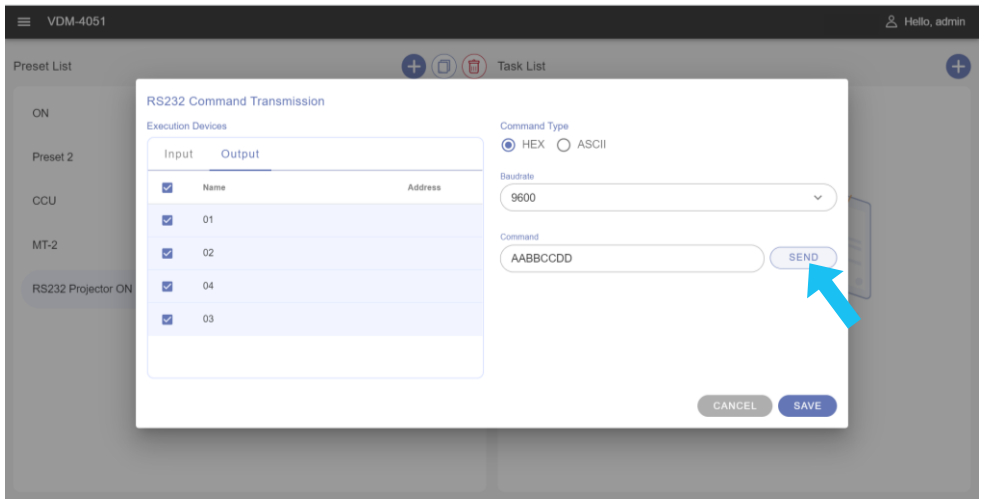
10



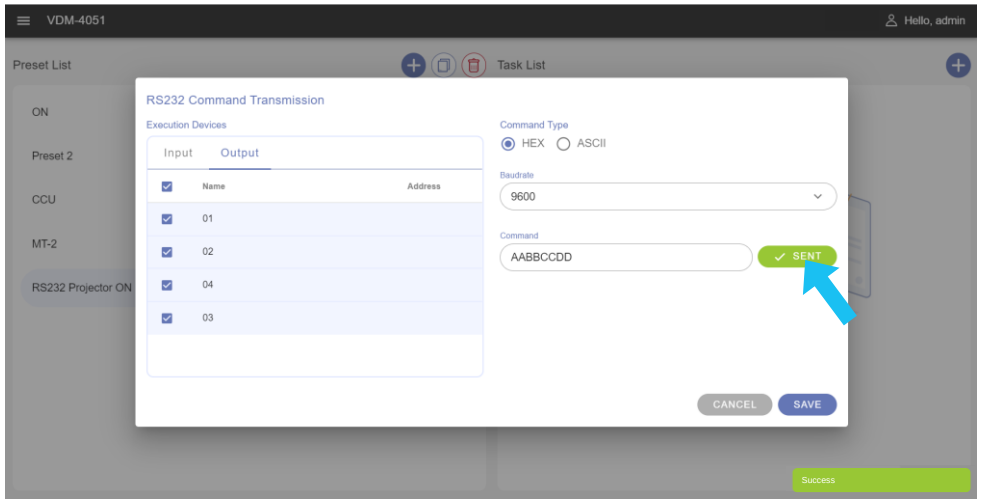
Key in the corresponding command.

Preset

11



12



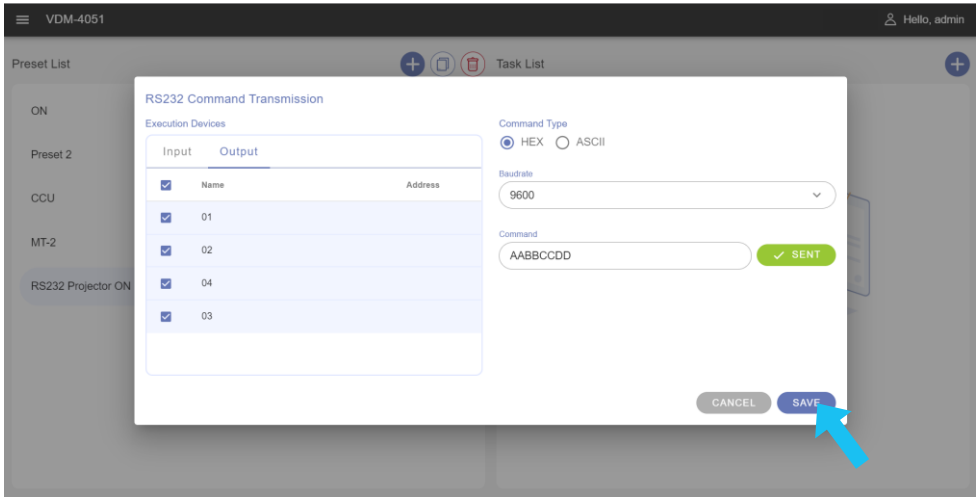
Click “SEND” to send the command to the device. If the connection, command, and baud rate are all correct, the device would perform the right task. If the task is not executed, please check the wiring and the related settings.

After the command is sent, a message would appear to show the transmission status, rather than the device condition. If the task is not executed, please check the wiring and the related settings.

Using the Web UI

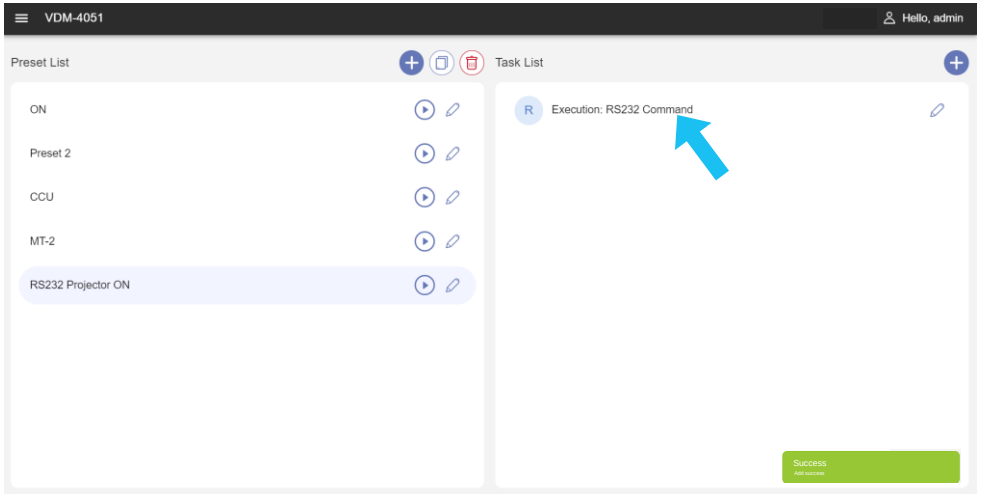
Preset

13



Click “SAVE” to finish the setting.

14

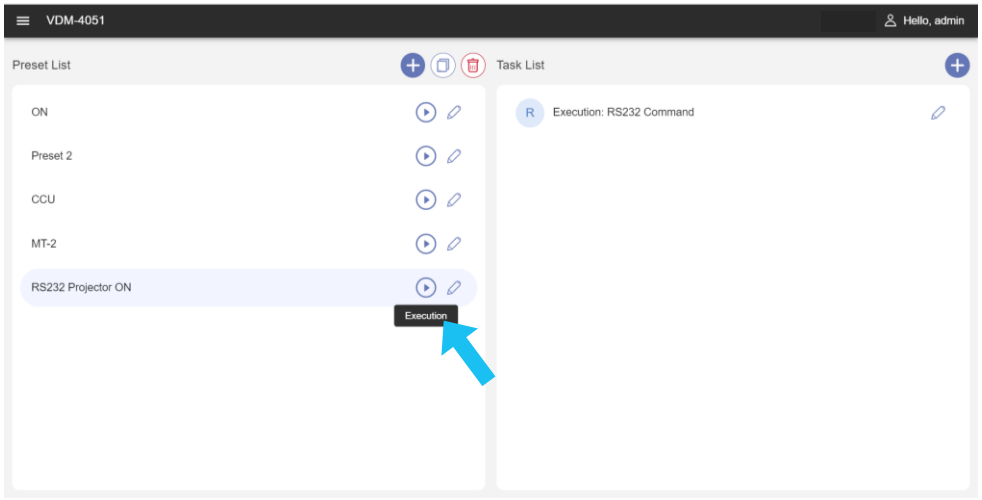


The task would be shown on the Task List.

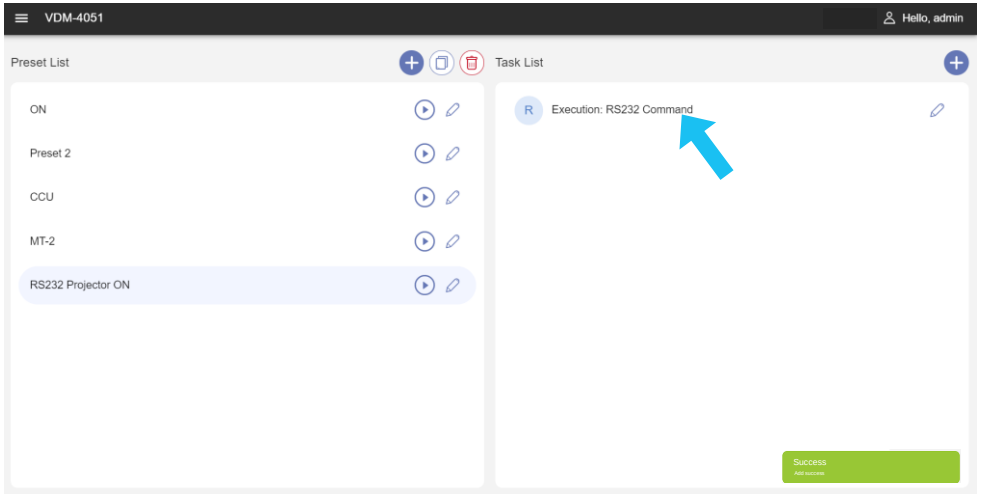
Using the Web UI

Preset

15



16



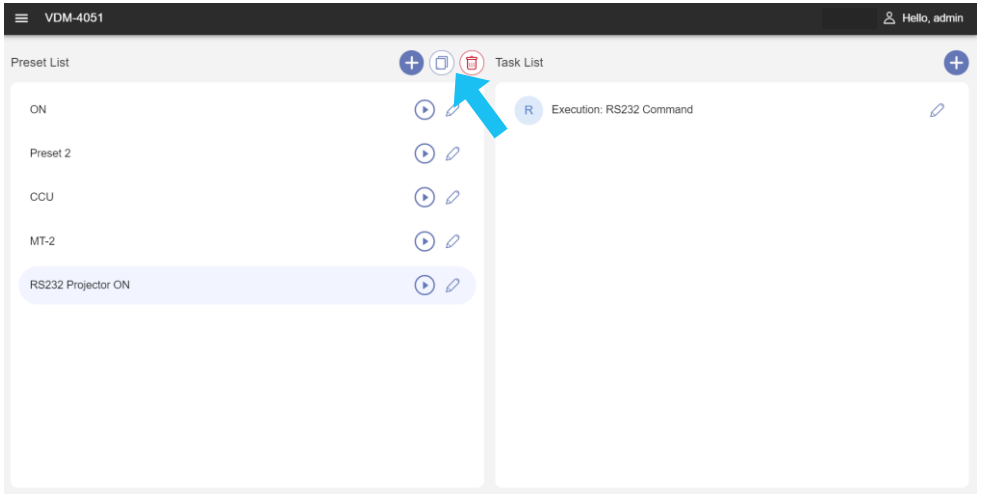
Click “EXECUTION” on a preset action to perform its task.

The task would be shown on the task list.

Using the Web UI

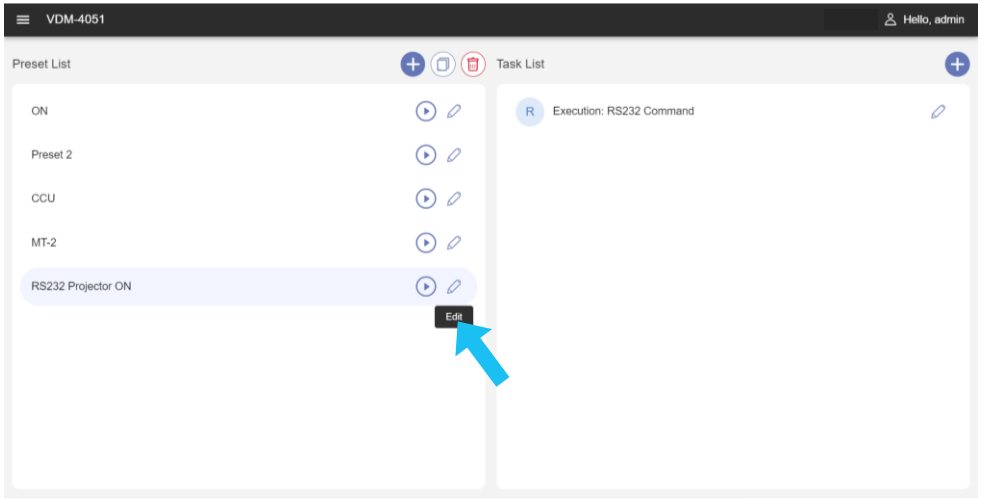
Preset

17



Click a preset action to copy or delete.

18

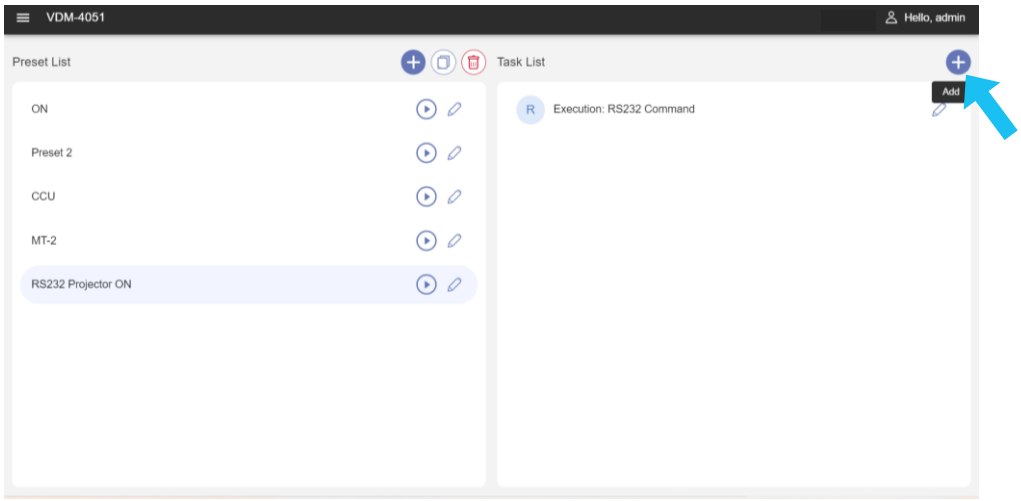


Click “Edit” to modify the name of the preset action.

Using the Web UI

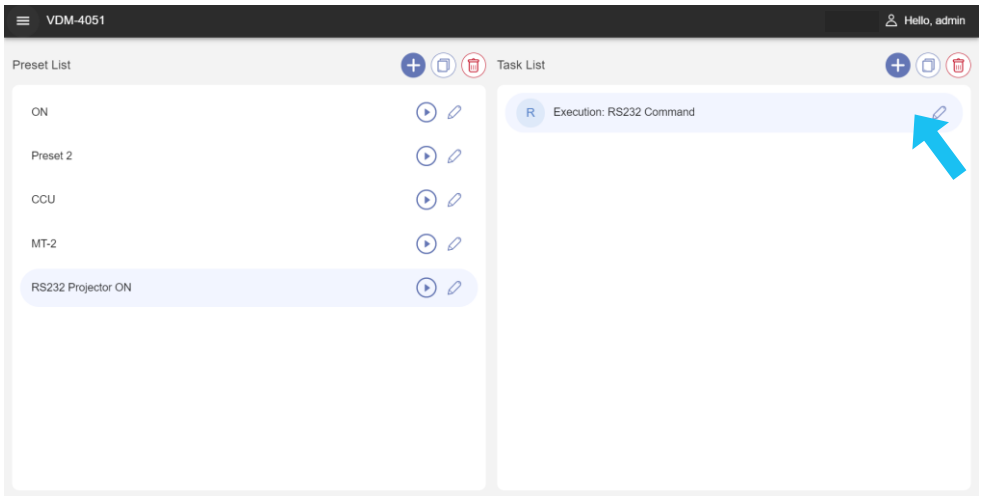
Preset

19



Click “Add” icon on the Task List to add more tasks. The tasks would be performed in sequence.

20

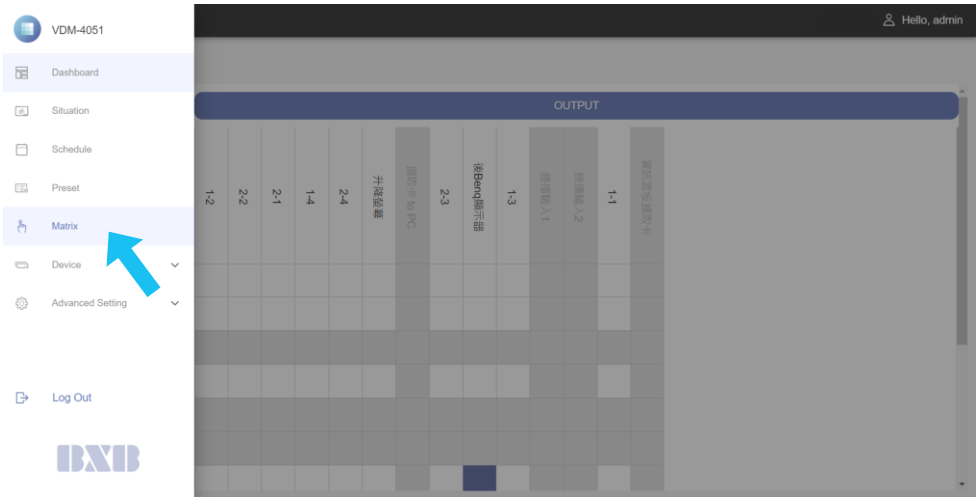


Click a task to copy, delete, or edit.

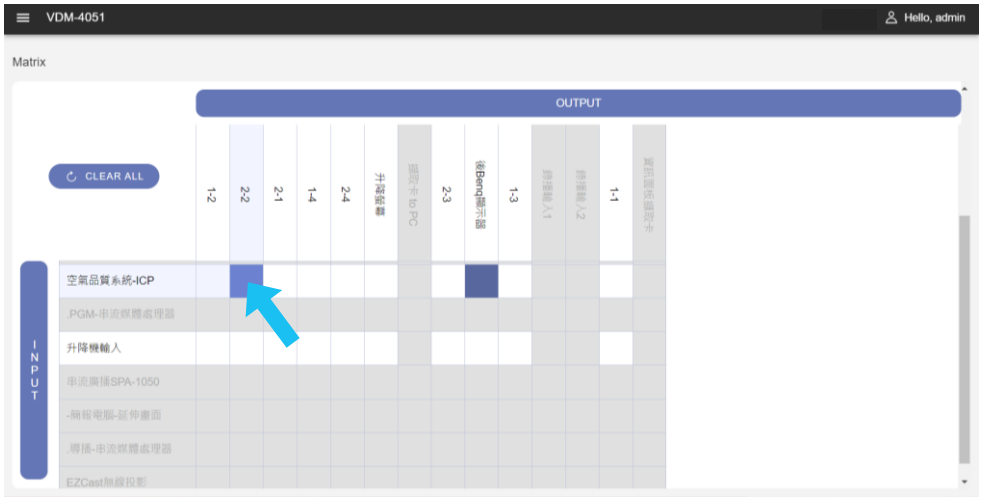
Using the Web UI

Matrix

1



2



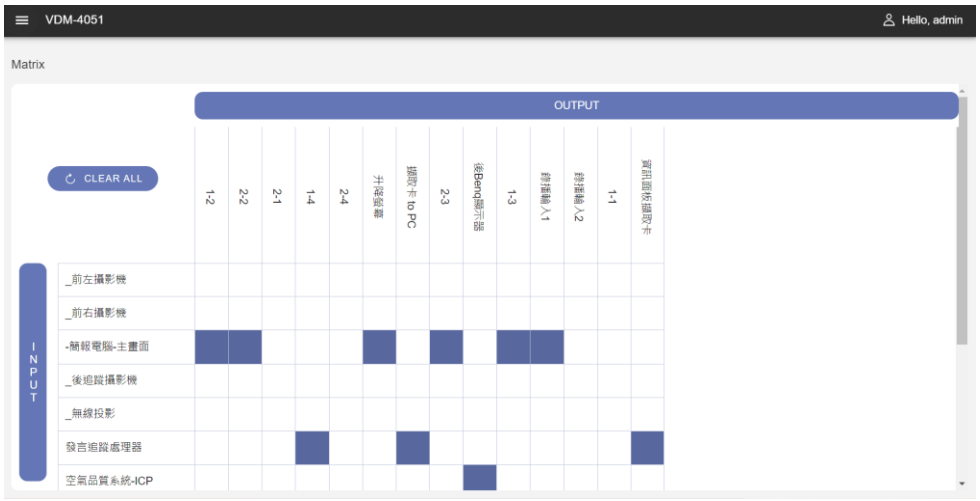
Click “Matrix” on the main menu for the setting page.

Click the square to switch the matching of input and output devices.

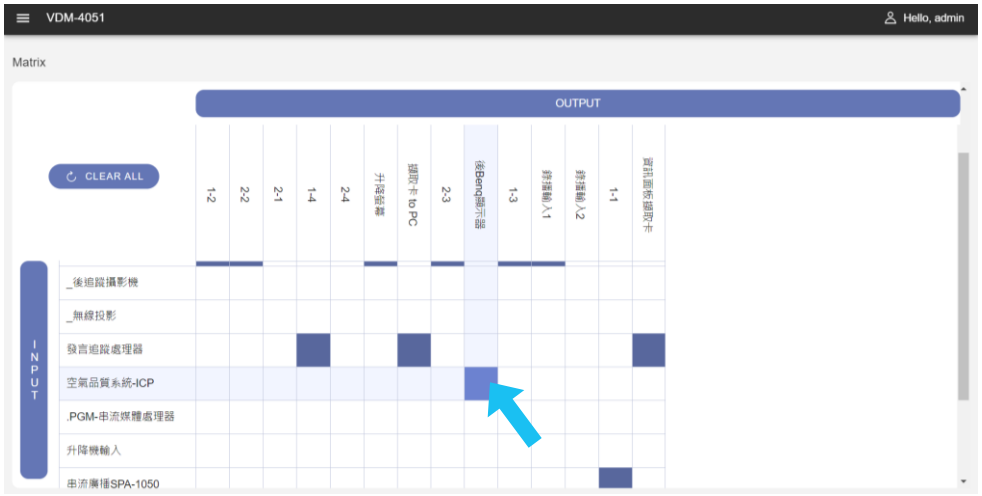
Using the Web UI

Matrix

3



4



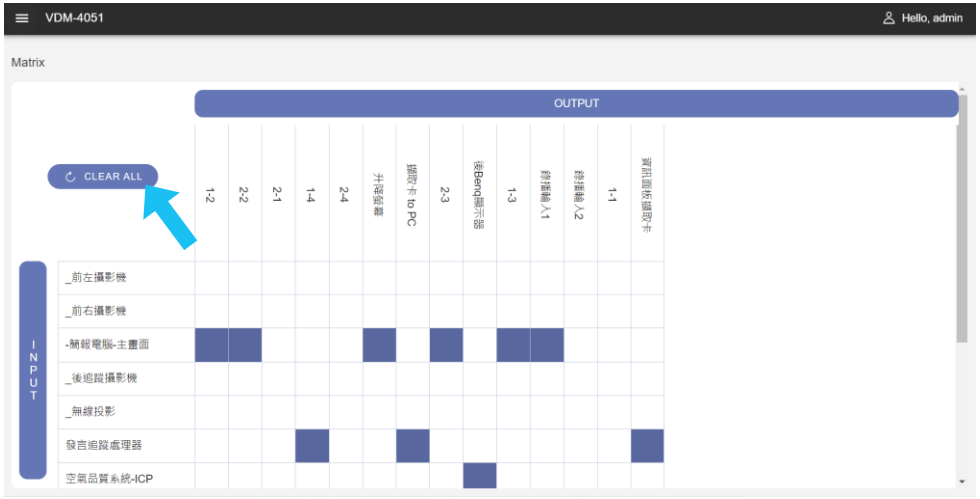
After matching the devices, the square would be shown with dark blue.

Click the square again to clear the matching; the output device would be turned off at the same time. If you require turn on the output display, just click again.

Using the Web UI

Matrix

5



6



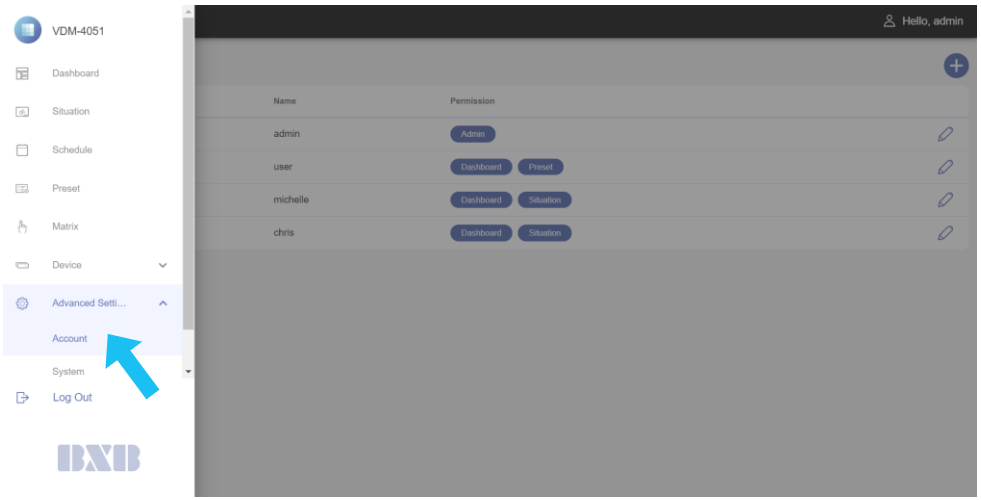
Click “CLEAR ALL” to clear the matching setting of devices; the display of all output devices would be turned off at the same time.

If you require matching the devices and turn on the output display, just click again on the corresponding squares.

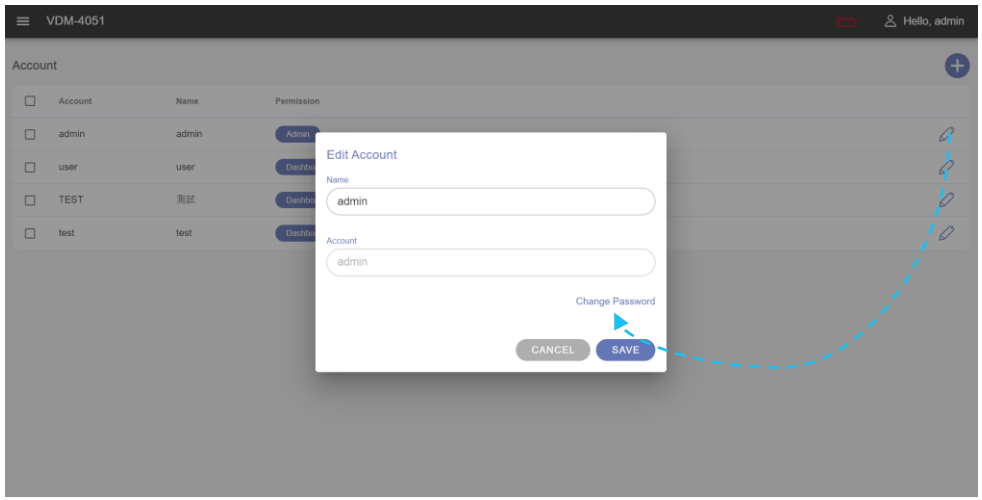
Using the Web UI

Advanced Setting_Account

1



2



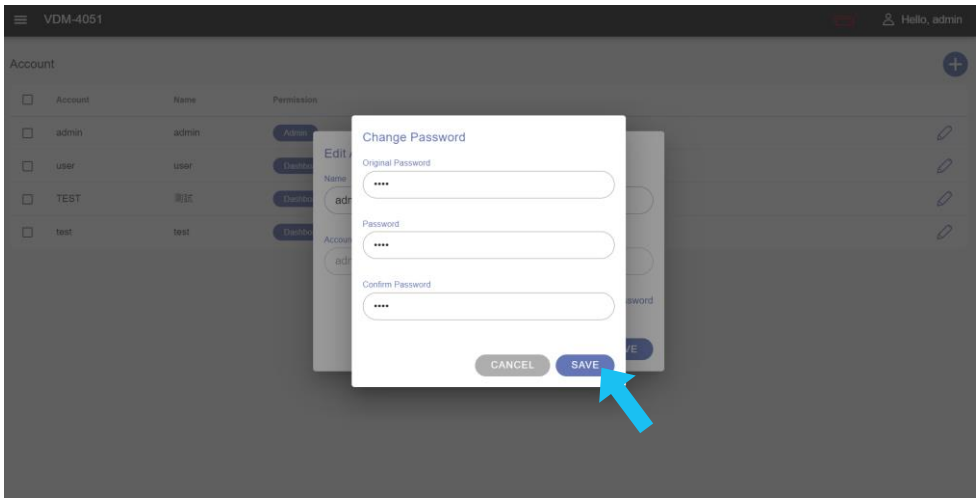
Click “Advanced Setting” > “Account” to open the setting page.

Click the “Edit” icon on the “account” item and then click “Change Password” to modify the password.

Using the Web UI

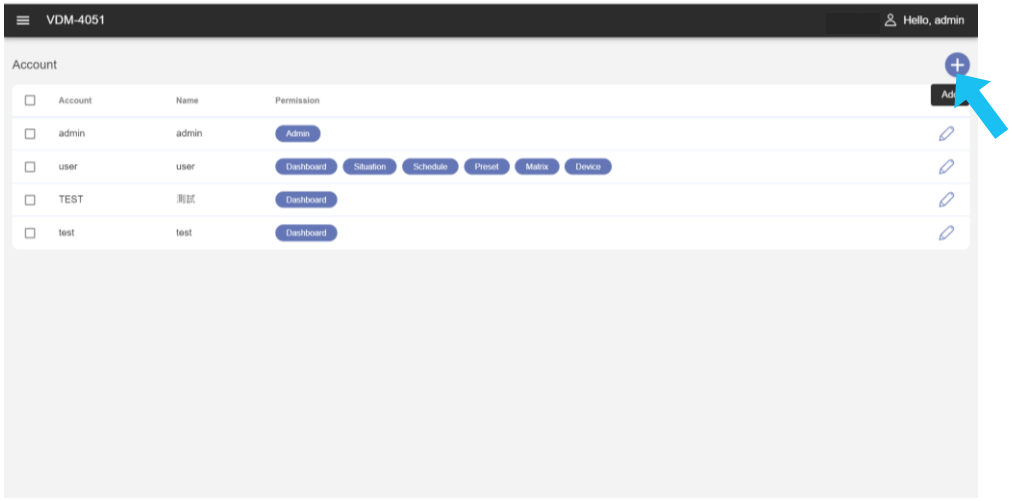
Advanced Setting_Account

3



Enter the “Original Password”, new password, and then confirm the new password. Click “SAVE” to finish the modification.

4

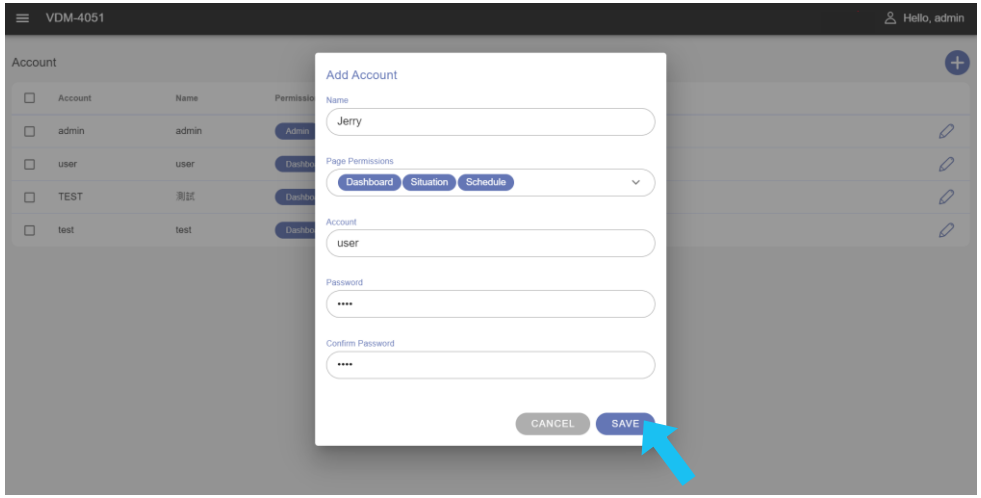


Click the “Add” icon the add more users’ accounts.

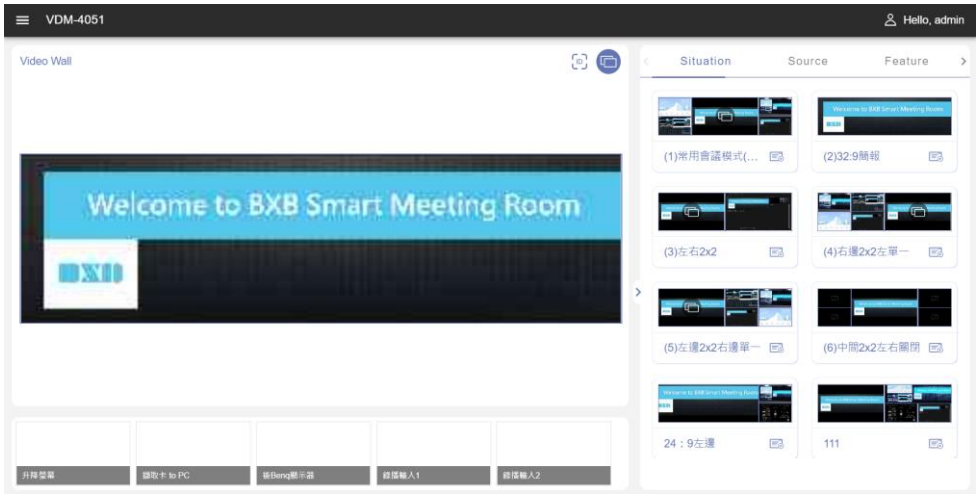
Using the Web UI

Advanced Setting_Account

5



6



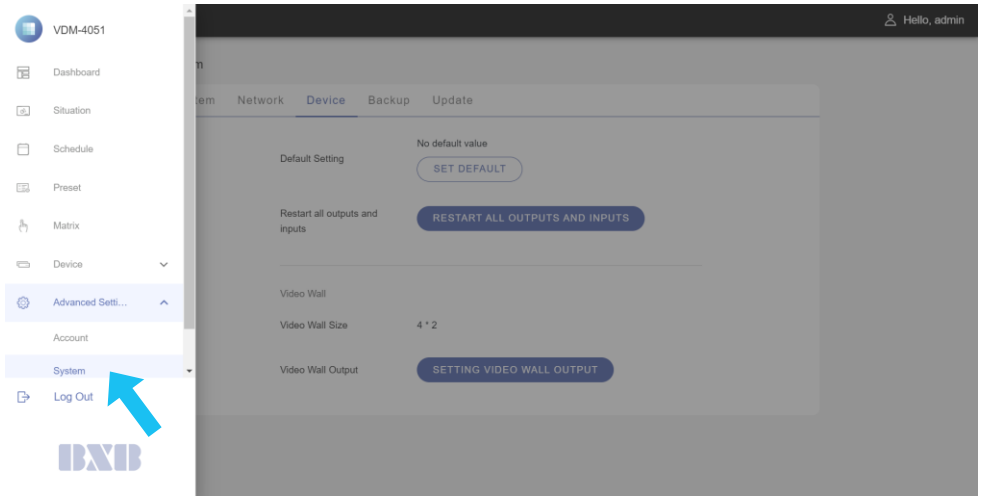
Key in the name, account, password in sequence and then select the page permission of the user. Click “SAVE” after setting.

Log in with the added account, the operation and displaying contents would be shown based on the permission setting.

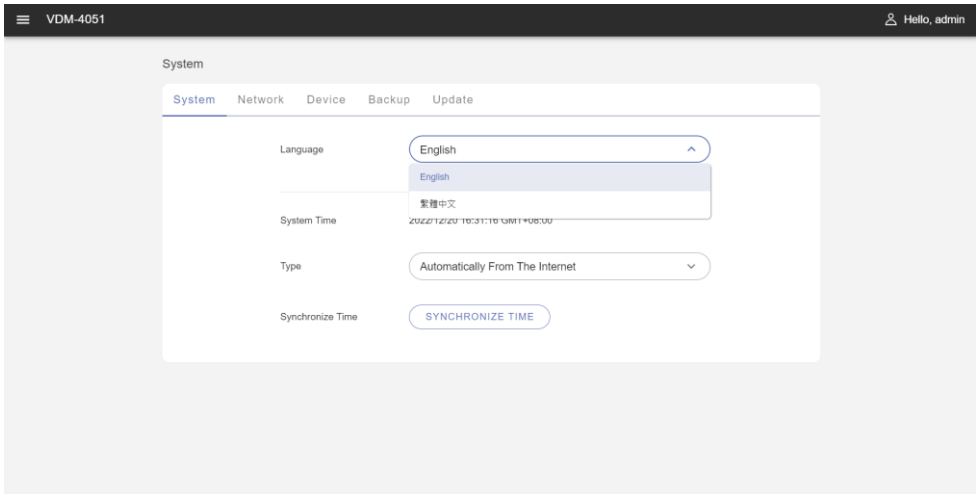
Using the Web UI

Advanced Setting_System

1



2



Click “Advanced Setting” > “System” to configure the system settings and preferences.

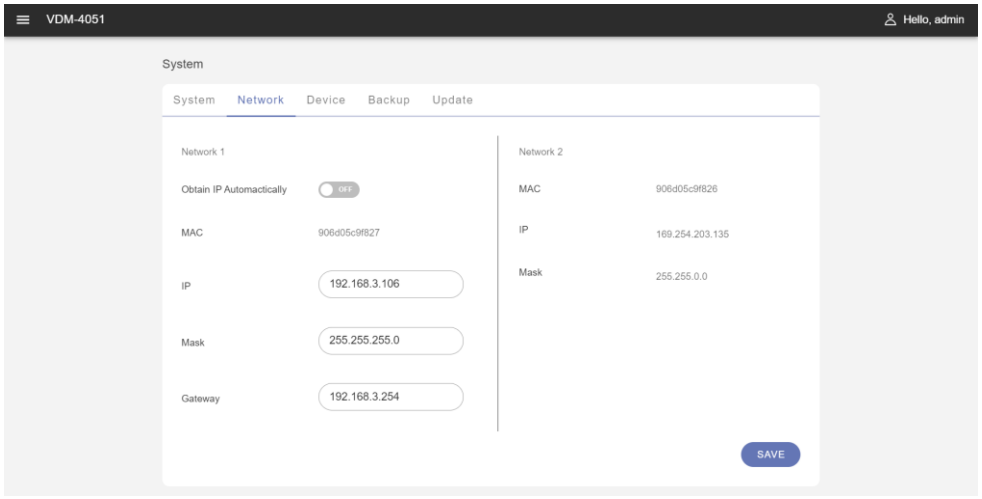
Select “System” page to set the language of the UI interface. English and Traditional Chinese are supported.

In “System Time”, you can set the time based on the Internet or computer time.

Using the Web UI

Advanced Setting_System

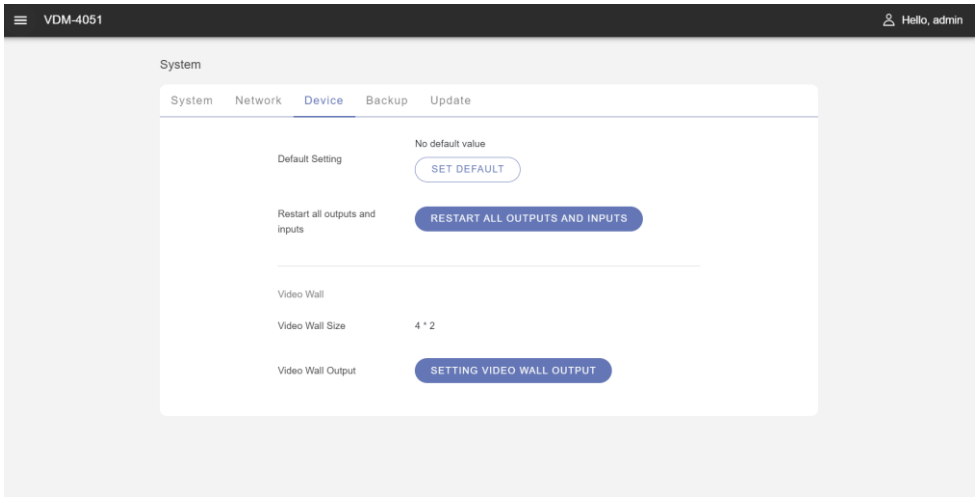
3



On the “Network” page, you can check the network information of LAN and System.

The default IP of the LAN is 192.168.168.190.

4



On the “Device” page, you can set the default situation of inputs / outputs as booting the.

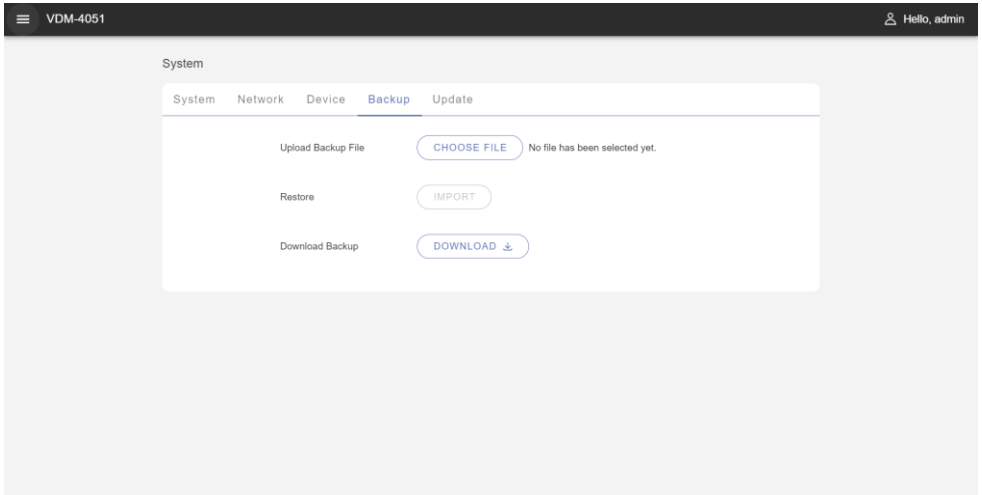
”RESTART ALL OUTPUTS AND INPUTS” to restart all the connected output and input devices

”SETTING VIDEO WALL OUTPUT” to set the corresponding output devices with each screen of the video wall.

Using the Web UI

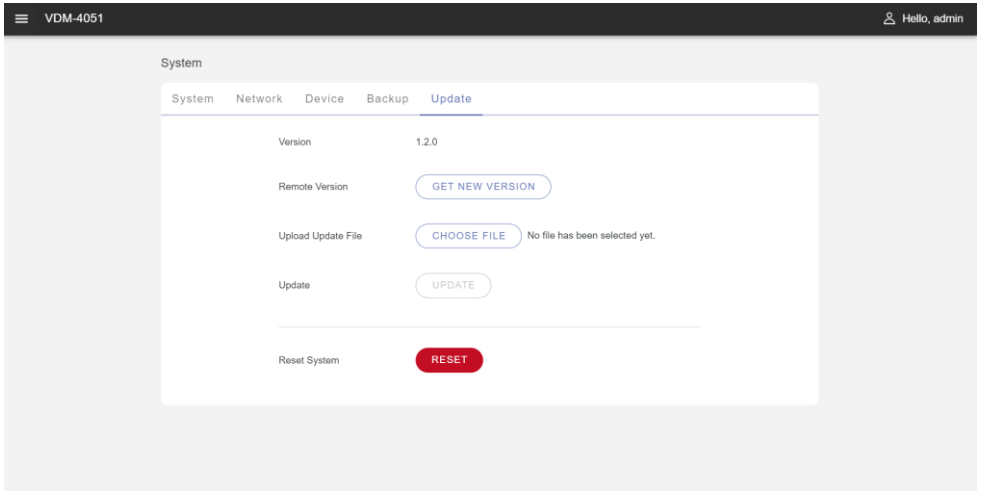
Advanced Setting_System

5



Click “Backup” page for downloading the present data. Afterward, you can upload the backup file to restore the data.

6



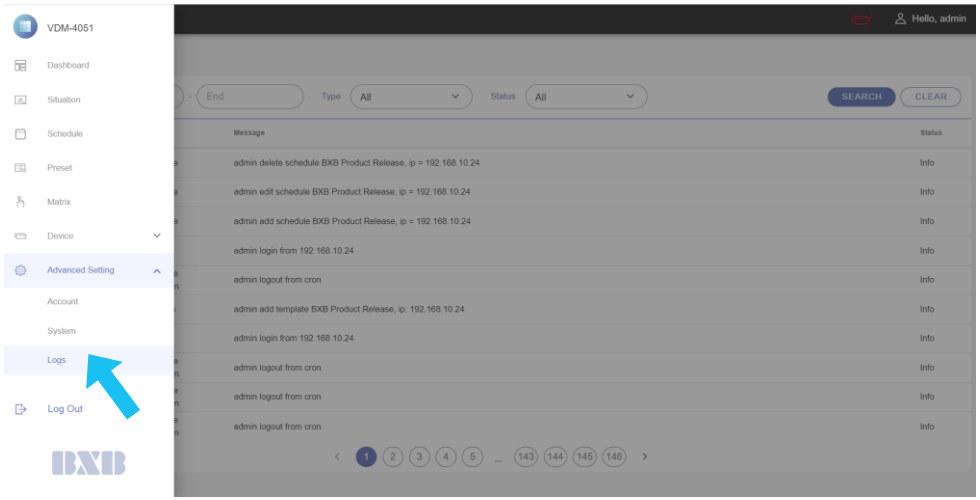
Click “Update” page to check the present firmware version of the VDM-4051 and the latest version of the remote version to update.

“RESET” to clear all the present settings and restore to the factory setting.

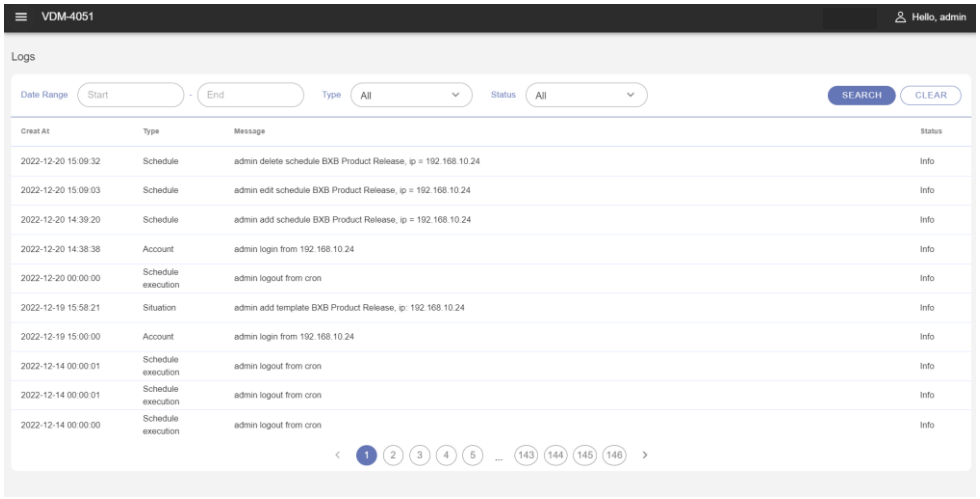
Using the Web UI

Logs

1



2



Click “Logs” on the main menu to check the system logs.

You can search the logs by date range, type, and status.

4K Over IP Matrix Encoder / Decoder

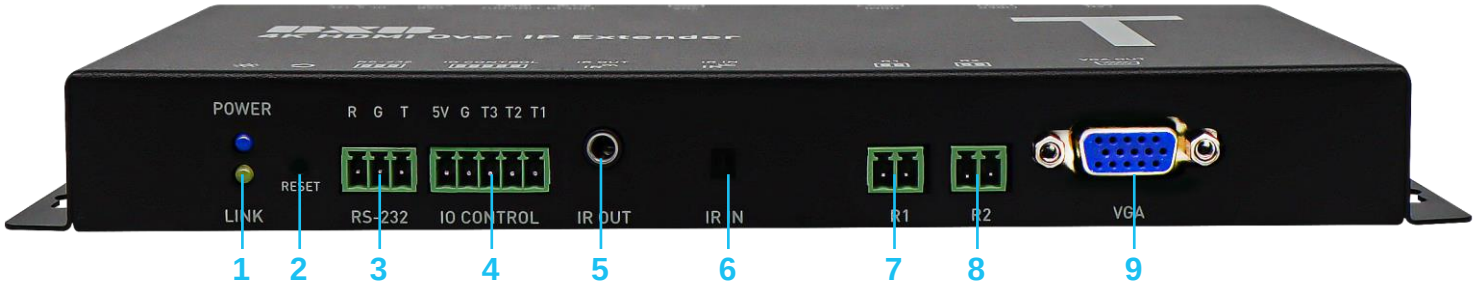
Introduction



- VDM series is a high-performance AV over IP solution which supports HDMI, USB, IR, RS-232, and USB extension.
- VDM-4010 encoder is for connecting with a PC or any HDMI output devices. VDM-4020 decoder is for connecting with HDMI / DVI-D displays, microphones, loudspeakers, USB accessories (keyboard / mouse / flash drive), and RS-232 devices.
- Easily deploy video and audio network via the standard gigabit ethernet and TCP / IP protocols. All the Lan switchers and hubs can be connected.

4K Over IP Matrix Encoder / Decoder

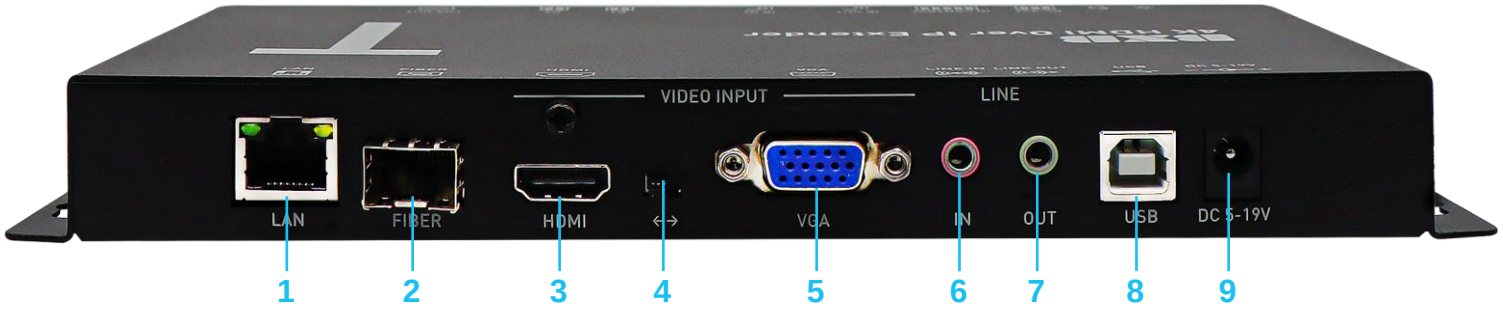
VDM-4010 Front Panel



1. **Blue LED indicator (Power / Status) & green LED indicator (Link)**
   - Blue LED flashes / Green LED off → device booting
   - Blue LED lights / Green LED off → no data transfer in progress or network cable unplugged
   - Blue LED lights / green LED flashes → connecting
   - Blue LED lights / green LED lights → network communication established
2. **Reboot:** restart the device.
3. **RS-232:** bidirectional RS-232 transmission. The baud rate can be configured via web-based interface.
4. **IO Control:** projection trigger 5V and T3.
5. **IR OUT:** connect to an emitter (sold separately).
6. **IR IN:** transmit the received IR signal to the decoder and control its devices (receiver sold separately).
7. **R1**：
   - Get shorted once → disconnect with the VDM-4020.
   - Keep shorted until Power LED and Link LED flash → reset to the default values.
8. **R2**：
   - Get shorted once → select Video / Graphic Mode. Video Mode for improving the compression ratio and reduce the bandwidth; Graphic Mode for the un-compressed bandwidth.
   - Get shorted for 3 sec → select Anti-Dither Off or Anti-Dither 1/2 mode. ATI graphic card enables activating Anti-Dither 1/2 mode to reduce compression ratio.
   - Keep shorted until Power LED and Link LED flash → transmit the EDID of HDMI display for device detection.
9. **VGA OUT:** connect a VGA monitor to this connector.

4K Over IP Matrix Encoder / Decoder

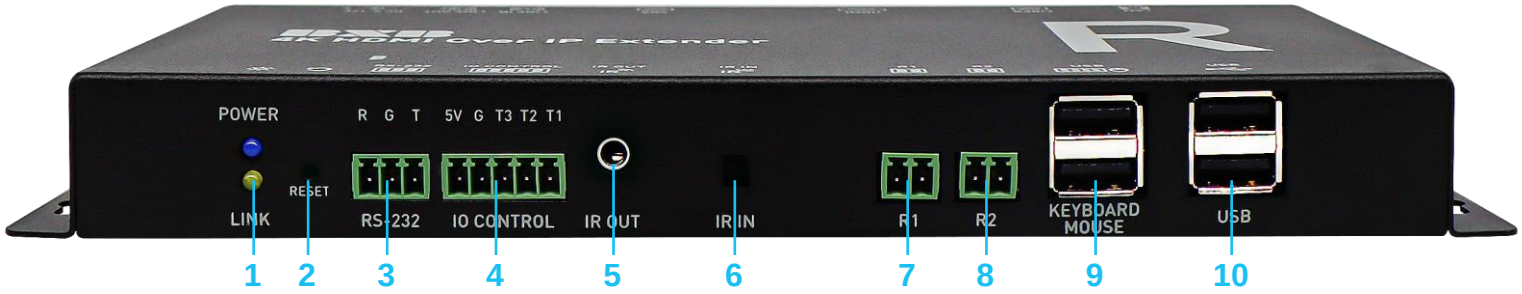
VDM-4010 Rear Panel



1. **LAN:** transform the signal into TCP/IP packet to the decoder endpoints. You can use a Gigabit switch for extension.
2. **Fiber:** MINI-GBIC connector for SFP module. 1G or greater is suggested.
3. **HDMI IN:** connect a video source to this connector.
4. **DIP:** manually select HDMI / VGA input.
5. **VGA IN:** connect a VGA source.
6. **Line in:** delivers analog audio input signal to the decoder.
7. **Line out:** for microphone output.
8. **USB Hub (USB-to-PC):** connecting to USB hosts.
9. **DC 5V-19V JACK:** connect to the BXB 12V power adapter.

4K Over IP Matrix Encoder / Decoder

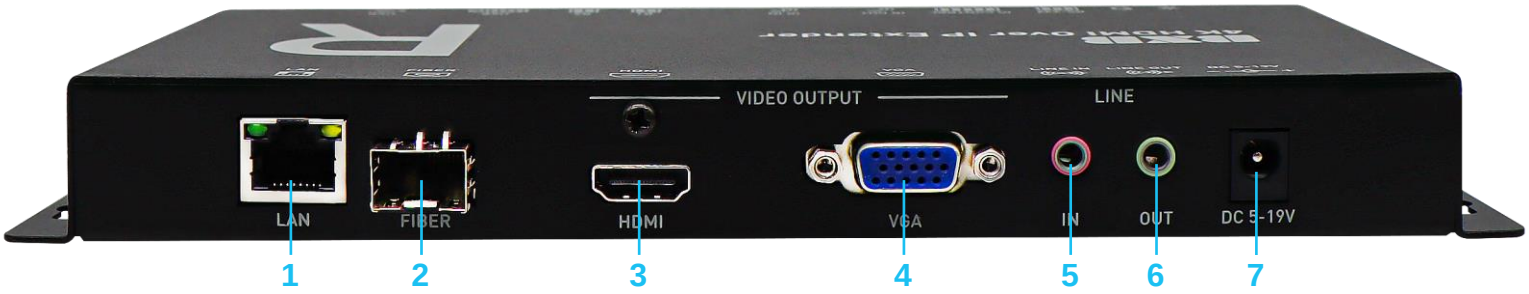
VDM-4020 Front Panel



1. **Blue LED indicator (Power / Status) & green LED indicator (Link):**
   - Blue LED flashes / Green LED off → device booting
   - Blue LED lights / Green LED off → disconnection
   - Blue LED lights / green LED flashes → connecting
   - Blue LED lights / green LED lights → link established
2. **Reboot:** restart the device.
3. **RS-232:** bidirectional RS-232 transmission.
4. **IO Control:** IO control interface.
4. **IR OUT:** connect to an emitter (emitter sold separately).
6. **IR IN:** transmit the received IR signal to the headend and control its devices (receiver sold separately).
7. **R1** :
   - Get shorted once → after seeing the menu, get R2 shorted to see the available VDM-4010 in sequence. Get R1 shorted again to select a specific VDM-4010.
   - Keep shorted until Power LED and Link LED flash → reset to the default values.
8. **R2** :
   - Get shorted once → get / give up USB control privilege when multiple VDM-4020 connect to the same VDM-4010.
   - Get shorted for 3 sec → select Anti-Dither Off or Anti-Dither 1/2 mode. ATI graphic card enables activating Anti-Dither 1/2 mode to reduce the compression ratio.
   - Keep shorted until the Power LED and Link LED flash → copy the EDID of the HDMI display to the VDM-4010.
9. **USB x 2:** connect to a keyboard and mouse for controlling the PC. The keyboard can invoke the hotkey function.
10. **USB x 2 (console):** connect to USB peripherals such as keyboard and mouse to control the PC or connect to a flash driver for reading the contents of files.

4K Over IP Matrix Encoder / Decoder

VDM-4020 Rear Panel

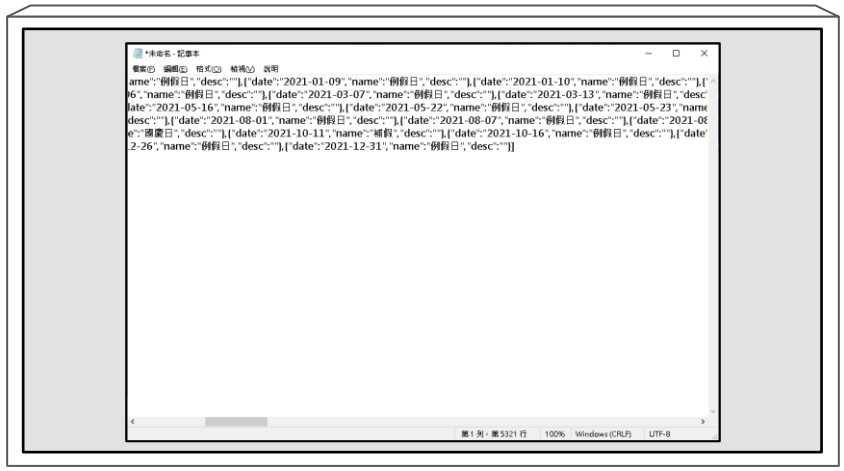


1. **LAN:** transform the signal into TCP / IP packet to the decoder endpoints. You can use a Gigabit switch for extension.
2. **Fiber:** MINI-GBIC connector for SFP module. 1G or greater is suggested.
3. **HDMI OUT:** connect to an HDMI monitor.
4. **VGA OUT:** connect to a VGA monitor.
5. **LINE in:** for microphone input.
6. **LINE out:** deliver the audio signal of microphone to the loudspeaker.
7. **DC 5V-19V JACK:** connect to the BXB 12V power adapter.

Appendix

Example of Holiday Configuration File Setting

You can import the json file to apply the holiday information for scheduling.



Open the Notepad program of PC and follow the instruction below to edit holiday information.

[{"date":"YYYY-MM-DD","name": “holiday name","desc":""},{"date":"YYYY-MM-DD","name":"holiday name","desc":""}]

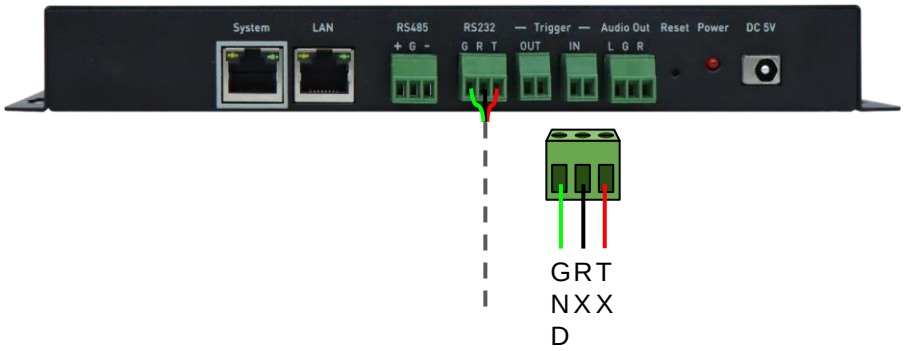
After editing, you can save the file as json format.

Appendix

Protocol Control

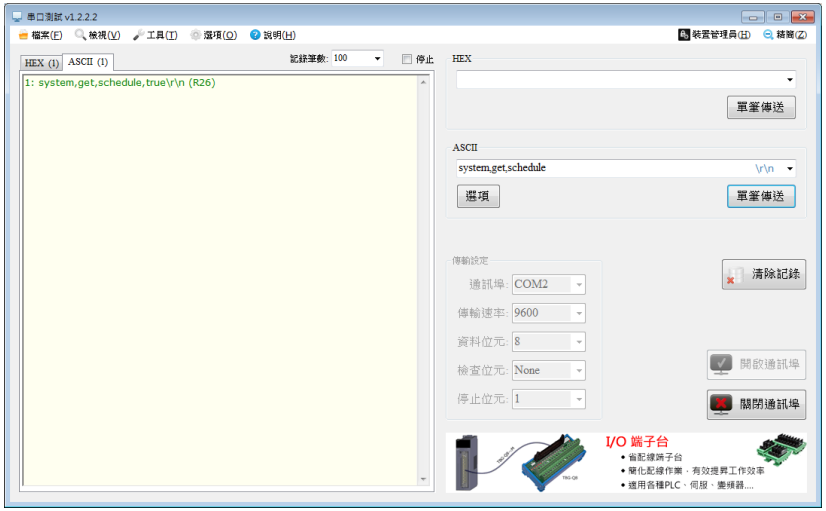
Environmental control equipment can connect with VDM-4051's RS-232 port.

1 RS-232 control



Control Protocol	RS-232
Baud Rate	9600
Data Length	8
Parity	None
Stop Bit	1
Flow Control	None

2 Example-use a PC to connect with the VDM-4051 via RS-232



Example: via RS-232 protocol of PC, you can send the command of "Switch to Situation 1" to VDM-4051.

Set command: templates,set,current,1

Response: templates,set,current,1, o k

Result: the "ok" code of response represents the action is performed successfully.

※ The newline character /r/n should be included in each sending command.

Appendix

ASCII Command Table

Action	Command
Switch situation	templates,set,current,$1
Get scheduling status	system,get,schedule
Set scheduling	system,set,schedule,$2
Get projection status	system,get,signal
Set projection	system,set,signal,$2
Restart input/output device	system,get,reboot



Note:

$1: situation ID. Open the Chrome browser and click “F12” to open “Developer Tools”. And then switch to “Network” page to refresh the page. Click “Template” to check the ID information of situations.

If it shows {id: 1, title: “(2)32:9簡報”, layout: 3,…}, id:1 would be the corresponding code of the command。

$2: true enable the function; false disable the function.

Appendix ASCII Command Chart

Switch situation: switch the situation from the situation list

Action	ASCII command
Command	templates,set,current,$1
Response	templates,set,current, $1, $2
Remark	$1 Situation id: the corresponding id of the situation $2 State code: ok valid command and situation id; fail: E0xxx invalid command and situation id

Get scheduling status: check the configuration and status of the present scheduling

Action	ASCII command
Command	system,get,schedule
Response	system,get,schedule, $1
Remark	$1 State code: true activate the execution of scheduling; false deactivate the execution of scheduling; fail: E0xxx invalid command

Set scheduling: perform or not perform the scheduling function

Action	ASCII command
Command	system,set,schedule,$1
Remark	$1 State code: true perform scheduling; false not perform scheduling

Appendix ASCII Command Chart

Get projection status: check the configuration status of projection

Action	ASCII command
Command	system,get,signal
Response	system,get,signal, $1,
Remark	$1 State code: true activate the execution of projection; false deactivate the execution of projection; fail: E0xxx invalid command

Set projection: turn on/off projection

Action	ASCII command
Command	system,set,signal,$1
Remark	$1 State code: true turn on projection; false turn off projection; fail: E0xxx invalid command

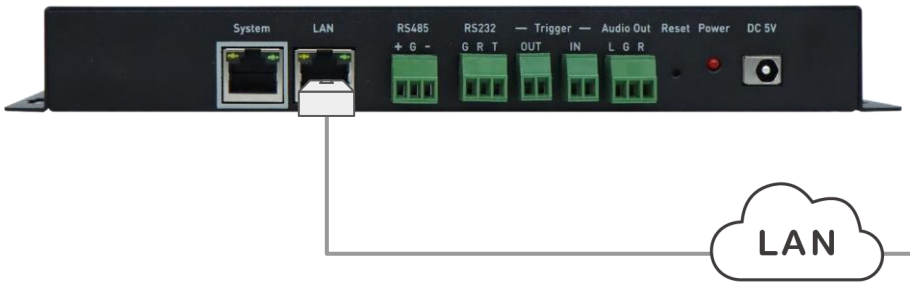
Restart input/output device: restart the connected input/output devices

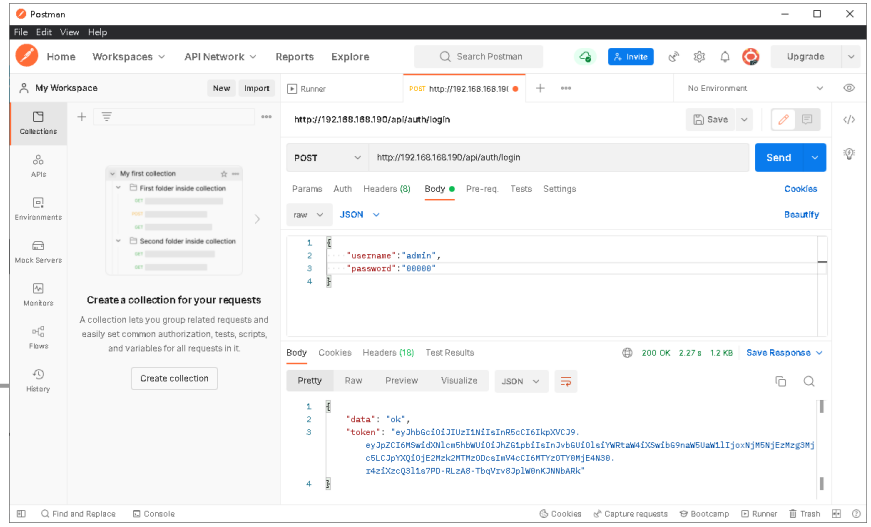
Action	ASCII command
Command	system,get,reboot
Response	system,get,reboot, $1
Remark	$1 State code: ok valid command and situation id; fail: E0xxx invalid command and situation id

Appendix

Connect Environmental Control Equipment

VDM-4051 connects environmental control equipment via Web API.





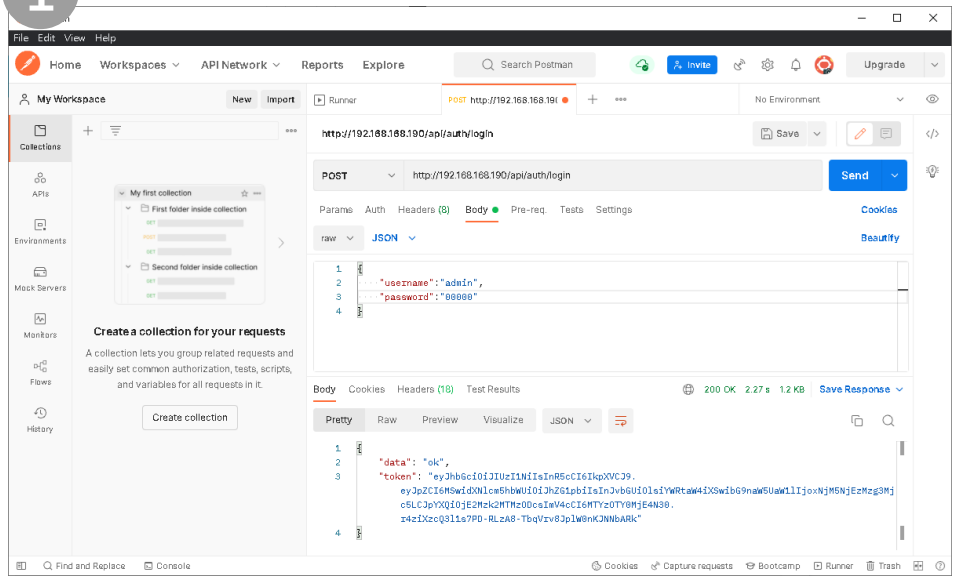
VDM-4051 Web API uses “RESET” principle. Via Web API communication, you can get VDM-4051’s data and settings.

Appendix

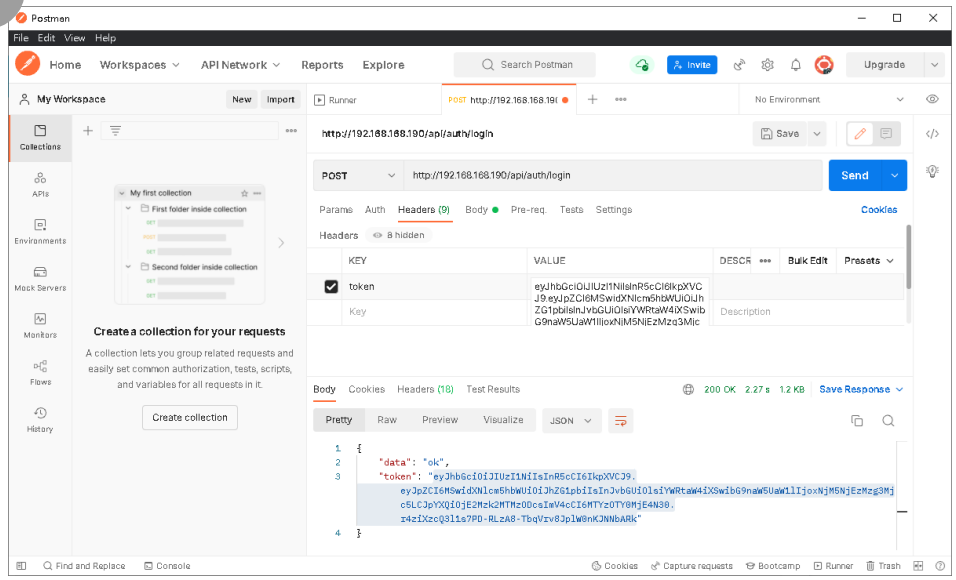
Example of Web API Communication

Use Postman program of PC to communicate with the VDM-4051

1



2



Example: Run Postman to check login information

POST http:/ /VDM-4051 IP/api/auth/login

```
{
    "username": "admin",
    "password": "00000"
}
```

Status response: HTTP status code "200 OK" represents “Success”

Example: after logging in successfully, you can get the token (valid for 8 hours). The token should be used for sending commands afterwards.

Appendix

Web API Command Chart

Action	Log in
Method	POST
URL	{VDM-4051 address}/api/auth/login
Request	{ "username": "admin", "password": "00000" }
Log in successfully Response	{ "data": "ok", "token": "token" }
Invalid account/password Response	{ "message": "Authentication error", "code": "E0401" }
Empty account/password Response	{ "message": "\"password\" is not allowed to be empty", "code": "E0444" }
Remark	"token " would be expired in 8 hours. The token should be used for sending commands afterwards.

Appendix

Web API Command Chart

Action	Log out
Method	GET
URL	{VDM-4051 address}/api/auth/logout
Request	

Response	{
	"data": "ok"
	}

Remark	If there's no response, the log out may be failed or has been executed previously.

Action	Switch situation
Method	GET
URL	{VDM-4051 address}/api/templates/$1/exec
Request	

Response	{
	"data": "ok"
	}

Remark	$1: situation ID If there's no response, the situation ID may be nonexistent or the data is in failure.

Appendix

Web API Command Chart

Action	Get situation data
Method	GET
URL	{VDM-4051 address}/api/templates
Request	
Response	[{ "id": 1, "title": “regular meeting", "layout": 1, "grids": [{ "id": 9, "template": 1, "start": [0, 0], "end": [1, 1],...
備註	"id": situation ID "title": situation name,

Appendix

Web API Command Chart

Action	Get scheduling status
Method	GET
URL	{VDM-4051 address}/api/system/schedule
Request	

Response	{
	"status": "$1"
	}

Remark	$1 status: true scheduling is on / false scheduling is off

Action	Set scheduling
Method	PUT
URL	{VDM-4051 address}/api/system/schedule

Request	{
	"status":$1
	}

Response	{
	"status": "$1"
	}

Remark	$1: true scheduling is on / false scheduling is off

Appendix

Web API Command Chart

Action	Get projection status
Method	GET
URL	{VDM-4051 address}/api/system/signal
Request	

Response	{
	"status": "$1"
	}

Remark	$1 status: true projection is on / false projection is off

Action	Set projection
Method	PUT
URL	{VDM-4051 address}/api/system/signal

Request	{
	"status": $1
	}

Response	{
	"status": "$1"
	}

Remark	$1： true projection is on / false projection is off

Appendix

Web API Command Chart

Action	Restart input/output device
Method	GET
URL	{VDM-4051 address}/api/system/devices/allReboot
Request	

Response	{
	"data": "ok"
	}

Remark	If there’s no response, the command would be incorrect.



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