Espedeo Supra™

Supra-5000

Digital Cinema and Secured Media Projection System

User Manual

August 02nd, 2023.

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Thank you for purchasing the Supra-5000 Digital Cinema and Secured Media Projection System from Espedeo Holdings Ltd.

To ensure proper operation and to maximize the value of Espedeo Supra-5000 Digital Cinema and Secured Media Projection System, please review this Manual. It will guide you through all the features and benefits of the Espedeo Supra-5000 Digital Cinema and Secured Media Projection System.

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FCC STATEMENT

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. Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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.

1. Starting the Espedeo Supra-5000

1.1 Switching ON the Projector

Before powering ON the **Espedeo Supra-5000 Digital Cinema and Secured Media Projection System**, please ensure the environmental requirements (refer to **Table 1**) for the safe operation of the projector are met:

Surroundings	During Operation	Non-Operating Period
Ambient Temperature	5°C to 35°C	-10°C to 60°C
Humidity	10% to 85% (non-condensing)	5% to 90% (non-condensing)
Air Cleanliness	Neat office environment (in compliance with the Cleanroom Standard ISO 14644-1 Category 9)	Not applicable
Altitude	-60 to 3000 meters	-60 to 10000 meters

Table 1

Additionally, please ensure the following in accordance with the Espedeo Supra-5000 Installation manual:

1. The projector is mounted correctly.

2. The female connector of the power cord (included in the package) is connected to the power socket of the projector and the male plug is connected to a recommended AC power outlet of the correct rating.

3. The projector is equipped with a suitable lens.

4. If an external video source such as a Blu-Ray player is used, please ensure that it is connected to either the **HDMI IN 1** or **HDMI IN 2** port on the projector's PIB (refer to **Section 2.3** for more details).

After confirming the above listed points, switch ON the power source for the projector. After approximately five minutes, the projector will be powered ON.

Figure 1: Connect Power cord to Projector

Check the status indicator of the projector. The Green indicator should be steady ON after boot-up is complete, as shown in **Figure 2**. Refer to for the complete working status of the projector indicators.
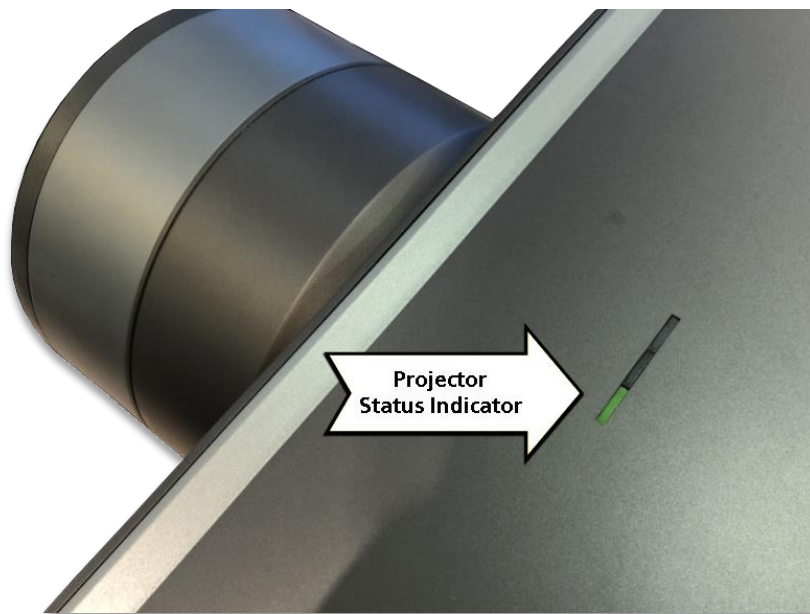
Figure 2: Projector Status Indicators

SN	LED Color	LED Status	Projector Status	Function
1	Green	Steady ON Green	Power-on	The projector is working properly.
2	Green	Blinking Green (fast)	Power-on Process	The projector is booting with the AC power or via the network wakeup function. The indicator blinks fast. After the power-on process with the AC power is completed, the green indicator stops blinking and becomes steady ON.
3	Green	Blinking Green (slow)	Standby mode	The projector is in Standby mode and can be woken up by an external device through the network. The blinking frequency is low.
4	Yellow	Blinking Yellow	Warning	A warning is generated. You can view the warning-related information using the Supra Command Center UI. After the warning is cleared, the Yellow indicator turns OFF.
5	Red	Blinking Red	Error	An error has occurred, which may affect the normal operation of the projector. You can view the error-related information using the Supra Command Center UI. After the error information is handled, the Red indicator turns OFF.
6	Red	Steady ON Red	Error	An error has occurred, resulting in a system shutdown.

Table 2

In the scenario, where the mounting and placement of the projector allows you to access the back panel; you can also check the status of the LED indicators on the Digital Cinema Media Board (DCMB). This can be done by removing the projector's Rear Decorate plate. To remove this plate, press and hold the locking mechanism and then carefully lift the plate upwards, as indicated in **Figure 3**. Make sure you do not damage the clips on the back side of the Rear Decorate plate.
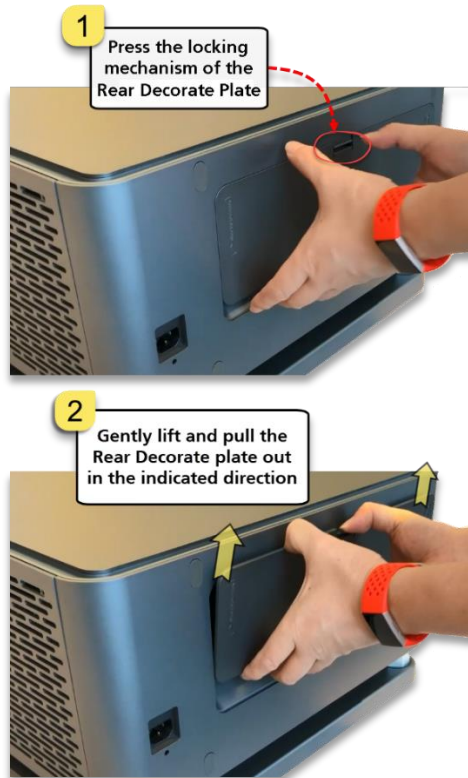
Figure 3: Removing the Rear Decorate Plate

Wait for the working status of the **SM, TAMPER** and **EXT** LED indicators on the DCMB to show steady Green, as highlighted in **Figure 4** (refer to **Section 2.1** for more information regarding the DCMB LED indicators).

Figure 4: Working status of SM, TAMPER and EXT LED Indicators on the DCMB

1.2 Controlling and Operating the Espedeo Supra-5000

The Espedeo Supra-5000 projector is controlled and operated via a web-based user interface that can be wirelessly accessed from a web browser* on an Android™ tablet OR from a web browser* on a PC/Laptop connected wirelessly or via a wired connection to the projector.

You can connect your device to the projector via a wired LAN or wireless connection as described in the following sections:

1.2.1 Using a Wired LAN Connection

OPTION A:

Step 1: Connect a PC/Laptop to the **IMB Ethernet 2** network port (marked as **GIGABIT Port 2** on the DCMB faceplate) of the projector's DCMB using a network cable (refer to **Section 2.1** to understand the various connectors on the DCMB).

Step 2: The default IP address of the DCMB's **IMB Ethernet 2** port is 192.168.1.12. However, the **IMB Ethernet 2** IP address can also be modified as per the Cinema's Management network (from the **Configuration** → **System** → **Network Configuration** section of the DCMB Web UI).

Ensure that the **IMB Ethernet 2** IP and the PC/Laptop network interface IP are on the same subnet. For example: If the **IMB Ethernet 2** IP Address of the DCMB is 192.168.1.12, then the IP Address of the PC/Laptop network interface can be set to 192.168.1.15 as shown in **Figure 5**.
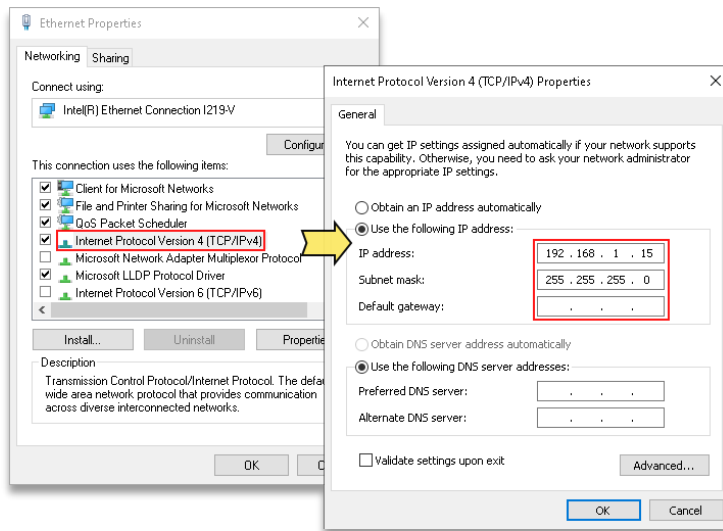
Figure 5: Set Network Interface IP

Step 3: Open the web browser* and enter the **IMB Ethernet 2** IP Address of the DCMB. Refer to **Section 1.2.3** for more details.

OPTION B (recommended for debugging):

Step 1: Connect the PC/Laptop to the **LAN 2** network port of the projector's PIB (refer to **Section 2.2** to understand the various connectors on the PIB) using a network cable.

Step 2: The IP address of the **LAN 2** port of the PIB is fixed to 192.168.254.241 (Supra Command Center interface) and 192.168.254.246 (DCMB Web UI). Ensure that the **LAN 2** IP and the PC/Laptop network interface IP are on the same subnet. As shown in **Figure 6**, the *"XXX"* parts of the IP Address must range from 240 to 255 and cannot be set to 241 and 246. Additionally, the **Subnet mask** value for the PC/Laptop network interface should be set to 255.255.255.240.
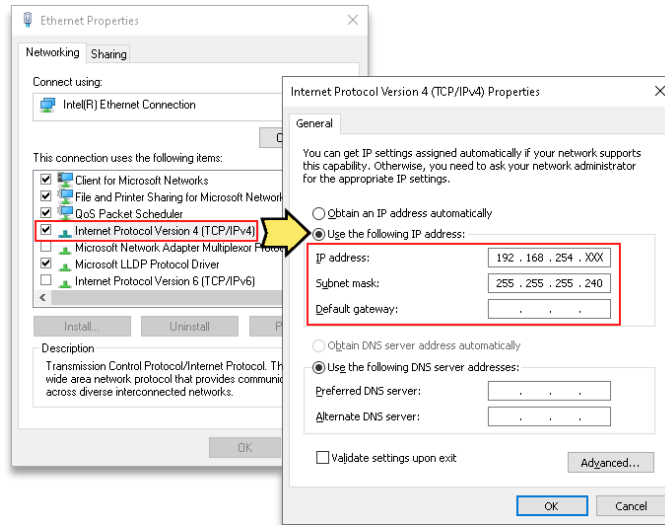
Figure 6: Set Network Interface IP

Step 3: Open the web browser* and enter the **LAN 2** IP Address of the PIB. Refer to **Section 1.2.3** for more details.

* Please note that Google Chrome™ browser is supported at the time of writing this manual

1.2.2 Accessing the Wireless SMS

The Espedeo Supra-5000 has an **in-built Access Point** which makes it possible to connect wirelessly to the projector without the need for an external Wi-Fi router. This Access Point name will be shown as *"SMS-XXXXXX",* where "XXXXXX" represents the unique **Serial Number** of the projector's DCMB. Additionally, you can refer to **Section 1.2.7** for details regarding how to enable/disable this wireless Access Point. The following example explains how to connect wirelessly to the Supra-5000, using an Android™ tablet.

Step 1: The tablet should automatically connect to *'SMS-XXXXXX'* Access Point. You can confirm this by going to *'Apps' → 'Settings' app → 'Connections' → 'Wi-Fi'.* In case you do not know the password for the wireless Access Point of the Supra-5000 Projector, please contact Espedeo Holdings Ltd.
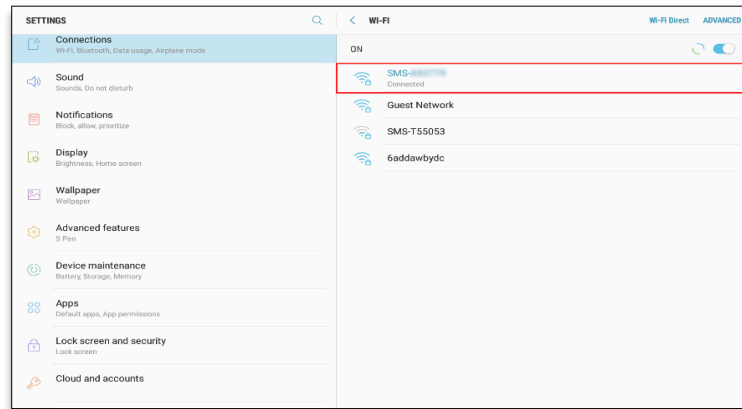
Figure 7: Search for Projector's Wireless AP

Step 2: Ensure the tablet is connected to the Access Point "*SMS-XXXXXX* "over Wi-Fi before proceeding.
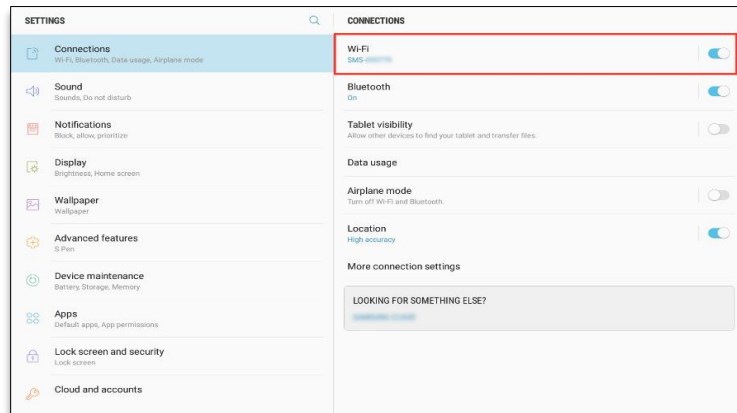
Figure 8: Connect the Projector's Wireless AP

Step 3: Open Chrome™ browser on the tablet and enter the **IMB Ethernet 2** IP Address of the DCMB.
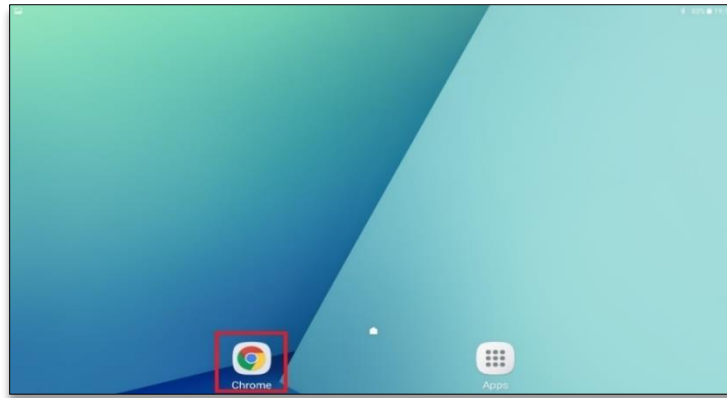
Figure 9: Open Chrome™ browser to access Web UI

Please Note: In case you are using a PC/Laptop to wirelessly connect to the projector, it is recommended that the wireless NIC of that PC/Laptop has not been set to any static IP address and is left on 'DHCP'.
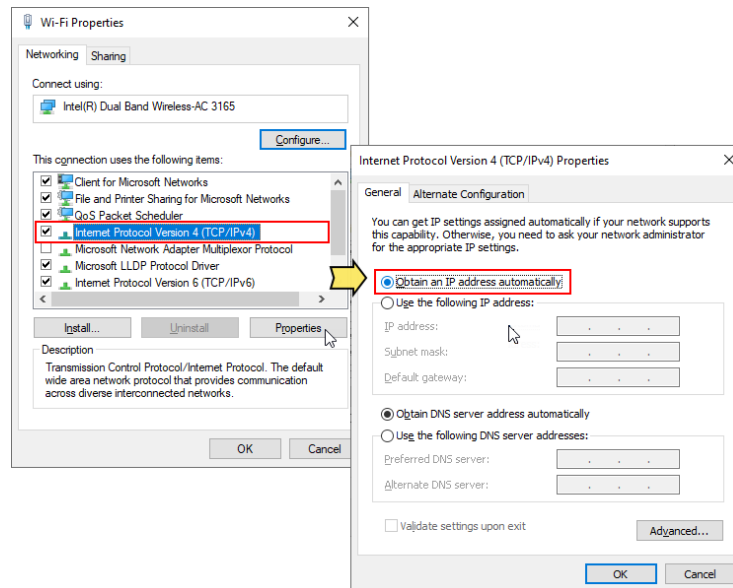
Figure 10: Set Wireless NIC to DHCP

1.2.3 Accessing the Supra Command Center and DCMB Web UI

Depending on how a PC/Laptop or Android™ tablet is connected to the Espedeo Supra-5000, you can access the **Supra Command Center web interface** (to access all projector functions) and the **DCMB Web UI** (to access all playback functions of the DCMB) via a web browser[*], using various methods mentioned under this section.

The **Supra Command Center web interface** has been set to not ask for login credentials for 30 days. In case the login dialog pops up after 30 days; type in the login credentials and select the 'Keep Signed In Within 30 days' option, prior to clicking on the **Sign In** button.

The **DCMB Web UI** can be accessed by selecting the required access level and entering the corresponding password to login. Refer to **Section 4.1** for more details regarding the Web UI access levels.

In case you do not know the login credentials for the Supra Command Center and DCMB Web UI, please contact Espedeo Holdings Ltd.
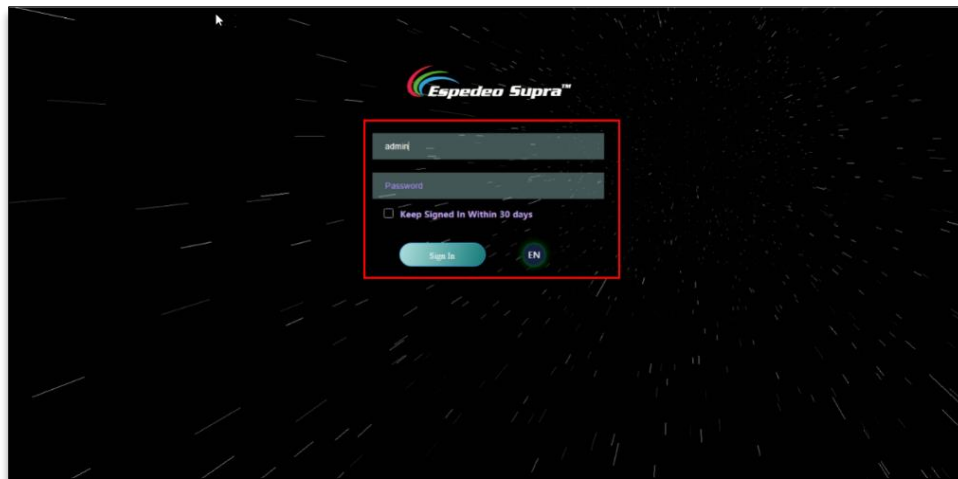
Figure 11: Supra Command Center Login page

Figure 12: DCMB Web UI Login page

For ease of access, the Espedeo Supra-5000 comes with a 'Single tab mode' feature which allows you to access the Supra Command Center web interface from within the DCMB Web UI.

This feature can be enabled/disabled from the DCMB Web UI, by checking/unchecking the Single tab mode option under the **Configuration** → **General** → **Options** section (as shown in **Figure 13**).
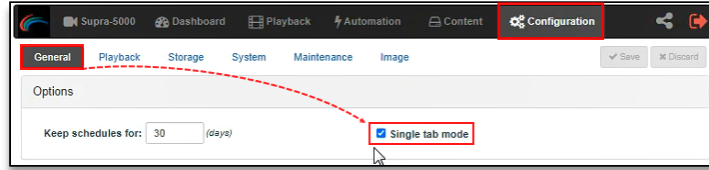
Figure 13: Enable/Disable Single tab mode

* Please note that Google Chrome™ browser is supported at the time of writing this manual

Method ①

When the projector is wirelessly connected to a PC/Laptop or Android™ tablet using the DCMB's wireless Access Point (refer to **Section 1.2.2** for more details); the Supra Command Center web interface and the DCMB Web UI can be accessed using this particular method.

In this case, the DCMB Web UI can either be accessed by using the URL: http://192.168.254.246 or by using the URL: http://IMBETH2IP (where "IMBETH2IP" represents the **IMB Ethernet 2** IP address of the DCMB) via a web browser*. For example: if the **IMB Ethernet 2** IP Address of the DCMB is 192.168.1.12, then the DCMB Web UI can be accessed using the URL: http://192.168.1.12, as shown **in Figure 14**.

Figure 14: Accessing the DCMB Web UI (Method 1)

* Please note that Google Chrome™ browser is supported at the time of writing this manual

a. When the Single tab mode option is enabled; you can access the Supra Command Center web interface within the DCMB Web UI, by clicking on the **'Supra-5000'** tab (as shown in **Figure 15**).

Figure 15: Accessing Supra Command Center when Single tab mode is enabled

b. When the Single tab mode option is disabled; you can click on the **'Supra-5000'** tab to open and access the Supra Command Center web interface in a new browser tab (as shown in **Figure 16**).
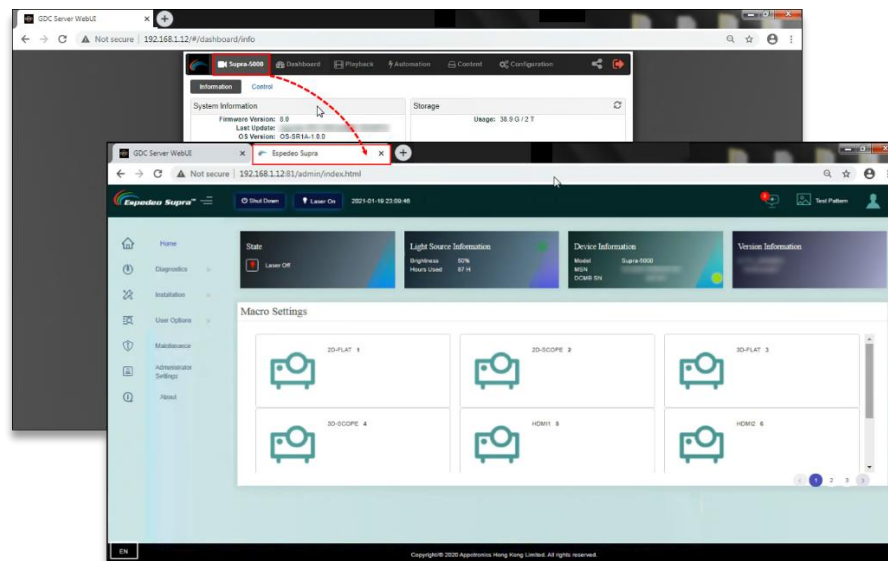
Figure 16: Accessing Supra Command Center when Single tab mode is disabled

Please Note: You can also access the Supra Command Center web interface either via the URL: http://192.168.254.241 or via the URL: http://IMBETH2IP:81 (where "IMBETH2IP" represents the **IMB Ethernet 2** IP address of the DCMB) using a new browser tab. For example: If the **IMB Ethernet 2** IP Address of the DCMB is 192.168.1.12, then the URL to access the Supra Command Center web interface will be http://192.168.1.12:81.

Method ②

When a PC/Laptop is connected to the **IMB Ethernet 2** network port (**GIGABIT Port 2**) of the projector's DCMB (refer to **OPTION A** under **Section 1.2.1** for more details) via a network cable; the Supra Command Center web interface and the DCMB Web UI can be accessed using this particular method.

In this case, the DCMB Web UI can be accessed by using the URL: http://IMBETH2IP (where "IMBETH2IP" represents the **IMB Ethernet 2** IP address of the DCMB) via a web browser*. For example: if the **IMB Ethernet 2** IP Address of the DCMB is 192.168.1.12, then the DCMB Web UI can be accessed using the URL: http://192.168.1.12, as shown in **Figure 17**.
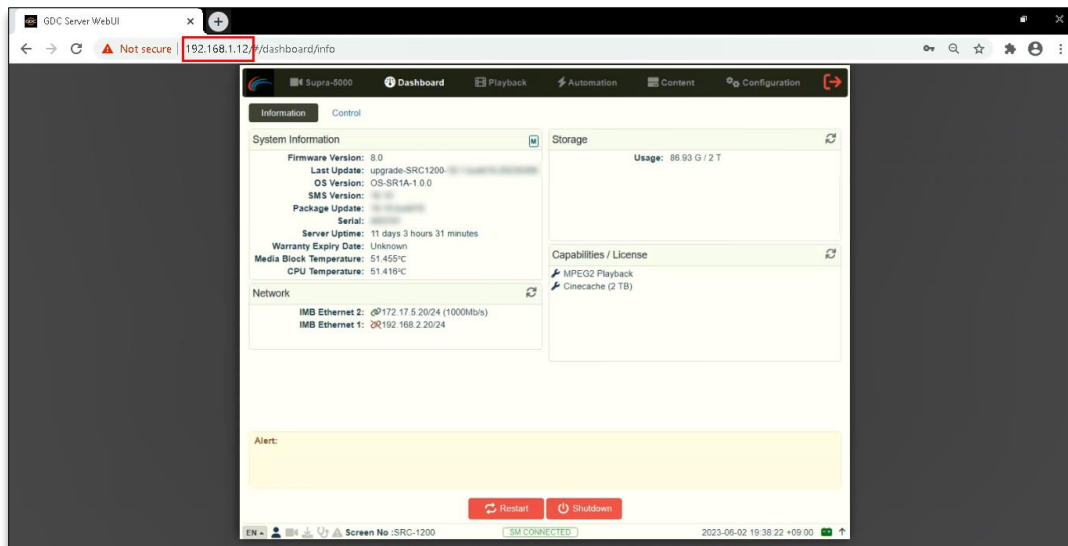
Figure 17: Accessing the DCMB Web UI (Method 2)

* Please note that Google Chrome™ browser is supported at the time of writing this manual

a. When the Single tab mode option is enabled; you can access the Supra Command Center web interface within the DCMB Web UI, by clicking on the **'Supra-5000'** tab (as shown in **Figure 18**).
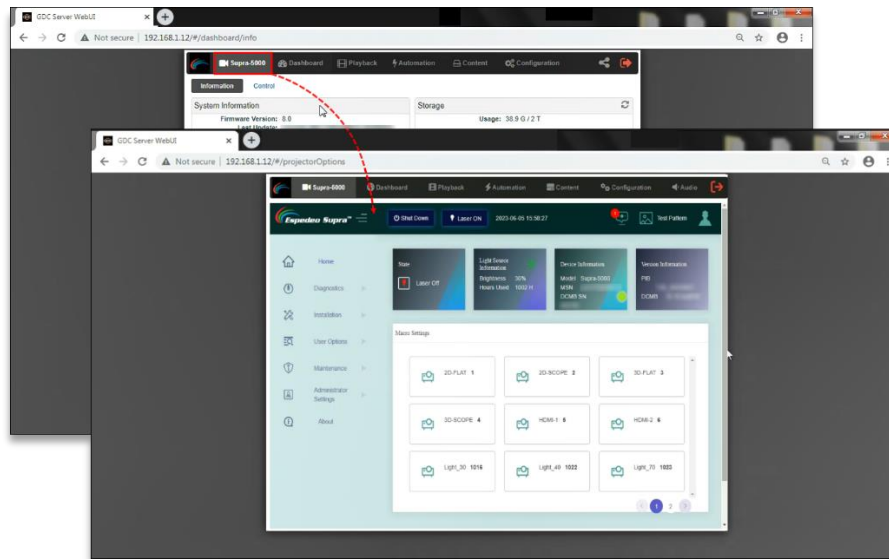
Figure 18: Accessing Supra Command Center when Single tab mode is enabled

b. When the Single tab mode option is disabled; you can click on the **'Supra-5000'** tab to open and access the Supra Command Center web interface in a new browser tab (as shown in **Figure 19**).
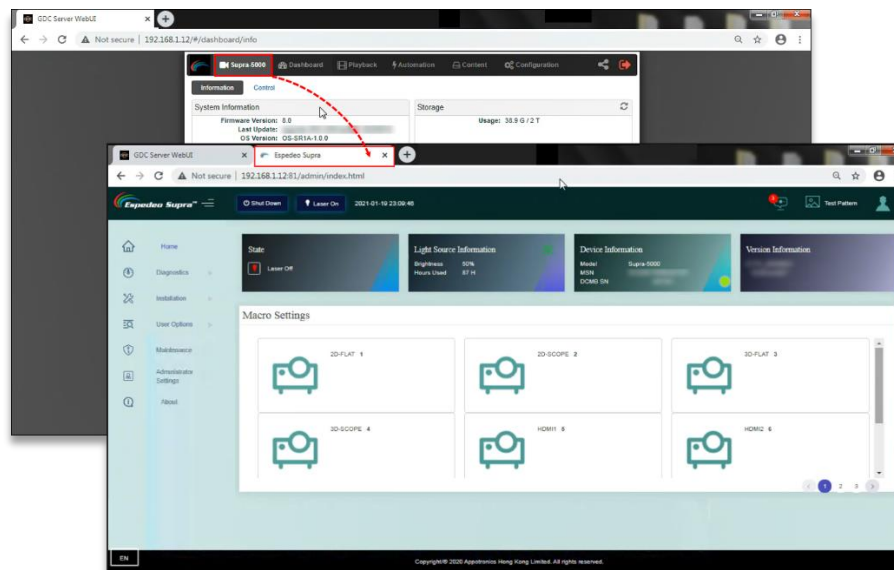
Figure 19: Accessing Supra Command Center when Single tab mode is disabled

Please Note: You can also access the Supra Command Center web interface via the URL: http://IMBETH2IP:81 (where "IMBETH2IP" represents the **IMB Ethernet 2** IP address of the DCMB) using a new browser tab. For example: If the **IMB Ethernet 2** IP Address of the DCMB is 192.168.1.12, then the URL to access the Supra Command Center web interface will be http://192.168.1.12:81.

Method ③ (recommended for debugging)

When a PC/Laptop is connected to the **LAN 2** network port (**ETH 2**) of the projector's PIB (refer to **OPTION B** under **Section 1.2.1** for more details) via a network cable; the Supra Command Center web interface and the DCMB Web UI can be accessed using this method.

In this case, the Supra Command Center web interface can be accessed by using the URL: http://192.168.254.246 and the DCMB Web UI can be accessed by using the URL: http://192.168.254.246 via a web browser[*] (as shown in **Figure 20**).
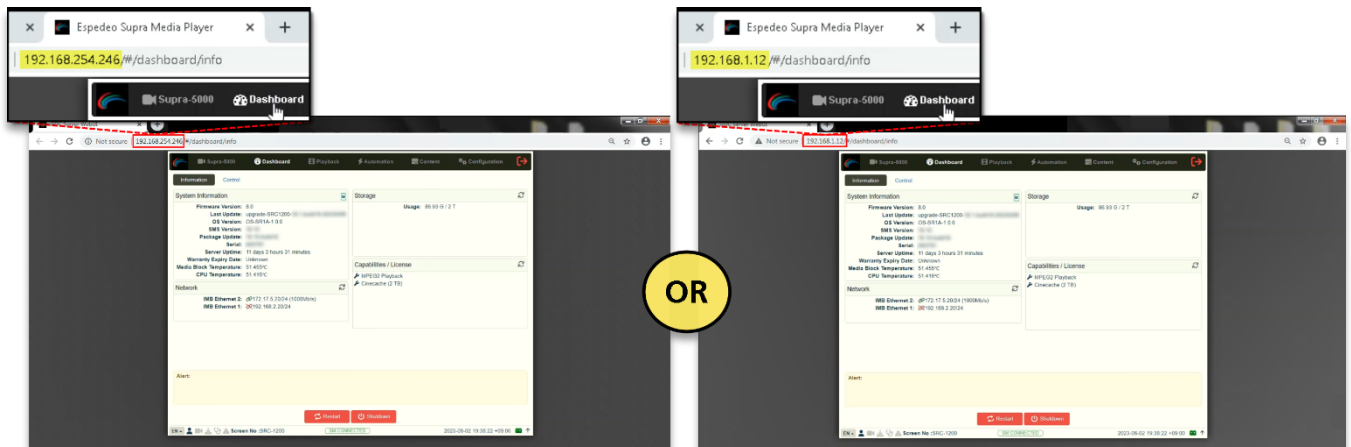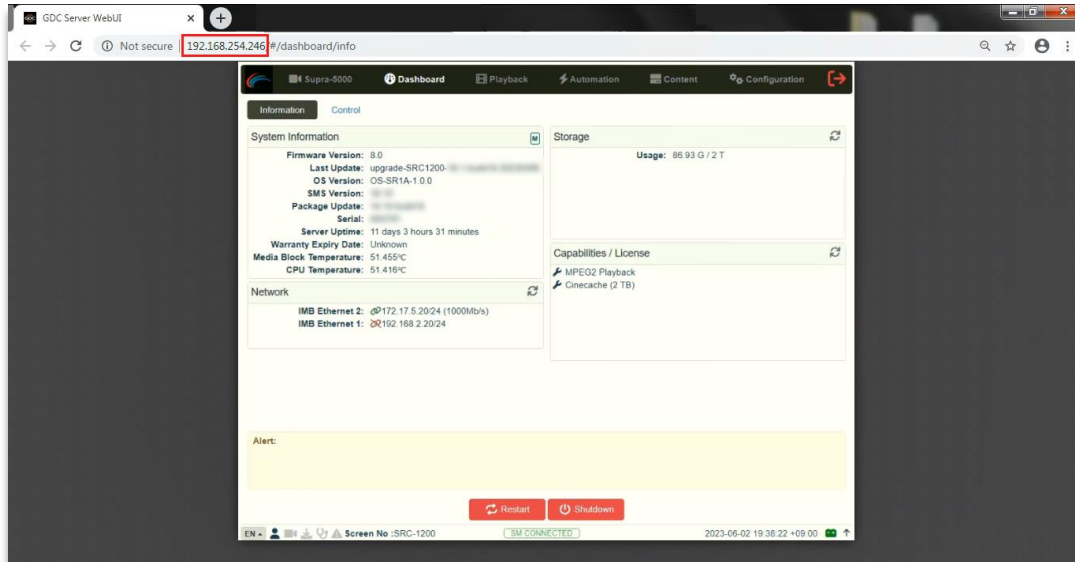

Figure 20: Accessing DCMB Web UI (Method 3)

[*] Please note that Google Chrome™ browser is supported at the time of writing this manual.

a. When the Single tab mode option is enabled; you can access the Supra Command Center web interface within the DCMB Web UI by clicking on the **'Supra-5000'** tab (as shown in **Figure 21**).
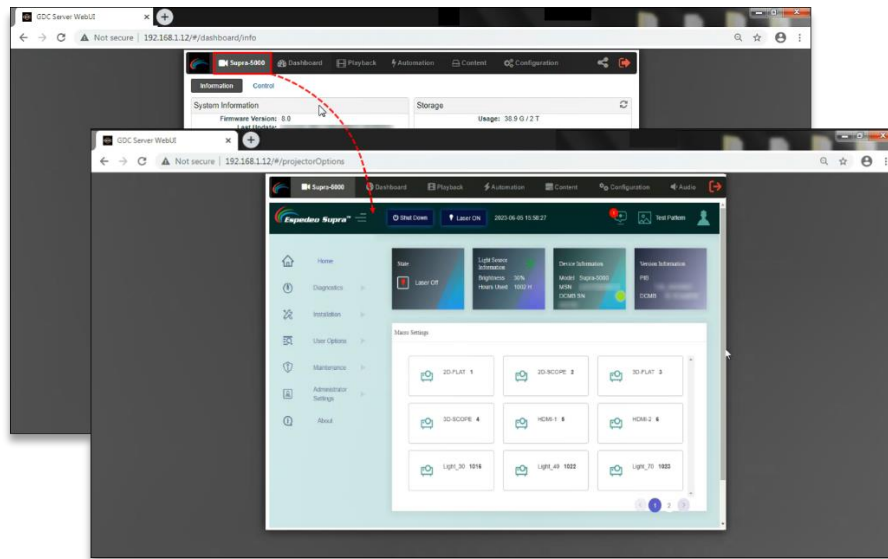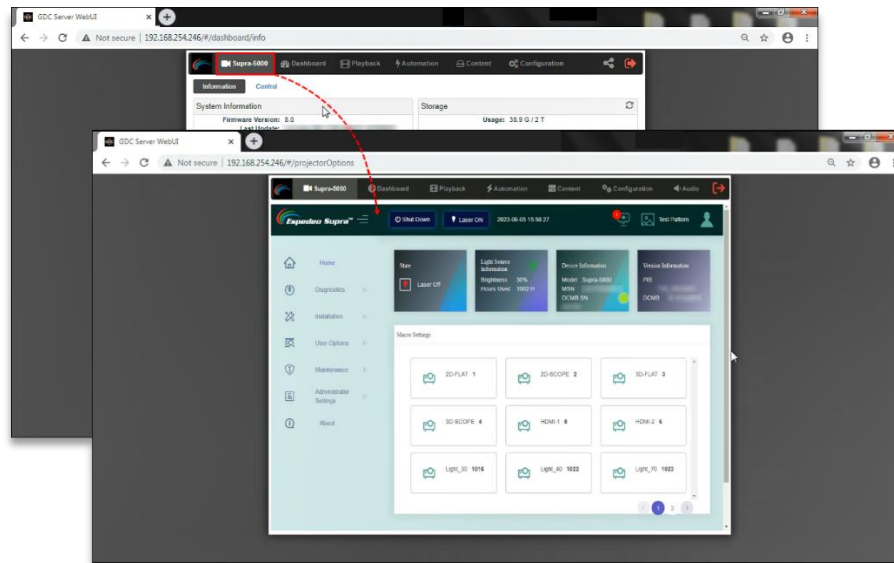
Figure 21: Accessing Supra Command Center when Single tab mode is enabled

b. When the Single tab mode option is disabled; you can click on the **'Supra-5000'** tab to open and access the Supra Command Center web interface in a new browser tab (as shown in **Figure 22**).
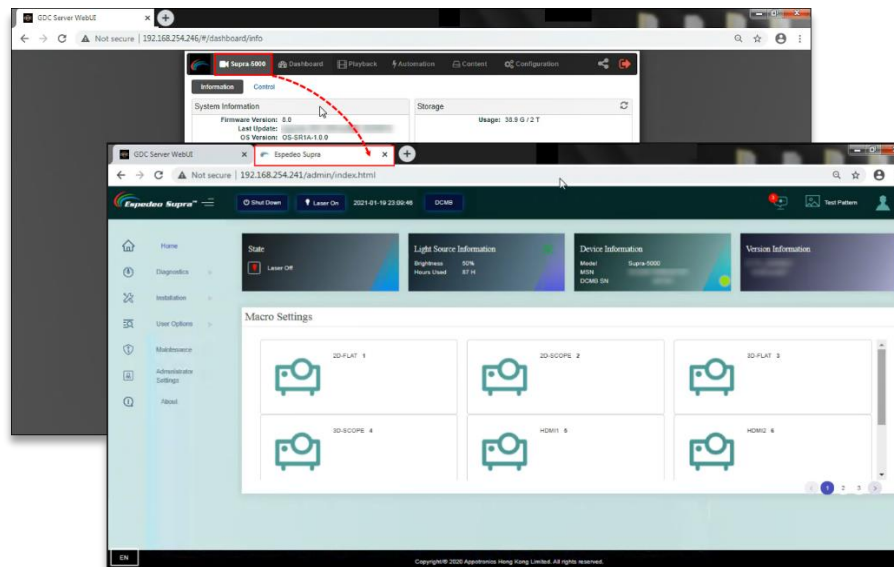
Figure 22: Accessing Supra Command Center when Single tab mode is disabled

Please Note: It is preferred to use this method of accessing the projector's web interfaces during initial setup or maintenance/debugging purposes. For routine operations, use either **Method** ① or **Method** ② mentioned under this section to access the Supra Command Center web interface and the DCMB Web UI.

1.2.4 Switching On the Laser Light Source of the Supra-5000

From the Supra Command Center interface, click the **Laser On** button on the top menu bar to switch ON the projector's Laser Light Source. The projector State will change to 'Laser On', as shown in **Figure 23**.

If you want to switch OFF the projector's Laser Light Source, click on this button again. The projector State will now change to 'Laser Off'.
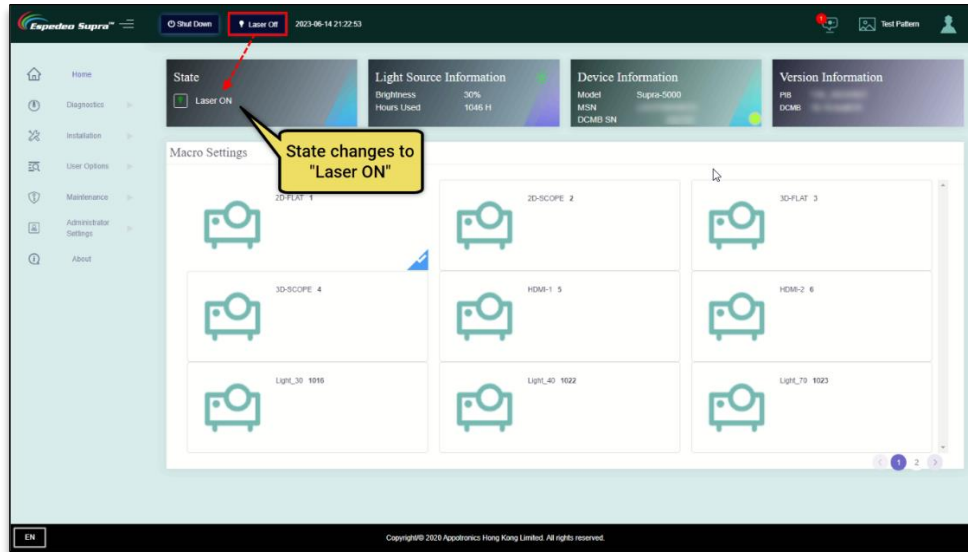
Figure 23: Switching ON/OFF the Laser Light Source

You may also project a Test Pattern to make sure that the Laser Light Source has been switched ON successfully (optional). Refer to **Section 1.2.4.1** for more information on projecting a Test Pattern.

1.2.4.1 Projecting a Test Pattern

From the Supra Command Center interface, click the **Test Pattern** shortcut button on the top menu bar to access the Test Pattern screen. Here, you can select the default test pattern image for the projector.

Click on the **Close Test Pattern** button to clear the test pattern from the screen, so that Digital Cinema Package (DCP) content or input from an HDMI source can be projected.
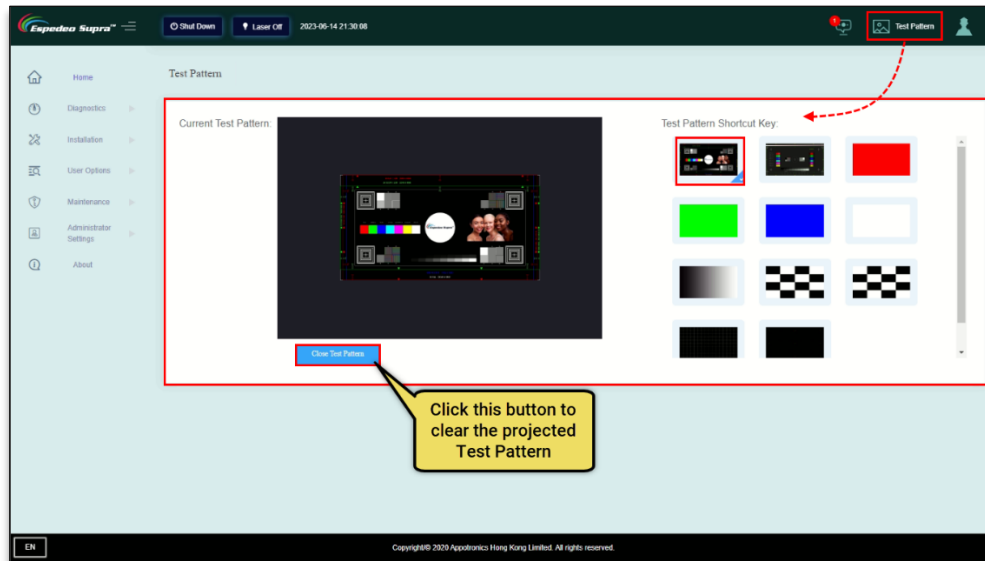
Figure 24: Projecting a Test Pattern

1.2.5 Macro Selection on the Supra-5000

The **Macro Settings** section on the Home screen of the Supra Command Center allows you to select the appropriate macro for content playback. Select the required macro setting based on the type of source and content that needs to be projected, which can either be DCP content from the local storage or HDMI input from an external AV source.

In case a <u>2D DCP in FLAT format</u> needs to be played from the local storage of the projector, please select the appropriate macro. For example; '2D-FLAT' in this case, from the **Macro Settings** section of the Supra Command Center (as shown in **Figure 25**) before initiating playback on the DCMB Web UI.

Alternatively, the show playlist (SPL) on the DCMB can be programmed to trigger the selection of appropriate macros on the projector using an automation cue.
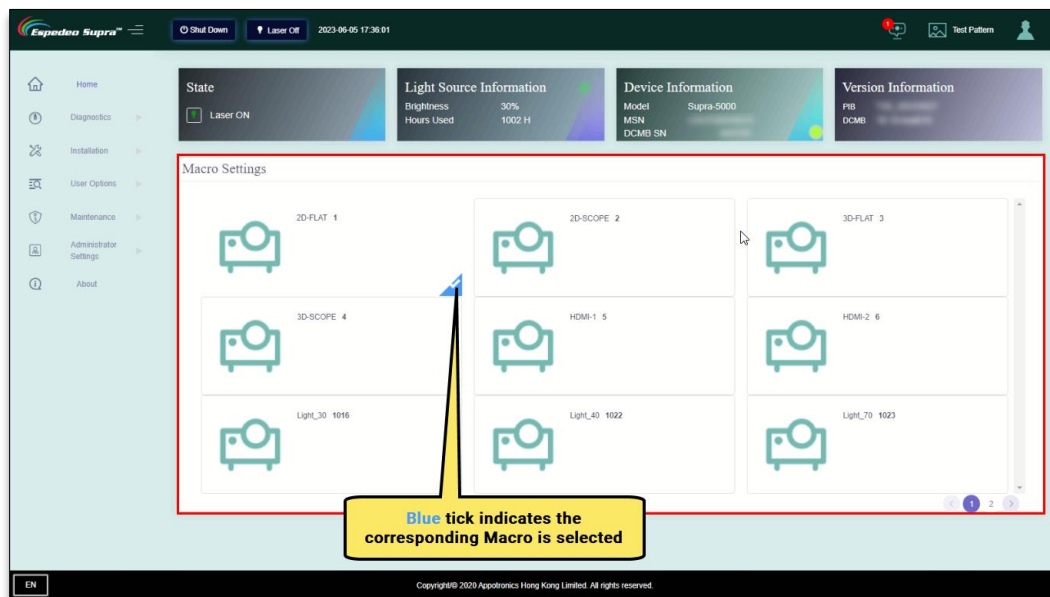
Figure 25: Selecting Macro for DCP Playback

1.2.5.1 Switching to HDMI Playback

In the case of HDMI playback from an external AV source such as Blu-ray player, Set-Top box, etc., select a HDMI macro ('HDMI1' or 'HDMI2') depending on the port that the HDMI source is connected to on the PIB and initiate playback of the HDMI playlist on the DCMB Web UI. Video from the connected HDMI source will then be projected. For more details on how to connect an HDMI source to the projector and to initiate playback, please refer to **Section 2.3**.
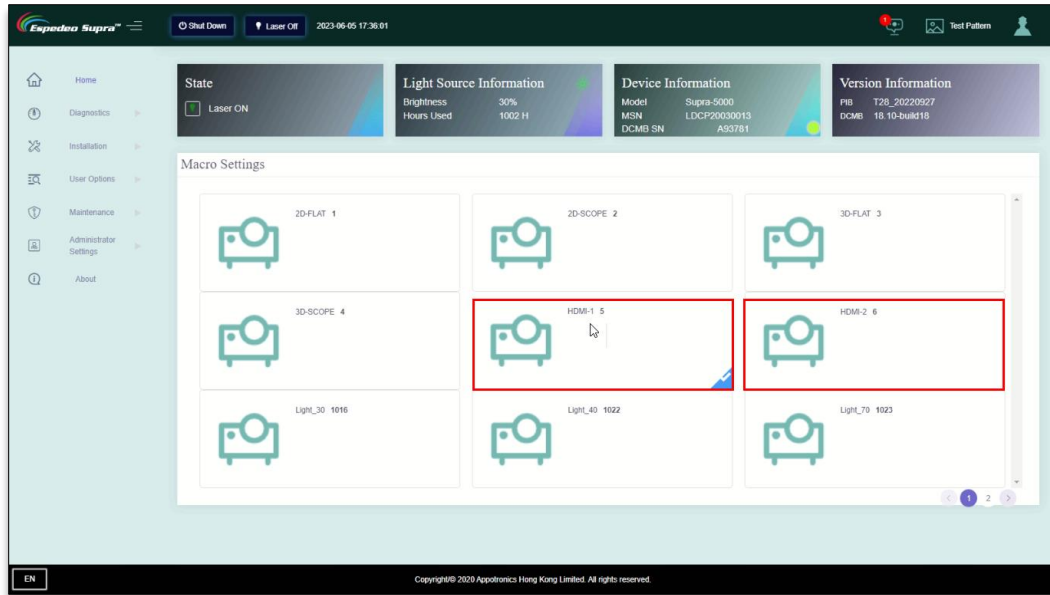
Figure 26: Selecting a Macro for HDMI Playback

1.2.6 Loading an SPL for Playback

To initiate playback of content from the local storage of the projector, you need to access the DCMB Web UI. As depicted in **Figure 27** and **Figure 28**, follow the steps mentioned below:

Step 1: Click on the **Playback** tab on the menu bar.

Step 2: Access the 'Playlist Editor' screen by clicking on the **Edit** sub-tab. Here, you can select the desired playlist that has already been created on the DCMB, from the 'Playlist' drop-down.

Step 3: After selecting the show, click on the 'Load for Playback' button to load the playlist to the **Playback** screen.
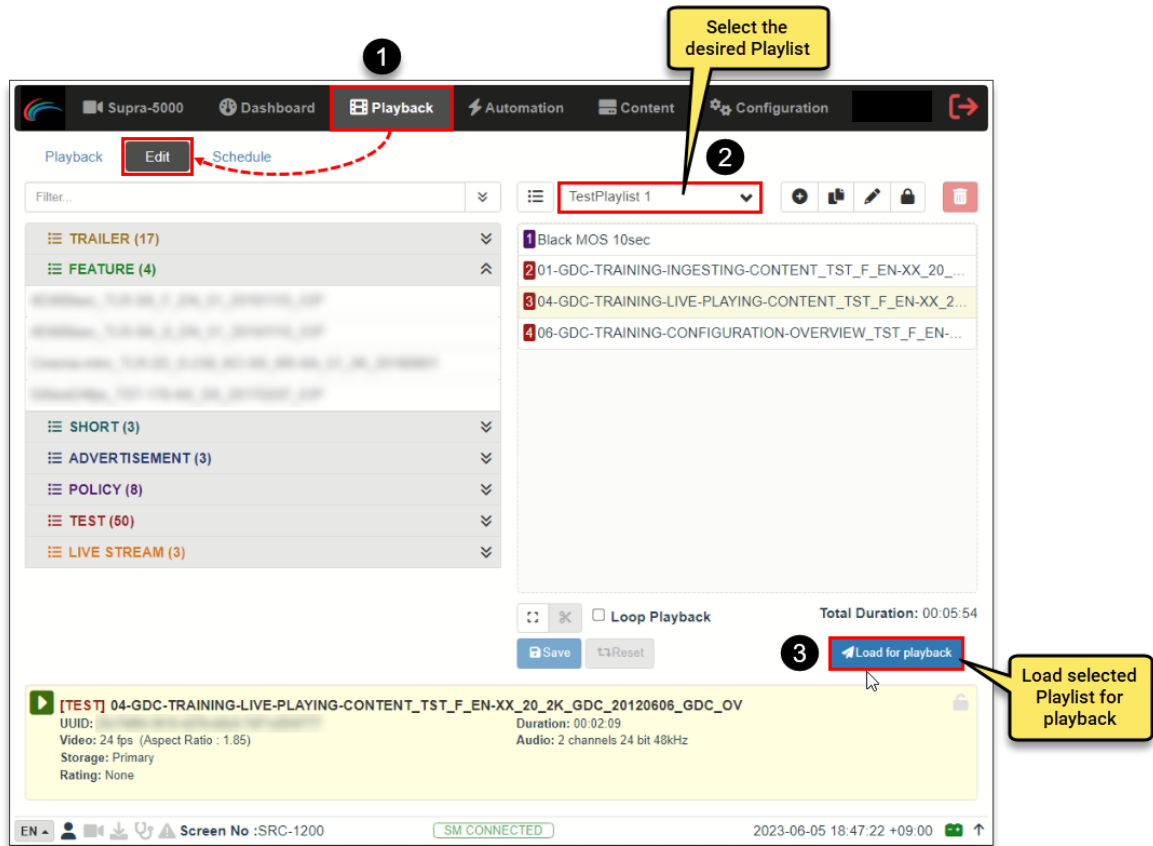
Figure 27: Load an SPL for Playback

Step 4: Click the **'**Play' button to start the playback of the selected playlist. To fast-forward or advance to the next clip in the playlist, playback must be paused first. Use the 'Pause' button to pause playback, before clicking on the 'Previous Clip', Rewind, 'Forward' or 'Next Clip' navigation buttons. When paused, the timeline slider can be dragged to the desired point and un-paused from there.
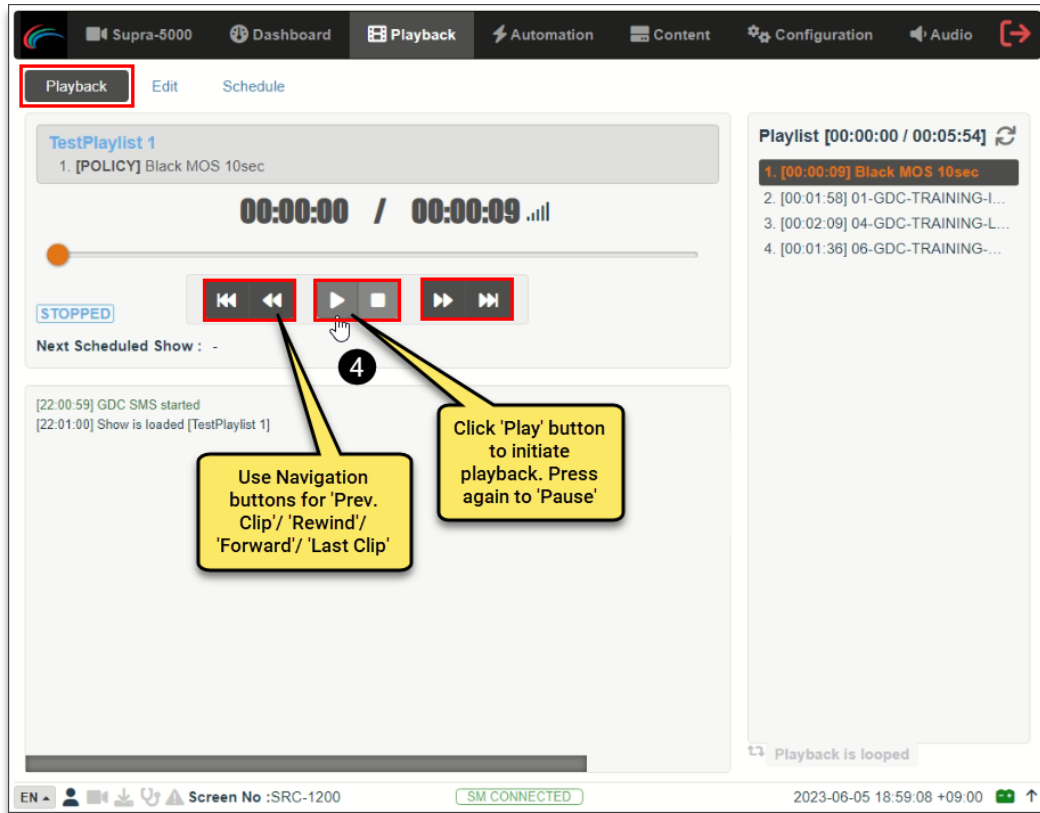
Figure 28: Initiate and Control Playback

For more information regarding the **Playback** tab and how to create/edit playlists from the DCMB Web UI, please refer to **Section 4.3**.

1.2.7 Wireless Access Point Settings for the Supra-5000

The wireless Access Point of the Espedeo Supra-5000 can be used to access the Supra Command Center and the DCMB Web UI, using a Wi-Fi-enabled device. To enable/disable this feature, first access the DCMB Web UI (as described in **Section 1.2.3**) using a wired connection. You would need to log in to the DCMB Web UI with 'Maintenance' access-level, to access this feature.

As shown in **Figure 29**, go to **Configuration → System → Wireless SMS** section. You can check/uncheck the **'Enable'** checkbox, to enable/disable the wireless Access Point of the projector. Please note that the wireless Access Point of the Supra-5000 Projector will be enabled, by default.

The name of the wireless Access Point will appear as shown in **Figure 29**, in the format *"SMS-XXXXXX"* where *"XXXXXX"* represents the Serial Number of the DCMB. Please contact Espedeo Holdings Ltd. in case you do not know the password for the wireless Access Point of the Supra-5000 Projector.
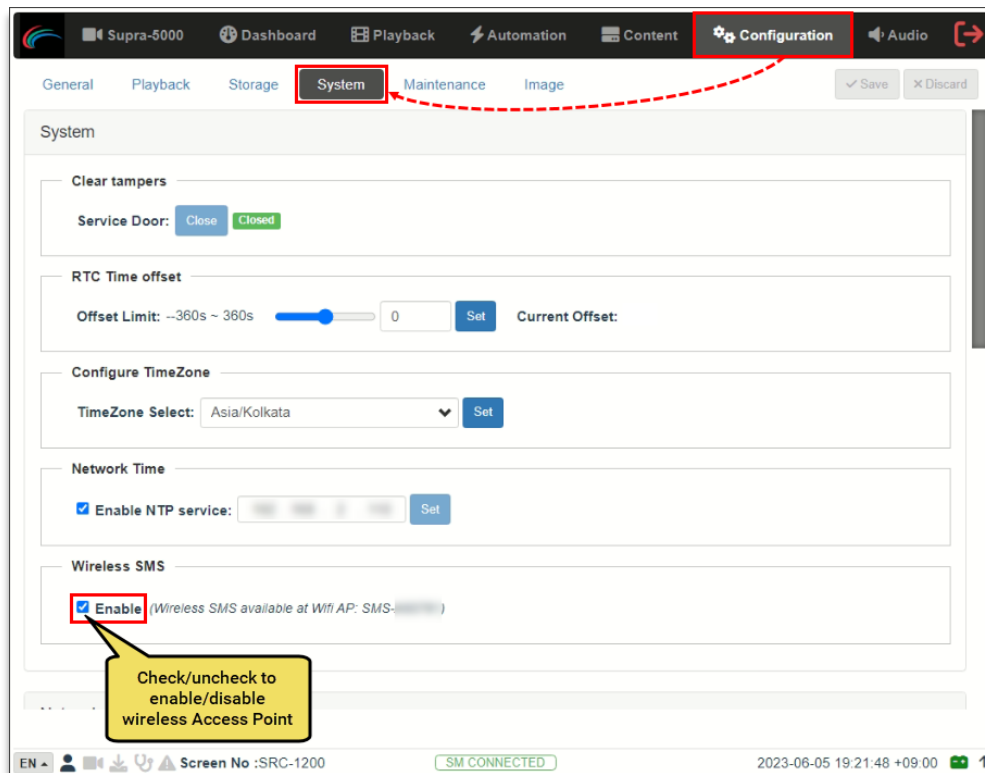
Figure 29: Enable/Disable Wireless Access Point of DCMB

1.3 Switching OFF the Projector

To switch OFF the Espedeo Supra-5000 digital cinema and secured media projection system, please follow the power down sequence depicted in **Figure 30**:

Step 1
- **From the Supra Command Center, click the <u>Laser Off</u> toggle button on the top menu bar to turn OFF the Laser Light Source.**

Step 2
- **Click the <u>Shut Down</u> button on the top menu bar of the Supra Command Center. Wait for 30 seconds until the DCMB is completely shut down.**
- **The projector will now be in 'Standby' mode (the cooling fans on the side of the projector should have stopped) and the DCMB will be shut down (all four LEDs on DCMB are OFF).**

Step 3
- **Before removing the projector panels or performing any maintenance activity on the projector, disconnect the power plug from the projector and cut-off the mains supply.**

Figure 30: Power-down Sequence

Please Note: When the Supra-5000 is in 'Standby' mode, you can access the Supra Command Center web interface via the URL: http://PIBLAN1IP where "PIBLAN1" represents the **LAN 1** IP address of the PIB (refer to **Section 3.3.8** for more details regarding PIB **LAN 1** IP setup) and then click the **Power ON** button on the top menu bar to boot-up the DCMB.

2. Input and Communication

In this section, we will look at the various connectors, ports and indicators on the **DCMB** or **Digital Cinema Media Block** and the **PIB** or **Projector Intelligence Board** of the Espedeo Supra-5000. These boards can be accessed by removing the rear decorate plate of the projector (refer to **Figure 3**).

Additionally, we will see how the Espedeo Supra-5000 can be connected to external HDMI sources for content playback.

Figure 31: Supra-5000 DCMB and PIB

2.1 Projector Terminal board: DCMB (Digital Cinema Media Block)

The **DCMB** or **Digital Cinema Media Block** is a digital cinema media server that is responsible for content playback. The various connectors and indicators on the DCMB are shown in **Figure 32**.
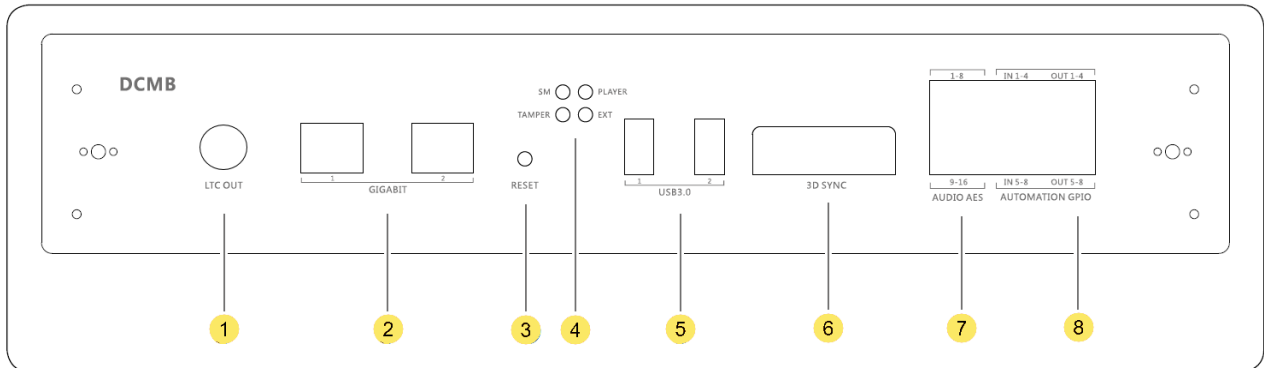
Figure 32: DCMB Connectors and Indicators

SN	Name	Type	Function Description
①	**LTC-OUT**	BNC interface	This connector can be used to synchronize peripheral devices with the DCMB, through the linear timecode (LTC).
②	**GIGABIT**	2 x RJ45 connector	Gigabit Ethernet (1000 BaseT) ports.
③	**RESET**	Button	This button can be used to reset the DCMB.
④	**SM, TAMPER PLAYER, EXT**	4 x LED indicators	These LEDs indicate the working status of the DCMB: ▪ **SM** indicates the Security Manager status of the DCMB ▪ **TAMPER** indicates the DCMB tamper status ▪ **PLAYER** indicates the playback status of the DCMB ▪ **EXT** indicates the module status of the DCMB **NOTE**: During normal playback operation, all four LEDs should be steady Green.
⑤	**USB3.0**	2 x USB A-type female connector	This port can be used to connect a local ingest source OR USB drive to download the DCMB logs and configuration.
⑥	**3D SYNC**	DB15 female socket	This can be used to output 3D synchronization signals when connected to a 3D System.
⑦	**AUDIO AES**	2 x RJ45 connector	16/24-bit AES/EBU, 16-channels, 48/96 kHz.
⑧	**AUTOMATION GPIO**	4 x GPIO	These ports can be used for controlling automation devices.

Table 3

2.1.1 Digital Certificate for the DCMB

The Digital certificate of the DCMB is required by the KDM provider, to provide KDMs which are used to unlock encrypted content for playback. For more information, please contact your local Espedeo Holdings Ltd. Support team.

2.2 Projector Terminal board: PIB (Projector Intelligence Board)

The **PIB** or **Projector Intelligence Board** is the main control module of the projector. The various connectors and indicators on the PIB are shown in **Figure 33**.
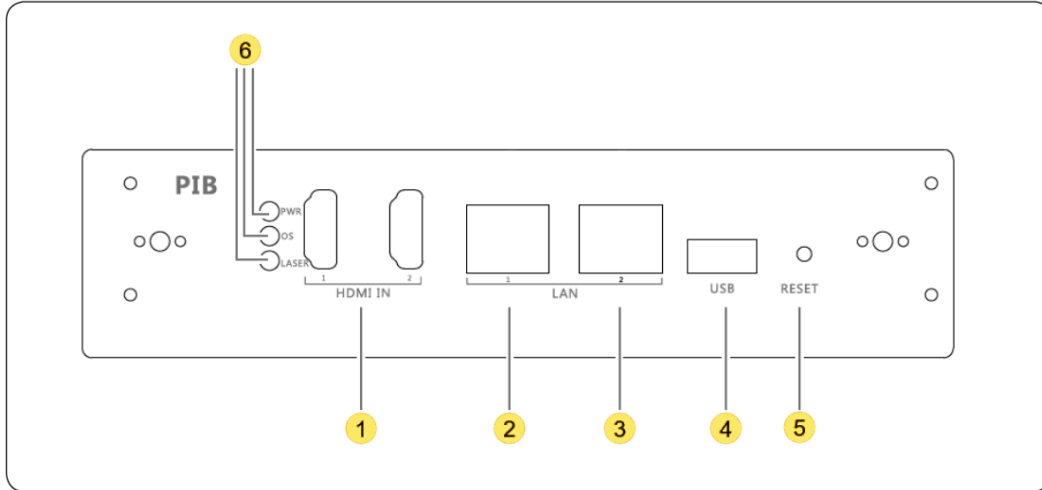
Figure 33: PIB Connectors and Indicators

SN	Name	Type	Function Description
①	**HDMI IN**	2 x HDMI IN	This port can be used for content playback from an external HDMI source. Timing:1080p@60Hz
②	**LAN 1**	RJ45 connector	Ethernet (100 BaseT) ports are used for local access by the main module as well as for remote NOC control. ▪ **LAN 1** IP Address can be modified ▪ **LAN 2** IP Address is fixed to 192.168.254.241
③	**LAN 2**		
④	**USB**	USB A-type female connector	This port can be used to upgrade the main control software of the PIB.
⑤	**RESET**	Button	If this button is pressed, the PIB is powered on, the main control chip enters the USB upgrade mode and the main control program can be upgraded (the upgrade can be implemented through a connected PC)
⑥	**PWR, OS, LASER**	3 x LED indicators	Indicate the status of the PIB power supply, main control OS and laser light source. ▪ **PWR**: PIB power status - The system monitors the power supply of the PIB. When the PIB power supply is normal, the LED indicator is steady on Green. ▪ **OS**: main control system status - The system monitors the main control chip. When the main control chip works properly after startup, the LED indicator rapidly blinks Green.

			▪ **LASER**: Laser light source module status:
			    I. **LED indicator is OFF**: The laser control module is in standby status or is not powered ON.
			    I. **LED indicator blinking**: The laser control module is waiting for startup.
			    II. **LED indicator is steady ON**: The laser control module works properly.

Table 4

2.3 Connecting the Projector to an HDMI Source

As illustrated in **Figure 34**; the Espedeo Supra-5000 can playback content from an HDMI output source (Timing:1080p@60Hz) such as a Blu-Ray player, Set-Top box, etc. Using an HDMI cable, you need to connect the HDMI port on the HDMI output source, to either of the HDMI ports (**HDMI IN 1** or **HDMI IN 2**) on the PIB.

Once connected, select the corresponding HDMI Macro: 'HDMI1' or 'HDMI2' from the **Home** screen of the Supra Command Center interface (as shown in **Figure 35**).

After selecting the HDMI Macro, go to the **Playback → Edit** sub-tab of the DCMB Web UI. Here, select an HDMI playlist (depending on the type of content: 2D or 3D) and load it for playback (as shown in **Figure 36**). Initiate playback from the **Playback → Playback** sub-tab, by clicking on the **Play** button. The video from the connected HDMI source will now be projected. Refer to **Section 4.3**. for more details regarding the **Playback** tab.
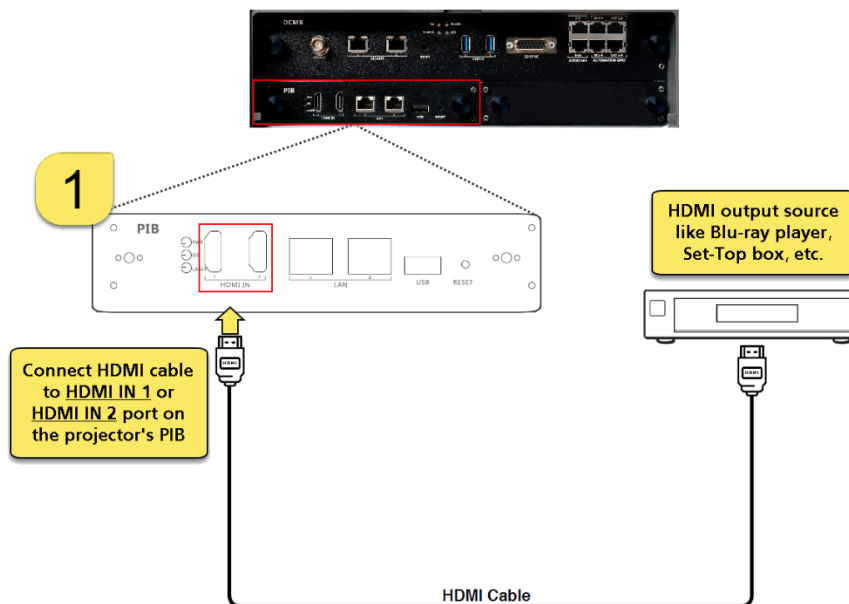
Figure 34: Connecting an HDMI Output Source to Supra-5000
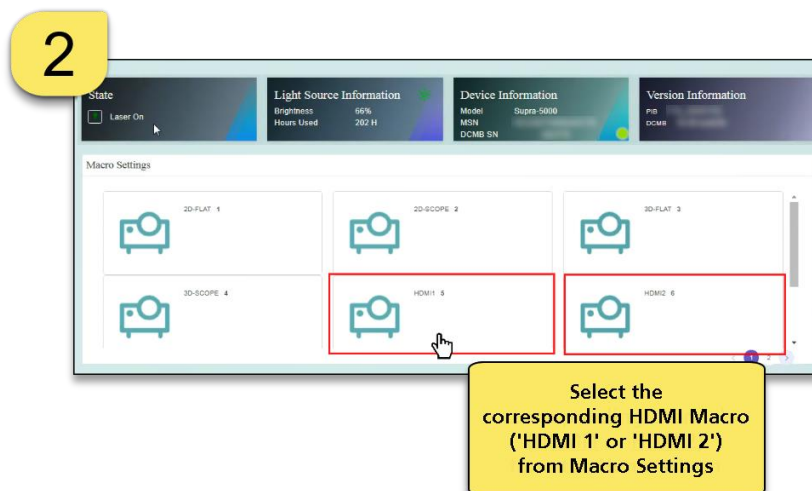
Figure 35: Select corresponding HDMI Macro
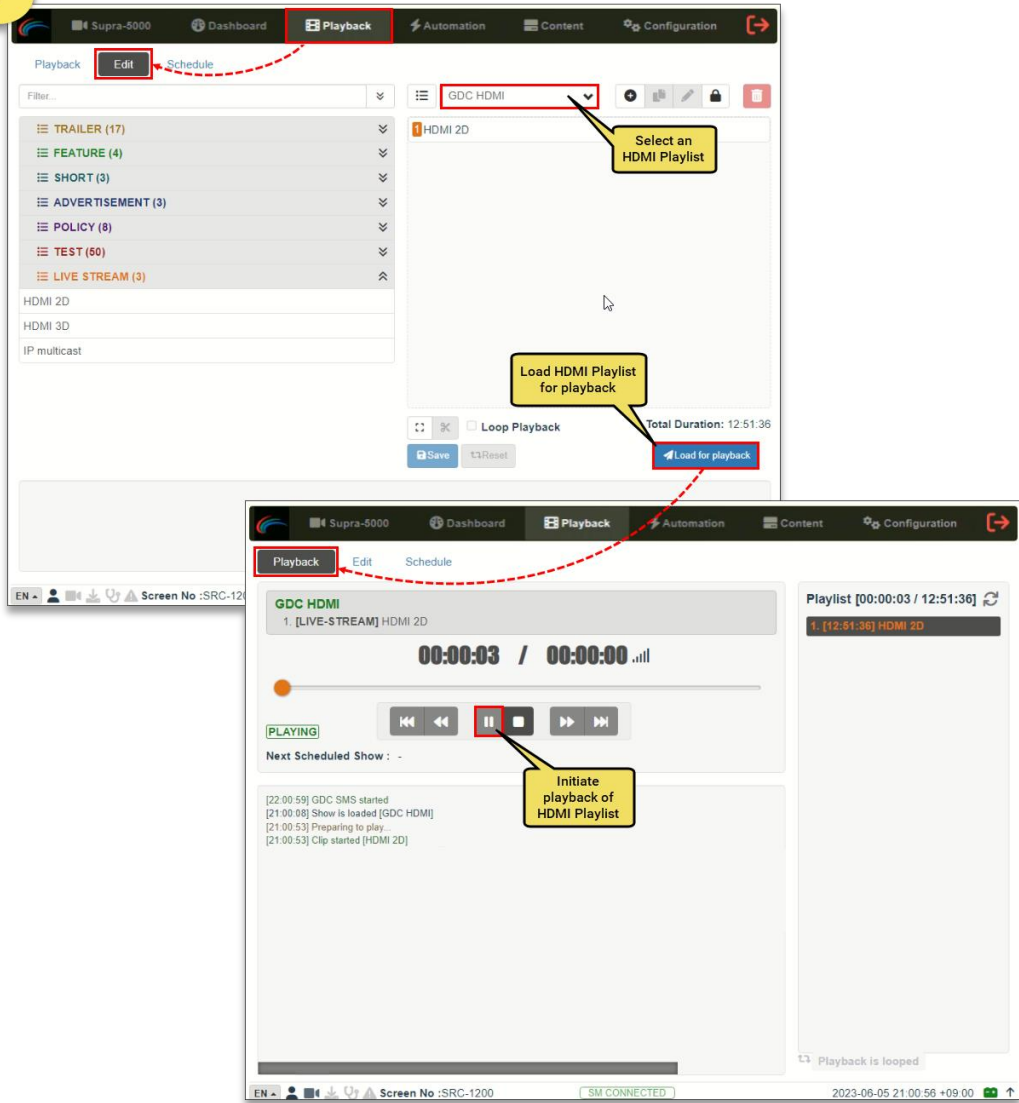
Figure 36: Load HDMI Playlist and initiate playback

3. Understanding the Supra Command Center

This section explains the different menu options and corresponding functions of the Espedeo Supra Command Center web interface.

3.1 Home
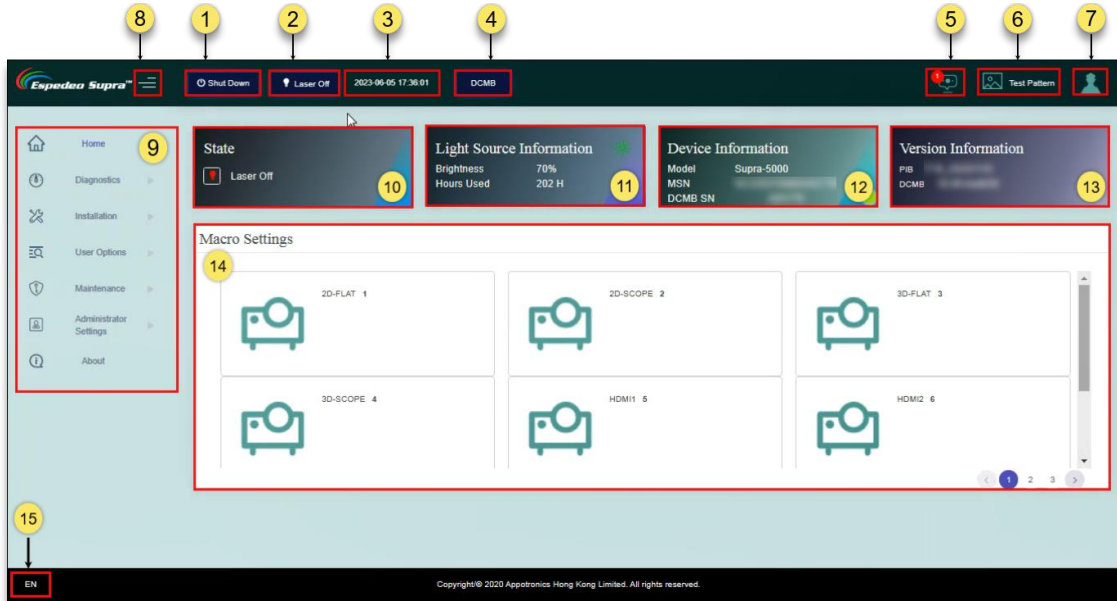
Figure 37: Home Screen

SN	Name	Function Description
①	Power switch	Indicates the operational status of the projector. You can toggle between 'Power On' and 'Shut Down': ▪ **Power On**: The projector is in running status. When the projector is in 'Power ON' state, the Laser light source can be turned ON or OFF. ▪ **Shut Down**: The Laser light source of the projector must be turned OFF prior to shut down. Once the 'Shut Down' button is clicked, the projector fans are put in spin-down mode and the projector enters the 'Standby' state. You can wake up the projector through the network.
②	Light Source switch	Indicates the operational status of the Laser light source of the projector. You can toggle the Projector Status between 'Laser On' and 'Laser Off'.
③	Date and Time	Indicates the system date-time that has been set on the projector.
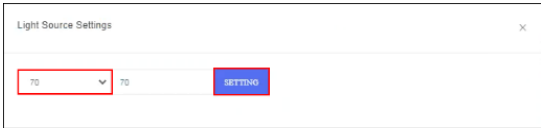
④	DCMB	Clicking on this button will open the DCMB Web UI in a separate tab of the web browser. **NOTE:** This button will be shown on the **Home** screen only when you login to the Supra Command Center web interface using the URL: http://192.168.254.241 via the **LAN 2** network port of the PIB.
⑤	Error Information	Show the warning and error information of the projector.
⑥	Test Pattern	A shortcut icon for projecting a test pattern. The desired test pattern can be selected. Refer to **Section 1.2.4.1** for more details.
⑦	User permissions	Users are classified into 'Ordinary User' or 'Professional User'. Menu UI options vary based on user permissions.
⑧	☰	Show/Hide the Navigation functions on the Home screen.
⑨	Navigation	List of various functions available under the Supra Command Center. The operation functions shown in this list vary according to user permissions.
⑩	State	Displays the current state of the projector which *includes 'Power On', 'Standby', 'Laser On' and 'Laser-Off'*.
⑪	Light Source Information	Displays the brightness (in terms of power consumption) and use time (in Hours) of the Laser light source. Click on the ☀ icon to access the **Light Source Settings** to adjust the brightness of the current image on the screen. Select the desired brightness value from the drop-down and click on the **Setting** button. However, recalling any macro with a different brightness level will override this setting. Light Source Settings ✕ 70 ⌄ 70 SETTING
⑫	Device Information	Displays the model of the projector, MSN and DCMB Serial No.
⑬	Version Information	Displays the version information of the PIB and DCMB software. **NOTE**: The software versions being used at the time of writing this User Manual is 'T28' for the **PIB** and '18.1-build18' for the **DCMB**.
⑭	Macro Settings	Displays the six default macros along with any custom 2D/3D macros created by the user.
⑮	Language Select	Indicates the current language in which the DCMB Web UI is displayed. To change the language, click on this button and select the desired language from the list.

Table 5

3.2 Diagnostics

The **Diagnostics** screen can be used to monitor and display the equipment status, obtain version information, perform self-test, download the diagnosis package, query error code and implement other tasks.

3.2.1 Diagnostics → Current State

The **Current State** menu displays the *temperature, voltage, speed, current, laser information, projector information and lens information* under separate sub-sections in real-time.
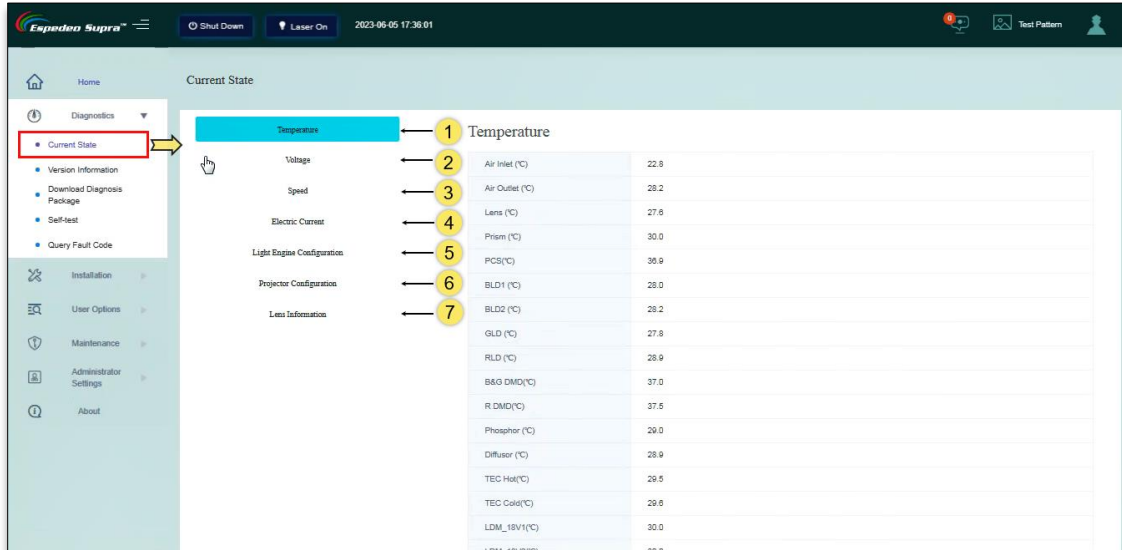
Figure 38: Diagnostics → Current State

SN	Name	Function Description
①	Temperature	Displays the temperature (measured in °C) of the various projector components such as the air inlet, air outlet, lens, prism, PCS, laser, DMD, motor, etc.
②	Voltage	Displays the voltage (measured in V) of the local PIB measured at +12V, PIB +5V and PIB +3V3.
③	Speed	Displays the rotation speed (measured in RPM) of the projector components such as the System Fans 1 to 4, PCS, BLD, Diffuser Wheel and Phosphor Wheel.
④	Current	Displays the current (measured in mA) of the projector components such as the Blue light setting current, Green light setting current, Red light setting current, Blue light display current, Green light display current and Red light display current.

⑤	Light Engine Configuration	Displays information about the Laser light source such as the resolution, model, SN, version, production date and used time of light source.
⑥	Projector Configuration	Displays information about the projector such as model, whole machine MSN, DCMB SN and manufacturing date.
⑦	Lens Information	Displays information about the projector lens such as the lens mounting status and lens model.

Table 6

3.2.2 Diagnostics → Version Information

The **Version Information** menu displays version information for each projector module.
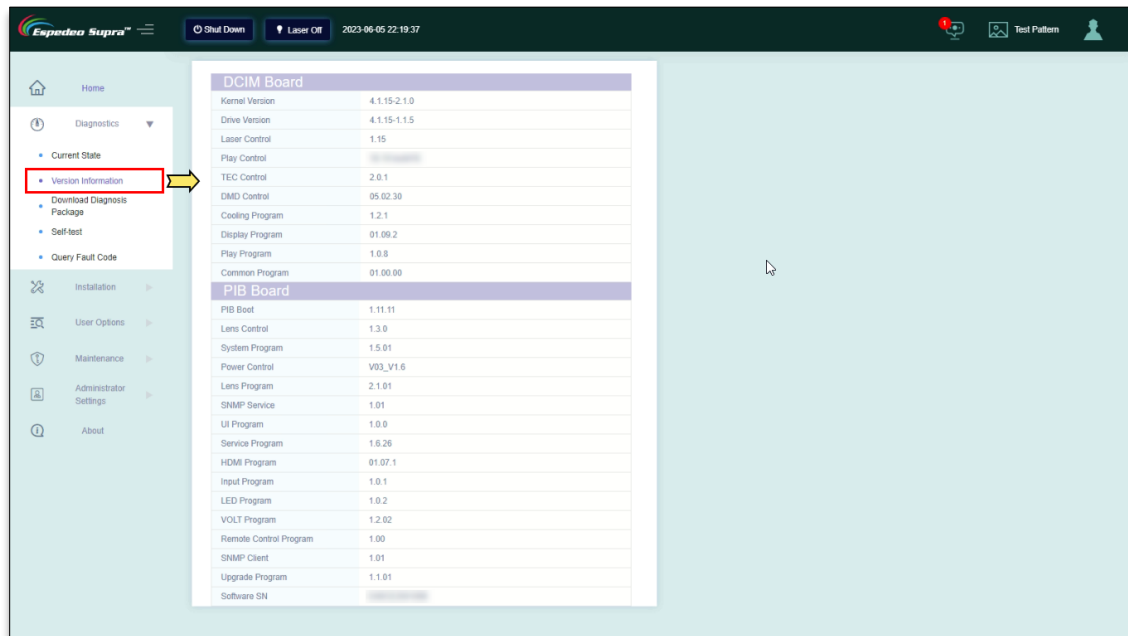
Figure 39: Diagnostics → Version Information

3.2.3 Diagnostics → Download Diagnostic Package

In case any alerts or error messages are displayed on the **Home** screen, you can download the projector log files from the **Download Diagnostic Package** menu to troubleshoot the related issue/fault.

While downloading the diagnostic package, select the 'Select All' option and click the **Download** button. The system will automatically download the diagnosis package to the default 'Downloads' folder of the Chrome™ browser on your PC/Laptop.
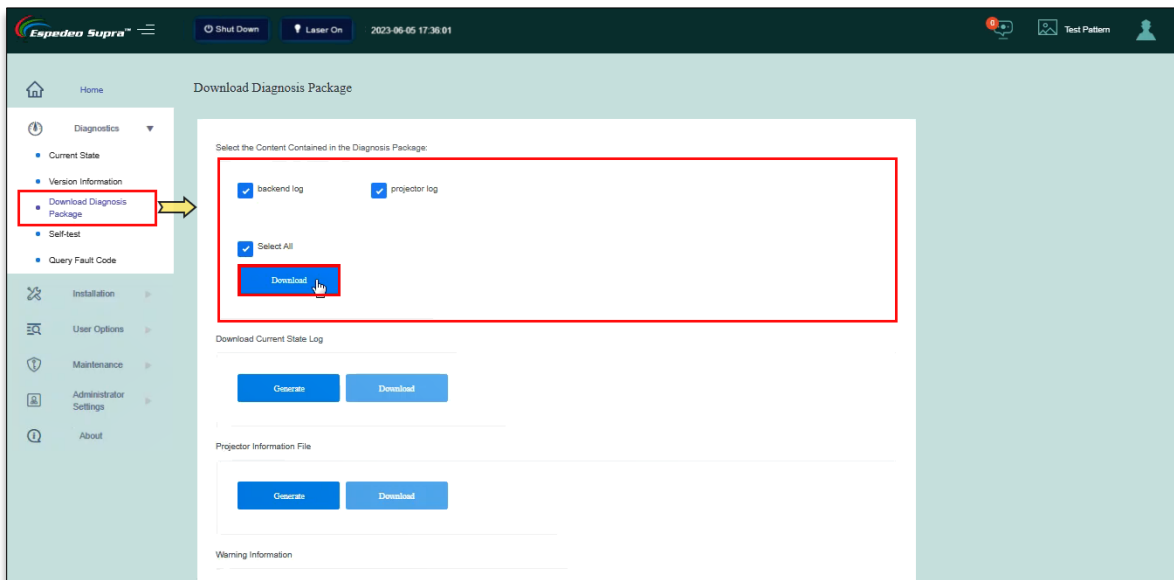
Figure 40: Diagnostics → Download Diagnostics Package

Locate the diagnosis package in the Downloads folder and use any file compression tool such as **WinRAR** to extract the log files. You can view the logs using any text editor such as **Notepad** or provide the entire compressed package to the Espedeo for further analysis.
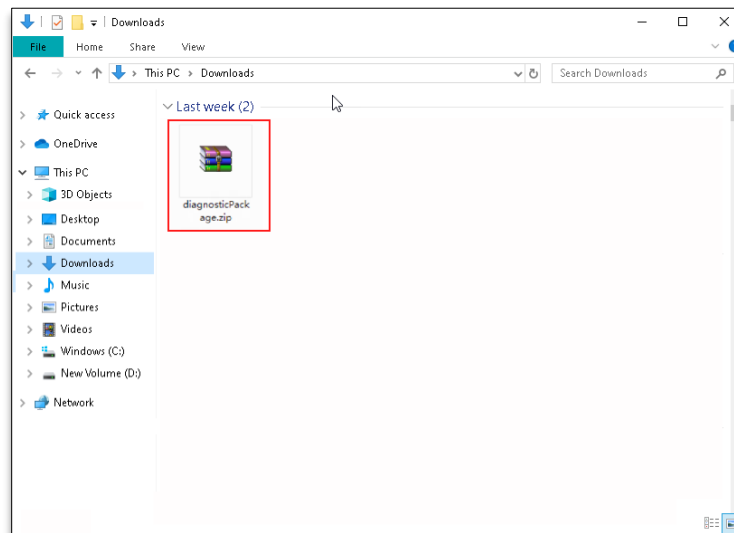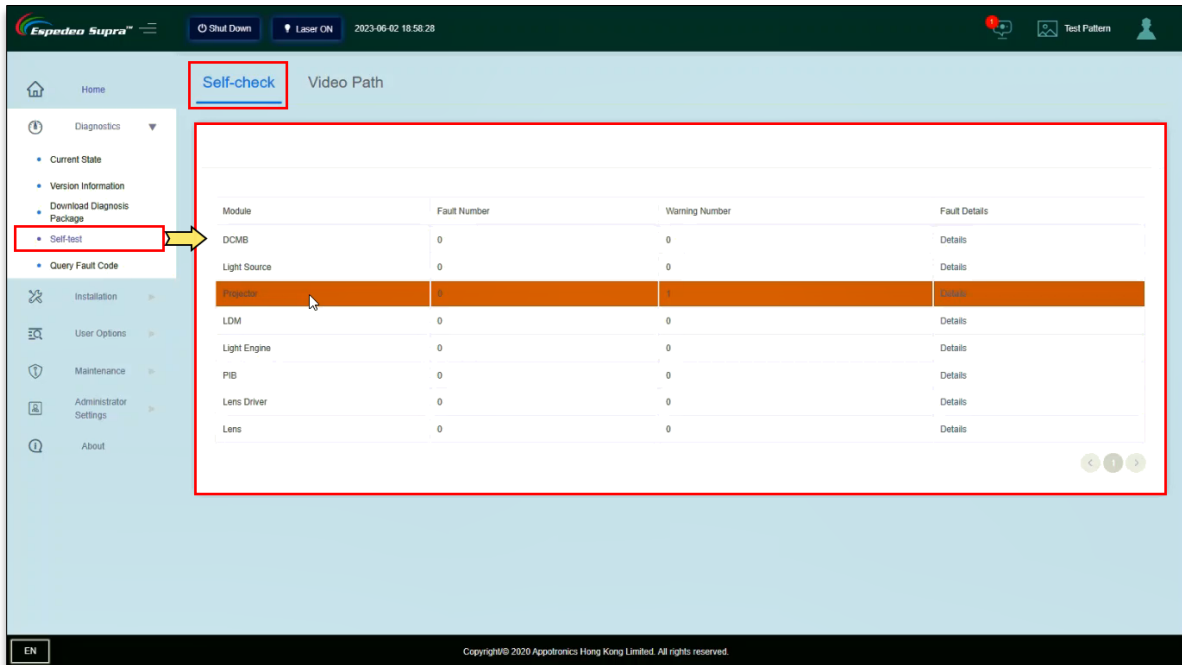
Figure 41: Extract Diagnostics package after download

3.2.4 Diagnostics → Self-test

The **Self-test** menu can be used to detect whether the HDMI, IMB and DLP modules are functioning as expected.

3.2.4.1 Self-check

You can check the number of faults and warnings for the above-mentioned modules as well as view detailed information about these faults and warnings using the **Self-check** tab.

Figure 42: Diagnostics → Self-test → Self-check

3.2.4.2 Video Path

The **Video Path** tab is used to detect whether the video channels of the HDMI, IMB and DLP modules are functioning as expected.
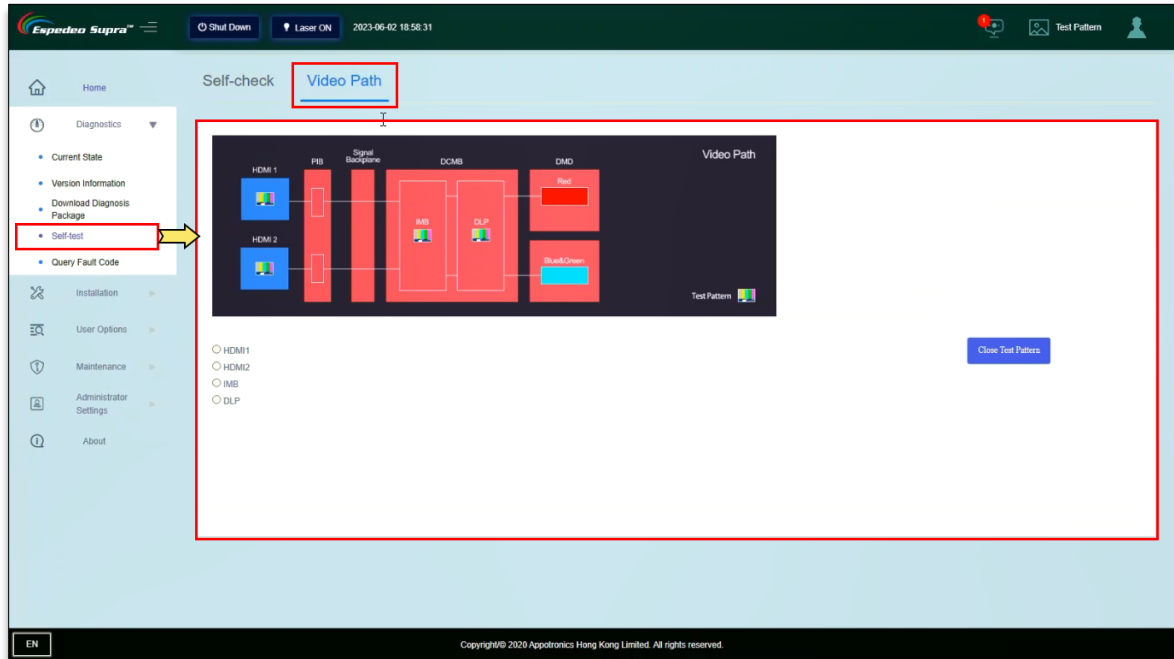
Figure 43: Diagnostics → Self-test → Video Path

I. HDMI1 module detection

This function is mainly used to detect the HDMI1 module. After the HDMI1 port of the PIB is connected to a PC/Laptop, Blu-Ray player or Set-Top box; select the 'HDMI1' icon under the **Video Path** column. At this time, if the video signals transmitted over the HDMI1 port are displayed normally, the video channel of the HDMI1 port is normal.

NOTE: This test requires an external HDMI signal source and the resolution is set to 1080p@60Hz.
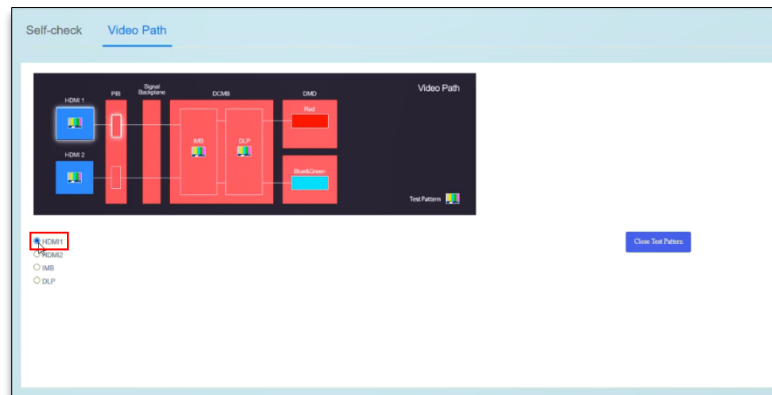
Figure 44: Test HDMI1 Video Path

II. HDMI2 module detection

This function is mainly used to detect the HDMI2 module. After the HDMI2 port of the PIB is connected to a PC/Laptop, Blu-Ray player or Set-Top box; select the 'HDMI2' icon in the **Video Path** column. At this time, if the video signals transmitted over the HDMI2 port are displayed normally, the video channel of the HDMI2 port is normal.

NOTE: This test requires an external HDMI signal source and the resolution is set to 1080p@60Hz.

Figure 45: Test HDMI2 Video Path

III. IMB module detection

This function is mainly used to detect the decoding function of the IMB module. Select the 'IMB' icon in the **Video Path** column. At this time, if any test pattern is displayed normally on the UI, the video path of the IMB module is normal. Click on the **Close Test Pattern** button to clear the projected test pattern from the screen.

Figure 46: Test IMB Video Path

IV. DLP module detection

This function is mainly used to detect the display function of the DLP module. Select the 'DLP' icon in the **Video Path** column. At this time, if the grid image is displayed normally, the video path of the DLP module is normal. Click on the **Close Test Pattern** button to clear the projected test pattern from the screen.
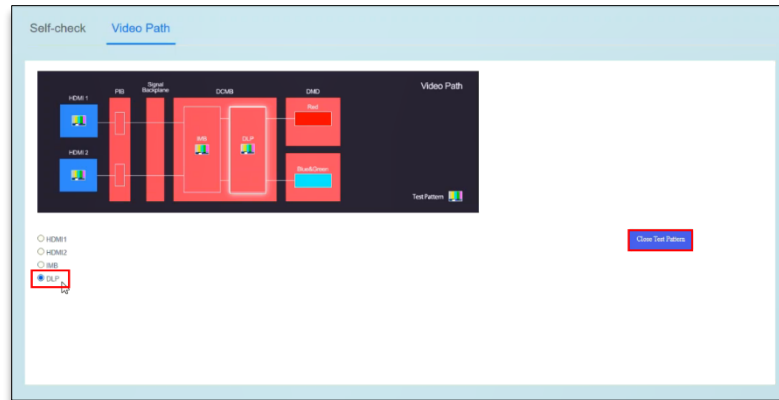
Figure 47: Test DLP Video Path

3.2.5 Diagnostics → Query Fault Code

If there is an alert or error message shown under the 'Error Information' section of the **Home** screen, you can check the corresponding details using the **Query Fault Code** menu. Enter the fault code shown against the alert/error message and click on the **Query** button to view details related to the fault code.
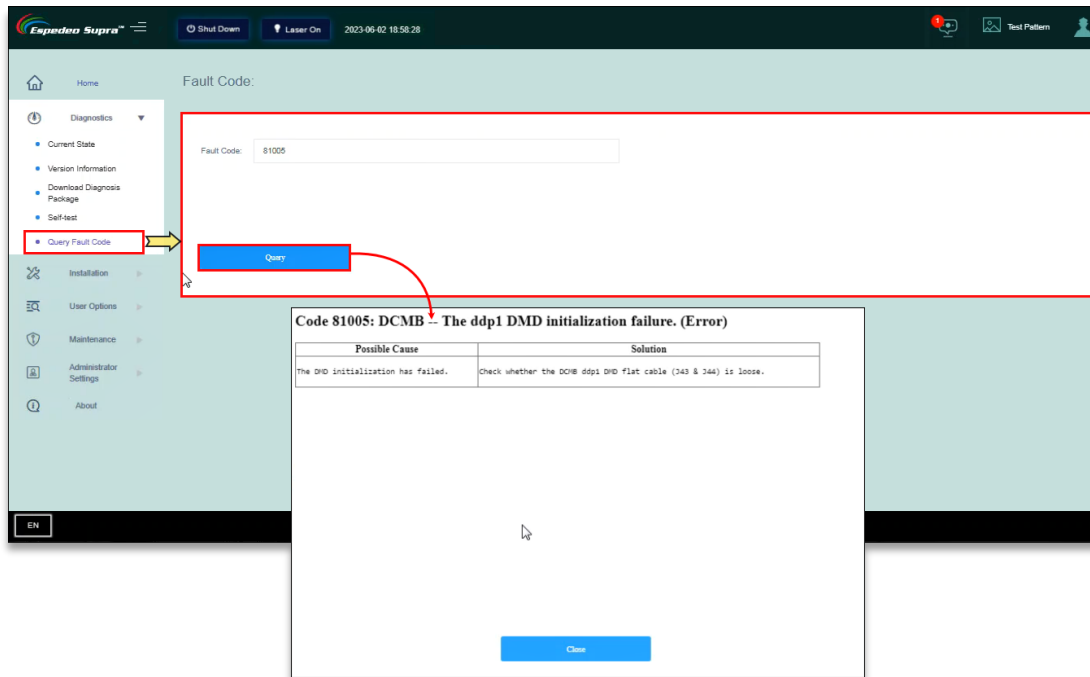
Figure 48: Diagnostics → Query Fault Code

3.3 Installation

The **Installation** screen provides installation-related settings for the projector such as setting the macros, setting Source files, setting Screen files, setting Color files, setting Light Source files, setting Lens files, setting 3D files and setting the IP Address of the projector.

3.3.1 Installation → Macro Settings

The **Macro Settings** menu allows you to edit the default macros of the projector i.e., '2D-FLAT', '2D-SCOPE', '3D-FLAT', '3D-SCOPE', 'HDMI1' and 'HDMI2'. Additionally, you can add/edit any custom 2D or 3D macros as well.
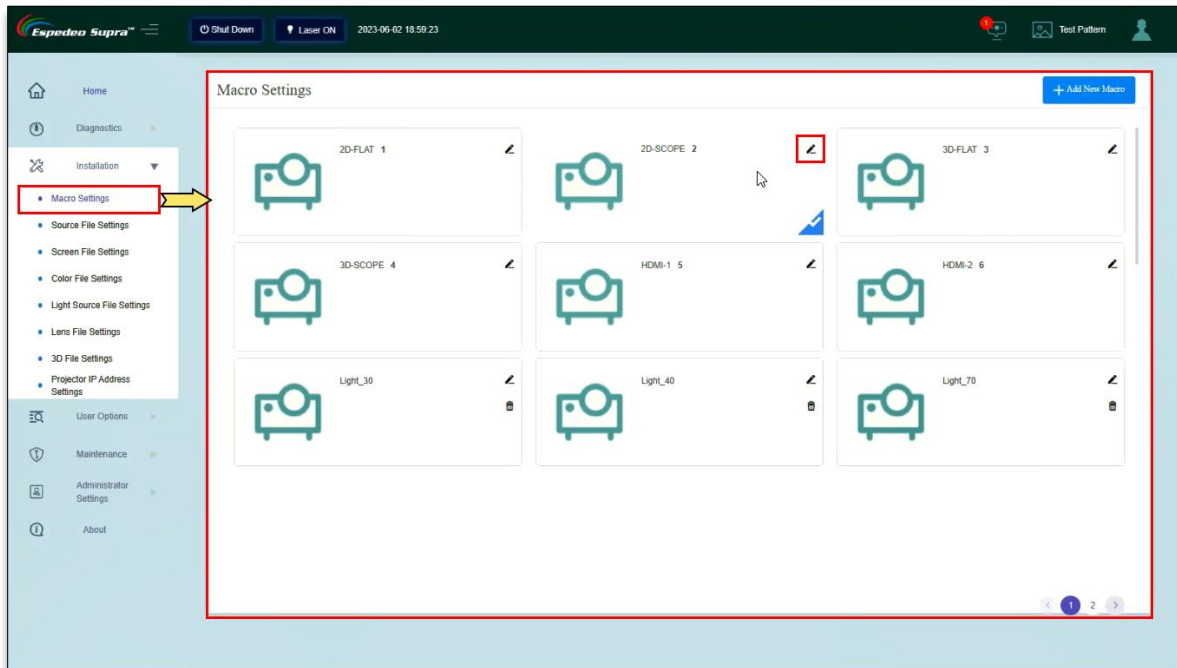
Figure 49: Installation → Macro Settings

3.3.1.1 Editing the 2D-FLAT Macro

Click on the ✎ icon under the '2D-FLAT' macro. Select the Source File, Screen File, Color File, Light Source File and Lens File. Click **Load File** and import the preset Source File, Screen File, 2D Color File, Light Source File and Lens File in sequence. Click **Save**. The macro will be successfully edited.

NOTE: By default, the Source File and PCF File under this macro are imported and the 3D File cannot be selected.
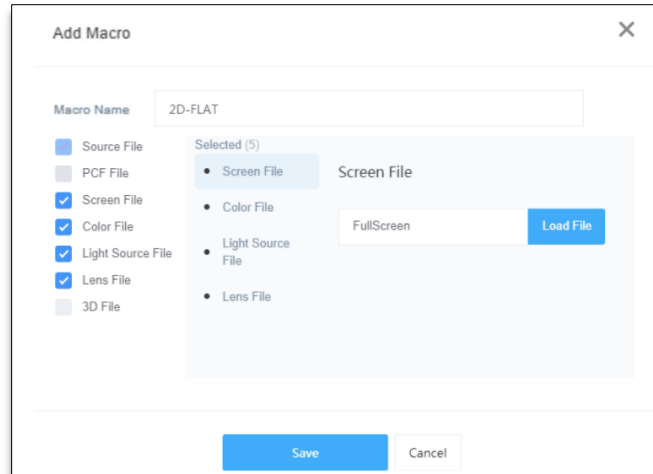
Figure 50: Edit 2D-FLAT Macro

3.3.1.2 Editing the 2D-SCOPE Macro

Click on the ✎ icon under the '2D-SCOPE' macro. Select the Source File, Screen File, Color File, Light Source File and Lens File. Click **Load File** and import the preset Source File, Screen File, 2D Color File, Light Source File and Lens File in sequence. Click **Save**. The macro will be successfully edited.

NOTE: By default, the Source File and PCF File under this macro are imported and the 3D File cannot be selected.
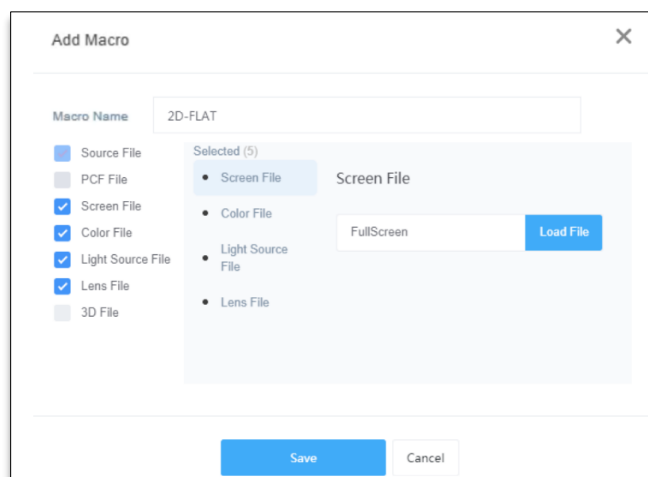
Figure 51: Edit 2D-SCOPE Macro

3.3.1.3 Editing the 3D-FLAT Macro

Click on the ✎ icon under the '3D-FLAT' macro. Select the Source File, Screen File, Color File, Light Source File, Lens File and 3D File. Click **Load File** and import the preset Source File, Screen File, 3D Color File, Light Source File, Lens File and 3D File in sequence. Click **Save**. The macro will be successfully edited.

NOTE: By default, the Source File and PCF File under this macro are imported and the preset 3D File is selected.
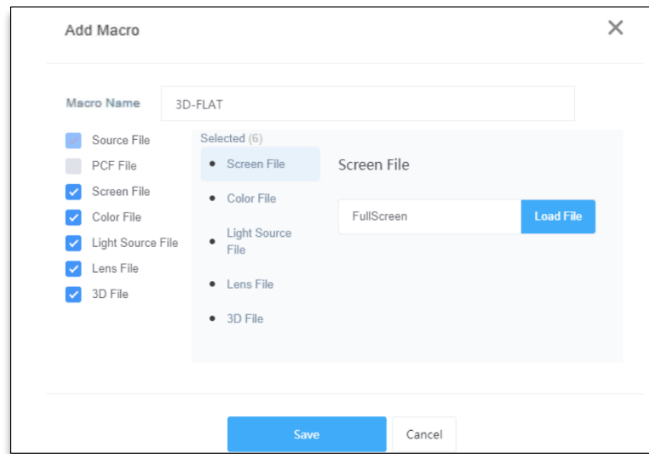
Figure 52: Edit 3D-FLAT Macro

3.3.1.4 Editing the 3D-SCOPE Macro

Click on the ✎ icon under the '3D-SCOPE' macro. Select the Source File, Screen File, Color File, Light Source File, Lens File and 3D File. Click **Load File** and import the preset Source File, Screen File, 3D Color File, Light Source File, Lens File and 3D File in sequence. Click **Save**. The macro will be successfully edited.

NOTE: By default, the Source File and PCF File under this macro are imported and the preset 3D File is selected.
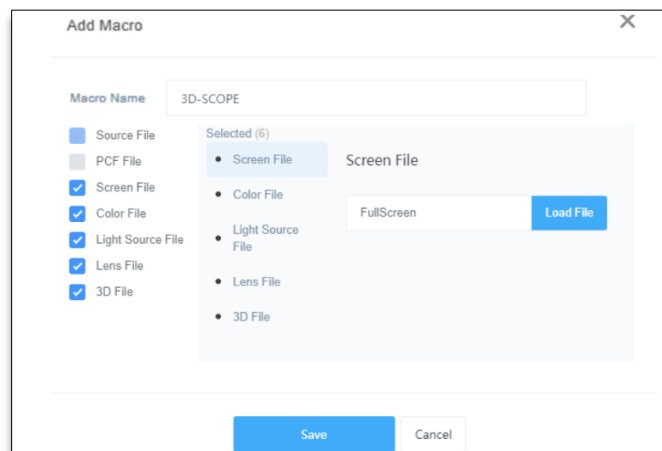
Figure 53: Edit 3D-SCOPE Macro

3.3.1.5 Creating a Custom 2D or 3D Macro

You can also add a custom 2D or 3D macro by clicking on the **Add New Macro** button and importing the relevant Source, Screen, Color, Light Source, Lens and 3D Files, as shown in **Figure 54**.
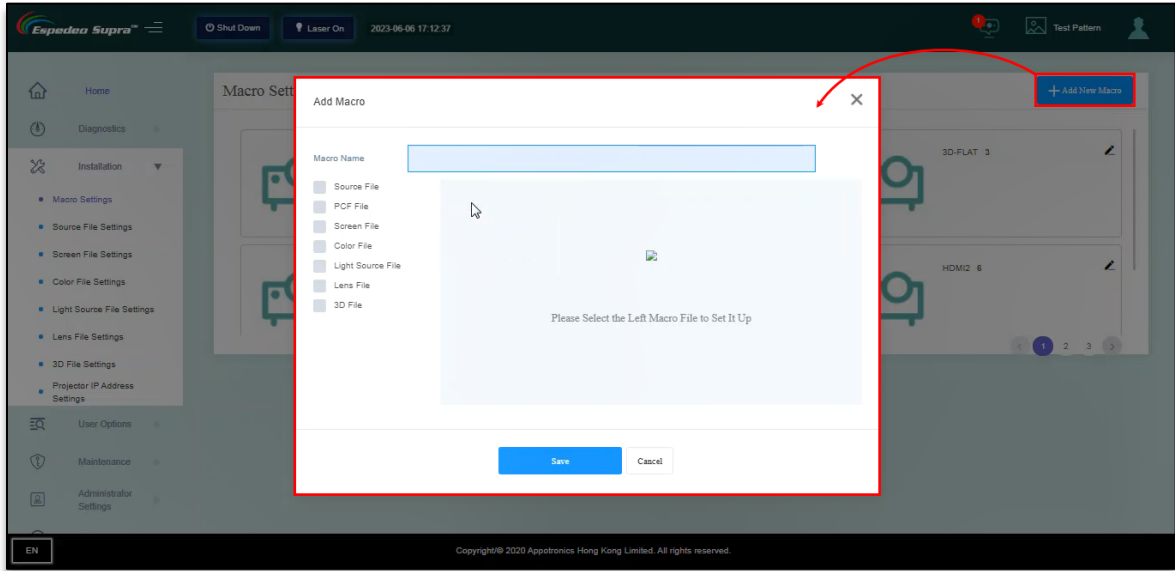
Figure 54: Creating Custom 2D/3D Macros

I.   The procedure for creating a 2D macro is consistent with the procedure for editing the '2D-FLAT' or '2D-SCOPE' macro. Note that the 'DCMB' shall be selected as the Source File and no 3D File is selected.
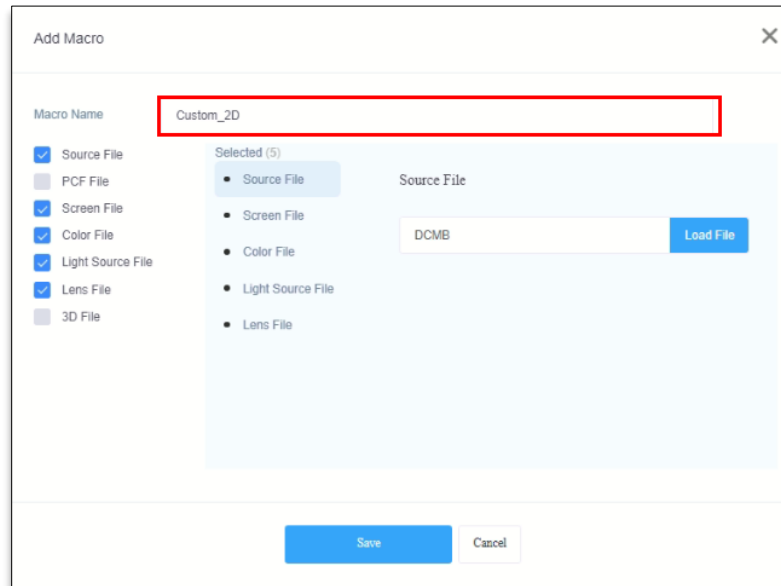
Figure 55: Create Custom 2D Macro

II. The procedure for creating a 3D macro is consistent with the procedure for editing the '3D-FLAT' or '3D-SCOPE' macro. Note that the 'DCMB' shall be selected as the Source File.
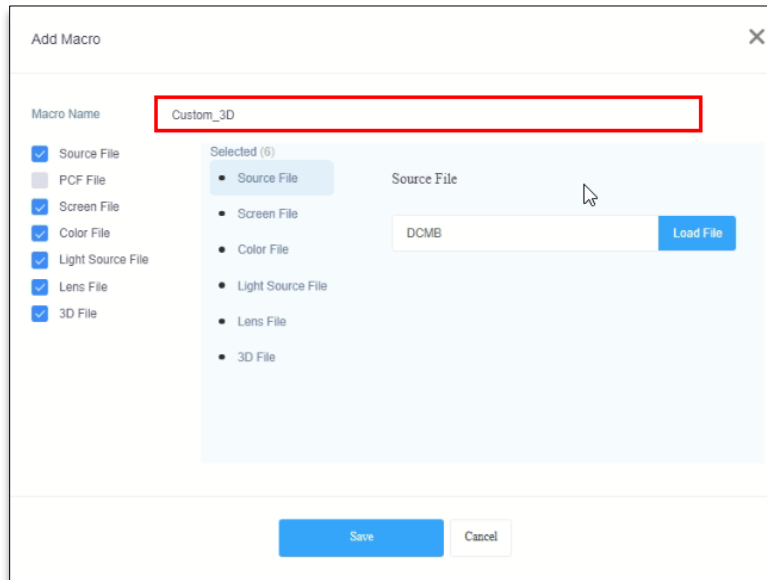
Figure 56: Create Custom 3D Macro

III. You can now view these custom macros under **Macro Settings,** as shown in **Figure 57**.
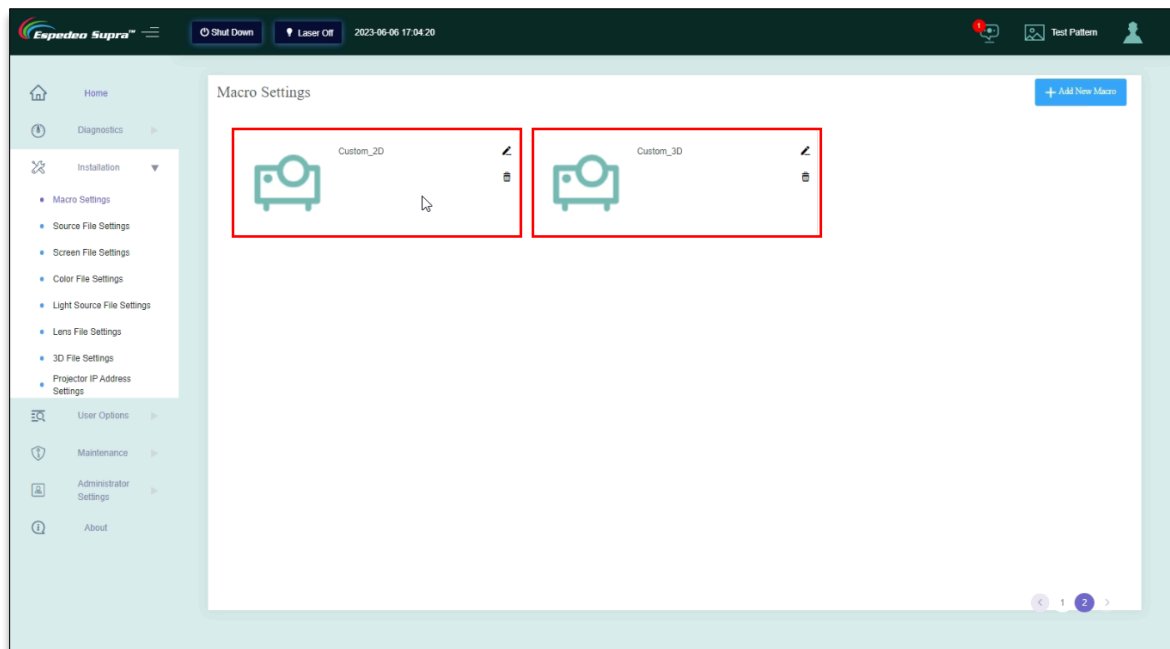
Figure 57: List Custom 2D/3D Macros

3.3.2 Installation → Source File Settings

The **Source File Settings** menu lists the type of video sources supported by the projector. The projector supports packing formats of SMTPE DCP and Interop DCP as well as supports the input of HDMI signal.
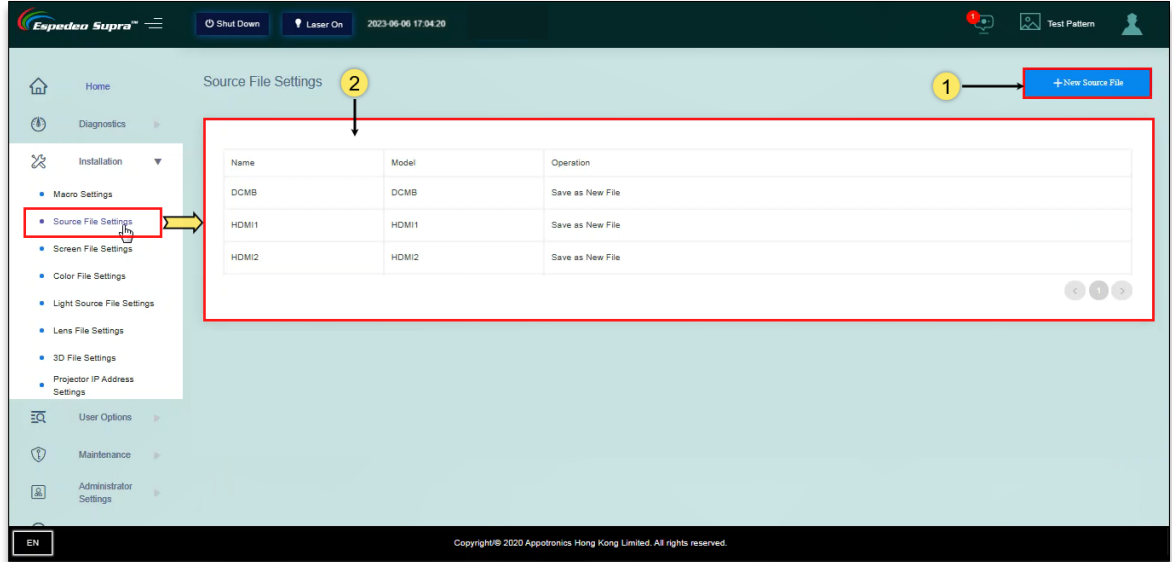
Figure 58: Installation → Source File Settings

SN	Name	Function Description
①	New Source File	Click on this button to create a new Source File. This button is enabled when you set the Source File. You can add the desired Source File to a particular macro, under the **Macro Settings** menu.
②	Source file list	Lists the Source Files, including 'DCMB', 'HDMI1' and 'HDMI2'. The 'DCMB' Source File is used when the DCMB plays DCP content from the local storage of the projector. As an alternative to DCP, you can use 'HDMI1' or 'HDMI2' Source File for HDMI content input. **NOTE**: The Supra-5000 projector supports only 1080p@60Hz HDMI source.

Table 7

3.3.3 Installation → Screen File Settings
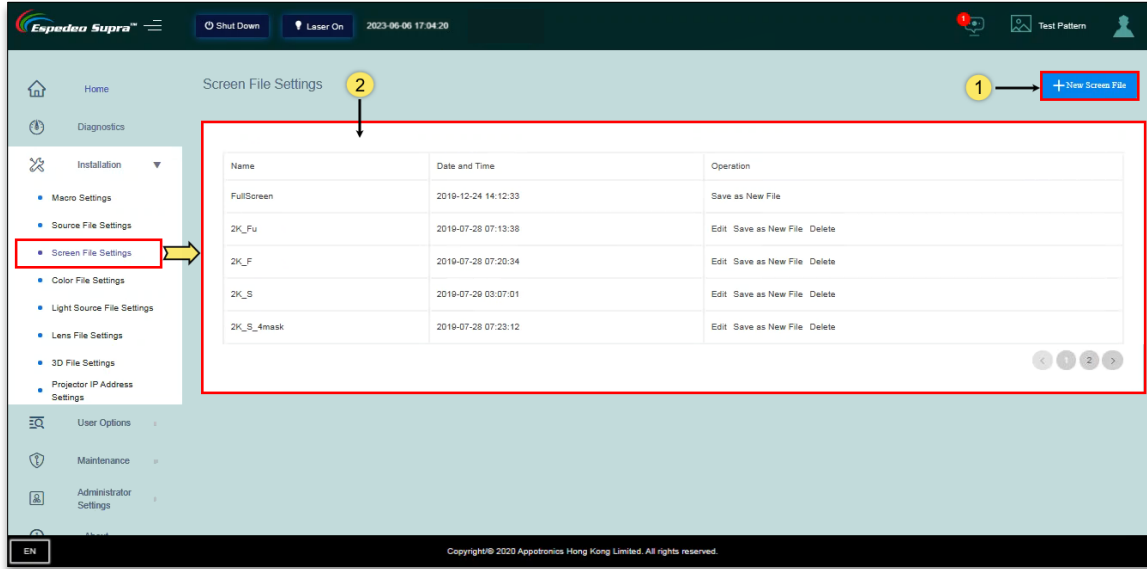
Figure 59: Installation → Screen File Settings

SN	Name	Function Description
①	New Screen File	Click on this button to create new Screen Files. Click on a particular adjustment point (it will be highlighted in Green) and mentioned the desired 'X and Y' coordinates or the 'Curve' value, whichever is applicable. You can also choose from the listed Test Patterns on the left, to view the projected result. Click on the **SETTING** button to apply and view the changes on the projected Test Pattern. You can undo all the changes made to adjustment points, by clicking the **General Reset** button. Click the **Close Test Pattern** button once the changes are complete. Provide a file name and click on the **Save** button to create the Screen File.

		You can add the desired Screen File to a particular macro, under the **Macro Settings** menu.
②	Screen File list	Lists all the Screen Files, including 'FullScreen' (No crop). You can also edit or delete the listed Screen Files (except 'FullScreen') or save any of them as a new Screen File.

Table 8

3.3.4 Install → Lens File Settings

Different Lens Files represent different sizes of the projected image. You can create different lens files using the Up, Down, Left, Right, ZOOM +/- and FOCUS +/- buttons.

NOTE: Before proceeding with the Lens File creation, make sure the appropriate lens model is selected and lens leading/homing is performed from the **Administrator Settings → Select lens** menu (refer to **Section 3.6.2** for more details).
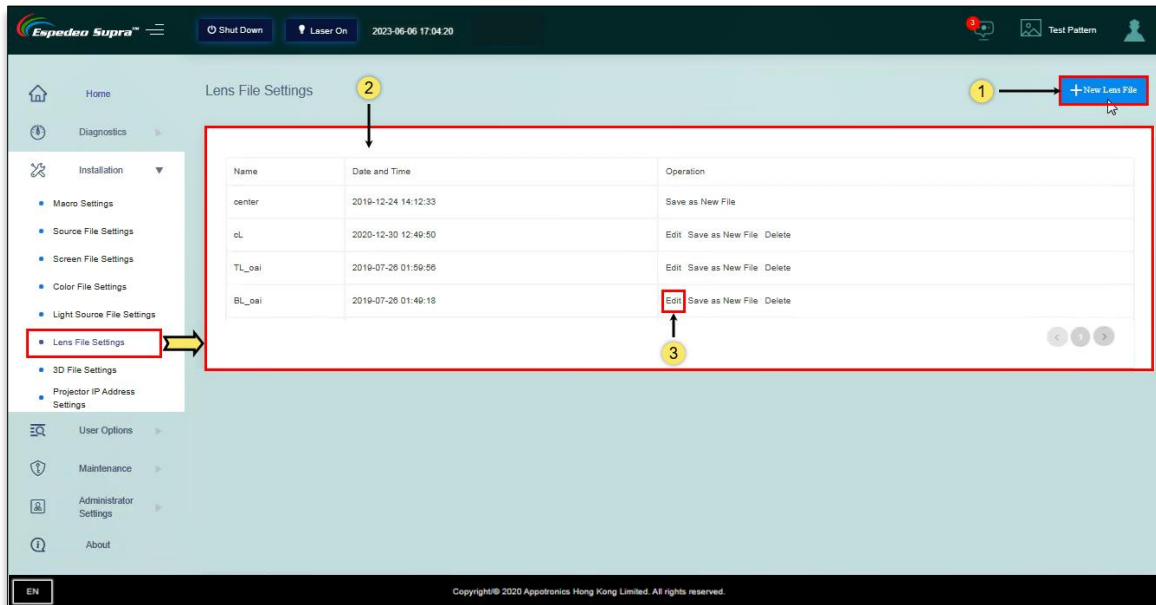
Figure 60: Installation → Lens File Settings

SN	Name	Function Description
①	New Lens File	Click on this button to create a new Lens File, as shown in **Figure 61**. Refer to **Table 10** for more details regarding the New Lens File screen.
②	Lens file list	Lists the Lens Files of the projector. You can create suitable Lens Files according to actual requirements.
③	Edit Lens file	You can use this option to adjust the offset of the position, after the suitable lens has been installed.

Table 9
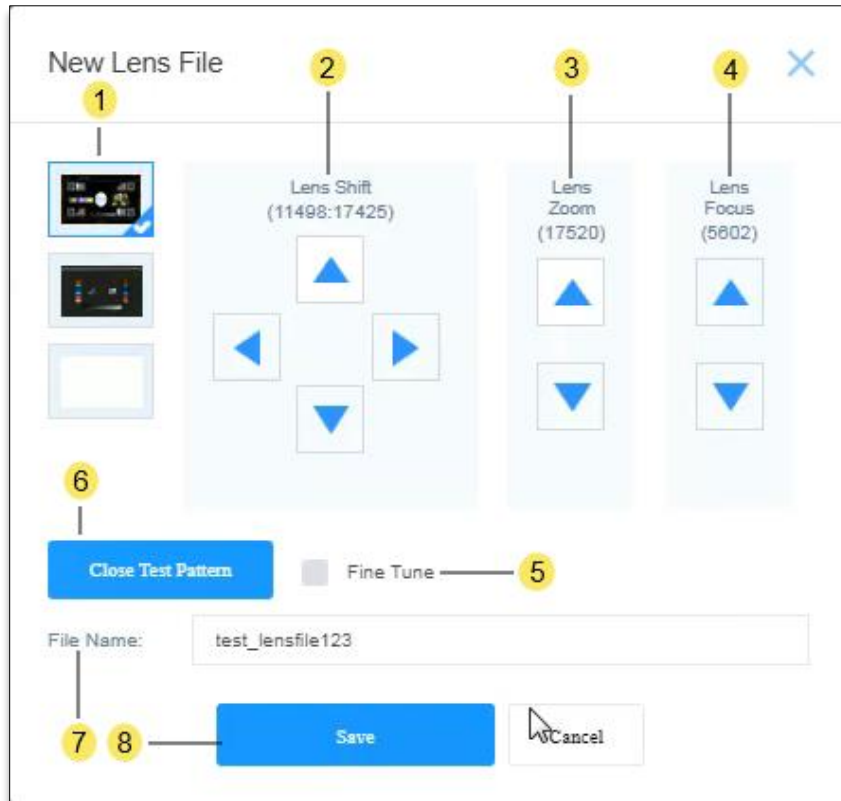
Figure 61: Create a New Lens File

SN	Name	Function Description
①	Test Pattern	Select any of the listed Test Patterns to view the projected result of the Lens File settings.
②	Lens Shift	These buttons can be used to shift the lens Up, Down, Left and Right.
③	Lens Zoom	These buttons can be used to zoom in/out the lens.
④	Lens Focus	These buttons can be used to adjust the focus (sharpness) of the lens.
⑤	Fine Tune	Select this option to fine-tune the lens shift, zoom and focus.
⑥	Close Test Pattern	Click this button once changes to the Lens File are complete.
⑦	File Name	Enter a name for the new Lens File.
⑧	Save/Cancel	Click Save to save the changes to the selected Lens File and enter the 'Auxiliary Adjustment' screen (refer to **Section 3.3.4.1**). Click Cancel to discard all changes.

Table 10

3.3.4.1 Auxiliary Adjustment for Lens Files

When you click on the Save button after creating or editing any Lens File; in case there are any deviations between the targeted and actual position of the projected image after saving the Lens File, you can perform certain additional adjustments by clicking the Auxiliary adjustment button (refer to **Figure 62**).

Alternatively, you can click on the Cancel button if the actual position of the projected image matches the targeted position after saving the Lens File.
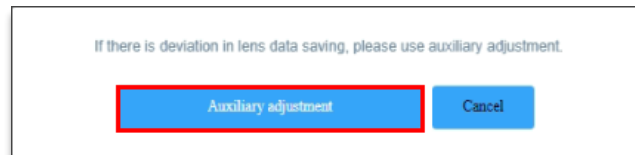
Figure 62: Auxiliary Adjustment (1)

The Auxiliary adjustment option allows you to shift the position of the lens in the Up and Right directions (as shown in **Figure 63**), to correct the deviations in the projected image. Once the desired position is achieved, click on the Save button to save the changes to the Lens File.
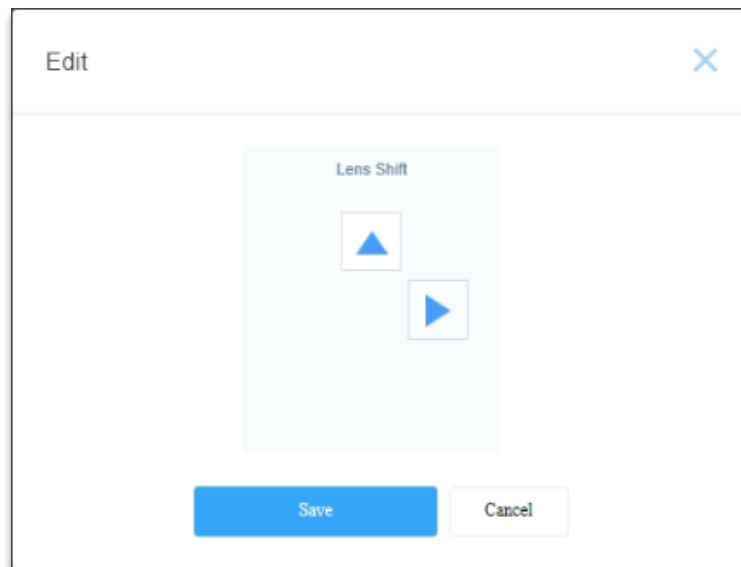
Figure 63: Auxiliary Adjustment (2)

NOTE: In case the Supra-5000 Projector is ceiling mounted, you need to change the Projector Orientation to 'Orthographic' under the **Administrator Settings → Advanced Settings** screen, perform the Auxiliary adjustment for the concerned Lens File. Once done, switch the Projector Orientation back to 'Mounted' for actual projection.

3.3.5 Installation → Color File Settings
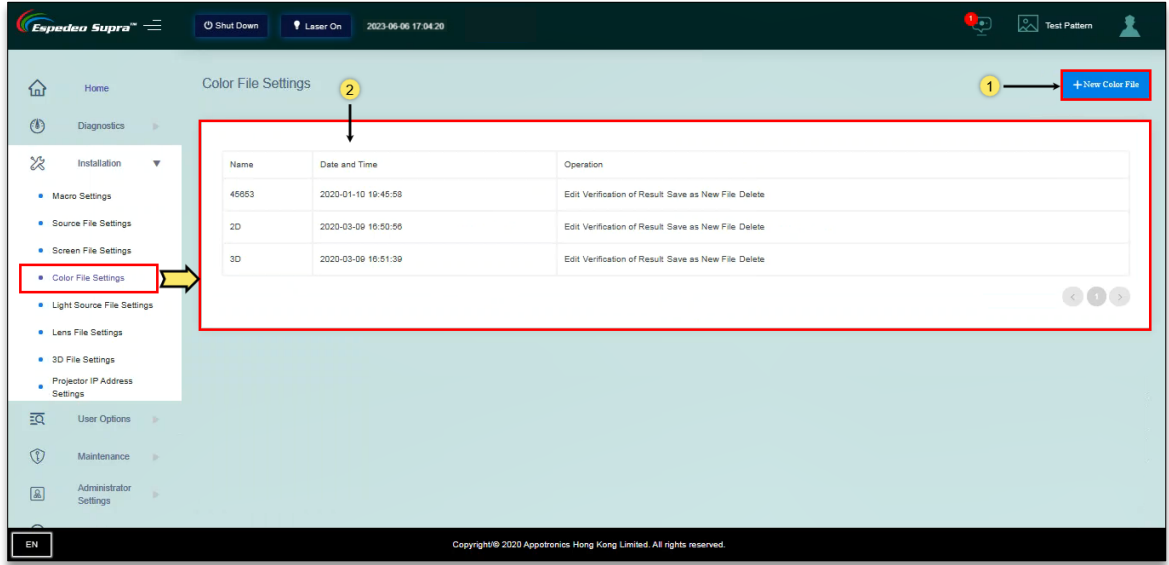
Figure 64: Installation → Color File Settings

SN	Name	Function Description
①	New Color File	Click on this button to create new 2D and 3D Color Files (refer to **Figure 65**). Refer to **Table 12** for more details regarding the New Color File screen.
②	Color file list	Newly created 2D and 3D Color Files are displayed under the Color File list. You can edit or verify the corrected Color File, save it as a new Color File or delete a particular Color File. The desired Color File can be added to a particular macro, under the **Macro Settings** menu.

Table 11
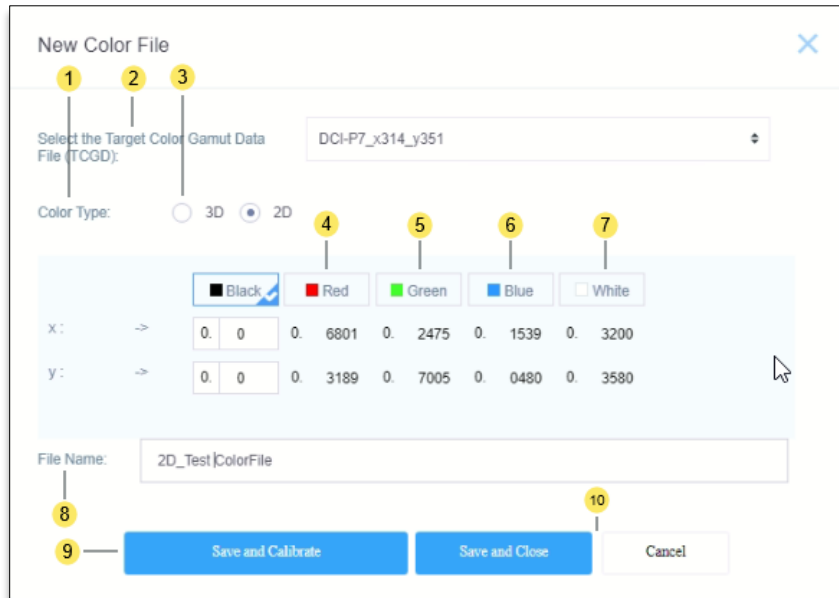
Figure 65: Create a New Color File

SN	Name	Function Description
①	Select the Target Color Gamut Data file (TCGD)	You can select the TCGD file based on the source • For the DCP, select the DCI color file 'DCI-P7_x314_y351'. • For the HDMI, select the rec.709 color file 'Rec.709_x3127_y329'.
②	Color Type	For 2D_DCP color calibration, select '2D'. For 3D_DCP color calibration, select '3D'.
③	3D Device	When the color type is set to '3D', you need to select the corresponding 3D device. The default 3D device used by the projector is 'DEFAULT-3D'. To use a new 3D device, choose **3D File Settings → New 3D File** and configure the corresponding control parameters of the new 3D device.
④	Red	After you click 'Red', the screen displays the Red test pattern. Use a spot spectroradiometer to measure the color coordinates of the current screen center and enter values of X and Y based on the color coordinates.
⑤	Green	After you click 'Green', the screen displays the Green test pattern. Use a spot spectroradiometer to measure the color coordinates of the current screen center and enter values of X and Y based on the color coordinates.

⑥	Blue	After you click 'Blue', the screen displays the Blue test pattern. Use a spot spectroradiometer to measure the color coordinates of the current screen center and enter values of X and Y based on the color coordinates.
⑦	White	After you click 'White', the screen displays the White test pattern. Use a spot spectroradiometer to measure the color coordinates of the current screen center and enter values of X and Y based on the color coordinates.
⑧	File Name	Enter a name for the new Color File. It is recommended to name the 2D and 3D Color Files separately, for example, "2D_DCP" or "3D_DCP".
⑨	Save and Calibrate	Save and calibrates the current Color File, as shown in **Figure 66.** Checks whether the color is within the standard range after calibration. If yes, it is qualified. Otherwise, you need to find the reason. Click Completed to conclude the calibration process.
⑩	Save and Close/Cancel	Click Save and Close to save all changes to the selected Color File. Click Cancel to discard all changes.

Table 12
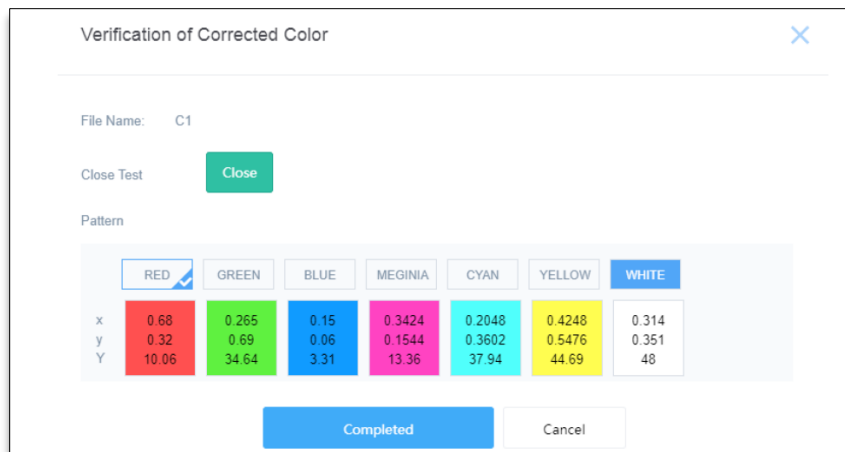
Figure 66: Calibrate and Verify new Color File

⚠ **NOTE:**

- Before proceeding with color calibration, it is recommended to perform the lens back focus adjustment and DMD convergence (refer to Espedeo Supra-5000 Installation Manual for more details).
- For 2D color calibration, set the color type to '2D'.
- For 3D color calibration, set the color type to '3D'. By default, the 'DEFAULT-3D' device is used for 3D color calibration.
- While performing a 3D color calibration, the 3D filter unit should be placed in front of the projector lens and measurements should be taken through a pair of 3D glasses.
- The corrected color files should be differentiated between 2D and 3D and used for the corresponding 2D or 3D macros.

3.3.6 Installation → Light Source File Settings

Light Source Files are configured based on the brightness of light output by the projector. Therefore, you can set different Light Source Files to achieve different luminous fluxes of the projector.

The Light Source File defines a percentage based on the maximum luminous flux output by the projector, configured by setting differentiated proportions downwards.
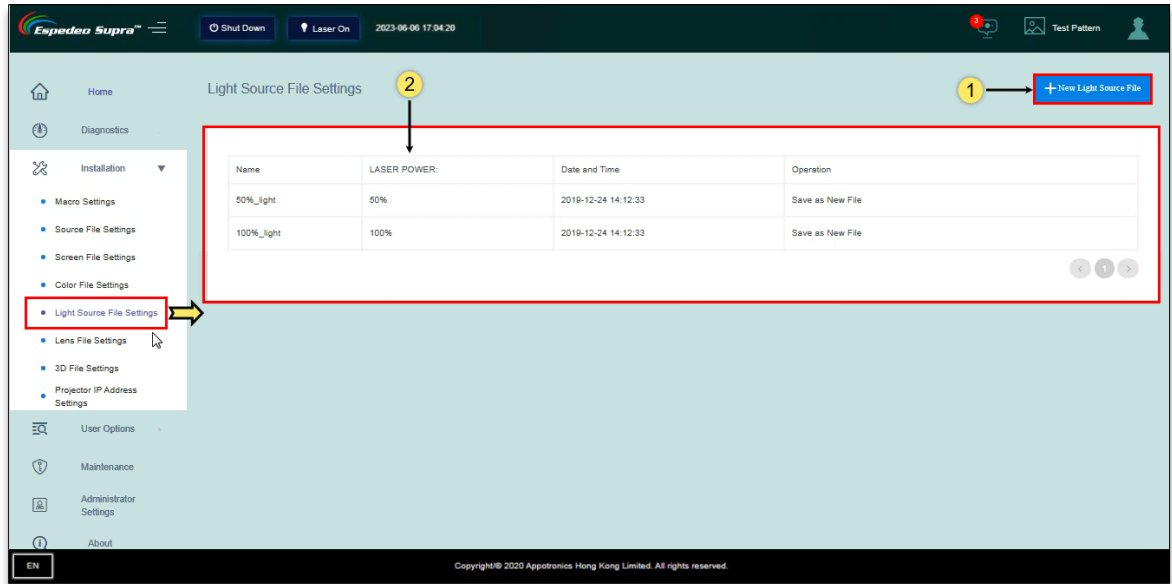
Figure 67: Installation → Light Source File Settings
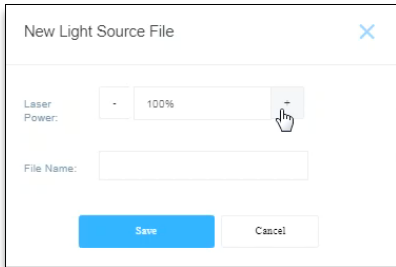
SN	Name	Function Description
①	New Light Source File	Click on this button to create a new Light Source File. This button is enabled when you set the Light Source File. **NOTE**: The Laser Power should not be set below <u>30%</u> in any Light Source File.
②	Light Source file list	Lists the Light Source Files of the projector. By default, there are '50%' and '100%' Light Source Files, indicating that the maximum luminous flux output by the projector is 50% and 100% respectively. You can create suitable Light Source Files according to the actual brightness.

Table 13

3.3.7 Install → 3D File Settings

You can create different 3D files in the **3D File Settings** menu.
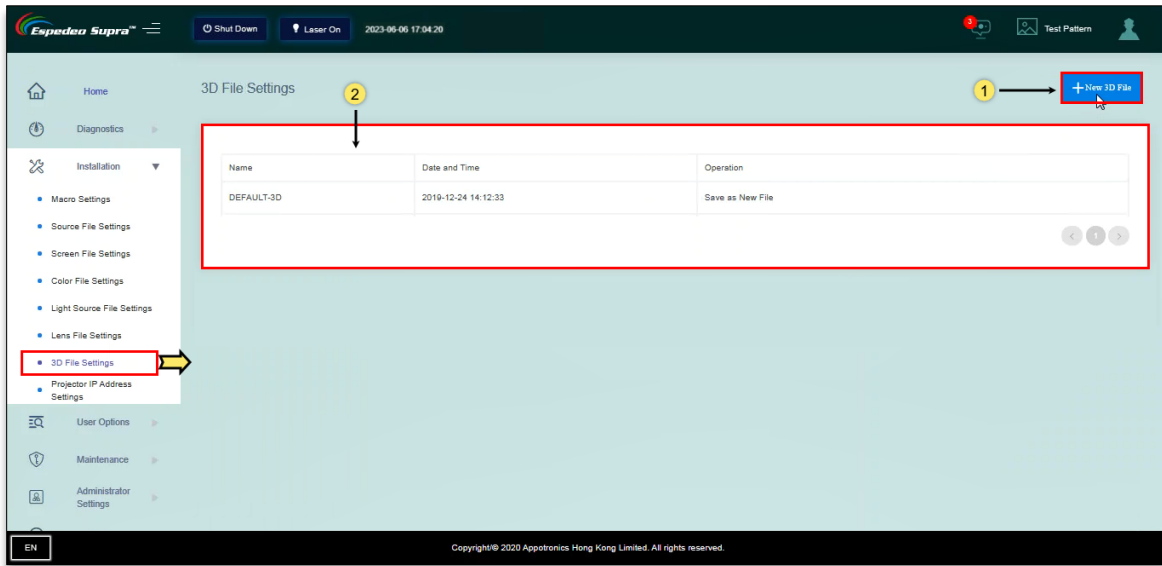
Figure 68: Installation → 3D File Settings
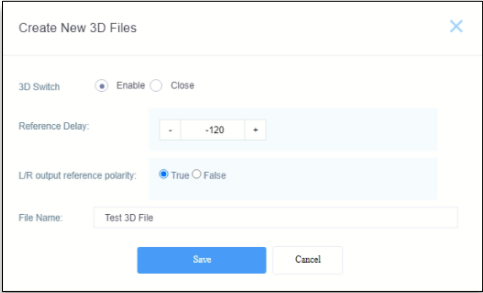
SN	Name	Function Description
①	New 3D File	Creates a new 3D file. You can configure 3D files based on the various parameters in the Create New 3D Files window.
②	3D File List	Lists all the 3D files on the projector. The default 3D file of the projector is 'DEFAULT-3D'.

Table 14

3.3.8 Install → Projector IP Address Settings

You can set the IP address of the PIB module (**LAN 1**) as required.
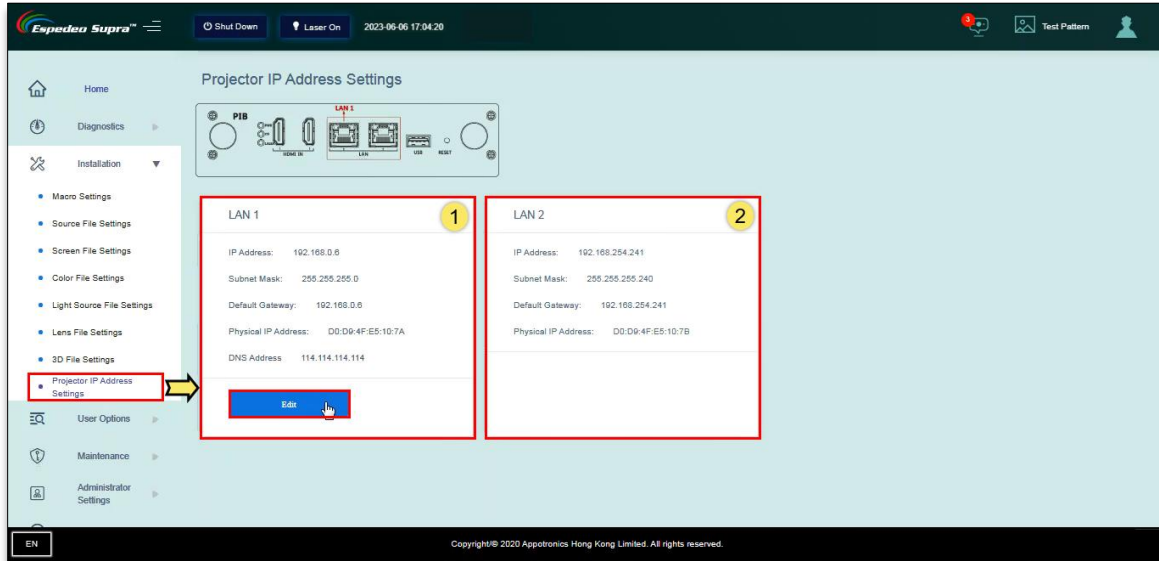
Figure 69: Installation → Projector IP Address Settings

SN	Name	Function Description
①	LAN 1 port	You can set different IP addresses for port **LAN 1** according to actual requirements. Click on the **Edit** button to edit the *IP Address, Subnet Mask, Default Gateway and DNS Address* values for port **LAN 1**. The *IP Address* must range from 240 to 255 and cannot be set to 241 and 246. Additionally, the *Subnet Mask* value for the PC/Laptop network interface should be set to 255.255.255.240. Once set, you must set the same network segment on the PC/Laptop to access the Supra Command Center. **NOTE**: This setting takes effect only after you restart the projector.
②	LAN 2 port	The IP Address of port **LAN 2** is fixed to 192.168.254.241.

Table 15

3.4 User Options

The **User Options** screen allows you to manage all the configuration files of the projector and select a language for the Supra Command Center web interface.

3.4.1 User Options → File Management

Under the **File Management** menu, you can backup user-created files (color files, lens files, light source files, etc.). In case of file loss due to equipment replacement or improper operation, you can upload the previous backup file to the projector.
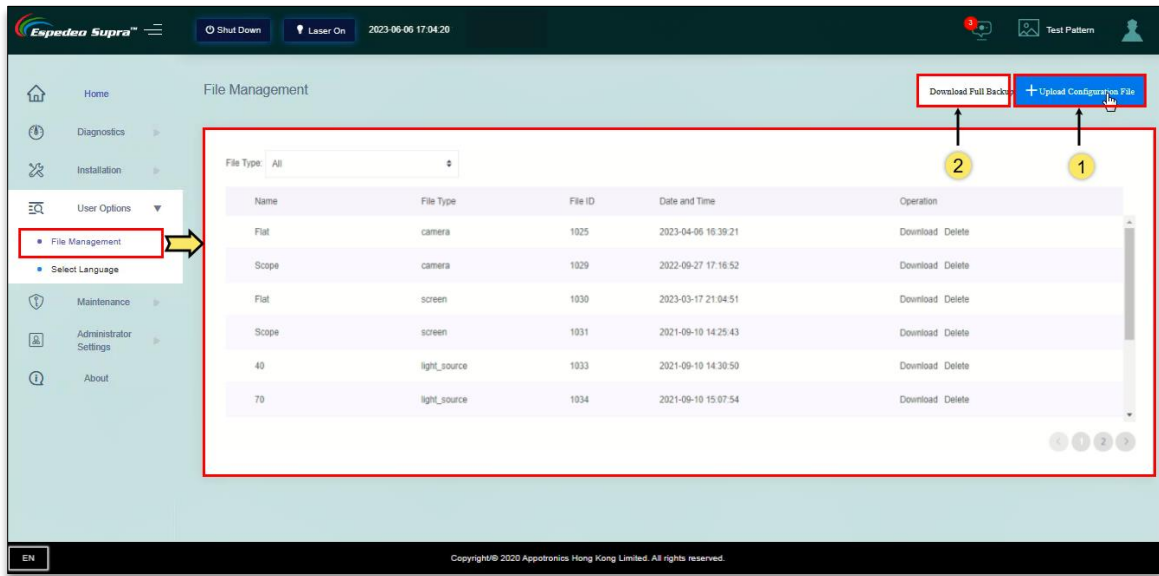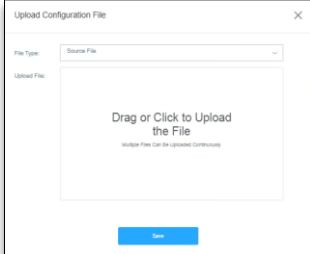
Figure 70: User Options → File Management

SN	Name	Function Description
①	Upload Configuration File	The "File Management" screen displays all the user-created projector files. To download an individual projector file to your PC/Laptop, click on the corresponding **Download** button. To upload a backup file to the PC/Laptop, click on the **Upload Configuration File** button and operate as prompted.

②	Download Full Backup	You can download a backup of all the created projector files or restore from an existing backup file by clicking the **Download Full Backup** button.
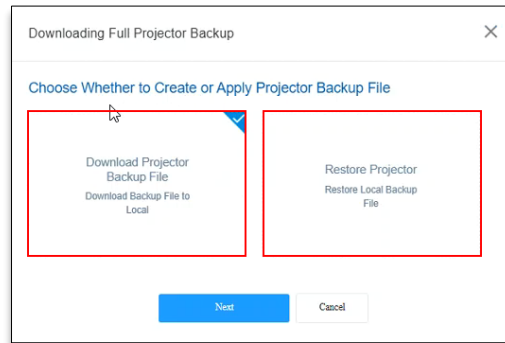
a) The 'Download Projector Backup File' option allows you to either download a full backup of all the user-created projector files OR create a backup of selected user-created projector files based on their file type(s).
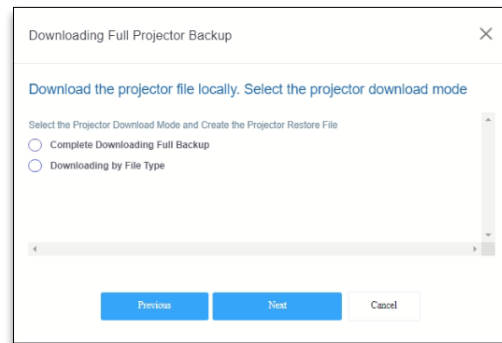
b) The 'Restore Projector' option allows you to restore projector files from an existing backup file on your PC/Laptop.
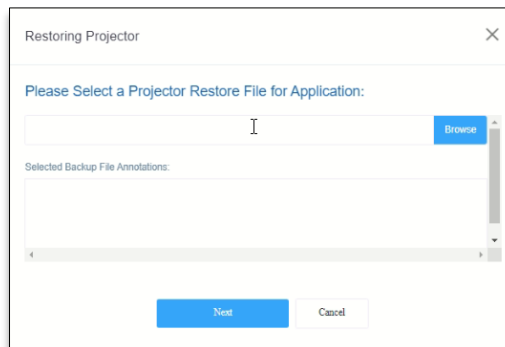
Table 16

3.4.2 User Options → Select Language

The **Select Language** menu allows you to switch between the below-listed languages for the Supra Command Center interface, as per the user's preference:

- Chinese (CN)
- English (EN)
- French (FR)
- Japanese (JA)
- Portuguese (PT)
- Russian (RU)
- Spanish (ES)
- Korean (KO)
- German (DE)

NOTE: You can also choose your preferred language by clicking on the 'Language' button at the bottom-left corner of the Supra Command Center interface, as indicated in **Figure 71**.

Figure 71: User Options → Select Language

3.5 Maintenance

The **Maintenance** screen is mainly used to restart the projector, upgrade the firmware (main control of the PIB, Laser control and Lens control) and prompt for filter cleaning.

Refer to **Section 6.1** for more details related to performing a PIB firmware update.
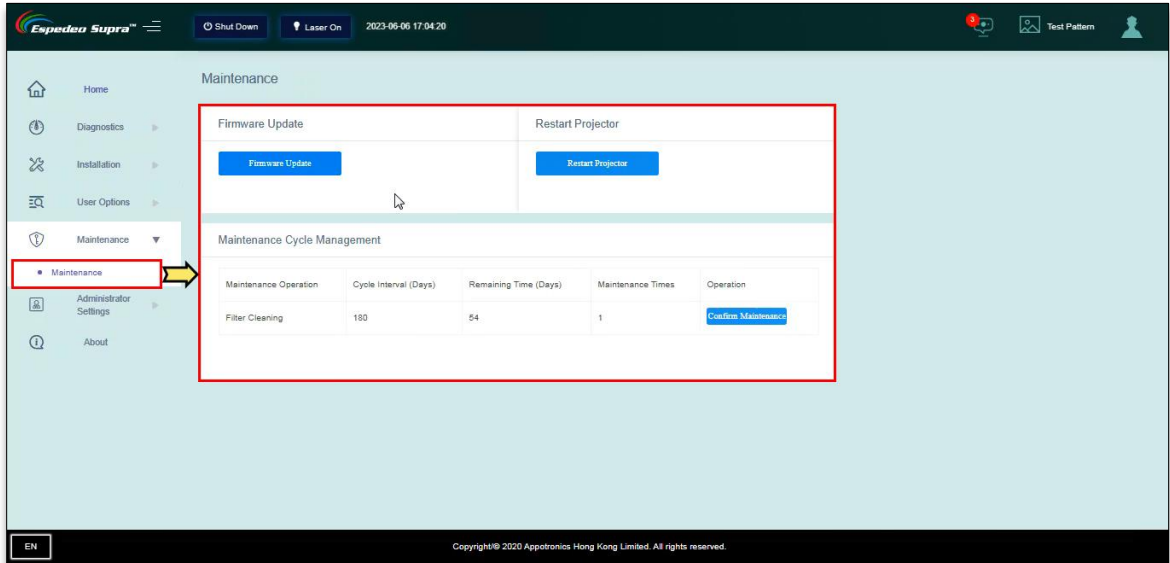
Figure 72: Maintenance → Maintenance

3.6 Administrator Settings

3.6.1 Administrator Settings → Time Settings

The **Time Settings** menu allows you to fetch the date and time values for the projector, as per actual requirements:

- Projector Time – Fetch the date and time values from the DCMB.
- Auto Synchronize Date and Time – Fetch the date and time values from an NTP Server. You need to specify the NTP Server IP Address in the field provided.

Click on the **Apply** button to save the selected time setting.
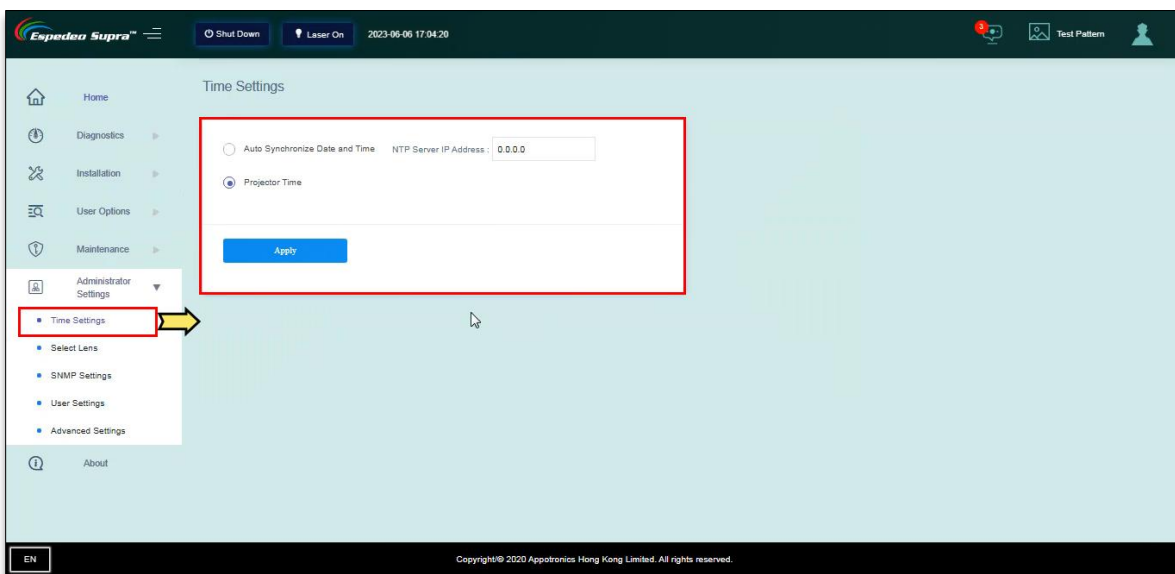
Figure 73: Administrator Settings → Time Settings

3.6.2 Administrator Settings → Select Lens

When installing the lens for the first time or changing the lens due to lens damage, you need to select the lens model from the Lens drop-down. Click the **Startup** button to initialize the lens leading/homing process. After the lens initialization is successful, a "Success" message will be shown.
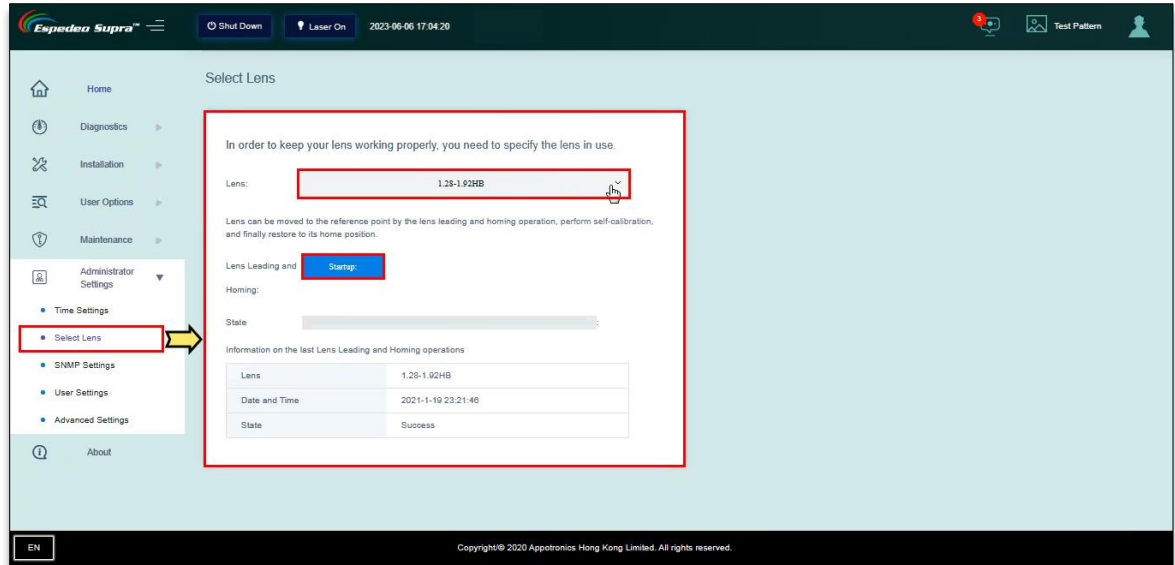
Figure 74: Administrator Settings → Select lens

3.6.3 Administrator Settings → SNMP Settings

The **SNMP Settings** menu can be used to mention the NOC Server details for receiving SNMP traps and alerts from the projector. After entering the NOC's IP address, click the **Apply** button. If the interface uses the SNMP function, the NOC Server can receive the corresponding information.
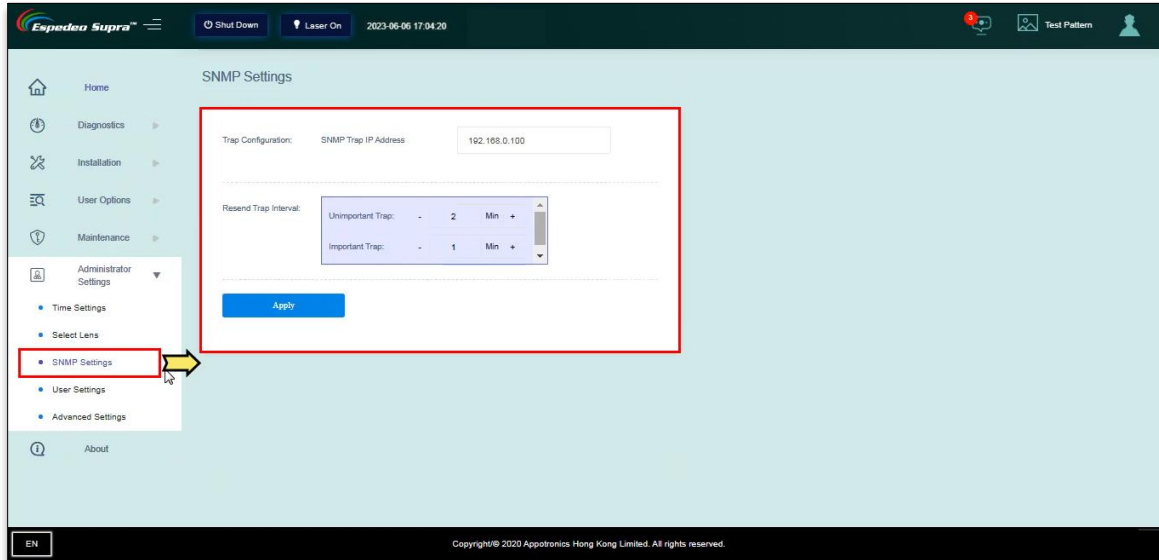
Figure 75: Administrator Settings → SNMP Settings

3.6.4 Administrator Settings → User Settings
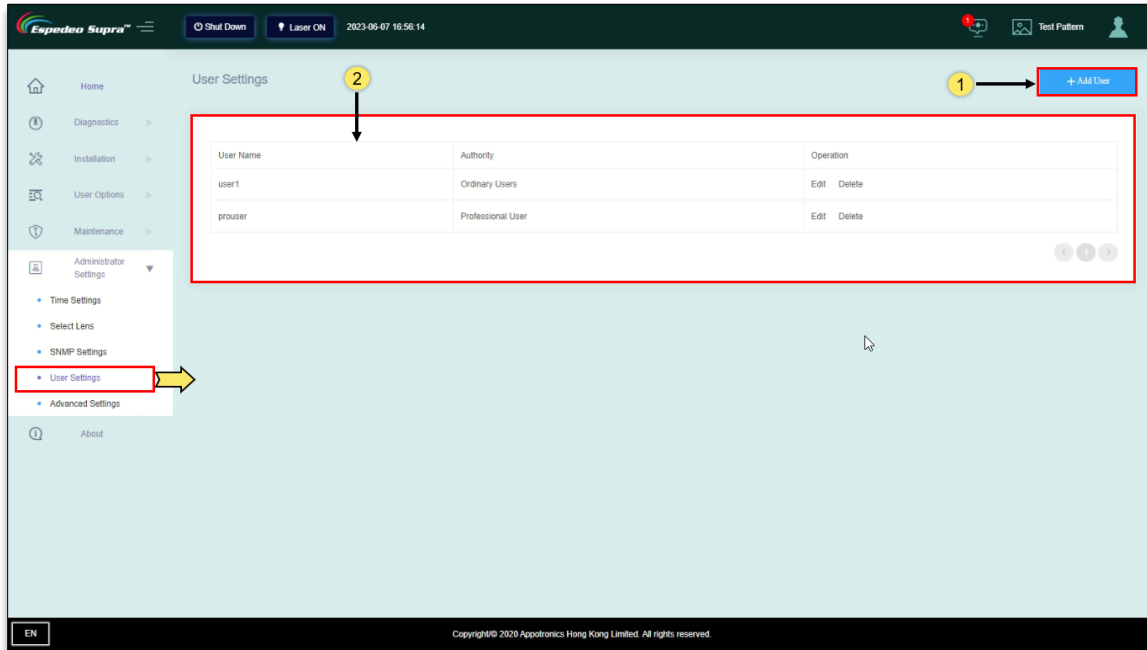
Figure 76: Administrator Settings → User Settings
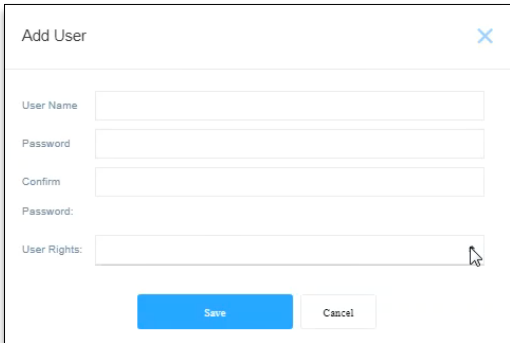
SN	Name	Function Description
①	Add User	You can click the **Add User** button to create a user that has authorized user rights of an 'Ordinary User' or 'Professional User'.
②	User List	Lists all the users that have been created. Click on 'Edit' to edit the user details and 'Delete' to delete a particular user.

Table 17

3.6.5 Administrator Settings → Advanced Settings

Using the **Advanced Settings** menu, you can set the orientation of the projector, Altitude mode, etc. for the projector.
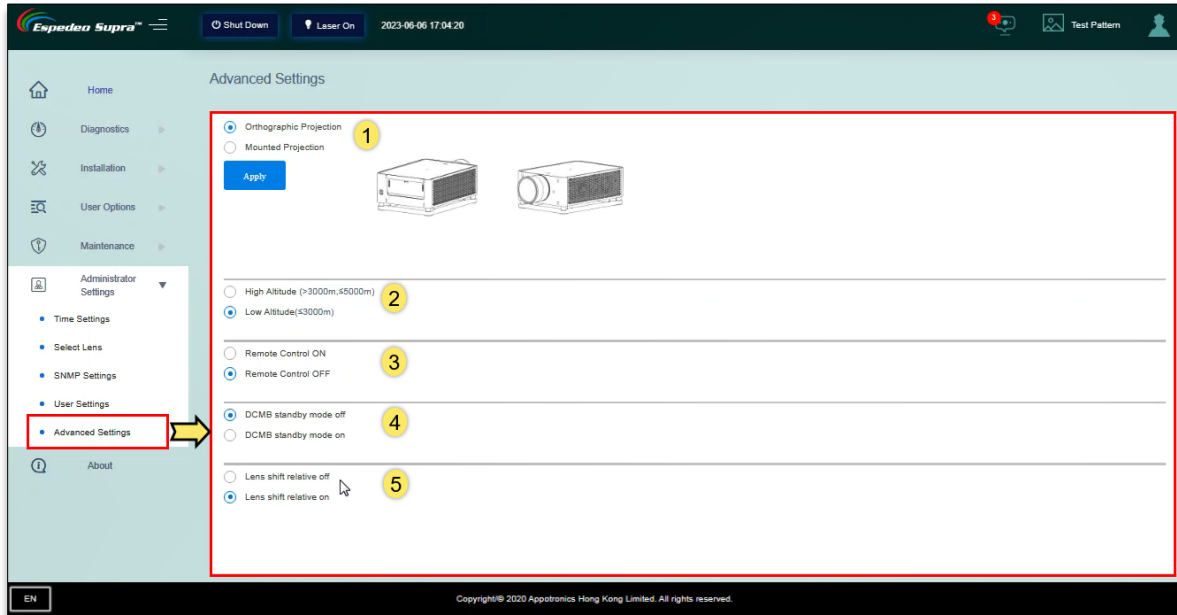
Figure 77: Administrator Settings → Advanced Settings

SN	Name	Function Description
①	Projector Orientation	Select the orientation of the projector: ▪ Forward projection: 'Orthographic Projection' or 'Mounted Projection'. ▪ Rear projection: 'Rear Projection' or 'Rear Mounted'.
②	Altitude mode	Select the altitude mode based on the actual mounting altitude of the cinema: ▪ 3000m $<$ Cinema's altitude ≤ 5000m: It is mandatory to select the 'High Altitude' mode. ▪ Cinema's altitude ≤ 3000m: It is mandatory to select the 'Low Altitude' mode. The 'Low Altitude' mode is selected by default.
③	Remote Control ON/OFF	*This option is not used.*

④	DCMB standby mode on/off	When DCMB standby mode is ON: The projector will be in 'Always-On' mode and will not go into 'Standby' mode when the **Shutdown** button on the Supra Command Center is clicked. If the projector needs to be put in 'Standby' mode, select the DCMB standby mode off option. This option is typically used when the Supra-5000 is accessed exclusively via the Wireless SMS. When DCMB standby mode is OFF (default): Clicking the **Shutdown** button on the Supra Command Center will put the projector in 'Standby' mode and send a command to the DCMB to shutdown as well.
⑤	Lens shift relative on/off	Lens shift relative improves the accuracy of lens movement. By default, this option is set to ON. **NOTE**: If Lens shift relative is set to OFF, the time taken by the projector to switch between macros will be affected.

Table 18

4. Understanding the DCMB Web UI

The DCMB of the Espedeo Supra-5000 has a web-based User Interface or Web UI, which can be used to control the functions of the DCMB. Refer to **Section 1.2.3** for more information related to accessing the DCMB Web UI.

4.1 Access Levels

On the login page, you need to select the User Level and enter the corresponding correct Password to access the DCMB Web UI. Different users will have different access levels of the **Configuration** tab under the DCMB Web UI.

Access Level	Available Access
User	**Supra-5000, Dashboard, Playback, Automation, Content and Configuration* tabs.** *(*Only System and Image sub-tab under Configuration menu is accessible.)*
Technician	**Supra-5000, Dashboard, Playback, Automation, Content and Configuration* tabs.** *(*Only System, Maintenance and Image sub-tabs under Configuration menu are accessible.)*
Maintenance	**Supra-5000, Dashboard, Playback, Automation, Content and Configuration tabs.**

Table 19
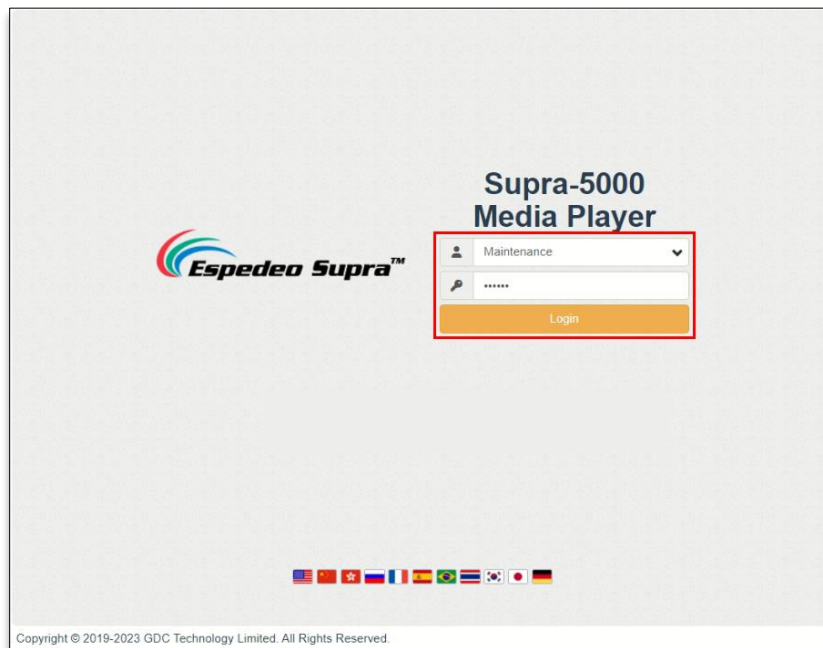
Figure 78**: DCMB Web UI Login page**

4.1.1 Single User Access

The DCMB Web UI allows single user access only. When a second user logs in using the same or a higher access level, the second user is allowed to choose whether to take over the first user's session. Clicking on **Continue** will terminate the first user's session and allow the second user to log in.

However, if the Multi-user mode option is enabled (refer to **Section 4.6.1**); multiple users with the same access level will be allowed to concurrently login to the DCMB Web UI.
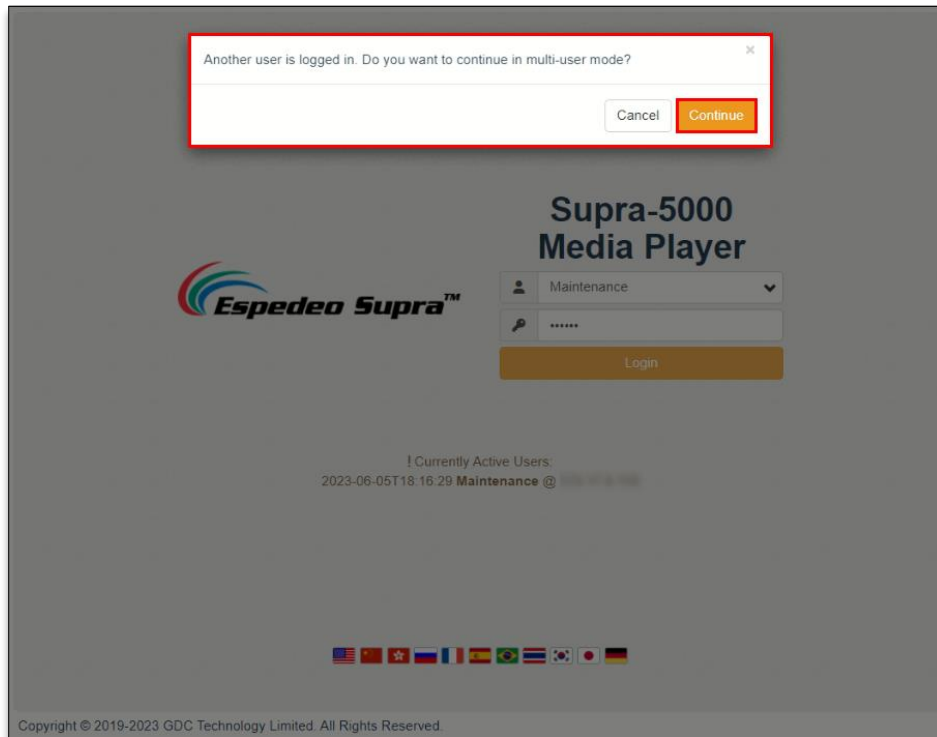
Figure 79

4.2 Dashboard

In the DCMB Web UI, the **Dashboard** tab displays basic information related to the DCMB, such as *System Information, Network Information, Storage Information, Licenses installed, Capabilities and System alerts*.
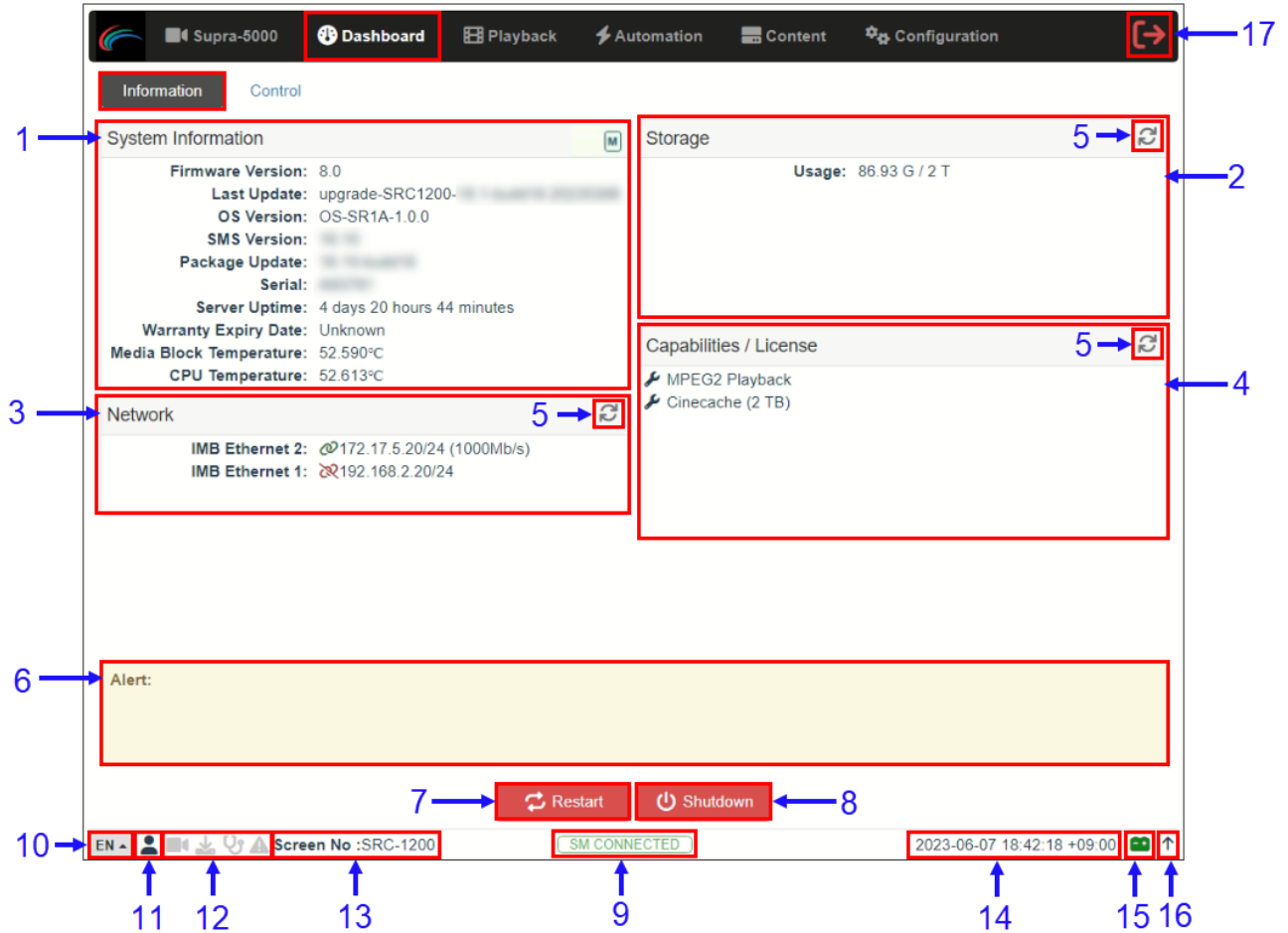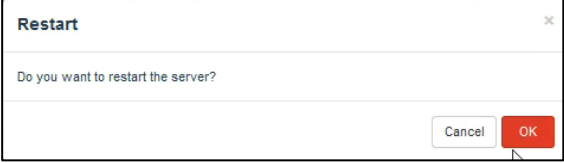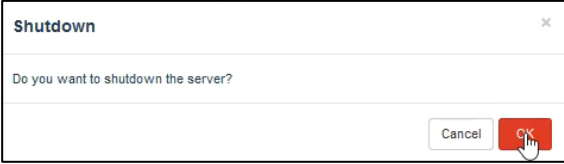
Figure 80: Dashboard

SN	Name	Function Description
1	[System Information]	Displays DCMB system information.
2	[Storage Information]	Displays storage status on the DCMB.
3	[Network Information]	Displays current network settings and network status.
4	[Capabilities / License]	Displays the supported features or capabilities of the DCMB.as well as the licenses which are installed on the DCMB.

5	[Refresh]	Refreshes the information on the respective sections.
6	[Alerts]	System alerts are displayed here.
7	[Restart]	To restart the DCMB, press **Restart**. A pop-up window will be displayed. Click **OK** to confirm restart.
8	[Shutdown]	To shutdown the DCMB, press **Shutdown**. A pop-up window will be displayed. Click **OK** to confirm shutdown.
9	[SM Connection Status]	Displays the connection status of the SM or Security Manager. The SM should always be connected and the '**SM CONNECTED'** status should be highlighted in Green color. In case the SM is disconnected or the status appears in Red color, please contact Espedeo Holdings Ltd..
10	[Language Select]	Indicates the current language in which the DCMB Web UI is displayed. To change the language, click on this icon and select the desired language from the list.
11	[User]	Indicates the access-level with which the current user is logged-in to the DCMB Web UI. Place the mouse pointer over this icon to view the access-level of the current user.
12	[Playback, Ingest, Verify and Alert status]	These icons will start blinking individually in case content playback/ content ingest/ content verification is in-progress and if any system alerts are displayed. Otherwise, they will remain greyed-out.
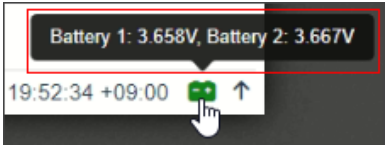
13	[Screen No:]	Displays the auditorium name and number which has been set for the DCMB which has been set under **SNMP Configuration** → **System Information** screen (refer to **Section 4.6.1.1.2** for more details)
14	[Date and Time]	Indicates the system date and time as per the timezone set on the DCMB.
15		Indicates the battery voltage levels for both the DCMB batteries when the mouse pointer is placed over it.
16		Moves the Status bar to the top of the Web UI screen. To bring the Status bar back to its original position, click on the ⬇ icon.
17	[Logout]	Logs out the current user from the DCMB Web UI.

Table 20

4.3 Playback

The **Playback** tab is used to create/edit show playlists and to control playback functions on the DCMB.

4.3.1 Playback → Playback

The **Playback** sub-tab displays playback progress and allows the operator to control playback.
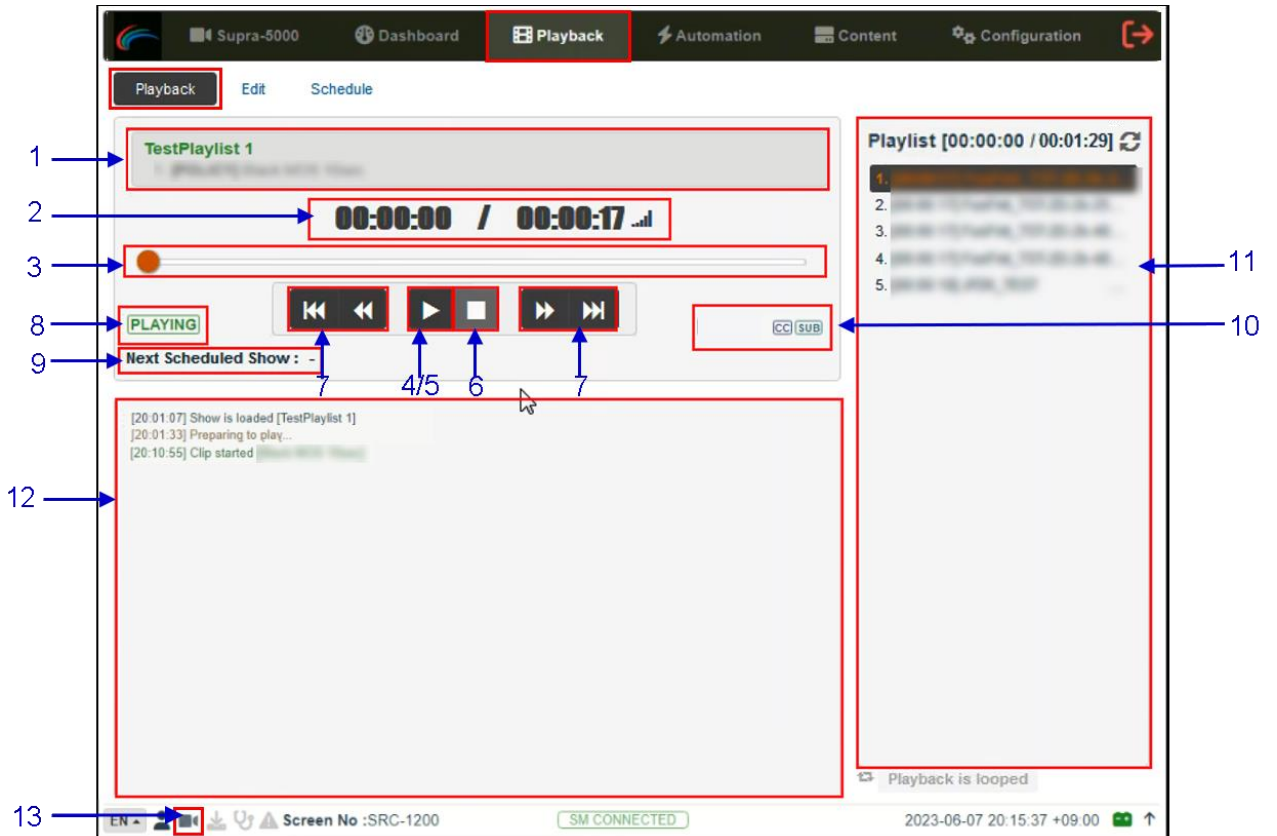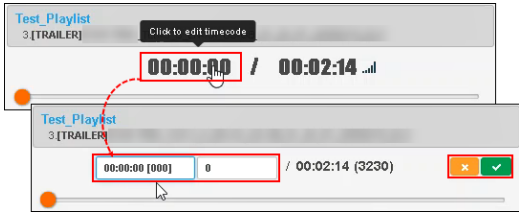
Figure 81: Playback → Playback

SN	Name	Function Description
1	[Clip Name Display]	Displays the name of the current show playlist or SPL as well as the order number and name of the current clip.
2	[Clip Playback Time]	Displays the duration of the current clip played and total duration of the clip. Click on the ⢀⣴ icon to toggle between current playback time and remaining playback time for the clip. When playback is paused, the playback position within the clip can be changed by clicking on the current playback timecode.

		Enter the preferred time code or frame number within the clip, for playback to resume when unpaused and click on the ✔ button. Click the ✖ button to exit the timecode editor.
3	[Playback Progress Bar]	This bar will start advancing to show playback progress. Press [▶] to start a playback. When [■] is pressed, the Playback Progress Bar will stop and return to its starting point. When playback is paused, the slider on the Playback Progress Bar can be dragged to the left/right to seek within the clip. Alternatively, the slider position can be changed by clicking on Playback Progress Bar to seek to a new playback position within the clip.
4	[▶]	Play button. The [▶] button is displayed when the playback is stopped or paused. Clicking this button will resume or start playback.
5	[‖]	Pause button. The [‖] button is displayed only when playback is in progress. Clicking this button again will pause playback.
6	[■]	Stop button. The [■] button stops playback when pressed.
7	[|◀◀] [◀◀] [▶▶] [▶▶|]	Move to the previous clip. Rewind (move back) by 20 frames Forward (move forward) by 20 frames Move to the end of the clip. NOTE: These buttons will remain disabled when playback is in progress and will be enabled when playback is paused or stopped.
8	[Playback Status Display]	Displays the current playback status: *Playing, Paused, Stopped or Prepare.*

9	[Next Scheduled Show:]	Displays the name of the next scheduled show and the time remaining for the next scheduled show.
10	[Clip Format]	Displays information about the clip format.
11	[Playlist]	Displays the name and duration of all the clips within the current show playlist. Additionally, the elapsed time for the playlist and the total duration of the playlist are displayed as well.
12	[Status Display]	Displays the playback status of the system. This display shows the name of the active playlist and the name of the clip currently being played. Information and errors encountered during playback will also be displayed here.
13		If this icon is flashing continuously, it indicates that playback on the system is either in progress OR has been paused. If this icon is grayed out, it indicates that playback on the system has been stopped. Clicking on this icon will redirect the user to the **Playback** sub-tab.

Table 21

4.3.2 Playback → Edit

The **Edit** sub-tab is used to create and edit show playlists or SPLs on the DCMB.
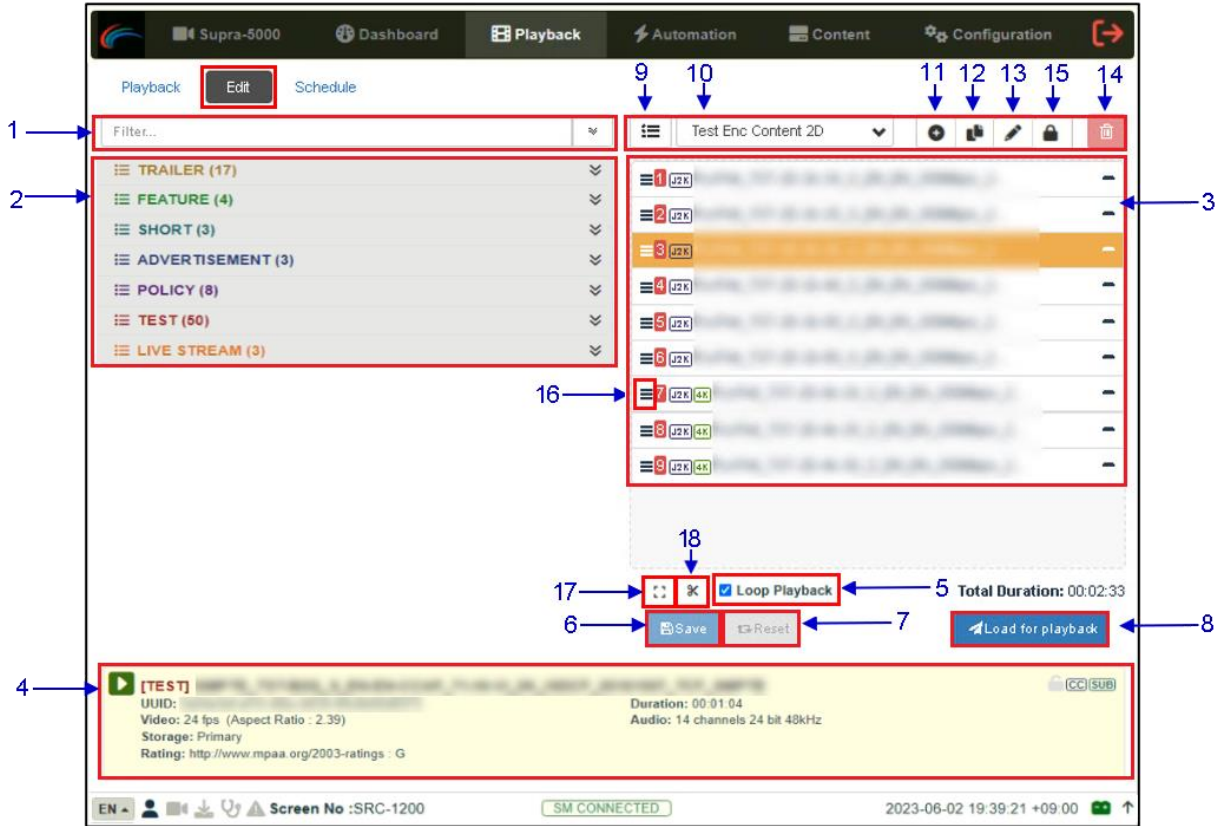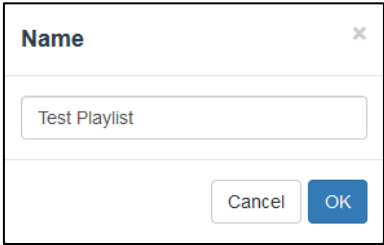
Figure 82: Playback → Edit

SN	Name	Function Description
1	[Filter]	Filter the content list based on the content name.
2	[Content List]	Available content on the DCMB is listed here. Use the ⌄ arrow to expand and list all the clips under the selected category. Content can be dragged and dropped between [Content List] and [Playlist Editor].
3	[Playlist Editor]	The contents of the playlist being currently edited are displayed. Click the '-' button against any clip, to remove it from the playlist. Clips can be dragged and dropped within the playlist to change the playback order.

4	[Clip Information Display]	Displays the information on the selected clip. It also includes the 'Quick Play' feature which can be used to test playback for a particular clip without adding it to the current playlist. To use this feature, select a clip from the [Content List] and click on the ▶ button next to the clip name (displayed under the [Clip Information Display] section) to play the selected clip.
5	[Loop Playback]	Enable loop playback of the current playlist.
6	[Save]	Save the playlist currently being edited.
7	[Reset]	Reset any changes to the playlist currently being edited.
8	[Load for playback]	Load the selected playlist into the player for playback.
9	[Manage Playlist ☰]	A pop-up window will be displayed and show all the playlists with options to delete, rename, copy or filter the playlists.
10	[Show Playlist]	Click the ⌄ icon to open the drop-down of all playlists available on the SR-1000. The name of the selected playlist is displayed and its content is displayed in the [Playlist Editor] **NOTE**: A playlist that is currently playing cannot be edited.
11	[+ Add New playlist]	Create a new playlist. A name must be specified for the playlist. **Name** ✕ Test Playlist Cancel OK Refer to **Section 4.3.2.1** for details on creating a new playlist.
12	[Copy Playlist]	Duplicate the currently selected playlist. Enter the name of the new playlist in the pop-up window and click OK.
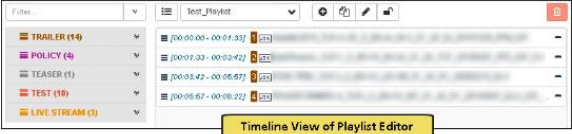
13	[Rename Playlist]	Rename the selected playlist. **NOTE**: A playlist that is currently playing cannot be renamed.
14	[Delete Playlist]	Delete the selected playlist. **NOTE**: A playlist that is currently playing cannot be deleted.
15	[Lock Playlist]	Lock the selected playlist. When a playlist is locked, actions like drag/drop, editing CPL properties and deleting CPLs will be disabled for it. To unlock the selected playlist, click again on the Lock Playlist button. The mouse cursor in the Playlist Editor will change when the selected playlist is unlocked.
16	[Edit Props]	Clicking on ☰ button against a particular clip in the playlist opens a pop-up window to edit properties of the selected clip. Refer to **Section 4.3.2.2** for details on editing the CPL properties.
17	[Standard/Timeline View]	Use the ⛶ button to toggle between 'Standard' and 'Timeline' view (shown below) of the [Playlist Editor]. Timeline View of Playlist Editor
18	[Add Intermission]	Use this option to add intermissions. Select a clip from the playlist and click on the ✂ button. Refer to **Section 4.3.2.3** for details on adding an intermission.

Table 22

4.3.2.1 Creating/Editing a Show Playlist
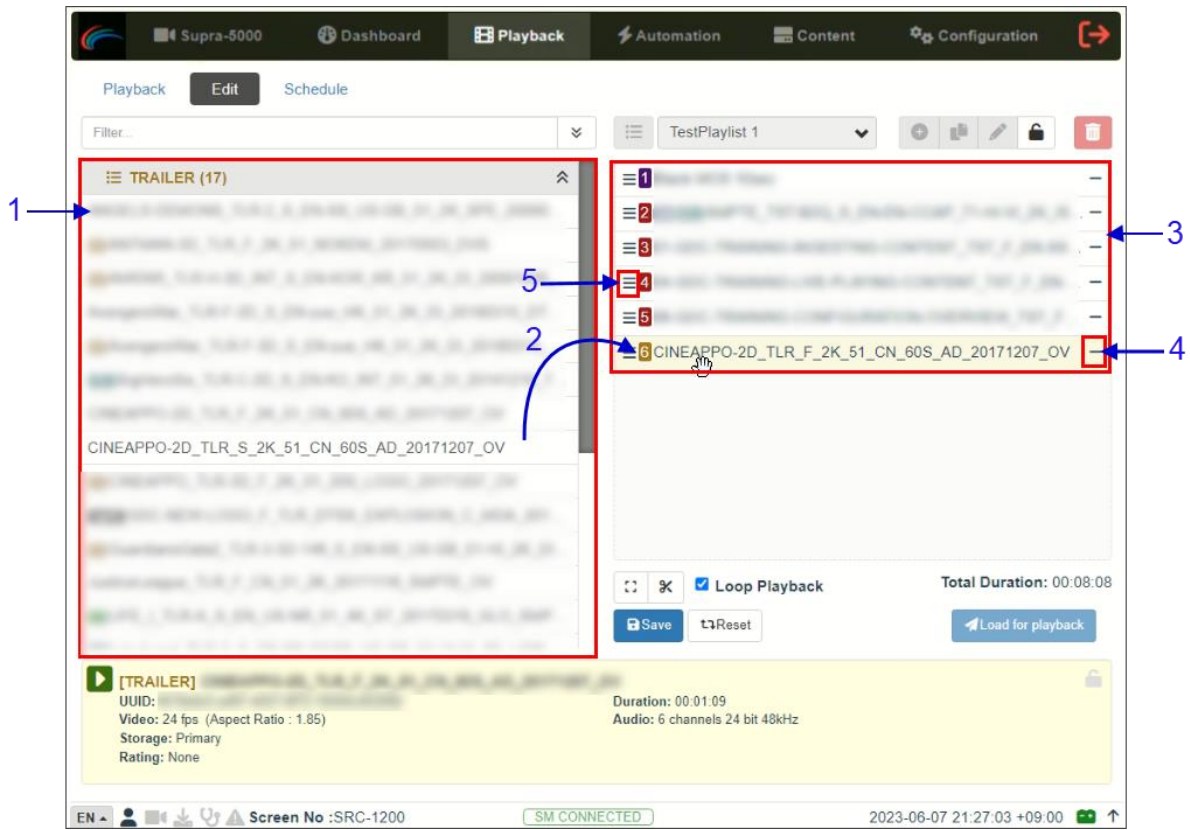
Figure 83: Create/Edit SPL

SN	Function Description
1	All compositions stored are listed in the Content List on the left. Compositions are grouped according to their types [*Trailer, Advertisement, Feature, etc*.] and listed alphabetically
2	Drag and drop the composition that needs to be added from the Content List to the Playlist Editor. Repeat the same step to add other compositions (e.g., trailers or advertisements) to the playlist
3	The order of the compositions in the playlist may also be changed by dragging and dropping them to the desired position.
4	You can remove compositions from the Playlist Editor column by pressing the ▬ button on the right end of that entry.
5	Clicking on the ☰ button against a particular clip in the playlist opens a pop-up window to edit the CPL properties of the selected clip. Refer to **Section 4.3.2.2** for more details.

Table 23

Please Note: It is recommended to insert a <u>10 second</u> 'Black MOS' DCP when switching from 3D to 2D content in an SPL in order to avoid video artifacts on screen.

4.3.2.2 Edit Composition Playlist (CPL) Properties

Additional functions can be applied to each composition by editing the CPL properties.
The 'Edit CPL Properties' pop-up window will be opened by clicking the ☰ (Edit Props) button on a particular clip in the Playlist Editor.

NOTE: The Edit Props button will be hidden if the selected playlist is locked.
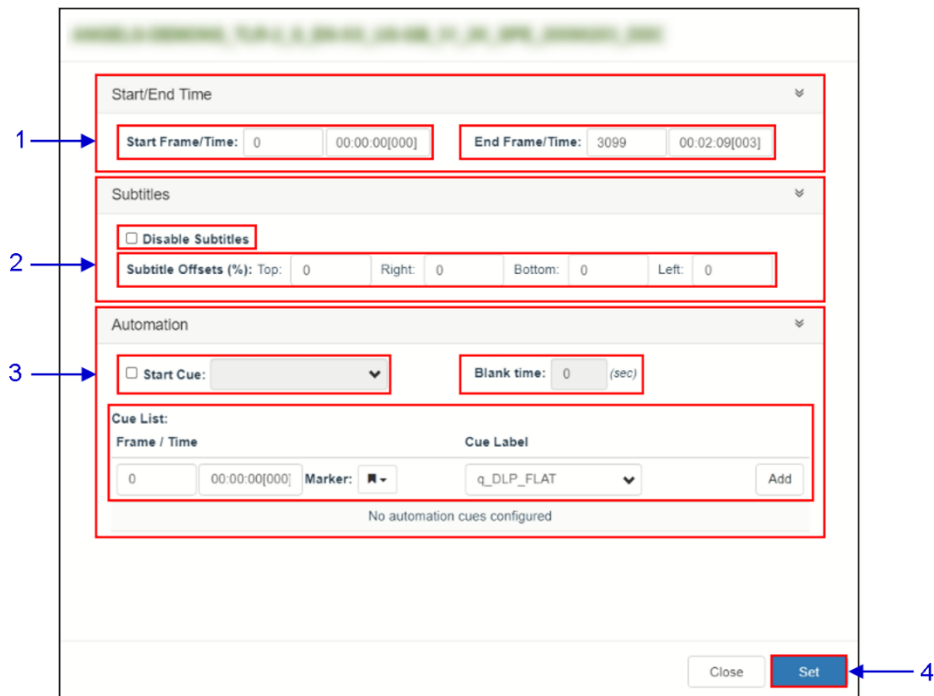
Figure 84: Edit CPL Properties

SN	Function Description	
1	[Start/End Time]	
	Start Frame/Time	Set the time code/frame number where playback of the clip starts.
	End Frame/Time	Set the time code/frame number where playback of the clip ends.
2	[Subtitles]	
	Disable Subtitles	You can disable subtitles for the clip by selecting the **Disable Subtitles** checkbox.
	Subtitle Offsets (%)	Set the **Top, Right, Bottom** and **Left** values to adjust the position of the subtitles projected.

3		[Automation]	
	Start Cue		When the **Start Cue** checkbox is selected, the automation cue to be executed at the start of the clip can be set.
	Blank time		This is enabled when the **Start Cue** option is selected. The time interval between the end of the start cue and the start of the clip playback can be set.
	Cue List		Sets automation cues to execute during playback. Select the **Cue label** from the dropdown list, enter the **Frame/Time** and click the **+** button to add the selected cue to the list. The **Cue List** will display the all the automation cues that have been added to the clip. To remove a cue from the list, click the **−** button against that cue.
4	**Set**		Save the changes to the CPL properties.

Table 24

4.3.2.3 Adding an Intermission

An Intermission can be added to a feature CPL on the DCMB, by using the 'Add Intermission' feature.
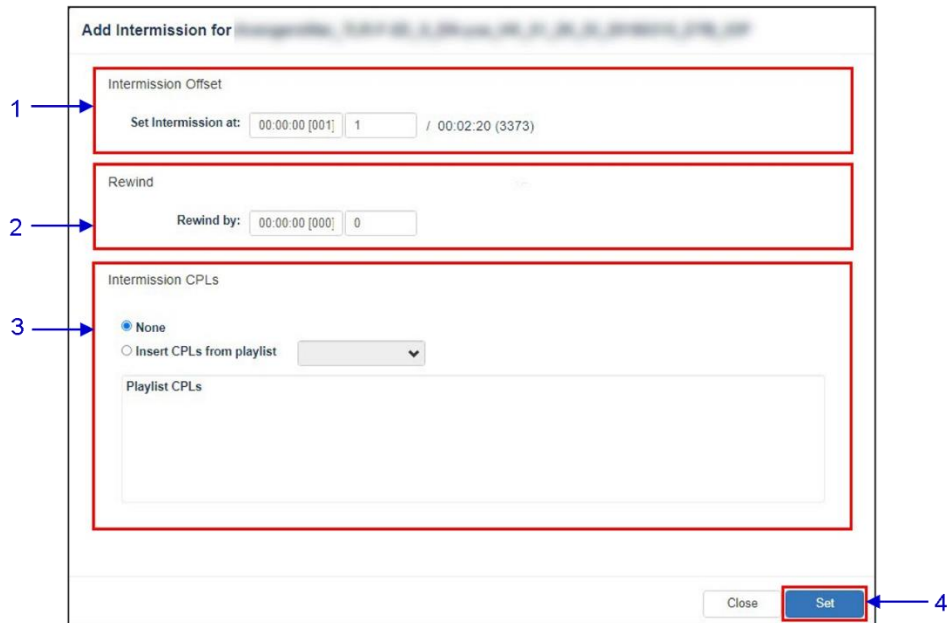
Figure 85: Add Intermission

SN	Name	Function Description
1	[Intermission Offset]	
	Set Intermission at:	Set the preferred time code or frame number where the intermission cut position should be set for the selected CPL.
2	[Rewind]	
	Rewind by:	Set the amount of time or number of frames to rewind the selected CPL before the intermission cut position, once the intermission playlist
3	[Intermission CPLs]	Choose the **Insert CPLs from playlist** option and select the desired Intermission playlist from the drop-down. **NOTE**: The Intermission playlist needs to be created and saved before adding the intermission to the feature CPL.

Table 25

4.3.2.4 Saving a Show Playlist
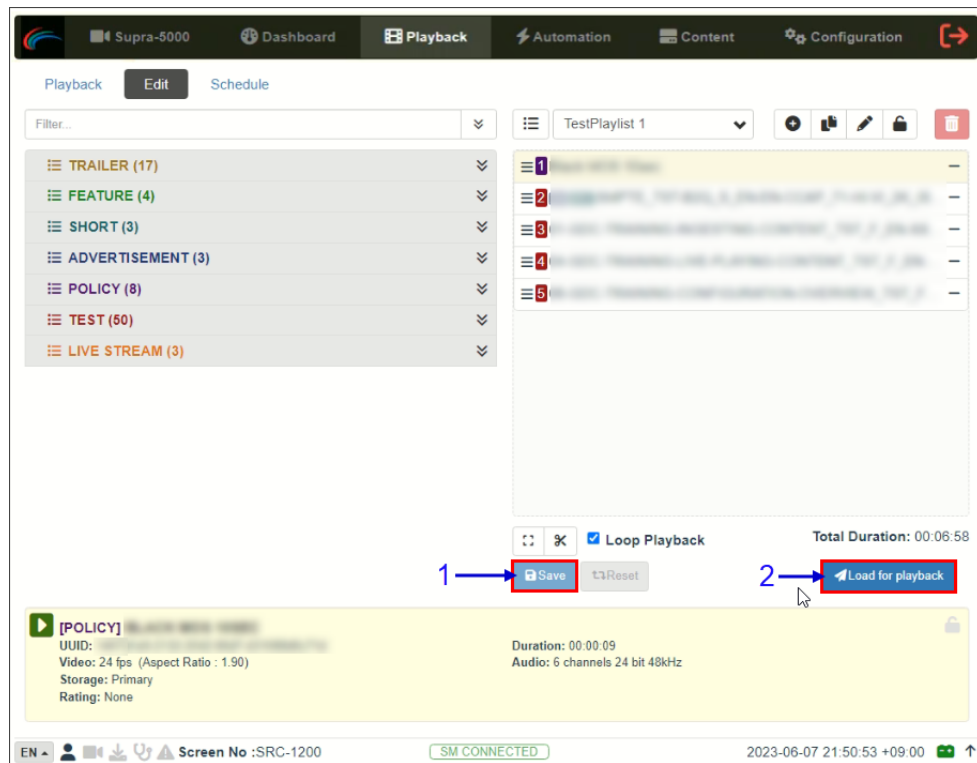
Figure 86: Loading an SPL for Playback

SN	Function Description
1	Click on the Save button to save the playlist. This ensures any changes to the playlist will not be lost.
2	Click on the Load for Playback button to load the newly created playlist to the Playback interface. **NOTE**: This button will remain disabled until the playlist is saved by clicking on the Save button.

Table 26

4.3.3 Playback → Schedule

The **Schedule** sub-tab is used to schedule playback.
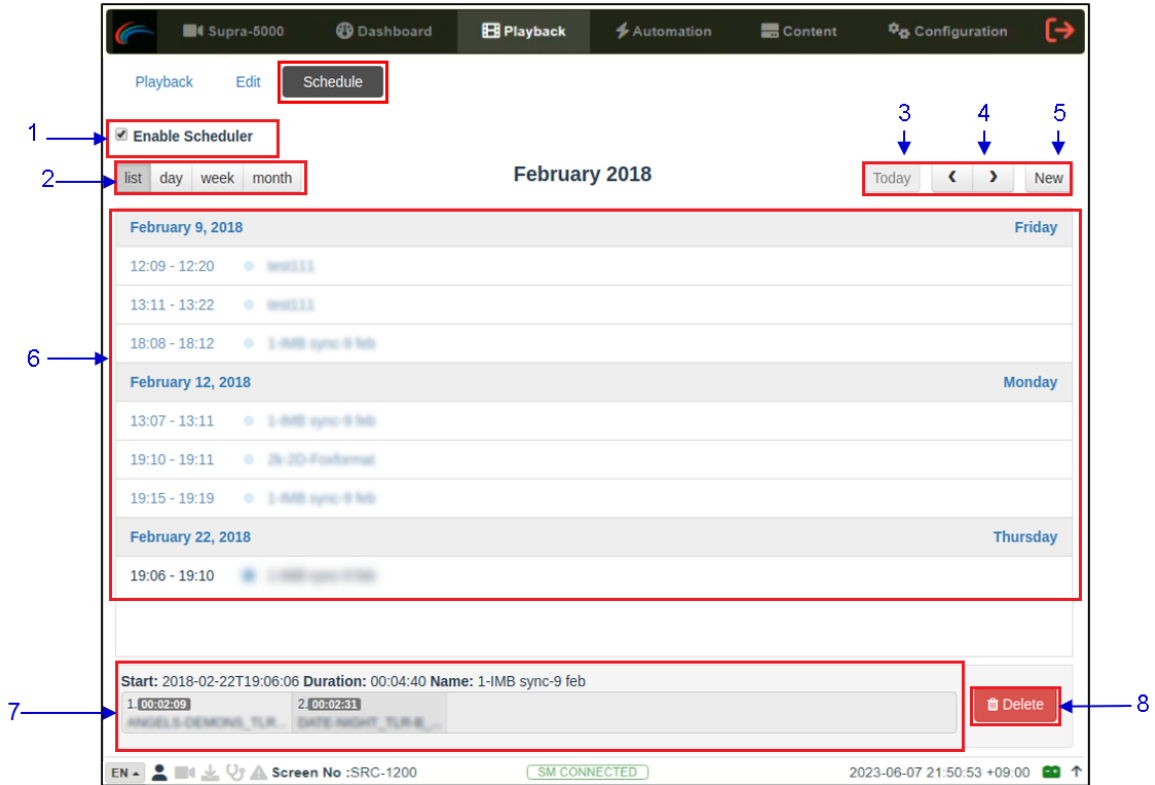
Figure 87: Playback → Schedule

SN	Name	Function Description
1	[Enable Scheduler]	Enable or disable the scheduler function. It is recommended to keep the scheduler enabled.
2	[List, Day, Week, Month]	Select to display the schedules on the DCMB in a list; per day, per week or per month.
3	[Today]	Switch back to the current day in month or week view.
4	[< Previous / > Next]	Displays the schedules of the previous or next day, week or month.
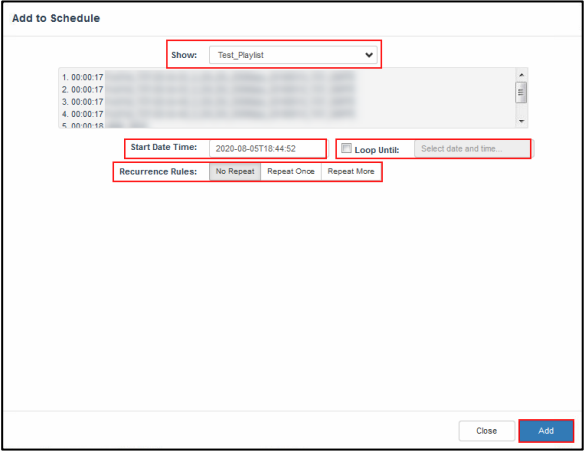
5	[New]	Add a new schedule. Select the Show and Start Date Time. You can also Loop the selected playlist until the selected date and time. Recurrence Rules by default is selected as *No Repeat*. User can select *Repeat Once* or *Repeat More* and enter further details. Click the Add button to add the schedule.
6	[Schedules]	Schedules are displayed here. The display will change as per the selected listing option [2].
7	[Schedule Details]	Displays the details of the selected show. **NOTE**: Only the selected schedule details will be displayed here.
8	[Delete]	Deletes the selected schedule.

Table 27

4.4 Automation

The **Automation** tab is used to set up automation cues and input triggers. Scheduling and manual triggering of automation cues can be done here.
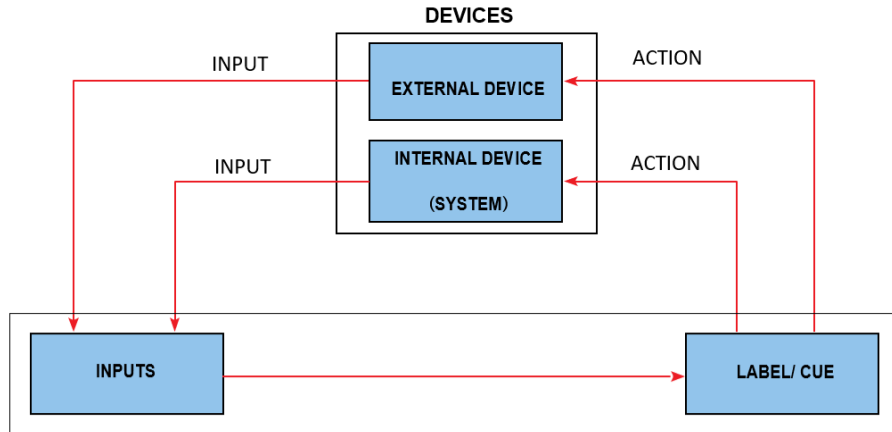
Figure 88: Automation Workflow

4.4.1 Automation → Trigger

The **Trigger** sub-tab can be used to manually trigger automation cues and commands for configured devices.
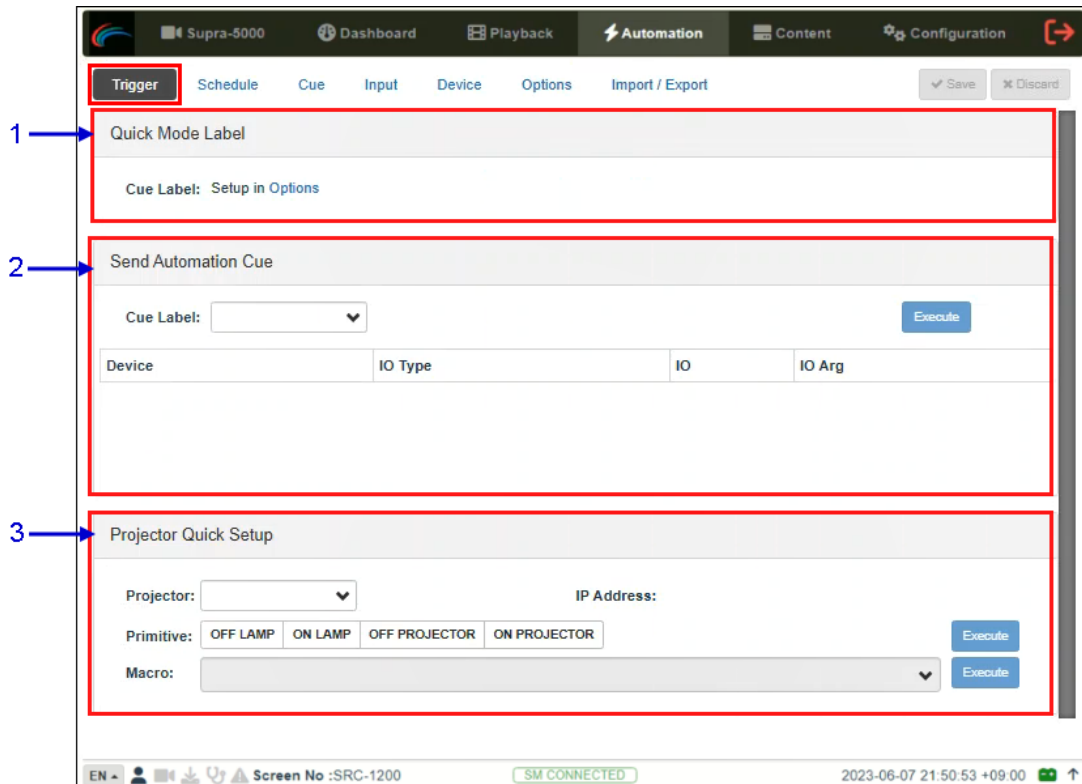
Figure 89: Automation → Trigger

SN	Name	Function Description
1	[Quick Mode Label]	An automation label can be configured to be easily triggered here. This label can be set in **Automation → Option** tab. (Refer to **Section 4.4.6**) Click the Execute button to execute the automation cue.
2	[Send Automation Cue]	This section is used to manually execute a configured automation label. Select a label and click the Execute button to execute the automation label manually.
3	[Projector Quick Setup]	This section can be used to directly execute automation commands and select macros for the Supra-5000 projector. Select a primitive or macro and click the Execute button to execute it manually.

Table 28

4.4.2 Automation → Schedule

The **Schedule** sub-tab can be used to schedule automation cues to execute at the specified date and time.
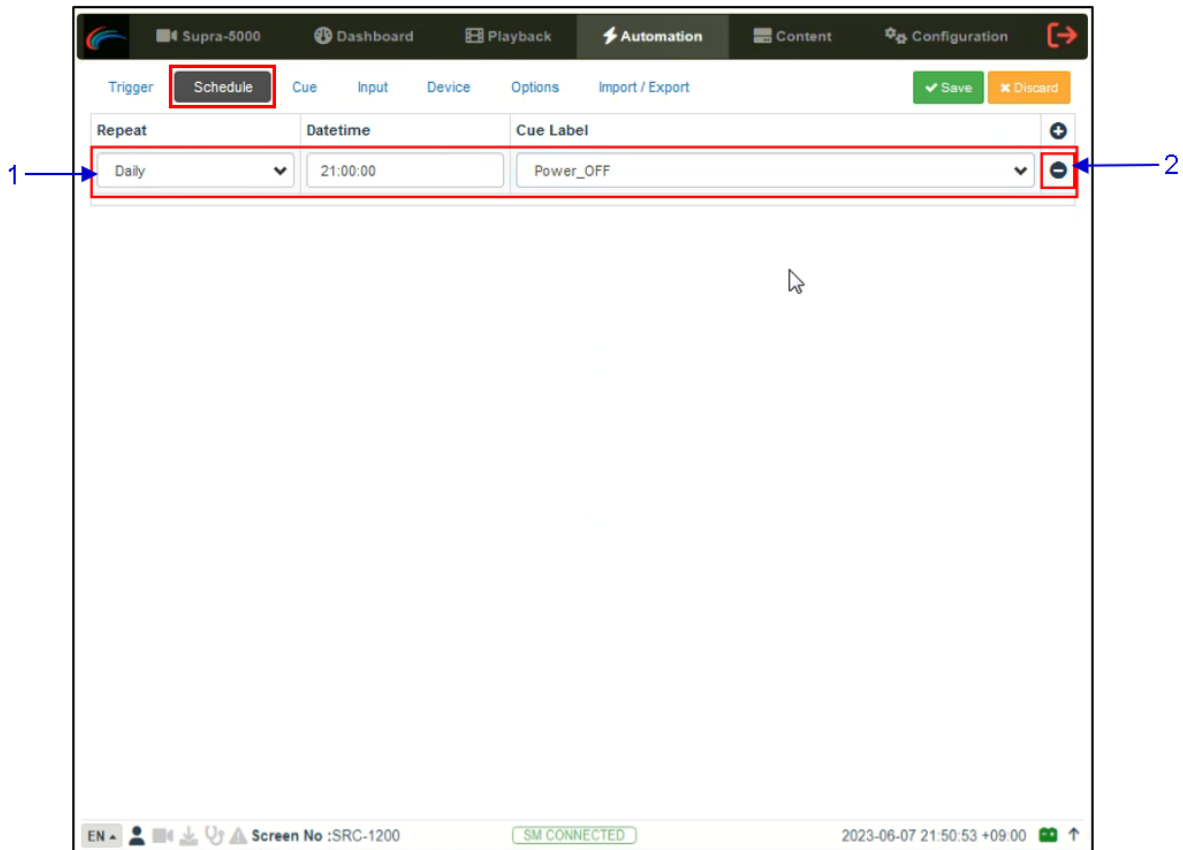
Figure 90: Automation → Schedule

SN	Name	Function Description
1	[+ Add Schedule]	Click + to add a new schedule. ▪ *Repeat*: Choose between *None* or Daily. ▪ *Datetime*: Select a specific date and time for the automation cue to be executed. ▪ *Cue Label*: The first cue in the cue list is added by default. Select from the drop-down list to select another cue. Click Save to save the added schedule or click Discard to remove.
2	[- Remove Schedule]	Click – to remove the selected scheduled automation cue.

Table 29

4.4.3 Automation → Cue

The **Cue** sub-tab lists down all the automation cues configured on the DCMB. New automation cues can be added and configured from this sub-tab.
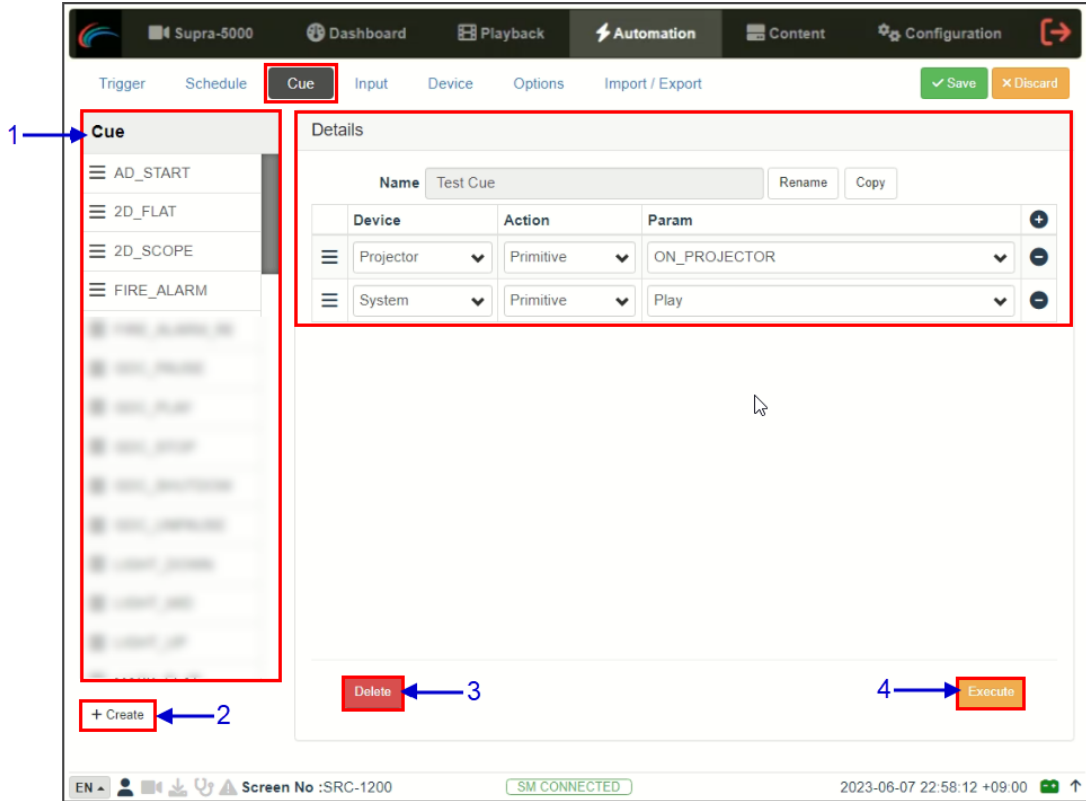
Figure 91: Automation → Cue

SN	Name	Function Description
1	[Cue]	A list of configured cues is displayed here. Cues can be rearranged by dragging and dropping. When a cue is selected from the list, the cue details are displayed. Click + to add actions or click – to remove actions. Click Execute to manually execute this automation cue.
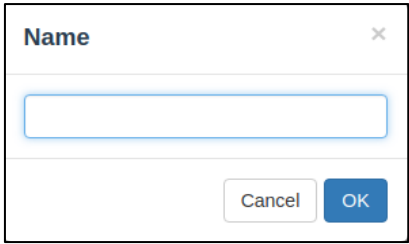
2	[+Create]	Click +Create to create a new cue. A pop-up window will be shown. Enter the name of the cue and click **OK**. ![Name dialog box with Cancel and OK buttons] Refer to **Section 4.4.3.1** for details regarding how to add a new automation cue.
3	[Delete]	Deletes the selected cue.
4	[Execute]	Executes the selected cue. This can be used to test the cue.

Table 30

4.4.3.1 Adding a new Automation Cue
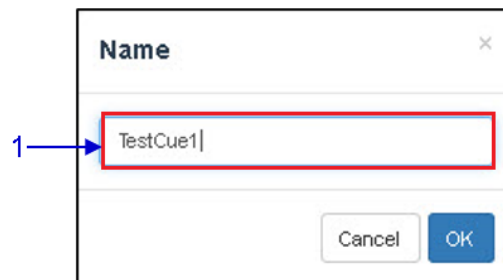
Figure 92: Add Automation Cue

SN	Description
1	Type in the name that needs to be assigned to the new cue being added and click on OK.
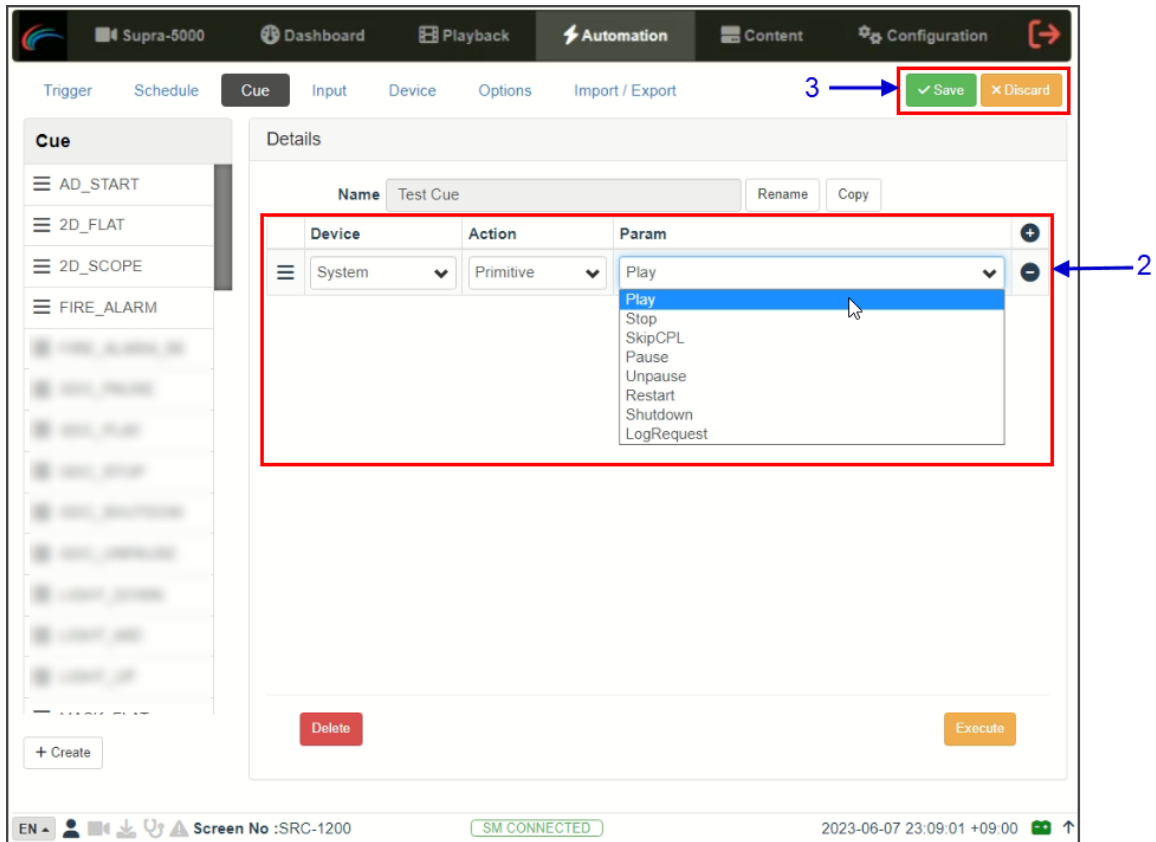
Figure 93: Add actions to Automation Cue

| 2 | Click + to add actions or click – to remove actions.

Select a device from the dropdown list as seen below. New devices can be added to the list from the Device tab.

a) If the selected Device is **'System'**, then the Action type will be **'Primitive'** or **'Switch Source'**.

 |

i) If **Primitive** is selected as the Action type, select the desired Param value from the drop-down as shown below:
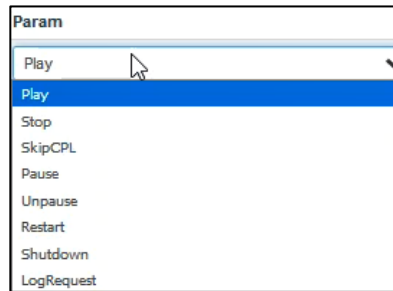
ii) If **Switch Source** is selected as the Action type, select the desired Param value from the drop-down as shown below:

b) If the selected Device is **'Timer'**, then the Action type will be **'Delay (ms)'.**
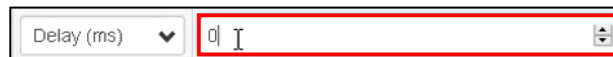
The user can specify the value (in *milliseconds*) under the Param option. This can be used to create a time delay between two consecutive actions within the cue.

c) If the selected Device is **'IMBGPIO'**, then the Action type can be **'Coil', 'Register'** or **'Level'**.
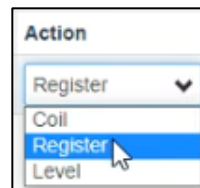
1. If **'Coil'** is selected as the Action type, only one pin can be selected at a time from the Param option:
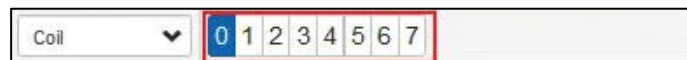
2. If **'Register'** or **'Level'** is selected as the Action type, multiple pins can be selected from the Param option. The number of pins selected (left section) will be the number of pins shown as enabled (right section). The user may select multiple pins (right section) based on the number of pins selected (left section).
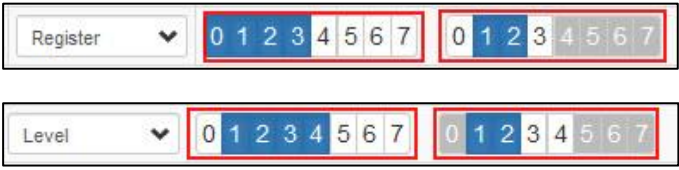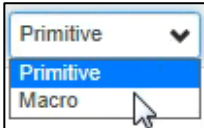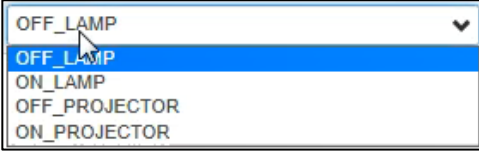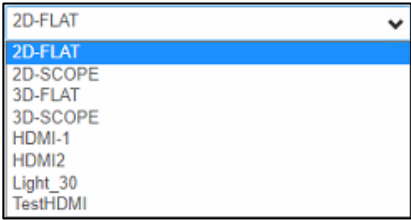
d) If the selected Device is **'Projector'**, then the Action type can be **'Primitive'** or **'Macro'**.

1. If **'Primitive'** is selected as the Action type, you can select the desired Param value from the drop-down as shown below:

2. If **'Macro'** is selected as the Action type, you can select the desired projector macro as the Param value from the drop-down.

3	Click on the Save button to add the new cue or click Discard to remove it.

Table 31

Please Note: In order to create a quick access button for a particular automation cue that can be accessed from the **Control** sub-tab under **Dashboard**. Insert the prefix "**q_**" before the actual cue name while creating a new automation cue (For cues that already exist on the DCMB, select the cue name and use the Rename option).

Save the changes by clicking on the **Save** button. A new quick access button should be created under the **Control** sub-tab, as shown in **Figure 94**.
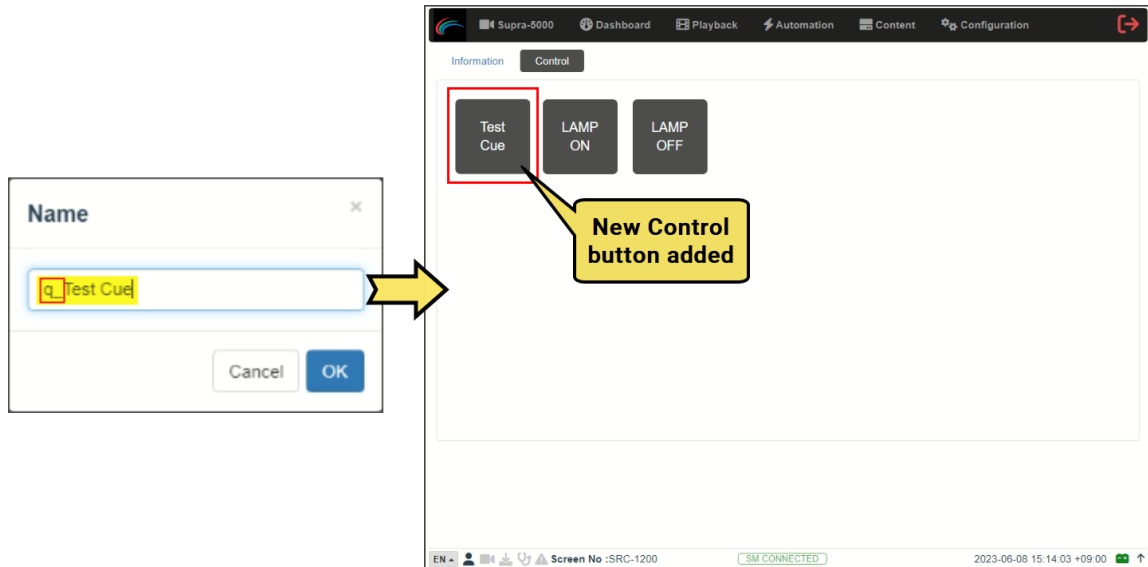
Figure 94: **Dashboard → Control**

4.4.4 Automation → Input

The **Input** sub-tab can be used to configure input automation triggers on the DCMB. When an input is detected from any of the supported devices, the configured automation cues will be triggered on the DCMB.
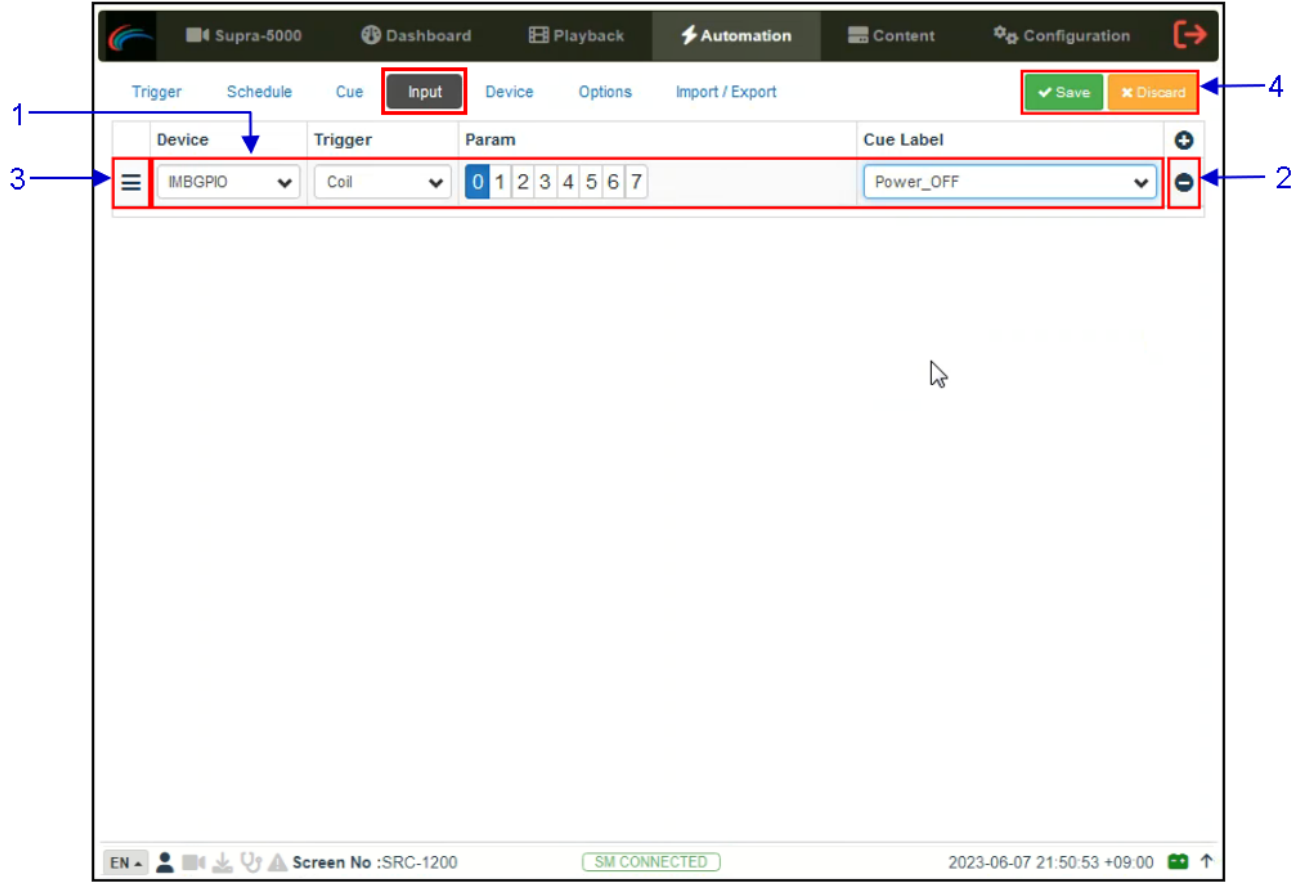
Figure 95: Automation → Input

SN	Name	Function Description
1	[+ Add Trigger]	Click **+** to add an input trigger. **NOTE:** Only devices capable of sending a signal to the DCMB can be added under Input. a) Select a Device from the list for the input trigger that needs to be set. b) Select a Trigger type, which can be **'Coil', 'High to Low'** or **'Low to High'** for the selected device:
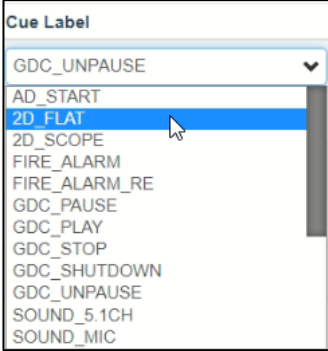
<table>
<tr><td></td><td></td><td>c)   Select the Param value from **'0 to 7'**. Only one pin can be selected at a time.

![Param selector showing 0 1 2 3 4 5 6 7 with 0 selected]

d)   Select an automation Cue Label that should be triggered for the selected device based on the selected trigger value:

![Cue Label dropdown showing GDC_UNPAUSE with list: AD_START, 2D_FLAT, 2D_SCOPE, FIRE_ALARM, FIRE_ALARM_RE, GDC_PAUSE, GDC_PLAY, GDC_STOP, GDC_SHUTDOWN, GDC_UNPAUSE, SOUND_5.1CH, SOUND_MIC]</td></tr>
<tr><td>2</td><td>[– Delete Trigger]</td><td>Click – to remove the selected input trigger.</td></tr>
<tr><td>3</td><td>[≡]</td><td>Click ≡ to reorder the input triggers using drag-and-drop.</td></tr>
<tr><td>4</td><td>[Save]/[Discard]</td><td>Click on the Save button to add the new input trigger or click Discard to remove.</td></tr>
</table>

Table 32

4.4.5 Automation → Device

The **Device** sub-tab can be used to configure the DCMB to communicate with external automation devices.
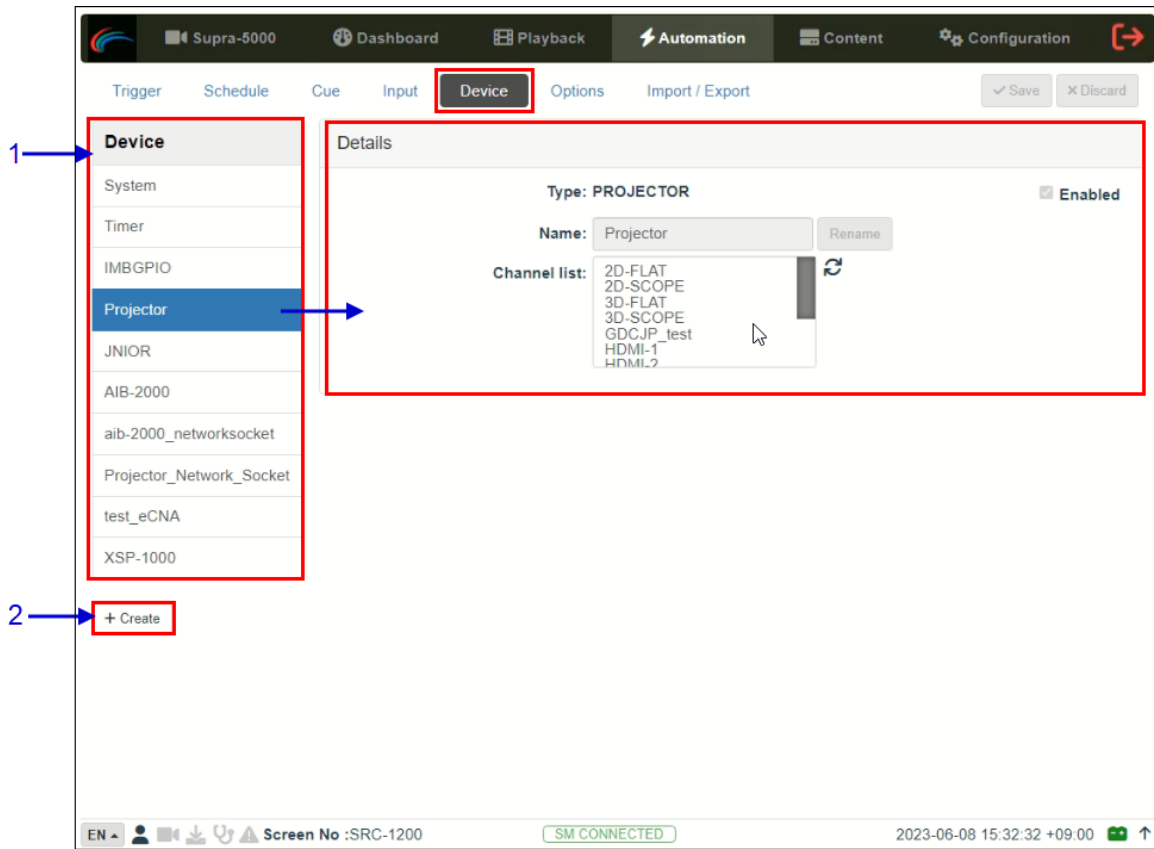
Figure 96: Automation → Device

SN	Name	Function Description
1	[Device]	This is a list of configured automation devices on the DCMB. When a device is selected from the list, device details are displayed under the Details section. **NOTE:** If the selected Device is **'Projector'**, then the Channel list will display all the macros (default and custom) which are listed under the 'Macro Settings' section under the **Supra-5000** tab, as shown below.
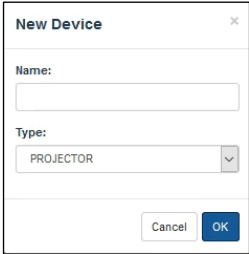
2	[+Create]	Click +Create to create a new device. Enter Device Name and select the device Type. Click OK to confirm or click Cancel to cancel adding devices. Refer to **Section 4.4.5.1** for more details on creating a new automation device.

Table 33

4.4.5.1 Creating a new Automation Device
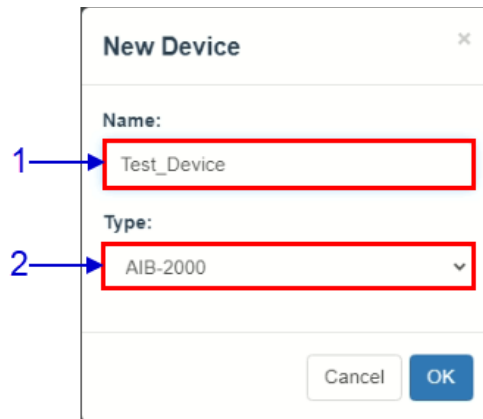
Figure 97: Add Automation Device

SN	Name	Function Description
1	[Name]	Type in the name that needs to be assigned to the new device being added.
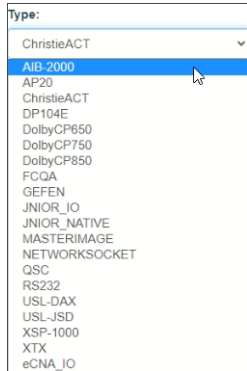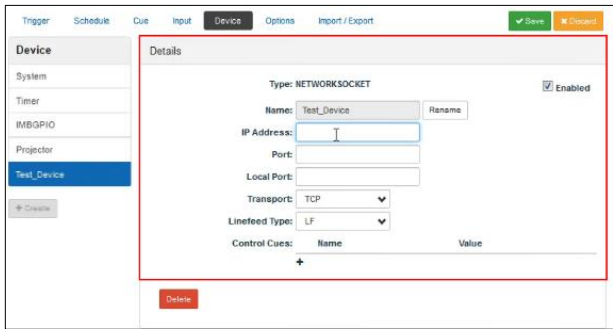
2	[Type]	After adding the device name, assign the type of device you want to use. Select from a dropdown list as seen below: After clicking the OK button, the device is registered and added to the device list. But it may not be properly configured yet. Select the device from the Device list and fill in all the required parameters in detail to complete device configuration.

Table 34

NOTE: For more information regarding configuration of different automation devices with the Supra-5000 projector, refer to the Espedeo Supra-5000 Installation Manual.

4.4.6 Automation → Option

The **Options** sub-tab can be used to configure automation cues that will be triggered on DCMB boot-up and when content playback errors occur.
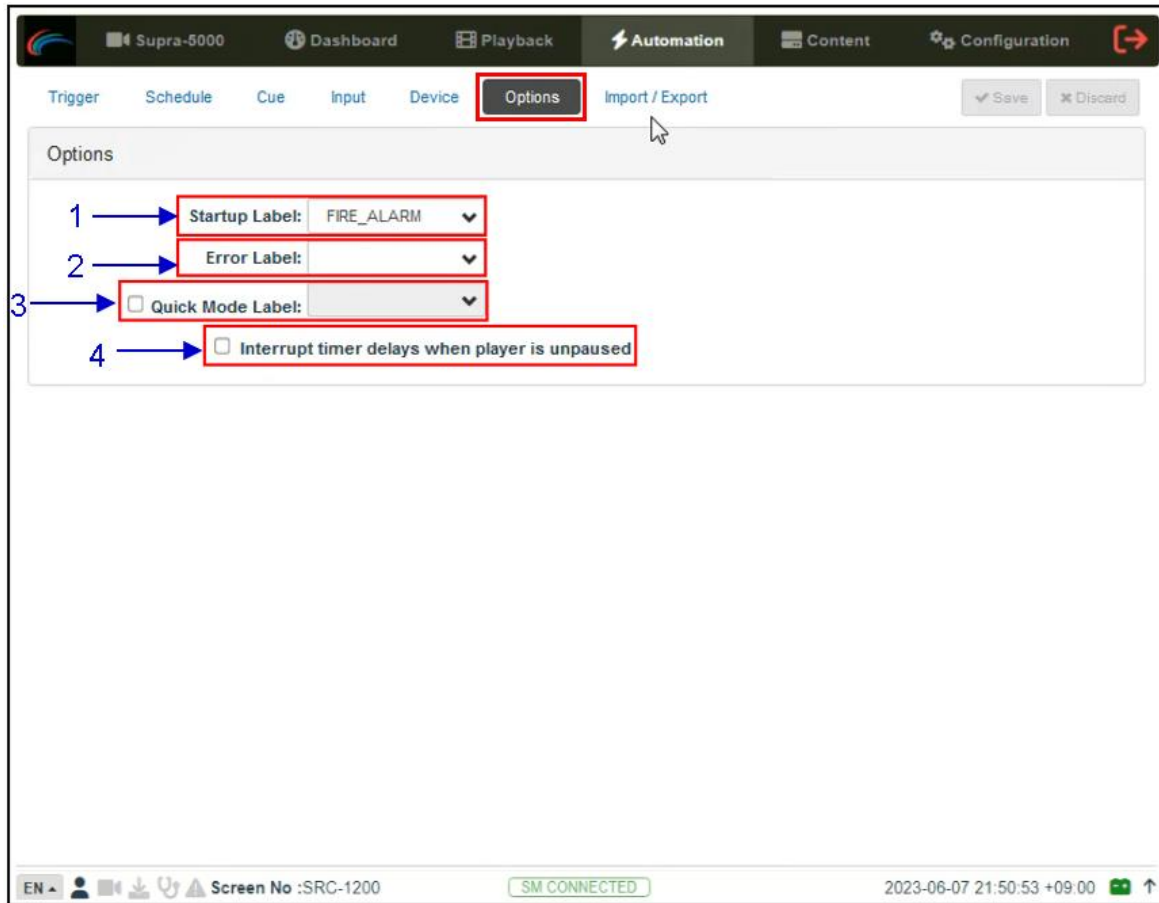
Figure 98: Automation → Options

SN	Name	Function Description
1	[Startup Label]	Select a specific automation cue that will be executed when the DCMB fully boots up
2	[Error Label]	Select a specific automation cue that will be executed whenever a playback error occurs.
3	[Quick Mode Label]	Enables selection of a specific automation cue which can be triggered quickly using the Execute button under the **Quick Mode Label** section of the **Trigger** sub-tab.
4	[Interrupt timer delays when player is unpaused]	When this option is selected and the user clicks the Unpause button under the **Playback** sub-tab, the next action in the automation cue will be executed immediately without waiting for the Timer delay to complete.

Table 35

4.4.7 Automation → Import/ Export

The **Import/Export** sub-tab allows you to import and export the automation cues that have been setup on the DCMB.
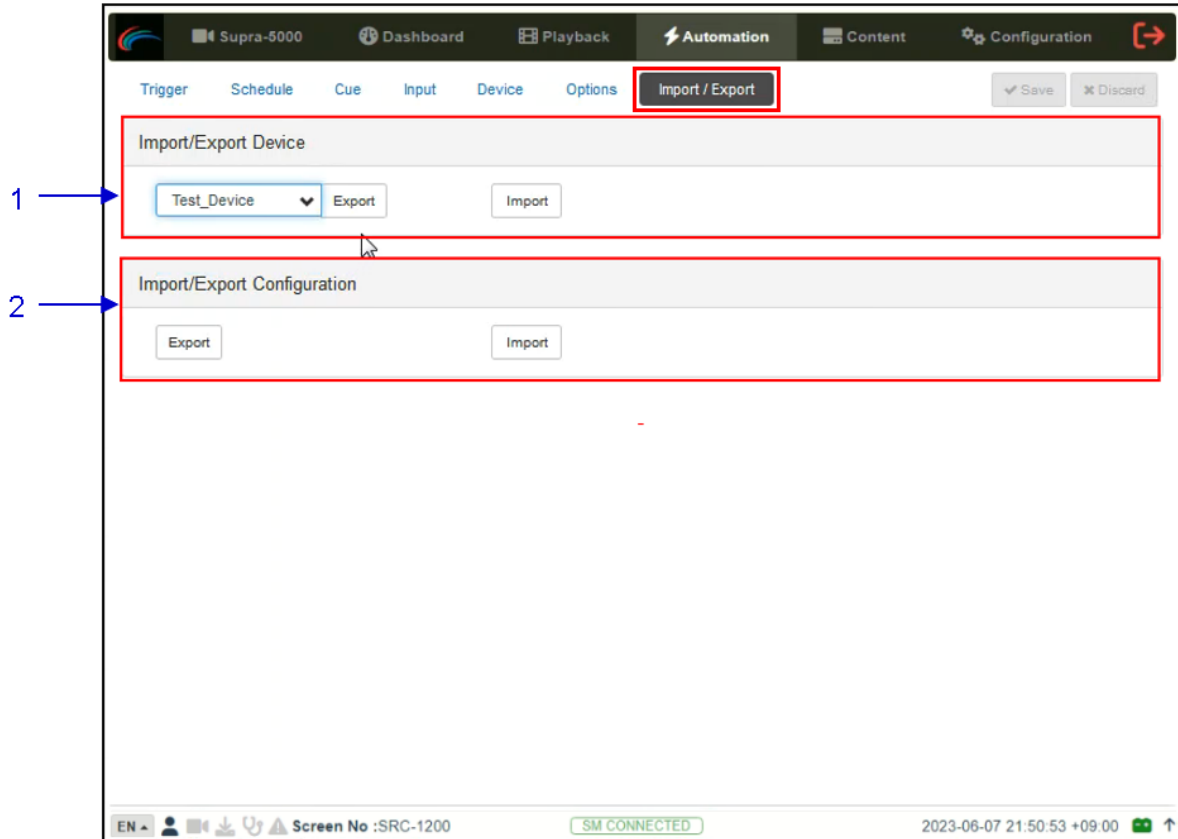
Figure 99: Automation → Import/Export

SN	Name	Function Description
1	[Import/Export Device]	Import opens a pop-up window that allows the user to select a configuration file for the selected automation device. Export automatically saves the configuration file for the selected automation device to your web browser's default download location.
2	[Import/Export Configuration]	Import allows the user to select a configuration file containing all automation cues from an alternate DCMB. Export automatically saves the configuration file containing all automation cues to your web browser's default download location.

Table 36

4.5 Content

The **Content** tab is used to manage the content, KDMs and licenses on the DCMB. It allows you to perform the actions listed below:

- *Ingest content from disk or network source.*
- *Ingest Key Delivery Messages (KDMs) are required for playing encrypted content.*
- *Ingest License Delivery Messages (LDMs).*
- *Delete content from DCMB storage.*
- *Verify content on DCMB storage.*

4.5.1 Content → Summary

The **Summary** sub-tab shows a summary of the content and the storage space on the DCMB.
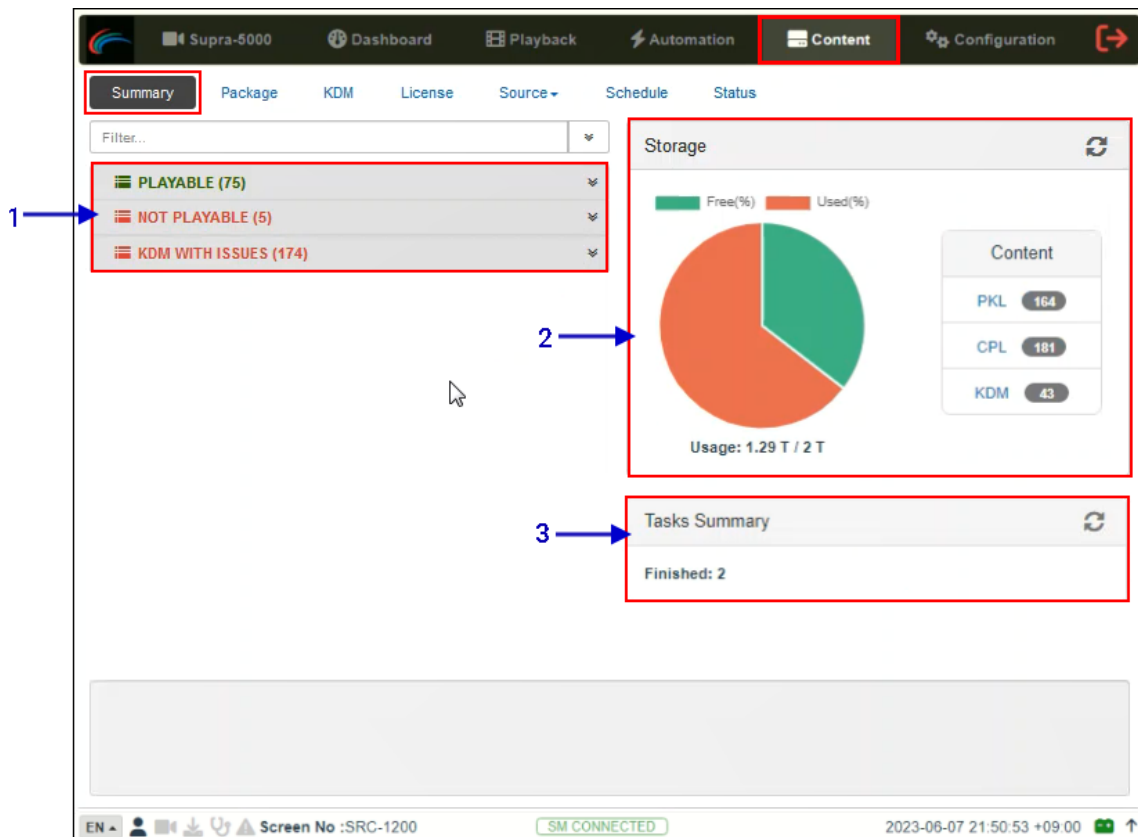
Figure 100: Content → Summary

SN	Name	Function Description
1	[Playable/Not Playable/KDM with Issues List]	Displays a list of playable and non-playable content which are currently present on the DCMB, along with the list of KDMs with issues.

2	[Storage]	Shows a graphical overview of the number of PKL, CPL, KDM present on the DCMB. It also displays storage usage and capacity. Click the ⟳ Refresh button to update the displayed information.
3	[Tasks Summary]	Displays the summary of all content-related tasks on the DCMB.

Table 37

4.5.2 Content → Package

The **Package** sub-tab displays the content which has been ingested into the local storage of the projector and is available to the DCMB.
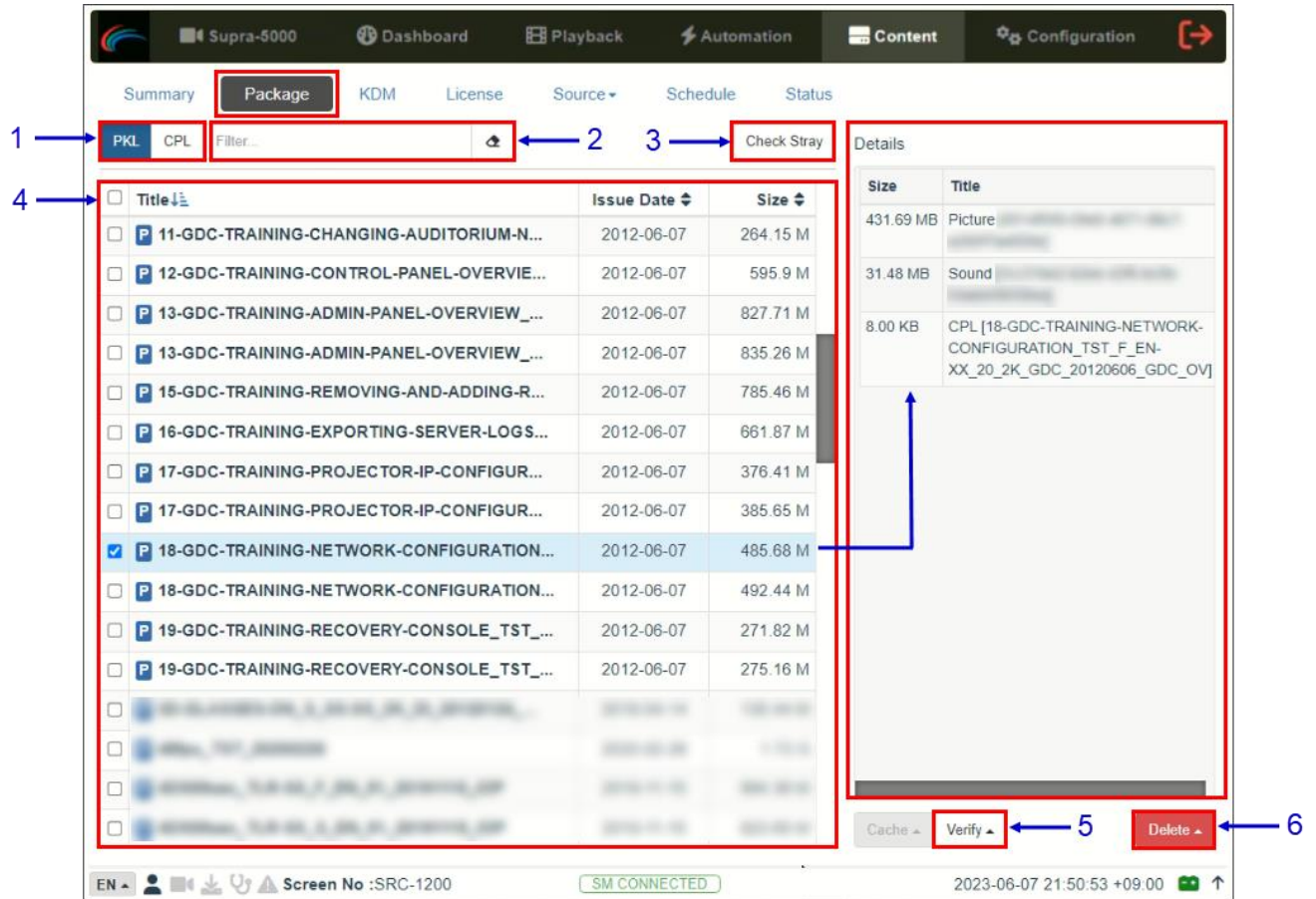
Figure 101: Content → Package

SN	Name	Function Description
1	[PKL/CPL]	Displays list by CPLs or Packing List Files (PKLs).
2	[Filter]	PKL/CPL list will be filtered by the text entered here. Click [⌫] Clear Filter button to clear the search text entered.
3	[Check Stray]	Click Check Stray to detect and delete any of the stray files from deleted PKLs and CPLs.

4	[Content List]	Displays the list of content available on the DCMB. Clicking on the headers (*Title, Issue Date and Size*) can change how the displayed list of CPLs/PKLs is sorted. When any clip is selected, PKL/CPL details will be displayed under the 'Details' section on the right.
5	[Verify]	Verify the integrity of the selected content. There are 3 options available: **Quick Verify, Immediately Verify and Schedule Verify**. Refer to **Section 4.5.2.1** for more details.
6	[Delete]	The following content delete options are available: **Immediately Delete and Schedule Delete.** Refer to **Section 4.5.2.2** for more details.

Table 38

4.5.2.1 Checking Content Integrity
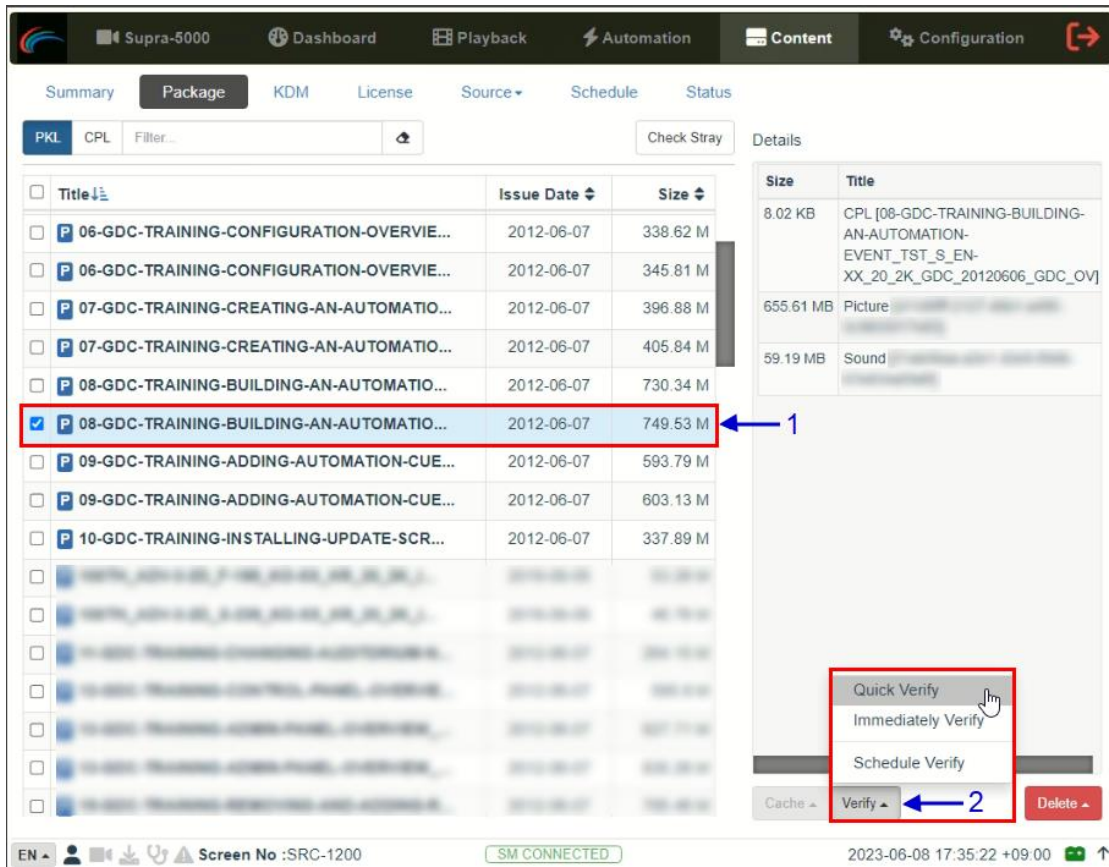
Figure 102: Content Verify

SN	Function Description
1	To verify the integrity of a package or CPL, go to the **Package** sub-tab and select the checkbox against the package or CPL that needs to be verified. The PKL/CPL details will be displayed under the 'Details' section on the right.
2	Click on the Verify button. There are 3 ways in which content can be verified: a) **Quick Verify**: The selected content gets quickly verified. The verification status will be displayed under the **Status** sub-tab. The Green "OK" indicates no error is found. Otherwise, the description of the error will be shown.
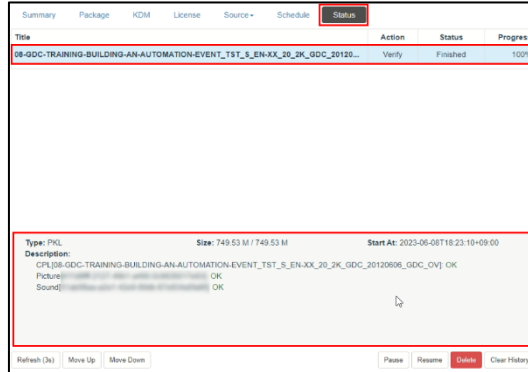
b) **Immediately Verify**: Immediate full verification of the selected CPL/PKL. The Verification status will be displayed under the **Status** sub-tab.
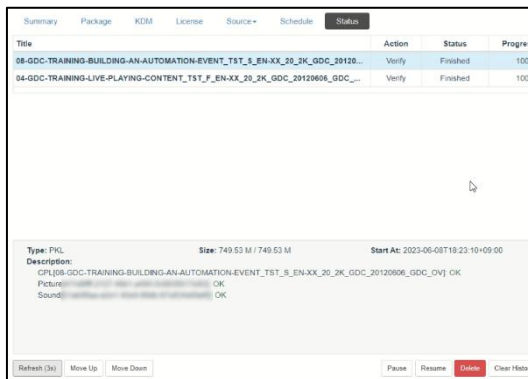
c) **Schedule Verify**: Set a date and time for full verification of the selected CPL/ PKL. A pop-up window will be shown to provide details for the schedule. Provide a **Name** for the schedule being created.
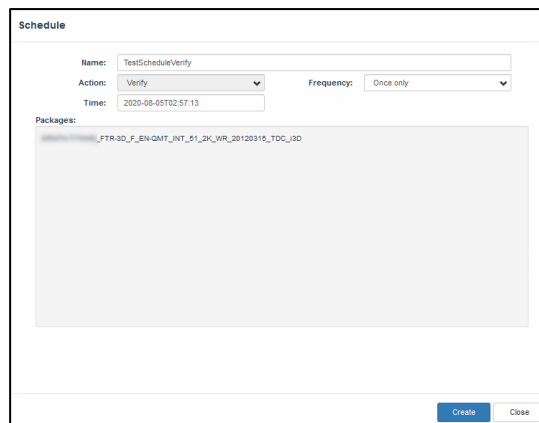
Select the Frequency and Date and Time for the schedule

Click on the **Create** button to schedule the verification. The scheduled verification will be displayed under the **Schedule** sub-tab, as shown below. To delete this schedule, click on the Delete button.

NOTE: If there is an error in the selected package, it will indicate "*Failed*" under the 'Status' column.

Table 39

4.5.2.2 Deleting Content

Figure 103: Deleting Content

SN	Function Description
1	To delete a package or CPL, go to the **Package** sub-tab and select the checkbox against the package or CPL that needs to be deleted. The PKL/CPL details will be displayed under the 'Details' section on the right.

2	Click on the Delete button to delete the selected package or CPL. You can either choose **Immediately Delete** or **Schedule Delete**.

a) **Immediately Delete**: This option can be used to immediately delete the selected PKL/CPL. A pop-up window is shown to confirm the deletion of the package. Click on Confirm to delete content or click Close to cancel.

b) **Schedule Delete**: Set a date and time to delete the selected PKL/CPL. A pop-up window will be shown to provide details for the schedule. Provide a **Name** for the schedule being created.
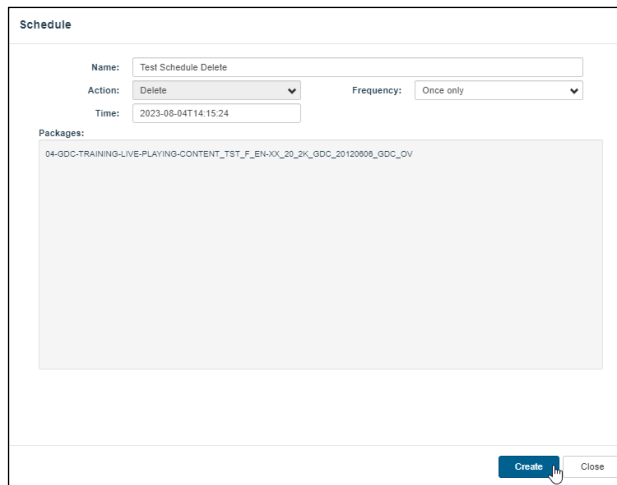
Select the Frequency and Date and Time for the schedule
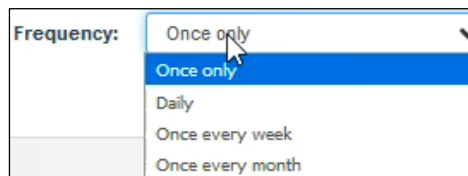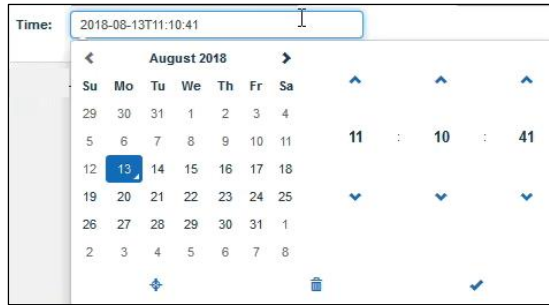
Click on the **Create** button to schedule the deletion. The scheduled deletion will be displayed under the **Schedule** sub-tab, as shown below. To delete this schedule, click on the Delete button.

Table 40

4.5.3 Content → KDM

The **KDM** sub-tab displays all the KDMs present on the DCMB.
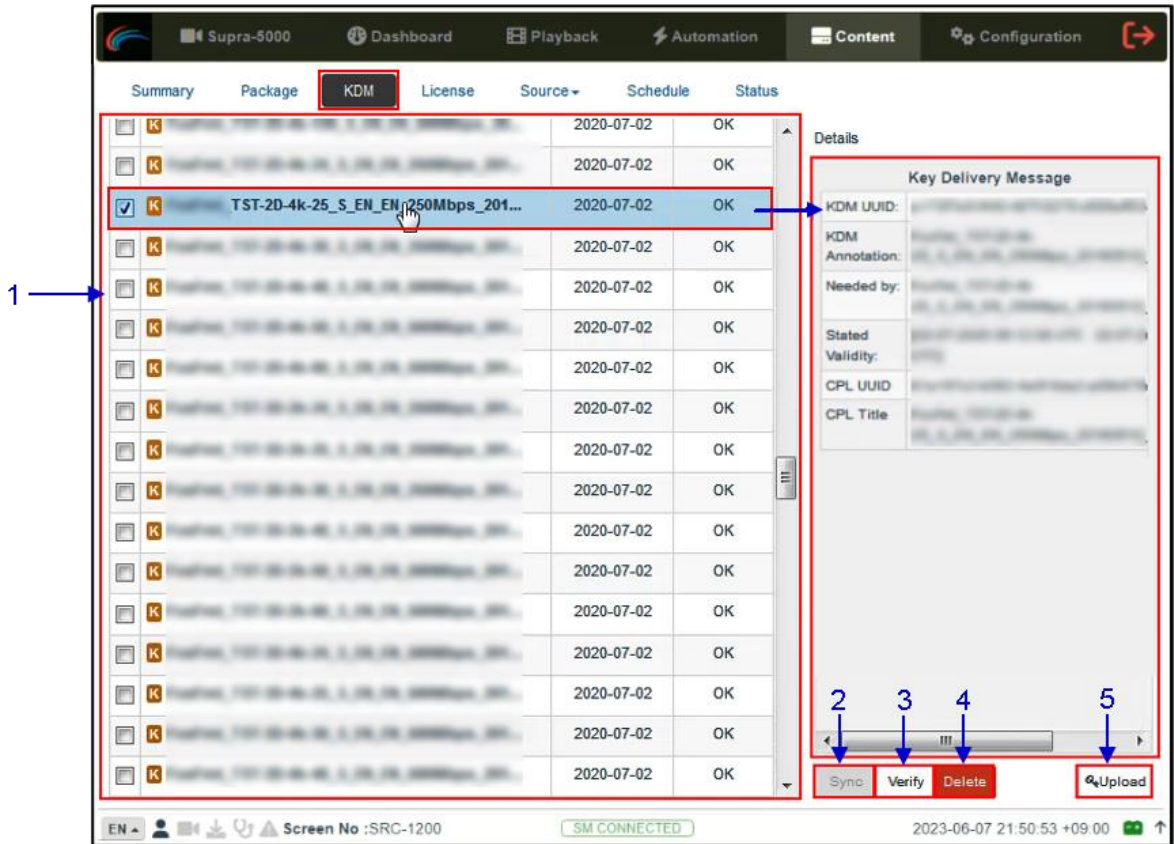
Figure 104: Content → KDM

SN	Name	Function Description
1	[KDM List]	Displays a list of the KDMs on the DCMB. When a KDM is selected from the list, KDM details are displayed on the right panel.
2	[Sync]	When the status displays 'Not in SM", click the Sync button to synchronize the KDM to the SM.
3	[Verify]	Verifies the selected KDM. Any errors found will be displayed. The verification status will be displayed under the **Status** sub-tab.
4	[Delete]	Deletes the selected KDM from the DCMB. The deletion status will be displayed under the **Status** sub-tab.

| 5 | [Upload] | Upload KDM files (*.kdm*) directly using the Web UI.
A pop-up window is shown.

Click on the Choose file button to select the KDM file(s) from the folder where it has been downloaded and click on Open.

 |

Table 41

4.5.4 Content → License

The **License** sub-tab displays the list of licenses on the DCMB.
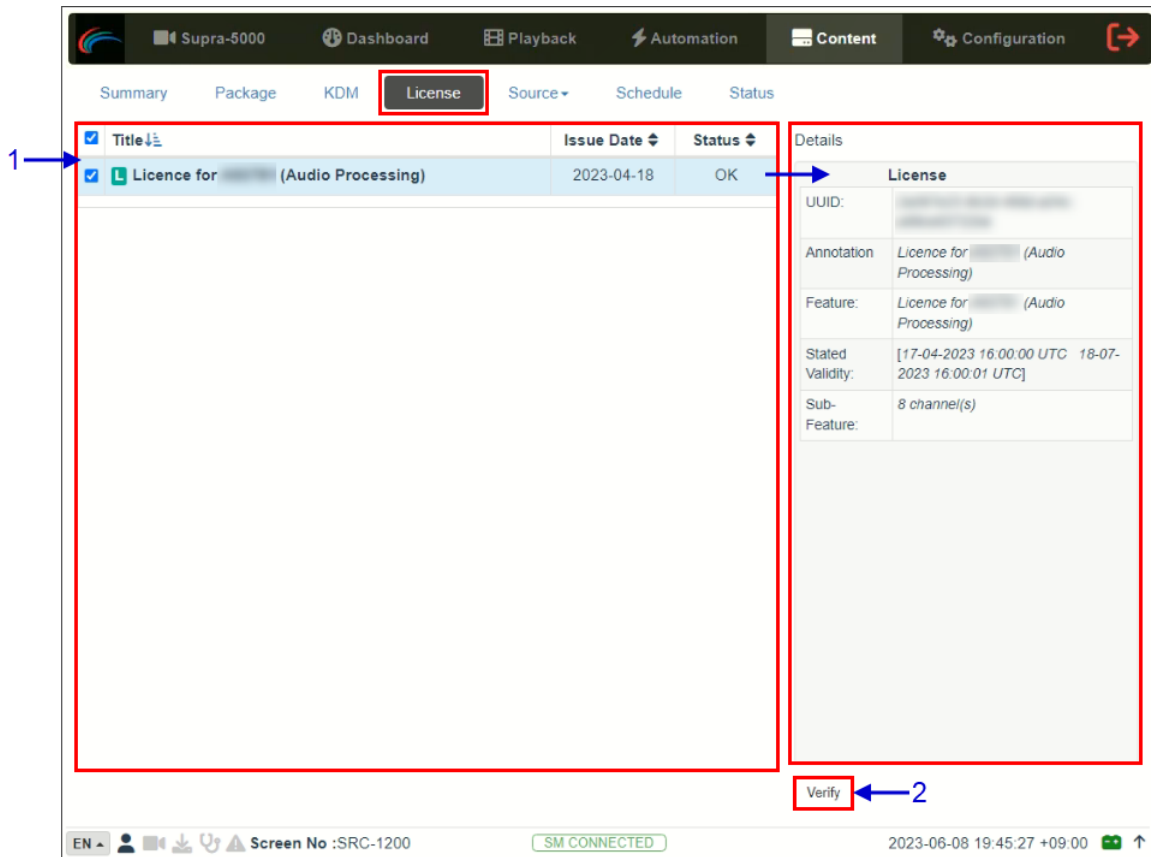
Figure 105: Content → License

SN	Name	Function Description
1	[LDM List]	Displays a list of licenses installed on the DCMB. When an LDM is selected from the list, LDM details are displayed on the right panel.
2	[Verify]	Verify that the LDM is valid. Any errors found will be displayed. The verification status will be displayed under the **Status** sub-tab.

Table 42

Please Note: After installing a license, a system alert will be displayed for rebooting the DCMB. It is recommended that the DCMB should be rebooted after installing a license.

4.5.5 Content → Source

The **Source** sub-tab is used to configure and manage the content ingest sources of the DCMB. There are two options available under this tab: **Ingest** and **Manage**.
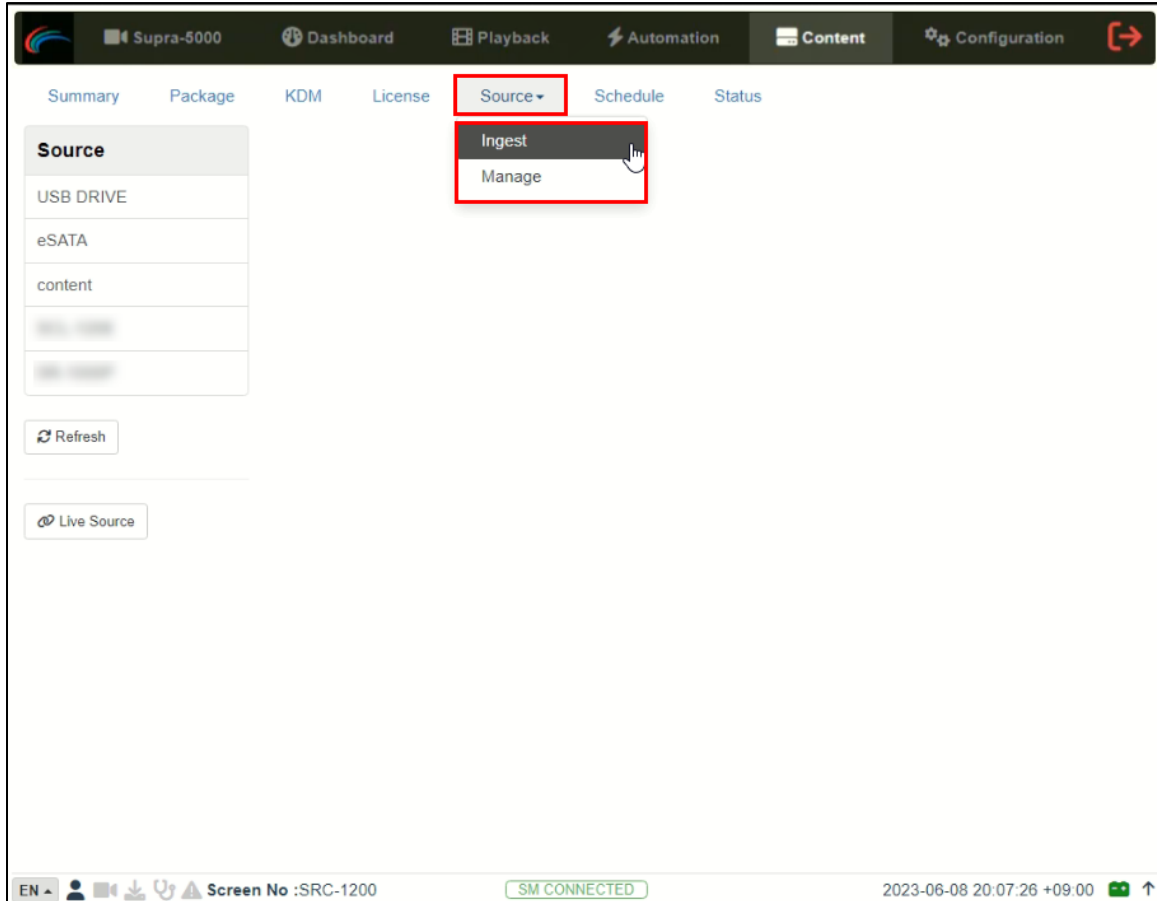
Figure 106: Content → Source options

4.5.5.1 Ingest Source

The **Ingest** screen displays the list of sources from which the user can choose to ingest content. The options listed on this screen should be used to perform ingest operations on a daily basis.
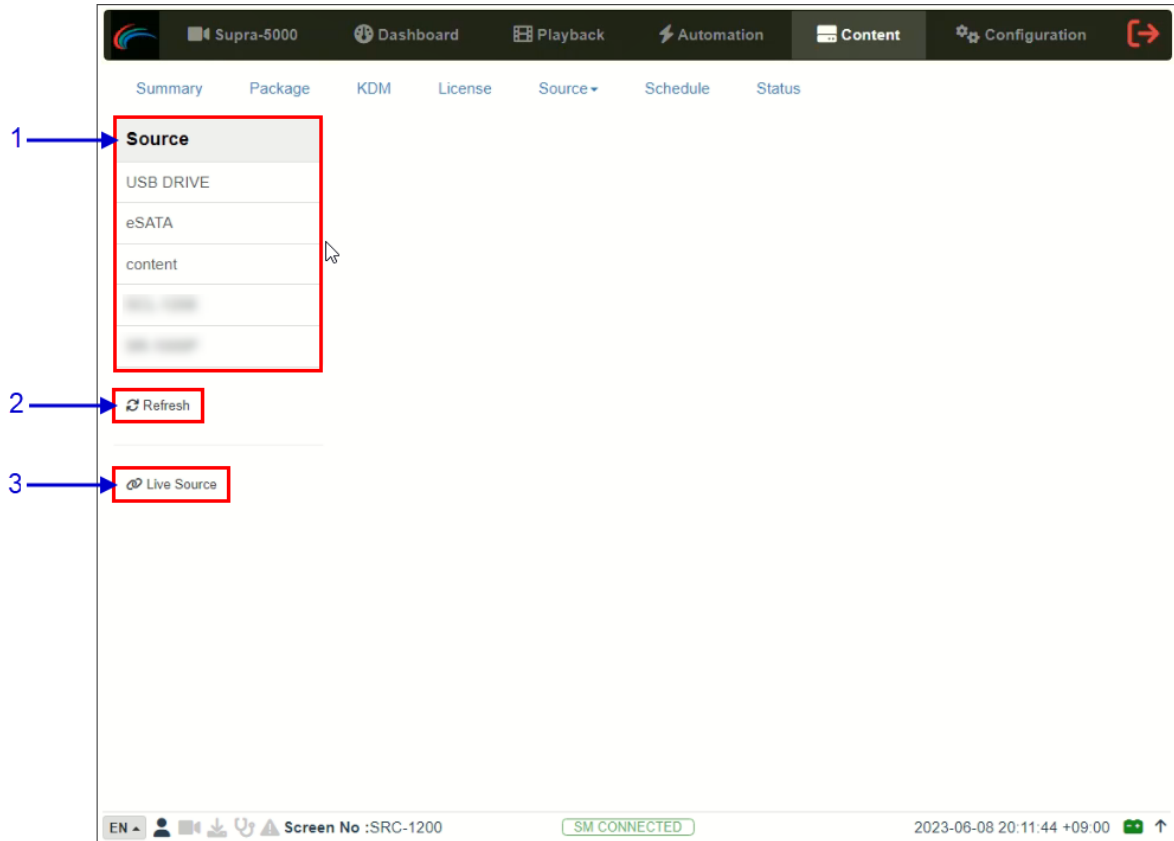
Figure 107: Content → Source → Ingest

SN	Name	Function Description
1	[Source]	Displays a list of configured content ingest sources on the DCMB.
2	[Refresh]	Click Refresh to refresh the list of content ingest sources
3	[Live Source]	Displays the list of content for Live Play. Refer to **Section 4.5.5.1.3** for more details.

Table 43

4.5.5.1.1 Ingesting Content from a USB Drive
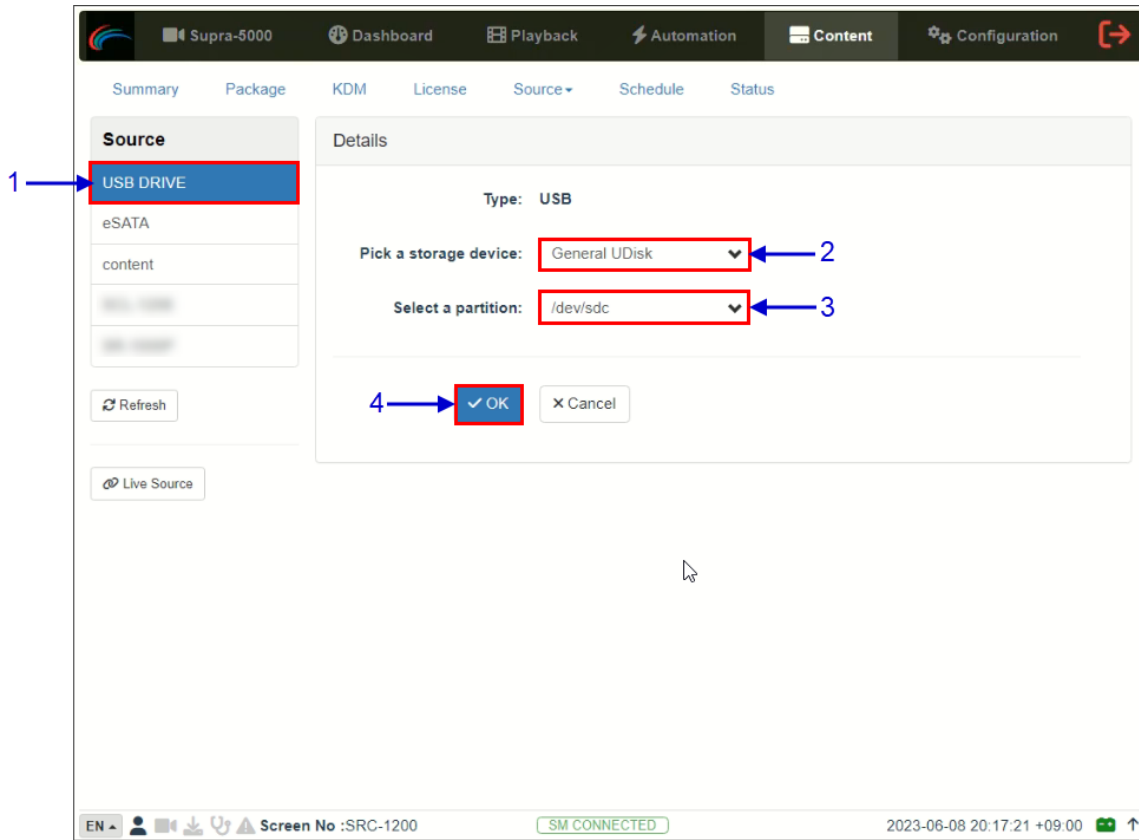
Figure 108: Ingesting Content from USB disk (1)

SN	Function Description
1	Select 'USB DRIVE' from Source list.
2	Under the 'Details' section; select the drive name assigned to the USB Disk, from the Pick a storage device: drop-down
3	Select the drive partition assigned to the USB Disk by the DCMB from the Select a partition: drop-down
4	Click OK to mount the content ingest source and select the content to be ingested.
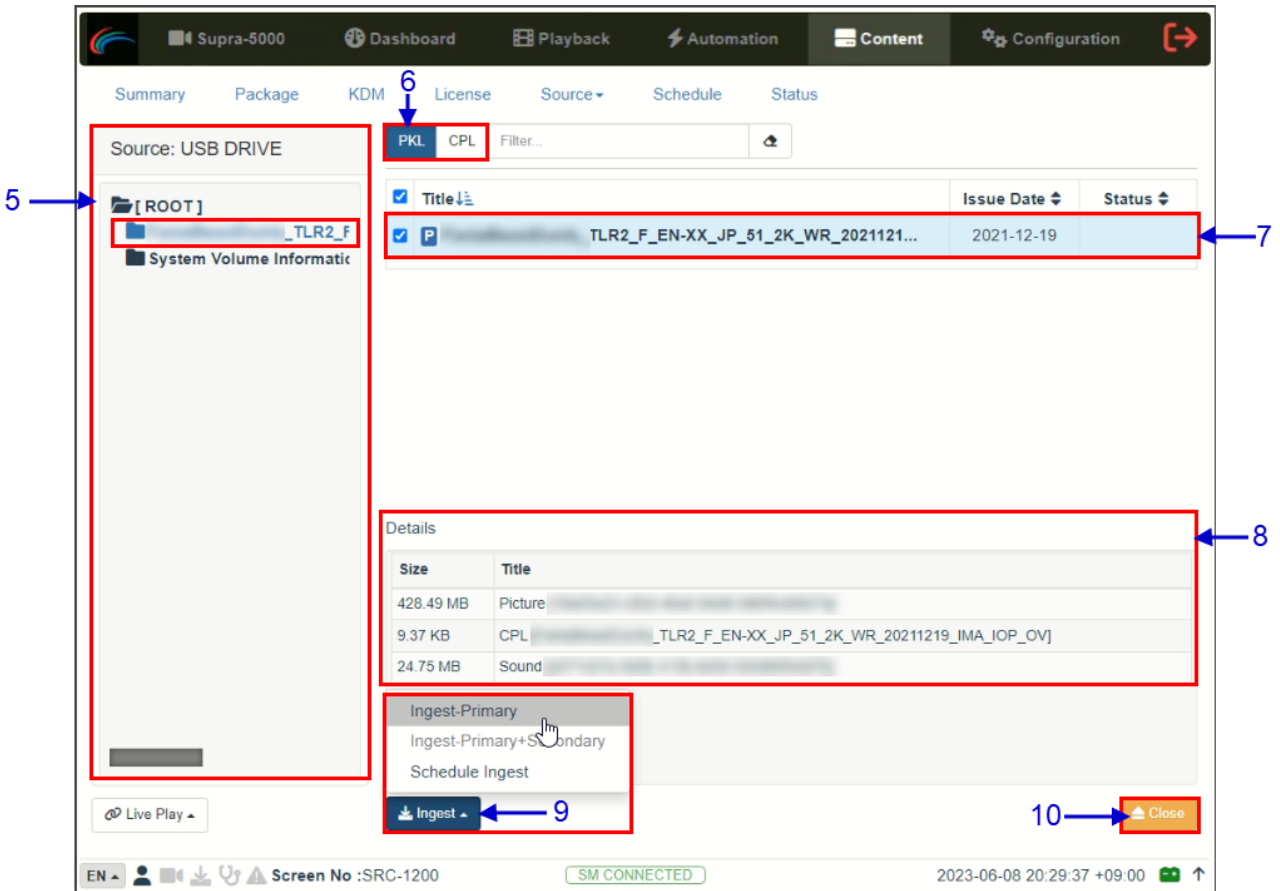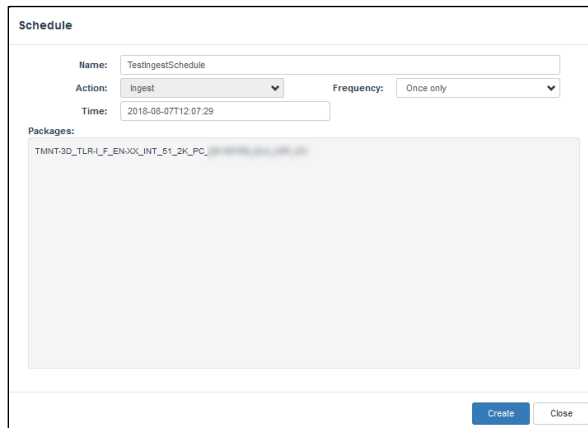
Figure 109: Ingesting Content from USB disk (2)

5	Browse the selected source and select the directory where the package is located. The list of packages in the directory will be displayed on the top right section of the screen.
6	This button can be used to toggle between the PKL/CPL list displayed below. The Filter option can also be used to search for a particular PKL/CPL within the selected directory.
7	Select the package or CPL you wish to ingest using the checkbox on the left of that particular entry in the PKL/CPL list. You can select multiple PKL's or CPL's.
8	Information about the selected package or CPL including the *file size*, is shown in the section below the PKL/CPL list.

9	Click on the Ingest button and select the 'Ingest-Primary' option to queue downloading of the selected PKL/CPL (To bypass ingestion for direct playback you can click on **Live Play** instead. Refer to **Section 4.5.5.1.3** for details). You may also ingest the selected content by creating a schedule, using the 'Schedule Ingest' option (refer to **Section 4.5.6** for details). To check on the download status of the ingested content, go to the **Status** sub-tab. Please refer to **Section 4.5.7** for more details.
10	When done selecting the package(s), click on the Close button. **IMPORTANT:** Always press Close after you are done starting the download of content. You can monitor the progress of ingesting from the **Status** sub-tab. Please refer to **Section 4.5.7** for details about the **Status** sub-tab.
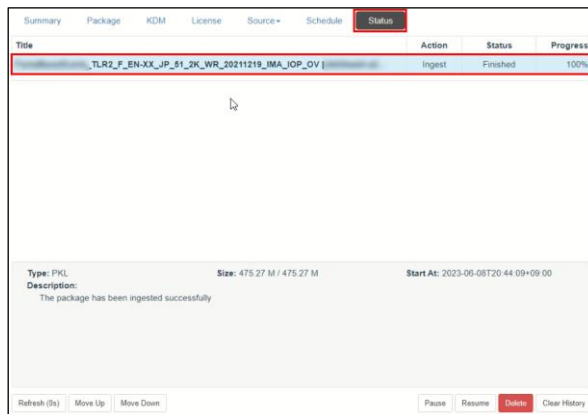
Table 44

4.5.5.1.2 Ingesting KDMs
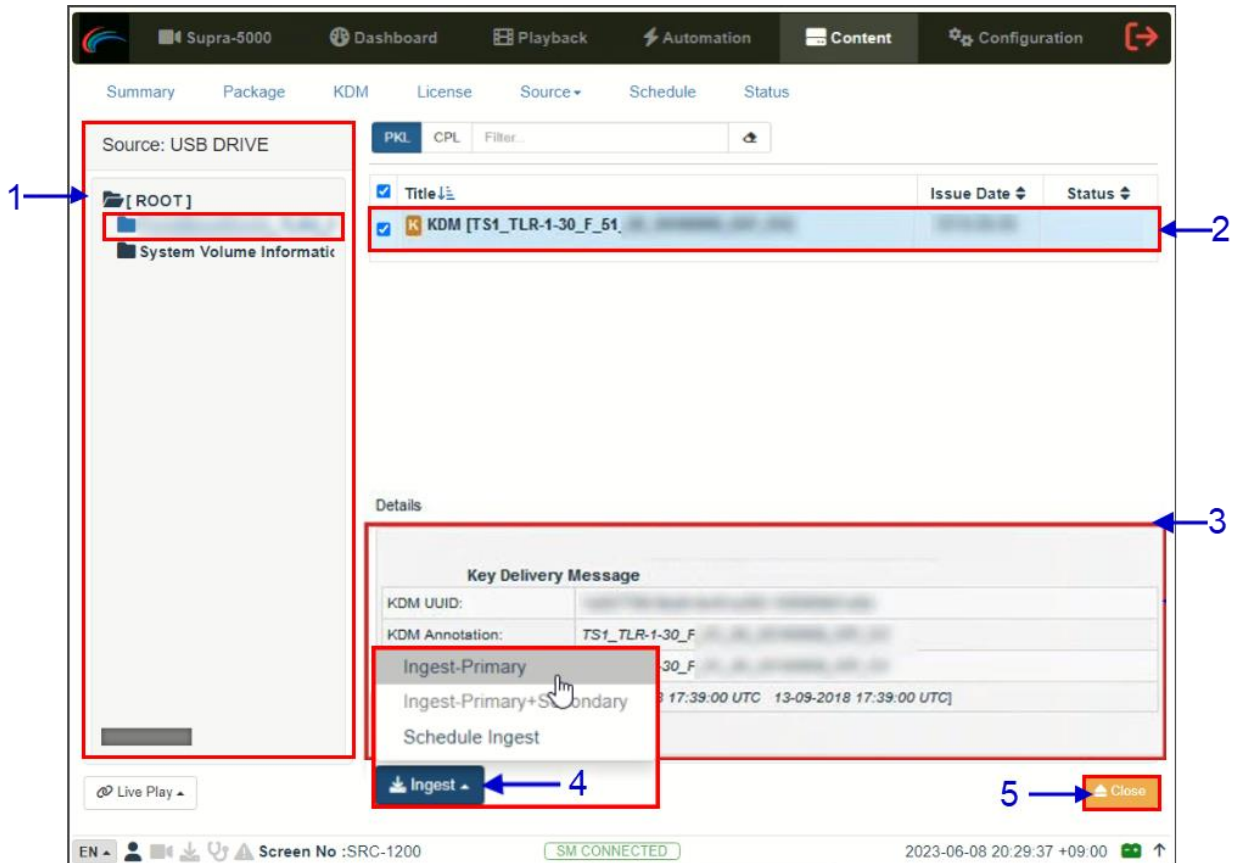
Figure 110: Ingesting KDMs

SN	Function Description
1	Browse the selected source and select the directory where the KDM is located. The list of KDMs in the directory will be displayed in the top right section of the screen.
2	Select the KDM you wish to ingest, using the checkbox on the left of that particular entry from the displayed list. You can also select multiple KDMs.
3	Information about the selected KDM, including *Needed by CPL* and *Stated Validity* are shown in this section.
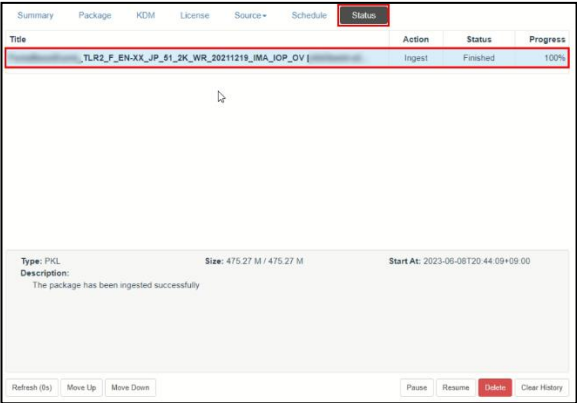
4	Click on the Ingest button and select the Ingest option to queue downloading of the KDM. To check on the download status of the ingested KDM, go to the **Status** sub-tab.
5	When done selecting the KDM(s), click on the Close button.

Table 45

Please Note: As mentioned in **Section 4.5.3**, KDM files (*.kdm*) can also be directly from the Web UI using the Upload option under the **KDM** tab.

4.5.5.1.3   Live Play

The Live Play feature allows you to playback content directly from a source without ingesting:

- **Live play** is supported for **USB 3.0** sources only.
- Content should always be ingested before playback whenever possible.
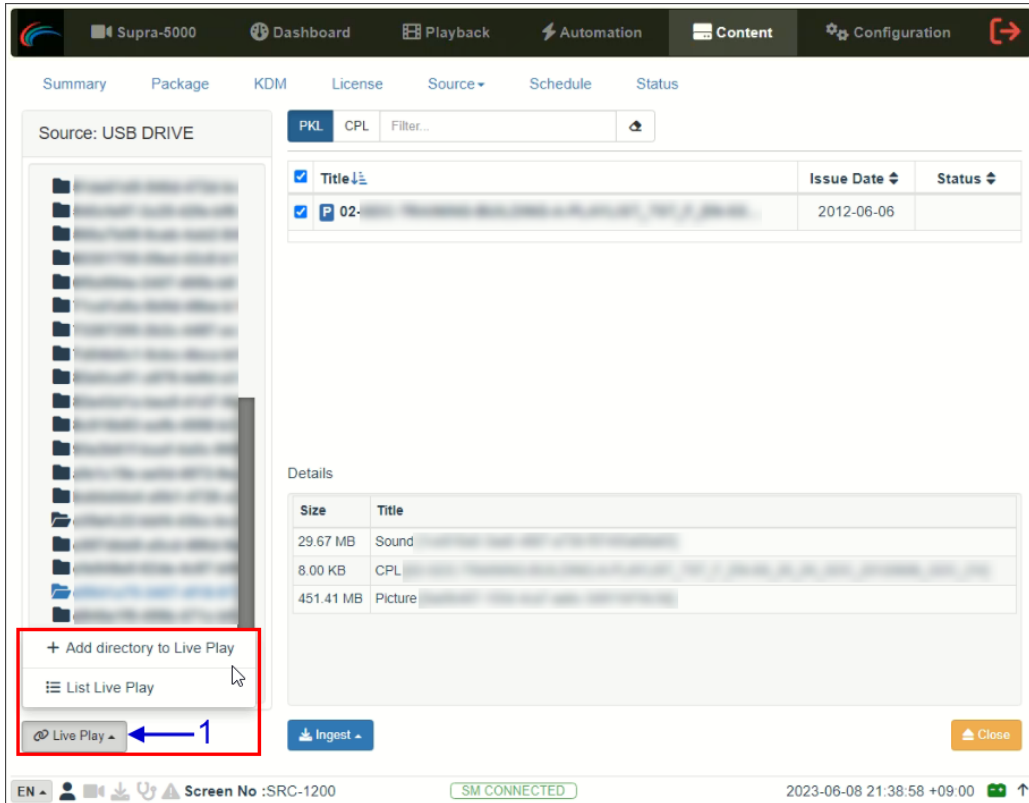
Figure 111: Live Play

SN	Name	Function Description
1	[Live Play]	Two options are available when the Live Play button is clicked: a. **Add to Live Play:** Add the selected content as a Live Play Source b. **List Live Play:** A pop-up window will be shown to display the list of Live Play Sources.

Table 46

4.5.5.2 Manage Source

The **Manage** screen provides advanced options to create as well as edit the sources from which the user can choose to ingest content.

Please Note: This screen should **ONLY** be used either to create an ingest source during setup or to edit an existing ingest source.
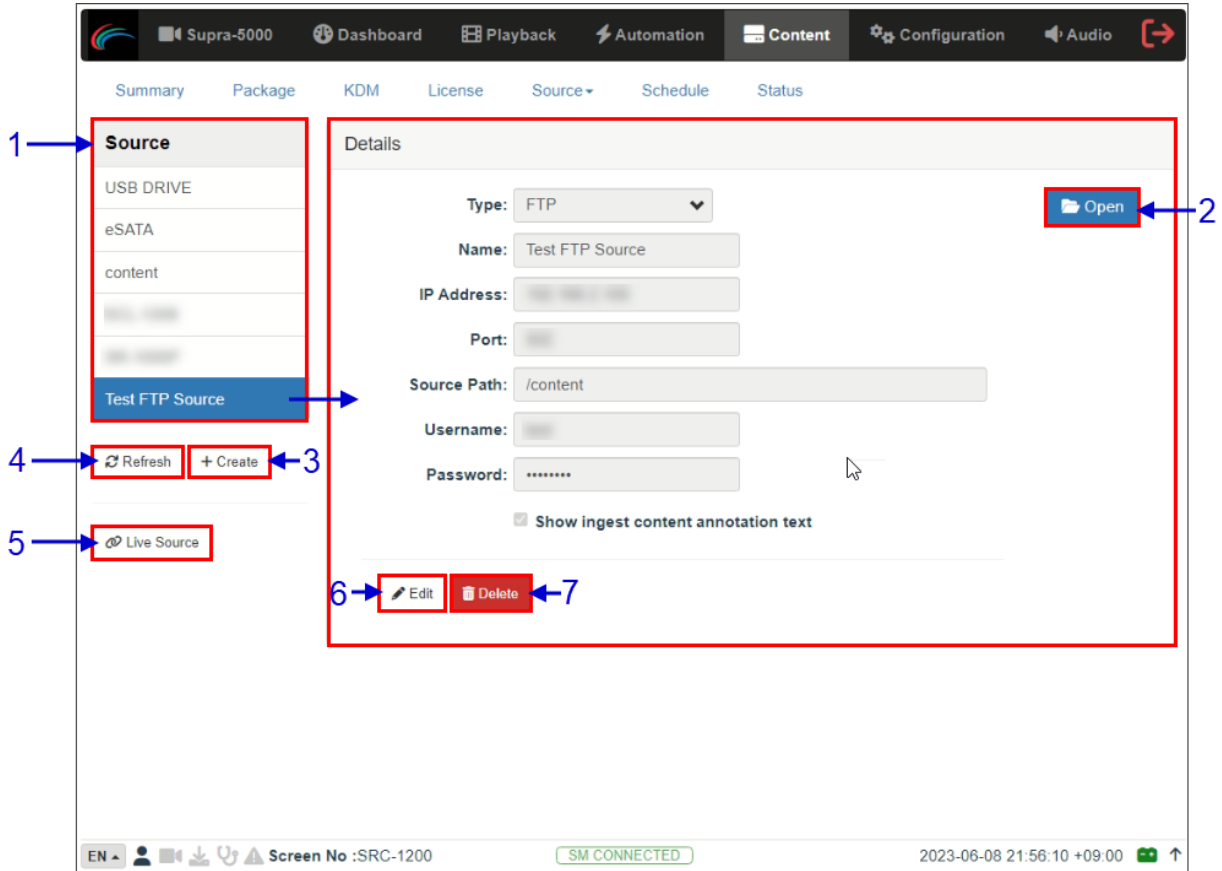
Figure 112: Content → Source → Manage

SN	Name	Function Description
1	[Source]	Displays a list of configured content ingest sources on the DCMB.
2	[Open]	Click Open to mount the content ingest source and select the content to be ingested.
3	[+Create]	Click +Create to add a new content ingest source. Fill in the details for the content ingest source and click Save to save the changes.
4	[Refresh]	Click Refresh to refresh the list of content ingest sources.

5	[Live Source]	Displays the list of content for Live Play (Refer to **Section 4.5.5.1.3** for details.)
6	[Edit]	Click Edit to edit the details of the selected ingest source. Once edited, click Save to save the changes.
7	[Delete]	Click Delete to delete the selected content ingest source. **NOTE**: Delete and Edit buttons only available on user-created ingest sources.

Table 47

4.5.5.2.1 Adding an FTP Ingest Source

An FTP ingest source for screen-to-screen transfer can be added from the **Manage** screen, by following the steps depicted in **Figure 113**.
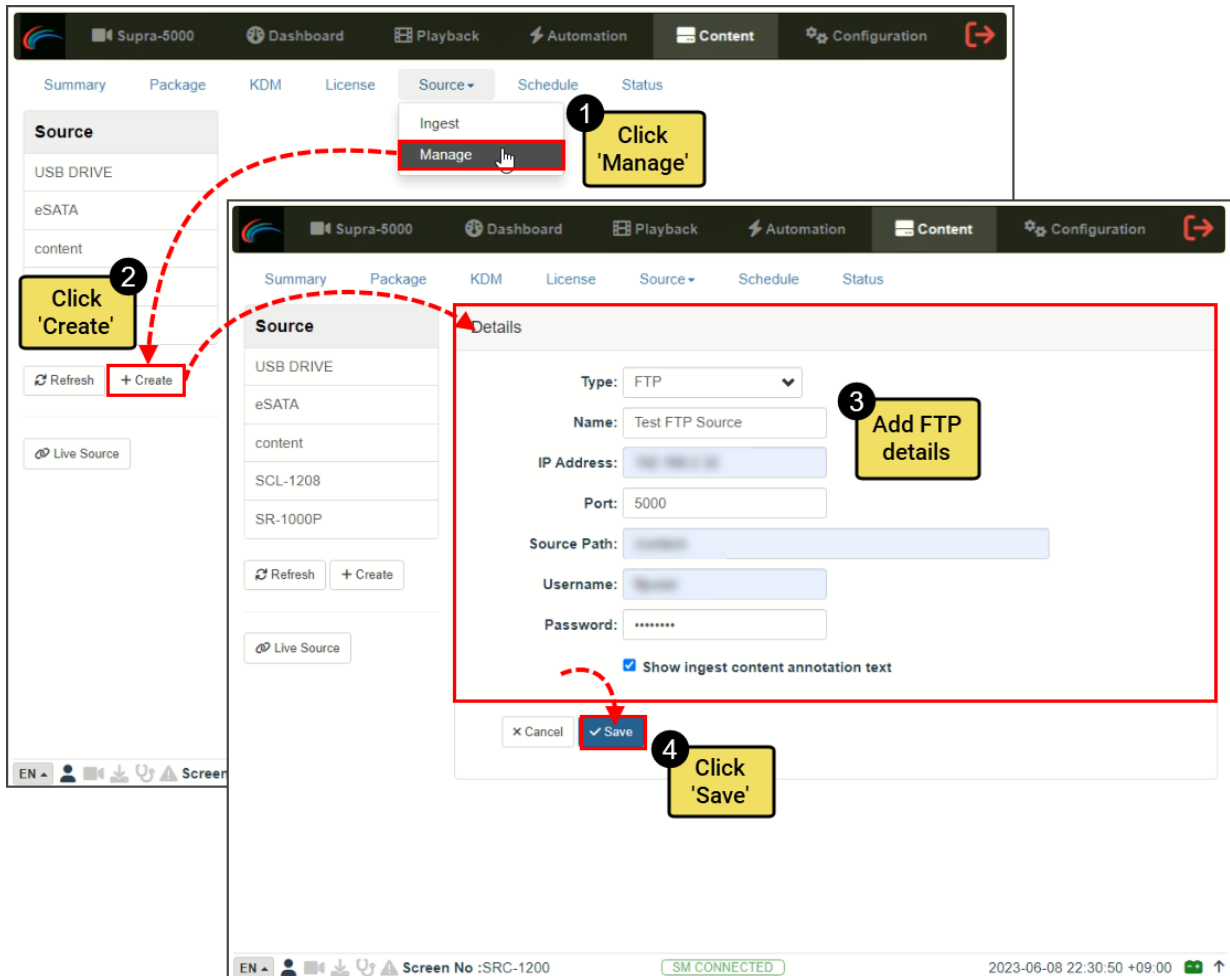
Figure 113: **Adding an FTP Ingest source**

4.5.6 Content → Schedule

The **Schedule** sub-tab shows the scheduled content ingest and verification tasks.
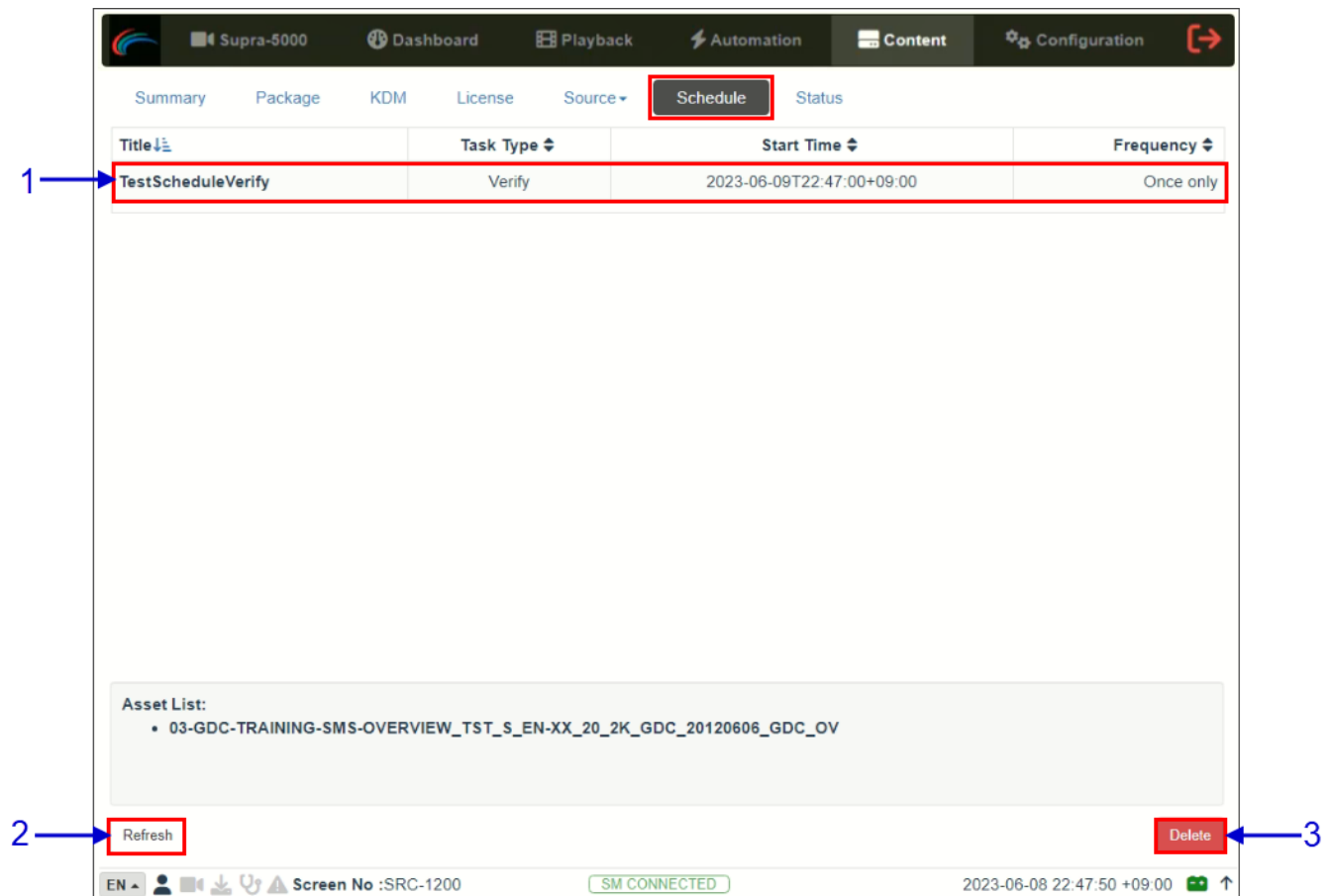
Figure 114: Content → Schedule

SN	Name	Function Description.
1	[Schedule]	Displays a list of scheduled content ingest tasks.
2	[Refresh]	Click Refresh to refresh the list of schedules.
3	[Delete]	Click Delete to delete a selected schedule.

Table 48

4.5.7 Content → Status

The **Status** sub-tab shows content ingest and verification status.

Figure 115: Content → Status

SN	Name	Function Description
1	[Status]	Displays the list of content ingest, delete and verify tasks.
2	[Pause / Resume]	Press Pause to temporarily stop the download of selected package(s) or CPL(s). When the Pause button is clicked, the Resume button will be enabled and can be used to resume the download of selected PKL(s) or CPL(s).
3	[Refresh]	Click Refresh to refresh the list of the PKL(s) or CPL(s).
4	[Move Up / Move Down]	Click Move Up/Down to move the selected task up/down in the order of execution.

5	[Delete]	Click Delete to delete the selected task. If the 'Action' status for the selected task is "In Progress", the Delete button will cancel the action as well.
6	[Clear History]	Click Clear History to clear all the finished actions from the displayed list.

Table 49

4.6 Configuration (for advanced users)

The **Configuration** tab can be used to change the DCMB settings and configure aspects of DCMB's operation. The settings under the **Configuration** tab have been divided into six categories: **General, Playback, Storage, System, Maintenance** and **Image.**

4.6.1 Configuration → General

The **General** sub-tab can be used to configure general options for the DCMB.
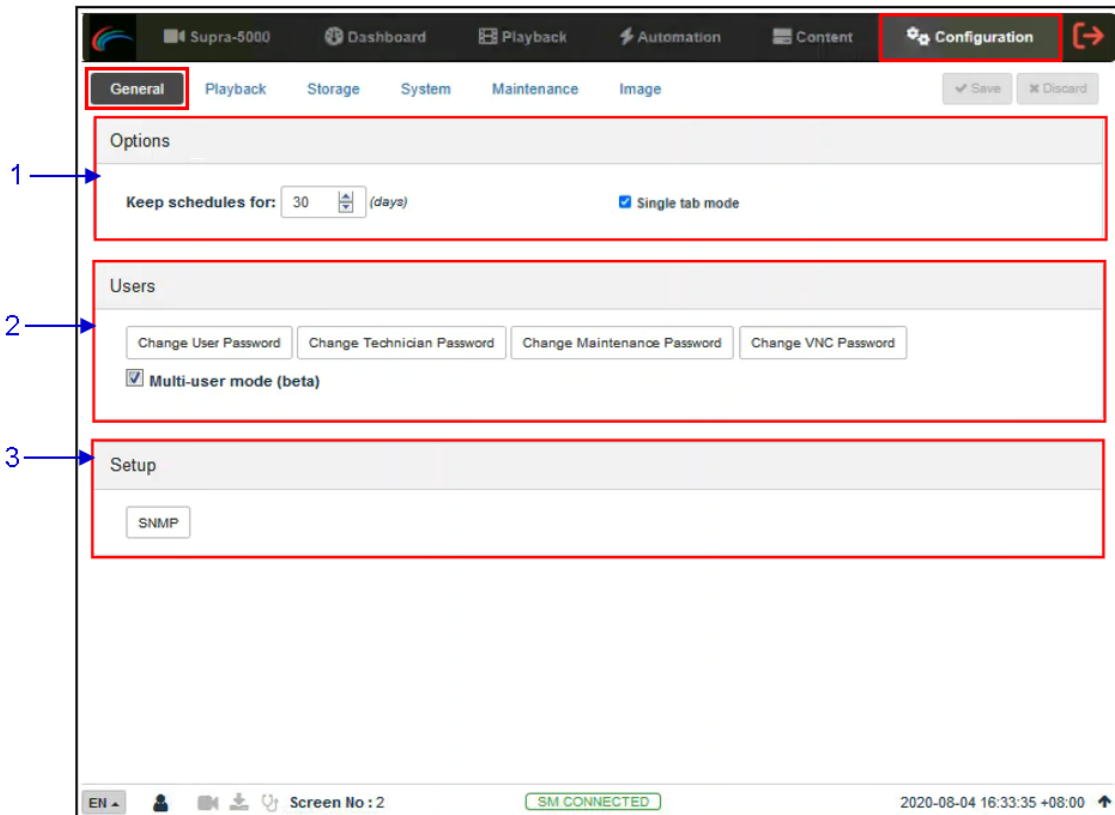
Figure 116: Configuration → General

SN	Name	Function Description
1	[Options]	
	Keep schedules for	Set the number of days that expired schedules are kept for.
	Single tab mode	When this option is enabled, the Supra Command Center web interface can be accessed from within the DCMB Web UI when the **Supra-5000** tab is clicked.
		When this option is disabled, the Supra Command Center web interface will open in a separate browser tab when the **Supra-5000** tab is clicked.

2	[Users]	
	Change User Password	Change the password for the 'User' level.
	Change Technician Password	Change the password for the 'Technician' level.
	Change Maintenance Password	Change the password for the 'Maintenance' level.
	Change VNC Password	Change the password for remote VNC login
	Multi-user mode	Enabling this option allows multiple users with the same access level to concurrently log in to the DCMB Web UI. **NOTE:** Multi-user mode may not cater to all conditions. Users are advised to use this feature with care.
3	[Setup]	
	SNMP	Set up SNMP monitoring and reporting. (Please refer to **Section 4.6.1.1** for more details). Click Save to save the settings or Close to cancel the changes.

Table 50

4.6.1.1 SNMP Configuration

The **SNMP Setup** is an option that enables the use of SNMP to monitor the DCMB. The SNMP interface contains many useful SNMP traps and is easy to configure.

When the SNMP button is clicked, an SNMP configuration pop-up window is shown with the following sections: *General, System Information, System Setting, Encrypt, Storage, Sensors* and *Ethernet*. Click on a particular section to expand it and view the corresponding options.

4.6.1.1.1 SNMP Configuration → General
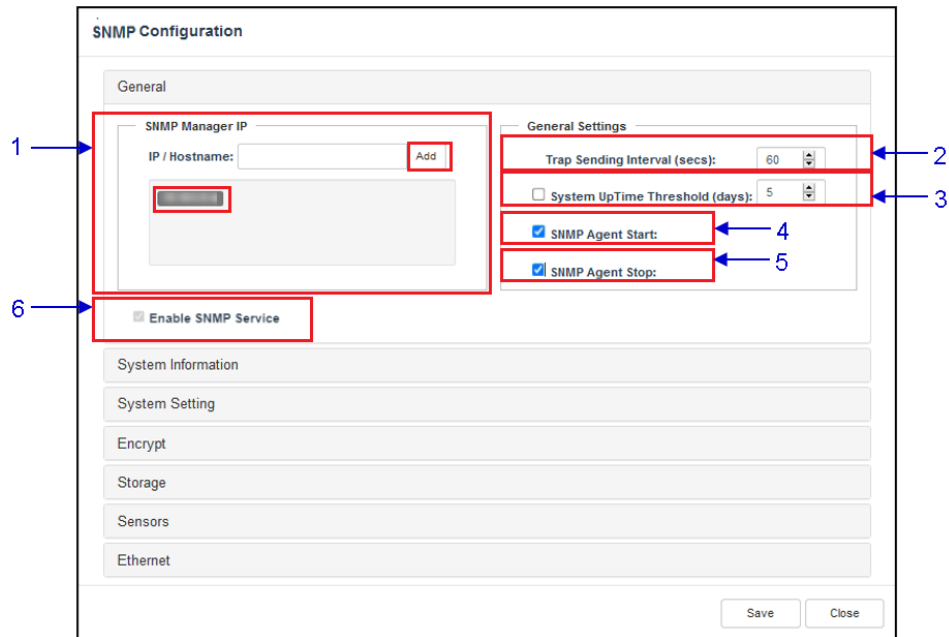
Figure 117: SNMP Configuration → General

SN	Name	Function Description
1	[SNMP Manager IP]	Indicates the IP addresses of the SNMP Manager where traps are to be sent. To add an SNMP Manager, Enter the IP Address of the SNMP Manager and click Add. Click the X next to the IP address to remove it.
2	[Trap Sending Interval]	Indicate the time interval (in *seconds*) after which a trap should be resent to the SNMP Manager. The trap will continue to be resent only as long as the error condition exists.

3	[System UpTime Threshold]	Indicate the threshold time in days. **NOTE:** When Trap is On, a trap will be sent if the System UpTime exceeds the threshold value.
4	[SNMP Agent Start]	Check SNMP Agent Start to activate the Trap. Un-check the SNMP Agent Start to deactivate the Trap. **NOTE:** When Trap is On, a trap is sent when the SNMP Agent is started.
5	[SNMP Agent Stop]	Check SNMP Agent Stop to activate the Trap. Un-check the SNMP Agent Stop to deactivate the Trap. **NOTE:** When Trap is On, a trap is sent when the SNMP Agent is stopped.
6	[Enable SNMP Service]	Enable the SNMP monitoring and reporting. **NOTE:** This option will be enabled by default and cannot be disabled. Click Save to save the settings or Close to cancel the changes.

Table 51

4.6.1.1.2   SNMP Configuration → System Information
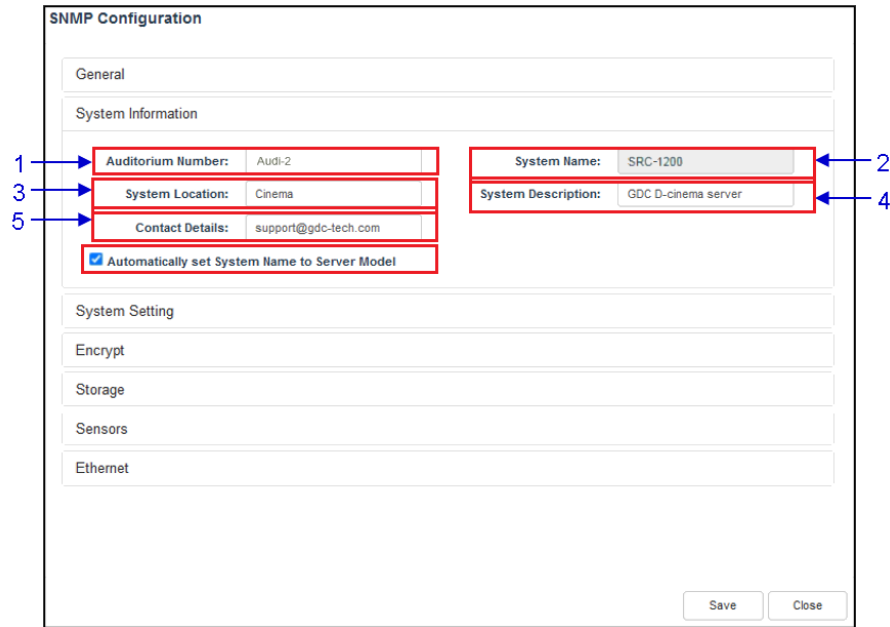
Figure 118: SNMP Configuration → System Information
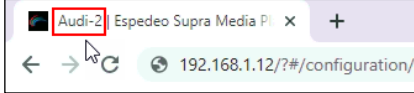
SN	Name	Function Description
1	[Auditorium Number]	The auditorium name and number where the Supra-5000 is installed. This value will be displayed when SNMP information is queried. The auditorium name and number are also displayed in the Web UI Status bar as well as in the title of the web browser tab being used to access the Web UI (as shown below).
2	[System Name]	The name of the DCMB. This value will be displayed when SNMP information is queried. This will be automatically set to the server model if the Automatically set System Name to Server model option is enabled.
3	[System Location]	The location where the projector is installed. This value will be displayed when SNMP information is queried.
4	[System Description]	A brief description of the DCMB. This value will be displayed when SNMP information is queried.
5	[Contact Details]	Contact details of the Cinema where the Supra-5000 is installed. This value will be displayed when SNMP information is queried.

Table 52

4.6.1.1.3   SNMP Configuration → System Setting
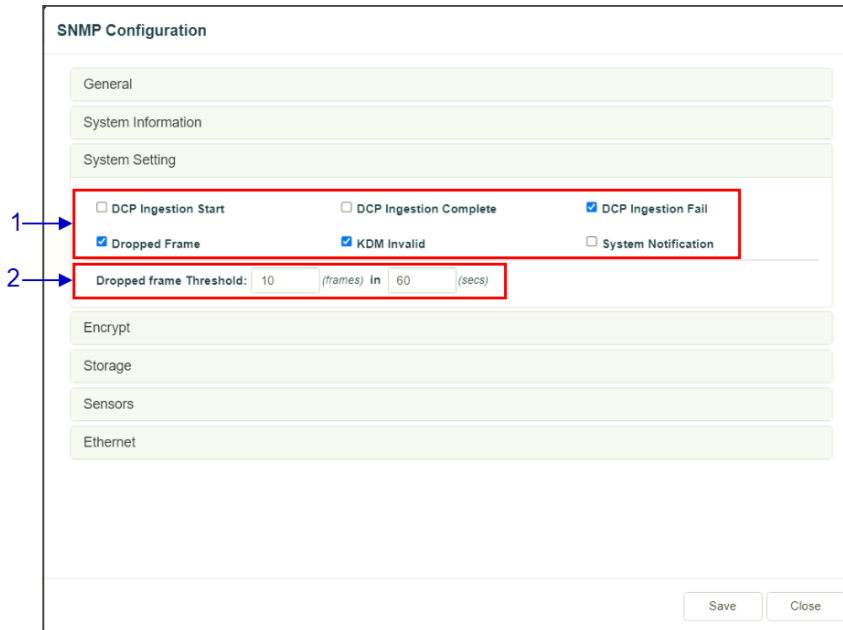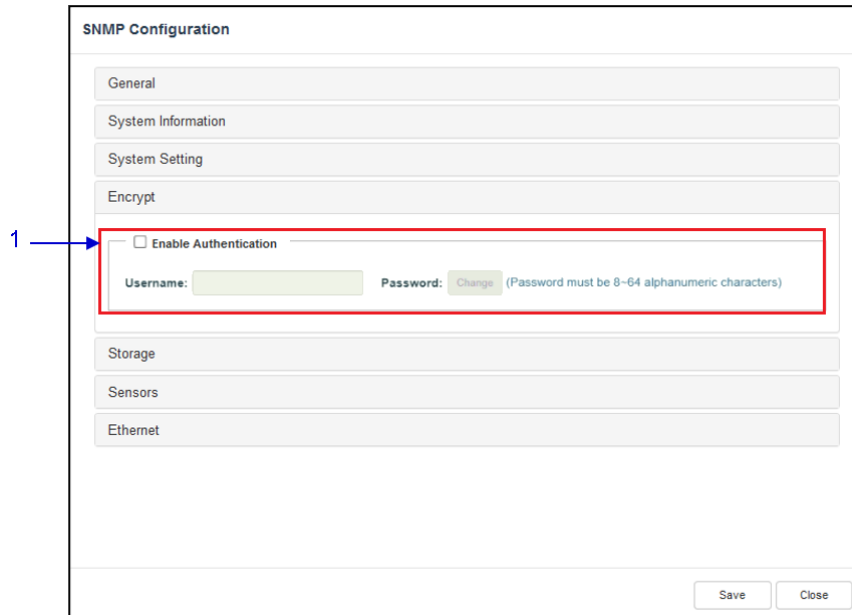
Figure 119: SNMP Configuration → System Setting

SN	Name	Function Description
1	[DCP Ingestion Start]	When this option is checked, an SNMP trap will be generated when a DCP ingest starts.
	[DCP Ingestion Complete]	When this option is checked, an SNMP trap will be generated when a DCP ingest is completed.
	[DCP Ingestion Fail]	When this option is checked, an SNMP trap will be generated when a DCP ingest fails.
	[Dropped Frame]	When this option is checked, an SNMP trap will be generated when the playback has dropped frames
	[KDM Invalid]	When this option is checked, an SNMP trap will be generated when we try to play a playlist containing CPL without a valid KDM
	[System Notification]	When this option is checked, an SNMP trap with details such as system uptime will be generated and sent across to the TMS.
2	[Dropped Frame Threshold]	Set a threshold limit based on the number of frames dropped in the specified period (in *seconds*)

Table 53

4.6.1.1.4 SNMP Configuration → Encrypt

Figure 120: SNMP Configuration → Encrypt

SN	Name	Function Description
1	[Enable Authentication]	Allows the user to enable SNMP Authentication by providing a Username. The default Password can be changed using the **Change** button. **NOTE:** The new password should be minimum eight and maximum sixty-four characters long as well as should be alphanumeric.

Table 54

4.6.1.1.5   SNMP Configuration → Storage
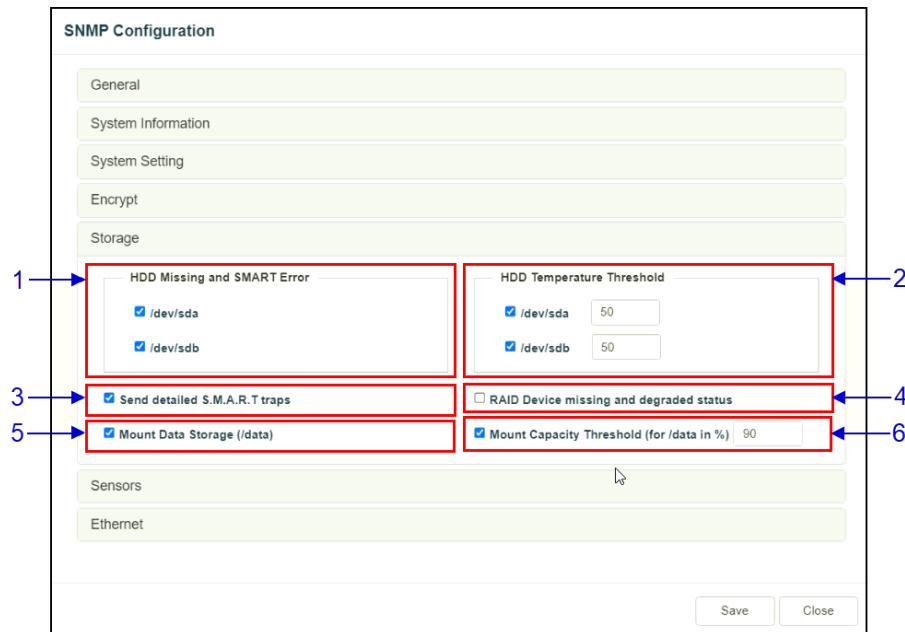
Figure 121: SNMP Configuration → Storage

SN	Name	Function Description
1	[HDD Missing and SMART Error]	Check the corresponding storage devices to activate the Trap. **NOTE:** When Trap is On, a trap will be sent to the SNMP Manager if the system cannot detect the specified device.
2	[HDD Temperature Threshold]	Set the desired threshold temperature for the respective storage device by using the [▲] and [▼] buttons. Check the corresponding storage devices to activate the Trap. **NOTE:** When Trap is On, a trap will be sent to the SNMP Manager when the threshold temperature is reached.
3	[Send detailed S.M.A.R.T. traps]	Enables the sending of SNMP traps when specific hard disk S.M.A.R.T. attributes change
4	[RAID Device missing and degraded status]	Check RAID Device missing and degraded status to activate the Trap. **NOTE:** When Trap is On, a trap will be sent if the RAID Device is missing or degraded.

4	[Mount Data Storage]	Check Mount Data Storage to activate the Trap. **NOTE:** When Trap is On, a trap will be sent if the data storage is not mounted on the system.
5	[Mount Capacity Threshold (for data in %)]	Set the mount capacity threshold value for data (in percentage) **NOTE:** When Trap is On, a trap will be sent if the mount capacity threshold value is reached.

Table 55

4.6.1.1.6   SNMP Configuration → Sensor
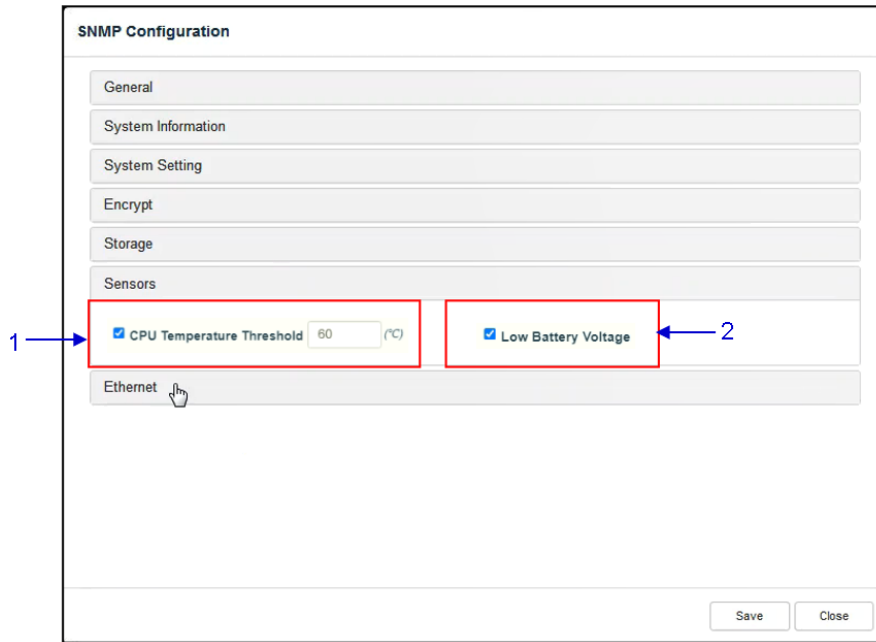
Figure 122: SNMP Configuration → Sensors

SN	Name	Function Description
1	[CPU Temperature Threshold]	Set the threshold temperature required for the CPU sensors by typing in the field or using an on-screen keyboard. Check CPU Temperature Threshold to activate the Trap. **NOTE:** When Trap is On, a trap is sent if the CPU temperature exceeds the maximum threshold temperature.
2	[Low Battery Voltage]	Check Low Battery Voltage to activate this Trap. **NOTE:** When Trap is On, a trap is sent if the DCMB battery voltage falls below the minimum voltage limit.

Table 56

4.6.1.1.7 SNMP Configuration → Ethernet
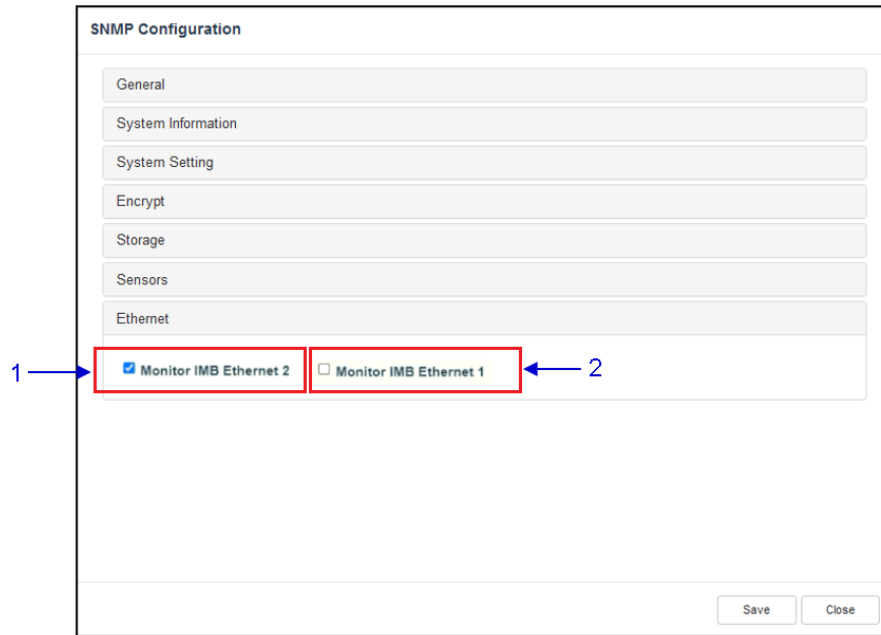
Figure 123: SNMP Configuration → Ethernet

SN	Name	Function Description
1	[Monitor IMB Ethernet 2]	Enables sending an SNMP trap if the system detects that the selected network interface is down.
2	[Monitor IMB Ethernet 1]	Enables sending an SNMP trap if the system detects that the selected network interface is down.

Table 57

4.6.2 Configuration → Playback

The **Playback** sub-tab can be used to configure video, audio, subtitle and other playback-related settings on the DCMB.
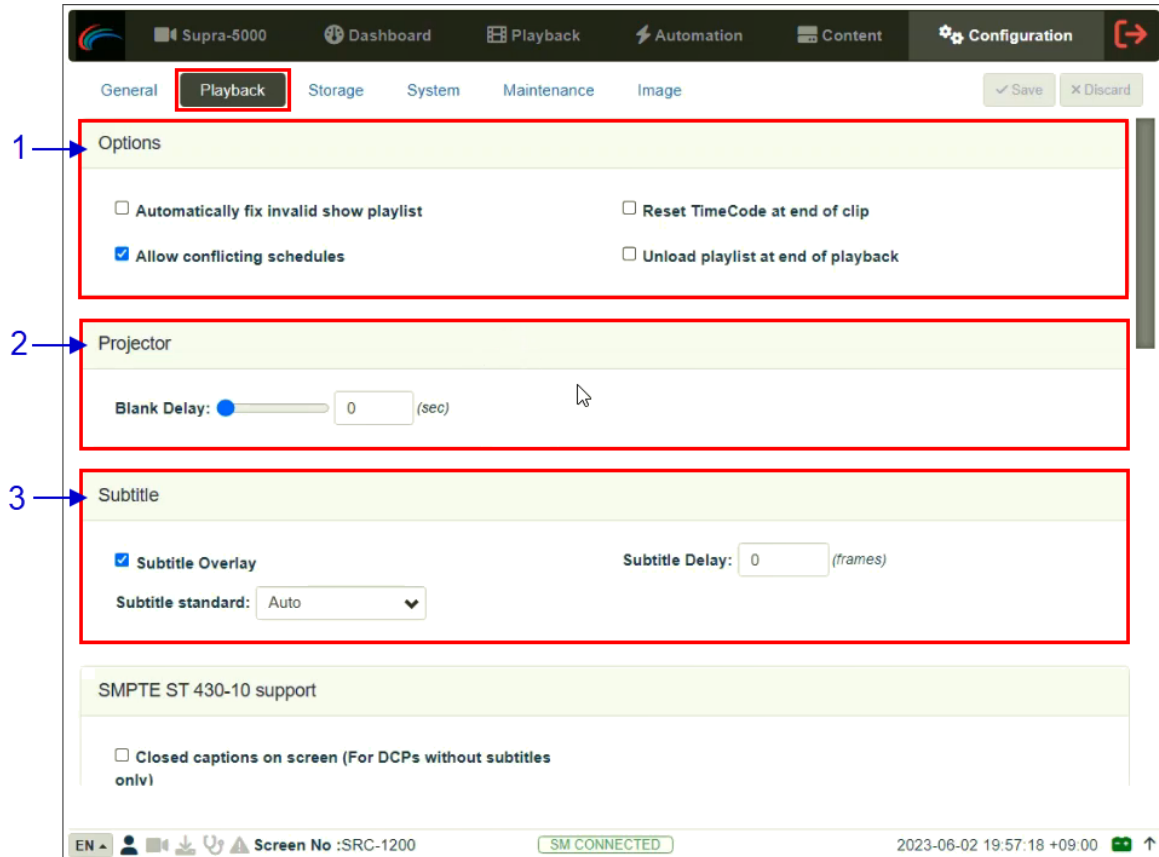
Figure 124: Configuration → Playback (1)

SN	Name	Function Description
1	[Options]	
	Automatically fix invalid show playlist	If this option is enabled, non-playable CPLs in a show playlist will be skipped during playback.
	Allow conflicting schedules	Enabling this option allows addition of schedules with overlapping start or end times.
	Reset TimeCode at end of clip	Enabling this option resets the timecode (LTC) to '0' at end of each CPL.

	Unload playlist at end of playback	Enabling this option will automatically unload the SPL at the end of playback.	
2	[Projector]		
	Blank Delay:	This feature delays both video and audio output by the amount of time set (in sec.) to allow the projector to sync with the video output of the DCMB.	
3	[Subtitle]		
	Subtitle Overlay	When this option is enabled, subtitles are displayed using server rendering. When this option is disabled, Cinecanvas is used for subtitle display.	
	Subtitle Delay:	Enter the Subtitle Delay in number of frames. Entering a negative number will advance the subtitles by that number of frames.	
	Subtitle standard:	This drop-down provides the following subtitle rendering options for subtitle overlay: ▪ Auto (enabled by default) ▪ SMPTE 428-7 ▪ Legacy	

Table 58
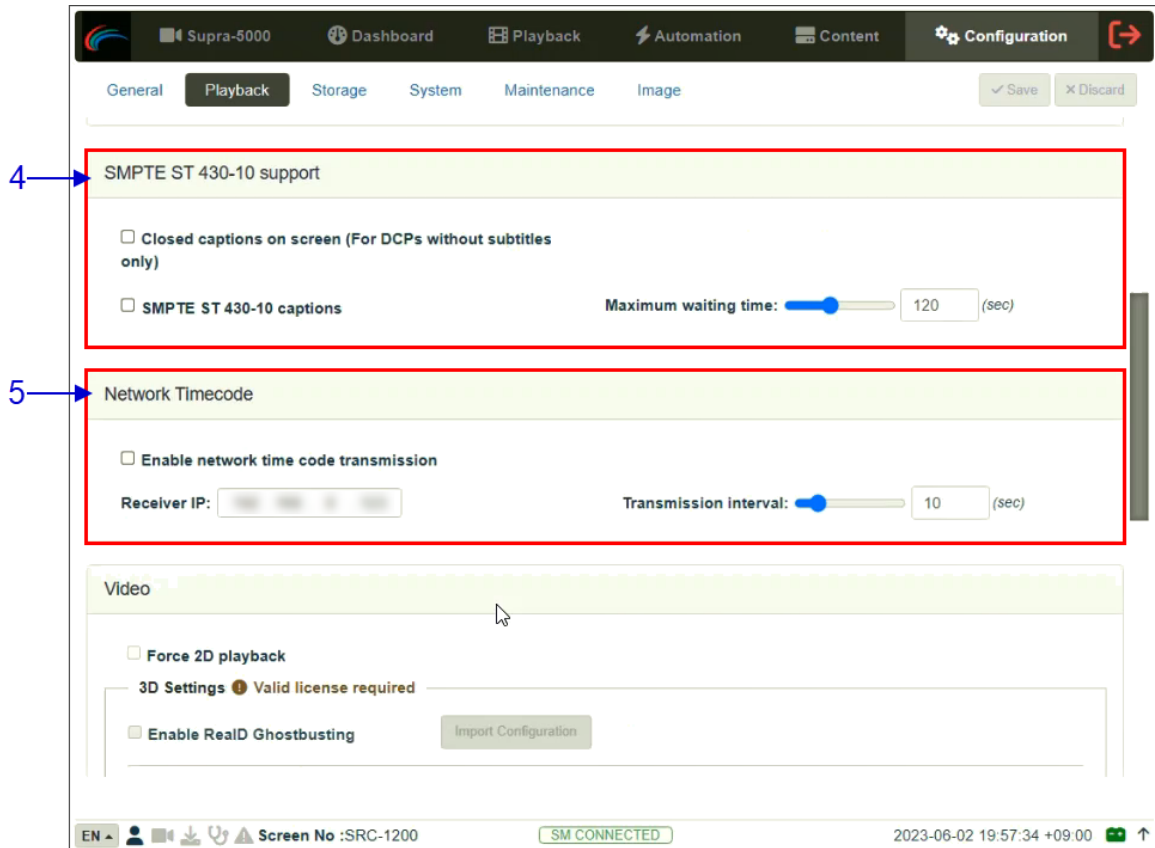
Figure 125: Configuration → Playback (2)

4	[SMPTE ST 430-10 support]	
	Enable closed caption on-screen (For DCPs without subtitles only)	Enabling this option will allow closed captions to be displayed on-screen, if the CPL does not have any subtitles.
	SMPTE S430-10 captions	Enable communication with a closed caption device that supports SMPTE 430-10 (USL CCE-100, etc.) **NOTE:** The closed caption device must be configured to connect to the DCMB.
	Maximum waiting time	Specifies the maximum time (in sec.) to wait for the closed caption device to report it is ready, before starting playback.
5	[Network timecode]	
	Enable network time code transmission	Activate transmission of playback time-code over UDP.
	Receiver IP	Enter the IP of the receiver of time-code transmission of UDP.
	Transmission interval	Indicates the time interval between transmissions (in sec.).

Table 59
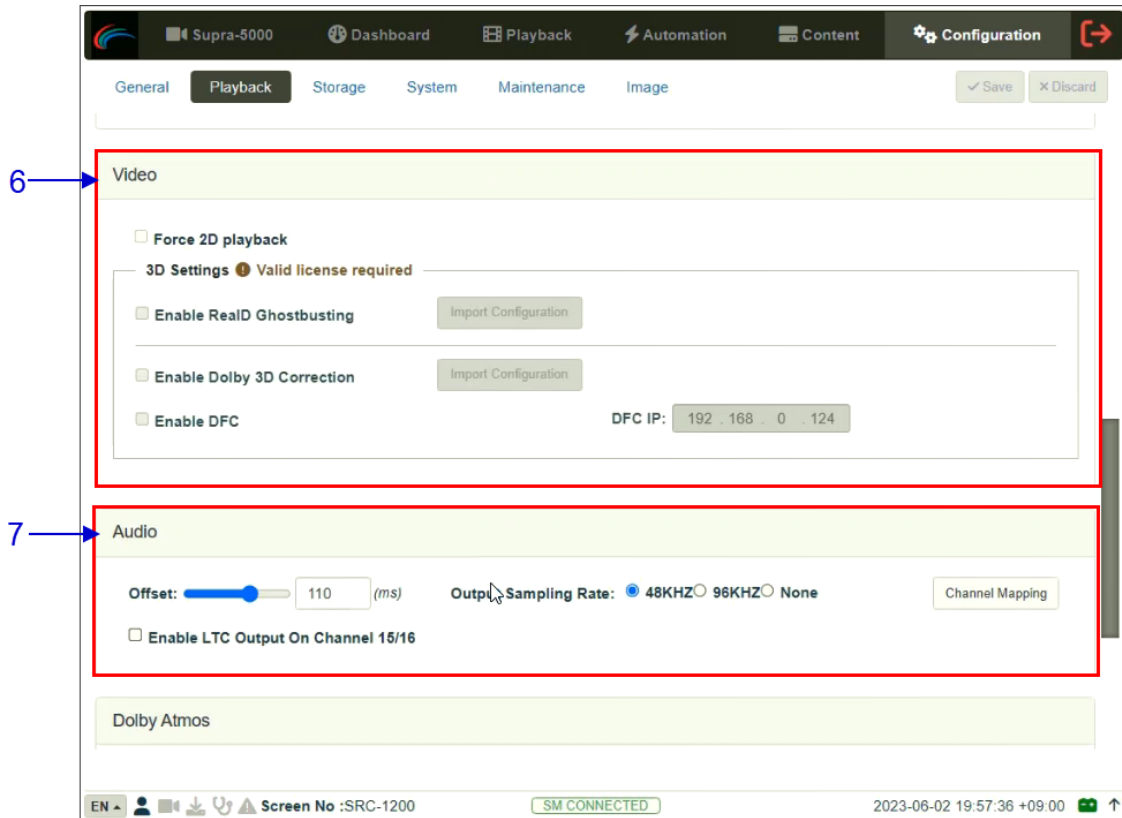
Figure 126: Configuration → Playback (3)

6	[Video]	
	Force 2D playback	Force 2D playback for 3D content. A valid license is required to enable this option.
	Enable RealD Ghostbusting/ Enable Dolby 3D Correction/ Enable DFC	RealD Ghostbusting, Dolby 3D Color Correction and DFC are calibration functions for corresponding 3D technologies. Valid license(s) are required to enable these options.
7	[Audio]	
	Offset	Specify an audio delay during playback. A negative audio delay will cause audio to be played ahead of the video. A positive audio delay will cause audio to be played behind the video.
	Output Sampling Rate	Changes the audio output sampling rate. Output audio sampling rate can be fixed at '48kHz' or '96kHz' for all content or it can match the content's audio sampling rate (option '*None*'). If the output sampling rate is set to a fixed value ('48kHz' or '96kHz'), content audio is re-sampled if it does not match the output sampling rate. Use the **Audio Channel Mapping** interface to map content audio channels to different audio output channels.

		NOTE: When the Audio Processing License is installed, only '48kHz' output sampling is supported. Refer to **Section 5** for more details.
	Channel Mapping	Refer to **Section 4.6.2.1** for details related to Audio Channel Mapping.
	Enable LTC Output on Channel 15/16	Enables LTC output on Channel 15/16 which would be needed for supporting 4D devices
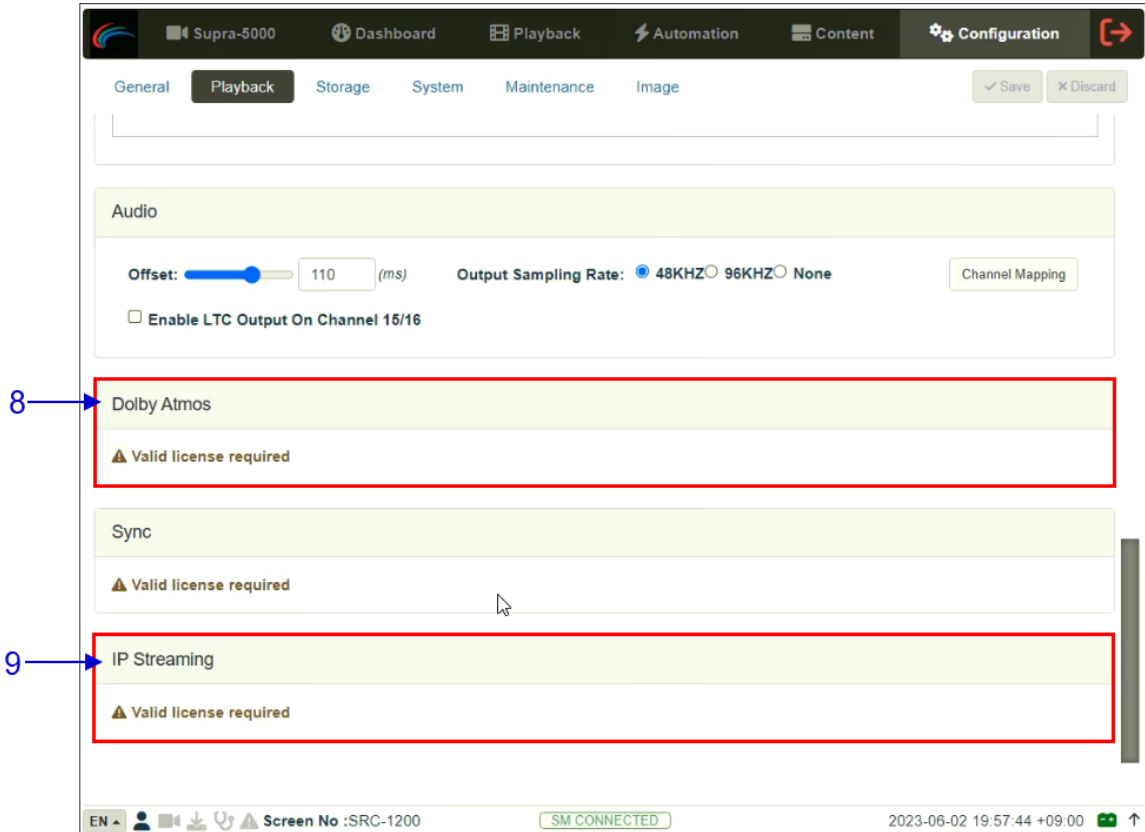
Figure 127: Configuration → Playback (4)

8	[Dolby Atmos]	Configure the DCMB to work with a Dolby sound processor with Dolby Atmos. A valid license is required to enable **Dolby Atmos** support on the DCMB. Check Enable to enable Dolby Atmos support. Set the **Atmos Data IP** and **Atmos TLS IP** according to network requirements.
9	[IP Streaming]	A valid license is required to enable **IP Streaming** on the DCMB.

Table 60

4.6.2.1 Audio → Channel Mapping

Using the **Channel Mapping** option, audio output from the DCMB can be re-mapped to appear on different audio channels.
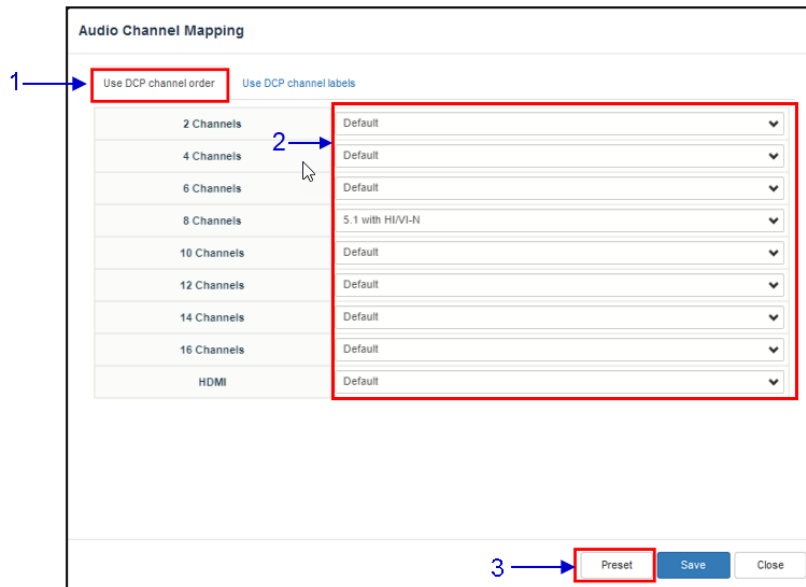
Figure 128: Audio Channel Mapping (1)

SN	Function description
1	Audio output based on the number of audio channels in the audio track of the DCP can be configured in this tab.
2	The preset for the number of audio channels in the audio track can be changed here.
3	Use the Preset button to configure audio presets. Refer to **Section 4.6.2.1.1** for details

Table 61
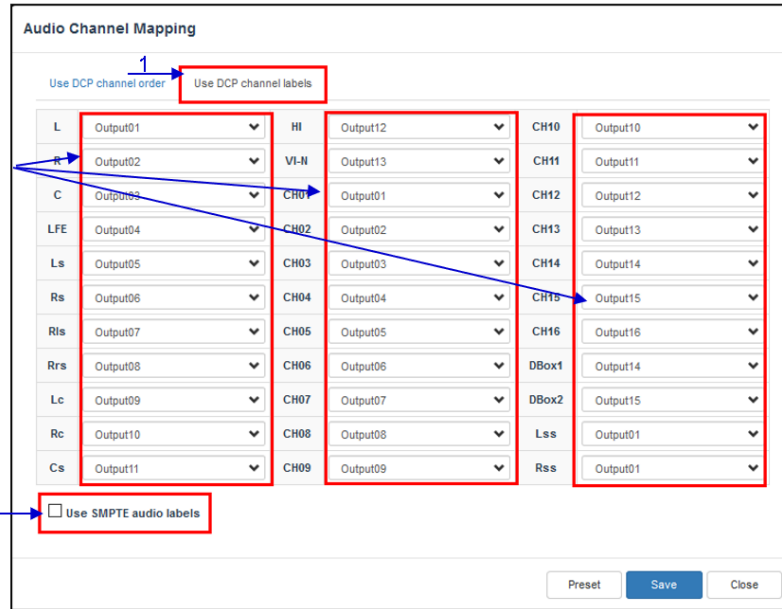
Figure 129: Audio Channel Mapping (2)

SN	Function description
1	Audio output based on SMPTE audio channel configuration labels can be configured in this tab,
2	Audio output for individual SMPTE audio channel labels can be changed here.
3	Check the Use SMPTE audio labels checkbox to route audio output based on SMPTE audio channel configuration labels.

Table 62

4.6.2.1.1　Channel Mapping → Preset
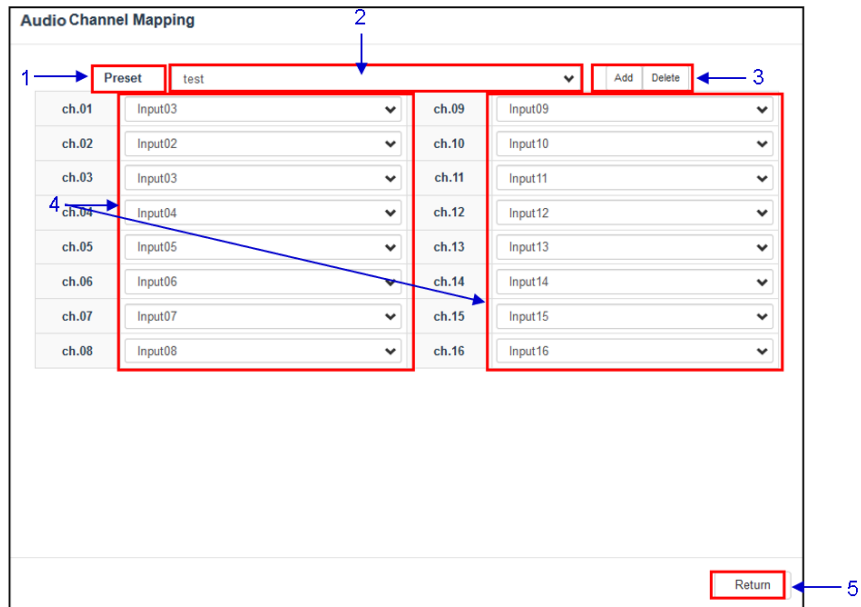
Figure 130: Audio Channel Mapping (3)

SN	Function description
1	Audio channel output presets can be configured in this tab.
2	Select a preset to view or change preset settings
3	Add a new preset or delete the current preset.
4	Audio configuration for an audio preset can be changed here.
5	Click Return to return to **Audio Channel Mapping** configuration.

Table 63

4.6.3 Configuration → Storage

The **Storage** sub-tab can be used to configure the storage settings on the DCMB.
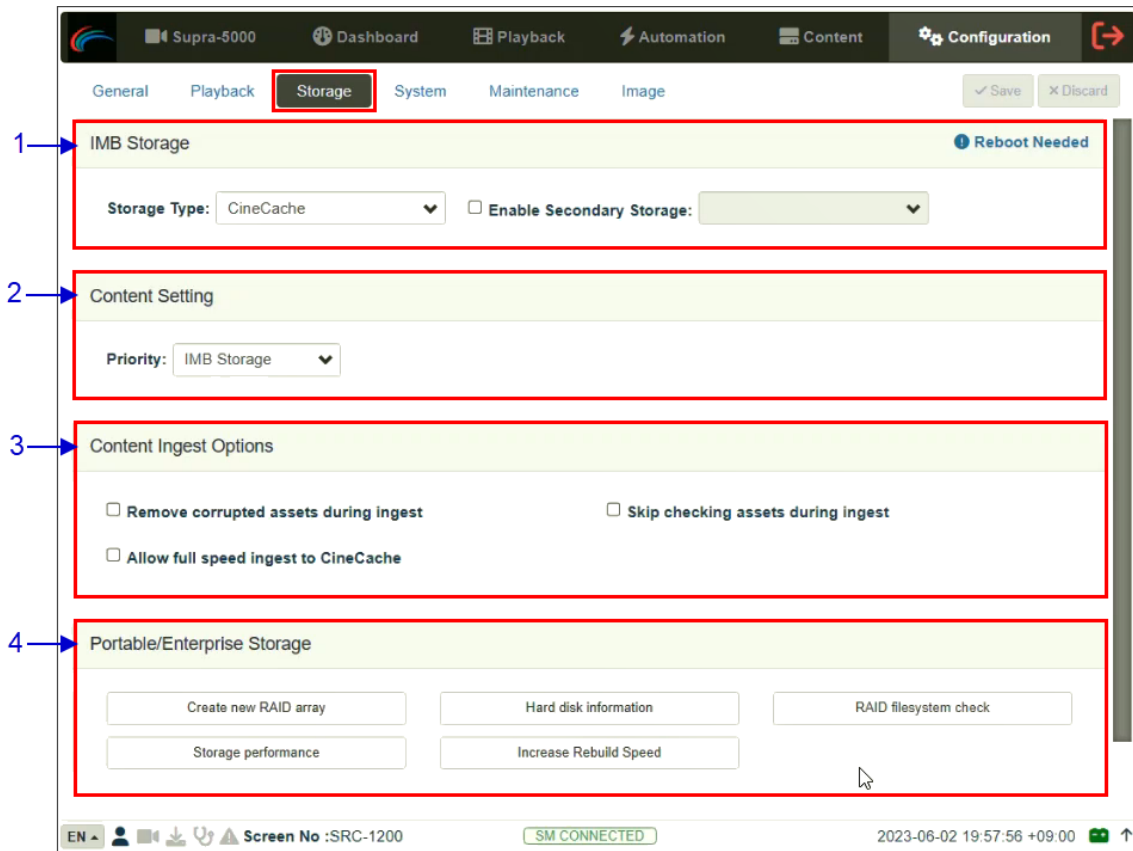
Figure 131: Configuration → Storage

SN	Name	Function Description
1	[IMB Storage]	
	Storage Type	Configure the primary storage for the DCMB. • **CineCache™:** Select this option to use the built-in CineCache™ as storage. • **NAS:** Configure a Network-Attached Storage (NAS) as data storage. Please contact Espedeo Holdings Ltd. for more information regarding qualified NAS models. **NOTE:** A reboot is needed after the **Storage Type** is changed.

2	[Content Setting]	
	Priority	Set the storage priority used for playback • **Attached Storage:** Playback will use attached storage (live play) for playback. If there are issues with live play, playback will fall back to local storage. This setting should be selected for centralized playback with the SCL Servers[*]. • **IMB Storage:** Playback will use local storage for playback. **NOTE:** For the **GDC Cinema Automation 2.0** (CA 2.0) setup with Centralized Playback, please choose 'CineCache' as the primary storage in **Storage Type** along with **Priority** as 'Attached Storage'. For a non-CA 2.0 setup, please choose either 'CineCache' or 'NAS' as the primary storage in **Storage Type** along with the **Priority** as 'IMB Storage'.
3	[Content Ingest Options]	
	Remove corrupted assets during ingest	With this option enabled, any corrupted assets encountered during ingestion are removed.
	Skip checking assets during ingest	With this option enabled, the Digital Cinema Package assets will not be checked for integrity during download. This option will reduce ingestion time but decrease the reliability of the ingestion.
	Allow full speed ingest to CineCache	With this option enabled, content ingest to the <u>CineCache</u> will take place at full speed. **NOTE:** This option should **ONLY** be used when 'CineCache' is chosen as the primary storage in **Storage Type**. In case the **Storage Type** chosen is 'NAS', content ingest will take place at normal speed.
4	[Portable/Enterprise Storage]	
		The following actions can be performed: • **Create new RAID array** • **Hard disk information** • **RAID filesystem check** • **Storage performance** • **Increase Rebuild Speed** (Refer to **Section 4.6.3.1** for more details on the above-listed actions)

Table 64

* *SCL or Streaming Content Library Servers, which are used in the GDC Cinema Automation 2.0 environment.*

4.6.3.1 Actions of Portable/Enterprise Storage

4.6.3.1.1   Create a new RAID array
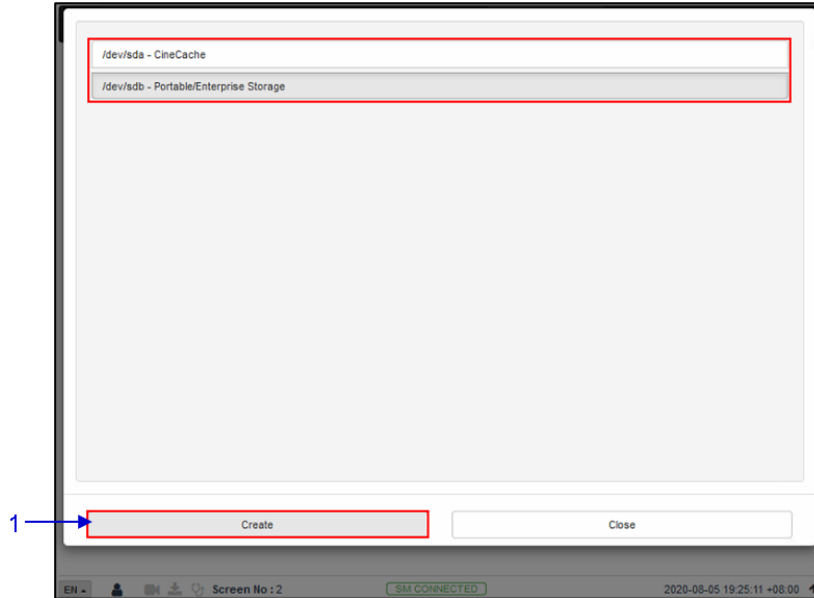
Figure 132: Create new RAID Array

SN	Name	Function Description
1	[Create new RAID array]	Clicking on the Create new RAID array option opens a pop-up window. Select the drive name and click on Create. The RAID creation process will be initiated and the progress will be shown. Once complete, click on Close to return to the **Storage** sub-tab.

Table 65

4.6.3.1.2   Hard Disk Information
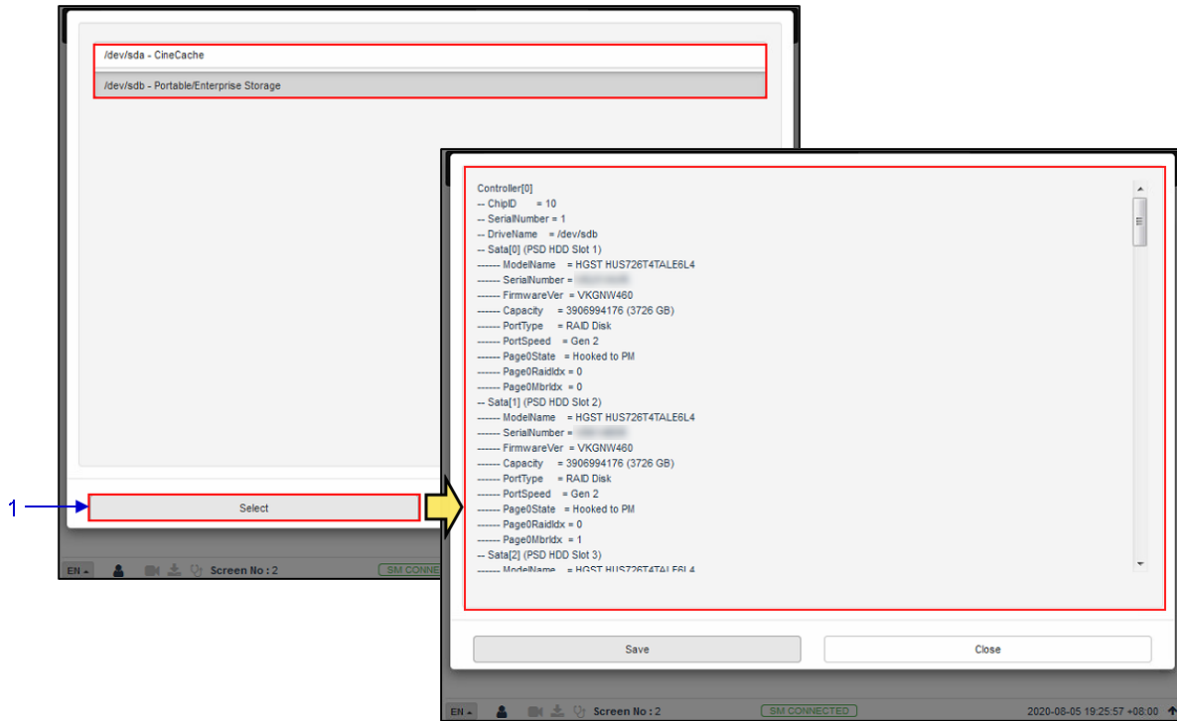
Figure 133: Hard Disk Information

SN	Name	Function Description
1	[Hard disk information]	Clicking on the Hard Disk information option opens a pop-up window. Select the disk and click on Select. Information about the selected disk will be displayed on-screen. Click on Save to save the results to the local PC/Laptop (in the form of a .txt file). Click on Close to return to the Storage menu.

Table 66

4.6.3.1.3   RAID filesystem check
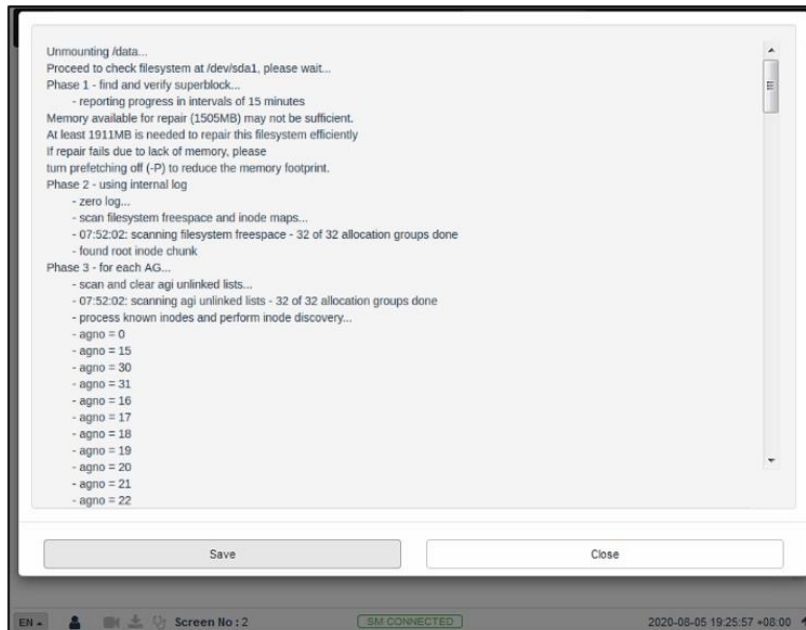
Figure 134: RAID Filesystem Check

SN	Name	Function Description
1	[RAID Filesystem check]	Clicking on the RAID Filesystem check option opens a pop-up window and the file system check process will be initiated. Information about the filesystem check progress will be displayed on-screen. Click on Save to save the results to the local PC/Laptop (in the form of a .txt file). Click on Close to return to the Storage menu.

Table 67

4.6.3.1.4   Storage Performance
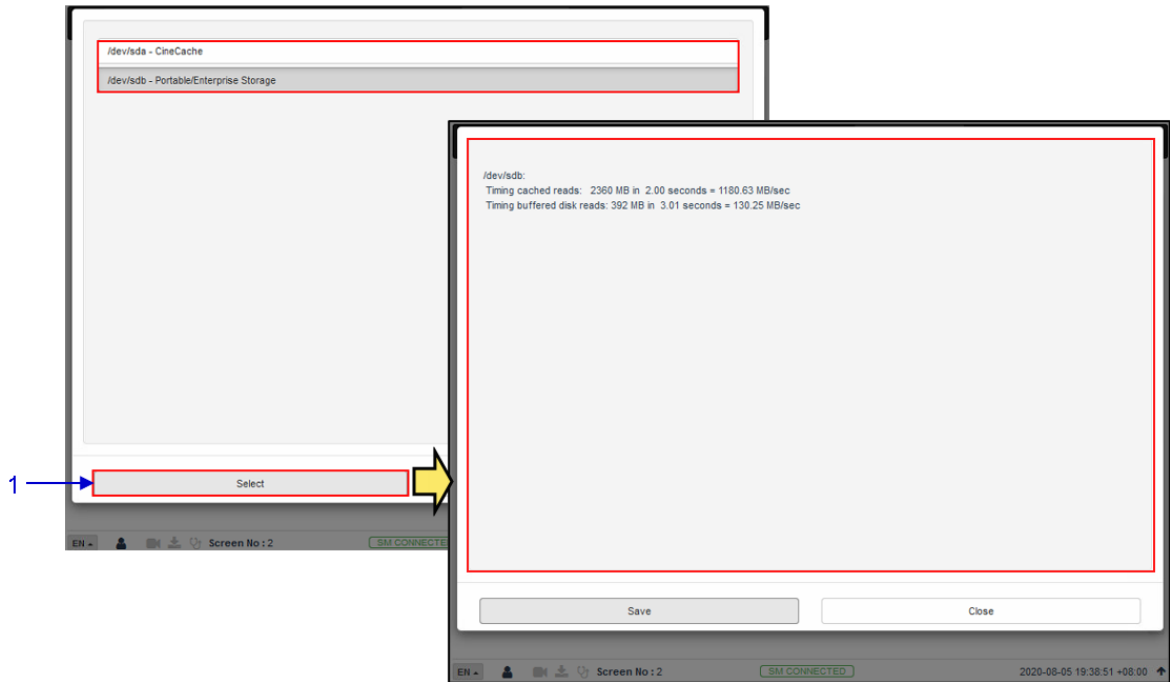
Figure 135: Storage Performance

SN	Name	Function Description
1	[Storage Performance]	Clicking on the Storage Performance option opens a pop-up window. Select the disk and click on Select. Information about the hard disk performance will be displayed on-screen. Click on Save to save the results to the local PC/Laptop (in the form of a .txt file). Click on Close to return to the Storage menu.

Table 68

4.6.3.1.5   Increase Rebuild Speed
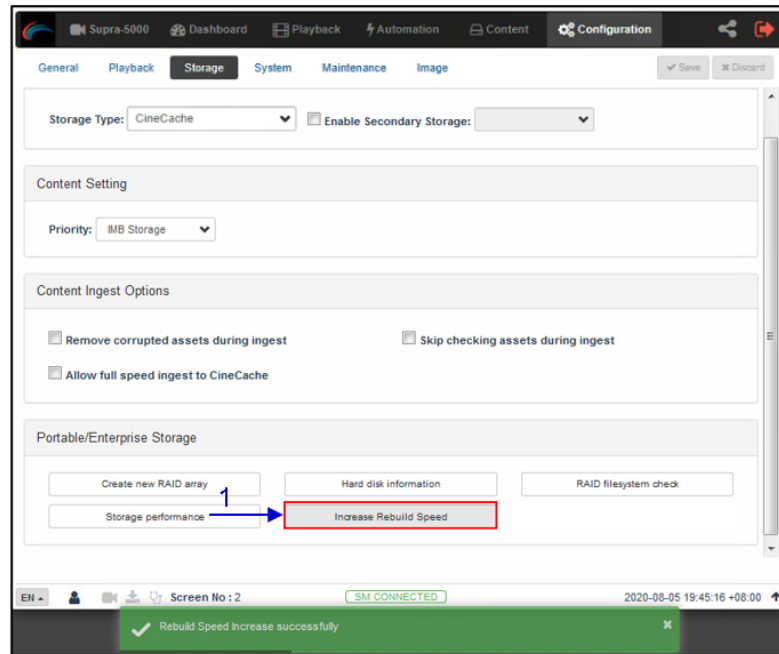
Figure 136: Increase Rebuild Speed

SN	Name	Function Description
1	[Increase Rebuild Speed]	If the RAID array is being rebuilt during playback, the rebuild speed will slow down significantly. To resume the highest rebuild speed once playback is finished, click on Increase Rebuild Speed. This will immediately set the RAID array to rebuild at the highest speed.

Table 69

4.6.4 Configuration → System

The **System** sub-tab can be used to configure the system settings on the DCMB.
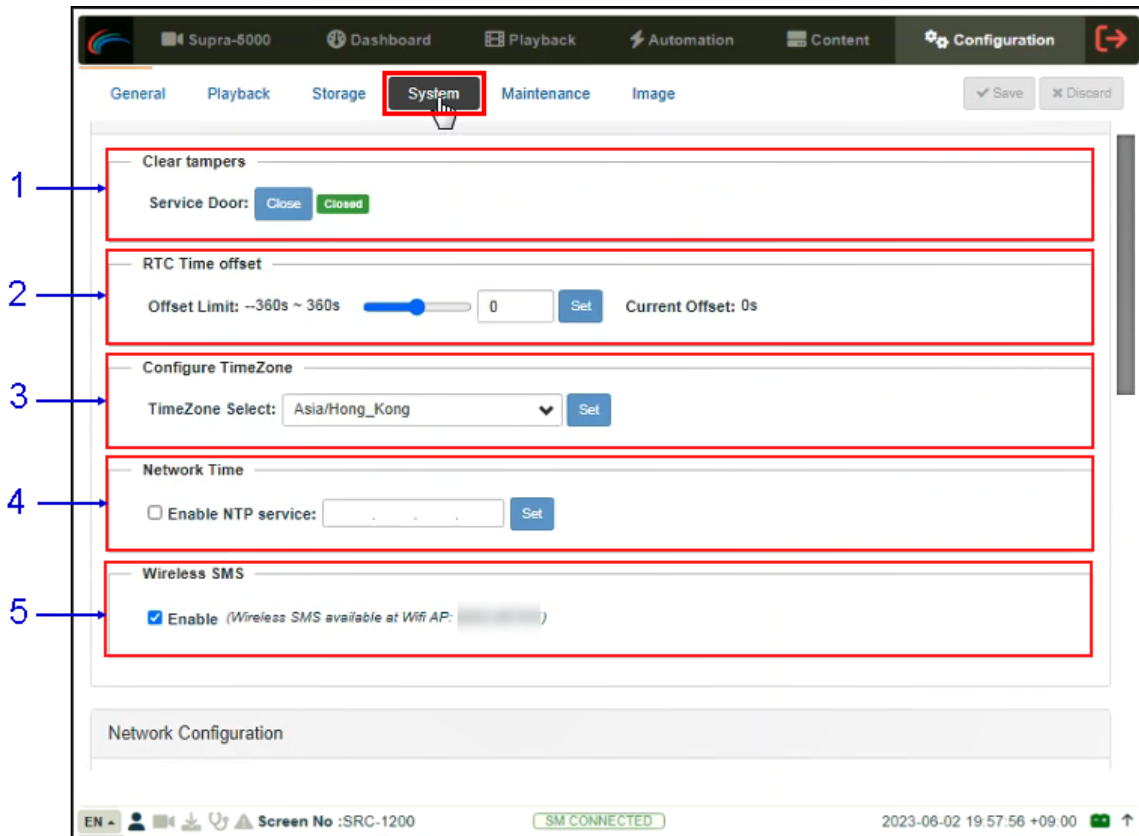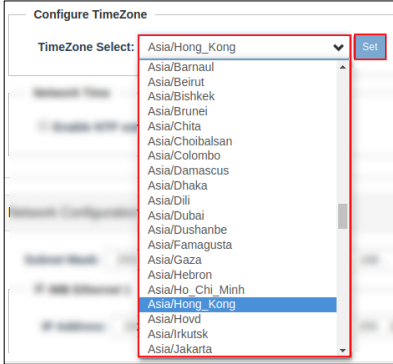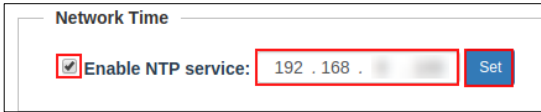
Figure 137: Configuration → System (1)

SN	Name	Function Description
1	[Clear tampers]	
	Service Door	Displays the Service Door tamper status of the DCMB. Click the Close button to clear the Service Door tamper. **NOTE:** The DCMB will not allow playback unless this tamper is cleared.
2	[RTC Time offset]	
	Offset Limit	Make adjustments to the time on the DCMB. In accordance with DCI specifications, the DCMB allows a time offset from -360s to +360s i.e., plus or minus six minutes per calendar year.

3	[Configure TimeZone]	
	TimeZone Select	Select a specific area/country from the dropdown list and click on the **Set** button to configure the timezone. **NOTE**: After setting the timezone, a system alert will be displayed for rebooting the DCMB. It is recommended that the DCMB should be rebooted, after setting the timezone.
4	[Network Time]	Sync the DCMB time to an external NTP server. Select Enable NTP service**.** Enter the specified time server's IP address and click on the **Set** button to start using the NTP server. **NOTE:** Time adjustments will be limited in accordance with DCI specifications, which is <u>+/- 360 seconds</u>.
5	[Wireless SMS]	Enable/disable the wireless Access Point of the projector. The Access Point of the projector can be used to wirelessly access the Supra Command Center web interface and DCMB Web UI, using a Wi-Fi-enabled PC/Laptop or Android™ tablet. **NOTE:** The name of the wireless Access Point will appear in the format "*SMS-XXXXXX*" where *XXXXXX* represents the Serial Number of the DCMB. Refer to **Section 1.2.2** for more details.
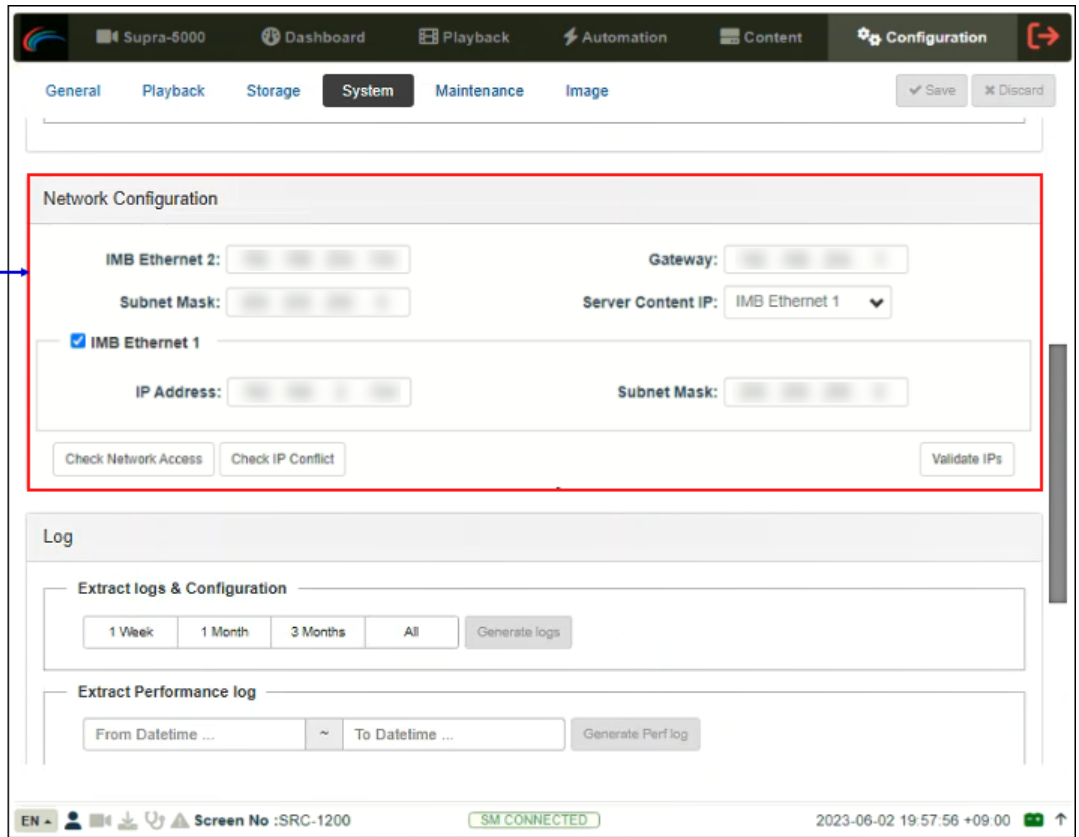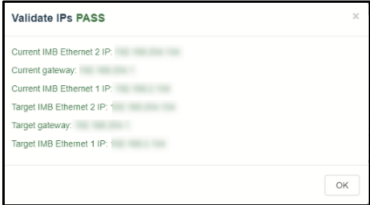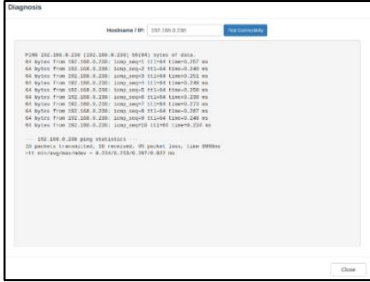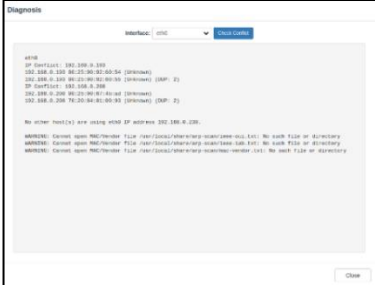
Figure 138: Configuration → System (2)

SN	Name	Function Description
6	[Network Configuration]	
	Subnet Mask	Specify the subnet mask.
	Gateway	Specify the network gateway for the DCMB.
	IMB Ethernet 2	This is the main IP address of the DCMB. The DCMB Web UI can be accessed using this IP address.
	IMB Ethernet 1	Enable this to set up a secondary network on the DCMB. This is usually connected to a Content network. When it is checked, the IP address and Subnet Mask can be set.

Validate IP's	After setting the above network configurations, click Validate IPs **to** check the correctness of the IPs entered. A pop-up opens displaying the result. 	
Check Network Access	Click to open the pop-up window. Enter the **Hostname / IP** and click Test Connectivity. 	
Check IP Conflict	Click to open the pop-up window. Select Interface from dropdown "**eth0**" or "**eth1**" and click Check Conflict. 	
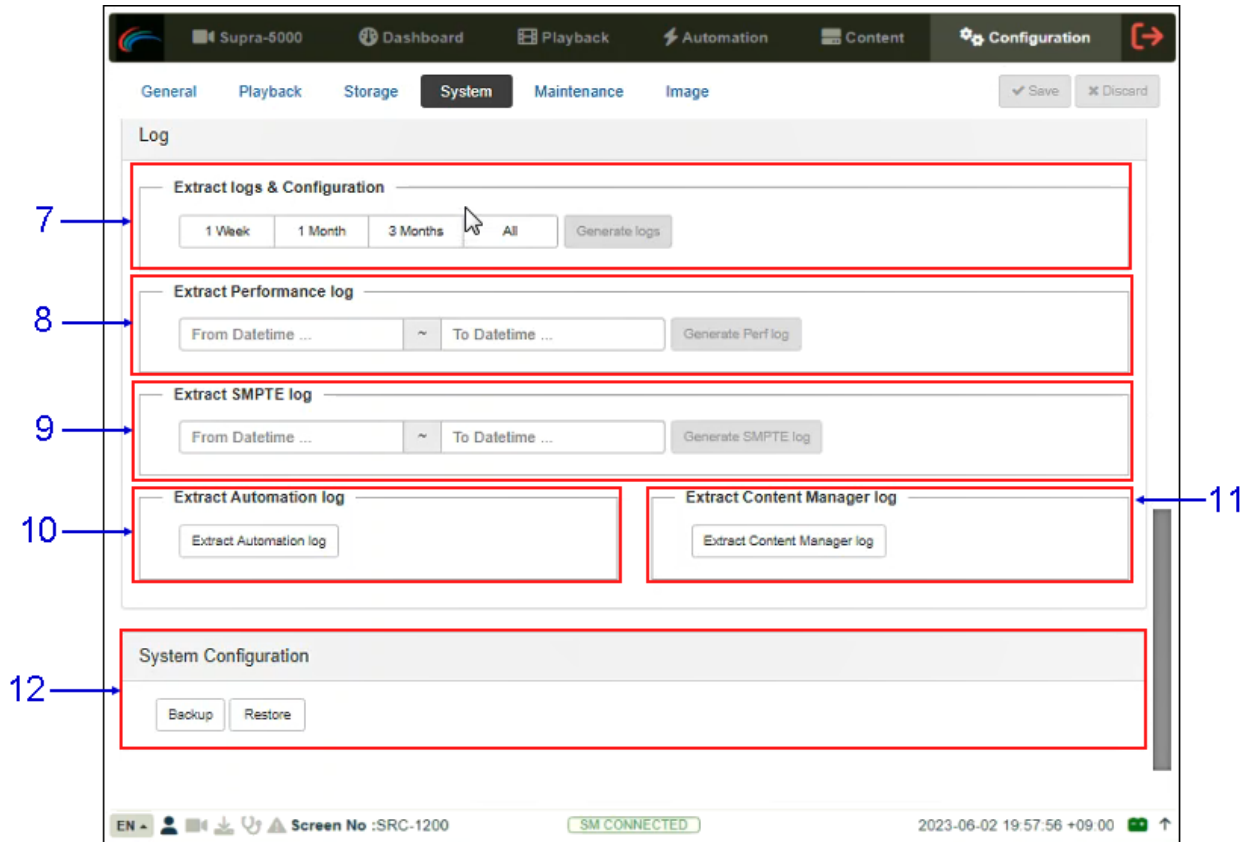
Figure 139: Configuration → System (3)

SN	Name	Function Description
7	[Extract logs and configuration]	This allows the operator to extract debug logs from the DCMB for analysis by Espedeo personnel. Time duration includes '1 Week', '1 Month', '3 Months' and 'All'. After selecting the time duration, the Generate logs button will be enabled. A pop-up window will be shown to display the log extraction progress. After log generation, a pop-up window will be shown to save or open the extracted file.
8	[Extract Performance Log]	This allows the operator to extract performance logs from the DCMB. After selecting the 'From/To datetime', the Generate Perf log button will be enabled. A pop-up window will be shown to display the log extraction progress. After log generation, a pop-up window will be shown to save or open the extracted file.

9	[Extract SMPTE Log]	This allows the operator to extract SMPTE audit logs from the DCMB. After selecting the 'From/To datetime', the Generate SMPTE log button will be enabled. A pop-up window will be shown to display the log extraction progress. After log generation, a pop-up window will be shown to save or open the extracted file.
10	[Extract Automation Log]	Extract automation logs from the DCMB. After clicking the Extract Automation log button, a pop-up window will be shown to save the file.
11	[Extract Content Manager Log]	Extract Content Management logs from the DCMB. After clicking the Extract Content Manager log button, a pop-up window will be shown to save the file.
12	[System Configuration]	
	Backup **Restore**	Backup and Restore options are available. The Backup option saves the DCMB configuration to a backup file. A pop-up window will be shown to save the configuration file. The Restore option will restore the DCMB configuration from a backup file. Users can upload the configuration files.

Table 70

4.6.5 Configuration → Maintenance

The **Maintenance** sub-tab can be used to install software upgrades for the DCMB. Warranty information is also displayed under this sub-tab.
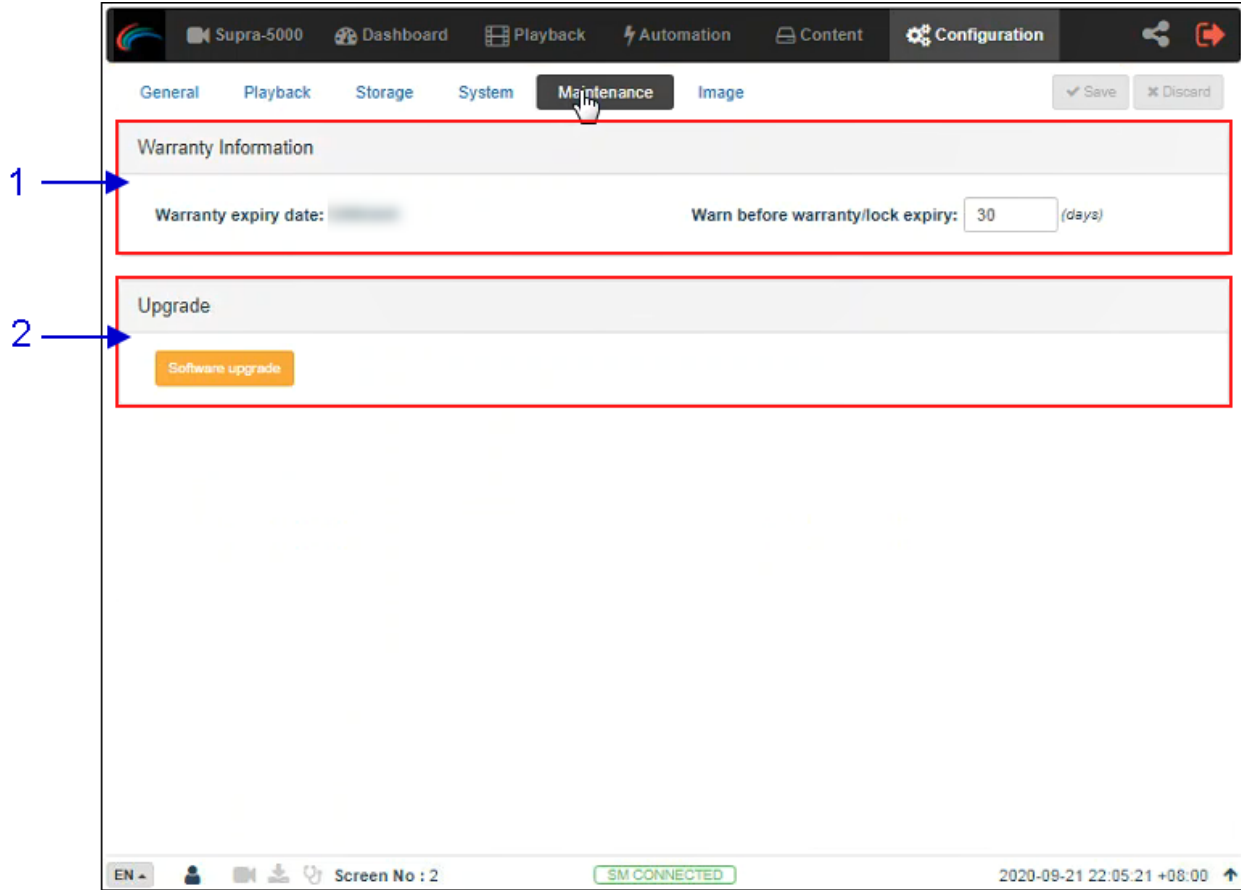
Figure 140: Configuration → Maintenance

SN	Name	Function Description
1	[Warranty Information]	
	Warranty expiry date	The warranty expiry date is shown.
	Warn before warranty/lock expiry	The number of days in advance to issue a warning before warranty/lock expiry can be set.
2	[Upgrade]	
	Software Upgrade	When this button is clicked, a pop-up window will be shown with an option to choose and upload any Espedeo issued upgrade files. Refer to **Section 6.2** for more details related to performing a DCMB software upgrade.

Table 71

4.6.6 Configuration → Image

The **Image** sub-tab can be used to set up test patterns, configure 3D settings, set masking and configure settings related to color processing and color correction for the projector. These options are to be used during the initial setup and calibration of the Supra-5000 projector.

CAUTION: The options present under the **Image** sub-tab are NOT intended to be used by normal users/operators and they should refrain from changing any settings present under this tab. These settings are meant to be used specifically by personnel who are authorized/certified to install the projector, for the initial setup and calibration.

4.6.6.1 Image → Image Source
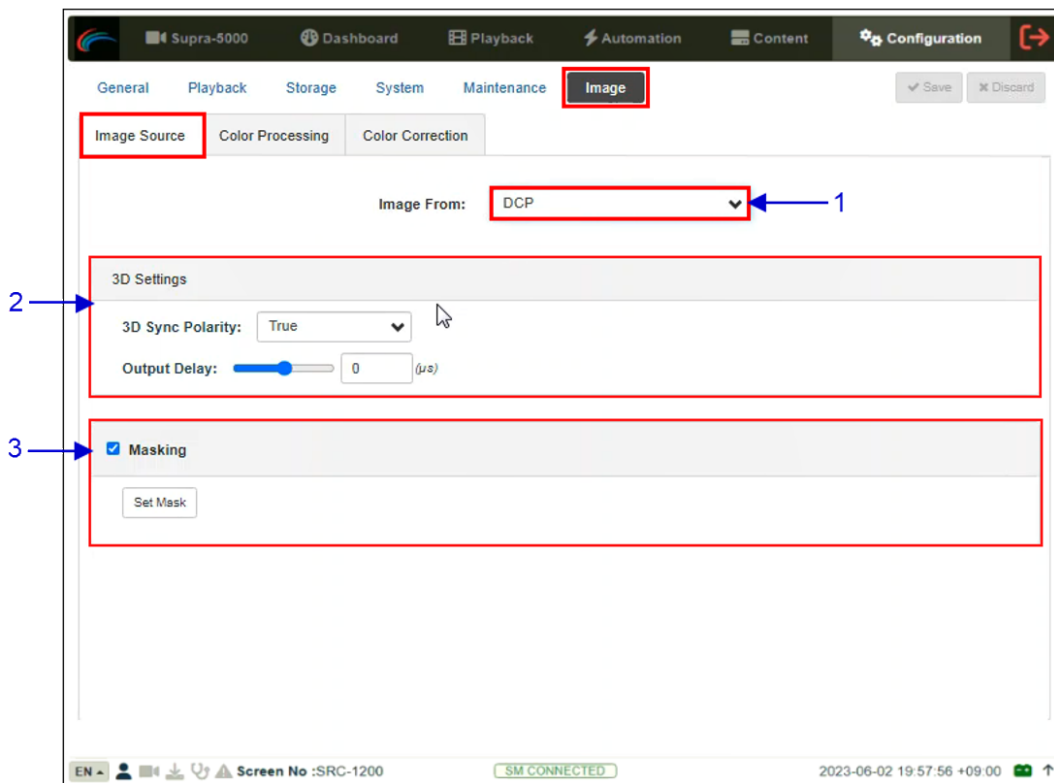
Figure 141: Configuration → Image

SN	Name	Function Description
1	[Image From:]	Allows the user to select the image source for the projector. This drop-down has two options: • **DCP** • **Test Pattern** The **DCP** option should be selected for playback of compliant DCP content, during the normal operation of the projector.

		The *Test Pattern* option should be selected during projector setup when the output of the projector needs to be tested. Refer to **Section 4.6.6.1.1** for details on selecting a test pattern as the image source for the projector.
2	**[3D Settings]**	
	3D Sync Polarity:	Indicates the polarity of the L/R output reference signal. The L/R output reference signal provides an external reference to the start of dark time for each displayed frame as well as specifies which frame of eye data (Left or Right) is being displayed. **NOTE**: To set up the PM-2000B 3D System with the Supra-5000 Projector, the **3D Sync Polarity** value should be set to "True".
	Output Delay:	Indicates the output reference delay value. The output delay shifts the output reference signal which results in the best 3D viewing with the least possible crosstalk between eyes. **NOTE**: To set up the PM-2000B 3D System with the Supra-5000 Projector, the **Output Delay** value should be set to "-120µs".
3	**[Masking]**	
	Set Mask	Allows the user to set the masking for the projected image. To enable masking, select the Masking checkbox and click the **Set Mask** button. To adjust the screen masking, drag the adjustment points to the desired coordinates or curvature. You can also click on a particular adjustment point and enter the corresponding 'X and Y' or 'Curve' values. Click on the **Reset All** button to reset all the adjustment points. Click on the **Save** button to apply the masking to the projected image. **NOTE**: The screen masking adjustments which are done from the Masking section (**Configuration → Image → Image Source**) will not override or be saved to the Screen file of the currently selected Macro. These masking adjustments will be lost as soon as the user selects the same or a different Macro from the **Macro Settings** section of the Supra Command Center.

Table 72

4.6.6.1.1   Selecting a Test Pattern
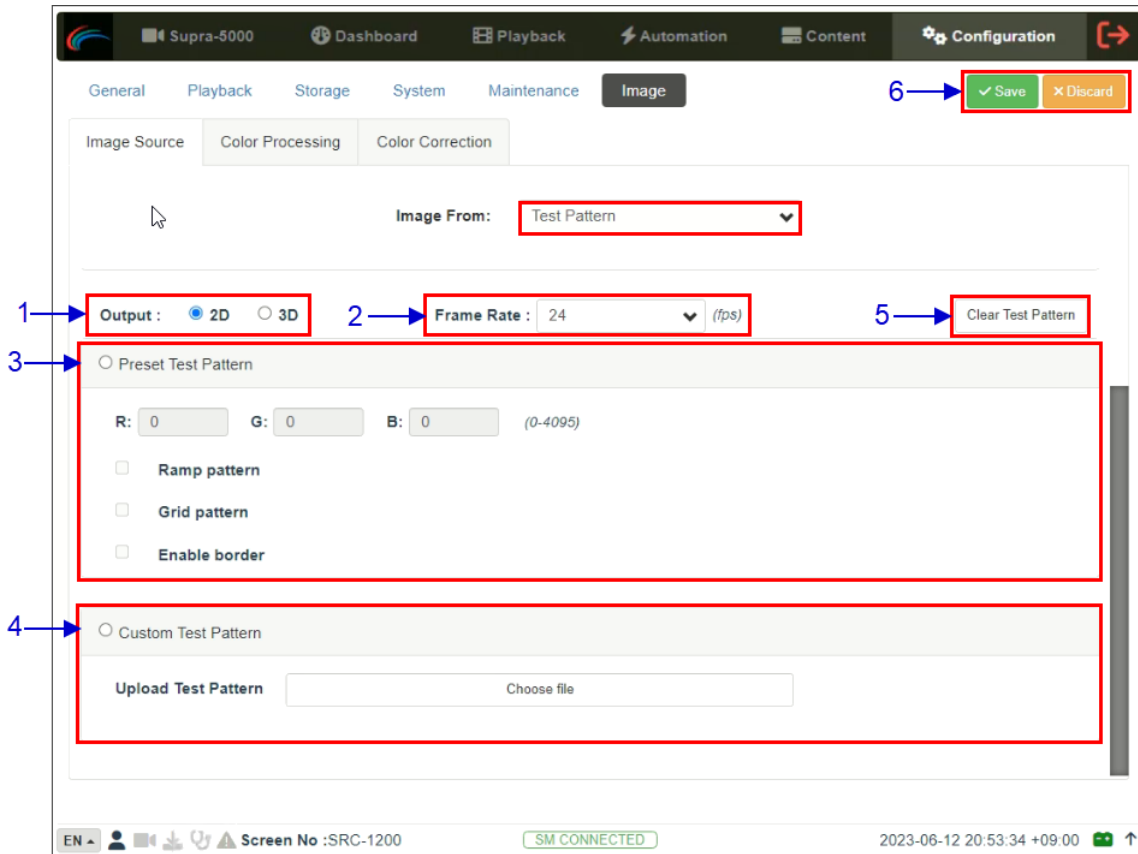
Figure 142: Image → Image Source

SN		Function Description
1	[Output:]	Allows the user to switch the projector to '2D' or '3D' mode when the test pattern is being displayed.
2	[Frame Rate:]	Allows the user to set the display framerate for the test pattern being displayed. **NOTE**: The framerate values displayed within this dropdown, will depend on the Output mode selected by the user.
3	[Preset Test Pattern]	
	R: G: B:	When enabled, a preset test pattern will be created based on the color values entered and options selected by the user These values define the color of the test pattern displayed. Each field accepts a 12-bit number within the range of 0 to 4095. Based on the values entered in the **R: G: B:** fields, a test pattern with the corresponding color will be created. Click on the Save button without selecting any additional test pattern to generate a plain screen with RGB value entered.

	Ramp pattern	This option can be checked to display a ramp pattern that will be generated horizontally across the screen, based on the RGB values entered. The RGB value of the left corner of the screen will be '0:0:0' and that of the right corner of the screen will be the RGB values entered.
	Grid pattern	This option can be checked to display a White grid pattern on top of the selected test pattern.
	Enable border	This option can be checked to display a White border on top of the selected test pattern. **NOTE:** The **Ramp Pattern, Grid Pattern** and **Enable border** options can be enabled/disabled in any desired combination and will be superimposed on the color test pattern displayed on the projector screen.
4	[Custom Test Pattern]	
	Upload Test Pattern	Allows the user to upload a custom test pattern file from the PC/Laptop being used to access the Web UI. Click on the **Choose file** button to browse and select the custom test pattern file from the folder where it has been stored. Once selected, click **Open**. For more details regarding custom test pattern files; contact your vendor.
5	[Clear Test Pattern]	Click on the **Clear Test Pattern** button to clear the test pattern displayed on-screen.
6	[Save / Discard]	Click on the Save button to apply the configured preset/test pattern and project it on-screen. Click on the Discard button to discard the changes.

Table 73

4.6.6.2 Image → Color Processing
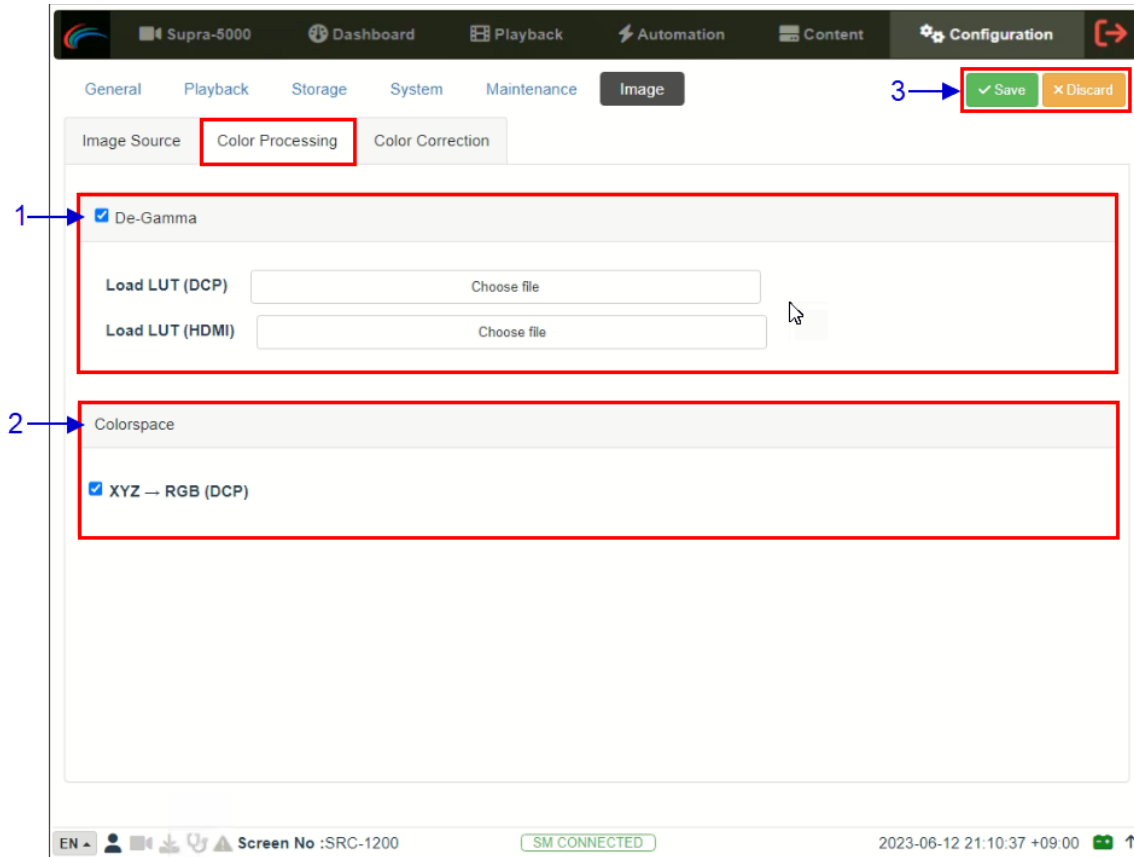
Figure 143: Image → Color Processing

SN	Function Description
1	[De-Gamma]
	Load LUT — This option should be enabled for DCP/HDMI playback, whereas this option should remain unchecked during projector setup when test patterns are used to calibrate the projector. When the De-Gamma option is enabled, the gamma curve from the last loaded LUT will be applied. If no LUT file has ever been uploaded, then the default LUT will be applied. Alternately, the user can upload a custom **Look Up Table** (LUT) file to change the Gamma curve file for DCP and/or HDMI playback from the PC/Laptop being used to access the DCMB Web UI. Click on the corresponding **Choose file** button to browse and select the custom LUT file for DCP and/or HDMI playback from the folder where it has been stored. Once selected, click **Open**. Please contact Espedeo Holdings Ltd. for more details regarding custom LUT files.

2	[Colorspace]	
	XYZ → RGB	This option should be enabled when the image source is XYZ. If not, then this option should remain unchecked. Since DCPs are usually XYZ, this option should be enabled for DCP playback whereas this option should remain unchecked during projector setup when test patterns are used to calibrate the projector.
3	[Save / Discard]	Click on the Save button to save the changes to the color processing options. Click on the Discard button to discard the changes.

Table 74

4.6.6.3 Image → Color Correction
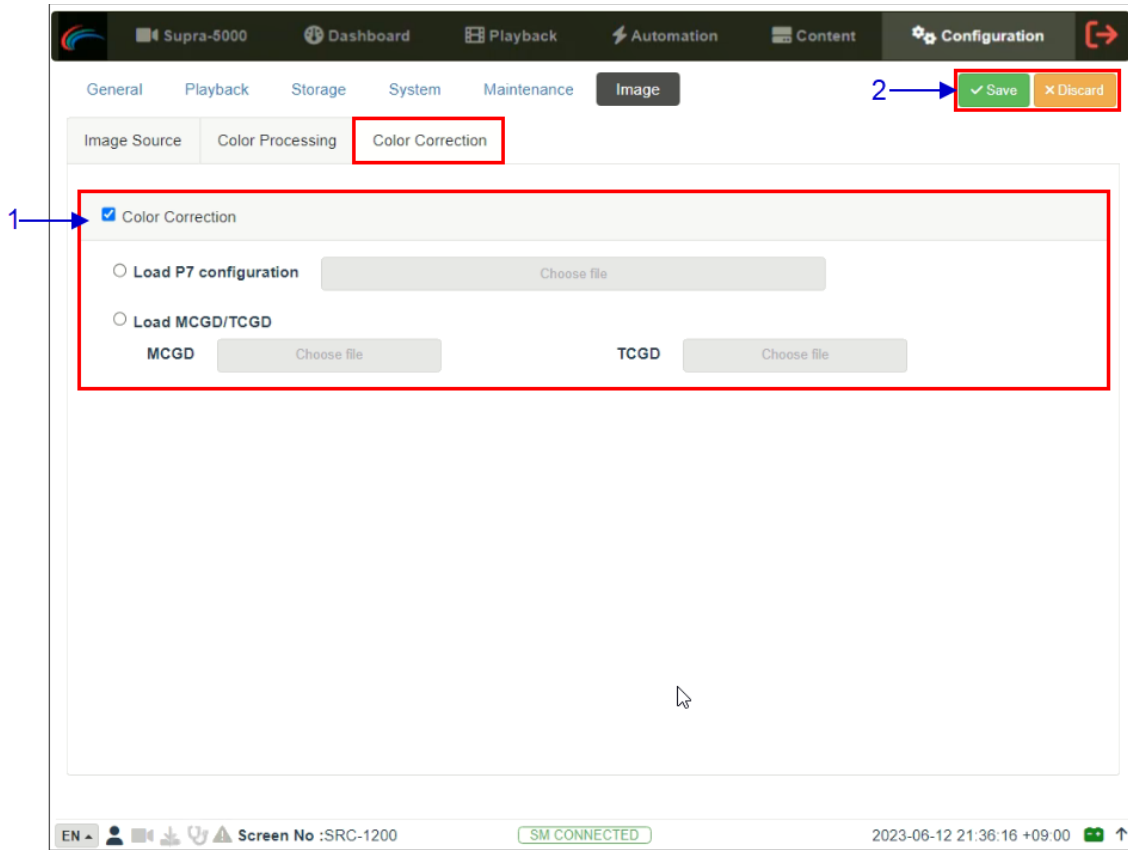
Figure 144: Image → Color Correction

SN	Function Description
1	[Color Correction]

		This option can be enabled/disabled as required during projector setup when test patterns are used to calibrate the projector whereas this option should remain enabled during DCP playback.
		When the Color Correction option is enabled; the user can choose to upload either of the files mentioned below, from the PC/Laptop being used to access the DCMB Web UI:
	Load P7 Configuration	A custom P7 Configuration file with the desired color correction values OR
	Load MCGD/TGCD	The MCGD (Measured Color Gamma Data) and TCGD (Target Color Gamma Data) files allow the system to calculate the color correction values needed.
		Click on the **Choose file** button to browse and select the custom configuration file from the folder where it has been stored. Once selected, click **Open**.

		If the Color Correction option is enabled and a custom P7 Configuration file OR MCGD/TCGD files are not selected, then the last loaded P7 Configuration OR MCGD/TCGD files will be applied for color correction. Please contact Espedeo Holdings Ltd. for more details regarding custom P7 Configuration and MCGD/TCGD files.
2	[Save / Discard]	Click on the Save button to save the changes to the color processing options. Click on the Discard button to discard the changes.

Table 75

5. Audio Processing

This section provides instructions on how to configure the settings related to Audio Processing, present within the **Audio** tab of the DCMB Web UI. The Audio Processing capability (optional) of the Supra-5000 can be enabled by installing an Audio Processing License and upgrading the DCMB software version.

Please contact Espedeo Holdings Ltd. for more information related to enabling the optional Audio Processing capability of the Supra-5000 Projector.

With the built-in digital cinema audio processor option; the Supra-5000 offers the capability to provide superior 5.1/ 7.1 surround sound designed for digital cinema applications. The embedded robust audio processing engine can achieve precise sound system calibration of the theatre. It supports 1/3-band Graphic Equalization with independent Bass/Treble controls for seven non-LFE channels, 2-way Crossover, Parametric Equalizer on LFE channel and individual Channel Delay/Channel Gain adjustments.
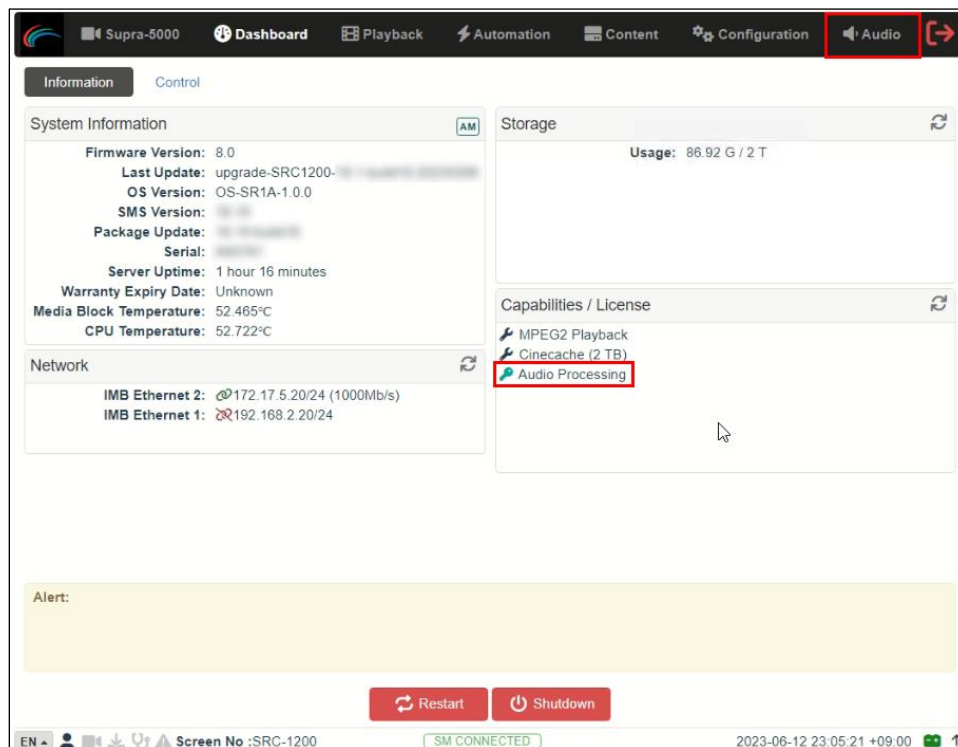
Figure 145: Audio Processing option

Espedeo also offers a variety of premium quality digital-to-analog converters (DACs), to interface with external audio equipment such as analog amplifiers, booth monitor, microphone and media players.

NOTE: Enabling the Audio Processing capability might change some audio-related settings of the Supra-5000 without the Audio Processing License (with regards to the Audio section under the **Configuration → Playback** sub-tab) as these would be merged into the newly-created **Audio** tab.

The **Audio** tab is divided into four sub-tabs i.e., **DCP Channels**, **Processing**, **Output Routing** and **Configuration**.

5.1 Processing
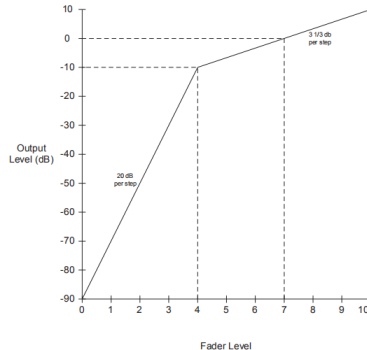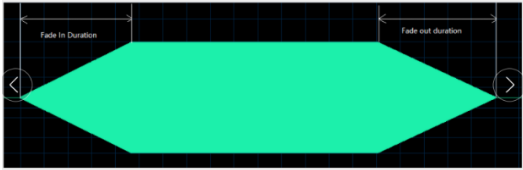
The **Processing** sub-tab is used to access the Equalization (EQ), Channel Delay and Gain settings as well as manage Presets.

Figure 146: Audio → Processing

SN	Name	Function Description
1	[Presets:]	Allows you to create presets. Presets include values for [EQ Gain], [Crossover], [Channel Gain], [Channel Delay] and [Global Delay]. Every Preset that is created, can be copied, renamed, saved and deleted using the corresponding options. The Import and Export options allow you to import and export presets respectively.
2	[Graphic EQ]	Each channel supports 27 bands of 1/3-band Graphic Equalization for gain control (apart from 'LFE'). The band gain range is -6dB to +6dB in 0.1 dB step.

3	[Channel Gain]	Allows you to set the individual gain of each channel, in the range of -22dB to 8dB in 0.1dB step
4	[Channel Delay]	Allows you to set the individual delay of each channel, in the range of 0 to 500 milliseconds.
5	[Copy]	Copies the selected channel settings to a specified channel, to reduce repetitive work. Copy to another channel will include copying the crossover settings as well (refer to **Section 5.1.2**). Example: Copying the 'Left' channel settings to the 'Right' channel, by selecting 'Right' from the Copy To drop-down. Copy To: Right ✔ ✖
6	[Flatten]	Resets the EQ and Gain values of the selected channel: I. When the Graphic EQ of any channel (except 'LFE') is selected; pressing Flatten will reset the EQ and Channel Gain values of that channel to 0dB. II. When the Bass/Treble of any channel is selected; pressing Flatten will reset the Bass and Treble values of that channel to 0dB and reset the Treble Corner Frequency to 1kHz. III. When the 'LFE' channel is selected; pressing Flatten will reset parametric EQ controls to their default values as well as the Channel Gain to 0dB.
7	[Input Level indicator]	Displays the level of the input for all the channels.
8	[Signal Generator]	The Signal Generator function can be used to output an audio test signal to one or more output channels. Refer to **Section 5.1.4** for more details.

9	[Fader]	Controls the adjustment of the [Main Fader] for all channels. The default Fader value is set at 7, representing gain output at 0dB. When the Fader level is set within the range of 0 to 4; the corresponding gain setting changes from -90dB to -10dB with a variation in amplitude of 20dB per step. When the Fader level is set in the range of 4 to 10, the corresponding gain setting changes from -10dB to 10dB with a variation in amplitude of 3.33dB per step. In this way, the Main volume can have a large dynamic range and can be fine-tuned when it is near 0dB.
10	[Mute]	Press the Mute Button 🔊 to "fade out" all channel outputs until they are muted. At this time, the Fader volume setting will not be changed. Press the Unmute Button ◉ again to "fade in" all channel outputs until their original set volumes are restored. Fade-in(mute) and Fade-out(mute) speeds can be set respectively under the **Configuration** sub-tab (refer to **Section 5.4**), ranging from 0.2 seconds to 5 seconds.
11	[Enable Processing]	When the Enable Processing checkbox is unchecked, the audio processing is bypassed. **NOTE**: When this option is enabled/disabled; the corresponding changes to the audio output, will reflect from the next playback on the DCMB.
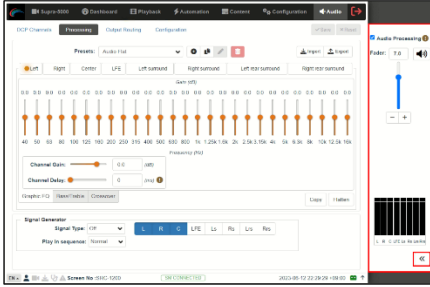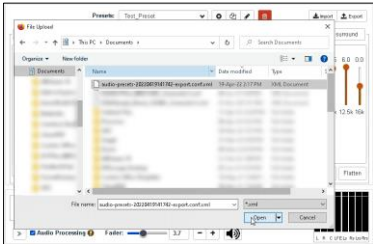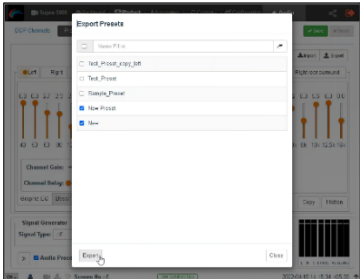
12	»	Press this button to shift the position of the Fader controls, Mute button and Input Level Indicator to a separate vertical panel alongside the DCMB Web UI. This feature can be used to view as well as adjust the Master Fader level and Mute/Unmute output while browsing through any Web UI screen. To restore the position of these controls, clicking the « button.
13	[Import/Export]	The Import option can be used to import audio presets from an existing configuration file which is available on your local PC/Laptop, via the web browser. Click the Import button to open the **File Upload** window and browse to the folder location where the preset configuration file is stored. Select the file and click the **Open** button to upload it. The audio presets which have been imported, will now be available under the Presets dropdown. The Export option can be used to download audio presets (in the form of a .xml configuration file) to your local PC/Laptop, via the web browser. Click the Export button and select the audio presets that need to be downloaded. Once selected, click the **Export** button to download the preset configuration file to the web browser's default *Downloads* folder.

Table 76

5.1.1 Bass/Treble

When it is necessary to increase or decrease the low frequencies or high frequencies as a whole, the Bass/Treble option can be used for the overall adjustment. All channels except 'LFE' can be adjusted individually.

It is recommended to adjust the Bass/Treble before adjusting the gain of each band one-by-one.
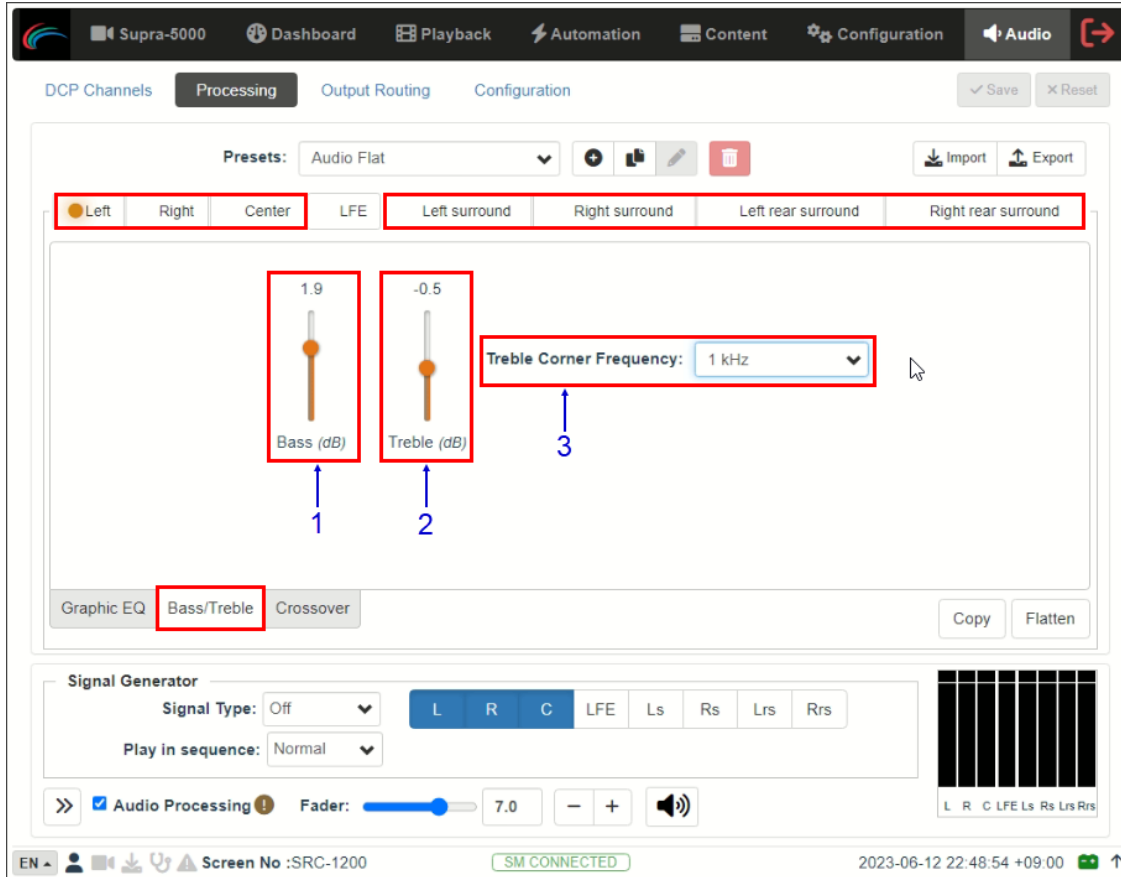
Figure 147: Bass/Treble

SN	Name	Function Description
1	[Bass (dB)]	The adjustment range for Bass is from -6dB to +6dB in 0.1 dB step.
2	[Treble (dB)]	The adjustment range for Treble is from -12dB to +12dB in 0.1 dB step.
3	[Treble Corner Frequency]	The Treble Corner Frequency can be set to 1kHz, 2KHz, 3kHz or 4kHz.

Table 77

5.1.2 Crossover

The Crossover functionality can be enabled for the 'Left', 'Center' and 'Right' channels in a **2-way bi-amplified** mode. Once enabled, the 'Low-band' and 'High-band' filter settings can be configured individually.
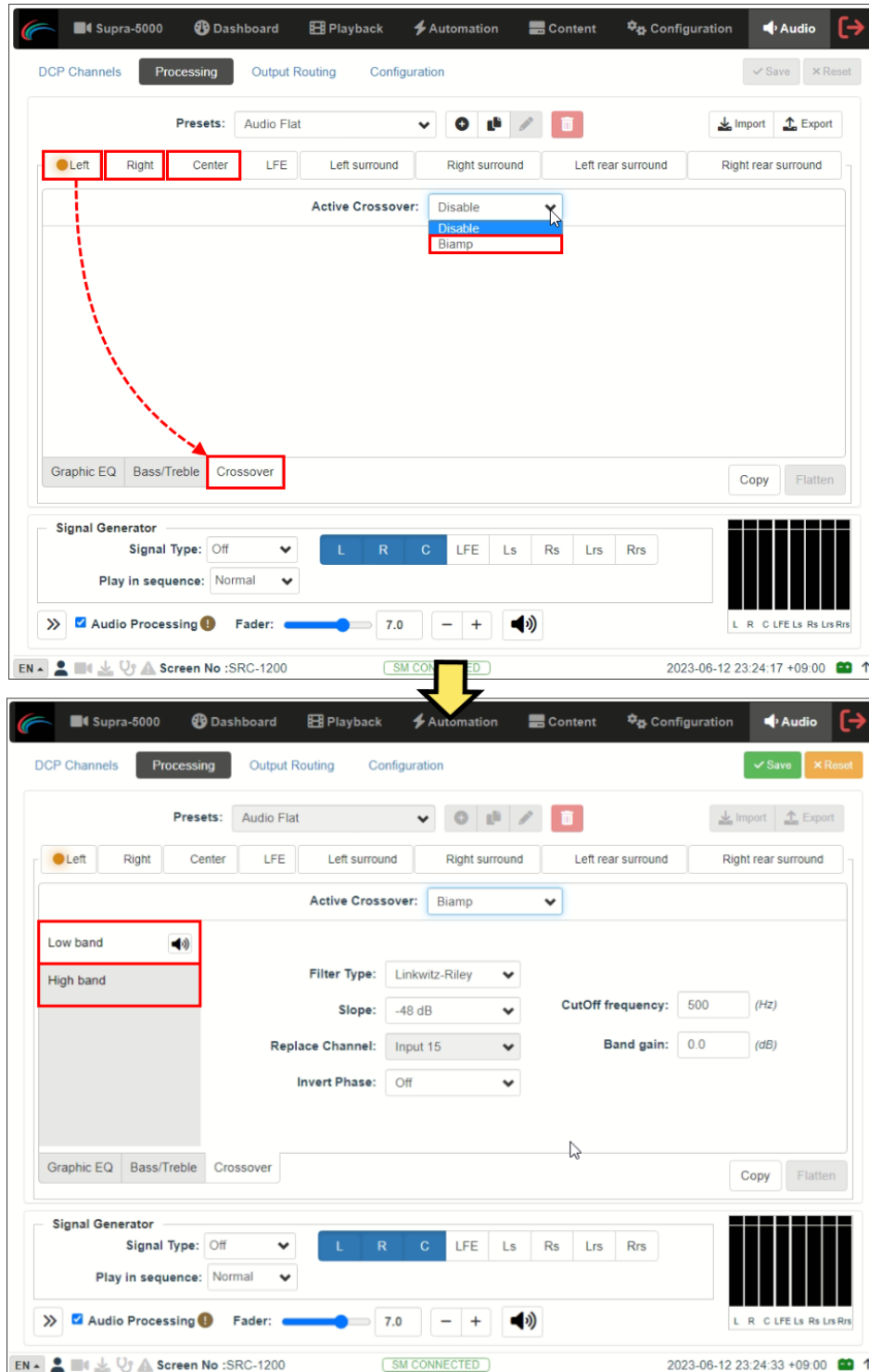
Figure 148: Crossover
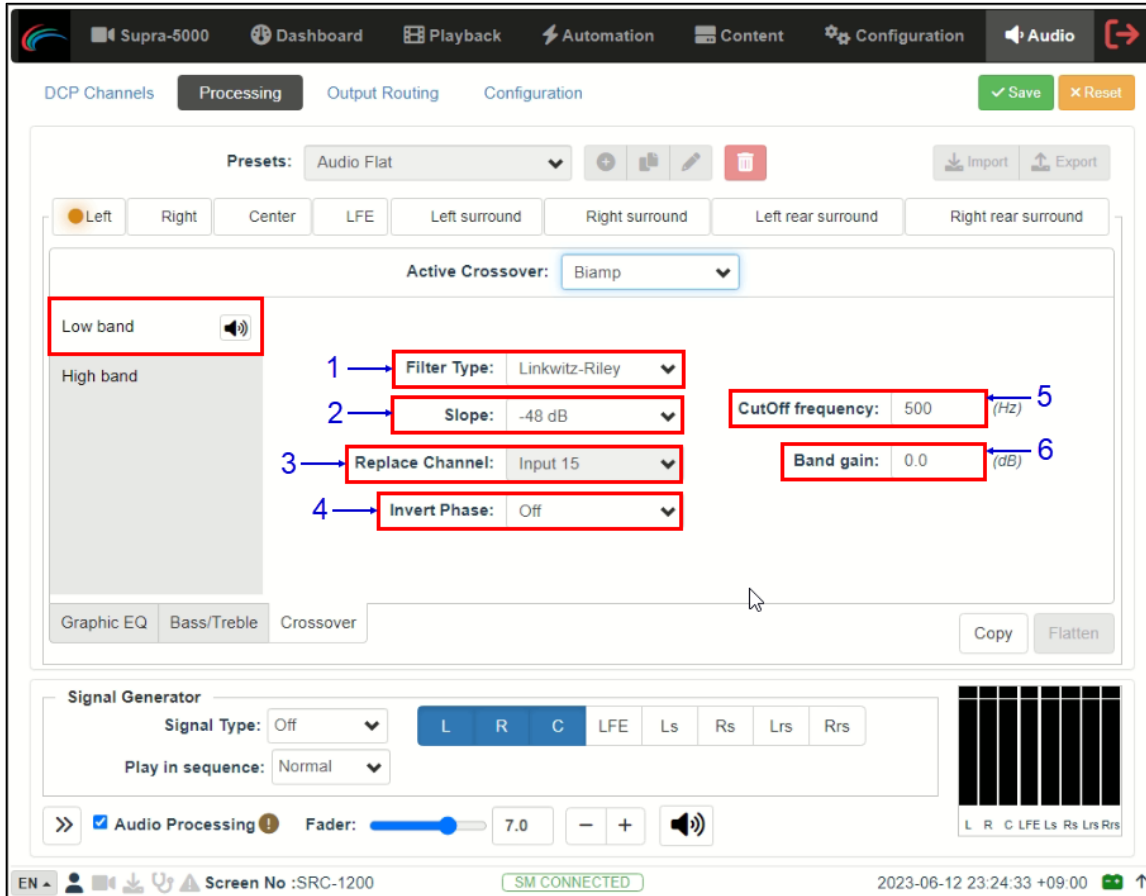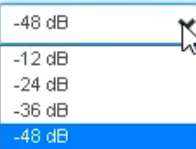
Figure 149: Low/High Band Filter settings

SN	Name	Function Description
1	[Filter Type:]	Select the filter type for the selected band. The following filter types are available: Linkwitz-Riley Linkwitz-Riley Butterworth
2	[Slope:]	Select the slope for the selected filter type. The filter slope is defined in *dB/octave* and the following options are available: -48 dB -12 dB -24 dB -36 dB -48 dB
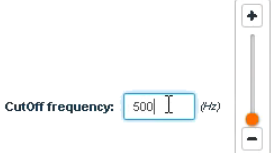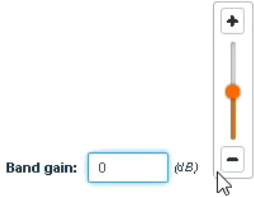
3	[Replace Channel:]	The channel which the selected band will replace. This will be set by default and cannot be changed.
4	[Invert Phase:]	Switch the Invert Phase to 'On' or 'Off'. This option inverts the phase of the selected band. Off ⌄ On Off
5	[CutOff frequency:]	Set the CutOff frequency for each band. The cut-off frequency of the High band is the High Pass Filter (HPF) cut-off frequency and the cut-off frequency of the Low band is the Low Pass Filter (LPF) cut-off frequency. Range for CutOff frequency value: 20 ~ 20000Hz and it is set to 500Hz, by default. CutOff frequency: 500 (Hz)
6	[Band gain:]	Set the current band gain. Range for Band gain value: -6 ~ 6dB (0.1 dB per step) and it is set to 0dB, by default. Band gain: 0 (dB)

Table 78

5.1.3 LFE Parametric EQ
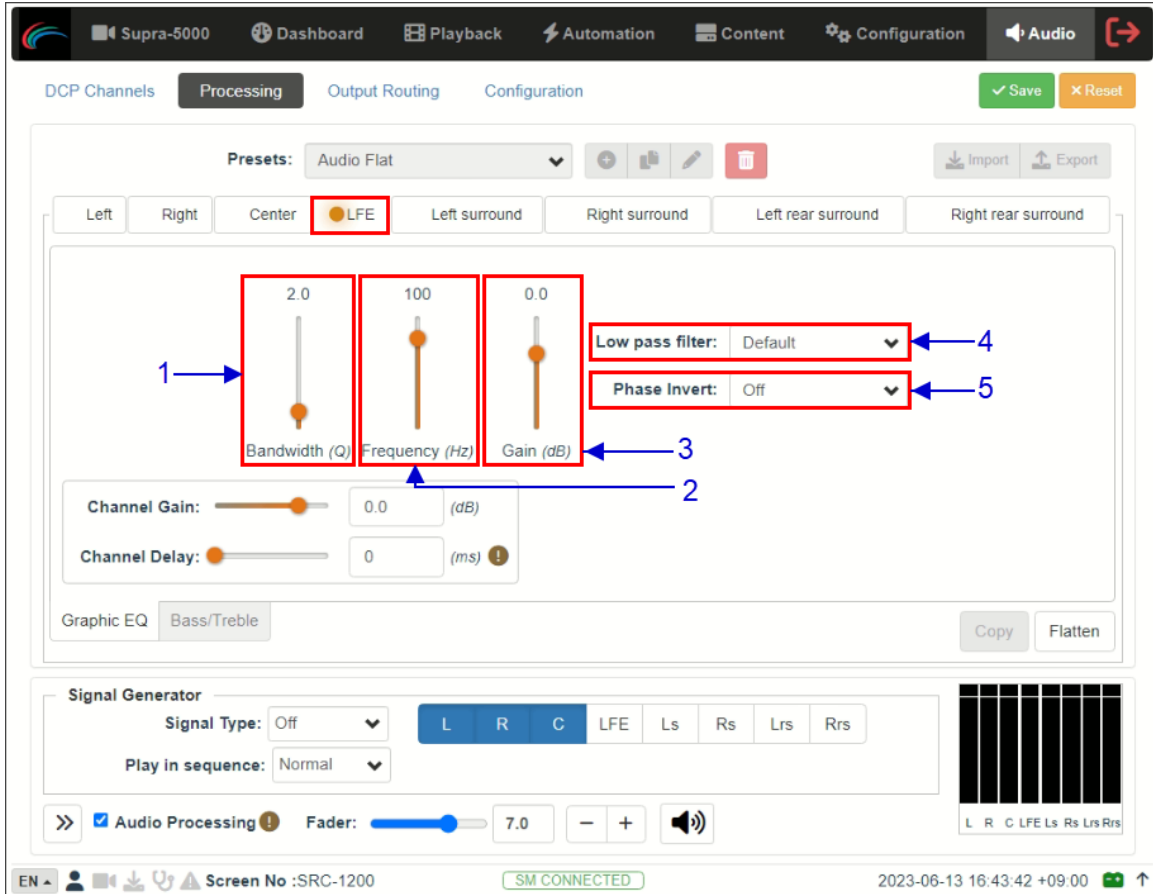
Figure 150: LFE Parametric EQ

SN	Name	Function Description
1	[Bandwidth (Q)]	Range for Bandwidth value: 0.5 ~ 10Q in 0.1 step.
2	[Frequency (Hz)]	Range for Frequency value: 20 ~ 120Hz in 10Hz step.
3	[Gain (dB)]	Range for Gain value: -12 ~ 6dB in 0.1dB step.
4	[Low pass filter]	You can choose the optimized '*Default'* low-pass filter or '*SMPTE'* defined low-pass filter.
5	[Phase Invert]	You can switch Phase Invert 'On' or 'Off'. This option inverts the phase of the LFE channel which is used to check if the subwoofer is in phase with the Center channel or not.

Table 79

5.1.4 Signal Generator

The in-built **Signal Generator** function can be used to output a test signal to one or more output channels, which may be required for calibrating the auditorium sound system.

The **Signal Generator** can produce five kinds of test signals, as listed below:

- *Pink noise,*
- *100Hz sine,*
- *1 kHz sine,*
- *10kHz sine*
- *Sweep.*
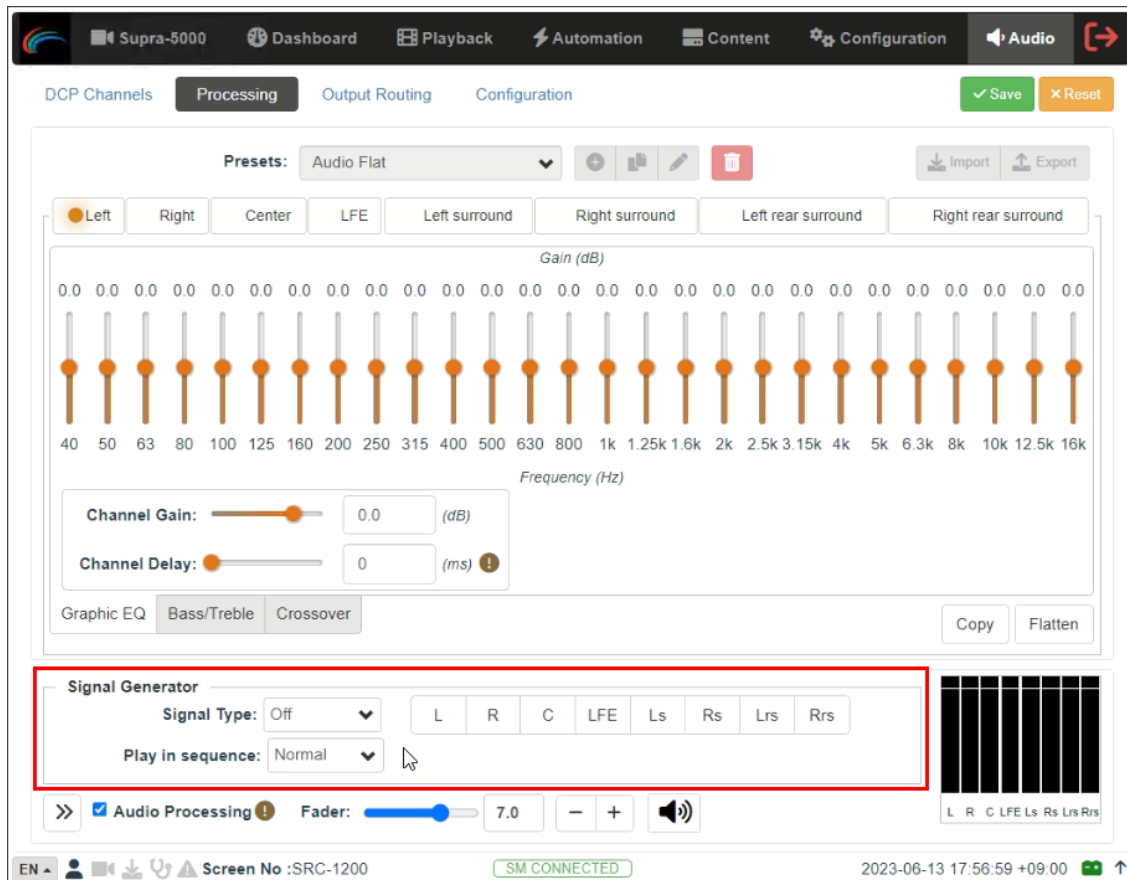
Figure 151: Signal Generator

The Signal Type drop-down can be used to select any one type of test signal (as shown in **Figure 152**) and initiate playback for the corresponding signal.

NOTE: The Signal Generator operation and DCP playback cannot be done at the same time.
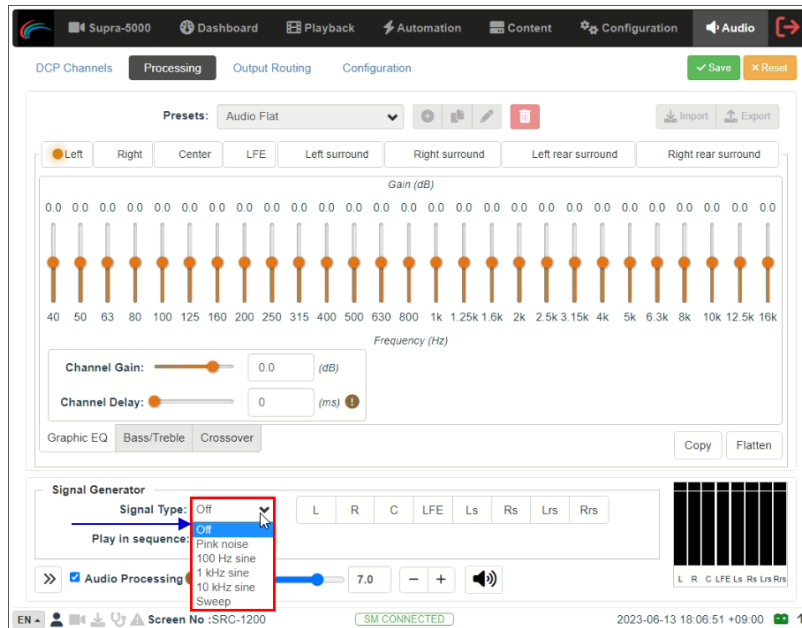
Figure 152: Select Signal Type

a) You can select the 'Normal' option from the Play in sequence drop-down and choose one or more channels through which the test signal should be played, using the toggle buttons provided under the **Signal Generator** section (as shown in **Figure 153**).
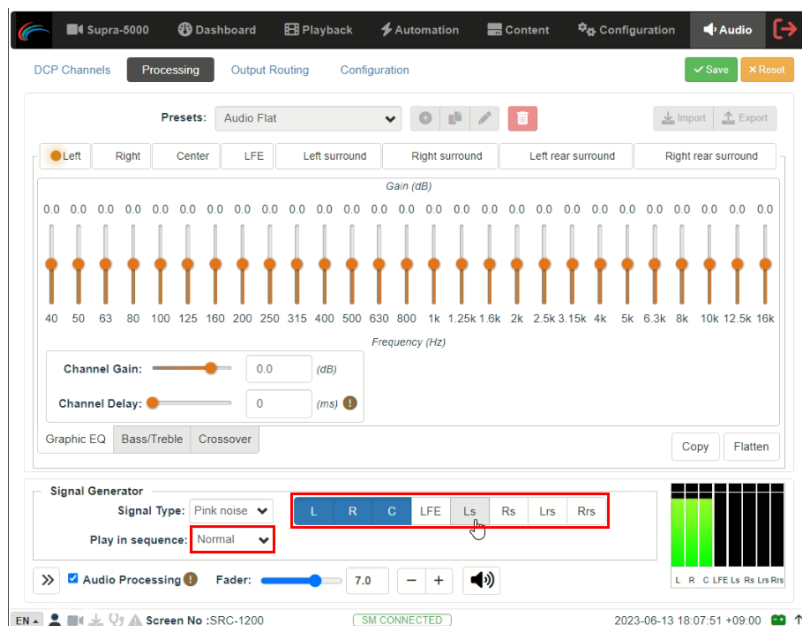
Figure 153: Play Test Signal through selected Channel(s)

b) You can select the '5.1' or '7.1' option from the Play in sequence drop-down in order to play the test signal sequentially through all the corresponding channels, one channel at a time (as shown in **Figure 154**).
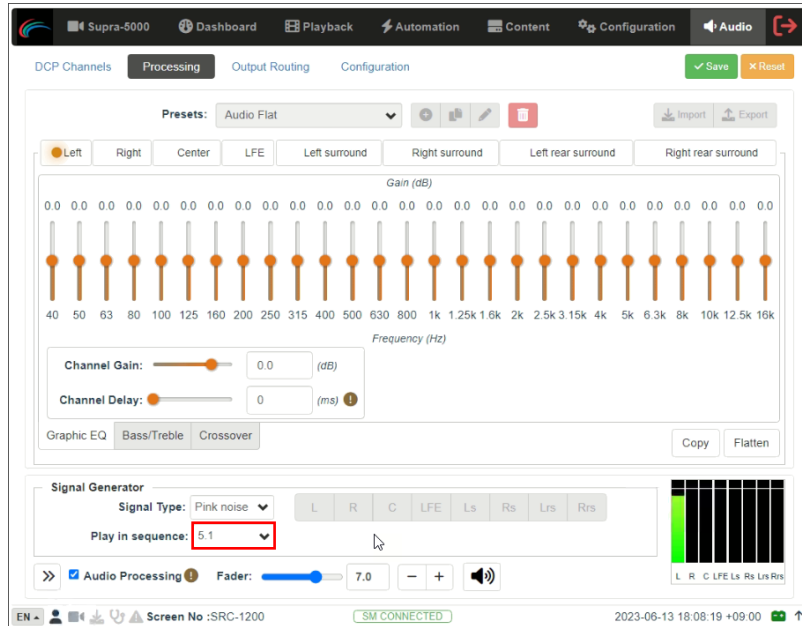
Figure 154: Play Test Signal in selected Sequence

c) You can select the 'Selection' option from the Play in sequence drop-down in order to play the test signal through the channel which is selected for EQ on top (as shown in **Figure 155**).
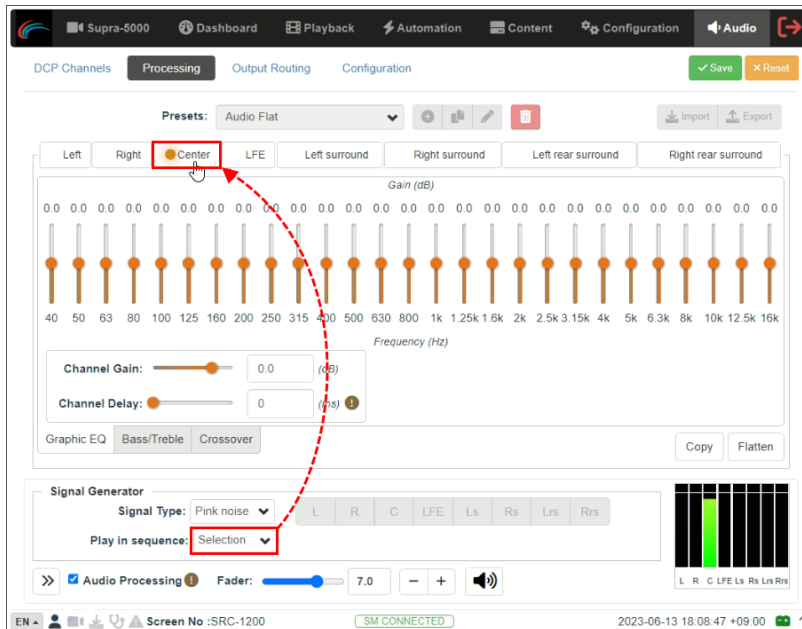
Figure 155: Play Test Signal through selected EQ channel

Select the 'Off' option from the Signal Type drop-down, to stop playback of the test signal.

NOTE: You can select the required option from the Play in sequence drop-down, prior to initiating playback of the test signal from the Signal Type drop-down.

5.2 DCP Channels

To ensure that the DCP audio channels are routed to the correct speakers in the auditorium, it is necessary to select the appropriate settings in the **DCP Channels** and **Output Routing** sub-tabs.

The **DCP Channels** sub-tab allows the user to select the channel assignment standard that the DCP adheres to. There are two channel assignment standards you can choose from, namely <u>SMPTE RDD 52 Table 3</u> and <u>SMPTE 429-2 Channel Configuration 5</u>.

Under the 'Channel Assignment' section, you can choose a standard for each type of DCP based on the channel count (as shown in **Figure 156**).
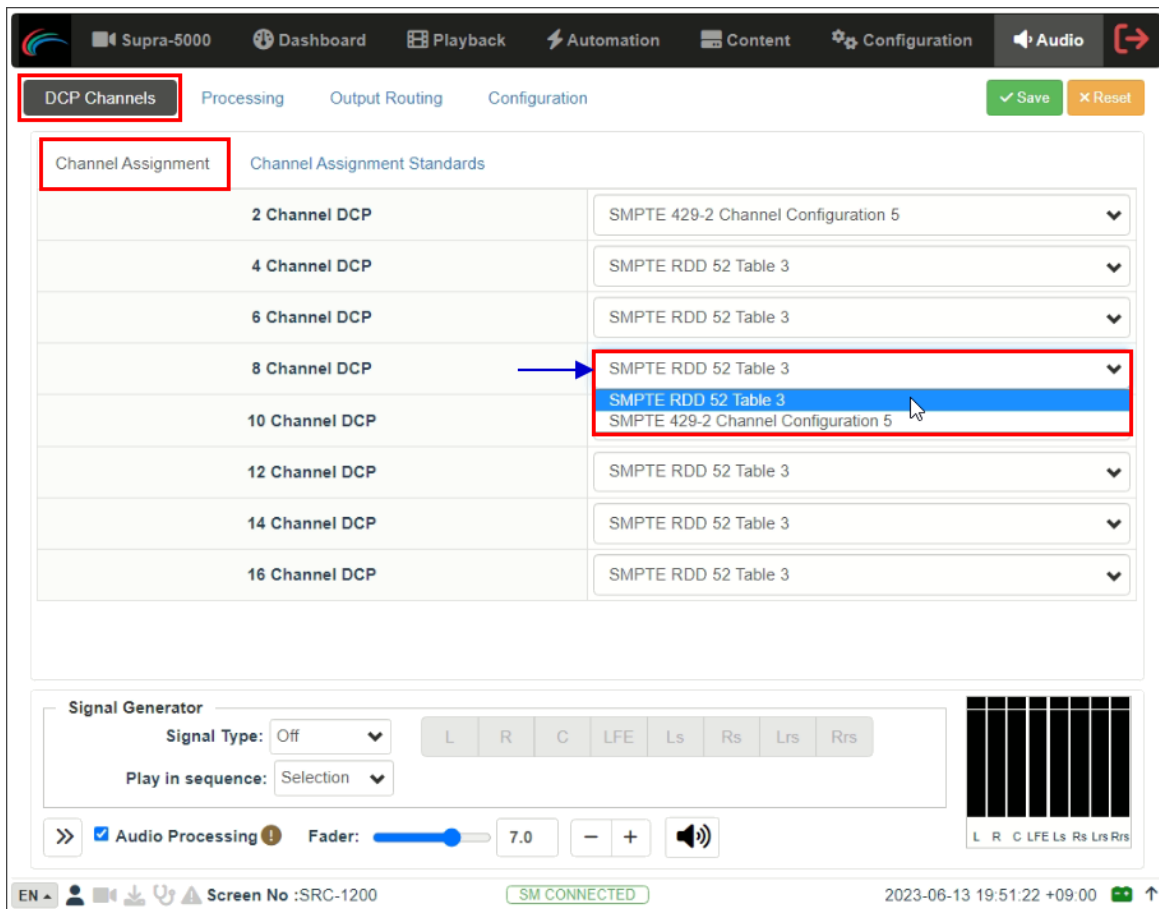
Figure 156: Audio → DCP Channels (1)

The 'Channel Assignment Standards' section allows you to view the channel assignment for each of the listed standards (as shown in **Figure 157**).

Figure 157: Audio → DCP Channels (2)

5.3 Output Routing

Using the **Output Routing** sub-tab, audio output from the DCMB can be re-mapped to appear on different audio channels.
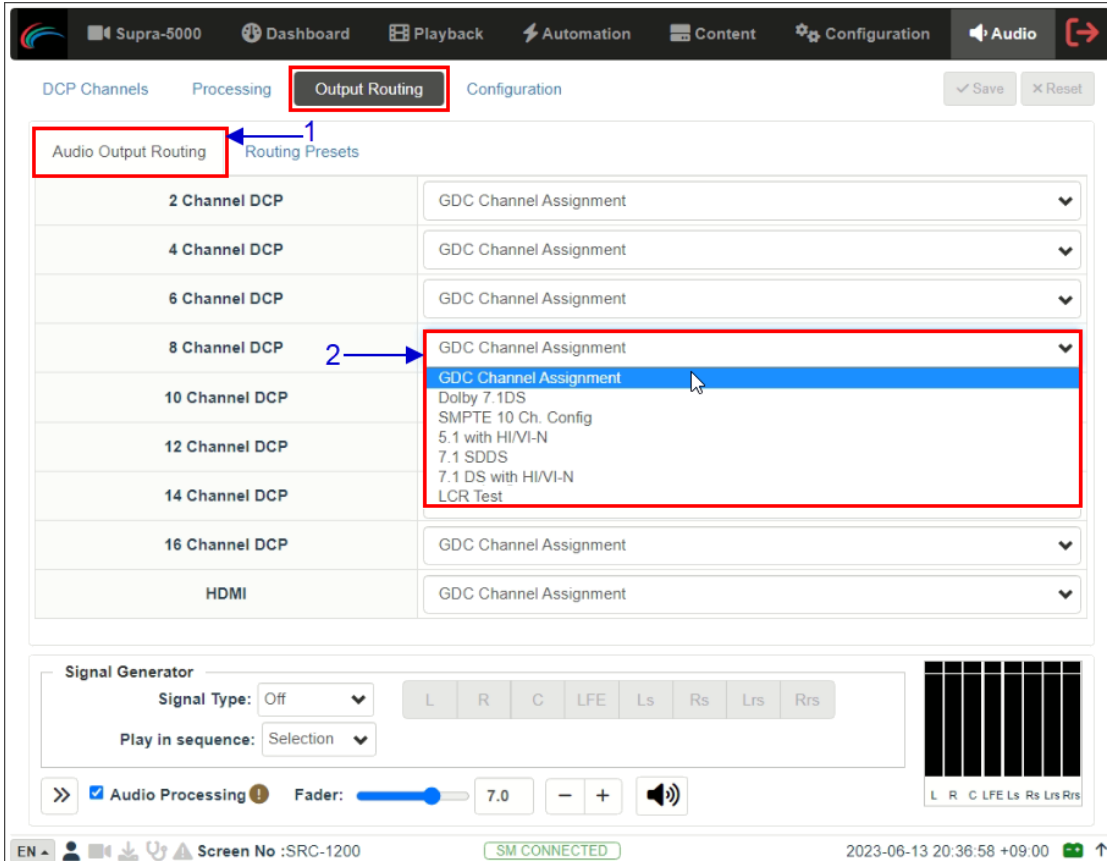
Figure 158: Audio → Output Routing (1)

SN	Function Description
1	Audio output based on the number of audio channels in the audio track of the source can be configured under the 'Audio Output Routing' section.
2	The preset for the number of audio channels in the audio track can be changed here. **NOTE**: The default preset is "GDC Channel Assignment". It is recommended to use this preset to ensure correct system operation with Audio I/O configuration mentioned in the Espedeo Supra-5000 Installation Manual.
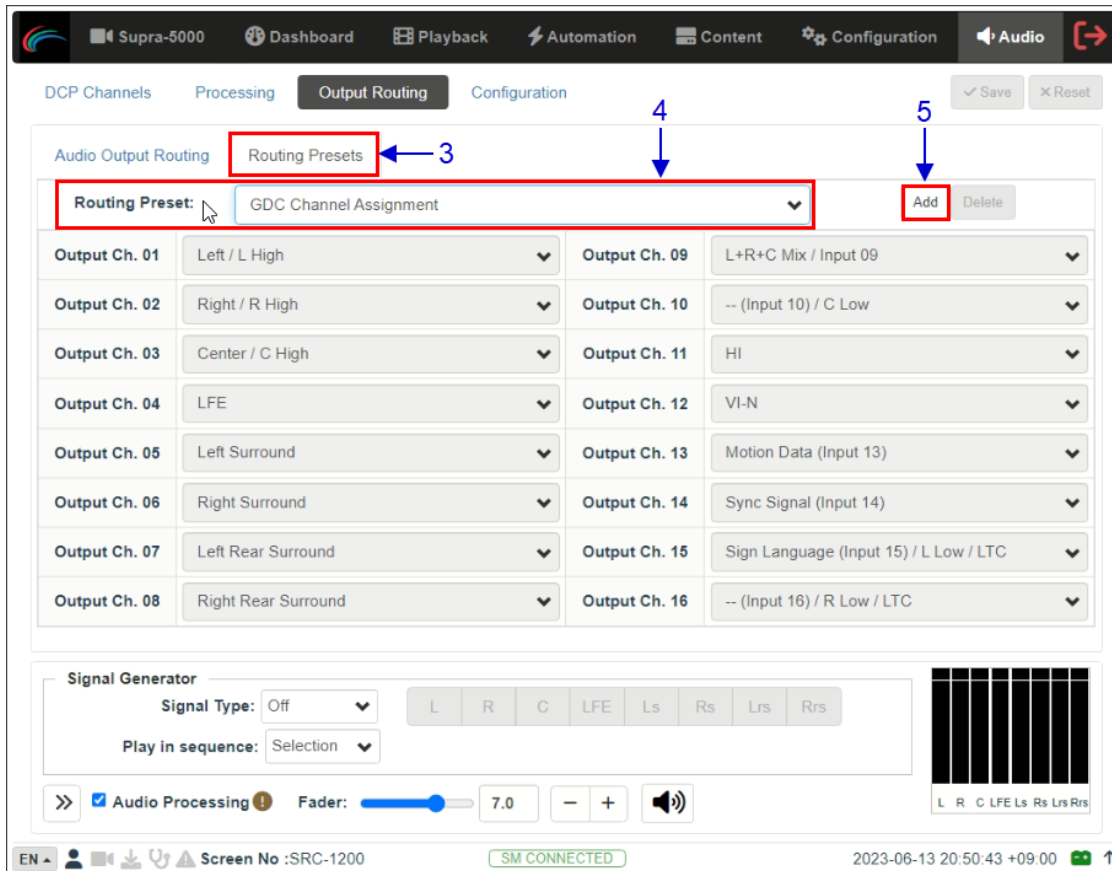
Figure 159: Audio → Output Routing (2)

SN	Function Description
3	Audio channel output presets can be selected and configured under the 'Routing Presets' section.
4	Using the Routing Preset: drop-down, you can select a preset to view or change preset settings.
5	Add a new preset or delete the current preset using the Add/Delete buttons. To add a new preset, enter the preset name and click OK. You can then choose the destination channel for each input channel, under the Edit screen.
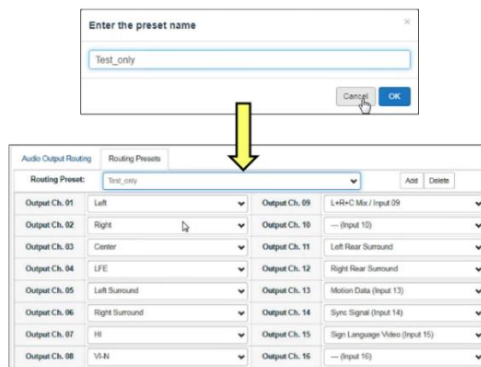
Table 80

5.3.1 Channel Assignment Preset Output Routing

Channel order AES3 out from SR-1000 (Audio)	Configuration						Note
	Mono	Stereo	5.1	5.1 Biamp	7.1 DS	7.1 Biamp	
1	–	L	L	L_High	L	L_High	Left
2	–	R	R	R_High	R	R_High	Right
3	C	-	C	C_High	C	C_High	Center
4	–	–	LFE	LFE	LFE	LFE	Screen Low Frequency Effects
5	–	–	Ls	Ls	Lss	Lss	Left (Side) surround
6	–	–	Rs	Rs	Rss	Rss	Right (Side) surround
7	–	–	–	–	Lrs	Lrs	Left Rear Surround
8	–	–	–	–	Rrs	Rrs	Right Rear Surround
9	Monitor (LRC)						L+R+C Mix or Middle Frequency of Center
10	–			C_Low	–	C_Low	Reserved or Low Frequency of Center
11	HI	HI	HI	HI	HI	HI	Hearing Impaired
12	VIN	VIN	VIN	VIN	VIN	VIN	Visually Impaired-Narrative
13	Motion Data						Synchronous signal (e.g.D-Box)
14	Sync Signal						Usedfor external sync (e.g.FSK Sync)
15	Sign LanguageVideo/LTC output (when enabled)			L_Low	Sign LanguageVideo /LTC output (when enabled)	L_Low	Sign LanguageVideo /Linear Time Code (when enabled) or Low Frequency of Left
16	LTC output (when enabled)			R_Low	LTC output (when enabled)	R_Low	Silence / Linear Time Code (when enabled) or or Low Frequency of Right

Table 81

NOTE: DCPs are assumed to follow 16-channels ISDCF recommended channel order.

In the above table, "_Low" indicates the low frequency output of the respective channel whereas "_High" indicates the high frequency output of the respective channel.

5.4 Configuration
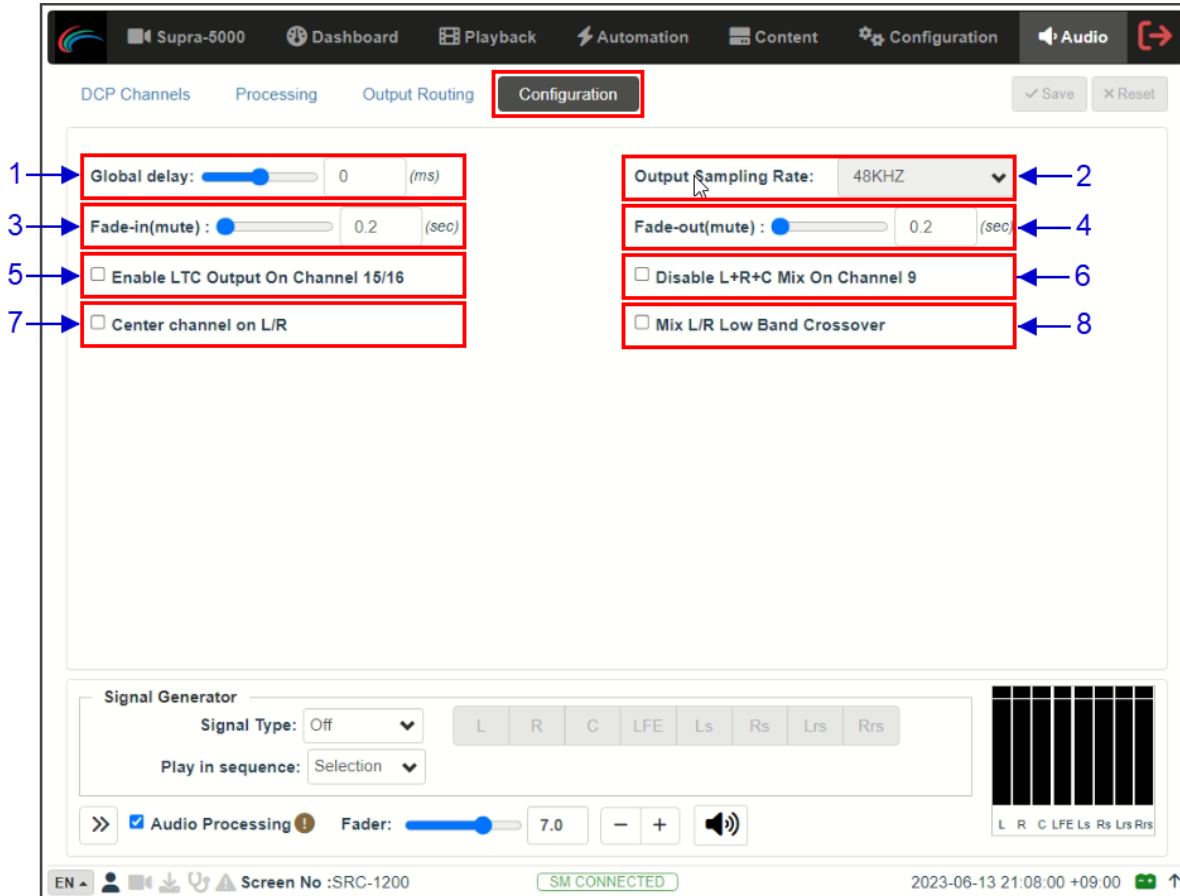
Figure 160: Audio → Configuration

SN	Name	Function Description
1	[Global Delay]	Allows you to set audio offset in the range from -400ms to +400ms to achieve audio-video synchronization.
2	[Output Sampling Rate]	Output Sampling Rate is fixed at 48kHz.
3	[Fade-in]	Allows you to set the fade-in duration when there is an Unmute operation (0.2 to 5.0 sec. in 0.1 step).
4	[Fade-out]	Allows you to set the fade-out duration when there is a Mute operation (0.2 to 5.0 sec. in 0.1 step).
5	[Enable LTC Output on Channel 15/16]	Enables LTC output on Channel 15/16 to sync with external systems such as 4D systems.

6	[Disable L+R+C Mix on Channel 9]	If this option is not enabled (by default), Channel 9 carries a mix of 'Left' + 'Center' + 'Right' (L+C+R) which can be used as a monitor output. If this option is enabled, Channel 9 does not carry a mix of L+C+R.
7	[Center channel on L/R]	If this option is enabled, the 'Center' channel output will be mixed with 'Left' and 'Right' Channels. This can be useful in case of any issues with the 'Center' channel speaker/amplifier. **NOTE**: This option should only be used as a temporary work-around for emergency use. It is essential to troubleshoot the issue with the speaker/amplifier at fault at the earliest and to avoid use of this option as a permanent setting.
8	[Mix L/R Low Band Crossover]	When the Crossover functionality is used; enabling this option will mix the low bands of the 'Left' and 'Right' channels, to a single channel 'L_Low' output. With this option enabled, the low frequency inputs of the 'Left' and 'Right' amplifiers must be connected in parallel to the 'L_Low' output of the DCMB via a Digital-to-Analog Converter (DAC).

Table 82

5.5 Automation for Audio Presets

Audio Presets that have been created under the **Audio** tab along with Fader Level Up/Down and Mute/Unmute functions can be also configured as automation cues, as shown in **Figure 161**:
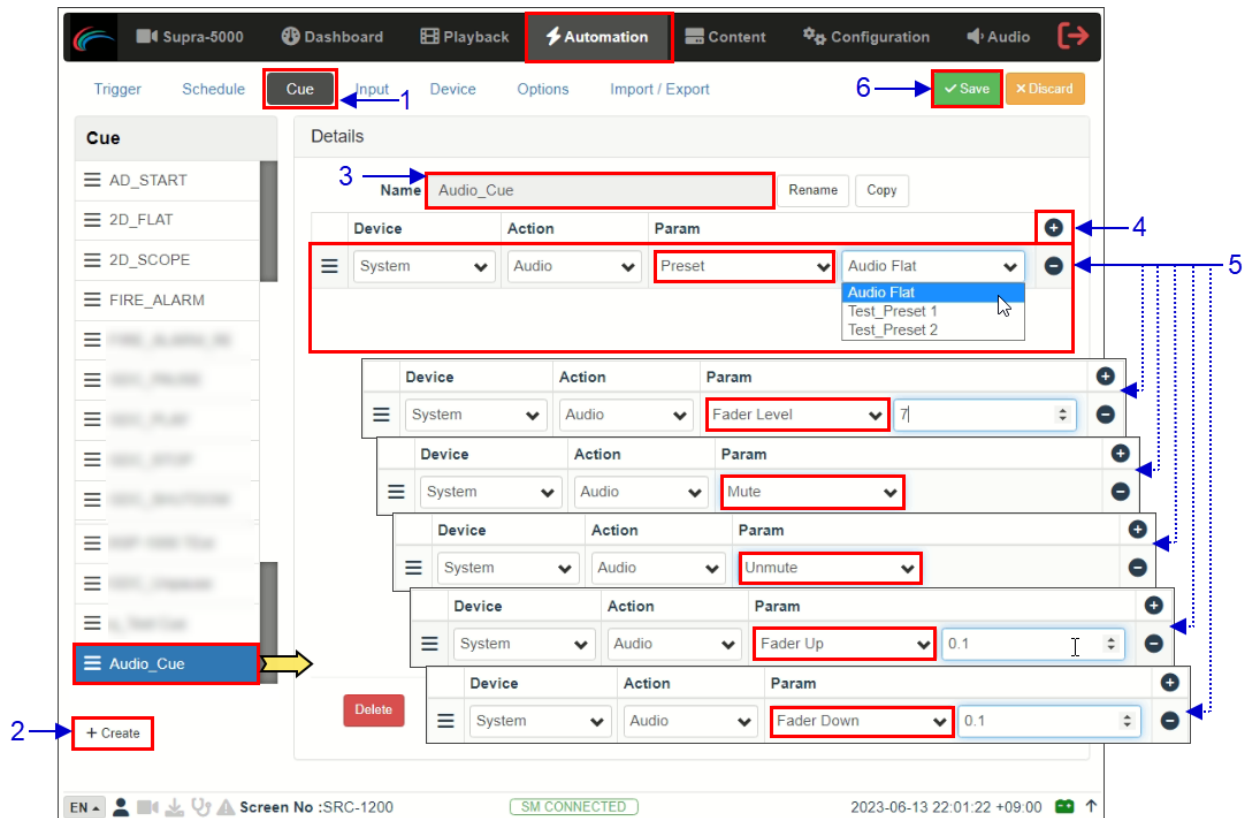
Figure 161: Automation for Audio Presets

1) Go to the **Automation** tab and click on the **Cue** sub-tab.

2) Click on the Create button, to add a new automation cue.

3) Type in the name that needs to be assigned to the new cue being added and click on the OK button.

4) Under the Details section, click + to add an action.

5) Under the Device drop-down, select 'System'. From the Action dropdown, select 'Audio'. From the Param section, select the type of action from the first drop-down.

   (a) When the 'Preset' action type is chosen, you can select a particular audio preset (that has been created under the **Audio** tab) from the second drop-down.

   (b) When the 'Fader Level' action type is chosen, you can set the value for the Master Fader level (in the range of 0 to 10).

   (c) When the 'Mute' or 'Unmute' action type is selected, you can mute or unmute the Audio device respectively.

   (d) When the 'Fader Up' or 'Fader Down' action type is selected, you can set the value to increase or decrease the Master Fader level (in the range of 0.1 to 1).

6) Click on the Save button to add the new cue.

5.6 Cinema Audio Calibration Process

This section serves as a guide to calibrating the auditorium sound system for 5.1/7.1 formats.

Please Note: The audio calibration equipment mentioned under this section are not included with the Espedeo Supra-5000 Digital Cinema and Secured Media Projection System. Espedeo does not sell this equipment.

5.6.1 Recommended Equipment

1) **Test Microphones**; 1 to 5 nos. depending on the calibration technique being used.

2) **Sound Card** (such as **Roland™ OCTA-CAPTURE** shown in **Figure 162**) which would be used to input the signals from the Microphones to the acoustic analysis software running on a computer.

Figure 162: Octa-Capture

5.6.2 Steps for Calibration

5.6.2.1 Microphone and Acoustic Analysis Software Calibration

First, calibrate the test microphone and acoustic analysis software (such as **SMAART***) with a microphone calibrator. Make sure the room is completely quiet before starting the calibration.

<div align="right">* Please note that SMAART is a third-party software solution which is not sold by Espedeo</div>

5.6.2.2 Initial Channel level Adjustment

1) Generate 'Pink Noise' output from the Center channel by using the Signal Generator on the DCMB Web UI **Audio** tab (refer to **Section 5.1.4**)

2) Adjust the gain of the Center channel until the level value displayed on RTA (sound pressure meter or SMAART) reaches 85dB.

3) Repeat steps 2) and 3) to adjust the Channel Gain of the Left/Right/Center channels respectively until the level value displayed on RTA (sound pressure meter or SMAART) reaches 85dB and Channel Gain of Ls/Rs/Bsl/Bsr channels respectively until the level value displayed on RTA (sound pressure meter or SMAART) reaches 82dB.

4) Repeat steps 2) and 3) to adjust the Channel Gain of the LFE channel until the level value displayed on RTA (sound pressure meter or SMAART) reaches ~91dB.

5.6.2.3 Adjusting the Graphic EQ

Adjust the graphic EQ until the frequency response curve is close to the X-curve:

1) Generate 'Pink Noise' output from the Center channel by using the Signal Generator on the DCMB Web UI **Audio** tab (refer to **Section 5.1.4**).

2) Adjust the Gain value of each frequency band on the DCMB Web UI **Audio** tab until the difference between the actual frequency response curve and the X-curve is within ±3dB.
When it is necessary to increase or decrease the low frequencies or high frequencies as a whole, use the Bass/Treble function.

3) You can use the copy function to copy the tuned parameters to a similar channel. For example, the parameters of the Left channel are copied to the Right channel, and the Ls channel is copied to the Rs channel. And then you can fine-tune each channel individually.

4) Go back to Step 2) to equalize the next channel.

5.6.2.4 Adjusting LFE Parametric EQ

Begin with zero Gain and observe the worst peak in the spectrum. Adjust the Frequency slider until the frequency matches the peak and then adjust the Gain to flatten that region.

Adjust the Bandwidth(Q) and Gain(dB) until the smoothest response is achieved.
The LFE equalizer is a Parametric EQ filter with adjustable Center Frequency (20 to 120Hz), Bandwidth (0.5 to 10Q) and Gain (-12 to 6dB).

After all the full-range channels have been equalized, follow these steps:

1) Generate 'Pink Noise' output from both Center and LFE channels by using the Signal Generator on the DCMB Web UI **Audio** tab (refer to **Section 5.1.4**).

2) Select the **LFE** tab to make it the active channel.

3) Set the LFE Parametric EQ Gain to 0dB. This disables LFE Parametric EQ so that you can determine the low-frequency resonant peak to be equalized. Note the band where the un-equalized peak appears.

4) Decrease the Gain slider to -12dB. Using the Frequency slider, move the dip in the frequency response along the frequency axis of the RTA display.

5) Adjust the Frequency so that the Center of the dip is in the same band as the peak displayed in the previous un-equalized frequency response.

6) Using the Gain slider, slowly increase the Gain to flatten the dip. The Center of the dip should be at the same level as the skirts.

7) Click to check other Bandwidth(Q) values for the flattest possible frequency response.

8) If there is a notch in the transition region between the LFE and Center channel frequencies, try inverting the phase on the LFE channel using the Phase Invert drop-down to check if the notch has improved. If this is the case, please check the subwoofer polarity.

5.6.2.5 Final Channel level Adjustment

1) Generate 'Pink Noise' output from the Center channel by using the Signal Generator on the DCMB Web UI **Audio** tab (refer to **Section 5.1.4**).

2) Adjust the gain of the Center channel until the level value displayed on RTA (sound pressure meter or SMAART) reaches 85dB.

3) Repeat steps 2) and 3) to adjust the Channel Gain of the Left/Right/Center channels respectively until the level value displayed on RTA (sound pressure meter or SMAART) reaches 85dB and Channel Gain of Ls/Rs/Bsl/Bsr channels respectively until the level value displayed on RTA (sound pressure meter or SMAART) reaches 82dB.

4) Repeat steps 2) and 3) to adjust the Channel Gain of the LFE channel until the level value displayed on RTA (sound pressure meter or SMAART) reaches ~91dB.

5.6.3 Surround Channel Delay Setting

The surround delay is set usually based on the length and width of the Auditorium. Formulas to determine the surround delay with auditorium Length(L) and Width(W) in meters and feet are as follows:

- Surround Delay Using Meters with Length and Width of the auditorium in meters, the surround delay (in ms) should be (L/3) -(W/6) +20.
- Surround Delay Using Feet with Length and Width of the auditorium in feet, the surround delay (in ms) should be set to L-(W/2) +20.

5.6.4 Calibration Results

After adjusting the channels one-by-one; the frequency response curve is adjusted within the allowable deviation of the X-curve.

The current EQ Gain values can be saved as a preset. This preset can be recalled when needed in the future.
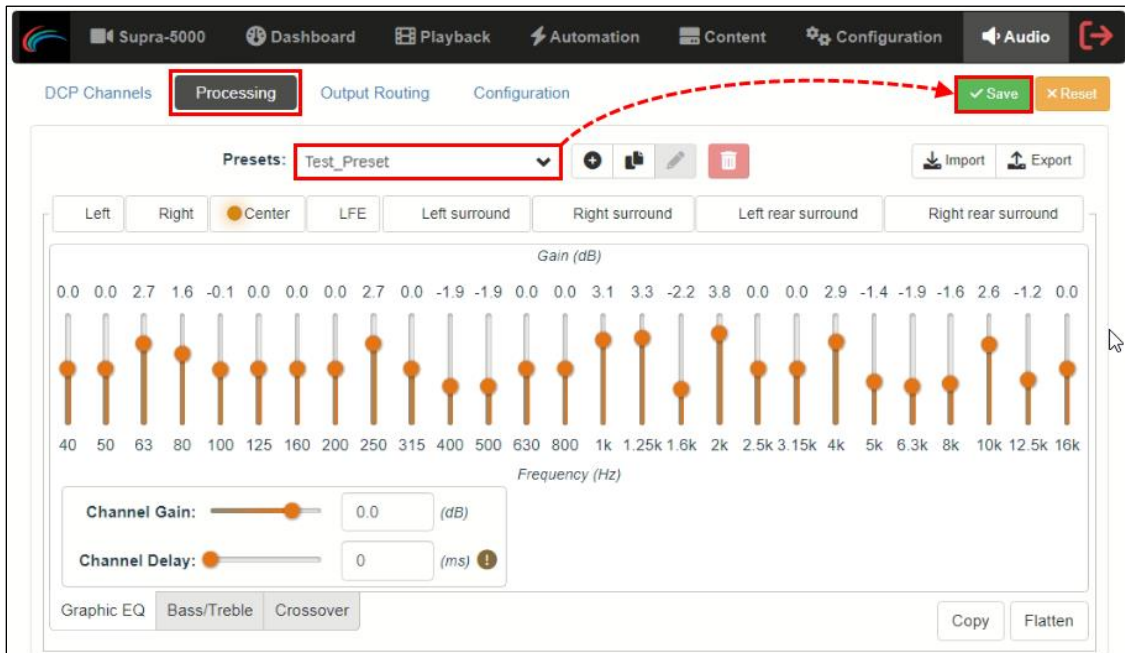
Figure 163: Save Calibration results as Audio Presets

⚠️ **IMPORTANT:**

We strongly recommend that you take a backup of the preset files using the Export option (refer to **Section 5.1** for more details) once the audio calibration procedure is performed. These preset files can then be easily imported in case the projector's DCMB is replaced, thereby eliminating the need for onsite re-calibration.

6. Espedeo Supra-5000 Software Upgrades
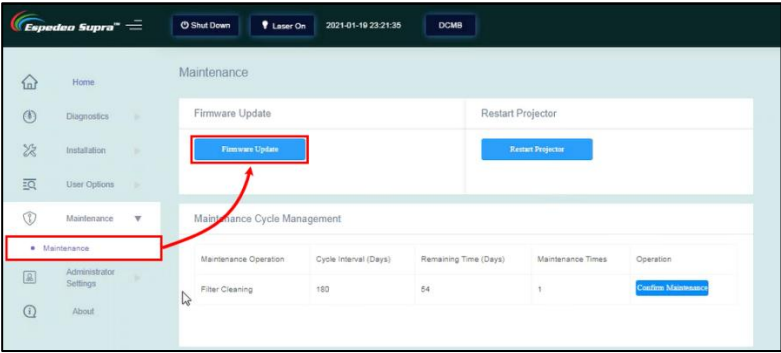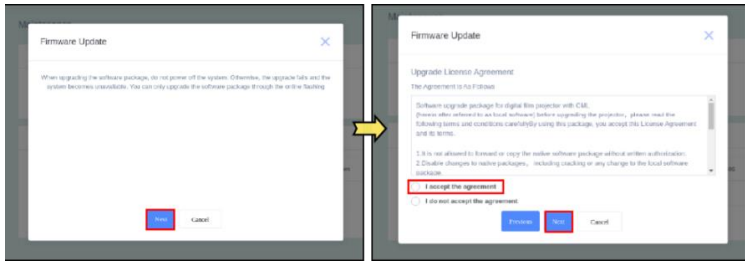
6.1 PIB Firmware Update

In order to update the PIB firmware of the Espedeo Supra-5000; you need to connect a PC/Laptop to the **LAN 2** network port of the projector's PIB using a network cable. Make sure that the PC/Laptop's network interface IP Address is set to 192.168.254.243. Additionally, the Subnet mask value should be set to 255.255.255.240.

Before initiating the PIB firmware update procedure; make sure that the relevant upgrade files have been downloaded to the PC/Laptop which is being used to access the Supra Command Center web interface.

Access the Supra Command Center web interface via the URL: http://192.168.254.241 and log-in using a user account with '*Professional*' user rights.

Please Note: Ensure that the projector is in 'Standby' mode before proceeding with the upgrade process. In case its powered ON, click on the **Shut Down** button and wait for the projector to enter 'Standby' mode.

SN	Description
1	Click on the **Maintenance** menu and go to the **Maintenance** sub-menu. Click on the **Firmware Update** button to enter the 'Firmware Upgrade' screen.
2	Under the 'Firmware Update' screen, you will be shown a warning message which states "Do not power off the system…". Click on the **Next** button. Select the *"I accept the agreement"* option under the 'Upgrade License Agreement' screen and click on the **Next** button to proceed.

3	Follow the three steps mentioned below: Step 3.1 – Click the **Select** button to select the relevant upgrade package file ending with ".tar.bz2".(Do not unzip this package). Step 3.2 – Each firmware upgrade package contains three upgrade modules*:* 'PIB', 'Laser Control' and 'Lens Control'. Select a particular upgrade module from the dropdown. Step 3.3 – The firmware upgrade package filename contains an alphanumeric hash code. Input this verification code for the selected upgrade package in the textbox provided. Once done, click on the **Next** button to upload the upgrade package. This process might take approximately five minutes to complete.
4	Once the upgrade package has been uploaded successfully, a confirmation message will be shown. Click on the **UPDATE** button to start the upgrade process. This might take a few minutes to complete. Once done, the projector will automatically restart during this process. It is also possible that a confirmation message stating 'Upgrade Succeeded' will be shown. Click on the **Finished** button to restart the projector.
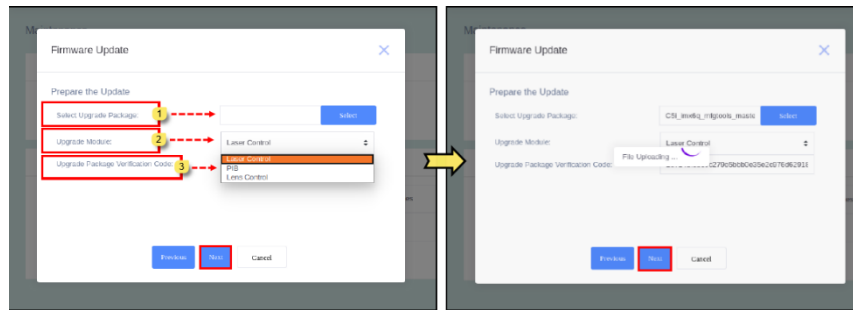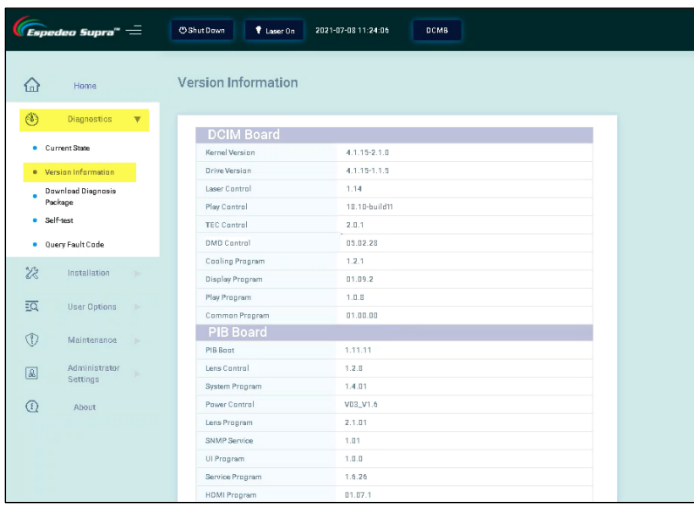
5	Wait for the projector to reboot completely. Once the projector has booted-up and is back online, refresh the webpage to reload the Supra Command Center web interface and login again. The updated firmware version should be correctly shown under the **Home Screen → Version Information** section.
6	**IMPORTANT**: Ensure that the entire upgrade procedure is <u>**repeated for all three modules**</u>. The projector needs to be rebooted after each module upgrade. After every reboot-up, wait for the projector to come back online completely before proceeding with next module upgrade.

Table 83

6.1.1 Points to consider while performing PIB Firmware Update

- Once a particular module is upgraded, the projector will reboot automatically. Wait until the projector comes back online (the Status LED indicator of the projector is steady Green). Check if the Supra Command Center web interface is accessible and login again. Ensure the interface has loaded completely (**Home Screen → State** section should display 'Laser Off'). Check whether the updated firmware version for this particular upgrade module is correctly shown under the **Home Screen → Version Information** section. Now, put the projector in 'Standby' mode by clicking on the **Shut Down** button and repeat the upgrade procedure for the next upgrade module. <u>Make sure this procedure is followed for all three upgrade modules ('PIB', 'Laser Control' and 'Lens Control').</u>

- In case you face any issues while carrying out the upgrade procedure for any of the three modules; please power-cycle the projector and try repeating the upgrade again for that particular module.

6.2 DCMB Software Upgrade

In order to upgrade the DCMB firmware of the Espedeo Supra-5000; you need to access the DCMB Web UI of the projector using a PC/Laptop. Refer to **Section 1.2** for more details related to accessing the DCMB Web UI.

Before initiating the DCMB firmware upgrade procedure; make sure that the relevant upgrade file has been downloaded to the PC/Laptop which is being used to access the DCMB Web UI.

Login to the DCMB Web UI with either *'Technician'* or *'Maintenance'* access-level. Go to on the **Configuration** menu and click on the **Maintenance** sub-tab. Click the **Software upgrade** button under the 'Upgrade' section and follow the steps mentioned below.
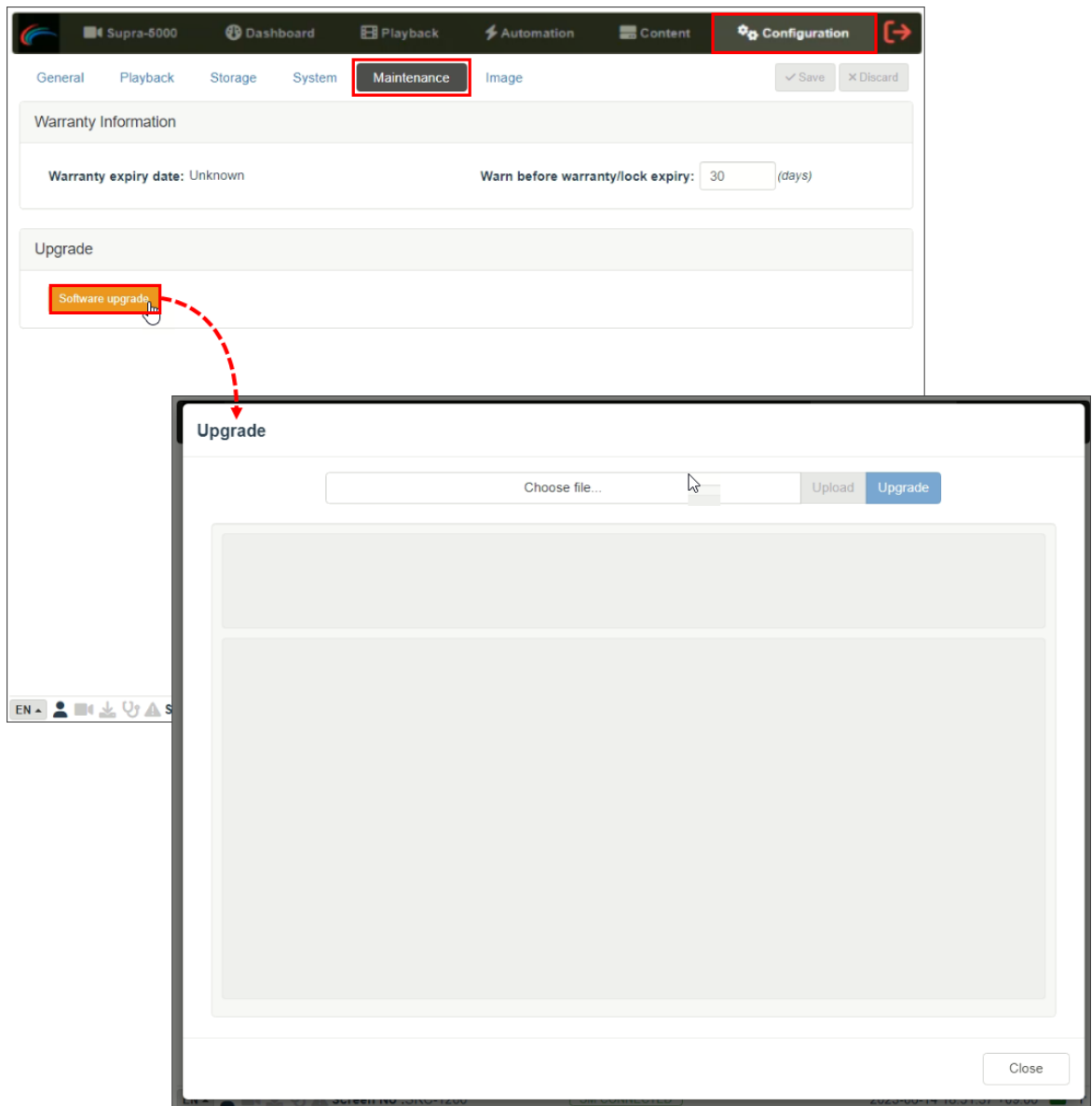
Figure 164: Configuration → Maintenance → Software Upgrade

SN	Function Description
1	Upon clicking on the Software Upgrade button, the Upgrade screen will be displayed. Click on **Choose file** to select the upgrade file from the folder where it has been downloaded and click on **Open**.
2	Once the upgrade file has been selected, the Upload button will be enabled. Click on the **Upload** button to upload the file to the DCMB. The console window will display the status of the file upload, as shown. An *'Upload Successful'* message will be shown after the file upload is complete.
3	After the upload is complete, click on the **Upgrade** button to begin the upgrade process. A pop-up window will be shown asking for the password for the upgrade package. Please contact Espedeo Holdings Ltd. in case you do not know the password for the upgrade file. Click on the OK button, after entering the correct password.

4	The Upgrade process will be initiated. The console window will display the progress of the upgrade process. Once the upgrade is complete, the console window will display the "*Upgrade completed*" message. The **Export Output** option can be used to export and download the console logs in the form of a .txt file.
5	To complete the software upgrade process, the DCMB needs to be rebooted. A pop-up message will be displayed which allows the user to reboot the system, by clicking on the **Reboot Now** button.

Table 84

Once the DCMB has rebooted, please check if the new software version of the DCMB is shown under the **Dashboard** tab of the DCMB Web UI.

NOTE: After the DCMB has restarted, the projector needs to be power-cycled from the Supra Command Center web interface (refer to **Section 1.1** and **1.3**). After the projector has booted-up, the updated DCMB software version should be correctly shown on the Supra Command Center web interface under the **Home screen → Version Information** section.

7. Error Handling and Troubleshooting

Table 85 lists all the fault codes related to the Espedeo Supra-5000 that can be shown under the '**Error Information**' section of the **Home** screen. You can get detailed information related to a particular Fault Code, using the **Diagnostic → Query Error Code** function (refer to **Section 3.2.5**).

Code	Module	Fault Description	Possible Cause	Solution
80001	DCMB	The ddp1 color wheel failure.	The color wheel is functioning abnormally.	1. Check whether the color wheel drive cable (J42) on the DCMB and the color wheel feedback cable (J31) on the backplane are loose. 2. Check whether the diffusor wheel module of the light source (color wheel adapter board connection cable and diffusor wheel motor speed) works properly. 3. Restart the projector.
80002	DCMB	The ddp1 rotation speed of the color wheel is too low.	The rotation speed of the color wheel is too low.	Check whether the color wheel model matches the system or the color wheel is abnormal.
80003	DCMB	The ddp1 rotation speed of the color wheel is too high.	The rotation speed of the color wheel is too high.	Check whether the color wheel model matches the system or the color wheel is abnormal.
81001	DCMB	The ddp1 system module initialization failure.	The system module initialization has failed.	Restart the projector or replace the DCMB board.
81002	DCMB	The ddp1 system monitor initialization failure.	The system monitoring module initialization has failed.	Restart the projector or replace the DCMB board.
81003	DCMB	The ddp1 circuit initialization failure.	The ddp1 circuit initialization has failed.	Restart the projector or replace the DCMB board.
81004	DCMB	The ddp1 color wheel sequence failure.	The color wheel could not be enabled.	Check whether the color wheel drive cable (J42) on the DCMB and the color wheel feedback cable (J31) on the backplane are loose.
81005	DCMB	The ddp1 DMD initialization failure.	The DMD initialization has failed.	Check whether the DCMB ddp1 DMD flat cable (J43 and J44) is loose.
81006	DCMB	The ddp1 DMD/ASIC incompatibility failure.	The DMD does not match the system.	Check whether the DCMB ddp1 DMD model or software matches the system.
81007	DCMB	The ddp1 Current DCP does not support 6: 2 frame rate.	The current DCP only supports 4: 2 frame rate.	The projector has automatically corrected the 3D frame rate to 4: 2.
82001	DCMB	The ddp1 DAD2000 failure.	The DAD2000 could not be enabled.	Check the DCMB ddp1 DMD flat cable (J43 and J44) or restart the projector.
82002	DCMB	The ddp1 EEPROM failure.	The EEPROM read/write operation is abnormal.	1. Check whether the DMD control firmware version is correct. 2. Replace the DCMB board.
83001	DCMB	The ddp1 serial communication failure.	The ddp1 has failed to communicate with the PIB board.	1. Restart the projector 2. Check whether the flat cable (J47) from the backplane (CON2) to the DCMB board is loose or replace the flat cable. 3. Replace the PIB board.

90001	DCMB	The ddp2 color wheel failure.	The color wheel is functioning abnormally.	1. Check whether the color wheel drive cable (J42) on the DCMB and the color wheel feedback cable (J31) on the backplane are loose. 2. Check whether the diffusor wheel module of the light source (color wheel adapter board connection cable and diffusor wheel motor speed) is functioning properly. 3. Restart the projector.
90002	DCMB	The ddp2 rotation speed of the color wheel is too low.	The rotation speed of the color wheel is too low.	Check whether the color wheel model matches the system or the color wheel is abnormal.
90003	DCMB	The ddp2 rotation speed of the color wheel is too high.	The rotation speed of the color wheel is too high.	Check whether the color wheel model matches the system or the color wheel is abnormal.
91001	DCMB	The ddp2 system module initialization failure.	The system module initialization has failed.	Restart the projector or replace the DCMB board.
91002	DCMB	The ddp2 system monitor initialization failure.	The system monitoring module initialization has failed.	Restart the projector or replace the DCMB board.
91003	DCMB	The ddp2 circuit initialization failure.	The ddp2 circuit initialization has failed.	Restart the projector or replace the DCMB board.
91004	DCMB	The ddp2 color wheel sequence failure.	The color wheel could not be enabled.	Check whether the color wheel drive cable (J42) on the DCMB and the color wheel feedback cable (J31) on the backplane are loose.
91005	DCMB	The ddp2 DMD initialization failure.	The DMD initialization has failed.	Check whether the DCMB ddp2 DMD flat cable (J45 and J46) is loose.
91006	DCMB	The ddp2 DMD/ASIC incompatibility failure.	The DMD does not match the system.	Check whether the DCMB ddp2 DMD model or software matches the system.
91007	DCMB	The ddp2 Current DCP does not support 6: 2 frame rate.	The current DCP only supports 4: 2 frame rate.	The projector has automatically corrected the 3D frame rate to 4: 2.
92001	DCMB	The ddp2 DAD2000 failure.	The DAD2000 could not be enabled.	Check the DCMB ddp2 DMD flat cable (J45 and J46) or restart the projector.
92002	DCMB	The ddp2 EEPROM failure.	The EEPROM read/write operation is abnormal.	1. Check whether the DMD control firmware version is correct. 2. Replace the DCMB board.
93001	DCMB	The ddp2 serial communication failure.	The ddp2 failed to communicate with the PIB board.	1. Restart the projector 2. Check whether the flat cable (J47) from the backplane (CON2) to the DCMB board is loose or replace the flat cable. 3. Replace the PIB board.
20000	Light Source	Undefined alarm and error.		
20001	Light Source	The phosphor motor internal rotation speed_Low.	1. The phosphor motor drive of the PIB board is faulty. 2. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the light engine (phosphor motor).
20002	Light Source	The phosphor motor internal rotation speed_Too low.	1. The phosphor motor drive of the PIB board is faulty. 2. The cable is not properly connected. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the cable between the backplane and the color wheel adapter board. 3. Replace the light engine (phosphor motor).
20003	Light Source	The phosphor motor internal rotation speed_High.	1. The phosphor motor drive of the PIB board is faulty. 2. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the light engine (phosphor motor).

20004	Light Source	The phosphor motor internal rotation speed_Too high.	1. The phosphor motor drive of the PIB board is faulty. 2. The cable is not properly connected. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the cable between the backplane and the color wheel adapter board. 3. Replace the light engine (phosphor motor).
20005	Light Source	The phosphor motor external rotation speed_Low.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20006	Light Source	The phosphor motor external rotation speed_Too low.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The cable is not properly connected. 4. The phosphor motor is faulty.	1. If the speed is 0, check the cable first. 2. Replace the PIB board. 3. Replace the phosphor motor speed detection board. 4. Replace the color wheel adapter board. 5. Replace the light engine.
20007	Light Source	The phosphor motor external rotation speed_High.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20008	Light Source	The phosphor motor external rotation speed_Too high.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20009	Light Source	The phosphor motor rotation speed_Low.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20010	Light Source	The phosphor motor rotation speed_Too low.	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20011	Light Source	The phosphor motor rotation speed_High	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20012	Light Source	The phosphor motor rotation speed_Too high	1. The phosphor motor drive of the PIB board is faulty. 2. The speed sensing feedback is faulty. 3. The phosphor motor is faulty.	1. Replace the PIB board. 2. Replace the phosphor motor speed detection board. 3. Replace the color wheel adapter board. 4. Replace the light engine.
20013	Light Source	The phosphor motor temperature_Low	The projection room temperature is below 0℃.	Check the projection room temperature and ensure that the indoor temperature is higher than 0℃.
20014	Light Source	The phosphor motor temperature_Too low	The phosphor wheel NTC may be open-circuited or damaged.	Remove and re-insert the phosphor wheel NTC cable.

20015	Light Source	The phosphor motor temperature_High	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter.
20016	Light Source	The phosphor motor temperature_Too high	1. The projection room temperature is much higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan.
20017	Light Source	The phosphor motor drive_Startup failure	The PIB laser control module is abnormal or suspended.	Reset the PIB laser control module or restart the whole machine.
21001	Projector	FAN1 rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21002	Projector	FAN1 rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21003	Projector	FAN2 rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21004	Projector	FAN2 rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.

21005	Projector	FAN3 rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21006	Projector	FAN3 rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21007	Projector	FAN4 rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21008	Projector	FAN4 rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21009	Light Source	PCS fan rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair it. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. If the PCS fan is determined to be faulty; the light engine module may need to be returned to the factory for processing. Please contact customer service personnel.
21010	Light Source	PCS fan rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair it. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. If the PCS fan is determined to be faulty; the light engine module may need to be returned to the factory for processing. Please contact customer service personnel.

21011	Light Source	BLD fan rotation speed_Low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. Replace the fan.
21012	Light Source	BLD fan rotation speed_High.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. Replace the fan.
21013	Projector	FAN1 rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21014	Projector	FAN1 rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21015	Projector	FAN2 rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21016	Projector	FAN2 rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.

21017	Projector	FAN3 rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21018	Projector	FAN3 rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21019	Projector	FAN4 rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21020	Projector	FAN4 rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The fan extension cable is faulty. 5. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Locate the problem with other fans. If the fault phenomenon occurs only with the current fan, replace the fan. If not, replace the PIB board. 4. Replace the fan extension cable. 5. Replace the fan.
21021	Light Source	PCS fan rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair it. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. If the PCS fan is determined to be faulty; the light engine module may need to be returned to the factory for processing. Please contact customer service personnel.
21022	Light Source	PCS fan rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair it. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. If the PCS fan is determined to be faulty; the light engine module may need to be returned to the factory for processing. Please contact customer service personnel.

21023	Light Source	BLD fan rotation speed_Too low.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. Replace the fan.
21024	Light Source	BLD fan rotation speed_Too high.	1. The fan power cable is damaged. 2. The fan is blocked. 3. The fan drive on the PIB board is faulty. 4. The service life of the fan has ended.	1. Check whether the fan power cable is damaged. If yes, repair or replace the fan. 2. Check whether the fan is blocked. Ensure that the fan can rotate freely. 3. Replace the PIB board. 4. Replace the fan.
22001	Light Source	The light source temperature_Low.	1. The projection room temperature is below 0℃. 2. The Laser NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. If the temperature value does not change, replace the NTC connection cable.
22002	Light Source	The light source temperature_Too low.	The laser NTC may be open-circuited or damaged.	If the temperature value does not change, replace the NTC connection cable.
22003	Light Source	The light source temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan.
22004	Light Source	The light source temperature_Too high.	1. The projection room temperature is much higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. The NTC is short-circuited.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the NTC connection cable.
23001	LDM	The LDM temperature_Low.	1. The projection room temperature is below -10℃. 2. The temperature sensor is damaged.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the power supply.
23002	LDM	The LDM temperature_Too low.	1. The projection room temperature is below -10℃. 2. The temperature sensor is damaged.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the power supply.
23003	LDM	The LDM temperature_High.	The temperature of the internal devices of the power supply is higher than 80℃ and lower than or equal to 90℃.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check whether the fan is damaged.
23004	LDM	The LDM temperature_Too high.	1. The temperature of the internal devices of the power supply is higher than 90℃, which lasts longer than 10s.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check whether the fan is damaged.
23005	LDM	The LDM current_Low.	/	/

23006	LDM	The LDM current_High	1. The laser is short-circuited. 2. The power supply is damaged.	Replace the power supply.
23007	LDM	Power communication_No response for a long period.	1. The cable connection of the communication port is loose. 2. The power supply is damaged.	1. Check the cable connection of the communication port by removal and re-insertion. 2. Check whether the communication cable is damaged. 3. Replace the power supply.
23008	LDM	Power drive_Warning.	NO	/
23009	LDM	Power drive_Error.	NO	/
23010	LDM	Warning_Power temperature low.	1. The projection room temperature is below -10℃. 2. The temperature sensor is damaged.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the power supply.
23011	LDM	Warning_Power temperature high.	The temperature of the internal devices of the power supply is higher than 80℃ and lower than or equal to 90℃.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check whether the fan is damaged.
23012	LDM	Warning_Power fan rotation speed low.	There is no fan for the power supply.	/
23013	LDM	Warning_Power fan rotation speed high.	There is no fan for the power supply.	/
23014	LDM	Warning_Laser current low.	/	/
23015	LDM	Warning_Laser current high.	1. The laser is short-circuited. 2. The power supply is damaged.	Replace the power supply.
23016	LDM	Warning_Laser open-circuit.	/	/
23017	LDM	Warning_Laser overcurrent.	1. The laser is short-circuited. 2. The power supply is damaged.	
23018	LDM	Warning_Abnormal 24 V standby device.	No 24 V voltage output.	/
23019	LDM	Warning_24 V output undervoltage.	No 24 V voltage output.	/
23020	LDM	Warning_24 V output overvoltage.	No 24 V voltage output.	/
23021	LDM	Warning_AC input undervoltage.	Mains connection error. The input voltage is lower than 180 V AC.	Measure the AC input voltage to the projector and the voltage at the socket connected to the power supply using a multimeter.
23022	LDM	Warning_AC input overvoltage.	Mains connection error. The input voltage is higher than 264 V AC.	Measure the AC input voltage using a multimeter.
23023	LDM	Warning_Abnormal 12 V standby device.	1. The RLD is short-circuited. 2. A 12 V constant-voltage module is damaged.	1. Unplug the RLD connector, supply the AC power again and check whether the alarm is cleared. 2. Replace the power supply.
23024	LDM	Warning_12 V output undervoltage.	1. 12 V overcurrent. 2. Two 12 V constant-voltage modules of the power supply are damaged simultaneously.	1. Unplug the 12 V output port connector, supply the power and test whether the output port voltage is between 11.4 V and 12.6 V using a multimeter. 2. Check whether the total current output by two connectors exceeds 30 A using a clamp meter or an oscilloscope. 3. Replace the power supply.

23025	LDM	Warning_12 V output overvoltage.	The internal 12 V constant-voltage module of the power supply is damaged.	Replace the power supply.
23026	LDM	Warning_Abnormal 5 V standby device.	No 5 V voltage output.	Replace the power supply.
23027	LDM	Warning_5 V output undervoltage.	No 5 V voltage output.	Replace the power supply.
23028	LDM	Warning_5 V output overvoltage.	No 5 V voltage output.	Replace the power supply.
23029	LDM	Warning_Preset voltage low.	NO	/
23030	LDM	Warning_Preset voltage high.	NO	/
23031	LDM	Warning_Abnormal AC power interruption.	The AC power is interrupted abnormally during the laser-on period.	1. Check whether the power supply voltage is normal. 2. Check whether the AC cable is connected properly. 3. Replace the power supply.
23032	LDM	Error_Abnormal constant-voltage source.	Power failure causes 18 V constant voltage to exceed 30 V.	Replace the power supply.
23033	LDM	Error_Power temperature too low.	NO	/
23034	LDM	Error_Power temperature too high.	1. The projection room temperature is higher than 35°C. 2. There are obstacles at the air inlet and air outlet. 3. The filter is clogged by dust. 4. The fan is damaged.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check whether the fan is damaged.
23035	LDM	Error_24 V output undervoltage.	No 24 V voltage output	Replace the power supply.
23036	LDM	Error_24 V output overvoltage.	No 24 V voltage output	Replace the power supply.
23037	LDM	Error_AC input undervoltage.	Mains connection error. The input voltage is lower than 180 V AC.	Measure the input voltage using a multimeter.
23038	LDM	Error_AC input overvoltage.	Mains connection error. The input voltage is higher than 264 V AC.	Measure the input voltage using a multimeter.
23039	LDM	Error_12 V output undervoltage.	/	/
23040	LDM	Error_12 V output overvoltage.	The internal 12 V constant-voltage module of the power supply is damaged.	Replace the power supply.
23041	LDM	Error_5 V output undervoltage.	No 5 V voltage output.	Replace the power supply.
23042	LDM	Error_5 V output overvoltage.	/	Replace the power supply.
24001	Light Source	The light source TEC drive_Startup failure.	1. The TEC drive board is faulty. 2. The cable is faulty.	1. Replace the TEC drive board. 2. Replace the TEC connection cable.
24002	Light Source	The light source TEC drive_Not running.	The TEC drive board is faulty.	If the problem persists after powering off and on again, replace the TEC driver board.
24003	Light Source	The light source TEC cold surface temperature_Low.	1. The TEC driver board is faulty and cannot be controlled. 2. If the temperature value does not change, the NTC is faulty.	1. Replace the TEC drive board. 2. Replace the light engine.
24004	Light Source	The light source TEC cold surface temperature_Too low.	1. The TEC driver board is faulty and cannot be controlled. 2. The internal NTC of the RLD may be open-circuited or damaged.	1. Replace the TEC drive board. 2. Replace the light engine.

24005	Light Source	The light source TEC cold surface temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the light engine.
24006	Light Source	The light source TEC cold surface temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the light engine.
24007	Light Source	The light source TEC hot surface temperature_Low.	1. The NTC thermistor is damaged. 2. The projection room temperature is below 0℃.	1. Check whether the NTC cable and plug are damaged. 2. Check whether the projection room temperature is below 0℃. 3. Replace the light engine.
24008	Light Source	The light source TEC hot surface temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The RLD radiator is faulty. 5. The system fan is faulty. 6. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Replace the red laser radiator. 5. Check and replace the faulty system fan. 6. Replace the light engine.
24009	Light Source	The light source TEC voltage_Low.	The power module is abnormal.	Check the power module output.
24010	Light Source	The light source TEC voltage_High.	The power module is abnormal.	Check the power module output.
24011	Light Source	The light source TEC communication_No response for a long period.	The TEC drive board is faulty.	Replace the TEC drive board.
25001	Projector	Laser control module alarm.	The PIB laser module detects the fan, temperature or phosphor motor exception.	1. Check and locate the abnormal component (fan, temperature, phosphor motor, etc.) for which the alarm is reported. 2. Check whether the software version of the PIB laser control module is correct. 3. Replace the PIB board.
25002	Projector	Laser control module error.	The PIB laser module detects the fan, temperature or phosphor motor exception.	1. Check and locate the abnormal component (fan, temperature, phosphor motor, etc.) for which the error is reported. 2. Check whether the software version of the PIB laser control module is correct. 3. Replace the PIB board.

25003	Projector	Laser control module communication_No response for a long period.	The PIB laser control module is abnormal or suspended.	1. Reset the PIB laser control module or restart the whole machine. 2. Replace the PIB board.
25004	Projector	Filter detection exception.	1. The filter is not properly installed. 2. The filter detection switch is abnormal.	1. Re-install the filter. 2. Replace the detection switch.
25005	Projector	Air inlet temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the air inlet NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the air inlet NTC.
25006	Projector	Air inlet temperature_Too low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the air inlet NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the air inlet NTC.
25007	Projector	Air inlet temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the air inlet NTC.
25008	Projector	Air inlet temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the air inlet NTC.
25009	Projector	Air outlet temperature_Low.	The air outlet NTC may be open-circuited or damaged.	Replace the air outlet NTC.
25010	Projector	Air outlet temperature_Too low.	The air outlet NTC may be open-circuited or damaged.	Replace the air outlet NTC.
25011	Projector	Air outlet temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the air outlet NTC.

25012	Projector	Air outlet temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the air outlet NTC.
25013	Projector	Lens temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the lens NTC.
25014	Projector	Lens temperature_Too low.	1. The lens NTC may be open-circuited or damaged. 2. The projection room temperature is below −5℃.	1. Replace the lens NTC. 2. Ensure that the projection room temperature is higher than −5℃.
25015	Projector	Lens temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the lens NTC.
25016	Projector	Lens temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the lens NTC.
25017	Light Source	PCS temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the PCS NTC.
25018	Light Source	PCS temperature_Too low.	1. The PCS NTC may be open-circuited or damaged. 2. The projection room temperature is below −5℃.	1. Replace the PCS NTC. 2. Ensure that the projection room temperature is higher than −5℃.
25019	Light Source	PCS temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The PCS fan is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the PCS NTC.

25020	Light Source	PCS temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The PCS fan is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. If the PCS fan is determined to be faulty; the light engine module may need to be returned to the factory for processing. Please contact customer service personnel.
25021	Light Engine	Optical prism temperature_Low.	1. The projection room temperature is low. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the optical prism NTC.
25022	Light Engine	Optical prism temperature_Too low.	1. The optical prism NTC may be open-circuited or damaged. 2. The projection room temperature is below –5℃.	1. Replace the optical prism NTC. 2. Ensure that the projection room temperature is higher than –5℃.
25023	Light Engine	Optical prism temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the optical prism NTC.
25024	Light Engine	Optical prism temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the optical prism NTC.
25025	Light Engine	DMD1 temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the NTC (on the light engine) of the DMD1 radiator.
25026	Light Engine	DMD1 temperature_Too low.	1. The DMD NTC may be open-circuited or damaged. 2. The projection room temperature is below –5℃.	1. Replace the DMD NTC. 2. Ensure that the projection room temperature is higher than –5℃.
25027	Light Engine	DMD1 temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the NTC (on the light engine) of the DMD1 radiator.

25028	Light Engine	DMD1 temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the NTC (on the light engine) of the DMD1 radiator.
25029	Light Engine	DMD2 temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the NTC (on the light engine) of the DMD2 radiator.
25030	Light Engine	DMD2 temperature_Too low.	1. The DMD NTC may be open-circuited or damaged. 2. The projection room temperature is below –5℃.	1. Replace the DMD NTC. 2. Ensure that the projection room temperature is higher than –5℃.
25031	Light Engine	DMD2 temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the NTC (on the light engine) of the DMD2 radiator.
25032	Light Engine	DMD2 temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the NTC (on the light engine) of the DMD2 radiator.
25033	Light Source	Diffusor motor temperature_Low.	1. The projection room temperature is below 0℃. 2. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature and ensure that the indoor temperature is higher than 0℃. 2. Replace the diffusor motor sensing board (on the light source).
25034	Light Source	Diffusor motor temperature_Too low.	1. The diffusor motor NTC may be open-circuited or damaged. 2. The projection room temperature is below –5℃.	1. Replace the diffusor motor NTC. 2. Ensure that the projection room temperature is higher than –5℃.

25035	Light Source	Diffusor motor temperature_High.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the diffusor motor sensing board (on the light source).
25036	Light Source	Diffusor motor temperature_Too high.	1. The projection room temperature is higher than 35℃. 2. The air inlet or air outlet of the projector is blocked. 3. The filter of the projector is clogged. 4. The system fan is faulty. 5. If the temperature value does not change, the NTC is faulty.	1. Check the projection room temperature. 2. Check whether there are obstacles at the air inlet or air outlet. 3. Check and replace the air inlet filter. 4. Check and replace the faulty system fan. 5. Replace the diffusor motor sensing board (on the light source).
11000	PIB	The projector model does not match the light source.	1. The PIB board is misused, such as the mix-up of the leased version and the sales version. 2. The light source is misused, such as the mix-up of the leased version and the sales version.	1. Replace the PIB board that matches the leased or sales version of the whole machine. 2. The light source is misused and may need to be returned to the factory for processing. Please contact customer service personnel.
11002	PIB	The playback type does not match the macro mode.	1. 3D video source is played over the 2D macro. 2. 2D video source is played over the 3D macro. 3. Other operations resulting in the mismatch of playback types and macros are performed.	1. Select the matching 2D or 3D macro of the projector according to the DCP type (2D or 3D video source) played by the server; that is, the 2D video source should be played over the 2D macro and the 3D video source should be played over the 3D macro. 2. If the server's playback type is HDMI, set the projector macro to HDMI.
25095	Projector	The filter needs to be cleaned.	The filter has not been cleaned for more than 180 days.	1. Turn off the projector and then power it off. Remove the filter assembly. It is recommended to replace the filter with a new one directly. 2. After cleaning the filter, log in to the UI and choose **Maintenance → Maintenance Cycle Management** and click **Confirm Maintenance** for the **Filter Cleaning** option.
31001	Lens Driver	Vertical limit failed.	Two vertical limit switches are triggered simultaneously.	Check whether two vertical limit switches (identified as Up and Down) on the lower side of the lens bracket are installed correctly and whether the switch devices are normal.
31002	Lens Driver	Horizontal limit failed.	Two horizontal limit switches are triggered simultaneously.	Check whether two horizontal limit switches (identified as Left and Right) on the right side of the lens bracket are installed correctly and whether the switch devices are normal.
32001	Lens	Lens installation error.	The lens is not installed at the specified position.	1. Check whether the lens is installed in place. 2. Check whether the Zoom socket on the lens bracket is connected correctly and whether the socket is loose or disconnected.
32002	Lens Driver	Driver initialization error.	The driver board hardware or software is faulty.	1. Restart the projector. 2. Check whether the software version of the lens driver board is correct. Try to update or upgrade to the new software version. 3. Replace the lens driver board with a new one.

32003	Lens Driver	Communication failure.	1. The lens driver board is damaged. 2. The connection cable falls off or is damaged.	1. Check whether the control cable of the lens drive board (identified as Lens Ctrl) is loose and whether the connection position is correct. 2. Replace the lens driver board with a new one.
33001	Lens Driver	Lens data uninitialized.	No lens data is found.	Log in to the UI as the administrator. Choose **Administrator Settings → Select Lens** and select the correct lens type.
56001	LDM	The voltage is lower than 10.5 V.	1. The 12 V tributary of the power module is faulty. 2. The 12 V load of the power module is faulty.	1. Replace the power module. 2. Disconnect the 12 V load of the power module (DCMB, PIB, TEC driver board, etc.) and check whether the 12 V power supply resumes being normal. If yes, then the 12 V load is faulty. In this case, check and identify other faulty loads. If not, then replace the power module.
56002	LDM	The voltage is lower than 10 V.	1. The 12 V tributary of the power module is faulty. 2. The 12 V load of the power module is faulty.	1. Replace the power module. 2. Disconnect the 12 V load of the power module (DCMB, PIB, TEC driver board, etc.) and check whether the 12 V power supply resumes being normal. If yes, then the 12 V load is faulty. In this case, check and identify other faulty loads. If not, then replace the power module.
56003	LDM	The voltage is higher than 13.5 V.	The 12 V tributary of the power module is faulty.	Replace the power module.
56004	LDM	The voltage is higher than 14 V.	The 12 V tributary of the power module is faulty.	Replace the power module.
57001	PIB	The voltage is lower than 4.5 V.	The 5 V tributary of the PIB board is faulty.	Replace the PIB board.
57002	PIB	The voltage is lower than 4.4 V.	The 5 V tributary of the PIB board is faulty.	Replace the PIB board.
57003	PIB	The voltage is higher than 5.5 V.	The 5 V tributary of the PIB board is faulty.	Replace the PIB board.
57004	PIB	The voltage is higher than 5.6 V.	The 5 V tributary of the PIB board is faulty.	Replace the PIB board.
58001	PIB	The voltage is lower than 3.135 V.	The 3.3 V tributary of the PIB board is faulty.	Replace the PIB board.
58002	PIB	The voltage is lower than 3.0 V.	The 3.3 V tributary of the PIB board is faulty.	Replace the PIB board.
58003	PIB	The voltage is higher than 3.465 V.	The 3.3 V tributary of the PIB board is faulty.	Replace the PIB board.
58004	PIB	The voltage is higher than 3.6 V.	The 3.3 V tributary of the PIB board is faulty.	Replace the PIB board.
71101	DCMB	Heartbeat packet lost.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71102	DCMB	Heartbeat packet lost for a long period.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.

71103	DCMB	IMB-APP initialization failure.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71104	DCMB	DCMB initialization failure.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71105	DCMB	IMB channel switching failure.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Check whether the software version of the DCMB board is correct. 3. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71106	DCMB	Video playback failure.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Check whether the software version of the DCMB board is correct. 3. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71107	DCMB	Test pattern playback failure.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Check whether the software version of the DCMB board is correct. 3. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.
71108	DCMB	Failed to obtain DCMB version.	1. The DCMB board is not started. 2. The DCMB board is faulty.	1. Wait patiently for the DCMB board to fully start. 2. Check whether the software version of the DCMB board is correct. 3. Try to replace and check the DCMB board. If the fault phenomenon occurs with only the DCMB board, replace the DCMB board.

Table 85

Espedeo Website

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Technical Support

Worldwide Offices