User Guide
020-102584-04

Christie IMB-S3

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a. Problems or damage occurring during shipment, in either direction.

b. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.

c. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake, or other natural disaster.

d. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.

e. Use of third party product enclosures for environmental protection during outside use must be approved by Christie.

f. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.

g. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.

h. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

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PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty. For preventative maintenance schedules, refer to *www.christiedigital.com*.

REGULATORY

The product 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 product is operated in a commercial environment. The product 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 the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

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ENVIRONMENTAL

The product is designed and manufactured with high-quality materials and components that can be recycled and reused. This symbol 🗑 means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

Content

Safety precautions

Learn about the safety precautions related to the Christie IMB.

General safety precautions

Read all safety and warning guidelines before installing or operating the product.

Hazard warnings also apply to accessories once they are installed in a Christie product that is connected to power.

Warning! If not avoided, the following could result in death or serious injury.

- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- EXPLOSION HAZARD! Allow sufficient time for the lamp to cool down before powering down the product, disconnecting it from AC, and opening the lamp door.
- EXPLOSION HAZARD! Replacement battery must be of the correct type.
- EXPLOSION HAZARD! Dispose of the battery according to local area regulations.

Caution! If not avoided, the following could result in minor or moderate injury.

- Only Christie qualified technicians are permitted to open product enclosures.
- Observe all electrostatic precautions. Use a grounded wrist strap and insulated tools when handling, servicing, or cleaning electronic assemblies.

Introduction

This manual provides information on using the Christie IMB, including management of storage devices, content, settings, playlists, and automation.

Key features

With this release of the Christie Integrated Media Block (IMB), you can connect a network attached storage (NAS) device to play content.

The NAS device must be connected to the gigabit Ethernet port labeled NAS on the main projector communication board. Content cannot be stored on the Christie IMB; all content must be stored on a NAS device.

The Christie IMB meets Digital Cinema Initiatives, LLC (DCI) specifications and is compatible with Christie Series 3 projectors.

Product documentation

For installation, setup, and user information, see the product documentation available on the Christie Digital Systems USA Inc. website. Read all instructions before using or servicing this product.

1. Access the documentation from the Christie website:

   - Go to this URL: *http://bit.ly/2ymiqp5* or

     https://www.christiedigital.com/en-us/cinema/cinema-products/media-block/cinelife-imb-solution

   - Scan the QR code using a QR code reader app on a smartphone or tablet.
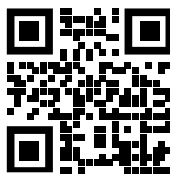
2. On the product page, switch to the **Downloads** tab.

Related documentation

Additional information on this product is available in the following documents.

   - *Christie IMB S3 Product Safety Guide (P/N: 020-102583-XX)*
   - *Christie IMB S3 Installation and Setup Guide (P/N: 020-102582-XX)*

Managing storage devices

To play content, you must connect a network attached storage (NAS) device to the projector to store ingested content.

The NAS device must be connected to the port labeled NAS on the main projector communication board (F-Main).

Configuring a NAS Ethernet port IP address

Use a private Ethernet connection to connect the network attached storage (NAS) device to the NAS port on the main projector communication board.

Do not install a switch or other network device between the NAS port and the NAS device. Typically the NAS port has a static IP address.

When setting the static IP value, you are setting the IP address for the NAS port on the main projector communication board. The static IP address must be in the same subnet as the NAS device; it cannot be the same IP address as the NAS device.

Adding a NAS device

The network attached storage (NAS) device must be configured to use the network file system (NFS) protocol. Christie recommends that you use a static IP address for the NAS device.

1. Verify the NAS device is connected to the gigabit Ethernet port labeled NAS on the main projector communication board.

2. On the projector touch panel, tap **Service Setup** > **Storage Device Setup**.

3. Tap **+ New Storage Device**.

4. Complete these fields:

   - Name—The name of the storage device.

   - IP Address—The IP address of the storage device.

   - Share Folder—The folder from which content will be uploaded.

   - Drive Type—Select Content Drive or Ingest Drive.

5. To make the content drive the primary storage drive, tap the **Set as Primary Drive** slider. The color of the slider changes to green to indicate it is active.

6. To test the connection to the storage device, tap **Test Connection**.

7. Tap **Save**.

Connecting to a Christie NAS

The following sections provide detailed instructions for connecting a Christie network attached storage (NAS) device.

The IP addresses and folder names used in this document are provided as examples. Use IP addresses and share names that are unique to your theater environment.

Complete the procedures in the order they are written.

Prerequisites

To connect a Christie network attached storage (NAS), install and format the NAS hard drives and verify that they are configured for RAID 5.

Connecting the Christie NAS device and configuring the network settings

Complete this procedure to connect the Christie NAS device to the network.

1. Connect one end of an Ethernet cable to your computer and the other end to Ethernet port 1 on the Christie NAS device.
2. Add your computer to the subnet of the NAS device.
   a) On the computer, open **Control Panel**.
   b) Click **Network and Sharing Center**.
   c) In the left pane, click **Change adapter settings**.
   d) Right-click a network connection and select **Properties**.
   e) In the connection list, select **Internet Protocol (TCP/IP)**.
   f) Click **Properties**.
   g) Select **Use the following IP address**.
   h) In the IP address field, enter the subnet IP address of the NAS device.
   i) In the Subnet mask field, enter **255.255.255.0**.
   j) Click **OK**.

Creating a Christie NAS network share folder

A share folder is required to allow the Christie IMB to store ingested content.

1. On your computer, open a web browser.
2. Navigate to **http://192.168.1.101**.
3. Click **Administration**.
4. In the User Name field, type `admin`.
5. In the Password field, type `cdsclub`. Click **OK**.
6. Expand **Network Services** and in the left pane, click **NFS Service**.

7. In the right pane, select **Enable NFS Service** and click **Apply**.

8. In the left pane, expand **Access Right Management** and click **Share Folders**.

9. In the right pane, click **Create a Network Share**.

10. In the Folder Name field, type **Content** in the Folder Name field and click **Next**.

11. Select **Full access (Grant full access right for everyone)** and click **Next**.

12. In the Guest Access Right area, select **Read/Write**.

13. Confirm the settings are correct and click **Next**.

14. Click **Finish**.

Verifying NFS is enabled and disabling sleep mode

Complete this procedure to enable the network file system (NFS) service and disable sleep mode.

1. On your computer, open a web browser.

2. Navigate to **http://192.168.1.101**.

3. Click **Administration**.

4. In the User Name field, type `admin`.

5. In the Password field, type `cdsclub`. Click **OK**.

6. In the left pane, select the **Content** folder.

7. In the Action column, next to the content share, click the **NFS** icon.

8. In the Access Right list, select **No limit**.

9. Clear the **Sleep Mode** checkbox.

10. Click **Apply**.

Configuring the Christie IMB and NAS communication settings

To configure the communication settings between the Christie IMB and the Christie NAS device, you can use the projector touch panel menus.

1. Disconnect the Ethernet cable from the computer and connect it to the NAS port on the main projector communication board (F-Main).

2. On the projector touch panel, tap **Service Setup** > **Network Settings**.

3. On the Ethernet tab, select the **Content-NAS** port.

4. You can choose to obtain the NAS IP address automatically or enter the network values manually (IP Address, Subnet Mask, and MAC Address). The default IP address of the Christie NAS is 192.168.1.101.

5. To save the network settings, tap **Save**.

6. On the projector touch panel, tap **Service Setup** > **Storage Device Setup**.

7. Tap **+ New Storage Device**.

8. Tap the **Set as Primary Drive** slider.
    The color of the slider turns to green to indicate it is active.

9. Complete these fields:

- In the Name field, type `Christie NAS`.
- In the IP Address field, type `192.168.1.101`.
- In the Username field, type `admin`.
- In the Password field, type `cdsclub`.
- In the Share Folder list, select **/Content**.
- In the Drive Type field, select **Content Drive** or **Ingest Drive** as required.

10. To test connectivity, tap **Test Connection**.
11. Tap **Save**.

Connecting to a content network

With a content network, you can ingest content from a theater management system (TMS), a satellite receiver, or another IMB. The network file system (NFS) service must be enabled on the file share accessed by the Christie IMB.
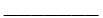
To allow the projector to communicate with the ingest device, *add a NAS* (on page 9). Specify the IP address of the theater management system or satellite receiver in the IP Address field and select the NFS share in the Share Folder list.

Content network topology

Learn the components of a content network.
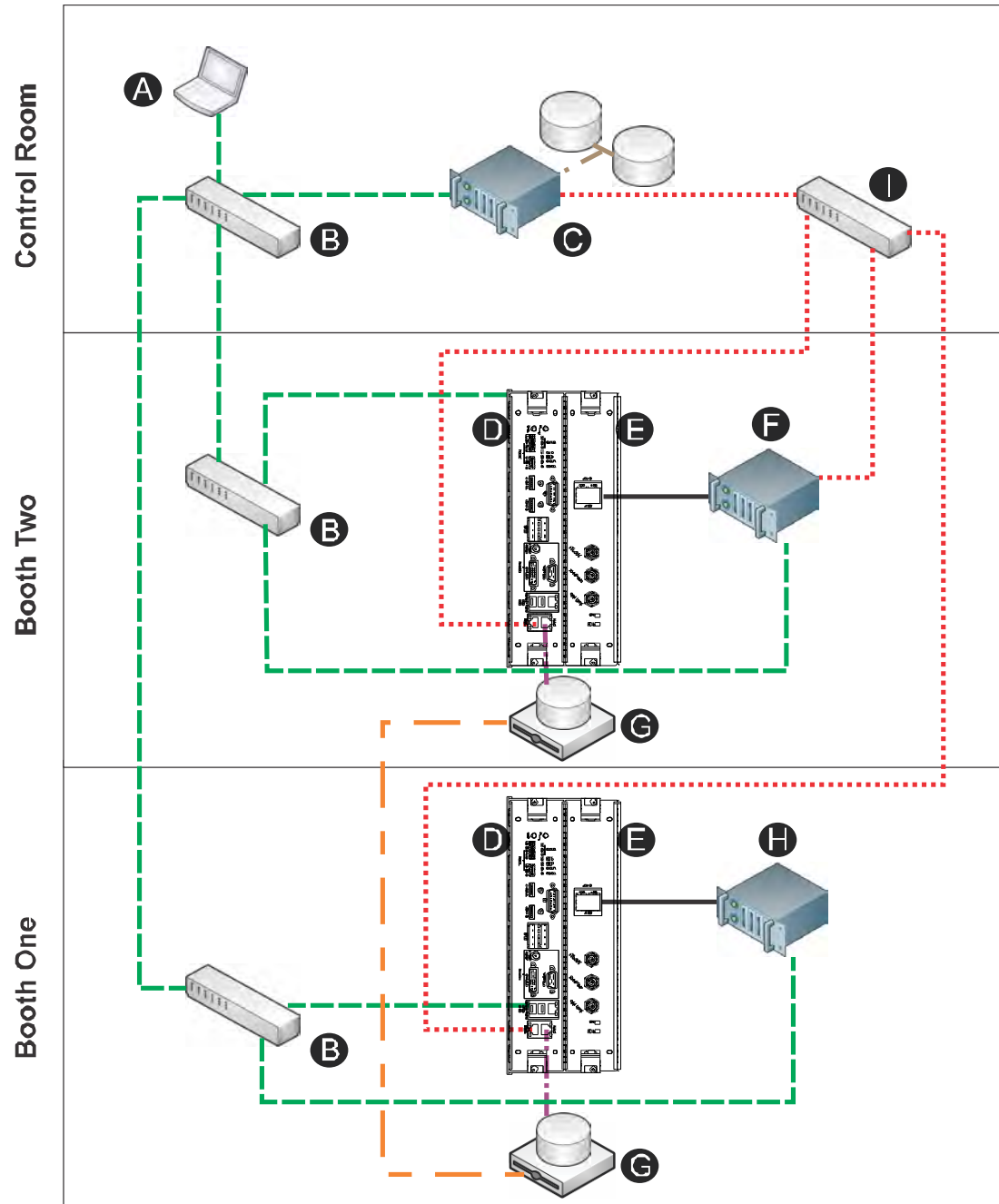
Item	Description	Item	Description
A	Control computer	H	Dolby Digital Cinema Sound Processor CP750

Item	Description	Item	Description
B	GigE switch for command and control network	I	GigE switch for content network
C	Theater Management System (TMS) or Library Management System (LMS)	▬ ▬ ▬ ▬	Command and control network (GigE media network for moving content over the network)
D	Main projector communication board (F-Main)	▪▪▪▪▪▪▪	Content network (GigE)
E	Christie IMB	▪▬▪▬▪▬	Home run connections (GigE)
F	Dolby Atmos Cinema processor CP850	_____	AES connection
G	Network attached storage (NAS)	▬ ▬ ▬	Replication connection

Editing NAS settings

Complete the following procedure to edit settings for the network attached storage (NAS) device.

1. On the projector touch panel, tap **Service Setup** > **Storage Device Setup**.

2. Tap **+ New Storage Device**.

3. Edit the required fields:

   • Name—The name of the storage device.

   • IP Address—The IP address of the storage device.

   • Share Folder—The folder from which content will be uploaded.

   • Drive Type—Select Content Drive or Ingest Drive.

4. To make the content drive the primary storage drive, tap the **Set as Primary Drive** slider. The color of the slider changes to green to indicate it is active.

5. Tap **Save**.

Testing the network attached storage connection

Complete this procedure to test the connection of the network attached storage (NAS) device.

1. Verify the NAS device is connected to the gigabit Ethernet port labeled NAS on the main projector board (F-Main).

2. On the projector touch panel, tap **Service Setup** > **Storage Device Setup**.

3. Tap the name of the NAS device in the list.

4. To test the connection to the storage device, tap **Test Connection**. The system runs the connection test and displays the results.

5. To dismiss the dialog, tap **OK**.

Testing the network attached storage performance

Complete this procedure to test the performance of the network attached storage (NAS) device.

1. Verify the NAS device is connected to the gigabit Ethernet port labeled NAS on the main projector communication board.

2. On the projector touch panel, tap **Service Setup** > **Storage Device Setup**.

3. Tap the name of the NAS device in the list.

4. To test the performance of the storage device, tap **Test Performance**.
   The Performance Test dialog opens and the system runs the performance test on the NAS write and read speeds. The test may take several minutes.

5. After reviewing the results, dismiss the dialog by tapping **OK**.

Deleting network attached storage

Complete this procedure to remove a network attached storage (NAS) device that is no longer required.

1. In the left navigation menu, tap **Service Setup** > **Storage Device Setup**.

2. In the left pane, tap the NAS storage device.

3. Tap **Delete**. 🗑

4. To confirm the deletion, tap **Delete**.

Managing content

Use the procedures in this section to manage content and keys.

Content manager icons

These icons appear in the content manager.

Icon	Description
FLAT	The content is presented in flat format.
SCOPE	The content is presented in scope format.
2D	2D content identifier.
3D	3D content identifier.
SUBS	A subtitle file is included with the content.
CC	A closed captioning file is included with the content.
2K	2K content identifier.
4K	4K content identifier.
ATMOS	The content includes a Dolby Atmos audio file.
HFR	High frame rate identifier.
EDR	Extended Dynamic Range (EDR) content.

Ingesting content and keys

To ingest content, an ingest device must be connected to the projector. The ingest device must be properly configured and operating correctly. For information about connecting an ingest device, see the projector User Manual.

If an ingest device is not connected to the projector, the Content Manager menu is not displayed.

1. In the left navigation menu, tap **Content Manager**.

2. Tap the **Ingestible Content** tab.

3. In the Source list, select a source for the content.
   Ingest devices connected to the projector are automatically added to the Source list.

4. In the Show list, select the content type.

5. Select the checkbox to the left of the content you want to ingest, or select the empty check box at the top of the column to select all content.

6. Tap **Ingest**.

7. To view the ingest progress, tap the **Progress** tab.

Canceling an ingest

Cancel an ingest if the operation is taking too long.

1. Through the Content Manager, run an operation to ingest content and keys. See *Ingesting content and keys* (on page 16).

2. Tap the **Progress** tab.

3. Select the checkbox to the left of the content.

4. Tap **Cancel**.

Viewing remaining NAS storage capacity

View the remaining NAS storage capacity to determine if additional storage is required.

1. In the left navigation menu, tap **Content Manager**.

2. Review the remaining storage capacity displayed on the **Local Content** tab.

Filtering content by type

Filter content by type to locate content of a specific type or reduce the return results.

1. In the left navigation menu, tap **Content Manager**.

2. On the **Local Content** tab in the Show list, select the content type.

Viewing available keys

Keys are required to play encrypted content.

1. In the left navigation menu, tap **Content Manager**.

2. To view the available keys, tap the **Keys** tab.

Filtering the key list

Filter the key list to locate keys of a specific type.

1. In the left navigation menu, tap **Content Manager**.

2. Tap the **Keys** tab.

3. In the Show list, select one of the following options for filtering the list:

   • All Keys

   • Not Yet Valid

   • Valid

- Expiring Soon
- Expired

In the column heading, tap **Resize**. ⁌⁍

Deleting local content

Delete local content to increase local storage space.

1. In the left navigation menu, tap **Content Manager**.
2. On the **Local Content** tab, select the check box to the left of the content, or select the empty check box at the top of the column to select all content.
3. Tap **Delete**.
4. To confirm the deletion, tap **Delete**.

Deleting keys

Delete keys when they are no longer required.

📝   Key Delivery Message (KDM) keys are automatically deleted when they expire.

1. In the left navigation menu, tap **Content Manager**.
2. Tap the **Keys** tab.
3. Select the check box to the left of the keys.
4. Tap **Delete**.
5. To confirm the deletion, tap **Delete**.

Collapsing or expanding columns

Expand or collapse columns to display more or less information.

- In the column heading, tap **Resize**. ⁌⁍

Viewing content details

The Properties panel provides detailed information about the selected content.

1. In the left navigation menu, tap **Content Manager**.
2. Tap the **Local Content** tab.
3. Tap **Details**. 📋

Loading and playing content

To play content it must be loaded first.

1. In the left navigation menu, tap **Content Manager**.

2. Tap and hold **Load**. ▼

3. Load local content or a playlist:

   - To load a playlist, tap the **Playlists** tab.

   - To load locally stored content, tap the **Local Content** tab.

4. Tap to select the playlist or content.

5. Tap **Load**. ▼

   The Loading Media dialog displays progress information.

6. To start playback, tap and hold **Play**. ▶

Unloading content

Unload content when it has finished playing and is no longer required.

1. Stop or pause playback.

2. Tap **Unload**. ⏏

Managing audio settings

Learn how to enable and modify projector audio settings.

Setting the global audio delay

The global audio delay setting increases or decreases the audio delay.

1. In the left navigation menu, tap **Service Setup** > **Audio Setup**.
2. On the **Global Settings** tab, in the Global Audio Delay area, select one of these options:
   - To increase the audio delay, tap **Up**.
   - To decrease the audio delay, tap **Down**.

Setting the audio output rate

Adjust the audio output rate to match the output of the audio device.

1. In the left navigation menu, tap **Service Setup** > **Audio Setup**.
2. On the **Global Settings** tab, in the Audio Output Rate area, select one of these options:
   - Automatic
   - 48 kHz
   - 96 kHz

Mapping channels

Use the Channel Mapping tab to map the Digital Cinema Package (DCP) audio channels to the AES outputs. Interop is the most common audio setting.

1. In the left navigation menu, tap **Service Setup** > **Audio Setup**.
2. Tap the **Channel Mapping** tab.
3. In the Channel Format list, select an audio format.
   The selection in the Channel Format list does not determine the audio format. The content determines the audio format. For example, if you select SMPTE 7.1 DS and Interop is specified in the content, the Interop audio settings are applied when the content plays.
4. Select the channel that matches the speaker specified in the *Interop Channel Mapping Guide*.
5. For any speakers not being used, select **Not Used**.
6. To test the channel mapping setting, tap **Test**.

Enabling Dolby Atmos

To play content with Dolby Atmos audio, enable Dolby Atmos.

1. Tap **Service Setup** > **Audio Setup**.

2. Tap the **Dolby Atmos Configuration** tab.

3. Tap the **Enable Dolby Atmos** slider.
   The color of the slider changes to green to indicate it is active.

4. In the Control IP field, type the control IP address.

5. To test Dolby Atmos connectivity, tap **Test Connection**.

6. Tap **Save**.

Disabling Dolby Atmos

Disable Dolby Atmos when Dolby Atmos audio playback is no longer required.

1. Tap **Service Setup** > **Audio Setup**.

2. Tap the **Dolby Atmos Configuration** tab.

3. Tap the **Enable Dolby Atmos** slider.
   The color of the slider changes to gray to indicate it is inactive.

4. Tap **Save**.

Managing Christie IMB settings

This section provides procedures for managing Christie IMB settings.

Adding a channel for IMB input

Create a channel to store customized projector settings for input devices connected to the IMB.

1. In the left navigation menu, tap **Channel Setup**.
2. Tap **+ Add Channel**.
3. Complete these fields:

Field Name	Description
Name	The channel name.
Input Type	Select IMB.
3D Sync Input Mode	For third party IMBs, specifies how 3D input data is encoded. The default setting is 2D. • 2D Mode: No 3D synchronization is applied. • 3D Frame Interleaved: For input that contains left eye data followed by right eye data. • 3D Frame Interleaved Inverted: For input that contains right eye data followed by left eye data. • 3D White Line/Blue Line: For input that includes metadata describing the 3D encoding. • 3D White Line/Blue Line Inverted: For inverted input that includes metadata describing the 3D encoding. • 3D Line Interleaved: The left eye and right eye data are sent on alternating lines. 3D Sync Input Mode is not required when using the Christie IMB. For GDC IMB devices, the recommended setting is 3D Line Interleaved.
ILS File	The ILS file associated with the channel.
2D Lamp File	The 2D lamp file associated with the channel. Any changes made to the lamp file settings are applied to all channels that use this lamp file.
3D Lamp File	The 3D lamp file associated with the channel. Any changes made to the lamp file settings are applied to all channels that use this lamp file.
2D MCGD File	The Measured Color Gamut Data file associated with the 2D image.

Field Name	Description
3D MCGD Left Eye File	The Measured Color Gamut Data file associated with the left 3D image.
3D MCGD Right Eye File	The Measured Color Gamut Data file associated with the right 3D image.
TCGD File	The Target Color Gamut Data file associated with the channel.
Screen File	The screen type, masking, cropping, and lens settings for the channel.
Gamma File	The gamma correction required for the proper tonal range of the source material.
Clut File	Applies a 3D color cube for increased color accuracy.
3D File	The 3D settings file associated with the channel.
Source File	The resolution and aspect ratio for the channel.
Christie Pureformity Color™ Correction File	The color correction file associated with the channel. The default value is Bypass.
Warp File	The warp file associated with the channel. The default value is Bypass.

4. Tap **Save**.

Downloading a certificate

Complete the following procedure to download a certificate and generate key delivery message (KDM) keys.

The SM certificate is used for digital cinema package (DCP) decryption. Typically, this is the certificate you send when requesting KDM keys. The Log certificate is used for signing log files.

1. On the projector touch panel, tap **About**.
2. In the certificate list, select one of the following certificates:
   - Projector Certificate
   - SMS Certificate
   - SM Certificate (used by distributors to generate KDM keys)
   - Log Signer Certificate
3. Tap **Download**.
4. In the Name field, type a name for the certificate file.
5. Tap **Accept**.

Viewing status information

You can view the status of the Christie IMB on the master projector.

1. On the master projector touch panel, tap **Status**.
2. In the Status list, tap **Christie IMB**.
3. Review the status information.

Importing a product enhancement

Import a license to activate a product enhancement.

1. Tap **Service Setup** > **Enhancements**.
2. Tap **Import License**.
3. Browse to the location of the license.
4. Select the license and tap **Accept**.

Uploading the Christie IMB software upgrade package

Complete this procedure to upload the Christie IMB software upgrade package.

You upgrade the Christie IMB and the projector software separately. Software upgrades are available on the Christie website.

1. Navigate to the Christie *website* and download the upgrade package to a USB flash drive.
2. On the side of the touch panel, insert the USB flash drive into the USB port.
3. In the left navigation menu, tap **Service Setup** > **System Upgrade**.
4. Tap **+ Add New Package**.
5. Browse to the location of the upgrade package.
6. Type a name for the upgrade package and tap **Accept**.

Installing an upgrade package

Install an upgrade package to update the projector software.

1. In the left navigation menu, tap **Service Setup** > **System Upgrade**.
2. In the list of packages, tap an upgrade package.
3. In the right pane, select one of these options:
   - **Upgrade Differences Only**—Upgrades system components that are newer or older than the currently installed version.
   - **Force Upgrade All**—Upgrades all components in the upgrade package.
   - **Factory Upgrade**—Removes all existing configurations and upgrades all components.
4. Tap **Upgrade**.
5. To confirm, tap **Upgrade**.

Deleting an upgrade package

Delete an upgrade package that is no longer required.

1. In the left navigation menu, tap **Service Setup** > **System Upgrade**.
2. In the list of packages, tap an upgrade package.

3. Tap **Delete**.

4. To confirm the deletion, tap **Delete**.

Managing playlists

Use the procedures in this section to manage playlists. A playlist is a list of content files and automated events that play in an order that you define.

Creating a new playlist

A playlist is a list of content files and automated events that play in an order that you define.

> • To manage minor time gaps between content files, Christie recommends inserting a short period of black screen with no audio. To achieve this, you can insert a BLACK MOS clip into the playlist. BLACK MOS clips are small, silent compositions and are set in varying lengths to accommodate different projection requirements. The clips are available from content distributors.
>
> • When working in a multi-projector environment, make sure each piece of content in a playlist is at least five seconds in length.

1. In the left navigation menu, tap **Playlist Editor**.
2. In the right pane, tap **New Playlist**.
3. In the Create New Playlist dialog, type a name for the playlist and tap **Create**.
4. Add content or an automation event to the playlist:
   - To add content to the playlist, tap the content item shown under the **Local Content** tab.
   - To add an automation event or macro to the playlist, select a content item in the playlist and then switch to the **Automation** tab. Tap the automation event or macro item to add it to the playlist.
5. In the right pane, tap **Save**.

Reordering playlist content

Reorder the playlist content to change the time when content plays.

1. In the left navigation menu, tap **Playlist Editor**.
2. In the upper right pane, select a playlist from the list.
3. Tap the content or a macro in the playlist.
4. To select a new position for the content or macro, tap the down arrow and select the number for the new position. For example, selecting **1** moves the item to the top of the playlist.
5. Tap **Save**.

Adding a time offset to a macro

An offset identifies when a macro plays in a playlist.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the upper right pane, select a playlist.

3. Tap a macro in the playlist and then tap **Edit**.

4. In Edit Automation dialog, select one of these options from the Offset Type list:

5. Under Offset Time, adjust the time the automation occurs.

6. Tap **Update**.

Replacing playlist content

Replace playlist content when content has been added in error, or you want to add new content to an existing playlist.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the upper right pane, select a playlist from the list.

3. Tap the content in the playlist.

4. Tap **Replace Content**.

5. In the Replace Content dialog, select the new content.

6. Tap **Replace**.

7. Tap **Save**.

Removing playlist content

Remove playlist content when content has been added in error, or you want to update an existing playlist.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the playlist list in the upper right pane, select the playlist you want to update.

3. Tap content in the playlist.

4. Tap **Remove Content**.

5. Tap **Save**.

Copying a playlist

Copy a playlist when you want to quickly create a playlist with similar content.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the playlist list in the upper right pane, select the playlist you want to copy.

3. Tap the menu [...] and then tap **Save As**. 🖫

4. In the Save Playlist dialog, type a new name for the playlist.

5. Tap **Save**. 🖫

Opening an intermission playlist

Open an intermission playlist from the top level playlist.

1. In the left navigation menu, tap **Playlist Editor**.

2. Select the playlist with the intermission item to open.

3. In the right pane, tap the intermission item and then tap **Open Intermission Playlist**. ⎘

   The intermission playlist items are displayed in the right pane.

Viewing details about playlist content

The Details dialog provides detailed information about the selected content.

1. In the left navigation menu, tap **Playlist Editor**.

2. Under the Local Content tab, to the right of the content, tap **Details**. ☰

Importing a playlist

Import a playlist from another projector or computer on the network.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the right pane, tap the menu [...] and then tap **Import Playlists**.

3. In the Import dialog, navigate to the playlist you want to import and select it.
   A filter of *.ply is applied automatically to display available playlist files.

4. Tap **Accept**.

Exporting a playlist

Export an existing playlist to another projector or computer on the network.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the right pane, select the playlist you want to export.

3. Tap the menu [...] and then tap **Export Playlists**.

4. In the Export dialog, navigate to the location you want to export to.

5. Tap **Export**.

Deleting a playlist

Delete a playlist when it is no longer required or when the content has expired.

1. In the left navigation menu, tap **Playlist Editor**.

2. In the playlist list in the upper right pane, select the playlist you want to delete.

3. Tap the menu ... and then tap **Delete**.

4. To confirm the deletion, tap **Delete**.

Working with the scheduler

Use the scheduler to schedule playlists and automated events to play automatically on a specific date at a specific time.

Scheduling a playlist, content, or automation

Schedule a playlist, content, or automation to run automatically on a specific date and time.

1. In the left navigation menu, tap **Scheduler**.
2. To select a date for the scheduled event, tap **Calendar**. 🗓
3. Select the week.
4. Tap a square below the date and next to the time that you want the event to run.
5. Tap **+ New Event**.
6. Tap **Playlist**, **Content**, or **Automation**.
7. Tap a playlist, content, or automation item.
8. Select the start time.
9. Select the start date.
10. To repeat the event daily, weekly, or monthly:
    a) Tap the **Recurrence** slider.
    b) Select the frequency of the recurrence. The options are daily, weekly, or monthly.
    c) Select the days or months that you want the playlist, content, or automation event to play.
    d) To select an end date for the schedule, tap **Calendar**. 🗓
11. To prevent the scheduled event from being overwritten, tap the **Lock Event** slider.
    Locked events cannot be overwritten by pasted events.
12. Tap **Create Event**.

Editing a scheduled event

Edit a scheduled event to modify the run time and date.

1. In the left navigation menu, tap **Scheduler**.
2. In the calendar view, tap the scheduled event.
3. Tap **Edit**.
4. Edit the scheduled event settings.

5. Tap **Update Event**.

Copying and pasting an existing scheduled event

To run a scheduled event at a different date and time, copy and paste it.

1. In the left navigation menu, tap **Scheduler**.
2. In the calendar view, tap the scheduled event.
3. Tap **Copy**.
4. Tap a square below the date and next to the time that you want the event to run.
5. Tap **Paste**.
6. Adjust the any settings for the scheduled event.
7. Tap **Paste Event**.

Copying and pasting scheduled events for an entire day

To run an existing full day of scheduled events on a different date, copy and paste the entire day of scheduled events.

1. In the left navigation menu, tap **Scheduler**.
2. At the top of the calendar, tap the day with the events you want to copy.
3. Tap **Copy**.
4. At the top of the calendar, tap the new target day.
5. Tap **Paste**.
   Only unlocked events are copied to the new day.

Cutting and pasting a scheduled event

To move an existing scheduled event to a different date and time, cut and paste it.

1. In the left navigation menu, tap **Scheduler**.
2. In the calendar view, tap the scheduled event.
3. Tap **Cut**.
4. Tap the new date in the calendar.
5. Tap **Paste**.
6. Adjust the settings for the scheduled event.
7. Tap **Paste Event**.
   Only unlocked events are copied.

Loading a scheduled event for playback

To run a scheduled event, it must be loaded for playback.

1. In the left navigation menu, tap **Scheduler**.
2. In the calendar view, tap the scheduled event.
3. Tap **Load for Playback**.

Deleting a scheduled event

Delete an individual schedule event when it is no longer required.

1. In the left navigation menu, tap **Scheduler**.
2. In the calendar view, tap the scheduled event.
3. Tap **Delete**.
4. To confirm the deletion, tap **Delete**.

Deleting scheduled events for an entire day

Delete the scheduled events for an entire day when they are no longer required.

1. In the left navigation menu, tap **Scheduler**.
2. At the top of the calendar, tap the target day.
3. Tap **Clear Day**. 🗑
4. To confirm the change, tap **Clear Day**.

Changing the day of the week the scheduler starts

Change the start day of the scheduler to match the schedule of the theater.

1. In the left navigation menu, tap **Service Setup** > **Preferences**.
2. Tap **General**.
3. In the Scheduler area, select the day of the week to start the scheduler.

Turning the scheduler off

Turn the scheduler off when you do not want scheduled events to run automatically on a specific date and time.

1. In the left navigation menu, tap **Scheduler**.
2. To disable scheduled events, tap the **Scheduler is on** slider.
   The color of the slider changes to gray to indicate it is inactive.

Managing automation

Automation controls playback, the projector, and external devices. The Christie IMB includes built-in support for some external automation devices. If the device is not supported, you can use the serial-over-Ethernet protocol to send automation commands.

This section provides instructions for managing and defining:

- Macros: A macro is a list of actions that you define. For example, opening the curtains or turning on the house lights at the end of playback. A macro can be activated by a global trigger, or it can be added to a playlist.

- Device input triggers: Input cues wait for events such as a general purpose input (GPI) state change or an Ethernet message. An input cue in a playlist delays playback until an event occurs. In a global trigger, a macro runs when an input cue event occurs. These are the available input cues:

Automation Device	Action	Description
Projector	Lamp Off Event	An event starts when the lamp turns off.
IMB automation	Serial String Input	Waits for a serial string.
IMB automation	GPI Wait	Waits for a GPI event. Not available on Solaria One or Solaria One+.

- Global triggers: A global trigger combines an input cue with a macro. When the predefined event for the input cue occurs, the output macro is triggered. For example, a fire alarm input signal stopping playback to stop and turning on the house lights. A global trigger is always active and is not dependent on specific playlist definitions.

Available macro actions

These are the macro actions that are available to control automated events:

Action Item	Available Actions	Description
Automation	Set Global	Allows you to set a global variable that can be used in automation scripting (intended for advanced scripting by Christie)
	Print	Generates a projector log entry when an automation macro runs
	Get Global	Allows the automation script to read the value of a global variable (intended for advanced scripting by Christie)
	Set GPO	Sets the specified GPO pin to high or low
	Pulse GPO	Pulses the specified GPO pin

Action Item	Available Actions	Description
	Get GPI	Allows an automation script to read the GPI state (intended for advanced scripting by Christie)
	Delay	Delays macro execution
	Wait On GPI	Pauses the automation script and waits for the specified GPI event to enter the specified state
Projector	Douser Open	Opens the douser (shutter)
	Douser Close	Closes the douser (shutter)
	On	Turns the light on
	Off	Turns the light off
	Standby	Puts the projector in standby mode
	Channel	Selects a specific projector channel
	Full Power	Places the projector in full power mode (shutter open, light on)
	Wait	Delays the execution of a macro

Christie ACT actions

These are the available built-in commands for the Christie ACT:

Command	Description
Buzzer	Activates the buzzer for the specified time (in milliseconds)
Button	Simulates pressing or holding the ACT button
Pulse Relay	Sends a pulse to a specific relay
Open Relay	Opens a specific relay
Close Relay	Closes a specific relay
Pulse GPO	Sends a pulse to a specific GPO pin
Set All GPOs	Sets the values for all GPO pins
Run Script	Runs a script on the Christie ACT
Flash LED	Causes a specific LED to flash
Set All LEDs	Sets values for all of the LEDs

JNIOR actions

These are the available built-in commands for JNIOR devices:

Command	Description
Open Relay	Opens a specific JNIOR relay

Command	Description
Close Relay	Closes a specific JNIOR relay
Pulse Relay	Sends a pulse to a specific JNIOR relay for the specified time (in milliseconds)
Execute Macro	Executes a JNIOR macro

You can create macros on the JNIOR device and call them using the `Execute Macro` command. Make sure you use \\0D for a carriage return and \\0A for a line feed.

To create and run macros on the JNIOR, use the JNIOR Support Tool to enable and configure the Cinema.JNIOR application. It is recommended that you install Cinema.JNIOR version 2.22.1115.1501 or later. For additional information, see INTEG Process Group (www.integpg.com). Port 9200 is the default Ethernet port for sending automation commands to the JNIOR.

Dolby Cinema processor actions

These are the available built-in commands for Dolby CP650, CP750, and CP850 devices:

Command	Description
Mute On/Mute Off	Enables or disables muting
Set Format (CP650 only)	Selects the format
Set Fader Level	Sets the fader level
Send Message (CP850 only)	Sends the specified message

If you need to control additional functions and a built-in command is not available, send a command string in a macro. For example, send this command to enable surround boost on the Dolby CP750: `cp750.sys.surround_boost 1\\0D`

Make sure that you include a carriage return (`\\0D`) at the end of each command. For more information about controlling other features with serial commands, see the Dolby CP750 documentation.

The default Ethernet port for sending automation commands to the Dolby CP650 is port 61412. For Dolby CP750 and CP850, the default Ethernet port is port 61408.

SKA-3D actions

These are the available built-in commands for SKA-3D devices:

Command	Description
Set Audio Input Channel	Sets the audio input channel
Mute On/Mute Off	Enables or disables muting
Set Master Volume	Sets the master volume for the system
Set Video Input Channel	Sets the video input channel
Active Trigger Input	Controls eight SKA-3D presets

Command	Description
	To use this command, a trigger input must be associated with each of the SKA-3D presets

Adding an automation device to your auditorium

Add an automation device so it can be controlled remotely and can communicate with other theater hardware.

1. In the left navigation menu, tap **Automation** > **My Auditorium Devices**.

2. Tap **+ New Device**.

3. In the Name field, type a name for the device.

4. In the Device Type list, select the device type.

5. In the Select Device list, select the device.

6. Tap **Add**.

7. Complete these fields:

   • IP Address—The IP address of the automation device.

   • Port—The port used by the automation device to communicate with the projector.

   • Username—The username used to access the automation device.

   • Password—The password used to access the automation device.

   • Keep Alive Message—The message value that is sent to the automation device to ensure the projector is not disconnected when inactive.

   • Keep Alive Interval (ms)—The time interval (in milliseconds) for sending the Keep Alive Message to the automation device.

8. Tap **Save**.
   The added device is displayed in the list of auditorium devices in the Macro Editor.

Modifying automation device settings

Modify the settings of automation devices when parameters such as the user name or password change. If the settings are not updated, the automation device might be unable to communicate with other theater hardware or be controlled remotely.

1. In the left navigation menu, tap **Automation** > **My Auditorium Devices**.

2. In the left pane, select an automation device.

3. Modify these fields:

   • IP Address—The IP address of the automation device.

   • Port—The port used by the automation device to communicate with the projector.

   • Username—The username used to access the automation device.

   • Password—The password used to access the automation device.

   • Keep Alive Message—The message value that is sent to the automation device to ensure the projector is not disconnected when inactive.

- Keep Alive Interval (ms)—The time interval (in milliseconds) for sending the Keep Alive Message to the automation device.

4. Tap **Save**.

Removing an automation device from your auditorium

Remove an automation device when it is no longer required, or it has been physically removed from the theater.

1. In the left navigation menu, tap **Automation** > **My Auditorium Devices**.

2. In the left pane, select an automation device.

3. Tap **Delete**.

4. To confirm the deletion, tap **Delete**.

Creating a macro

Create a macro to make the projector perform a specific list of actions.

1. In the left navigation menu, tap **Automation** > **Macro Editor**.

2. In the right pane, tap **Create New Macro**.

3. Type a name for the macro.
   The Name field cannot contain spaces.

4. Select the macro type.

5. Tap **Create**.

6. Add an action item to the macro:

   a) In the left pane, expand the My Auditorium list.

   b) Under Automation, Playback, or Projector, select the action item.

7. To save the macro, tap **Save**.

8. To test the macro, tap **Test**.

Running a macro

Run a macro to have the projector perform a specific list of actions.

1. In the right toolbar of the touch panel, tap **Run Macro**.

2. Tap a macro.

Adding an action item to an existing macro

Add an action item to a macro to have the projector perform an additional action when the macro runs.

1. In the left navigation menu, tap **Automation** > **Macro Editor**.

2. In the top right pane, select a macro from the list.

3. Add an action item to the macro:

    a) In the left pane, expand the **My Auditorium** list.

    b) Under Automation, Playback, or Projector, select the action item.

4. To save the macro, tap **Save**.

5. To test the macro, tap **Test**.

Adding a macro to an existing macro

Combine macros to have the projector complete a complex set of actions.

1. In the left navigation menu, tap **Automation** > **Macro Editor**.

2. From the list in the top right pane, select a macro.

3. In the left pane, expand the macro list.

4. Tap a macro.

5. Tap **Save**.

Deleting a macro

Delete macros when they are no longer required.

1. In the left navigation menu, tap **Automation** > **Macro Editor**.

2. From the list in the top right pane, select a macro.

3. Tap **Delete**.

4. To confirm the deletion, tap **Delete**.

Creating a new playlist trigger

Create new playlist triggers to activate an automation device in a playlist.

1. In the left navigation menu, tap **Automation** > **Device Input Triggers**.

2. Tap the **Playlist Trigger** tab.

3. Tap **+ New Playlist Trigger**.

4. Complete the Name, Device Source, and Resume Playback On fields.
    The Name field cannot contain spaces.

5. Tap **Add**.

Editing existing playlist trigger settings

Edit playlist trigger settings to change the playlist trigger behavior.

1. In the left navigation menu, tap **Automation** > **Device Input Triggers**.

2. Tap the **Playlist Triggers** tab.

3. To the right of the playlist trigger you want to edit, tap **Edit**.

4. Edit the playlist trigger settings.

5. Tap **Save**.

Deleting a playlist trigger

Delete a playlist trigger when it is no longer required.

1. Tap **Automation** > **Device Input Triggers**.

2. Tap the **Playlist Triggers** tab.

3. To the right of the playlist trigger, tap **Delete**.

4. To confirm the deletion, tap **Delete**.

Creating a new global trigger

Create a global trigger to trigger an output macro. For example, a fire alarm input signal could cause playback to stop and the house lights to come on. A global trigger is always active and is not dependent on specific playlist definitions.

1. In the left navigation menu, tap **Automation** > **Device Input Triggers**.

2. Tap the **Global Triggers** tab.

3. Tap **+ New Global Trigger**.

4. Complete the Name, Source, and Trigger Event fields.
   The Name field cannot contain spaces.

5. In the Macro Name list, tap the macro that will run on trigger detection.

6. Tap **Add**.

Editing existing global trigger settings

Edit the settings of an existing global trigger to change its behavior.

1. In the left navigation menu, tap **Automation** > **Device Input Triggers**.

2. Tap the **Global Triggers** tab.

3. To the right of the global trigger you want to edit, tap **Edit**.

4. Edit the global trigger settings.

5. Tap **Save**.

Deleting a global trigger

Delete a global trigger when it is no longer required.

1. In the left navigation menu, tap **Automation** > **Device Input Triggers**.
2. Tap the **Global Triggers** tab.
3. To the right of the global trigger, tap **Delete**. 🗑
4. To confirm the deletion, tap **Delete**.

Importing a device library

A device library contains commands that are used to control a specific device.

1. In the left navigation menu, tap **Automation** > **Device Libraries**.
2. Tap **Import Device Library**.
3. Browse to the location of the device library file.
4. Tap the file and tap **Accept**.

Viewing a device library

View device libraries to determine if a library exists for the network device.

1. Import the device library.
2. In the left navigation menu, tap **Automation** > **Device Libraries**.
3. To the right of the device in the View Library column, tap **View Library**. 📄

   Review the list of actions available for the device.

Deleting a device library

Delete a device library when it is no longer required.

1. In the left navigation menu, tap **Automation** > **Device Libraries**.
2. To the right of the device library, tap **Delete**. 🗑
3. To confirm the deletion, tap **Delete**.

Accessing projector diagnostics

Learn how to access projector system logs and run diagnostic utilities.

Retrieving and downloading system logs

System logs can aid with the identification and correction of projector faults.

1. In the left navigation menu, tap **Diagnostics** > **System Logs/Interrogator**.
2. In the From list, select a start date for the logs.
3. In the To list, select an end date for the logs.
4. In the Log Source list, select a log type. For example, **Projector**.
5. Tap **Search**.
6. To sort log files by type, message, or date, tap a column heading.
7. To download the Security Manager (SM) report:
   a) Tap **Download SM Report**. The system generates the report.
   b) Browse to the location where you want to save the report file.
   c) Type a name for the report file in the Name field.
   d) Tap **Accept**.

Running the projector interrogator

Run the interrogator to identify and correct projector faults.

1. Insert a USB flash drive into the **Management USB** port on the projector communication board.
2. In the left navigation menu, tap **Diagnostics** > **System Logs/Interrogator**.
3. Tap **Run Interrogator**.
4. In the confirmation dialog, tap **Interrogate**.

   By default, the interrogator excludes warp files to limit the size of the log file output. To include warp files in the interrogator log, select the option for **Include Warp Files**. Including warp files significantly increases the size of the interrogator log file (ZIP).
5. Browse to the location where you want the interrogator file to be saved.
6. In the Name field, type a name for the interrogator file.
7. Tap **Accept**.

Downloading a certificate

Follow these steps to download a required certificate.

1. In the left navigation menu, tap **About**.

2. In the certificate list, select one of the following certificates:

   • Projector Certificate

   • SMS Certificate

   • SM Certificate (used by distributors to generate KDM keys)

   • Log Signer Certificate

3. Tap **Download**.

4. In the Name field, type a name for the certificate file.

5. Tap **Accept**.

Backing up and restoring files

You can backup and restore content drive settings, automation definitions, scheduling, and audio and speaker mappings. When you run a backup, a backup file is created on the Christie IMB. You can copy the backup file from the Christie IMB to a USB flash drive.

Before you install a replacement Christie IMB, create and download a backup file to retain your existing configuration settings. When the installation is complete, upload the file and restore your settings.

Creating a new backup file

Create a new backup file to restore projector or IMB settings if a failure occurs.

1. In the left navigation menu, tap **Service Setup** > **Backup and Restore**.
2. Tap **New Backup**.
3. Type a name for the backup file and tap **Backup**.

Exporting a backup file

A disaster recovery plan can include exporting backup files to another location.

1. In the left navigation menu, tap **Service Setup** > **Backup and Restore**.
2. Insert a USB flash drive into the **Management USB** port on the projector communication board.
3. Select a backup file and tap **Export**.
4. Tap to move up through the file directory.
5. Tap to create a new folder.
6. In the Name field, type a name for the backup file.
7. Tap **Accept**.

Importing a backup file

Import a backup file to restore projector or IMB settings.

1. In the left navigation menu, tap **Service Setup** > **Backup and Restore**.
2. Insert a USB flash drive into the **Management USB** port on the projector communication board.
3. Tap **Import Backup**.

4. Browse to the location of the file or enter a name for the backup file in the Name field.

5. Select the file and tap **Accept**.

6. If the file already exists, in the confirmation dialog tap **Overwrite**.

Deleting a backup file

Delete a backup file if it is no longer required or is uploaded in error.

1. In the left navigation menu, tap **Service Setup** > **Backup and Restore**.

2. Select a backup file and tap **Delete**.

3. To confirm, tap **Delete**.

Restoring settings from a backup file

Restore projector or IMB settings from a backup file.

1. In the left navigation menu, tap **Service Setup** > **Backup and Restore**.

2. Select a backup file and tap **Restore**.

3. Select the settings you want to restore and tap **Restore**.

4. Tap **OK**.

IMB Specifications

Learn about the product specifications. Due to continuing research, specifications are subject to change without notice.

Physical specifications

Learn the product dimensions and weight

Item	Description
Size (L x W x H)	280 mm (11 inches) x 219 mm (8.62 inches) x 57 mm (2.24 inches)
Weight	2.0 kg (4.4 lb)

Power specifications

Learn the power requirements for the product.

Item	Description
DC power supply	+12.0 VDC
Voltage tolerance	+/- 5%
Current (max)	4 A
Connector	Series 3-compatible backplane, PCI Express (x16) card edge connection

Environmental specifications

Learn about the environment requirements while operating and not operating.

Operating environment

Item	Description
Temperature	0°C to 35°C (32°F to 95°F)
Humidity (non-condensing)	20% to 85%
Altitude	0 - 3000 meters
Maximum ambient temperature	35°C (95°F)

Non-operating environment

Item	Description
Temperature	20°C to 65°C (68°F to 149°F)
Humidity (non-condensing)	0% to 95%

Compatible cinema formats - 2D video

The Christie IMB supports a maximum bandwidth of 500 Mbps for 2D Cinema content. JPEG content must be contained in an Interop or Society of Motion Picture and Television Engineers (SMPTE) Digital Cinema Package (DCP).

Specification	Resolution	Frame Rate	Bit Depth	Color Format
SMPTE 428-1-2006	2048 x 1080	24.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	25.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	30.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-1-2006	2048 x 1080	48.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	50.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	60.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	96.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	100.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	120.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-1-2006	4096 x 2160	24.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	4096 x 2160	25.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	4096 x 2160	30.0	12-bits	X'Y'Z' (4:4:4)

Compatible cinema formats - 3D video

The hardware configuration of the projector in which the Christie IMB is installed can affect frame rate performance. JPEG content must be contained in an Interop or Society of Motion Picture and Television Engineers (SMPTE) Digital Cinema Package (DCP).

Specification	Resolution	Frame Rate	Bit Depth	Color Format
SMPTE 428-1-2006	2048 x 1080	24.0 x 2	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-1-2006	2048 x 1080	48.0 x 2	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	60.0 x 2	12-bits	X'Y'Z' (4:4:4)

MPEG-2 MXF Interop supported formats

The MPEG-2 format can be .mpg, mpeg, .ts, or part on an Interop formatted Digital Cinema package (DCP).

MPEG-2 MXF Interop is not watermarked. The Christie IMB converts all content to XYZ 4:4:4 12-bit before it is displayed.

Resolution	Frame Rate	Format	Bit Depth	Chroma Format
1280 x 720	25.0	Progressive	8-bits	4:2:0
1280 x 720	29.97	Progressive	8-bits	4:2:0
1280 x 720	30.0	Progressive	8-bits	4:2:0
1280 x 720	50.0	Progressive	8-bits	4:2:0
1280 x 720	59.94	Progressive	8-bits	4:2:0
1280 x 720	60.0	Progressive	8-bits	4:2:0
1920 x 1080	50.0	Interlaced	8-bits	4:2:0
1920 x 1080	59.94	Interlaced	8-bits	4:2:0
1920 x 1080	60.0	Interlaced	8-bits	4:2:0
1920 x 1080	23.98	Progressive	8-bits	4:2:0
1920 x 1080	24.0	Progressive	8-bits	4:2:0
1920 x 1080	25.0	Progressive	8-bits	4:2:0
1920 x 1080	29.97	Progressive	8-bits	4:2:0
1920 x 1080	30.0	Progressive	8-bits	4:2:0

Supported audio formats

The Christie IMB supports 8 channel pairs of AES/3 digital audio output on a standard D-SUB 25-pin connector.

Specification	Sample Rate	Bit Depth
SMPTE 428-2-2006	48.000 kHz	24-bits
SMPTE 428-2-2006	96.000 kHz	24-bits

Supported NAS devices

This table lists the network attached storage (NAS) devices that are compatible with the Christie IMB.

Manufacturer	Manufacturer Part Number
Christie	NAS-S2
Christie	NAS-S3

NAS requirements

The network attached storage (NAS) device must meet these minimum requirements:

- 1 TB storage space or greater
- Capable of running RAID 5
- Gigabit Ethernet connectivity
- Network File System (NFS)

AES3 port pin map

This table provides pin mapping for the AES3 port:

PIN	Signal Name
Top 1	AES Ch 1
Top 2	AES Ch 2
Top 3	AES Ch 3
Top 4	AES Ch 4
Top 5	AES Ch 5
Top 6	AES Ch 6
Top 7	AES Ch 7
Top 8	AES Ch 8
Bottom 1	AES Ch 9
Bottom 2	AES Ch 10
Bottom 3	AES Ch 11
Bottom 4	AES Ch 12
Bottom 5	AES Ch 13
Bottom 6	AES Ch 14
Bottom 7	AES Ch 15
Bottom 8	AES Ch 16

Control signal compatibility

Learn the control signal compatibility requirements.

AES3 audio output

Component	Description
Interface	AES3 Digital Audio

Component	Description
Connector	Dual RJ45 ethernet port
Pin-out	Conforms to SMPTE / TASCAM pinout

Regulatory

This product conforms to the latest regulations and standards related to product safety, environmental, and electromagnetic compatibility (EMC) requirements.

Safety

Electro-magnetic compatibility

Emissions

- CISPR 22: 2005 (Modified) / EN55022:2006, Class A – Information Technology Equipment
- CISPR 32:2015/EN 55022:2015, Class A
- FCC CFR47, Part 15, Subpart B, Class A – Unintentional Radiators

Immunity

- CISPR 24: 2010/EN55024:2010 EMC Requirements – Information Technology Equipment

Environmental

- China Ministry of Information Industry (along with 7 other Government Agencies) Order No.32 (01/2016) on the control of pollution caused by electronic information products, hazardous substances concentration limits (GB/T 26572 - 2011), and the applicable product marking requirement (SJ/T 11364 - 2014).
- EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).
- EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).
- Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and the applicable official amendment(s).

Security policy

In accordance with the requirements of Federal Information Processing Standard (FIPS) 140-2, a security policy has been defined and published for the Christie IMB.

This security policy identifies the ports and interfaces available on the device, the roles and services provided, and the critical security parameters protected by the Christie IMB. All users of the Christie IMB must abide by the requirements defined by the Christie IMB security policy. The Christie IMB security policy is available on the National Institute of Standards and Technology (NIST) website (*http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/140val-all.htm*).

Anti-tampering circuitry

The Christie IMB includes a security module that meets the Federal Information Processing Standard (FIPS) 140-2 Level 3 security requirements as defined by the DCI Digital Cinema System Specification v1.2.

An important component of the security module is active anti-tamper monitoring. Any attempt to access the area under the security enclosure on the Christie IMB activates the anti-tamper circuitry and causes the FIPS LED to turn red. In addition, you cannot decrypt or play digital cinema content. If the anti-tamper circuitry is activated, you must return the Christie IMB to Christie Digital Systems USA Inc.

If you mishandle or drop the Christie IMB, you can activate the anti-tamper circuitry. Keep the Christie IMB in its original packaging until you install it.

A rechargeable battery keeps anti-tamper monitoring active when the Christie IMB is removed from the projector. If the Christie IMB is stored outside the projector beyond six months, the battery can fail and you must return the Christie IMB to Christie Digital Systems USA Inc. To allow the Christie IMB to remain out of a projector beyond six months, a charging connector allows the battery to be recharged.

If the Christie IMB is exposed to constant temperature fluctuations, the lifetime of the rechargeable battery can be shortened. The recommended temperature range for storing the Christie IMB is -20C to +25C.

Glossary

CPL

Composition play list. A file that specifies the picture, sound, subtitle, and closed-caption assets which are required to play a single digital cinema work such as a feature or a trailer.

DAS

Direct attached storage. Computer data storage directly connected to a server or workstation, without a network in between.

DCP

Digital cinema package. The set of files containing the digital cinema content which is ingested by an integrated media block or cinema server.

DHCP

Dynamic host configuration protocol. A commonly used client-server networking protocol. It enables a DHCP server to allocate valid IP addresses to projectors detected on a local network.

IMB

Integrated media block. The media block decrypts and decodes the feature-film content and delivers it to the projector in a useable format.

KDM

Key delivery message. A digital decryption key used by the integrated media block to decrypt encrypted content.

NAS

Network attached storage. Computer data storage connected to a computer network.

NFS

Network file system. A distributed file system protocol.

OV

Original version. The first version of a feature distributed by a studio.

PKL

Packing list file. A file that specifies the contents of a digital cinema package.

VF

Version file. A supplemental version of a feature that enhances a previously released original version. This can include enhanced sound and alternative language files. The version file can also include corrections to issues in the original version file.

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For the most current technical documentation, visit www.christiedigital.com.