User Manual

Christie Integrated Media Block

CHRISTIE®

User Manual

020-100845-09

Christie Integrated Media Block

NOTICES

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GENERAL

Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes to specifications at any time without notice. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Christie makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of fitness for a particular purpose. Christie will not be liable for errors contained herein or for incidental or consequential damages in connection with the performance or use of this material. Canadian manufacturing facility is ISO 9001 and 14001 certified.

WARRANTY

Products are warranted under Christie's standard limited warranty, the complete details of which are available by contacting your Christie dealer or Christie. In addition to the other limitations that may be specified in Christie's standard limited warranty and, to the extent relevant or applicable to your product, the warranty does not cover:

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

b. Projector lamps (See Christie's separate lamp program policy).

c. Problems or damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp other than a Christie lamp supplied by Christie or an authorized distributor of Christie lamps.

d. 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.

e. Problems or damage caused by the use of any lamp, replacement part or component purchased or obtained from an unauthorized distributor of Christie lamps, replacement parts or components including, without limitation, any distributor offering Christie lamps, replacement parts or components through the internet (confirmation of authorized distributors may be obtained from Christie).

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

g. 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.

h. 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.

i. Problems or damage caused by use of a projector in the presence of an oil-based fog machine or laser-based lighting that is unrelated to the projector.

j. For LCD projectors, the warranty period specified in the warranty applies only where the LCD projector is in "normal use" which means the LCD projector is not used more than 8 hours a day, 5 days a week.

k. 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.

l. Image retention on LCD flat panels.

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

The warranty does not apply to any product where the serial number has been removed or obliterated. The warranty also does not apply to any product sold by a reseller to an end user outside of the country where the reseller is located unless (i) Christie has an office in the country where the end user is located or (ii) the required international warranty fee has been paid.

The warranty does not obligate Christie to provide any on site warranty service at the product site location.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Please see the Maintenance section for specific maintenance items as they relate to your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

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.

CAN ICES-3 (A) / NMB-3 (A)

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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!

Addendum

Translated copies of this document are provided on the CD in the back of this document. The CD may also contain additional product documentation. Read all instructions before using or servicing this product.

本文档的翻译副本在本文档背面的 CD 上提供。该 CD 中还可能包含其他产品文档。使用或维修本产品之前请务必阅读所有说明。

文件背面的光碟提供了本文件的翻譯副本。這張光碟可能另外包含其他產品文件。請先閱讀所有指示再使用或送修本產品。

Le CD au dos de ce document contient des traductions de celui-ci dans différentes langues. Ce CD peut également contenir de la documentation supplémentaire sur le produit. Lisez toutes les instructions avant d'utiliser ou d'entretenir ce produit.

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Le copie tradotte di questo documento sono fornite sul CD, sul retro di questo documento. Il CD potrebbe anche contenere altra documentazione sul prodotto. Si prega di leggere tutte le istruzioni prima di utilizzare questo prodotto o sottoporlo a manutenzione.

このドキュメントの翻訳版がこのドキュメントの裏面の CD で提供されています。CD には追加の製品マニュアルも収められています。この製品を使用したり、機能させたりする前に、すべての指示をお読みください。

이 문서의 번역된 사본이 이 문서 후면의 **CD** 에서 제공됩니다 . 이 **CD** 에는 추가 제품 설명서가 포함되어 있을 수 있습니다 . 이 제품을 사용하거나 수리하기 전에 모든 지침을 확인하십시오 .

Copias traduzidas deste documento são fornecida no CD contido na parte de trás deste documento. O CD pode conter documentação adicional do produto. Leia todas as instruções antes de usar ou prestar serviço com este produto.

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Las copias traducidas de este documento se proporcionan en el CD que se encuentra en la parte trasera. En el CD también puede encontrar documentación adicional del producto. Lea todas las instrucciones antes de utilizar o realizar el mantenimiento de este producto.

Перекладені екземпляри цього документа містяться на компакт-диску, який додано до цього документа. На компакт-диску може також бути додаткова документація до виробу. Перш ніж користуватися виробом або його обслуговувати, прочитайте всі інструкції.

Table of Contents

Hardware Installation and Setup

To play content, you must connect a network-attached storage (NAS) or direct attached storage (DAS) device to the Christie IMB. The NAS device must be connected to one of the gigabit Ethernet ports on the Christie IMB labeled NAS-A or NAS-B. The DAS device must be connected to the external serial ATA (eSATA) ports on the Christie IMB labeled DAS-A or DAS-B. The Christie IMB does not support simultaneous switching between NAS and DAS devices. Content cannot be stored on the Christie IMB; all content must be stored on a NAS or DAS device.

The Christie IMB meets Digital Cinema Initiatives, LLC (DCI) specifications and it is compatible with Christie Solaria 2K and 4K projectors.

> To use the Christie IMB, the projector must be in full power mode. If the projector is not in full power mode, you cannot access the Christie IMB web interface or the Christie IMB touch panel controller (TPC) menus.

Prerequisites

To install a Christie IMB into your theater environment these items are required:

- A Christie Solaria Series 2 projector with Solaria firmware 3.0.0(1) or later installed. If you do not have Solaria firmware 3.0.0(1) or later installed, you must upgrade the Solaria firmware before installing the Christie IMB.

- A NAS or DAS device with the hard drives installed and properly configured. These are the minimum requirements for the NAS or DAS device:

    - 1TB of storage space or greater

    - RAID 5 capable

    - Gigabit Ethernet connectivity for NAS devices

    - Network File System (NFS) for NAS devices

- A 25-pin AES audio cable to connect your cinema audio processor to the Christie IMB audio output. See *AES3 Port PIN Map* on page 111.

- An eSATA-to-SATA cable. Although this cable is optional, it can reduce the time for ingesting content. Typically, ingest drives provided by distributors have a SATA connection. The Christie IMB ingest port uses an eSATA connection.
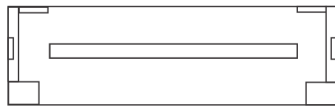
eSATA
Connector
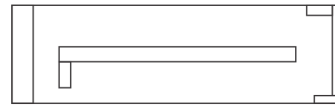
SATA
Connector

Some hard drives are not automatically recognized when they are connected to the Christie IMB Ingest port. If this occurs, leave the hard drive connected to power and the Ingest port and then turn the Christie IMB off and then on.

Christie IMB Connectors
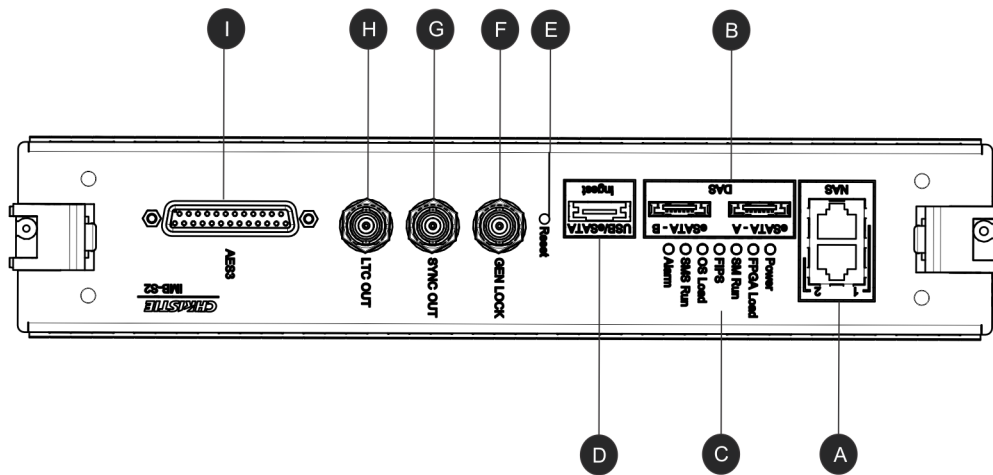
Feature	Description
A	Ethernet ports to connect network-attached storage (NAS) devices
B	eSATA ports to connect direct attached storage (DAS) devices

Feature	Description
C	LED status indicators: • Power - The LED is green when the Christie IMB is on. • FPGA Load - The LED is green when all FPGAs are successfully loaded. • SM Run - The LED flashes green when the security manager (SM) is running correctly. • FIPS - The LED is green when the FIPS (Federal Information Processing Standards Publications) security status is operating correctly. If the LED is red, an error has occurred. Restart the Christie IMB. If the LED remains red, return the Christie IMB to Christie Digital. • OS Load - The LED is green when the Christie IMB has successfully loaded the screen management system (SMS) operating system. • SMS Run - The LED flashes green when the screen management system (SMS) is running correctly. • Alarm - The LED is green when the screen management system (SMS) is operating correctly.
D	USB/eSATA port to ingest content
E	Reset button
F	Input for multi-projector playback (Christie IMB to Christie IMB only)
G	Output for multi-projector playback
H	LTC output
I	AES3 port for digital audio output

Sample Christie IMB Network Topology

This diagram illustrates a typical Christie IMB network topology:
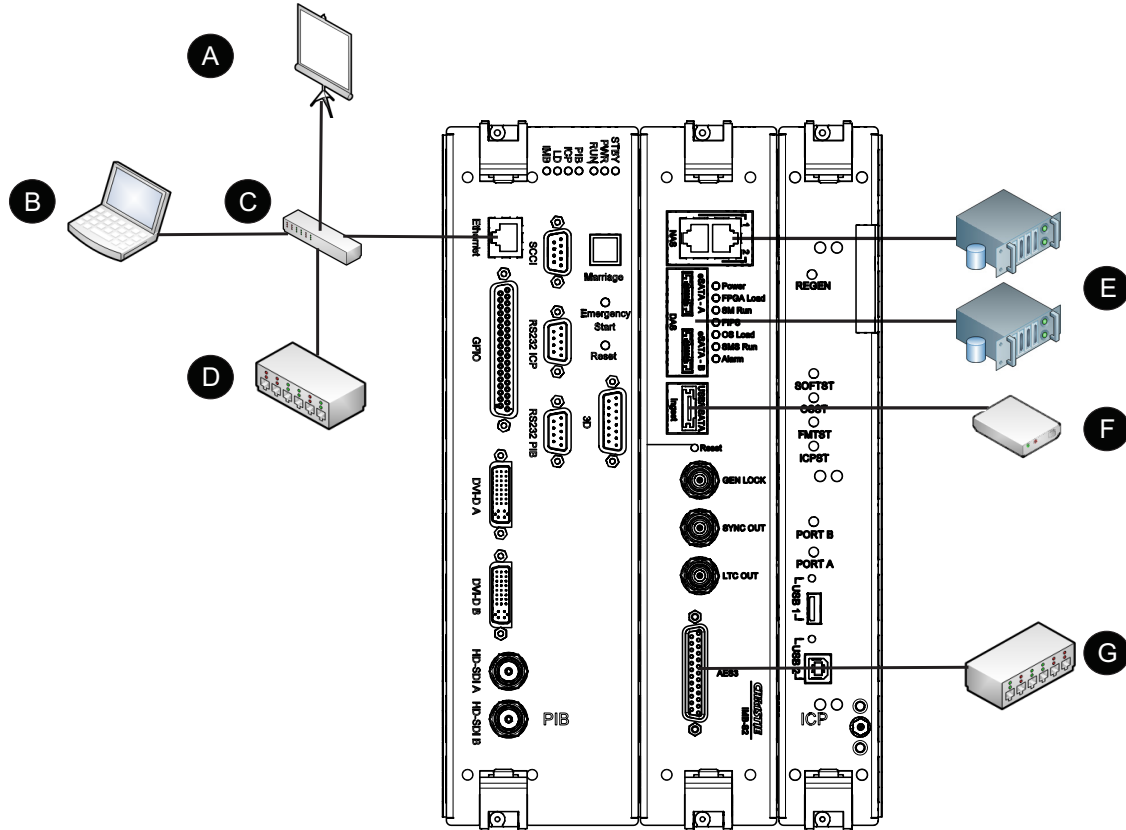
Device	Description
A	Theatre network
B	Laptop
C	Switch
D	Christie ACT automation device
E	Network-attached storage (NAS) OR Direct attached storage (DAS)
F	Ingest hard drive
G	Digital cinema audio processor

Safety Precautions

When installing the Christie IMB, observe these important safety rules to avoid personal injury or damage to the projector:

ELECTRICAL SHOCK HAZARD! Always turn off, disconnect, and disengage all power sources to the projector before installing the Christie IMB. Failure to comply results in death or serious injury.

Before turning the projector off and disconnecting it from AC power, wait a minimum of 15 minutes for the fans to cool the lamp after the lamp turns off. Failure to comply could result in death or serious injury.

Only Christie accredited service technicians are permitted to open any enclosure on the product and only if the AC power has been fully disconnected. Failure to comply could result in minor or moderate injury.

IP and Subnet Considerations

You must configure your network settings correctly for the Christie IMB to operate. Incorrect subnet settings can cause communication issues between the Christie IMB, the NAS device, and external automation devices. To reduce the risk of communication issues:

- Assign the projector intelligence board (PIB) and the Christie IMB NAS1 and NAS2 ports to nonconflicting subnets. For example:

Netmask	255.255.255.0
PIB	192.168.1.100
NAS1	192.168.2.1
NAS2	192.168.3.1

- Configure the NAS1 and NAS2 ports on the Christie IMB faceplate to use DHCP when they are not in use. When you set DHCP on a NAS port and nothing is connected to the port, the Christie IMB does not mount the port and there is no risk of an IP address conflict.

- Use static IP addresses on the NAS1 and NAS2 ports. If you need to use DHCP:

  - Verify the NAS device can be configured as a DHCP server. See the documentation provided by the manufacturer of your NAS device.

  - Verify that the DHCP service is enabled on the NAS device. See the documentation provided by the manufacturer of your NAS device.

  - Verify the address range provided by the NAS device does not conflict with the other NAS port or the PIB port. See the documentation provided by the manufacturer of your NAS device.

Test IP Connectivity

1. On the projector touch panel controller, tap **Menu** > **Christie IMB** > **System**.

2. Tap the **IMB Network** tab.

3. Tap **Test IP**.

4. Tap the ellipsis (...) button and enter an IP address.

5. Tap **Enter**.

6. Tap **Check if IP is reachable**.

7. Tap **Close**.

Install and Configure the Christie IMB

The Christie Integrated Media Block (IMB) is installed in the card cage located on the operator side of the projector. The part number for the Christie IMB is 108-384107-XX.

Administrator permissions are required to access the **Administrator Setup** menu.

If you are installing 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. See *Backup and Restore* on page 95.

> ⓘ To prevent damage by static electricity, keep the Christie IMB in its anti-static package until you install it. When installing the Christie IMB, wear an anti-static wrist strap and follow anti-static protocols.

1. Turn the lamp off and allow the projector to cool a minimum of 15 minutes.

2. Disconnect AC power from the projector.

3. Remove the top cover:

   a. Unlock the cover with the low security key.

   b. Remove the lid and set it aside.

4. Remove the high security cover:

   a. Unlock the high security cover with the high security key.

   b. Remove the cover and set it aside.

5. Remove the card cage cover:

    a. Push down on the tab on the top of the cover.
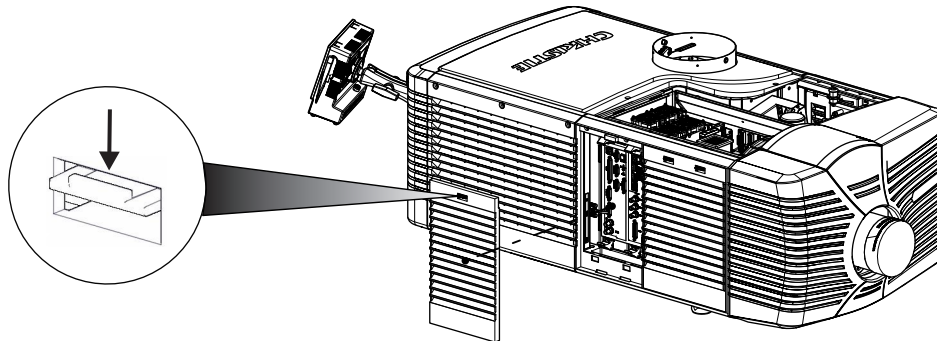
    b. Lift the cover up as you move it away from the projector.

    c. Remove the cover and set it aside.

6. Reach into the projector and press down on the lever on the right side of the card cage to release the security ring.
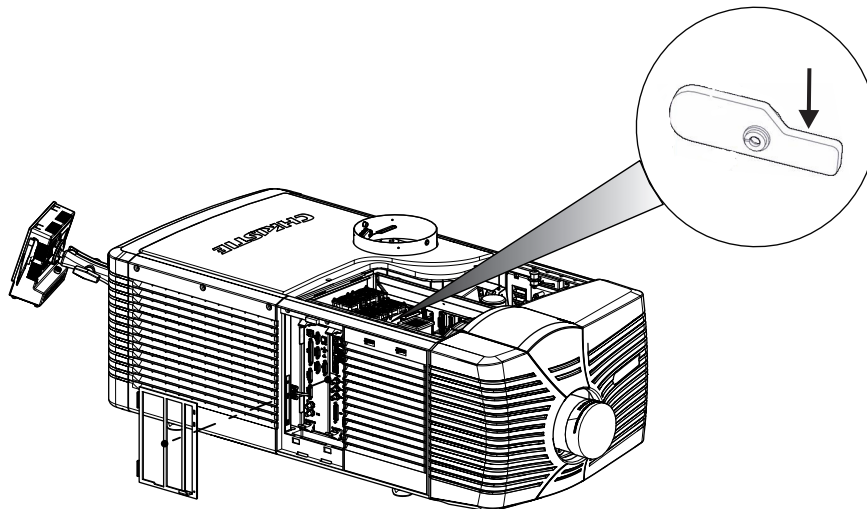
7. Remove and discard the Christie IMB filler plate.

8. Unpack the Christie IMB and verify:

    a. The holographic stickers covering the fasteners on the security enclosure are intact.

    b. There are no obvious signs of tampering on the security enclosure.

    c. The serial number stickers are in place and legible.

    If the Christie IMB shows signs of tampering, contact Christie support. For contact information for your region, see the back cover of this document.

9. Align the Christie IMB with the guides in the card cage, and then slide it into the projector until the ejector tabs click to indicate they are locked.

10. Reassemble the projector:

    a. Install the security ring.

    b. Install the card cage cover.

    c. Install and lock the high security cover.

    d. Install and lock the top cover.

11. Connect the projector to AC power and then turn it on.

12. Tap **Menu** > **Administrator Setup** > **Content Devices Configuration** on the TPC.

13. Select **Christie** in the **IMB Installed** list.

    If this is the first time you have installed an Christie IMB in the projector, the **Christie IMB Plug-in Updated - Reboot?** dialog appears on the touch panel controller (TPC) within 2 minutes. Tap **Yes**.

14. Activate marriage. See *Activate Marriage* on page 8.

    When the Christie IMB is operating correctly, a green LED icon appears in the task bar of the projector touch panel controller (TPC) and **Christie IMB** is added to the TPC menu.

    If the Christie IMB LED is red, tap **Menu** > **Christie IMB** > **System** > **Status** to identify and correct the issue. If the IMB LED does not appear in the menu bar, repeat the installation and configuration procedure.

Activate Marriage

You must complete the Marriage wizard to display secure content. Marriage permissions are required to complete marriage and only Christie accredited technicians are authorized to activate projector marriage.

1. Tap **Menu** > **Service Setup** > **IMB Marriage**.

2. Complete the **Marriage** wizard.

3. Tap **Finish**.

4. Log out of the account with marriage permissions or restart the projector.

Connect the Projector to Network-attached Storage

If the NFS settings of the NAS device are incorrect, the device cannot share files with the Christie IMB. To reduce the risk of NAS file sharing issues:

- Configure the NAS to use a static IP address. The static IP address must be compatible with the IMB NAS Ethernet port netmask to which the NAS is connected. Using DHCP is not recommended.

- Enable the NFS service on the NAS device. On most NAS devices, this option is disabled by default.

- Enable NFS on the share that the Christie IMB accesses. NFS must be enabled on every shared NAS share.

- Set the NFS access rights for the Christie IMB share to **read/write** or **full rights for everyone**.

1. Follow the instructions provided by the manufacturer of your NAS to ensure it is set up and operating correctly. To view installation instructions for common NAS hardware, see *Manage Storage Devices* on page 15.

2. Connect one end of an Ethernet cable to the NAS-A or NAS-B ports on the IMB and the other end to your NAS device or network.

3. Tap **Menu** > **Christie IMB** > **System**.

4. Tap **IMB Network**.

5. Enter the settings for your network in the **NAS 1** or **NAS 2** areas.

6. Tap **Save**.

Configure the Audio Settings

1. Connect one end of the audio cable to the Christie IMB AES3 port and the other end to a digital cinema audio processor.

2. Configure your speaker and channel settings. See *Manage Audio Settings* on page 71.

Enable Dolby Atmos

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Dolby Atmos**.

3. Tap **Enabled**.

4. Enter the IP address for the control module.

5. Enter the IP address for the input module.

6. Tap **Test Connections** to test the connections.

7. Tap **Save**.

Configure Multiple Projectors

When you install multiple projectors, audio is only available from the master projector. To play content correctly, you must ingest content into each NAS device connected to a projector and each projector must have a valid KDM key.

When using multiple projectors, you create play lists on the master projector only. If you are using an automation device such as a Christie ACT, connect it to the master projector.

1. Install and align your projectors following the instructions provided with each projector.

2. Verify the main projector software is version 3.1.0 or later:

   a. On the projector touch panel controller (TPC), tap **Menu** > **About**.

   b. Verify the version specified in the **Package Version** field is 3.1.0 or later. If it is not, visit the Christie web site and download the current software.

3. Connect each projector to a NAS or DAS device. A single NAS or DAS device cannot be shared by multiple Christie IMBs. See *Connect the Projector to Network-attached Storage* on page 8.

4. Connect an Ethernet cable to each projector and then connect the cables to the same switch. Assign each projector an IP address that is on the same subnet.

5. Connect one end of a 75 ohm BNC cable to the **Sync Out** connector on the master projector and then connect the other end to the **Gen Lock** connector on the slave projector.

   If you are using multiple slave projectors, use a daisy chain cabling scheme to connect the projectors to the master projector. To connect the slave projectors to each other, connect one end of a 75 ohm BNC cable to the **Sync Out** connector on the first projector and then connect the other end to the **Gen Lock** connector on the second projector. Repeat this cabling pattern on the remaining projectors.

6. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System** > **Multi Projector.**

7. Tap **Master IMB Enable**.

8. Tap **Active Dual Enabled** if you are using active 3D glasses and want to send left or right images to multiple projectors. When you select this option, you cannot change the **Master 3D Eye Selection** (step 9) or **3D Eye Selection** (step 12) fields.

9. Select right or left eye for the master projector in the **Master 3D Eye Selection** list. This option is not available when you select **Active Dual Enabled.**

10. Enter a description for the slave projector in the **Description** field.

11. Enter the IP address of the slave projector in the **IP Address** field.

12. Select right or left eye for the slave projector in the **3D Eye Selection** field.

13. Repeat steps 10 to 12 for each additional slave projector.

14. Tap **Save**. If the **Connected** icon below **Slave IMB Settings** is not green, see *Set Up and Connection Troubleshooting* on page 103.

Licensing

A license file is required to enable these features:

- 4K (108-444103-01)

- High Frame Rate (HFR) (108-445104-01)

- RealD 3D EQ

- Dolby 3D Color Correction

Only a single license file can be active at a time. If you have multiple licensed features, the license keys are combined in a single license file. If you require multiple licenses, it is recommended that you request them all at once.

Each license file is unique to a specific Christie IMB, and it is associated with the electronic serial number (eSN) of the Christie IMB installed in the projector. After you receive the license file, you must add it to the Christie IMB to enable functionality. See *Upload a License Key* on page 12.

4K and High Frame Rate Licensing

To enable 4K or high frame rate (HFR) support, you must purchase a license. To request a license, contact Christie customer service. When you receive the license, you must install it. See *Upload a License Key* on page 12.

RealD 3D EQ Licensing

If you have RealD equipment installed, there is no charge for a RealD 3D EQ license. The RealD 3D EQ license is also referred to as ghostbusting.

To request a RealD 3D EQ license, send an email to *cinema-support@reald.com*. In the body of the email, ask for the 3D EQ functionality to be enabled and include this information:

- the name of the theater

- the screen number

- the electronic serial number (eSN) of the Christie IMB

- the serial number of the RealD cinema system you have installed

- whether the projector on which the license will be installed is currently licensed or will be licensed for high frame rate (HFR) or 4K

RealD will authorize Christie to generate a license key for the RealD 3D EQ feature for the specified Christie IMB. Christie will send you the license by e-mail.

Dolby 3D Color Correction Licensing

If you have a Dolby 3D system installed, there is no charge for a Dolby 3D Color Correction license.

To request a Dolby 3D Color Correction license, send an email to *imblicenses@christiedigital.com*. In the body of your email include this information:

- the Christie IMB electronic serial number (eSN),

- the name of the theater

- the screen number where the Christie IMB is installed

- whether the projector on which the license will be installed is currently licensed or will be licensed for high frame rate (HFR) or 4K

Identify the Christie IMB Electronic Serial Number

To play encrypted content, a Key Delivery Message (KDM) key is required. The Christie IMB electronic serial number (eSN) allows a distributor to identify the IMB certificate and generate the KDM. The Christie eSN is also required to generate license keys that enable specific IMB features.

To retrieve the 12-digit hexadecimal eSN on the projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System** > **Status**. Tap **System** in the **Category** list. The serial number appears in the **SM Serial Number (eSN)** field:
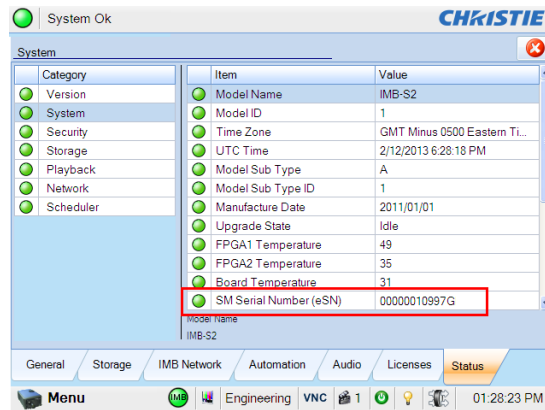
If you have an on older model Christie IMB, the 12-digit electronic serial number (eSN) is on the back of the Christie IMB faceplate:

- On newer model Christie IMBs the 12-digit electronic serial number (eSN) is on the front of the Christie IMB faceplate and on the Solaria One and Solaria One+ communications panel faceplate. The electronic serial number (eSN) is also provided on the shipping carton.

Upload a License Key

1. Tap **Menu** > **Christie IMB** > **System** > **Licenses**.

2. Tap **Add**.

3. Insert a USB flash drive with the Christie IMB license into the USB port on the side of the touch panel controller (TPC).

4. Select a license file and then tap **Accept**.

Load a RealD 3D EQ Configuration File

You need to install the RealD 3D EQ Configuration File if you are using RealD technology to display 3D content. If you are not using a RealD technology to display 3D content, do not complete this procedure.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Config Files**.

3. Tap **Load Config File** in the **RealD 3D EQ** area.

4. Insert a USB flash drive with the RealD 3D EQ configuration file into the USB port on the side of the touch panel controller (TPC).

5. Select the configuration file.

6. Tap **Accept**.

Load a Dolby Color Correction File

You need to install the Dolby Color Correction File if you are using Dolby technology to display 3D content. If you are not using a Dolby 3D technology to display 3D content, do not complete this procedure.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Config Files**.

3. Tap **Load Config File** in the **Dolby Color Correction** area.

4. Insert a USB flash drive with the Dolby Color Correction file in the USB port on the side of the touch panel controller (TPC).

5. Select the correction file.

6. Tap **Accept**.

Play Content

After installing and configuring the Christie IMB, these are the tasks that you typically complete to play content:

1. Ingest the content. Content is typically provided on a hard drive sent by your movie distributor. To ingest content, see *Ingest Content and the KDM Key* on page 39.

2. Ingest the Key Delivery Message (KDM) key. A KDM key is not required for trailers and other unencrypted content. The KDM key is typically sent separately from the encrypted content on a USB flash drive. See *Ingest Content and the KDM Key* on page 39.

3. Verify the content plays correctly and the KDM is correct. See *Content Window Icons* on page 34.

4. Create a play list. A play list is a list of content files including trailers, features, and automated events that play in an order that you define. See *Play Lists* on page 77.

5. Verify the play list plays correctly. See *Content Management* on page 33.

6. Optionally schedule playback or add automation to a play list:

   - To learn more about scheduled playback, see *Schedule Views* on page 85.

   - To add automation, see *Manage Automation* on page 45.

Contact Support

For assistance with common problems, see *Troubleshooting* on page 94.

If you are unable to resolve your issue, contact Christie support. In order that a support representative can better assist you, have the model and serial number of your projector ready. For contact information for your region, see the back cover of this document.

Manage Storage Devices

To play content, you must connect a network-attached storage (NAS) or direct attached storage (DAS) device to the Christie IMB to store ingested content. The NAS device must be connected to one of the gigabit Ethernet ports on the Christie IMB labeled **NAS-A** or **NAS-B**. The DAS device must be connected to the external serial ATA (eSATA) ports on the Christie IMB labeled **DAS-A** or **DAS-B**. The Christie IMB does not support simultaneous switching between NAS and DAS devices. Content cannot be stored on the Christie IMB; all content must be stored on a NAS or DAS device.

For a list of supported NAS and DAS devices, see *NAS Requirements* on page 108.

Selecting a NAS or DAS Device

As this table indicates, DAS devices offer higher transfer rates:

Feature	NAS	DAS
Interface	Gigabit Ethernet	eSATA (eSATA2)
Theoretical Maximum Transfer Rate	1 Gbit/sec	3 Gbit/sec
Setup Ease	Medium	Difficult
Integration Ease	Medium	Simple
Availability	Plentiful	Few

eSATA ports on a mass storage device do not indicate DAS functionality; they are often used to expand storage capacity.

Configure NAS Ethernet Port IP Addresses

Use a private Ethernet connection to connect the NAS device to the Christie IMB NAS1 or NAS2 ports. Do not install a switch or other network device between the Christie IMB NAS ports and the NAS device. Typically, the NAS1 and NAS2 ports on the Christie IMB have static IP addresses.

When setting the static IP value, you are setting the IP address for the NAS port on the Christie IMB. 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.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **IMB Network**.

3. Tap **Static IP**.

4. Edit the settings.

5. Tap **Save**.

Add a NAS

Your 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 one of the gigabit Ethernet ports on the Christie IMB labeled **NAS-A** or **NAS-B**.

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **Storage**.

4. Tap **Add NAS**.

5. Tap **Primary** if this is your primary NAS device.

6. Tap **Yes**.

7. Complete the information fields for the NAS device.

8. Tap **Refresh Share Names**.

9. Select a share in the **Share** list.

10. Tap **OK**.

11. Tap **Save**.

12. Tap **OK**.

Connect to a QNAP NAS

This section provides detailed instructions for connecting a QNAP TS-559 Pro+ to a Christie IMB. The instructions should be applicable to other QNAP NAS devices.

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.

> ℹ️ Complete the procedures in the order they are written.

Prerequisites

To connect a QNAP NAS to a Christie IMB, install and format the NAS hard drives and verify that they are configured for RAID 5. For more information about installation and setup, see *http://docs.qnap.com/nas/en/index.html*.

Connect the QNAP Device and Configure the Network Settings

1. Download and install the QNAP Finder utility on your computer. This utility is available for download on the QNAP web site (*www.qnap.com*).

2. Connect one end of an Ethernet cable to a computer and the other end to the top Ethernet port on the QNAP NAS device.

3. Open the QNAP Finder utility. The utility automatically locates and displays the QNAP device.

4. Click **Configure**.

5. Enter the default administrator name **admin** and administrator password **admin**. Click **OK**.

6. Click the **Network Settings** tab.

7. In the **Configuration of Network Interfaces** list, select **Standalone**.

8. Click the **Ethernet 1** tab.

9. Select **Use the following static IP settings**.

10. Complete these fields:

Field	Description
IP Address	192.168.1.100 (QNAP Lan1 IP address)
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0 or Christie NAS1 port IP address

11. Click **OK**.

12. Add your computer to the subnet of the NAS device:

    a. On the computer, click **Start** > **Control Panel**.

    b. Click **Network and Sharing Center**.

    c. Click **Change adapter settings** in the left pane.

    d. Right-click a network connection and select **Properties**.

    e. Select **Internet Protocol (TCP/IP)** in the **This connection uses the following items** list.

    f. Click **Properties**.

    g. Select **Use the following IP address**.

    h. Enter the subnet IP address of the NAS device in the **IP address** field. In this example it is **192.168.1.15**.

    i. Enter **255.255.255.0** in the **Subnet mask** field.

    j. Click **OK**.

Create a Network Share Folder

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

1. Open a web browser and enter **http://192.168.1.100** in the **Address** field. Press **Enter**.

2. Click **Administration**.

3. In the **User Name** and **Password** fields, enter **admin**. Click **OK**.

4. Expand **Network Services** and then click **NFS Service** in the left pane.

5. Select **Enable NFS Service** in the right pane and then click **Apply**. For more information about enabling the NFS service, see section 6.3 NFS Service of the QNAP Turbo NAS User Manual (*http://docs.qnap.com/nas/en/index.html?nfs_service.htm*).

6. Expand **Access Right Management** in the left pane and then click **Share Folders**.

7. Click **Create a Network Share** in the right pane.

8. Click **Next**.

9. Enter **Content** in the **Folder Name** field and then click **Next**.

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

11. Select **Read/Write** in the **Guest Access Right** area.

12. Confirm the settings are correct and then click **Next**.

13. Click **Finish**.

Verify NFS is Enabled and Disable Sleep Mode

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

2. Click the **NFS** icon (the third icon from the left) in the **Action** column next to the **Content** share.

   For more information about enabling the NFS service, see section 6.3 NFS Service of the QNAP Turbo NAS User Manual (*http://docs.qnap.com/nas/en/index.html?nfs_service.htm*)

3. Select **No limit** in the **Access Right** list.

4. Clear the **Sleep Mode** check box.

5. Click **Apply**.

Configure the Christie IMB Communication Settings

You can use the projector touch panel controller (TPC) menus or the web interface to set the communication settings between the Christie IMB and the QNAP device. If you use the web interface, the IP address of your computer must be on the same subnet as the projector and the computer must be connected by an Ethernet cable to the Ethernet port of the PIB.

1. Disconnect the Ethernet cable from the computer and connect it to the **NAS1** port on the Christie IMB.

2. On the projector TPC, tap **Menu** > **Christie IMB** > **System**.

3. Tap **IMB Network**.

4. In the **NAS 1** area, select **Static IP** and then complete these fields:

   a. Enter **192.168.1.1** in the **IP Address** field.

   b. Enter **255.255.255.0** in the **Netmask** field.

   Unless it is required for your installation, leave the **Gateway** field blank.

5. Select **DHCP** in the **NAS 2** area.

   The IP address for port 2 must not be on the same subnet as port 1. In this example, it cannot start with 192.168.1.x

6. Tap **Save**.

7. Tap the **Storage** tab.

8. Tap **Add NAS**.

9. Tap **Primary**.

10. Tap **Yes**.

11. Complete these fields:

    a. Enter **QNAP NAS** in the **Label** field.

    b. Enter **192.168.1.100** in the **IP Address** field.

    c. Enter **admin** in the **User** field.

    d. Enter **admin** in the **Password** field.

    e. Select **NFS** in the **File System** list.

    f. Tap **Refresh Share Names** to update the **Share** list.

    g. Select **/Content** in the **Share** list.

12. Tap **Test Connectivity**.

13. Tap **OK**.

14. Tap **Save**.

15. Tap **OK**.

Connect to an Iomega NAS

This section provides detailed instructions for connecting an Iomega StorCenter px4-300r network storage array to a Christie IMB. The instructions should be applicable to other Iomega NAS devices.

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.

Configure the Iomega NAS Network Settings

1. Connect one end of an Ethernet cable to a computer and the other end to the Ethernet port on the Iomega NAS device.

2. Record the IP address displayed on the screen on the front of the Iomega NAS with the available disk space and time.

   If you have ordered a pre-configured Iomega NAS device from Christie, the IP address is already assigned. If the Iomega NAS device is not pre-configured and there is not a Dynamic Host Configuration protocol (DHCP) server on your network, the Iomega NAS device obtains a self assigned IP address in the 169.254.x.x range.

   If your computer cannot connect to the self assigned IP address, connect your computer to the Iomega NAS device with a network cable. Open the Network settings on the Iomega management screen and enter IP address, subnet mask, and gateway values that allow the storage device to operate on your network.

3. Add your computer to the NAS device network:

   a. On the computer, click **Start** > **Control Panel**.

   b. Click **Network and Sharing Center**.

   c. Click **Change adapter settings** in the left pane.

   d. Right-click a network connection and select **Properties**.

   e. Select **Internet Protocol (TCP/IP)** in the **This connection uses the following items** list.

   f. Click **Properties**.

   g. Select **Use the following IP address**.

   h. Enter a non-conflicting IP address that allows the computer to communicate with the NAS device in the **IP address** field. For example, if the IP address of the NAS device is 169.254.168.168, enter 169.254.168.169.

   i. Enter 255.255.255.0 in the **Subnet mask** field.

   j. Click **OK**.

4. On the computer, open a web browser and enter the IP address you recorded in step 2 in the Address bar. Press **Enter**.

5. Enable security:

   a. Click **Common** in the left pane of the Iomega management screen.

   b. Click **Users** in the right pane.

   c. Click **Enable security**.

   d. Enter **admin** in the **Username** field.

   e. Enter **admin** in the **Password** field.

   f. Enter **admin** in the **Confirm password** field.

   g. Click **Apply**.

6. In the left pane click **Network**.

7. Click **Network** in the right pane.

8. Click **Modify network settings**.

9. Clear the **Automatically configure DNS, WINS, and all IP addresses (DHCP)** check box.

10. In the first **DNS Servers** field, enter **127.0.0.1**.

11. In the second **DNS Servers** field, remove the information.

12. In the **Bonding Mode** list, select **Adaptive Load Balance**.

13. Click **Apply**.

14. Click **Yes**.

Add the Iomega NAS to the Christie IMB Network

1. Click **Network** in the left pane of the Iomega management screen.

2. Click **Network** in the right pane.

3. Expand the second network interface.

4. Expand **Information**.

5. Enter an IP address that allows the NAS device to communicate with the Christie IMB NAS1 port in the **IP Address** field. For example, 192.168.1.100. To configure the settings of the NAS1 port, see *Configure the Christie IMB Communication Settings* on page 23.

6. Enter **255.255.255.0** in the in the **Subnet Mask** field.

7. If required, enter the gateway address for the NAS device in the in the **Gateway** field

8. In the **Jumbo Frame** list, click **None**.

9. Click **Apply**.

10. Repeat step 3 of *Configure the Iomega NAS Network Settings* on page 20 when the new communication settings are applied.

    You need to repeat step 3 to reconfigure the communication settings of the computer to use the new IP address. Specify a non-conflicting address. For example, if the IP address in step 5 is 192.168.1.100, you could enter 192.168.1.102.

11. On the computer, open a web browser and enter the IP address you recorded in step 5 in the Address bar. Press **Enter**.

    The Iomega management screen appears.

Add the Iomega NAS to a Monitoring Network

This is an optional procedure to connect the Iomega NAS device to a system that monitors network components for poor performance or failure. When a component fails, a network administrator is notified and the problem is corrected.

1. Click **Network** in the left pane of the Iomega management screen.

2. Click **Network** in the right pane.

3. Expand the first network interface.

4. Expand **Information**.

5. Enter the IP address of your monitoring network in the **IP Address** field.

6. Enter the subnet IP address of the NAS device in the in the **Subnet Mask** field.

7. Select **None** in the **Jumbo Frame** list.

8. Click **Apply**.

9. On the computer, open a web browser and enter the IP address you recorded in step 5 in the Address bar. Press **Enter**.

   The Iomega management screen appears.

Configure the Iomega NAS for RAID5

When you first configure the RAID settings, it can take several hours to complete.

1. Click **Storage** in the left pane of the Iomega management screen.

2. Click **Drive Management** in the right pane.

3. Click **Add a Storage Pool**.

4. Enter **SP1** in the **Name** field.

5. Select **Parity (RAID5)** in the **Protection** list.

6. Select **Enable periodic consistency check**.

7. Clear the **Create commonly used Shares** check box.

8. Select all of the drives in the device image.

9. Click **Create**.

Create a Network Share Folder

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

1. Click **Storage** in the left pane of the Iomega management screen.

2. Click **Shares** in the right pane.

3. Click **Add a Share**.

4. Enter **Content** in the **Name** field.

5. Click **Create**.

6. Expand **Access Permissions**.

7. Select **Read/Write** for the **Everyone** entry.

8. Click **Apply**.

Enable NFS on the Iomega NAS

1. In the left pane on the Iomega management screen, scroll down and then click **All Features**.

2. Click **Protocols** in the right pane.

3. Move the **Off/On** slider for NFS to **On**.

4. Click the **Settings** (⚙) icon to the right of NFS.

5. Select **Allow all client users full access**.

6. Click **Apply**.

Configure the Christie IMB Communication Settings

You can use the projector touch panel controller (TPC) menus or the web interface to set the communication settings between the Christie IMB and the Iomega device. If you use the web interface, the IP address of your computer must be on the same subnet as the projector and the computer must be connected by an Ethernet cable to the Ethernet port of the PIB.

1. Disconnect the Ethernet cable from the computer and connect it to the **NAS1** port on the Christie IMB.

2. On the projector TPC, tap **Menu** > **Christie IMB** > **System**.

3. Tap **IMB Network**.

4. In the **NAS 1** area, select **Static IP** and then complete these fields:

   a. Enter an IP address that is on the same subnet as the Iomega device in the **IP Address** field. For example, if the IP address of the Iomega device is 192.168.1.100, you would enter 192.168.1.101.

   b. Enter **255.255.255.0** in the **Netmask** field.

   Unless it is required for your installation, leave the **Gateway** field blank.

5. Select **DHCP** in the **NAS 2** area.

   ⓘ The IP address for port 2 must not be on the same subnet as port 1.

6. Tap **Save**.

7. Tap the **Storage** tab.

8. Tap **Add NAS**.

9. Tap **Primary**.

10. Tap **Yes**.

11. Complete these fields:

a. Enter **Iomega NAS** in the **Label** field.

b. Enter the IP address of the Iomega device in the **IP Address** field.

c. Enter **admin** in the **User** field.

d. Enter **admin** in the **Password** field.

e. Select **NFS** in the **File System** list.

f. Tap **Refresh Share Names** to update the **Share** list.

g. Select **/Content** in the **Share** list.

12. Tap **Test Connectivity**.

13. Tap **OK**.

14. Tap **Save**.

15. Tap **OK**.

Connect to a NETGEAR NAS

This section provides detailed instructions for connecting a NETGEAR ReadyNAS 2100 to a Christie IMB. The instructions should be applicable to other NETGEAR NAS devices.

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 NETGEAR NAS to a Christie IMB, install and format the NAS hard drives and verify that they are configured for RAID 5. See the ReadyNAS 2100 User Manual (http://www.readynas.com/download/documentation/UM/ReadyNAS2100_UMv1.1_22Jun09.pdf).

Connect the NETGEAR Device and Configure the Network Settings

1. Connect one end of an Ethernet cable to a computer and the other end to the top Ethernet port on the NETGEAR NAS device.

2. On the computer, download and install the NETGEAR RAIDar application (http://kb.netgear.com/app/answers/detail/a_id/20684/~/readynas-downloads).

   The NETGEAR RAIDar application automatically identifies your NETGEAR NAS device and provides information about the device, including the IP address. The default IP address should be 192.168.168.168.

3. Add your computer to the NAS device network:

   a. On the computer, click **Start** > **Control Panel**.

b. Click **Network and Sharing Center**.

c. Click **Change adapter settings** in the left pane.

d. Right-click a network connection and select **Properties**.

e. Select **Internet Protocol Version 4 (TCP/IPv4)** in the **This connection uses the following items** list.

f. Click **Properties**.

g. Select **Use the following IP address**.

h. Enter a non-conflicting IP address that allows the computer to communicate with the NAS device in the **IP address** field. For example, if the IP address of the NAS device is 192.168.168.168, enter 192.168.168.169.

i. Enter 255.255.255.0 in the **Subnet mask** field.

j. Click **OK**.

4. Open an internet browser and enter the IP address of the NETGEAR device in the address field. Press **Enter**.

5. Enter the user name and password.

   The default user name is **admin** and the default password is **netgear1**. It is recommend that you change the default password to **admin**. See *Change the Administrator Password* on page 26.

6. Click **OK**.

7. Expand **Network** in the left pane.

8. Click **Interfaces**.

9. Click the **Ethernet 1** tab in the right pane.

10. Complete these fields to change the default IP address of the NETGEAR device:

Field	Description
Speed/Duplex mode	Select **Auto-negotiation**
MTU	Select **1500**
Ipv4 assignment	Select **Use values below**
Ipv4 address	Enter an IP address that allows the NAS device to communicate with the Christie IMB NAS1 port. For example, 192.168.1.100. To configure the settings of the NAS1 port, see *Configure the Christie IMB Communication Settings* on page 27.
Subnet Mask	Enter **255.255.255.0**
Default Gateway	Enter the address of the router or other device that connects the NETGEAR NAS to the network
Ipv6	Select **Off**

11. Click **Apply**.

12. Click **OK**.

13. Repeat step 3 when the new communication settings are applied.

    You changed the default IP address of the NETGEAR device in step 10. You need to repeat step 3 to reconfigure the communication settings of the computer to use the new IP address. Specify a non-conflicting address. For example, if the IP address in step 10 is 192.168.1.100, you could enter 192.168.1.102.

Configure the Security Settings

1. Open an internet browser and enter the IP address of the NETGEAR device in the address field. Use the IP address you defined in step 10 of *Connect the NETGEAR Device and Configure the Network Settings* on page 24. Press **Enter**.

2. Enter the user name and password.

    The default user name is **admin** and the default password is **netgear1**. It is recommend that you change the default password to **admin**. See *Change the Administrator Password* on page 26.

3. Expand **Security** in the left pane of the ReadyNAS 2100 management console.

4. Click **Security Mode**.

5. Select **User** in the right pane.

6. Enter **VOLUME** in the **Workgroup** field.

7. Click **Apply**.

8. Click **OK**.

9. Click **OK**.

Change the Administrator Password

1. Expand **Security** in the left pane of the ReadyNAS 2100 management console.

2. Click **Admin Password**.

3. In the right pane, complete these fields:

Field	Description
New admin password	Enter **admin**
Retype admin password	Enter **admin**
Password recovery question	Enter a question that will help identify you as user with administrator privileges
Password recovery answer	Enter the answer to the recovery question
Password recovery email address	Enter the email address where the recovered password will be sent

4. Click **Apply**.

5. Click **OK**.

6. Click **OK**.

Set the Services for Share Access

Use this procedure to define the type of clients you want to access the ReadyNAS device.

1. Expand **Services** in the left pane of the ReadyNAS 2100 management console.

2. Click **Standard File Protocols**.

3. Select **NFS**, **FTP**, and **HTTP** in the right pane.

4. Click **Apply**.

Create a Network Share Folder

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

1. Expand **Shares** in the left pane of the ReadyNAS 2100 management console.

2. Click the **Add Shares** tab in the right pane.

3. Enter **Content** in the **Name** field.

4. Enter a descriptive name for the share in the **Description** field.

5. Select **Public Access**.

6. Click **Apply**.

7. Click **OK**.

8. Click the **Share List** tab.

9. Enable access to the share:

    a. Click the NFS icon.

    b. In the **Default Access** list, select **Read/Write**.

    c. Click **Apply**.

    d. Click the **FTP/S** tab.

    e. In the **Default Access** list, select **Read/Write**.

    f. Click **Apply**.

    g. Click the **HTTP/S** tab.

    h. In the **Default Access** list, select **Read/Write**.

    i. Click **Apply.**

Configure the Christie IMB Communication Settings

You can use the projector touch panel controller (TPC) menus or the web interface to set the communication settings between the Christie IMB and the NETGEAR device. If you use the web

interface, the IP address of your computer must be on the same subnet as the projector and the computer must be connected by an Ethernet cable to the Ethernet port of the PIB.

1. Disconnect the Ethernet cable from the computer and connect it to the **NAS1** port on the Christie IMB.

2. On the projector TPC, tap **Menu** > **Christie IMB** > **System**.

3. Tap **IMB Network**.

4. In the **NAS 1** area, select **Static IP** and then complete these fields:

    a. Enter an IP address that is on the same subnet as the NETGEAR device in the **IP Address** field. For example, if the IP address of the NETGEAR device is 192.168.1.100, you would enter 192.168.1.101.

    b. Enter **255.255.255.0** in the **Netmask** field.

    Unless it is required for your installation, leave the **Gateway** field blank.

5. Select **DHCP** in the **NAS 2** area.

    The IP address for port 2 must not be on the same subnet as port 1.

6. Tap **Save**.

7. Tap the **Storage** tab.

8. Tap **Add NAS**.

9. Tap **Primary**.

10. Tap **Yes**.

11. Complete these fields:

    a. Enter **NETGEAR NAS** in the **Label** field.

    b. Enter the IP address of the NETGEAR device in the **IP Address** field.

    c. Enter **admin** in the **User** field.

    d. Enter **admin** in the **Password** field.

    e. Select **NFS** in the **File System** list.

    f. Tap **Refresh Share Names** to update the **Share** list.

    g. Select **/Content** in the **Share** list.

12. Tap **Test Connectivity**.

13. Tap **OK** twice.

14. Tap **Save**.

15. Tap **OK**.

Connect to a Content Network

With a content network, you can ingest content from a theatre management system (TMS), a satellite receiver, or another IMB. The NFS service must be enabled on the file share accessed by the Christie IMB.

Due to the bandwidth limitations of the PIB Ethernet port, connect your content network to an unused NAS port on the Christie IMB.

To allow the projector to communicate with the ingest device, see *Add a NAS* on page 16. Specify the IP address of the theatre management system or satellite receiver in the **IP Address** field and select the NFS share in the **Share** list.

Network Topology

Item	Description	Item	Description
A	Control computer	H	Dolby Digital Cinema Sound Processor CP750
B	10/100 switch for command and control network	I	GigE switch for content network
C	Theatre Management System (TMS) or Library Management System (LMS)		Command and control network (10/100)
D	Projector intelligence board (PIB)		Content network (GigE)

Item	Description	Item	Description
E	Christie IMB	——	Home run connections (GigE)
F	Dolby Atmos Cinema processor CP850	——	AES connection
G	Network attached storage (NAS)		

Edit NAS Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Edit the NAS settings.
5. Tap **OK**.
6. Tap **Save**
7. Tap **OK**.

Edit DAS Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a DAS device in the **DAS** list.
4. Edit the DAS settings.
5. Tap **OK**.
6. Tap **Save**.
7. Tap **OK**.

Test NAS Connectivity

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Tap **Test Connectivity**.
5. Tap **OK**.
6. Tap **Cancel**.

Test NAS Performance

When testing NAS performance, use test content that is large enough to allow the test to run for 2 minutes or longer. When the test is complete, the performance of your Christie IMB should be at or above **Excellent**.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Storage**.

3. Tap a NAS device in the **NAS** list.

4. Tap **Test Performance**.

5. Tap **Change** and select the test content.

6. Tap **Start Test**.

7. Tap **Close**.

8. Tap **Cancel**.

Refresh NAS Share Names

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Storage**.

3. Tap a NAS device in the **NAS** list.

4. Tap **Refresh Share Names**.

5. Tap **OK**.

6. Tap **Save**.

7. Tap **OK**.

Verify NAS and DAS Performance

To verify the performance of your NAS or DAS device, complete these tests:

- Ingest content. See *Ingest Content and the KDM Key* on page 39.

- Verify content plays without interruption. See *Play Content* on page 13.

- Remove a hard drive from the NAS or DAS device and verify that playback is not interrupted.

- Test NAS performance. See *Test NAS Performance* on page 31. The minimum data transfer rate for the NAS device should be 500 Mbps. However, data transfer rates of 700 to 800 Mbps are preferred. A KDM key is not required to test NAS performance.

- Measure NAS performance with a third-party application such as the *Intel NAS Performance Toolkit* (http://software.intel.com/en-us/articles/intel-nas-performance-toolkit/).

Delete a NAS

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Storage**.

3. Tap a NAS device in the **NAS** list.

4. Tap **Delete**.

5. Tap **Yes**.

6. Tap **Save**.

7. Tap **OK**.

Delete a DAS

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Storage**.

3. Tap a DAS device in the **DAS** list.

4. Tap **Delete**.

5. Tap **Yes**.

6. Tap **Save**.

7. Tap **OK**.

Content Management

When playing content, you must select the correct channel for the content. For example, you select a 3D channel to play 3D content. In addition, different content standards require unique channel settings to play correctly:

- Data Format

  - Select **4:4:4 (RGB)** in the **Data Format** list on the Config 1 Channel Setup screen (Tap **Menu** > **Channel Setup**).

- Scan Type

  - Select **Progressive** in the **Scan Type** list on the Config 2 Channel Setup screen (Tap **Menu** > **Channel Setup** > **Config 2**).

- 3D Sync Input Mode

  - To play 3D content you must create 3D channels with settings that meet the requirements of your 3D equipment. Select **Line Interleave** in the **3D Sync Input Mode** list on the 3D Control Channel Setup screen (Tap **Menu** > **Channel Setup** > **3D Control**).

You can create 3D files to support seamless switching between standard and HFR content. For additional information about channels and channel set up, see the projector user manual.

Load Content

Before you can select content or a play list for playback, you must load it.

1. Tap **Menu** > **Christie IMB** > **Control**.

2. Tap the **Padlock** icon.

3. Tap **Load Content**.

4. Tap the **Play Lists** tab to load a play list.

   - or -

   Tap the **Content** tab to load an individual file.

5. Tap a play list or an individual file. To create a play list, see *Create a Play List* on page 77.

6. Tap **Accept**.

7. Use the playback controls to start and stop playback.

   See *Control Content Playback* on page 34.

Control Content Playback

To control the playback of content, tap **Menu** > **Christie IMB** > **Control**, load the content, and then use these controls:
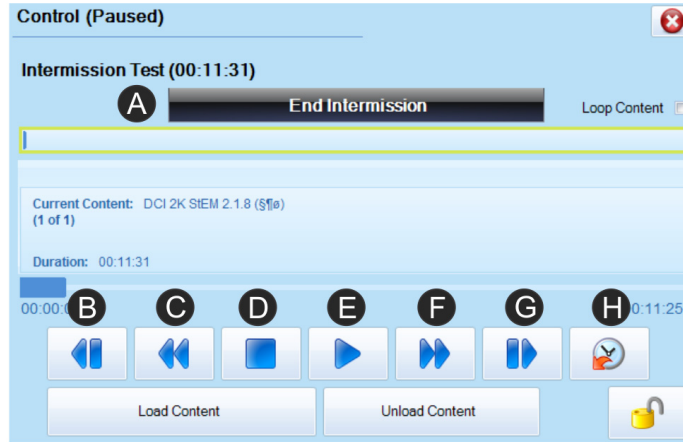
Control	Description
A	Stop an intermission and resume playback of the primary play list. This control is only available when an intermission is included in the play list and when the intermission is running. See *Add an Intermission to a Play List* on page 81.
B	Move to a previous play list item.
C	Move the playback content backward in 30 second increments
D	Stop playback
E	Start playback. When playback is started, the pause button ⏸ is available.
F	Move the playback content forward in 30 second increments
G	Move to the next play list item
H	Move to a specific time in the playback content

Content Window Icons

These icons appear in the Local Content list in the Content window:

Icon	Description
3D	The content format is 3D. To see content details, select the content and tap Details.
🔒	The encrypted content is not valid for playback. To see content details, select the content and tap Details.

Icon	Description
	The encrypted content is valid for playback and the encryption key was successfully ingested. To see content details or view the encryption key, select the content and tap Details.
	A warning indicating one of these issues: • The encryption key is expiring soon. • The encryption key has expired. • The encryption key is invalid. • The encryption key is missing. To see warning detail, select the content and tap the icon.

Play MPEG-2 Content

To play MPEG-2 content, this software must be installed on the projector:

- Christie IMB-S2 Main Software v1.2 or later.

- Solaria One Main Software v4.0.1 or later on Solaria One and Solaria One+ projectors.

- Solaria Main Software v3.1.1 or later on all other Christie series 2 projectors.

You can ingest MPEG-2 formatted Digital Cinema Packages (DCPs) and regular MPEG-2 files. The supported file extensions are mpeg, mpg, and ts. To play encrypted MPEG-2 DCPS, a Key Delivery Message (KDM) key is required.

Playback of MPEG-2 content is restricted to these resolutions:

- 720p

- 1080p

- 1080i

You can add MPEG-2 and JPEG-2000 content to the same play list. Automatic frame doubling allows MPEG-2 content to be output to the same 3D video path as the 3D JPEG-2000 content. During playback, the color format and color space of MPEG-2 content is automatically converted by the Christie IMB to match the color format and color space of JPEG 2000 content. A channel change is not required to play MPEG-2 and JPEG 2000 content in the same play list.

Video content is restricted to the formats that fall within the definition of the Main Profile at High Level as defined in specification ISO/IEC 13818-2. This table lists the supported MPEG-2 video transport stream (TS) and elementary stream (ES) formats:

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

Resolution	Frame Rate	Format	Bit Depth	Chroma Format
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

Although the Christie IMB supports all of the listed frame rates, the projector in which the Christie IMB is installed may limit the display of some formats.

Loop Content

1. Tap **Menu** > **Christie IMB** > **Control**.

2. Tap **Loop Content**.

Unload Content

1. Tap **Menu** > **Christie IMB** > **Control**.

2. Tap the **Unlock** icon.

3. Tap **Unload Content**.

View Content Stored Locally

A red padlock icon identifies expired content. A warning triangle indicates the content is expiring soon.

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Local Content**.

View Details about Content Stored Locally

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Local Content**.

3. Tap a content item in the content list.

4. Tap **Details**.

5. Tap **Close** to return to the **Content** window.

Verify the Integrity of Locally Stored Content

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Local Content**.

3. Tap a content item in the content list.

4. Tap **Details**.

5. Tap **Integrity Check**.

6. Tap **Start Test**.

7. Tap **Close** when the integrity check is complete.

Refresh the Locally Stored Content List

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Local Content**.

3. Tap **Refresh**.

Delete Locally Stored Content

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Local Content**.

3. Tap a content item in the content list.

4. Tap **Delete**.

5. Tap **Yes**.

View All Keys

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

View Expired Keys

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select **Expired Keys** in the **Show Me** list.

View Keys Expiring Today

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select **Keys Expiring Today** in the **Show Me** list.

View Keys Not Yet Valid

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select **Keys Not Yet Valid** in the **Show Me** list.

Refresh the Keys List

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select the type of keys to display in the **Show Me** list.

4. Tap **Refresh**.

Delete a Key

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select the type of keys to display in the **Show Me** list.

4. Select a key in the key list.

5. Tap **Delete**.

6. Tap **Yes**.

Delete All Displayed Keys

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Keys**.

3. Select the type of keys to display in the **Show Me** list.

4. Tap **Delete All Displayed Keys**.

5. Tap **Yes.**

View Ingestible Content

1. Connect the device containing the content you want to ingest to the **Ingest** port on the IMB.

2. Tap **Menu** > **Christie IMB** > **Content**.

3. Tap **Ingestible Content**.

Ingest Content and the KDM Key

When ingesting a movie, you must ingest both the movie and its Key Delivery Message (KDM) key. An encryption key is not required for trailers and other unencrypted content. The encryption key is typically provided on a USB flash drive.

To ingest content, connect a hard drive to the Christie IMB Ingest port. You can use USB or eSATA connections. Typically, using the eSATA port to ingest content is faster, but it might be necessary to restart the Christie IMB so the data on the eSATA hard drive is recognized.

1. Connect the device containing the content you want to ingest to the **Ingest** port on the IMB.

2. Tap **Menu** > **Christie IMB** > **Content**.

3. Tap **Ingestible Content**.

4. Select content to ingest in the **Ingestible Content** list.

5. Tap **Ingest**.

Ingest Remote Content from a Network IMB

Use this procedure to ingest content from a Christie or Doremi IMB that is on the same network as the projector. If you are ingesting content from a Christie IMB, the default user name is **ftpuser** and the password is **ftptms**.

> **i**   A remote ingest of content must be completed using the Ethernet ports on the Christie IMB and not the projector Ethernet ports. The projector Ethernet ports do not support the remote ingest of content.

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Remote Content**.

3. Enter the IP address of the remote IMB in the **IP Address** field.

4. Select a device in the **Device Type** list.

5. Enter the user name for the device in the **Username** field.

6. Enter the password for the device in the **Password** field.

7. Tap **List Content**.

8. Tap content in the content list.

9. Tap **Ingest**.

Save Ingest Device Settings

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Remote Content**.

3. Enter the IP address of the remote IMB in the **IP Address** field.

4. Select a device in the **Device Type** list.

5. Enter the user name for the device in the **Username** field.

6. Enter the password for the device in the **Password** field.

7. Tap **List Content**.

8. Tap **Save**.

9. Enter a name for the remote ingest device and then tap **Enter**.

Load Saved Ingest Device Settings

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Remote Content**.

3. Tap **Load**.

Refresh the Ingestible Content List

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Ingestible Content**.

3. Tap **Refresh**.

View the Progress of Ingestible Content

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Ingest Status**.

Refresh the Ingest Status List

1. Tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Ingest Status**.

3. Tap **Refresh**.

Content Replication

Content replication replicates and synchronizes content on multiple Christie NAS-S2 devices. You can configure content replication to occur automatically after an ingest, or you can replicate content manually.

To use content replication, two Christie NAS-S2 devices are required. Content replication is not supported in a quad projector configuration. Content replication is not supported on Network Attached Storage (NAS) devices from other manufacturers.

Network Topology

Item	Description	Item	Description
A	Control computer	H	Dolby Digital Cinema Sound Processor CP750
B	10/100 switch for command and control network	I	GigE switch for content network
C	Theatre Management System (TMS) or Library Management System (LMS)	- - -	Command and control network (10/100)
D	Projector intelligence board (PIB)	....	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

Connect the Hardware

1. Install and configure 2 or more projectors and Christie NAS-S2 devices. See *Configure Multiple Projectors* on page 9.

   When installing multiple projectors, the passwords and user names for the Christie NAS-S2 devices must be correct or replication will not work. See *Add a NAS* on page 16.

2. Connect one end of an Ethernet cable to the secondary Ethernet port (**A**) of one Christie NAS-S2.

3. Connect the other end of the Ethernet cable to the secondary Ethernet port of a second Christie NAS-S2.

4. Configure the secondary Ethernet ports of each Christie NAS-S2. See *Connect the Hardware* on page 43.

   The IP address assigned to each of the secondary Christie NAS-S2 Ethernet ports must be on the same subnet. To prevent communication errors, select a subnet that does not conflict with the command and control or the content networks.

Set the Secondary NAS Ethernet Port IP Address

Complete this procedure on both the master and slave NAS devices.

The IP address assigned to each of the secondary Ethernet ports must be on the same subnet. To prevent communication errors, select a subnet that does not conflict with the primary Ethernet port.

1. Open the Christie NAS-S2 management application interface:

   a. Open a web browser.

   b. Enter **http://<NAS IP Address Here>:8080** in the **Address** field.

   c. Press **Enter**.

2. Enter your user name and password and press **Enter**.

3. Click **Network** on the desktop.

4. Click the **TCP/IP** tab.

5. Click the **Edit** icon to the left of **Ethernet2**.

6. Click the **Network Parameters** tab.

7. Select **Use static IP address** and complete these fields:

    a. Fixed IP Address

    b. Subnet Mask

    c. Default Gateway

8. Click **Apply**.

Enable Automatic Content Replication

Complete this procedure on the master projector. If you have not configured a master projector, see *Configure Multiple Projectors* on page 8.

1. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System**.

2. Tap the **Multi Projector** tab.

3. Tap **Automatic Content Replication**.

4. Tap **Save**.

Manually Replicate Content

Complete this procedure on the master projector. If you have not configured a master projector, see *Configure Multiple Projectors* on page 8.

1. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System**.

2. Tap the **Multi Projector** tab.

3. Tap **Start content replication to slaves**.

View Replication Progress

1. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **Content**.

2. Tap **Ingest Status**.

    The progress of the content replication appears in the **Status** column.

View the Replication Event Log

1. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **Content**.

2. Tap the **Ingest Status** tab.

3. Tap **View Replication Event Log**.

View the NAS Replication Log

Complete this procedure on the master projector. If you have not configured a master projector, see *Configure Multiple Projectors* on page 8.

1. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System**.

2. Tap the **Multi Projector** tab.

3. Tap **Show NAS replication log**.

View the Christie NAS-S2 Status

1. On the projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System**.

2. Tap the **Status** tab.

3. Tap **NAS Status 1** in the left pane.

Manage Automation

You use automation to control 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 play list.

- **Input Cues** - Input cues wait for events such as a general purpose input (GPI) state change or an Ethernet message received on TPC port 5111. An input cue in a play list 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 could cause playback to stop and the house lights to come on. A global trigger is always active and is not dependent on specific play list definitions.

To add a macro or an input cue to a play list, see *Add Automation to a Play List* on page 79.

Available Macro Actions

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

Automation Device	Activity Type	Action	Description
Playback	Playback	Pause	Pauses playback
		Resume	Resumes playback
		Stop	Stops playback
		Toggle Pause Resume	Pauses playback if content is playing OR resumes playback if content is paused.
		Disable Subtitles	Disables subtitles for the current content and onward.
Projector	Projector	Douser open	Opens the douser.
		Douser close	Closes the douser.
		Lamp on	Strikes the lamp.
		Lamp off	Turns the lamp off.
		Standby mode	Puts the projector in standby mode.
		Channel change	Selects a specific projector channel.
IMB Automation	GPO Pulse (not available on Solaria One or Solaria One$^+$)		Pulses the specified GPO pin.
	GPO Set (not available on Solaria One or Solaria One$^+$)		Sets the specified GPO pin to high or low.
	Delay		Delays macro execution.
	Serial String Output		Sends a serial string to an IP address.

Add an Automation Device

The Christie IMB has built-in support for the Christie ACT, Christie SKA-3D, Dolby CP650, Dolby CP750, Dolby CP850, and the Integ JNIOR. You need to add and configure the device before you can run commands.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation** > **Devices**.

3. Tap **Add**.

4. Select a device.

5. Tap **Accept**.

6. Enter a name for the device and then tap **Enter**.

7. Complete the **Name**, **IP Address**, **Username**, **Password**, and **Serial Command Port** fields.

8. Tap **Save**.

Control Christie ACT Automation

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

Command	Description
ACT Ethernet cue	Sends a string to the ACT Ethernet input cue.
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/Close relay	Opens or closes a specific relay.
GPO pulse	Sends a pulse to a specific GPO pin.
GPO set all	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.

Control INTEG JNIOR Automation

Christie recommends that you use the built-in commands to control an INTEG JNIOR device. These are the available built-in commands:

Command	Description
Open relay	Opens a specific JNIOR relay.
Close relay	Closes a specific JNIOR relay.
Pulse relay for x ms	Sends a pulse to a specific JNIOR relay for the specified time (in milliseconds).
Execute macro x	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*).

The default Ethernet port for sending automation commands to the JNIOR is port 9200.

Control Dolby Cinema Processor Automation

Christie recommends that you use the built-in commands to control Dolby CP650, CP750, and CP850 devices. These are the available built-in commands:

Command	Description
Fader level	Sets the fader level.
Mute on/off	Enables or disables mute.
Set format (CP650 only)	Selects the format.

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 and port 61408 for the Dolby CP750 and CP850.

Control Christie SKA-3D Automation

These are the available built-in commands to Control the Christie SKA-3D:

Command	Description
Set fader level	Sets the fader level.
Mute on/off	Enables or disables mute.
Activate trigger input	Controls 8 Christie SKA-3D presets. To use this command, a trigger input must be associated with each of the Christie SKA-3D presets.

Test Connectivity to an Automation Device

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation** > **Devices**.

3. Select an automation device in the left pane.

4. Tap **Test**.

5. Tap **OK**.

Remove Automation Devices

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Devices**.

3. Select an automation device in the left pane.

4. Tap **Remove**.

5. Tap **Yes**.

6. Tap **Save**.

Add a Macro

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap **Add**.

4. Enter a name for the macro and then tap **Enter**.

5. Tap **Save**.

Add an Activity to a Macro

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation** > **Macros**.

3. Tap a macro in the left pane.

4. Tap **Add** in the **Macro Activities** list.

5. Select a device in the **Automation Device** list.

6. Select an activity in the **Activity Type** list.

7. Adjust the activity settings in the right pane.

8. Tap **Accept**.

9. Tap **Save**.

Edit Macro Activity Settings

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.

4. Tap an activity in the **Macro Activities** list.

5. Tap **Edit**.

6. Edit the activity settings.

7. Tap **Accept**.

8. Tap **Save**.

Change the Order of Activities

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.

4. Tap an activity in the **Macro Activities** list.

5. Tap the **Up** arrow to move the activity up.

   - or -

   Tap **Down** arrow to move the activity down.

6. Tap **Save**.

Remove an Activity

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.

4. Tap an activity in the **Macro Activities** list.

5. Tap **Remove**.

6. Tap **Yes**.

7. Tap **Save.**

Test a Macro

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.

4. Tap **Run Macro**.

5. Tap **OK**.

Copy a Macro

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation** > **Macros**.

3. Tap a macro in the left pane.

4. Tap **Copy**.

5. Enter a name for the macro and then tap **Enter**.

6. Tap **Save**.

Remove a Macro

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.

4. Tap **Remove**.

5. Tap **Yes**.

6. Tap **Save**.

Add an Input Cue

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Input Cues**.

3. Tap **Add**.

4. Enter a name for the activity and then tap **Enter**.

5. Select an automation device in the **Automation Device** list.

6. Select an activity in the **Activity Type** list.

7. Select options from the lists in the right pane.

8. Tap **Accept**.

9. Tap **Save**.

Change Input Cue Settings

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Input Cues**.

3. Tap an input cue in the list.

4. Tap **Edit**.

5. Edit the input cue settings.

6. Tap **Accept**.

7. Tap **Save**.

Remove an Input Cue

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Input Cues**.

3. Tap an input cue in the list.

4. Tap **Remove**.

5. Tap **Yes**.

6. Tap **Save**.

Add a Global Trigger

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Global Triggers**.

3. Tap **Add**.

4. Select an automation device in the **Automation Device** list.

5. Select an activity in the **Activity Type** list.

6. Select a trigger action in the **Execute Macro** list.

7. Tap **Accept**.

8. Tap **Save**.

Change Global Trigger Settings

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Global Triggers**.

3. Tap a global trigger in the list.

4. Tap **Edit**.

5. Edit the global trigger settings.

6. Tap **Accept**.

7. Tap **Save**.

Remove a Global Trigger

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Global Triggers**.

3. Tap a global trigger in the list.

4. Tap **Remove**.

5. Tap **Yes**.

6. Tap **Save**.

Sample Automation Procedure

This section provides sample procedures for:

- Creating the Preshow, Trailers and Feature, Credits, and End of Show macros

- Adding activities to the macros

- Adding Christie ACT automated events to a macro

- Creating a play list

- Adding the macros to a play list

It is recommended that you use the projector touch panel controller (TPC) to complete the sample procedures. If you use the web interface, you cannot edit the macros.

> You cannot add GPO activities to Solaria One and Solaria One^{+} projectors because the communication panel does not include a GPI/O port.

Create Macros

1. Tap **Menu** > **Christie IMB** > **System**.
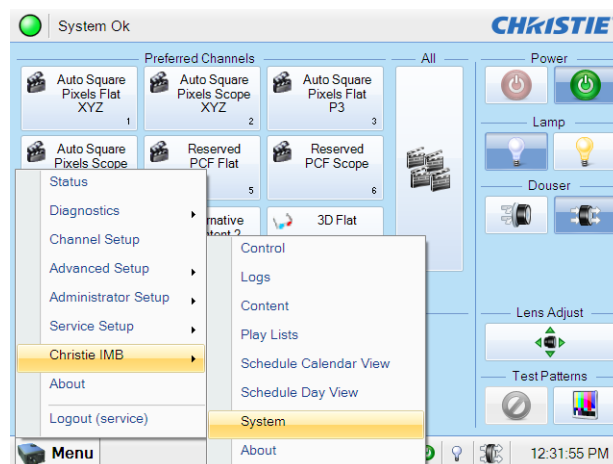
2. Tap **Automation** > **Macros**.

3. Tap **Add**.

4. Enter **Preshow** and then tap **Enter**.
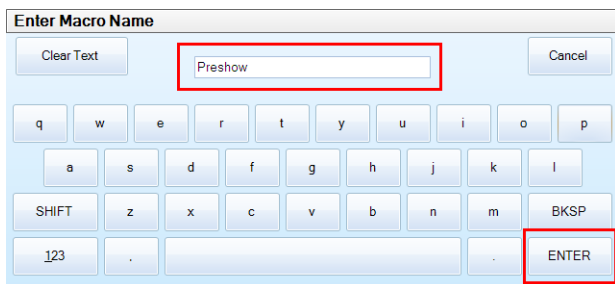
5. Tap **Save**.
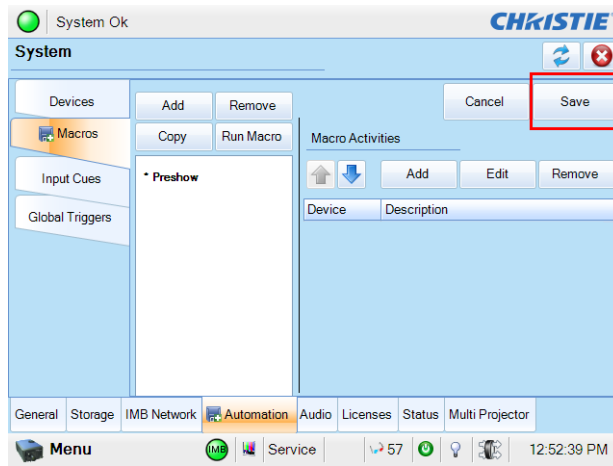
6. Repeat steps 2 to 5 to create these macros:

    - Trailers and Feature

    - Credits

    - End of Show

Add Activities to the Preshow Macro

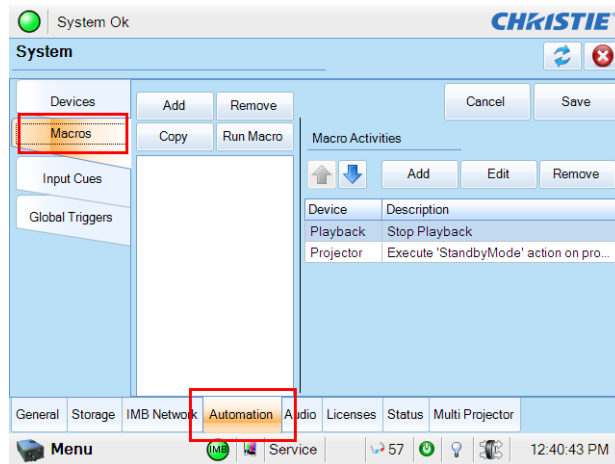 You cannot add GPO activities to Solaria One and Solaria One$^+$ projectors because the communication panel does not include a GPI/O port.
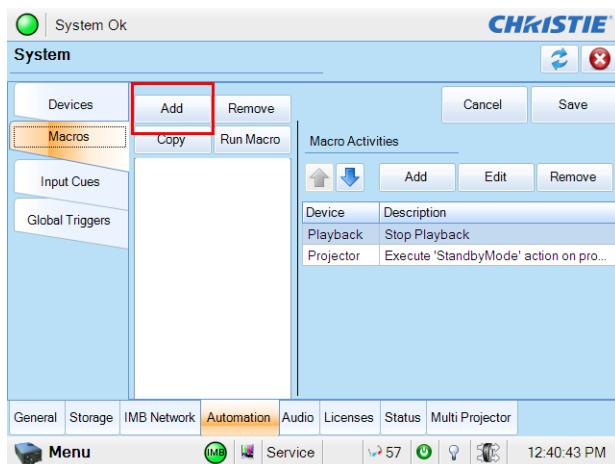
1. Tap the **Preshow** macro in the left pane.

2. Tap **Add** in the **Macro Activities** list.
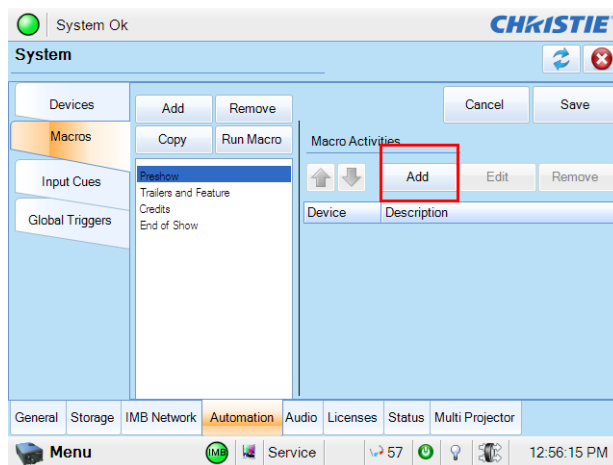
3. Select **Projector** in the **Automation Device** list.

4. Select **Douser Close** in the **Action** list.

5. Select **Projector** in the **Activity Type** list.

6. Tap **Accept**.
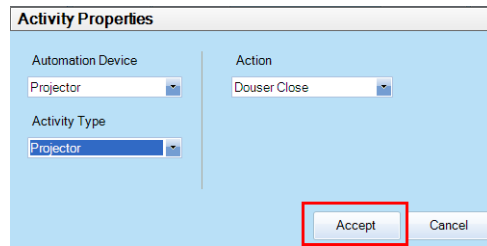
The new activity is added to the **Macro Activities** list.

7. Tap **Save**.
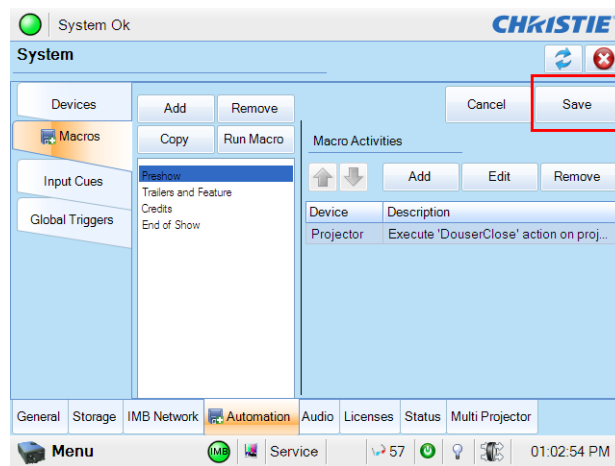
8. Repeat steps 2 to 7 and add these activities:

Automation Type	Field Settings
Lamp On	Automation Device: Projector
	Activity Type: Projector
	Action: Lamp On
Lights 50% (GPO 4 High, GPO 5 Low)	Automation Device: IMB Automation
	Activity Type: GPO Set
	PIN Number: 4
	Signal Direction: High
Lights 50% (GPO 4 High, GPO 5 Low)	Automation Device: IMB Automation
	Activity Type: GPO Set
	PIN Number: 5
	Signal Direction: Low

Automation Type	Field Settings
Dolby CP750 volume at 5.0	Automation Device: IMB Automation
	Activity Type: Serial String Output
	Serial String: cp750.sys.fader 50\0D
	IP Address: 192.168.1.20
	Port: 61408
Douser Open	Automation Device: Projector
	Activity Type: Projector
	Action: Douser Open

Add Activities to the Trailers and Feature Macro

> **i** You cannot add GPO activities to Solaria One and Solaria One$^+$ projectors because the communication panel does not include a GPI/O port.

1. Tap the **Trailers and Features** macro in the left pane.

2. Tap **Add** in the **Macro Activities** list.

3. Select **IMB Automation** in the **Automation Device** list.

4. Select **GPO Set** in the **Activity Type** list.

5. Select **4** in the **Pin Number** list.

6. Select **Low** in the **Signal Direction** list.

7. Tap **Accept**.

8. The new activity is added to the **Macro Activities** list.

9. Tap **Save**.

10. Repeat steps 2 to 9 and add this activity:

Automation Type	Field Settings
Lights 50% (GPO 4 High, GPO 5 Low)	Automation Device: IMB Automation
	Activity Type: GPO Set
	PIN Number: 5
	Signal Direction: Low

Add Activities to the Credits Macro

> **i** You cannot add GPO activities to Solaria One and Solaria One$^+$ projectors because the communication panel does not include a GPI/O port.

1. Tap the **Credits** macro in the left pane.
2. Tap **Add** in the **Macro Activities** list.
3. Select **IMB Automation** in the **Automation Device** list.
4. Select **GPO Set** in the **Activity Type** list.
5. Select **4** in the **Pin Number** list.
6. Select **Low** in the **Signal Direction** list.
7. Tap **Accept**.
8. The new activity is added to the **Macro Activities** list.
9. Tap **Save**.
10. Repeat steps 2 to 9 and add this activity:

Automation Type	Field Settings
Lights 50% (GPO 4 High, GPO 5 Low)	Automation Device: IMB Automation
	Activity Type: GPO Set
	PIN Number: 5
	Signal Direction: Low

Add Activities to the End of Show Macro

> **i** You cannot add GPO activities to Solaria One and Solaria One$^+$ projectors because the communication panel does not include a GPI/O port.

1. Tap the **End of Show** macro in the left pane.
2. Tap **Add** in the **Macro Activities** list.
3. Select **IMB Automation** in the **Automation Device** list.
4. Select **GPO Set** in the **Activity Type** list.
5. Select **4** in the **Pin Number** list.
6. Select **High** in the **Signal Direction** list.
7. Tap **Accept**.
8. The new activity is added to the **Macro Activities** list.
9. Tap **Save**.

10. Repeat steps 2 to 9 and add these activities:

Automation Type	Field Settings
Lights 50% (GPO 4 High, GPO 5 High)	Automation Device: IMB Automation
	Activity Type: GPO Set
	PIN Number: 5
	Signal Direction: Low
Douser Close	Automation Device: Projector
	Activity Type: Projector
	Action: Douser Close
Lamp Off	Automation Device: Projector
	Activity Type: Projector
	Action: Lamp Off

Add Christie ACT Automation to a Macro

You can use a GPIO control or an external automation device such as a Christie ACT to control automated events in your theatre. To add Christie ACT automations to a macro, you must add the Christie ACT to the **Device Type** list and define its connection parameters including the IP address, log in user name, and password.

In this example, the Christie ACT uses these scripts to control lighting:

- Lights-0 - lights at 0%

- Lights-50 – lights at 50%

- Lights-100 – lights at 100%

Add the Christie ACT to the Device Type List

1. Tap **Menu** > **Christie IMB** > **System**.
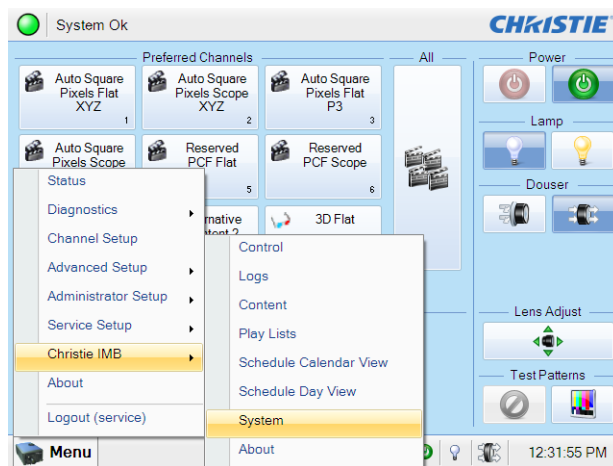
2. Tap the **Automation** tab.

3. Tap the **Devices** tab.
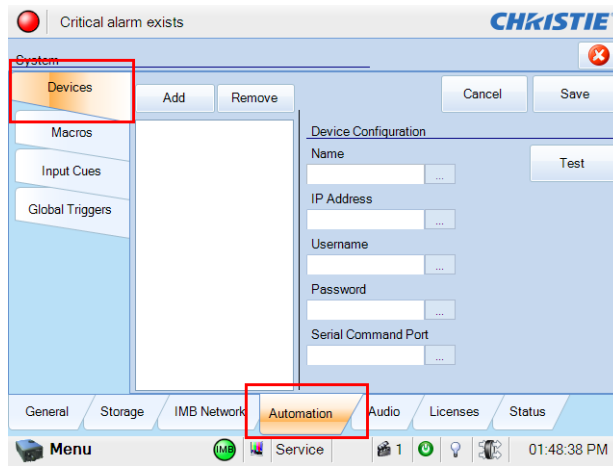
4. Tap **Add** > **Christie ACT** > **Accept**.
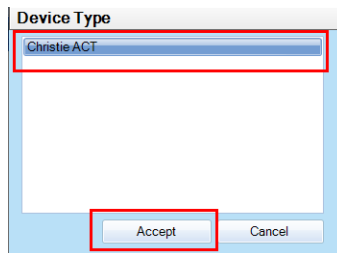
5. Enter **Christie ACT Automation** and then tap **Enter**.
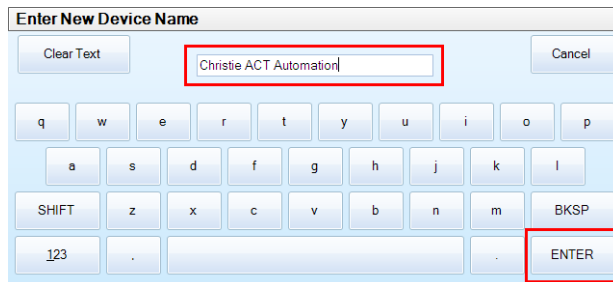
6. Enter the IP address, user name, and password for the Christie ACT in the Device Configuration pane.

   In this example, use IP address 192.168.1.30 and **service** (the default setting) for the user name and password.
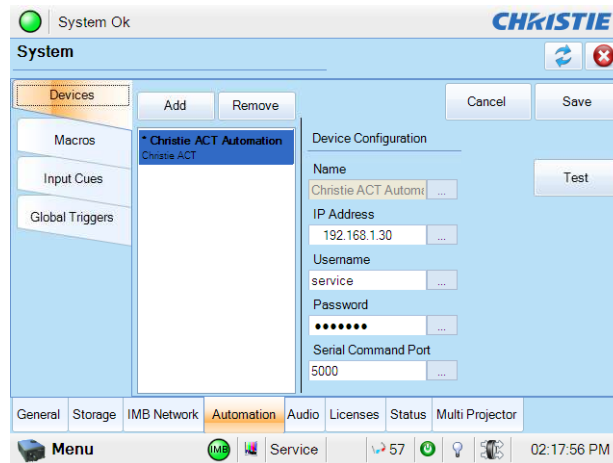
7. Tap **Test** to test the connection to the Christie ACT.

   If you enter an invalid IP address, an error message appears.

8. Tap **Save**.

Add the Christie ACT to the Preshow Macro

1. Tap the **Macros** tab.

2. Tap the **Preshow** macro in the left pane.

3. Tap **Add** in the **Macro Activities** list.

4. Select **Christie ACT Automation** in the **Automation Device** list.

5. Select **Run Script** in the **Activity Type** list.

6. Enter **Lights-50** in the **Script Name** field.

7. Tap **Accept**. The new activity appears in the **Macro Activities** list.
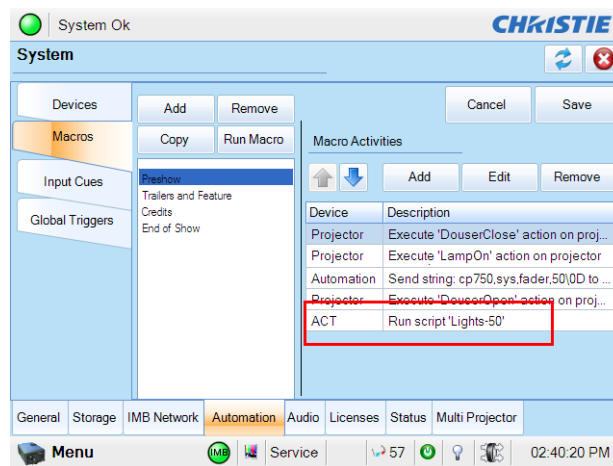
8. Tap **Save**.

Add the Macros to a Play List

In this example, you will:

- Ingest content

- Create the Blockbuster play list

- Add the ingested content to the play list

- Add the macros to the play list

Ingest Content

When ingesting a movie, you must ingest both the movie and its decryption key (Key Delivery Message). An decryption key is not required for trailers and other unencrypted content. The KDM key is typically provided on a USB flash drive or by email. To generate the KDM keys, you must provide the electronic serial number (eSN) of the Christie IMB. See *Identify the Christie IMB Electronic Serial Number* on page 11.

To ingest content, you can use a USB hard drive or connect a hard drive to the eSATA port. Typically, using the eSATA port to ingest content is faster, but you might need to restart the Christie IMB so the data on the eSATA hard drive is recognized.

This procedure ingests a fictitious advertisement (Coke), trailer (Muppets), and a main feature (Sintel) so they can later be added to the play list. You can ingest your own content, or add existing content to the play list. If you will add existing content to the play list, move to *Create a Play List* on page 64.

1. Connect the device containing the KDM keys and content you want to ingest to the **Ingest** port on the IMB.

2. Tap **Menu** > **Christie IMB** > **Content**.

3. Tap the **Ingestible Content** tab.

4. Select **Coke** in the **Ingestible Content** list.

5. Tap **Ingest**.

6. Repeat steps 3 and 4 to add the trailer and the main feature.

Create a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
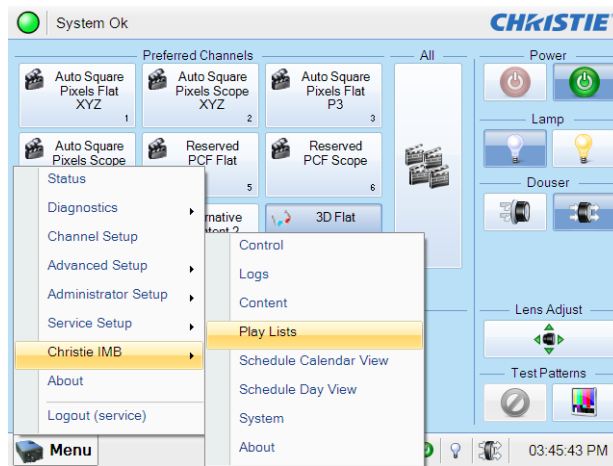
2. Tap **Create** in the **Play List Tasks** list.
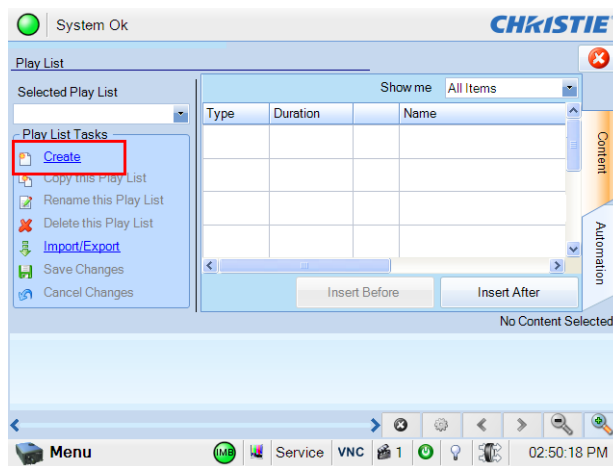
3. Tap **Clear Text**.
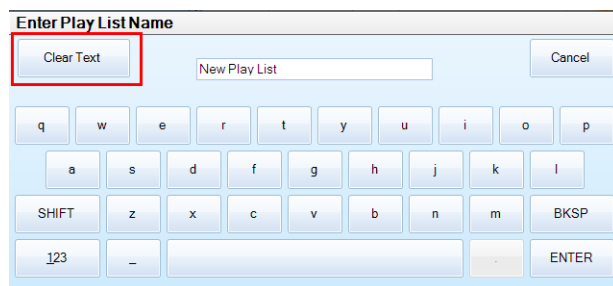
4. Enter **Blockbuster**.

5. Tap **Enter**.

6. Tap **Save Changes** in the **Play List Tasks** list.

Add Content to the Play List

This procedure adds an advertisement, a trailer, and the main feature to the play list. You can add your own content to the play list, or move to Add the Preshow Macro to the Play List.

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select **Blockbuster** in the **Selected Play List** list.

3. Tap the **Content** tab on the right side of the screen.

4. Select **All Items** in the **Show me** list.
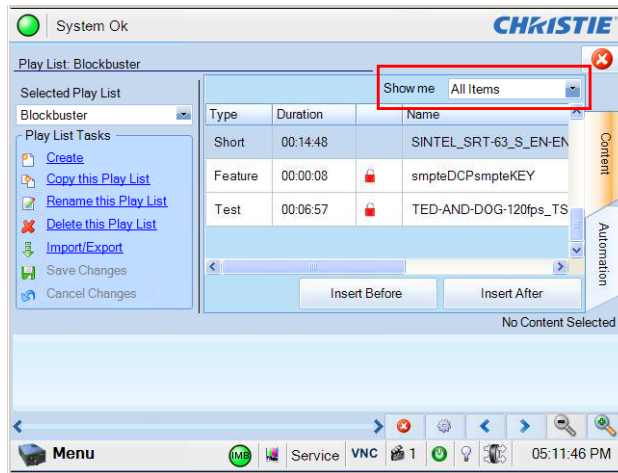
5. Tap the advertisement (Coke) in the content list.

6. Tap **Insert Before** or drag and then drop the content in the time line. The advertisement appears in the time line at the bottom of the play list window. If you insert content in the wrong location, drag and drop it to a new position.
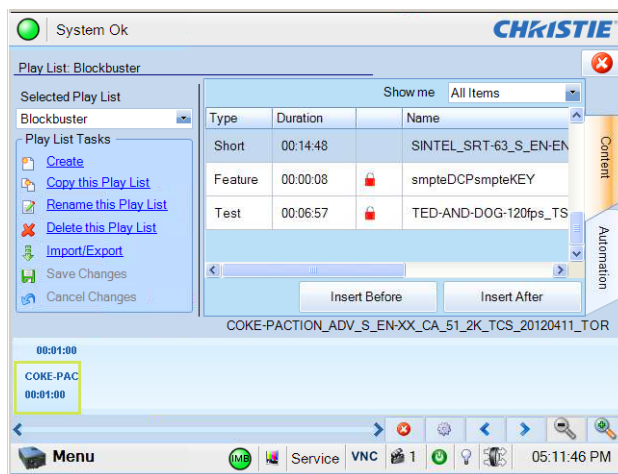
7. Repeat steps 5 and 6 to add the trailer and the main feature to the play list. The trailer should appear after the advertisement and the main feature should appear after the trailer.
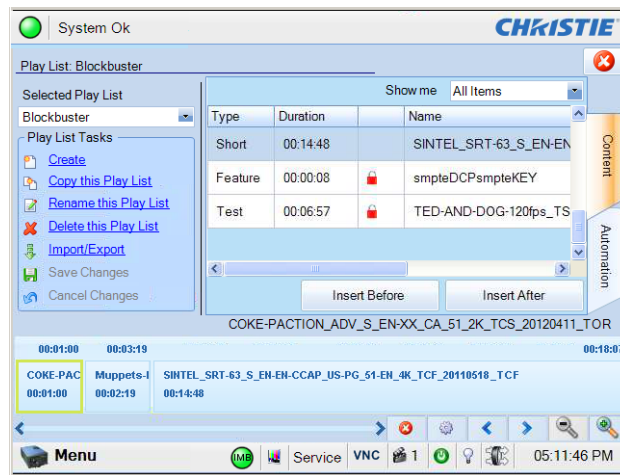
8. Tap **Save Changes** to save your changes.

Add the Preshow Macro to the Play List

1. Select **Blockbuster** in the **Selected Play List** list.

2. Select the advertisement content in the time line at the bottom of the play list. A yellow box appears around the content when you select it.
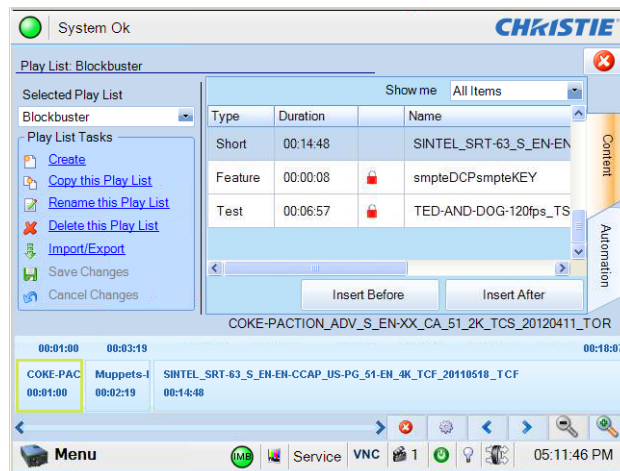
3. Tap the **Automation** tab.
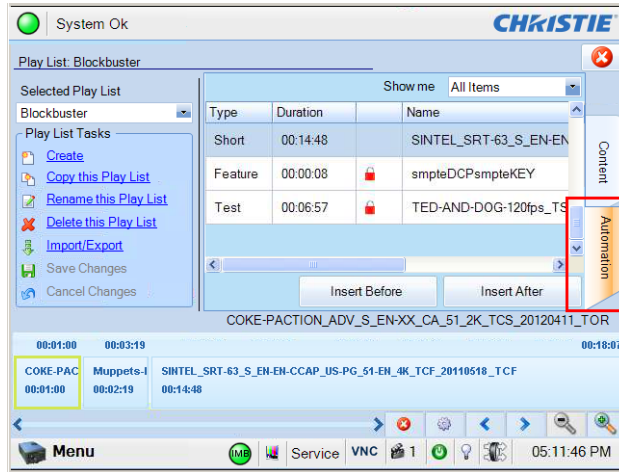
4. Select the **Preshow** macro in the top right pane.
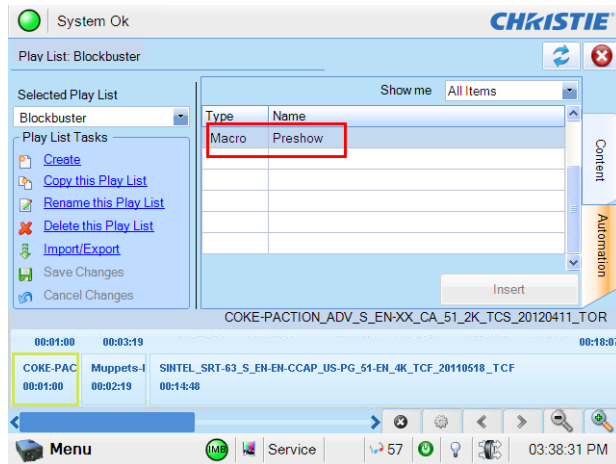
5. Tap **Insert**.
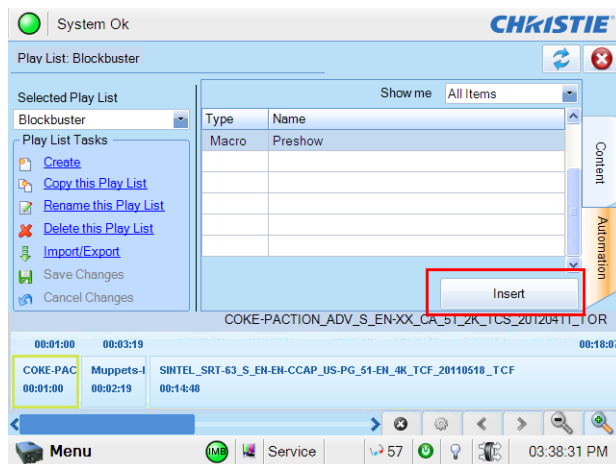
6. Select **Before Clip Start** in the **Offset From** list.
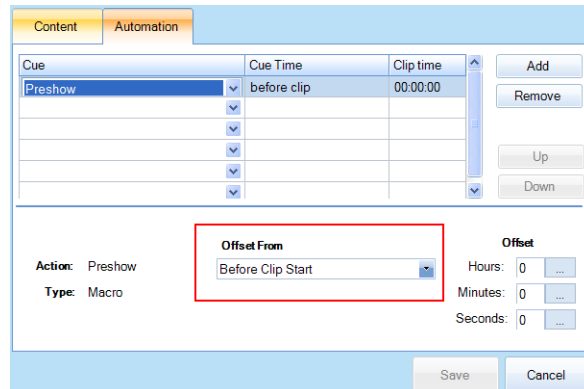
7. Tap **Save**. A black triangle appears in the advertisement (Coke) content in the time line at the bottom of the play list window. This indicates that the Preshow macro will run before the advertisement plays. Tap the triangle to display the settings for the Preshow macro.
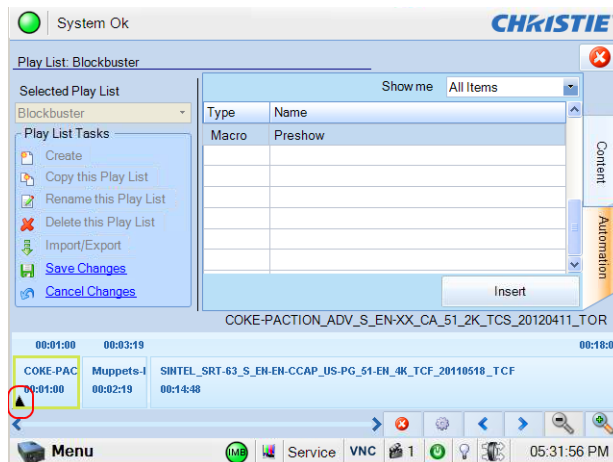
8. Tap **Save Changes**.

Add the Trailers and Features Macro to the Play List

1. Select **Blockbuster** in the **Selected Play List** list.

2. Select the trailer content in the time line at the bottom of the play list.

3. Tap the **Automation** tab.

4. Select the **Trailers and Features** macro in the top right pane.

5. Tap **Insert**.

6. Tap **Before Clip Start** in the **Offset From** area.

7. Tap **Save**.

A black triangle appears in the trailer (Muppets) content in the time line at the bottom of the play list window. This indicates that the Trailers and Features macro will run before the trailer plays. Tap the triangle to display the settings for the Trailers and Features macro.

8. Tap **Save Changes**.

Add the Credits Macro to the Play List

In this example, you want the Credits macro to run when the Sintel credits begin. The Sintel credits appear 12 minutes and 25 seconds from the start of the content.

1. Select **Blockbuster** in the **Selected Play List** list.

2. Select the feature content in the time line at the bottom of the play list.

3. Tap the **Automation** tab.

4. Select the **Credits** macro in the top right pane.

5. Tap **Insert**.

6. Select **From Clip Start** in the **Offset From** list.

7. In the **Minutes** field, enter **12**.

8. In the **Seconds** field, enter **25**.

9. Tap **Save**.

A black triangle appears in the feature (Sintel) content in the time line at the bottom of the play list window. This indicates that the Credits macro will run after when the feature credits appear. Tap the triangle to display the settings for the Credits macro.

10. Tap **Save Changes**.

Add the End of Show Macro to the Play List

In this example, you want the End of Show macro to run when the Sintel content ends.

1. Select **Blockbuster** in the **Selected Play List** list.

2. Select the feature content in the time line at the bottom of the play list.

3. Tap the **Automation** tab.

4. Select the **End of Show** macro in the top right pane.

5. Tap **Insert**.

6. Tap **From Clip End** in the **Offset From** area.

7. Tap **Save**.

   A second black triangle appears in the feature (Sintel) content in the time line at the bottom of the play list window. This indicates that the End of Show macro will run after the feature finishes playing. Tap the triangle to display the settings for the End of Show macro.

8. Tap **Save Changes**.

Manage Audio Settings

To set your audio settings, complete these tasks:

- Enter a name for each speaker, and then associate it with a specific AES output. See *Map Speakers* on page 71.

- Map the channel output to a specific speaker. See *Map Channels* on page 71.

Map Speakers

1. Verify the digital cinema audio processor is connected to the AES3 port on the Christie IMB.

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **Audio** > **Speaker Mapping**.

4. Complete the fields in the **AES Output** area. This is an example of speaker mapping for a Dolby 7.1 DS configuration:
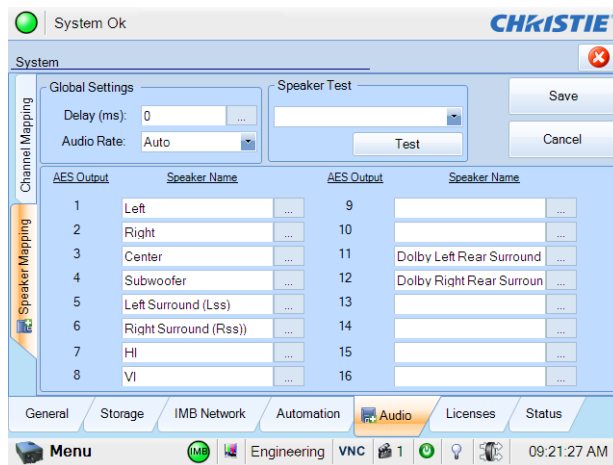
5. Tap **Save**.

Map Channels

You use the Channel Mapping window to map the Digital Cinema Package (DCP) audio channels to the AES outputs. Although you can select a number of options in the **Mapping** list, Interop is the

most common. For more information about Interop channel mapping, see *http://isdcf.com/papers/ISDCF-Doc4-Interop-audio-channel-recommendations.pdf*.

The DCP determines the audio mapping setting. Typically, Interop is the setting that you select. The other channel mapping settings are applied when the Society of Motion Picture and Television Engineers (SMPTE) DCP is used.

1. Verify the digital cinema audio processor is connected to the AES3 port on the Christie IMB.

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **Audio** > **Channel Mapping**.

4. Select an audio format in the **Mapping** list.

   This selection in the **Mapping** list does not determine the audio format. The content determines the audio format. For example, if you select 7.1 DS and Interop is specified in the content, the Interop audio settings are applied when the content plays.

5. Select the channel that matches the speaker specified in the Interop channel mapping guide. For example, these are the selections for a Dolby 7.1 DS configuration:
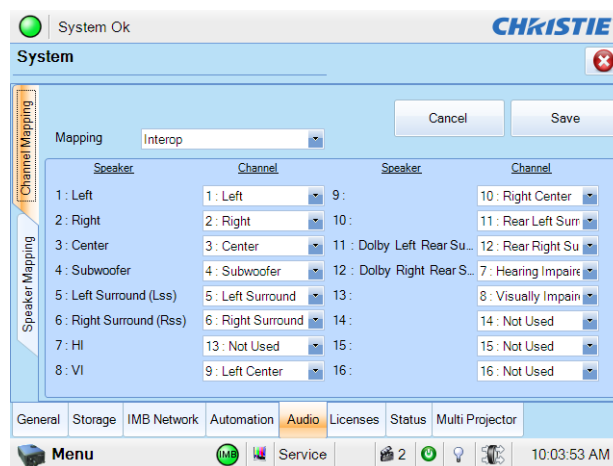
6. Select **Not Used** for any speakers that are not used.

7. Tap **Save**.

Manage Christie IMB Settings

This section provides procedures for managing Christie Integrated Media Block (IMB) settings.

Restart the Server

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Settings**.
3. Tap **Reboot Server**.
4. Tap **Yes**.
5. Tap **OK.**

Download a Certificate

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Settings**.
4. Tap **Certificate**.
5. Select a certificate to download.

   The SM certificate is used for Digital Cinema Package (DCP) decryption. Typically, this is the certificate you send when requesting Key Delivery Message (KDM) keys.

   The Log certificate is used for signing log files.
6. Tap **Download**.
7. The certificate is saved as SM.pem or Log.pem.

Remove Orphaned Assets

Use this procedure to remove orphaned assets on the primary content drive.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Settings**.

3. Tap **Clean up**.

4. Tap **Yes**.

5. Tap **OK**.

Restore Factory Default Settings

When restoring factory settings, all content drive settings, automation definitions, scheduled events, audio settings, and speaker mappings return to their factory default settings. Restoring the factory default settings does not affect ingested content, keys, or play lists. After restoring the Christie IMB to its default settings, you must reconfigure the settings of your NAS or DAS device.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Settings**.

3. Tap **Load Factory Defaults**.

4. Tap **Yes**.

5. Tap **OK**.

View Status Information

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Status**.

3. Tap an item in the **Category** list.

Add a License

A license is required to activate Christie IMB features. To download a license, see *Download Feature Licensing* on page 11.

When you receive your license file, do not open it in a viewer such as Microsoft Notepad. Opening the license file in a viewer can prevent the license key from functioning correctly. Save the license key without opening it.

1. Insert a USB flash drive with the Christie IMB license into the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **Licenses**.

4. Tap **Add**.

5. Browse to the location of the license file.

6. Select a license file and then tap **Open**.

Upload the Christie IMB Software Upgrade Package

You upgrade the Christie IMB and the projector software separately. The Christie IMB upgrade file includes the .pkg extension. To upgrade the Christie IMB software, you upload the new software to the Christie IMB and then run the upgrade. Software upgrades are available on the Christie website.

1. Insert a USB flash drive with the upgrade package into the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **General** > **IMB Upgrade**.

4. Tap **Browse** and browse to the location of the file.

5. Select the file.

6. Tap **Accept**.

Install the Christie IMB Software Upgrade Package

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **IMB Upgrade**.

3. Select an upgrade file in the **Upgrade Files on Server** list.

4. Select **Full Install** to upgrade all files

   - or -

   Select **Differences** to upgrade the files that are different from the upgrade file.

   - or -

   Select **Factory Install** to upgrade all files to the factory settings.

5. Tap **Upgrade**.

6. Tap **Yes**.

Delete an Upgrade File

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **IMB Upgrade**.

3. Select an upgrade file in the **Upgrade Files on Server** list.

4. Tap **Delete**.

5. Tap **Yes**.

6. Tap **OK**.

Play Lists

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

View an Existing Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.

Import a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Tap **Import/Export** in the **Play List Tasks** list.
3. Tap the **Import** tab.
4. Tap **Browse**.
5. Select a drive in the **Drive** list and browse to the location of the play list.
6. Tap **Accept**.
7. Select a play list.
8. Tap **Import**.

Create a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Tap **Create** in the **Play List Tasks** list.
3. Tap **Clear Text**.
4. Enter a name for the play list.
5. Tap **Enter**.
6. Tap **Save Changes** in the **Play List Tasks** list.

Export a Play List

You can export a play list and use it on other projectors.

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **Play Lists**.

3. Tap **Import/Export** in the **Play List Tasks** list.

4. Tap the **Export** tab.

5. Select a play list.

6. Tap **Export**.

7. Enter a name for the play list. Tap **Enter**.

8. Tap **OK**.

Copy a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap **Copy this Play List** in the **Play List Tasks** list.

4. Tap **Clear Text**.

5. Enter a name for the play list.

6. Tap **Enter**.

7. Tap **Save Changes**.

Rename a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap **Rename this Play List** in the **Play List Tasks** list.

4. Tap **Clear Text**.

5. Enter a name for the play list.

6. Tap **Enter**.

Add Content to a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap the **Content** tab.

4. Select items to display in the **Show me** list.

5. Tap an item in the content list.

6. Tap content in the time line. The time line appears at the bottom of the Play List window.

7. Tap **Insert Before** to insert content before the selected item in the time line.

   - or -

   Tap **Insert After** to insert content after the selected item in the time line.

8. Tap **Save Changes** to save your changes.

   - or -

9. Tap **Cancel Changes** to undo your change.

Change the Order of Content in a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap the **Content** tab.

4. Tap and drag content in the time line to the left or right. The time line appears at the bottom of the Play List window.

5. Tap **Save Changes** to save your changes.

   - or -

6. Tap **Cancel Changes** to undo your change.

View the Status of Play List Content

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap content in the time line. The time line appears at the bottom of the Play List window.

4. Tap 　⚙　 .

5. Tap **Cancel**.

Remove Content from a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap content in the time line. The time line appears at the bottom of the Play List window.

4. Tap .

5. Tap **Yes**.

6. Tap **Save Changes**.

Add Automation to a Play List

To create macros, see *Add a Macro* on page 49 and *Add Christie ACT Automation to a Macro* on page 59.

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap the **Automation** tab.

4. Tap content in the time line. The time line appears at the bottom of the Play List window.

5. Select **Macros** or **Input** in the **Show me** list.

6. Tap a macro or an input in the list.

7. Tap **Insert**.

8. Select an event in the **Automation Macro** list.

9. Select one of these options in the **Offset From** list:

   - Select **Before Clip Start** to pause playback. Playback does not resume until all of the input cues or macros with a time offset value of **Before Clip Start** run. Playback is not paused if **Before Clip Start** is not selected. This option is recommended for automation that runs at the beginning of playback.

   - Select **From Clip Start** to run a macro at a time you define that is offset from the beginning of the content you selected in step 4.

   - Select **From Clip End** to run a macro at a time you define that is offset from the end of the content you selected in step 4.

   - Select **Start of Moving Credits (FFMC)** to run a macro at a time that is offset from the FFMC marker embedded in the SMPTE content. This option is only available when the content contains an FFMC marker.

   - Select **Start of End Credits (FFEC)** to run a macro at a time that is offset from the FFMC marker embedded in the SMPTE content. This option is only available when the content contains an FFEC marker.

10. Tap **Save**.

11. Tap **Save Changes** in the **Play List Tasks** list.

12. A black triangle appears in the time line to indicate that automation is defined for the content. The time line appears at the bottom of the Play List window.

Create and Add a Black Delay to a Play List

This procedure adds a five second delay macro named 5 Second Black to a play list. You can create longer or shorter delays.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation** > **Macros**.

3. Tap **Add**.

4. Enter **5 Second Black** and then tap **Enter**.

5. Tap the macro in the left pane.

6. Tap **Add** in the **Macro Activities** list.

7. Select **IMB Automation** in the **Automation Device** list.

8. Select **Delay** in the **Activity Type** list.

9. Enter **5000** in the **Duration (ms)** list.

10. Tap **Accept**.

11. Tap **Save**.

12. Insert the 5 Second Black macro before content in a play list:

    a. Tap **Menu** > **Christie IMB** > **Play Lists**.

    b. Select a play list in the **Selected Play List** list.

    c. Tap the **Automation** tab on the right side of the screen.

    d. Tap **5 Second Black** in the macros list.

    e. Tap content in the time line. The time line appears at the bottom of the Play List window. When you tap content, a green border appears around the content to indicate it is selected.
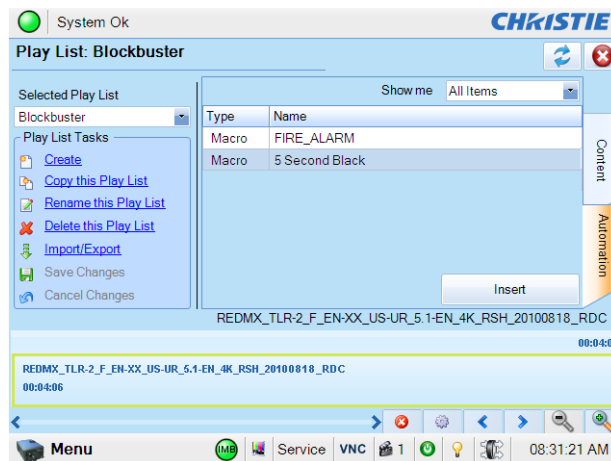
    f. Tap **Insert**.

    g. Select **Before Clip Start** in the **Time Offset** list.

    h. Tap **Save**.

13. Tap **Save Changes** in the **Play List Tasks** list.

Add an Intermission to a Play List

When an intermission automation event is encountered during playback, the main feature pauses at the intermission event and the intermission play list plays. When intermission playback finishes, playback of the main feature resumes.

> **i**
> - You cannot insert an intermission between clips.
> - An error message appears in the Edit Playlist Item window before you adjust the offset time for the intermission. To remove this message, enter a correct offset time.

1. Create an intermission play list and add the content you want to play during the intermission. See *Create a Play List* on page 76 and *Add Content to a Play List* on page 77.

2. Tap **Menu** > **Christie IMB** > **Play Lists**.

3. Select the play list with the content you want to play during the intermission in the **Selected Play List** list.

4. Tap the **Automation** tab.

5. Tap content in the time line. The time line appears at the bottom of the Play List window.

6. Select **Intermissions** in the **Show me** list.

7. Tap **Insert**.

8. Select **Intermission** in the **Cue** list.

9. Tap **Edit Details**.

10. Complete these fields:

Field	Description
Intermission Play List Name	The name of the play list to play when the intermission automation event occurs.
Start Intermission Macro Name	The macro that runs when the intermission starts. This is optional.
End Intermission Macro Name	The macro that runs when the intermission ends. This is optional.
Feature Resume Offset (sec)	The time in seconds to replay previously shown content. The maximum value is 30.

11. Tap **Accept**.

12. Select **From Clip Start** in the **Offset From** area.

13. Select a time offset in the **Offset** area.

    Typically, an intermission runs in the middle of a feature. For example, to add an intermission in the middle of a feature running 2 hours and 30 minutes, you enter **1** in the **Hours** field and **15** in the **Minutes** field.

    The time offset must occur 60 seconds from the start or the end of a feature. If you enter a lower time offset value, an error message appears in the Edit Playlist Item window.

14. Tap **Save**.

15. Tap **Save Changes** in the **Play List Tasks** list.

16. A black triangle appears in the time line to indicate that automation is defined for the content. The time line appears at the bottom of the Play List window.

Modify When Automation Occurs

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap content in the time line. The time line appears at the bottom of the Play List window.

4. Tap a black arrowhead.

5. Select one of these options in the **Time Offset** area:

   - Select **Before Clip Start** to pause playback. Playback does not resume until all of the input cues or macros with a time offset value of **Before Clip Start** run. Playback is not paused if **Before Clip Start** is not selected.

   - Select **From Clip Start** to run a macro at a time you define that is offset from the beginning of the content you selected in step 3.

   - Select **From Clip End** to run a macro at a time you define that is offset from the end of the content you selected in step 3.

6. Adjust the time the automation occurs.

7. Tap **Save.**

8. Tap **Save Changes** in the **Play List Tasks** list.

Remove Automation from a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap content in the time line. The time line appears at the bottom of the Play List window.

4. Tap a black arrowhead.

5. Tap **Remove**.

6. Tap **Save**.

7. Tap **Save Changes** in the **Play List Tasks** list.

Delete a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.

2. Select a play list in the **Selected Play List** list.

3. Tap **Delete this Play List** in the **Play List Tasks** list.

4. Tap **Yes**.

Schedule Views

You use the Schedule Calendar view to view the date and time content is scheduled to play in a month.

You use the Schedule Calendar Day View to view and modify the time and duration content is scheduled to play in a day. You can also use the Schedule Calendar View to add content or a play list to a schedule.

When content is scheduled to play, the projector automatically enters full power mode approximately 45 minutes before the content is scheduled to appear. The projector is on, but the lamp is off. It is recommended that you add a lamp on command to your play lists.

The scheduler application loads the scheduled content 30 minutes before it is scheduled to play. The application verifies the correct content is loaded two minutes before playback is scheduled to start. If the content is incorrect or has not been loaded, it is loaded. The verification process continues until playback is scheduled to start. If you attempt to unload the scheduled content two minutes (or less) before it is scheduled to play, the scheduled content is automatically reloaded to prepare for playback.

View the Schedule Calendar View

Tap **Menu** > **Christie IMB** > **Schedule Calendar View**.
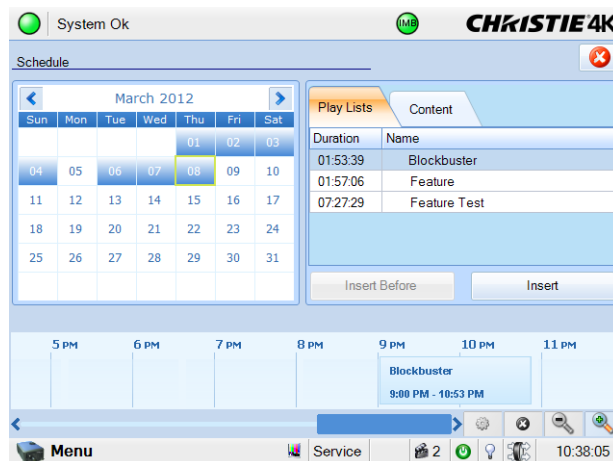
View the Schedule Day View

Tap **Menu** > **Christie IMB** > **Schedule Day View**.
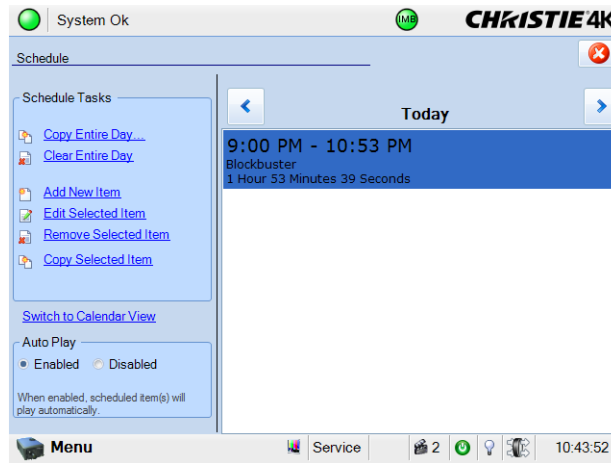
Add a New Item to the Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap **Add New Item** in the **Schedule Tasks** list.

3. Tap **Browse**.

4. Select a play list.

   - or -

   Tap the **Content** tab and select content.

5. Tap **Accept**.

6. Select a date to start playing the content in the **Start Time** list.

7. Modify the time that the content plays.

8. Tap **Accept**.

Edit a Schedule Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap the content.

4. Tap **Edit Selected Item** in the **Schedule Tasks** list.

5. Tap **Browse** to replace the content.

   - or -

   Modify the date and time the item plays.

6. Tap **Accept**.

Copy a Scheduled Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap the content.

4. Tap **Copy Selected Item** in the **Schedule Tasks** list.

5. Select the day that you want to copy the item to.

6. Select an end date for the item to play in the **Repeat Until** list.

7. Tap **Accept**.

8. Tap **OK**.

Copy a Day Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap **Copy Entire Day** in the **Schedule Tasks** list.

4. Select the day that you want to copy the item to.

5. Select an end date for the item to play in the **Repeat Until** list.

6. Tap **Accept**.

7. Tap **OK**.

Delete a Schedule Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap the content.

4. Tap **Remove Selected Item** in the **Schedule Tasks** list.

5. Tap **Yes**.

Delete a Day Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap **Clear Entire Day**.

4. Tap **Yes**.

Enable or Disable Auto Play

When auto play is enabled, scheduled items play automatically.

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.

2. Tap the forward and backward buttons in the right pane to select a day.

3. Tap **Enabled** in the **Auto Play** pane to enable auto play.

   - or -

4. Tap **Disabled** in the **Auto Play** pane to disable auto play.

Work with Configuration Files

You use configuration files to modify the behavior of third-party software instructions supported by the Christie IMB. Use the procedures in this section to load a modified or default configuration file.

Load a RealD 3D EQ Configuration File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Config Files**.
3. Tap **Load Config File** in the **RealD 3D EQ** area.
4. Select a drive and browse to the location of the config file.
5. Select the configuration file.
6. Tap **Accept**.

Load a Default RealD 3D EQ Configuration File

This procedure overwrites modified RealD 3D EQ configuration files.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Config Files**.
3. Tap **Load Default Config** in the **RealD 3D EQ** area.
4. Tap **Yes**.

Load a Dolby Color Correction Configuration File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Config Files**.
3. Tap **Load Config File** in the **Dolby color correction** area.
4. Select a drive and browse to the location of the configuration file.

5. Select the configuration file.

6. Tap **Accept**.

Load a Default Dolby Color Correction Configuration File

This procedure overwrites modified Dolby Color Correction configuration files.

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Config Files**.

3. Tap **Load Default Config** in the **Dolby color correction** area.

4. Tap **Yes**.

Logs

You can use logs to identify issues with Christie IMB performance. These are the available logs:

- **IMB Interrogator** - Contains the SMS and SM logs and additional information that can assist with resolving issues. This is the log that you send to Christie technical support.

- **Screen Management System (SMS)** - shows the date and time of important events and errors that occurred during SMS operation.

- **Security Manager (SM)** - shows the date and time of events during the security manager operation

- **SM report** - a XML-style report that meets the SMPTE 430-4 and SMPTE 430-5 reporting requirements.

You can download the SMS and SM logs to a USB flash device. You cannot view SM reports on the touch panel controller (TPC) or your internet browser; they must be downloaded to a USB flash device.

Run an IMB Interrogation

The interrogator file contains the Screen Management System (SMS) log file, the Security Manager (SM) log file, and configuration information.

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

   If you do not insert a USB flash drive, the Interrogator.zip log file is saved in the FTP directory.

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **General** > **Settings**.

4. Tap **Run IMB Interrogator**.

5. Tap **Yes**.

Retrieve SMS Logs

1. Tap **Menu** > **Christie IMB** > **Logs**.

2. Select a start date for the log in the **From** list.

3. Select an end date for the log in the **To** list.

4. Select **SMS** in the **Type** list.

5. Tap **Retrieve Logs**.

View Log Detail

1. Tap **Menu** > **Christie IMB** > **Logs**.

2. Select a start date for the log in the **From** list.

3. Select an end date for the log in the **To** list.

4. Select **SMS** or **SM** in the **Type** list.

5. Tap **Retrieve Logs**.

6. Tap a log in the list.

7. Tap **View Details**.

Download an SMS or SM Log

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC)

2. Tap **Menu** > **Christie IMB** > **Logs**.

3. Select a start date for the log in the **From** list.

4. Select an end date for the log in the **To** list.

5. Select **SMS** or **SM** in the **Type** list.

6. Tap **Retrieve Logs**.

7. Tap **Download**.

8. The logs are saved as a compressed file named Cinema Logs.zip. All times displayed in the log are Coordinated Universal Time (UTC).

Download an SM Report

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **Logs**.

3. Select a start date for the log in the **From** list.

4. Select an end date for the log in the **To** list.

5. Select **SM Report** in the **Type** list.

6. Tap **Download**.

Download an SM Report

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **Logs**.

3. Select a start date for the log in the **From** list.

4. Select an end date for the log in the **To** list.

5. Select **SM Report** in the **Type** list.

6. Tap **Download**.

Clear the Log List

Clearing the log list refreshes the screen and does not remove log files from memory.

1. Tap **Menu** > **Christie IMB** > **Logs**.

2. Tap **Clear Logs**.

Backup and Restore

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.

Create a Backup File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Backup/Restore**.
3. Tap **Backup**.
4. Enter a name for the backup file.
5. Tap **Enter**.
6. Tap **OK**.

Download a Backup File

1. Create a backup file. See *Create a Backup File* on page 92.
2. Insert a USB flash drive with a backup file in the USB port on the side of the touch panel controller (TPC).
3. Tap **Menu** > **Christie IMB** > **System**.
4. Tap **General** > **Backup/Restore**.
5. Select a file in the **Restore Files on Server** list.
6. Tap **Download**.
7. Tap **OK**.

Upload a Backup File

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **General** > **Backup/Restore**.

4. Tap **Browse**.

5. Select a drive in the **Drive** list.

6. Select a file in the **Files area**.

7. Tap **Accept**.

8. Tap **Upload**.

Restore Settings from a Backup File

1. Upload a backup file. See *Upload a Backup File* on page 92.

2. Tap **Menu** > **Christie IMB** > **System**.

3. Tap **General** > **Backup/Restore**.

4. Select the backup file in the **Restore Files on Server** list.

5. Tap **Restore**.

6. Select components to restore:

Component	Description
Configuration	All configuration files: • audio settings (including Dolby Atmos) • DiskManager (content storage information for the NAS or DAS devices, including IP addresses, user profiles, and passwords) • multi-projector settings • remote ingest settings
Network	All network settings.
Automation	All automation settings.
Scheduler	All scheduler information.

7. Tap **Yes**.

Delete a Backup File

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **General** > **Backup/Restore**.

3. Select a file in the **Restore Files on Server** list.

4. Tap **Delete**.

5. Tap **Yes**.

6. Tap **OK**.

Troubleshooting

This section provides information and procedures for resolving common issues with the Christie Integrated Media Block (IMB). If you cannot resolve an issue, see the back cover of this document for contact information for your region.

Diagnostic Troubleshooting

Problem	Resolution
How do I download projector diagnostic logs?	1. Insert a USB flash drive in the USB port on the side of the projector touch panel controller (TPC). 2. On the projector TPC, tap **Menu** > **Diagnostics** > **System Logs** or **Menu** > **Diagnostics** > **Interrogator**. 3. Tap **Download to USB**.
How do I download Christie IMB diagnostic logs?	1. Insert a USB flash drive in the USB port on the side projector touch panel controller (TPC). 2. On the projector TPC, tap **Menu** > **Christie IMB** > **System** > **Run IMB Interrogator**. For more information about log files, see *Logs* on page 89.
Does the Christie IMB retrieve log information from the Link Decryptor (LD)?	No. The Christie IMB communicates with the Integrated Cinema Processor (ICP) and not the LD. If a LD and a Christie IMB are installed in the same projector, the external server retrieves LD log information.
How do I download a SM (Security manager) certificate?	See *Download a Certificate* on page 73.

How do I retrieve the Christie IMB device and root certificates?	Download a SM certificate. See *Download a Certificate* on page 73.
	Open the certificate file in a text editor and locate these entries:
	`-----BEGIN CERTIFICATE-----`
	`     <text>        - Certificate #1 (device certificate)`
	`-----END CERTIFICATE-----`
	`-----BEGIN CERTIFICATE-----`
	`     <text>        - Certificate #2 (intermediate certificate)`
	`-----END CERTIFICATE-----`
	`-----BEGIN CERTIFICATE-----`
	`      <text>         - Certificate #3 (intermediate certificate)`
	`-----END CERTIFICATE-----`
	`-----BEGIN CERTIFICATE-----`
	`     <text>        - Certificate #4 (root certificate)`
	`-----END CERTIFICATE-----`
	The first entry is the Christie IMB device certificate and the last entry is the Christie IMB root certificate.
	To extract the certificate, copy the entire BEGIN CERTIFICATE and END CERTIFICATE entry and all of the dashes.

Ingest Troubleshooting

Problem	Resolution
What file formats are supported by the Christie IMB?	Ingest drives can contain Microsoft Windows (FAT, FAT-32, NTFS) or Linux (ext3, ext4) file systems.

Problem	Resolution
Why does my content not appear on the Content screen after it is ingested?	Verify there is enough room for the content on the storage device: Tap **Menu** > **Christie IMB** > **Content**. The graphic at the top of the screen indicates the amount of storage space available on the storage device: 0 Bytes used of 0 Bytes Total A status alarm appears when only 10% of the available storage space remains on the storage device.
Why has it taken more than 10 hours to ingest my content?	• Review the SMS logs for this error message: `Ingest Error java.io.FileNotFoundException: /media/ ingest_4001/ wav_taken2_en_51hivi_0911_mpaa_24fps_enc_02718f9d-cbb7- 45a9-87e5-8d2b569ae7ce_audio.mxf (Input/output error)` Occasionally, the ingested content does not appear on the Ingestible Content screen when the hard drive is connected to the Christie IMB ingest port. Replace the USB cable and the hard drive cradle. • When content is loaded or a movie is playing, the Christie IMB slows ingest speed to make sure playback is not interrupted. To prevent a long ingest, make sure there is no content loaded when you start an ingest.
Why did my theatre management system (TMS) fail to transfer content overnight?	If the projector enters standby mode or it is turned off, the Christie IMB cannot ingest content. On Solaria One and Solaria One$^+$ projectors, you can keep the Christie IMB turned on when the projector enters standby mode and the cooling fans are off: 1. Tap **Menu** > **Administrator Setup** > **Preferences**. 2. Select the **IMB Powered in Standby Mode** check box.
How does the remote ingest process work?	The remote ingest process transfers content from a remote server to the Christie IMB using the file transfer protocol (FTP). A remote ingest can only be initiated by a Christie IMB or theatre management system (TMS) using the Christie IMB application programming interface (API). You cannot access the FTP server directly to ingest content.
What Ethernet ports can I use to remotely ingest content?	See *Ingest Remote Content from a Network IMB* on page 39.

Problem	Resolution
What methodologies are available to ingest Digital Cinema Packages (DCP)?	You can ingest packages by packing list (PKL) or as composition play list (CPL). If you are using the projector touch controller (TPC) to manage the ingest, you can only ingest by PKL. Use the web interface to ingest by CPL or PKL.
	By default, the Christie IMB loads DCP packages by PKL. The PKL includes only the files for the current DCP. A version file (VF) DCP is typically a set of supplemental files such as sound settings or additional languages. The VF is dependent on the files contained in the original version (OV) DCP. If you ingest a VF DCP by PKL, and did not previously ingested the OV DCP, there might be missing assets and a Missing Assets error message might appear when you attempt to load the content.
	To ingest CPL files with the web interface:
	1. Open an internet browser.
	2. Enter the IP address of the Christie IMB in the address field. Press **Enter**.
	3. Click **Login**.
	4. Click the **Content** tab.
	5. Click the black arrow icon to the left of a PKL file. A list the CPL files associated with the PKL appears.
	6. Select a CPL file and click **Ingest**.
When ingesting content remotely, what is the user name and password for the Christie IMB?	See *Ingest Remote Content from a Network IMB* on page 39.
Why is my hard drive not detected when I ingest content?	The file system might be corrupted. To resolve a corruption issue, connect the device containing the
	content you want to ingest to a personal computer (PC) and run a file system check.
	Ingest drives can contain Microsoft Windows (FAT, NTFS) or Linux (ext3, ext4) file systems.

Key Delivery Message (KDM) Key Troubleshooting

Problem	Resolution
How do I upload a KDM key?	Insert the USB thumb drive with the KDM key into the Ingest port on the Christie IMB. You cannot use the USB port on the projector TPC to upload KDM keys.
	See *Ingest Content and the KDM Key* on page 39.
If a KDM expires during playback, does playback stop?	No.
	When a play list is loaded, the Christie IMB verifies that all of the content in the play list can be played within the time allowed by the KDM. In addition, the DCI specification grace period allows playback to continue for up to 6 hours past the KDM expiry as long as playback was initiated before the KDM expired.
Why were my KDM keys removed 30 minutes after they were ingested?	Download and install Christie IMB-S2 Main Software version 1.5.0 or later.
How can encrypted content play without a valid KDM key appearing on the **Keys** tab on the projector TPC?	KDM keys are stored in two locations. KDM keys used to unlock content are stored in the security manager (SM). KDM keys listed on the **Keys** tab are stored in the screen management system (SMS). The two systems can become unsynchronized and the KDM keys can exist on the SM but not the SMS (they do not appear on the **Keys** tab). This issue can occur when a NAS device or the Christie IMB is moved to another projector. Ingest the KDM keys again so they appear in the **Keys** tab.
How do I use the web interface to load KDM keys?	1. Add the computer with the KDM key to the same subnet as the Christie IMB-S2.
	2. Open an internet browser.
	3. Enter the IP address of the Christie IMB in the address field. Press **Enter**.
	4. Click **Login**.
	5. Enter your user name and password and then click **Log In**.
	6. Click the **Content** tab.
	7. Click the **Keys** tab.
	8. Click **Load Keys**.
	9. Browse to the location of the KDM key, select it, and then click **Open**.

License Troubleshooting

Problem	Resolution
What optional features require a license?	See *Licensing* on page 10.
How do I upload a license key?	See *Upload a License Key* on page 12.
How do I obtain a Dolby 3D Color Correction license?	See *Dolby 3D Color Correction Licensing* on page 11.

Problem	Resolution
How do I apply Dolby color calibration?	See the *Christie IMB Dolby Color Calibration* instruction sheet (020-100921-01). This document is included in the Dolby calibration software package available from Dolby laboratories.
How do I obtain a RealD 3D EQ license?	See *RealD 3D EQ Licensing* on page 11.
Where is the Electronic Serial Number (eSN) for my Christie IMB?	See *Identify the Christie IMB Electronic Serial Number* on page 11.

Network-attached Storage Troubleshooting

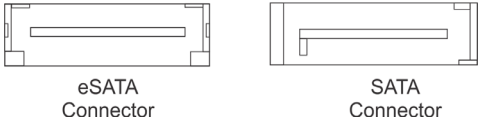| Problem	Resolution
How do I test the performance of my NAS device?	See *Test NAS Performance* on page 31.
How do I configure the NFS service for my Network Attached Storage (NAS) device?	See *Connect the Projector to Network-attached Storage* on page 8.
Why do I receive buffer underrun errors when playing content from a QNAP NAS?	This error can occur when there is more than 30 minutes between shows and the hard disk standby feature is enabled on the QNAP NAS. When the QNAP NAS is in standby mode, it can take 5 to 10 seconds for it to respond. To turn hard disk standby off: 1. Log in to the QNAP NAS management screen. The default password and user name are **admin**. 2. Expand **System Administration**. 3. Click **Hardware** in the left pane. 4. Clear the **Enable hard disk standby mode...** check box in the right pane. 5. Scroll to the bottom of the screen and click **Apply**.
Why is content replication failing? The `ReplicationToSlaves:unable to get disk information from primary content drive` error message appears in the screen management system (SMS) logs.	You have not specified the correct user name and password for the Christie NAS-S2 storage device. On the projector TPC, tap **Menu** > **Christie IMB** > **System** > **Storage** and make sure the user name and password are correct.

Playback Troubleshooting

Problem	Resolution
How do I play MPEG-2 content?	To play MPEG-2 content, this software must be installed on the projector: • Christie IMB-S2 Main Software v1.2 or later. • Solaria One Main Software v4.0.1 or later on Solaria One and Solaria One+ projectors. • Solaria Main Software v3.1.1 or later on all other Christie series 2 projectors. See *Play MPEG-2 Content* on page 35.
How do I configure my audio settings?	See *Manage Audio Settings* on page 71.
If the lamp turns off unexpectedly, does playback stop?	Yes. If the lamp goes out, the Christie IMB pauses playback. As soon as the lamp is turned on, you can resume playback from where it was paused.
How do I play high frame rate (HFR) content?	• A HFR license is required to play HFR content. Verify the license is installed. • ICP version 4.0 or later is required to play HFR content on Christie 4K projectors. Solaria software version 3.1.0(3) and later includes the ICP software and firmware necessary to display HFR content. Download the latest Solaria software from the Christie web site.
After updating my Christie projector software to version 3.1.1 my 3D images are inverted. Applying the 3D settings on the **Channel** tab temporarily corrects the problem. How do I permanently correct the inverted 3D images?	See information bulletin *020-200201-01 Christie IMB-S2 Default 3D Setting Files* on the Christie web site for corrective procedures for this issue.
Why do flashes appear on the screen during playback? Turning the projector or Christie IMB on and off does not correct the issue	• Make sure the Christie IMB is firmly inserted into the IMB slot in the projector card cage. If it appears loose, remove it, re-seat it, and make sure it is securely locked in position. • Test your NAS device to determine if it can maintain the required bandwidth to stream content to the Christie IMB. For instructions on testing communication speed, see the documentation for your NAS device. • Change the file system protocol on the NAS device to Network File System (NFS). • Verify that the NAS device is connected directly to the Christie IMB NAS port. • Verify that no other devices are connected to the Christie IMB NAS port.
How do I create a black time delay between clips in a play list?	See *Create and Add a Black Delay to a Play List* on page 80.
If I create a macro and select **Disable Subtitles** in the **Activity Type** list, is this setting applied to all content?	No. The subtitles are only disabled if the macro is added to a play list. See *Available Macro Actions* on page 47.
I have a Christie Duo or a Christie Quattro setup. Why is one of the projectors not showing an image?	The Sync Out/Gen Lock cable might be loose or damaged. Make sure the cable is secure and replace damaged cables.

Problem	Resolution
How do I present a single projector presentation with a dual projector configuration?	• Turn the lamp off on one of the projectors. • Run the content on the slave projector. If you select this option, all audio and automation controls must be moved to the slave projector.
On a dual projector configuration, how do I correct image flashing and synchronization issues on the slave projector?	The slave projector is not receiving a correct synchronization signal from the master Christie IMB. • Remove all 90 degree adapters on the synchronization cable. • Replace the RG-6 cable.
How do I play 24 and 48 fps content located in the same play list?	The Christie IMB automatically transitions between 2D and 3D content, different frame rates, and resolutions. To automatically transition from one flash rate to another, you must create 3D files on the projector. To create and edit 3D files, you must have Solaria Main Software version 4.0 or higher installed on the projector. If you do not have Solaria Main Software version 4.0 installed, contact Christie support and request the Playing HFR Content on the Christie IMB instruction sheet and software patch.
How do I play 3D content at frame rates higher than 30 frames per second (FPS) per eye?	A Christie Previsto HFR license is required to play high frame rate 3D content. To determine if you have a Christie Previsto HFR license, tap **Christie IMB** > **System** > **Licenses**. If you have a Christie Previsto HFR license, it appears in the licenses list. To purchase a Christie Previsto HFR license, see *Upload a License Key* on page 12.
Why does my content appear vertically or horizontally compressed?	When you play 3D content on a 2D channel, the projector displays the left and right images as a single, tall image. The images are played as line interleaved and this results in an interleaved image that is twice as tall as an ordinary image. The integrated cinema processor (ICP) scales the image to fit on the digital micromirror device (DMD) and the result is an image with blank space at the sides of the screen: When you play 2D content on a 3D channel, the projector attempts to extract left and right images from a single, 2D frame. The images are played as line interleaved with half the lines allocated to the left eye and half the lines allocated to the right eye. The projector displays only a single eye with half the number of lines and the result is an image with blank space at the top and bottom of the screen: If you want to play 2D and 3D content in the same play list, play the content with a 3D channel. The Christie IMB frame doubles the 2D image to generate left and right eye frames

Set Up and Connection Troubleshooting

Problem	Resolution
How do I remotely connect to the projector?	Open an internet browser and then enter the IP address for the projector in the address field. Add **:5800** to the end of the IP address. For example, 192.168.1.2:5800.
	If you are using Internet Explorer version 8 or older, add a forward slash after the port number. For example, 192.168.1.2:5800/.
How do I connect to the web interface for the Christie IMB?	Open an internet browser and then enter the IP address for the projector in the address field. For example, 192.168.1.2.
	To use the web interface, you must have Microsoft Silverlight installed and the computer must be on the same network as the projector in which the Christie IMB is installed.
How do I control the projector with Virtual Network Computing (VNC)?	Download and install a VNC client such as TinyVNC. Set the remote host of the VNC viewer to the IP address of the projector.
When setting up my Christie IMB, what are the IP address and subnet considerations?	See *IP and Subnet Considerations* on page 5.
I cannot access the TPC. How do I access the web interface and what is the user name and password?	1. Press the Emergency Start button on the PIB faceplate.
	2. Connect one end of an Ethernet cable to a computer and the other end to the PIB Ethernet port.
	3. Open an internet browser and then enter the projector IP address in the address field. Press **Enter**.
	4. Click **Login**.
	5. In the user name field, enter **EmergencyUser** and in the password field, enter **cdsclub**.
	6. Click **Log In**.
Why are the **Control**, **System**, and **About** menus the only menus that appear on projector touch panel controller (TPC)?	• If the IP address for the NAS device is incorrect, a network conflict occurs and the Christie IMB cannot to communicate with the TPC and verify the log in credentials. To correct this issue:
	• Disconnect the Ethernet cable connecting the NAS device to the Christie IMB.
	• On the TPC, tap **Menu** > **Christie IMB** > **IMB Network**.
	• Correct the IP address and then tap **Save**.
	• Reconnect the Ethernet cable.
	• This issue can also occur when you log in to the projector and it is in standby mode and then you move the Christie IMB to full power mode. To see all of the Christie IMB menus, log out and then log in again.

Problem	Resolution
What are the benefits of using the eSATA port to ingest content?	Using the eSATA port to ingest content is faster than using the USB port. However, you might need to restart the Christie IMB so the data on the eSATA hard drive is recognized. Typically, ingest drives provided by distributors have a SATA connection. The Christie IMB ingest port uses an eSATA connection. eSATA Connector SATA Connector To connect a device with a SATA connection to the Christie IMB requires eSATA-to-SATA cable.
Why are the new features not appearing on the web interface after I have updated my Christie IMB software?	Refresh or restart your internet browser after an upgrade to view new features.
Why am I unable to marry a Christie IMB and a Link Decryptor at the same time?	This feature is not supported by backplanes that are version 3.2.1 or older. To determine your backplane version, run a projector interrogation and look in the interrogaTemp.txt file for the BackplaneInfo entry. To use the Link Decryptor on a newer backplane, select the **Link Decrypter** check box on the Config 2 Channel Setup screen.
I enabled RealD 3D EQ or Dolby color correction. Why does the **Value** column for these features on the System screen indicate FALSE?	If you added a license file to enable RealD 3D EQ or Dolby color correction, the feature will be active when you next play content even if the **Value** column indicates FALSE. Restart the Christie IMB to update the information in the **Value** column.
I cannot complete IMB marriage	Verify: • The marriage ring is locked. • The security door is on and it is locked. • **Christie** is selected in the **IMB Installed** list. Tap **Menu** > **Administrator Setup** > **Content Devices Configuration**. Unload all content: 1. Tap **Menu** > **Christie IMB** > **Control**. 2. Tap the **Unlock** icon. 3. Tap **Unload Content**.
How are macros, input cues, and global triggers different?	See *Manage Automation* on page 46.
How I do I install and configure dual projectors?	See *Configure Multiple Projectors* on page 9. You do not need to change any settings on the slave projector to enable dual projector playback. If you cannot display content: • Remove all 90 degree adapters from the BNC synchronization cable. • Make sure you have ingested identical content into both projectors and each projector has a valid KDM key.

Problem	Resolution
Why do I receive a communication error when I start the projector?	When the Christie IMB first starts, it runs diagnostic tests on all components. This diagnostic process can delay communication with the Christie IMB. Restart the Christie IMB if communication is not available after two minutes. If a restart fails to restore communication, contact support. See the back cover of this document for contact information for your region.
Why is the Christie IMB option not appearing in the touch panel controller menu?	The Christie IMB plug-in has not been downloaded or the projector has not been restarted after the download. The Christie IMB plug-in is downloaded automatically when you install the Christie IMB. However, it can take several minutes to complete. Restart the projector when the Christie IMB plug-in is downloaded and the **Christie IMB Plug-in Updated - Reboot?** dialog appears.
Why does my INTEG JNIOR device not recognize my commands?	Make sure you are using \0D for a carriage return and \0A for a line feed.

Specifications

This section provides detailed specifications for the Christie Integrated Media Block (IMB).

Regulatory

This product conforms to the following regulations related to product safety, environmental requirements and electromagnetic compatibility (EMC):

Safety

- CAN/CSA C22.2 No. 60950-1-07 2nd Edition
- UL 60950-1, 2nd Edition
- IEC 60950-1
- EN60950:2006+A11:2009

Electro-Magnetic Compatibility

Emissions

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

Immunity

- CISPR 24: 1997 (Modified) +A1:2001+A2:2002 / EN55024: 1998 +A1:2001 +A2:2003 EMC Requirements - Information Technology Equipment

Environmental

- EU Directive (2002/95/EC) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s)
- EU Directive (2002/96/EC) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s)
- Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and its amendments.

- China Ministry of Information Industry Order No.39 (02/2006) on the control of pollution caused by electronic information products, hazardous substances concentration limits (SJ/T11363-2006), and the applicable product marking requirements (SJ/T11364-2006)

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) web site (*http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2013.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.

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 not installed within a year, the battery can fail and you must return the Christie IMB to Christie Digital. To allow the Christie IMB to remain out of a projector beyond a year, 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.

SMPTE Compatible Cinema Formats - 2D Video (JPEG2000)

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).

Only the Christie IMB with the 4K upgrade supports the 4096 x 2160 resolution.

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)

Specification	Resolution	Frame Rate	Bit Depth	Color Format
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)

SMPTE 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)

To support 3D playback the projector must be in line interleave mode. To display 3D content at frame rates above 24.0, you must use a Christie IMB with the high frame rate upgrade.

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

Resolution	Frame Rate	Format	Bit Depth	Chroma Format
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 and DAS Devices

This table lists the network-attached storage (NAS) or direct attached storage (DAS) devices that are compatible with the Christie IMB. Christie does not support or endorse any of the listed devices.

Device	Manufacturer	Manufacturer Part Number
NAS	QNAP	TS-559 Pro+
NAS	Cisco	NSS 324
NAS	Iomega StorCenter	
NAS	Netgear Ready NAS 2100	
DAS	Areca	ARC-5040

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	DIR	Description
1	Ch 15 & 16 plus	O	
2	GND		Ground
3	Ch 13 & 14 minus	O	
4	Ch 11 & 12 plus	O	
5	GND		Ground
6	Ch 9 & 10 minus	O	
7	Ch 7 & 8 plus	O	
8	GND		Ground
9	Ch 5 & 6 minus	O	
10	Ch 3 & 4 plus	O	
11	GND		Ground
12	Ch 1 & 2 minus	O	
13	nc		No Connect
14	Ch 15 & 16 minus	O	
15	Ch 13 & 14 plus	O	
16	GND		Ground
17	Ch 11 & 12 minus	O	
18	Ch 9 & 10 plus	O	
19	GND		Ground
20	Ch 7 & 8 minus	O	
21	Ch 5 & 6 plus	O	
22	GND		Ground
23	Ch 3 & 4 minus	O	
24	Ch 1 & 2 plus	O	
25	GND		Ground

Control Signal Compatibility

Ethernet Port

Interface: 10-Base-T/100-Base-T/1000-Base-T

Connector: Female RJ-45

Bit Rate: 1000 Mbps

eSATA

Interface: SATA revision 2.0

Connector: eSATA

Bit Rate: 3.0 Gbps

USB 1 Port

Interface: Universal Serial Bus 2.0

Connector: USB Device Standard Sizes (Series "A")

Maximum Bit Rate: 480 Mbps

AES3 Audio Output

Interface: AES3 Digital Audio

Connector: 25-pin subminiature D, female

Pin-Out: Conforms to SMPTE / TASCAM pinout. For AES3 PIN mapping, see *AES3 Port PIN Map* on page 109.

Power Requirements

DC Power Supply: +12.0 VDC

Voltage Tolerance: /- 5%

Current (Max): 6.25 A

Connector: Series 2-compatible backplane, PCI Express (x16) card edge connection

Physical Specifications

Overall 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)

Environment

Operating Environment

Temperature: 0°C to 35°C (32°F to 95°F)

Humidity (non-condensing): 20% to 80%

Altitude: 0 - 3000 meters

Maximum ambient temperature: 35°C

Non-Operating Environment

Temperature: 20°C to 65°C (68°F to 149°F)

Humidity (non-condensing): 0% to 95%

Terminology

Term	Description
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 IMB or cinema server.
DHCP	Dynamic Host Configuration Protocol
	A network protocol that configures network devices so that they can communicate on an IP network.
ICP	Integrated Cinema Processor
IMB	Integrated Media Block
	The Christie IMB is a printed circuit board that is installed in the projector card cage. The Christie IMB is connected to an external storage device and its role is to decrypt encrypted content stored on the external storage device.
KDM	Key Delivery Message
	A digital decryption key used by the Christie IMB to decrypt encrypted content.
NAS	Network-attached storage
	Computer data storage connected to a computer network.
LMS	Library Management System
NFS	Network File System
	A distributed file system protocol.
OV	Original Version
	The original version of a feature distributed by a studio.
PIB	Projector intelligence board
PKL	Packing List File
	A file that specifies the contents of a Digital Cinema Package (DCP).
SM	Security manager
SMS	Screen management system
TMS	Theatre Management System

Term	Description
TPC	Touch panel controller
	A touch-sensitive screen used to control the projector.
VF	Version File
	A supplemental version of a feature that enhances a previously released Original Version (OV). This can include enhanced sound and alternative language files. The VF can also include corrections to issues in the OV file.

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