



Technology Leadership
for Digital Cinema

CaptiView Closed Caption System and Rear Window Display

User Manual

Version 2.1draft

*The English version of this document is the only legally binding version.
Translated versions are not legally binding and are for convenience only.*

Table of Contents

1	<i>Introduction</i>	5
1.1	Purpose	5
1.2	System Requirements	5
1.3	Parts List	5
1.4	Contact	7
2	<i>CaptiView Installation Procedure</i>	9
2.1	Introduction.....	9
2.2	How to Set Up the CaptiView System on a Doremi Cinema Server	10
2.2.1	Installing the License	10
2.2.2	CaptiView Configuration	12
2.2.3	Operating the CaptiView Display.....	13
2.2.4	Charging the CaptiView	15
3	<i>Rear Window Caption Configuration on Doremi Cinema Server</i>	18
4	<i>Appendix A: SB430-10 Set Up Instructions</i>	20
4.1	SMPTE 430-10 Protocol Set Up Via Ethernet Port.....	21
4.1.1	Configuring the IP Address for the AccessLink or CaptiLink	21
4.1.2	Adding the IP Address of a Digital Cinema Server to the AccessLink or CaptiLink ..	21
4.2	SMPTE 430-10 Protocol Set Up Via Serial Port.....	22
4.2.1	Configuring the IP Address for AccessLink or CaptiLink.....	22
4.2.2	Adding the IP Address of a Digital Cinema Server to the AccessLink or CaptiLink ..	22
4.3	Upgrading the SB430-10 Software	23
4.3.1	FTP Client.....	23
4.3.2	USB Flash Update	23
4.4	Changing the Auditorium on the SB430-10	23
5	<i>Acronyms</i>	25
6	<i>Document Revision History</i>	27

FCC Warning - CaptiView Transmitter and Display

- Be aware that any change or modification not expressly approved by Doremi Labs could void the user's authority to operate the equipment.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.

IC Statement – CaptiView Transmitter and Display

- This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

- Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

1 Introduction

1.1 Purpose

This manual explains how to set up the Doremi Cinema Server in order to display Closed Caption using the Doremi CaptiView device. This document also explains how to set up a Doremi Cinema Server in order to display the Closed Caption using the Rear Window device with Serial or Ethernet Communication. In Appendix A, there is more information on how to set up the SB430-10, which is a device that allows non-Doremi Digital Cinema Servers to interface with the CaptiView device.

1.2 System Requirements

This manual is for operating the CaptiView device software versions 2.0.0 and higher. The Rear Window device can be used on any software versions. The SB430-10 device can be used on various software versions, which depend on the provisions of the digital server. For earlier software versions, please see earlier revisions of this document.

1.3 Parts List

Parts	Part Numbers	Description
CaptiView Software	ACC-DCP	Play out software for the hearing impaired and visually impaired. Controls Doremi CaptiView, WGBH and other personal devices. Includes USB transmitter.
CaptiView Transmitter	CPTVW-Tx	USB CaptiView transmitter for use with Doremi servers.
CaptiView Display	CPTVW-DCP	Doremi CaptiView Closed Caption viewing device. Includes display device and rubber mount for use in cup holder (Figure 1).
	CPTVW-DCP-CLAMP	Doremi CaptiView Closed Caption viewing device. Includes display device and clamp mount for use on seat arm (Figure 2).
CaptiCart	CPTVW-CART	CaptiView display storage and charging station. Rolling cart which holds and charges 8 CaptiView displays. Assembly required.

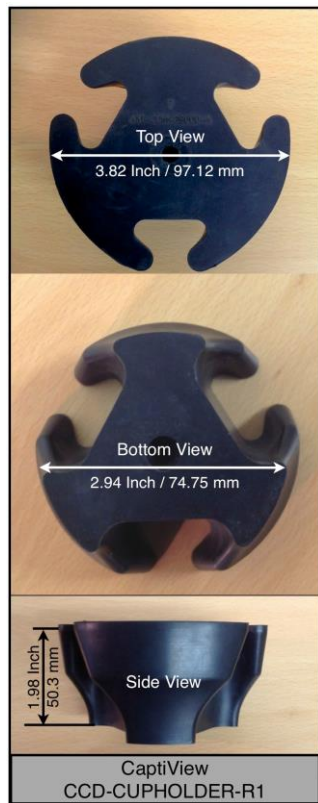


Figure 1: CaptiView Cupholder

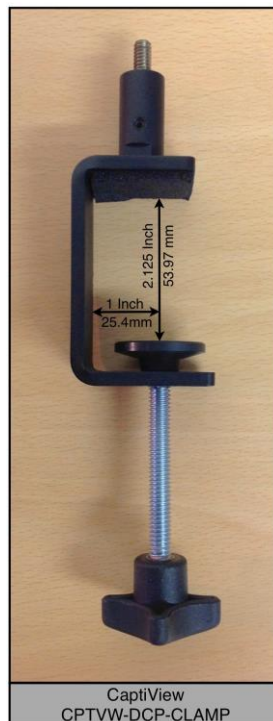


Figure 2: CaptiView Clamp

1.4 Contact

If in need of help or assistance, please contact Doremi Labs Technical Services:

USA

24/7 Technical Services line: + **1-866-484-4004**

Technical Services Email: cinemasupport@doremilabs.com

Europe

24/7 Technical Services line: + **33 (0) 492-952-847**

Technical Services Link: <http://support.doremitechno.org/ticketing>

Japan

Technical Services line: + **044-966-4855**

Technical Services Email: support@doremilabs.co.jp

Australia ~ China ~ India ~ Indonesia ~ Korea ~ Malaysia ~ New Zealand ~ Philippines ~ Singapore ~ Taiwan ~ Thailand

Technical Services Email: supportasia@doremilabs.com

This page has been intentionally left blank.

2 CaptiView Installation Procedure

2.1 Introduction

The CaptiView is an in-theater closed caption viewing system for the hearing impaired.

The system is composed of three key elements: CaptiView license, CaptiView display, and Captiview transmitter.

The Display Screen is 31 x 3 lines for a total of 93 characters.



Figure 3: CaptiView Display

- CaptiView Display is a portable LCD screen attached to a flexible arm that fits in any standard cup holder on a theater seat (Figure 3).



Figure 4: CaptiView Transmitter

- CaptiView Transmitter is a custom encrypted wireless dongle that is plugged into a USB port on a Doremi Cinema Server or into the Doremi Fidelio and AccessLink products (Figure 4).

Warning: DO NOT flip the switch on the Doremi Cinema side of the transmitter (Figure 4). This will delete the firmware and lead to the device becoming inoperable.

2.2 How to Set Up the CaptiView System on a Doremi Cinema Server

2.2.1 Installing the License

The CaptiView license is required to enable a Doremi Cinema Server to playback the Closed Caption data contained in the Digital Cinema Package (DCP). The license needs to be installed before setting up the CaptiView system. Contact your local Doremi support team to receive the Closed Caption license (Section 0).

- Insert the USB drive that contains the Closed Caption license update into the unit.
- The Ingest Manager GUI window will appear (Figure 5).
- Select the file that contains the CaptiView license and then click on the Ingest button (Figure 5).
- Reboot the server to complete the ingest process.

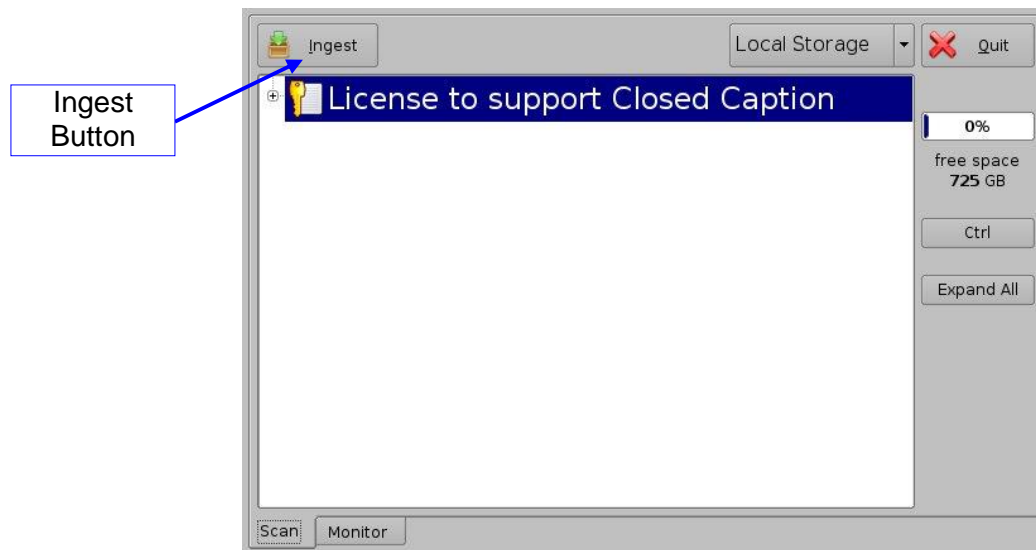


Figure 5: Ingest Window

- Once the ingest is complete, check the license information by going to **Menu → Control Panel → License Manager**.
- Follow the steps below for configuring the CaptiView System to finalize the set up process:

Note: Doremi Cinema Servers (DCP-2000, DCP-2K4, or ShowVault) must have software 2.0.0-0 or higher to support the CaptiView. It is recommended to test the CaptiView system to ensure that it operates correctly before using it in a live theater.

- Plug the CaptiView transmitter dongle into a Doremi Digital Cinema Server USB port only.
- Go to Menu and then click Control Panel.
- Select and open the Device Manager icon (Figure 6).

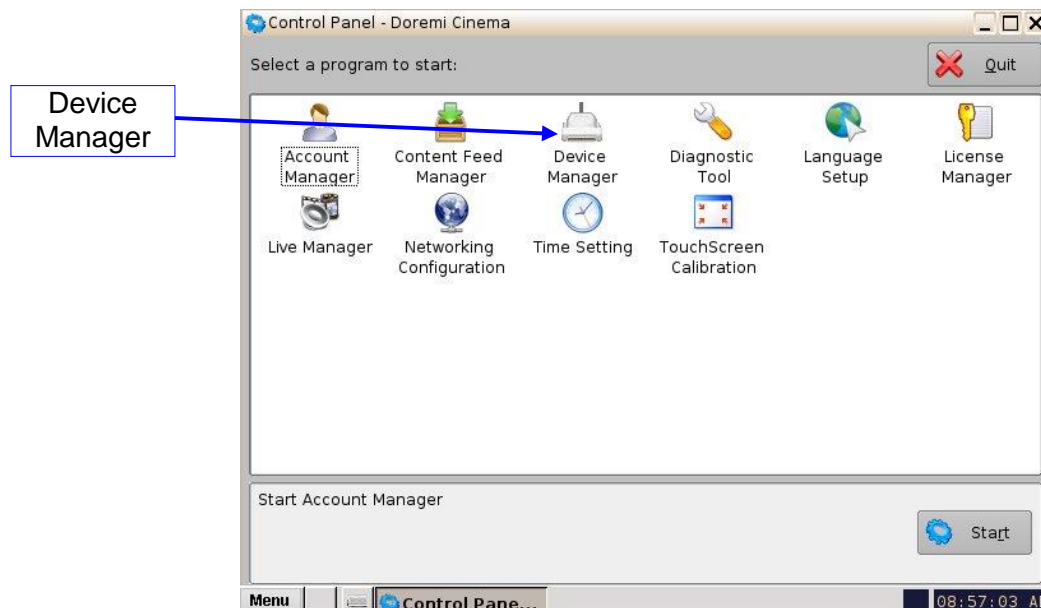


Figure 6: Control Panel Window

- From the Device Manager window, click on the Add button.
- The Add Device window will appear.
- Select the Closed Caption device.

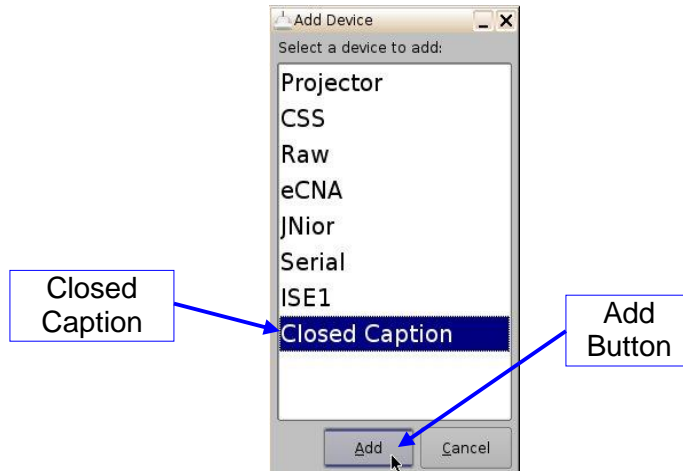


Figure 7: List of Devices - Closed Caption Example

- Click the Add button (Figure 7).
- The user will now be back to the Device Manager GUI to finish configuring the device.

2.2.2 CaptiView Configuration

To finish configuring the device, complete the fields in the Closed Caption Configuration window (Figure 8).

- Check the Enabled box to enable this feature.
- It is recommended to leave the default settings as they are, except for the Auditorium field.
- In the Auditorium field, choose any channel other than 0. For example, choose 1, 2, 3, etc., but do not leave the channel set at 0. The number, once saved, will be saved to the USB transmitter which then must be power-cycled by unplugging and then re-plugging the transmitter. This applies to software versions 2.0.10 and higher.

Note: To change the current auditorium number while using software versions 2.07 or below, contact Doremi Technical Support to receive a hot fix. In software version 2.0.10 and higher, the user can change the auditorium setting from the Device Manager GUI.

- Define the Play Offset, Idle Text, and Idle Time.
 - Play Offset: This feature offsets the Closed Captioning data in the form of milliseconds.
 - Idle Text: The default text that is shown on the display.
 - Idle Time: The time it takes for default Idle Text to appear after loss of input.
- Click the Save button.

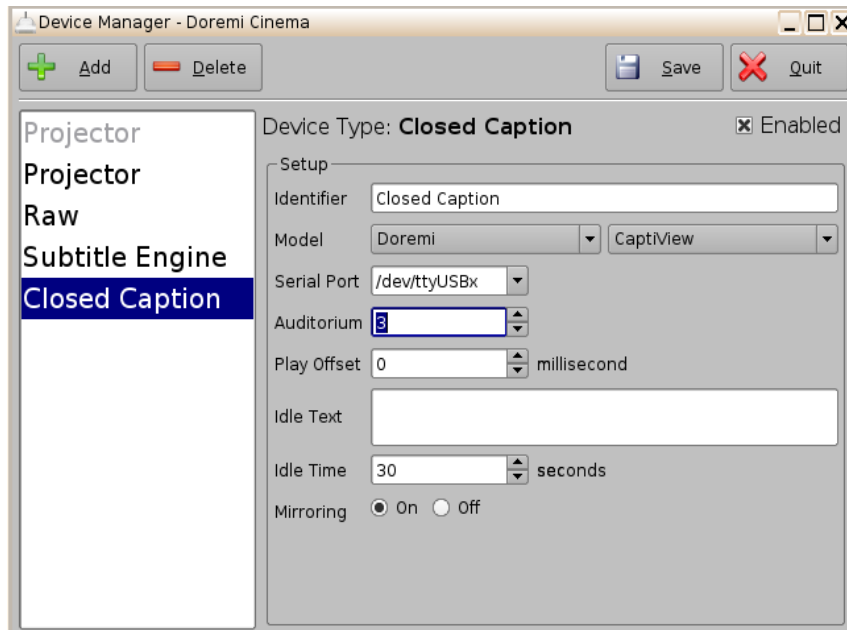


Figure 8: Closed Caption Configuration Window

2.2.3 Operating the CaptiView Display

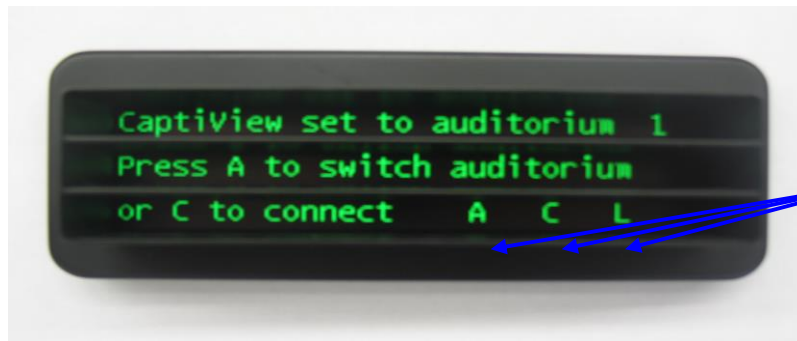
- To turn the CaptiView Display on, locate the small switch on the right side of the device and set it to the left (Figure 9).



On/Off Switch which goes left and right - turn the device on by moving the switch to the left

Figure 9: CaptiView Display On/Off Switch

- When the CaptiView Display is on, it will read, “CaptiView set to auditorium 1, Press A to switch auditorium or C to connect A C L” (Figure 10).



The letters A,C, and L correspond to the three buttons on the device

Figure 10: CaptiView Display Start-Up Message



Figure 11: CaptiView Display Button View

- The letters A, C, and L represent the three buttons that are on the bottom of the CaptiView device (Figure 11).
 - A stands for Auditorium and is the first button from the left.
 - C stands for Connect and is the second or middle button.
 - L stands for Language, a feature that will be included in a future release, and is the third or last button from the left.
- Press the A button repeatedly until the desired auditorium number appears.
- The CaptiView display must be set to the same auditorium number as the CaptiView transmitter in order to establish a connection.
- Press the C button to connect to the Auditorium.
- A message saying, “Connecting to Auditorium #” will appear (Figure 12):



Figure 12: Connection Message

Note: If the CaptiView Display is being charged while it is on, it will show as charging even when it is not charging anymore, until the device is turned off and on again. The charge time will take approximately 2 hours to complete and will last for 24 hours of playing time.

- Once the CaptiView system is connected, play a Digital Cinema Package (DCP) with closed captioning to check if it is working properly.

Note: In the event that the Digital Cinema Server does not detect the CaptiView Transmitter, follow the steps below:

- Shut off the server. Do not reboot or log off.
- Remove all USB devices.
- Power the server back on.
- Plug the CaptiView Transmitter in and the server should detect it.

2.2.4 Charging the CaptiView

To charge the CaptiView, connect the charging cable to the receptacle (Figure 13).

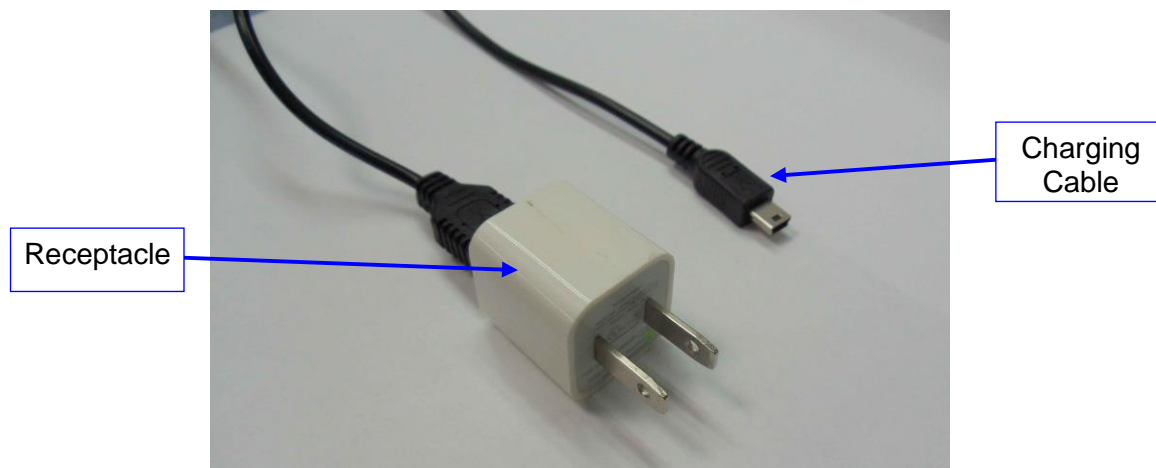


Figure 13: Charging Cable and Receptacle

- Connect the mini USB end into the charging port on the CaptiView (Figure 14). Connect

the other end to a wall outlet.

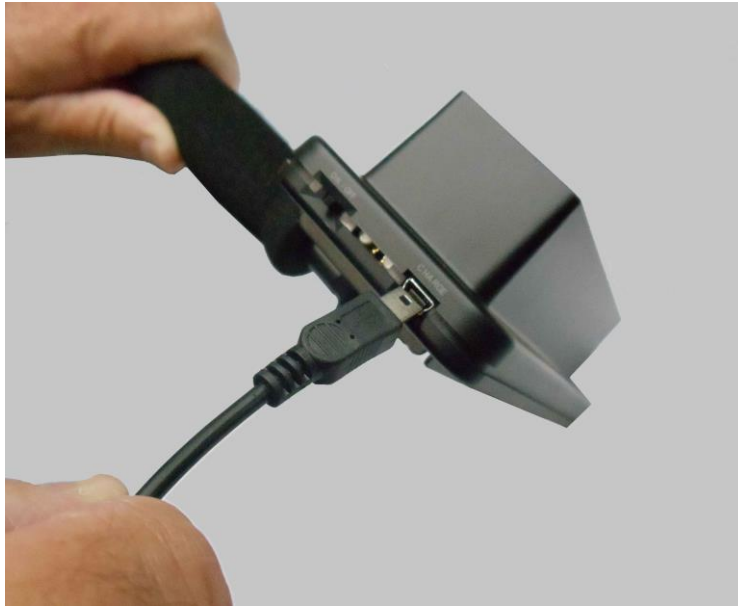


Figure 14: Charging Port

- When the device is in the On position (Figure 9), the screen will indicate that the device is charging (Figure 15). When it is in the Off position, the screen will not be visible but it will continue to charge. After about two hours, the device will be fully charged.



Figure 15: Charging Screen

This page has been intentionally left blank.

3 Rear Window Caption Configuration on Doremi Cinema Server

- To perform this set up, make sure the license is installed on the server and Closed Caption is enabled. See steps above to install the license and enable the Closed Caption.
- Open the Device Manager.
- Select the Closed Caption device and check the enable box on the top right (Figure 16).
- In the Model field, click in the drop-down menu and select Wgbh (Figure 16).
- The second drop-down menu in the Model field will change to RWC automatically (Figure 16).
- The Serial Port field drop-down menu will change to “/dev/ttyS0” automatically (Figure 16).

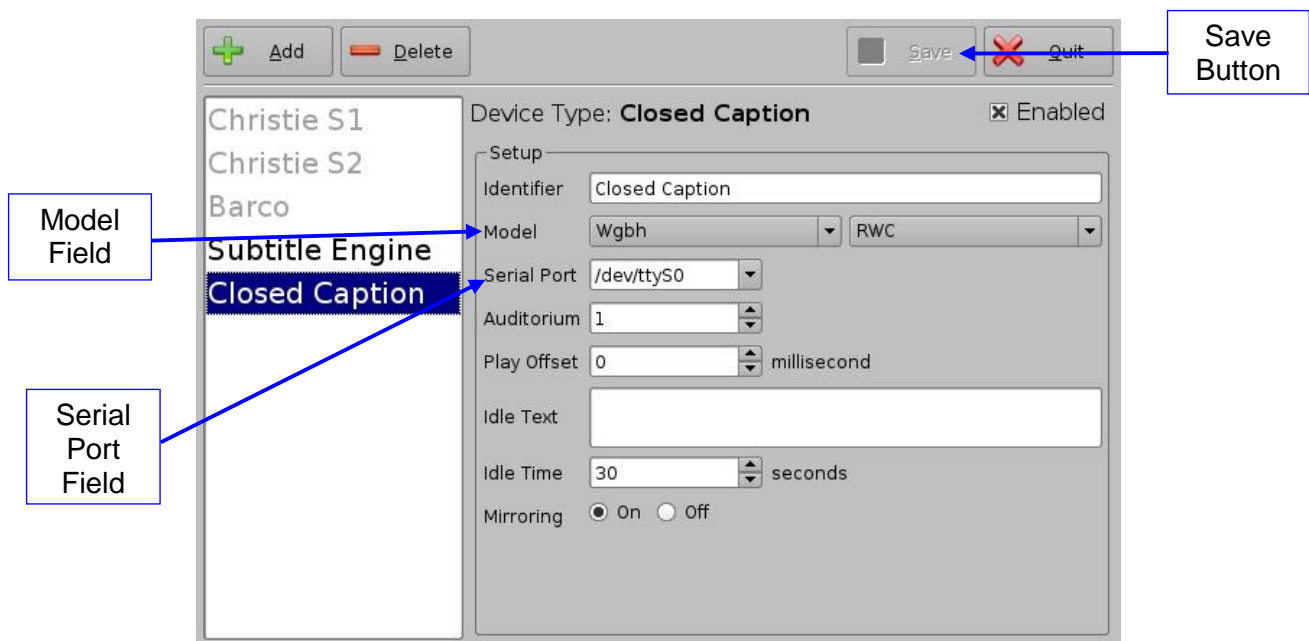


Figure 16: Rear Window Caption Configuration Example

Click the Save button when finished to save the configuration (Figure 16).

This page has been intentionally left blank.

4 Appendix A: SB430-10 Set Up Instructions

Doremi provides two hardware solutions, the AccessLink and CaptiLink, to use the CaptiView system on Non Doremi cinema servers. Both of these products utilize the SMPTE430-10 protocol. There are two ways to set up these devices via the SMPTE430-10 protocol. The Ethernet port is the primary way to set up the device. The secondary way is to use the serial port, which is a backup mechanism if the Ethernet port fails or does not work properly (Figure 17 and Figure 18).



Figure 17: AccessLink



Figure 18: CaptiLink

4.1 **SMPTE 430-10 Protocol Set Up Via Ethernet Port**

- Remove either the AccessLink or CaptiLink from packing and begin to set up near a power outlet and computer that has a free Ethernet port.
- The default IP address of the SB430-10 is "**192.168.9.10**"
- Set your computer's IP address in the range '192.168.9.xx', xx being in the range (2-254 except 10).
- Connect the AccessLink or CaptiLink with an Ethernet cable to the newly configured port and power on.
- Download and install the program "PuTTY" (or any ssh client) on the computer you just assigned the new IP address to.
- Connect to the default IP **192.168.9.10** on port 22 using the ssh client.
- When the unit is done booting up, login as root.
 - Password for root is: "**veeone**"
 - It is recommended to change the root password by typing the following command and following the on-screen instructions: "**passwd**"

4.1.1 **Configuring the IP Address for the AccessLink or CaptiLink**

- To configure the IP of the AccessLink or CaptiLink, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/ip_addr** (xxx.xxx.xxx.xxx = the desired IP address) and then press the Enter key.
- To configure the netmask, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/netmask** and then press the Enter key.
- To configure the gateway, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/gateway** and then press the Enter key.

4.1.2 **Adding the IP Address of a Digital Cinema Server to the AccessLink or CaptiLink**

- To add the IP address, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/s430-10/ip.conf** and then press the Enter key.
- Reboot the SB430-10 for the changes to take effect.
- Connect the CaptiView Transmitter to the USB port on the AccessLink or CaptiLink and then go back to Section 2 of this manual to finish the setup.

4.2 ***SMPTE 430-10 Protocol Set Up Via Serial Port***

- Remove the AccessLink or CaptiLink from packing and begin to set up near a power outlet and computer that has a serial port.
- The serial cable required for a proper connection is a female to female pin to pin cable, which should be provided in the package.
 - Serial connection settings are: Speed 115200, Data bits: 8, Stop bits: 1, Parity: None, Flow control: None
 - Connect and switch the device on and wait for it to boot.
- When the unit is done booting up, login as root.
 - Password for root is: "**veeone**"
 - It is recommended to change the root password by typing the following command and following the on-screen instructions: "**passwd**"

4.2.1 **Configuring the IP Address for AccessLink or CaptiLink**

- To configure the IP of the AccessLink or CaptiLink, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/ip_addr** (xxx.xxx.xxx.xxx = the desired IP address) and then press the Enter key.
- To configure the netmask, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/netmask** and then press the Enter key.
- To configure the gateway, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/gateway** and then press the Enter key.

4.2.2 **Adding the IP Address of a Digital Cinema Server to the AccessLink or CaptiLink**

- To add the IP address, type the following command:
 - **echo -n xxx.xxx.xxx.xxx > /doremi/etc/s430-10/ip.conf**
- Power cycle the AccessLink or CaptiLink for the changes to take effect.
- Connect the CaptiView Transmitter to the USB port on the AccessLink or CaptiLink and go back to Section 2 of this manual to finish the setup.

4.3 *Upgrading the SB430-10 Software*

There are two ways to upgrade the software on the AccessLink or CaptiLink. One way is to use an FTP client (e.g., Core FTP or Filezilla) and the other is to use a USB flash drive to perform the upgrade.

4.3.1 **FTP Client**

- Make sure that an FTP client is installed on the computer.
- Turn the SB430-10 on and make sure it is able to ping to the network.
- Open the FTP client and connect using the IP of the AccessLink or CaptiLink under port 21. Login as the root user and enter the appropriate password.
- Add the update package (".pkg file") to the folder, **"/doremi/etc/rc.once,"** and then reboot.
- To check if the upgrade was successful, open an SSH session and type the following command: **'more /doremi/etc/version'** and make sure that the version matches that of the ".pkg" file.

4.3.2 **USB Flash Update**

- Create a folder in the USB drive and name it **doremi**, then inside the **doremi** folder create another folder and name it **"update."** For example, **'/doremi/update/.'**
- Copy the ".pkg" file to the path of the USB flash **'/doremi/update/'** then safely unmount the USB flash drive.
- Put the USB flash drive in place of the CaptiView transmitter. Wait for the light to stop blinking and then do a reboot or power cycle.
- To check if the upgrade was successful, open an SSH session and type the following command: **more /doremi/etc/version** and make sure that the version matches that of the ".pkg" file.

4.4 *Changing the Auditorium on the SB430-10*

- Connect to the AccessLink or CaptiLink via ssh session.
- Login as username root.
- Type: **echo -n aud_number > /doremi/etc/s430-10/audi.conf** and then press the Enter key.
- Reboot for the changes to take effect.

This page has been intentionally left blank.

5 Acronyms

Term	Definition
DCP	Digital Cinema Package
USB	Universal Serial Bus
UUID	Universally Unique Identifier
RWC	Rear Window Caption

This page has been intentionally left blank.

6 Document Revision History

Date	Version	Description
09/28/2010	1.6	Rear Window Closed Caption section updated. Software version updated to reflect version 2.0.0.
12/27/2010	1.7	All sections revised. New CaptiView Device and SB430-10 pictures added.
01/10/2011	1.8	Section 2.2.2 revised.
07/02/2012	1.9	All sections revised. Contact information updated.
06/18/2013	2.0	Sections 2.2.4 and 1.3 added.
10/30/2014	2.1draft	Heading revised