

# StudioLive™ CS18AI

Control Surface for StudioLive RM-Series mixers  
and Studio One

Owner's Manual



# Table of Contents

## 1 Overview — 1

- 1.1 Introduction — 1
- 1.2 About This Manual — 1
- 1.3 Features — 2
- 1.4 What is in the Box — 3
- 1.5 What You Will Need — 4
- 1.6 Optional Accessories — 4
- 1.7 Technical Support — 4

## 2 Getting Started — 5

- 2.1 Step 1: Register Your CS18AI — 5
- 2.2 Step 2: Update CS18AI Firmware — 6
- 2.3 Step 3: Network Your CS18AI — 10
  - 2.3.1 Direct Connection to one StudioLive RM Mixer — 12
  - 2.3.2 Direct Connection to Studio One — 13
  - 2.3.3 Wireless Networking — 15
  - 2.3.4 LAN Networking — 17
  - 2.3.5 AVB Networking — 18
- 2.4 Step 4: Connecting the CS18AI Networked Audio — 19
  - 2.4.1 Mic and Line Inputs — 19
  - 2.4.2 Headphone and Monitor Outputs — 20

## 3 Controlling StudioLive RM-series Mixers — 22

- 3.1 Layers, Filter DCAs, and Mixes — 22
  - 3.1.1 Navigating Layers — 22
  - 3.1.2 Filter DCA Groups — 22
  - 3.1.3 Accessing Mixes — 28
- 3.2 Basic Channel Operation — 31
  - 3.2.1 Input — 32
  - 3.2.2 Noise Gate and Expander — 33
  - 3.2.3 Compressor — 35
  - 3.2.4 Limiter — 36
  - 3.2.5 Equalizer — 37

- 3.2.6 Panning and Stereo Linking — 38
- 3.2.7 Mix Bus Assignments — 39
- 3.2.8 Copying, Loading, and Saving Fat Channel Settings — 39
- 3.2.9 A/B Fat Channel Settings — 42
- 3.2.10 Metering — 42

### 3.3 Channel Strip Controls — 43

### 3.4 Global Mixer Controls — 45

- 3.4.1 Talkback — 45
- 3.4.2 Solo Bus — 46
- 3.4.3 Graphic Equalizer (GEQ) — 47
- 3.4.4 Mute Groups — 48
- 3.4.5 Monitor Bus Controls — 49

### 3.5 Channel and Mix Settings — 50

- 3.5.1 Channel Settings — 50
- 3.5.2 Mix Settings — 51

### 3.6 Home Screen — 52

- 3.6.1 System Menu — 53
- 3.6.2 Utilities — 57

### 3.7 UCNET — 58

- 3.7.1 Wired Settings Menu — 58

### 3.8 Scenes and Quick Scenes — 59

- 3.8.1 Recalling a Mix Scene — 60
- 3.8.2 Quick Scene Recall — 61
- 3.8.3 Scene Filters — 63

### 3.9 Internal Effects Mixes — 63

## 4 Controlling Studio One — 69

### 4.1 Channel Controls — 69

### 4.2 Flex Fader — 71

### 4.3 Mix Navigation — 72

### 4.4 Automation Modes — 72

### 4.5 Transport — 73

### 4.6 FX Inserts / Sends — 73

- 4.6.1 Editing Plugins — 74
- 4.6.2 Editing FX Sends — 75

## **5    Rear Panel   —   76**

### **5.1    Physical Connections and Controls   —   76**

## **6    Reference   —   78**

### **6.1    StudioLive CS18 Technical Specifications   —   78**

## **7    Warranty Information   —   80**

### **7.1    How Consumer Law Relates To This Warranty   —   80**





## 1 Overview

### 1.1 Introduction



**Thank you** for purchasing a PreSonus® StudioLive™ CS18AI control surface for StudioLive RM-series mixers and Studio One. PreSonus Audio Electronics has designed the CS18AI utilizing high-grade components to ensure optimum performance that will last a lifetime.

The CS18AI provides fast and comprehensive control over StudioLive RM-series digital mixers (RM32, RM16, RML32, and RML16) as well as Studio One® DAW software for Mac® and Windows®. It combines touch-sensitive, motorized faders, a color touchscreen, and a carefully designed selection of controls with AVB networking in a rack-mountable package.

The StudioLive CS18AI is perfectly suited for a variety of applications, including live-sound mixing, fixed installations, theaters, broadcast, houses of worship, and professional recording.

We encourage you to contact us with questions or comments regarding this product. PreSonus Audio Electronics, Inc., is committed to constant product improvement, and we value your suggestions highly. We believe the best way to achieve our goal of constant product

improvement is by listening to the real experts: our valued customers. We appreciate the support you've shown us through the purchase of this product.

### 1.2 About This Manual

We suggest that you use this manual to familiarize yourself with the features, applications, and correct connection procedures for your CS18AI before trying to connect it to your StudioLive RM-series mixer, computer, or network. This will help you avoid problems during installation and setup.

Throughout this manual you will find **Power User Tips** that can quickly make you a CS18AI expert and help you get the most out of your investment.

Information on StudioLive RM-series mixers, UC Surface, and QMix-UC can be found in the StudioLive RM-series Owner's Manual and StudioLive Software Library Reference Manual. Both documents are available as downloads at [www.PreSonus.com](http://www.PreSonus.com)

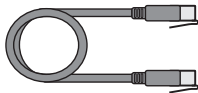
## 1.3 Features

- 18 touch-sensitive, motorized faders
- 18 customizable, multi-color Select buttons for easy channel identification
- 16-channel scribble strip display
- 4.3-inch color touchscreen
- Full control over every StudioLive RM-series mixer function including Fat Channel processing, Filter DCAs, Mix Management, and more
- 4-pin XLR lamp connection
- Footswitch input
- 19" rack mountable
- Internal power supply with no fans
- Supports PreSonus UC Surface software
- Control over PreSonus Studio One DAW software
- Built-in Ethernet AVB audio interface with:
  - 2 mic/line inputs with recallable XMAX preamps for talkback, room mic, or other local inputs
  - 2 balanced TRS line inputs
  - 2 XLR line outputs
  - Stereo headphone output

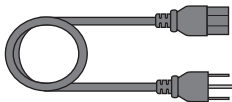
## 1.4 What is in the Box

Your StudioLive CS18AI package contains the following:

- PreSonus StudioLive CS18AI Ethernet AVB control surface



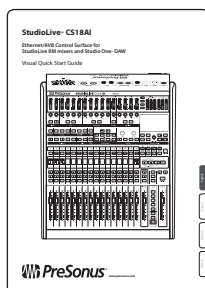
- 3-foot (1m) Ethernet cable



- IEC power cord



- Product registration and software authorization card



- StudioLive CS18AI Quick Start Guide



- PreSonus Health Safety and Compliance Guide

## 1.5 What You Will Need

You will need a network connection with Internet access or a USB flash drive (SanDisk brand recommended) for firmware updates.

Depending on your system configuration and intended uses, you may also need the following items, which are not included with your CS18AI control surface:

- **Wireless router.** For information on wireless routers we know work well with the CS18AI control surface, see <http://support.presonus.com/entries/22338274>. In our testing, we have also encountered some wireless routers that can be problematic, which are discussed here: <http://support.presonus.com/entries/22338264>.
- **AVB-compatible network switch.** The latest information on compatible switches can be found here: <http://support.presonus.com/entries/67281460-Supported-AVB-network-switches>.
- **A Mac or Windows computer or iPad** running UC Surface, with a wired or wireless connection to a network router that is, in turn, connected to the mixer.

## 1.6 Optional Accessories



- USB Wi-Fi LAN adapter

## 1.7 Technical Support

Many technical issues can arise when using a standard computer as a digital audio workstation (DAW) and when networking wireless devices. PreSonus can only provide support for issues that directly relate to the StudioLive CS18AI, RM-series mixers, UC Surface control software, QMix-UC, Capture, and Studio One.

PreSonus does not provide support for computer hardware, iOS hardware, wireless networks, operating systems, and non-PreSonus hardware and software, and it may be necessary to contact the manufacturer of these products for technical support.

Please check our Web site [www.presonus.com](http://www.presonus.com) regularly for software information and updates, firmware updates, and support documentation for frequently asked questions.

Online technical support is available to registered users through their My PreSonus account. Visit [my.presonus.com](http://my.presonus.com) to register. PreSonus telephone technical support is available to customers in the USA on Monday through Friday from 9 a.m. to 5 p.m. Central Time by calling 1-225- 216-7887. Customers outside of the USA should contact their national or regional distributor for telephone technical support. A list of international distributors is provided at [www.presonus.com/buy/international\\_distributors](http://www.presonus.com/buy/international_distributors).

Advanced troubleshooting guides can be found at <http://support.presonus.com/forums>.

## 2 Getting Started

This section will guide you through connecting your CS18AI to a network so that you can begin controlling your StudioLive RM-series mixer, Studio One, or both. Please review the brief networking tutorial located in **Section 2.3** to familiarize yourself with networking best practices.

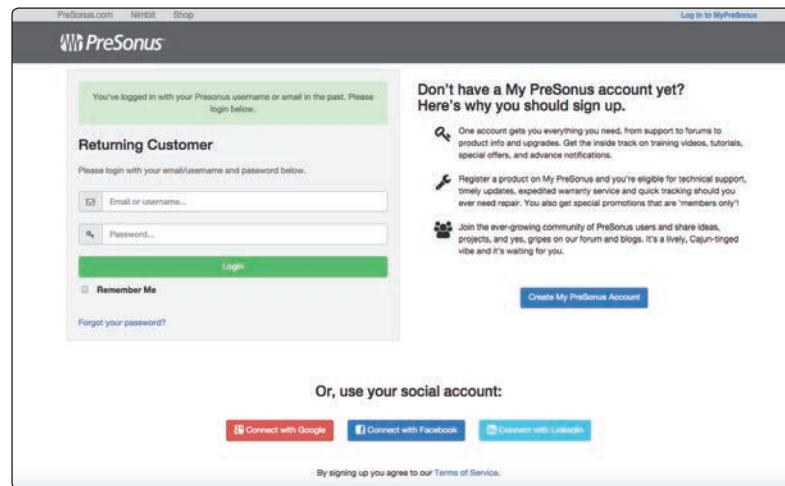
Visit [www.presonus.com](http://www.presonus.com) for the latest system requirements and an updated list of compatible hardware.

In general, you will need the following:

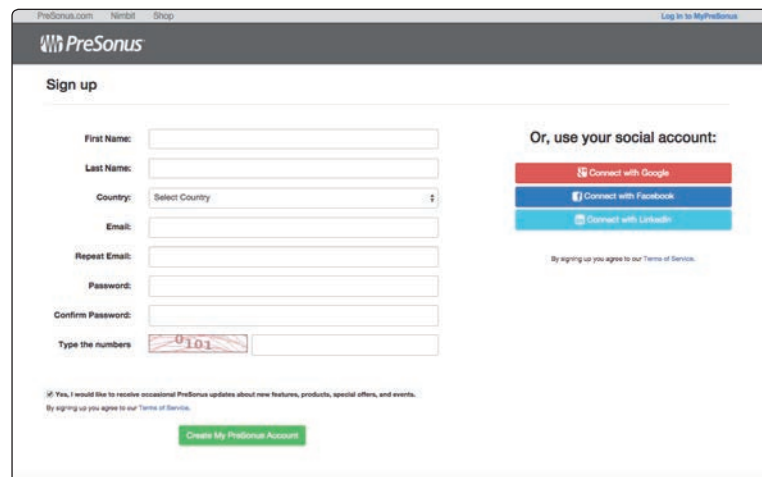
- AVB compatible Ethernet connection for control and audio transport. (If using a non-AVB network connection you'll still have control but will not have audio transport over Ethernet.)
- Internet connection for registration and firmware download.

### 2.1 Step 1: Register Your CS18AI

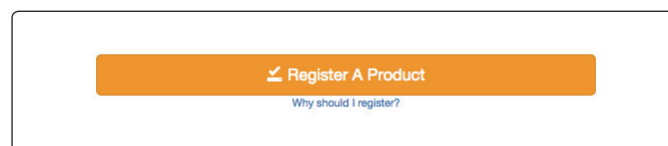
1. Go to [my.presonus.com](http://my.presonus.com).

The screenshot shows the PreSonus website's login interface. At the top, there are links for 'PreSonus.com', 'Nembit', and 'Shop', along with a 'Log in to MyPreSonus' link. The main heading is 'PreSonus'. Below it, a green box says 'You've logged in with your PreSonus username or email in the past. Please login below.' The 'Returning Customer' section prompts the user to 'Please login with your email/username and password below.' It includes input fields for 'Email or username...' and 'Password...', a 'Remember Me' checkbox, and a 'Forgot your password?' link. A green 'Login' button is present. To the right, a section titled 'Don't have a My PreSonus account yet? Here's why you should sign up.' lists benefits: 'One account gets you everything you need, from support to forums to product info and upgrades...', 'Register a product on My PreSonus and you're eligible for technical support, timely updates, expedited warranty service and quick tracking should you ever need repair...', and 'Join the ever-growing community of PreSonus users and share ideas, projects, and yes, gripes on our forum and blogs...'. A blue 'Create My PreSonus Account' button is at the bottom right. Below the login section, it says 'Or, use your social account:' with buttons for 'Connect with Google', 'Connect with Facebook', and 'Connect with LinkedIn'. A small note at the bottom states 'By signing up you agree to our Terms of Service.'

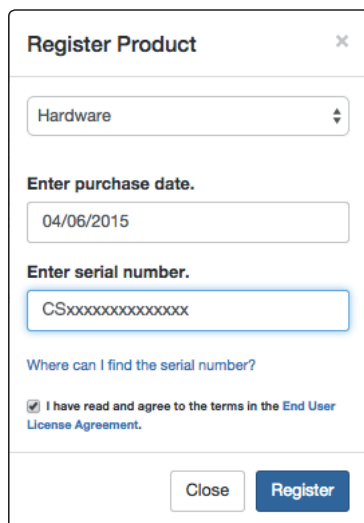
2. Log in or create a new account if you don't already have one.

The screenshot shows the PreSonus website's sign-up interface. At the top, there are links for 'PreSonus.com', 'Nembit', and 'Shop', along with a 'Log in to MyPreSonus' link. The main heading is 'PreSonus'. Below it, the 'Sign up' section prompts the user to 'Please sign up with your email/username and password below.' It includes input fields for 'First Name', 'Last Name', 'Country' (a dropdown menu), 'Email', 'Repeat Email', 'Password', and 'Confirm Password'. There is also a 'Type the numbers' field with a CAPTCHA image showing '0101'. A green 'Create My PreSonus Account' button is at the bottom. To the right, it says 'Or, use your social account:' with buttons for 'Connect with Google', 'Connect with Facebook', and 'Connect with LinkedIn'. A small note at the bottom states 'By signing up you agree to our Terms of Service.'

3. Once you have logged into your My PreSonus account, click the Register a Product button at the top of the page.

The screenshot shows a single orange button with a white icon of a document with a checkmark and the text 'Register A Product'. Below the button, there is a small blue link that says 'Why should I register?'.

4. Select "Hardware" from the drop-down menu in the dialog, enter the information for your CS18AI controller, and check the box stating you have read and agree to the license agreement. Click/tap the Register button when you are done to register your controller.



The image shows a 'Register Product' dialog box. At the top, there is a close button (X). Below it is a dropdown menu currently set to 'Hardware'. Underneath is a section titled 'Enter purchase date.' with a text field containing '04/06/2015'. Below that is a section titled 'Enter serial number.' with a text field containing 'CSxxxxxxxxxxxx'. A link 'Where can I find the serial number?' is located below the serial number field. At the bottom left, there is a checked checkbox with the text 'I have read and agree to the terms in the End User License Agreement.' At the bottom right, there are two buttons: 'Close' and 'Register'.

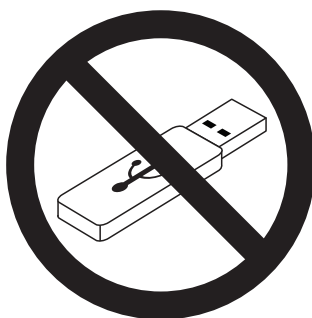
5. You can now download firmware updates or update the firmware directly with your StudioLive CS18AI connected to an Internet-connected network.

## 2.2 Step 2: Update CS18AI Firmware

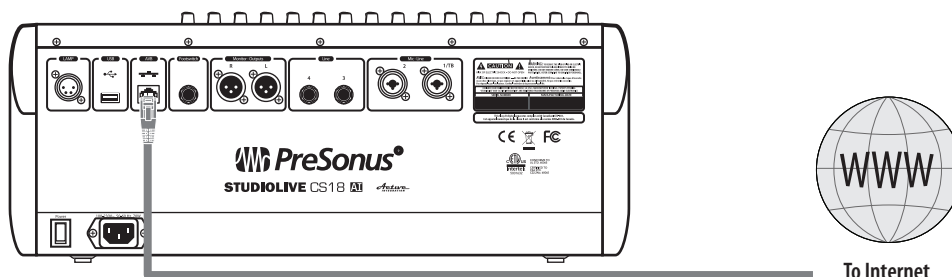
### If Your CS18AI is Registered and Connected to the Internet

All registered StudioLive CS18AI controllers have the ability to connect to a My PreSonus account and download firmware updates over the Internet. To check online for new firmware updates:

- Be sure no USB flash drive is inserted in the USB port on the CS18AI.



- Connect your registered CS18AI to a network with Internet access.



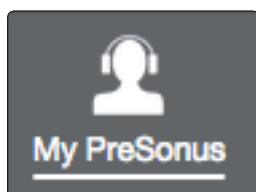
- Skip steps 1 through 11 below and follow the instructions in steps 12 through 17.

### If Your CS18AI is Not Connected to the Internet

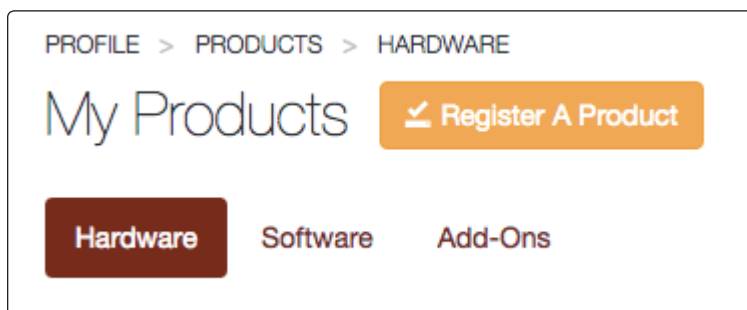
If your CS18AI is not connected directly to the Internet, follow all of the instructions below to download the firmware files to a USB flash (“thumb”) drive and install them from there.

**Power User Tip:** Make sure the drive is freshly formatted FAT, FAT16 or FAT32 and does not have any other data on it. Drives that are 64GB or higher cannot be formatted FAT32 and therefore will not work. Make sure you’re using a drive that is 1GB, 2GB, 4GB, 8GB, 16GB or 32GB in size. We strongly recommend SanDisk-brand flash drives for firmware updates.

1. Log in to your [my.presonus.com](https://my.presonus.com) account.
2. Once you have logged in, click the My Products button at the top of the page.



3. Click on the Hardware tab to view your registered hardware products.



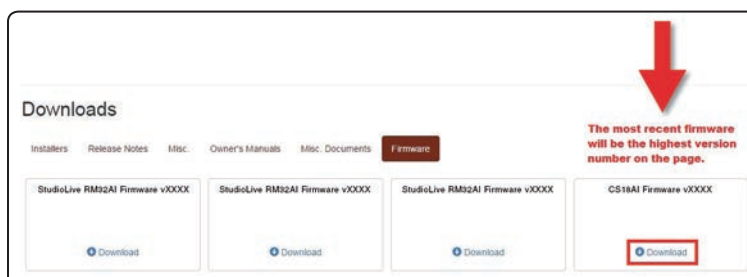
4. Find your CS18AI on the page and click the View More Details link.



5. Click on the Update Firmware button to download the files to your computer.

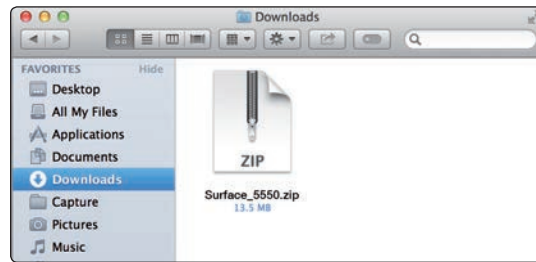


**IMPORTANT:** The StudioLive CS18AI control surface, StudioLive AI console mixers, and StudioLive AI RM mixers each use different firmware files. Loading the wrong firmware can cause a device to function improperly and potentially damage the unit.

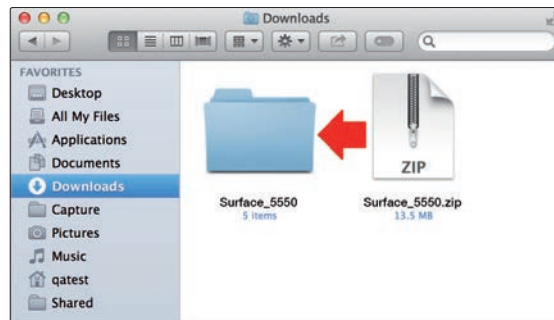




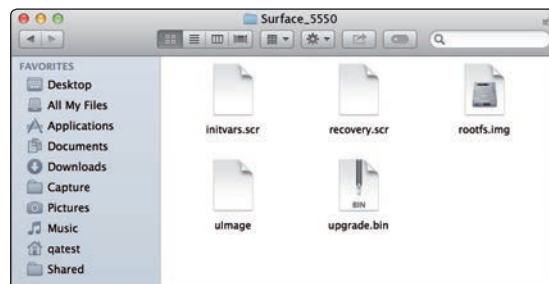
6. When the download completes, open your Downloads folder and CS18AI firmware folder.



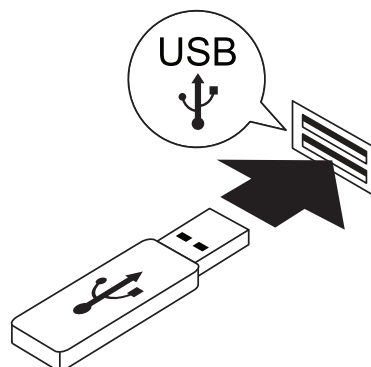
7. Depending on your computer's system preferences, the firmware .zip archive file might not automatically decompress. If it doesn't, double-click the file, and it will decompress.



8. Open the firmware folder; you will find five files inside: **initvars.scr**, **recovery.scr**, **rootfs.img**, **ulmage**, and **upgrade.bin**. You will need all five files to upgrade your controller.

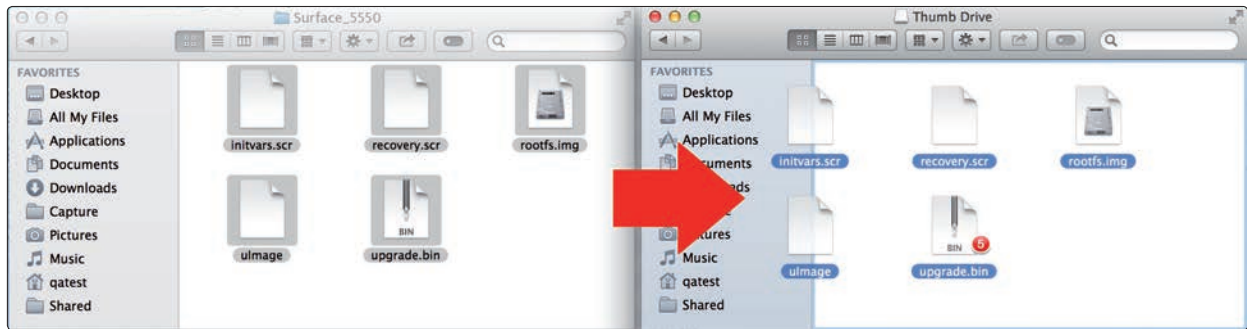


9. Connect a FAT32-formatted USB thumb drive to your computer.

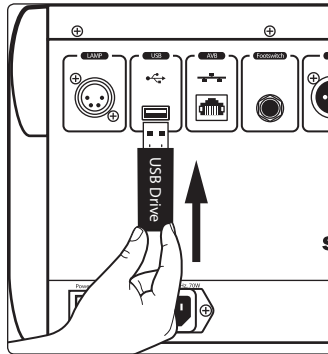




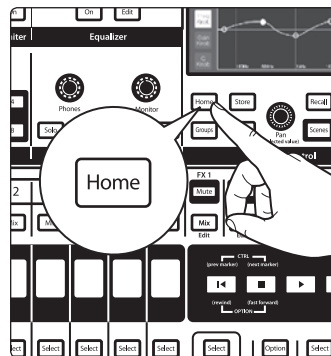
10. Select and copy/paste or drag the five firmware files to the root directory of your thumb drive. If the files are inside a folder, the update will not execute correctly. Eject the flash drive and disconnect it from your computer.



11. Insert the thumb drive into the USB slot on the rear of your CS18AI controller and power on the unit if it is not already on.



12. Press the Home button in the Master Control area of your CS18AI.



13. From the Home page, touch the System button.



14. On the System page, touch the Firmware button.

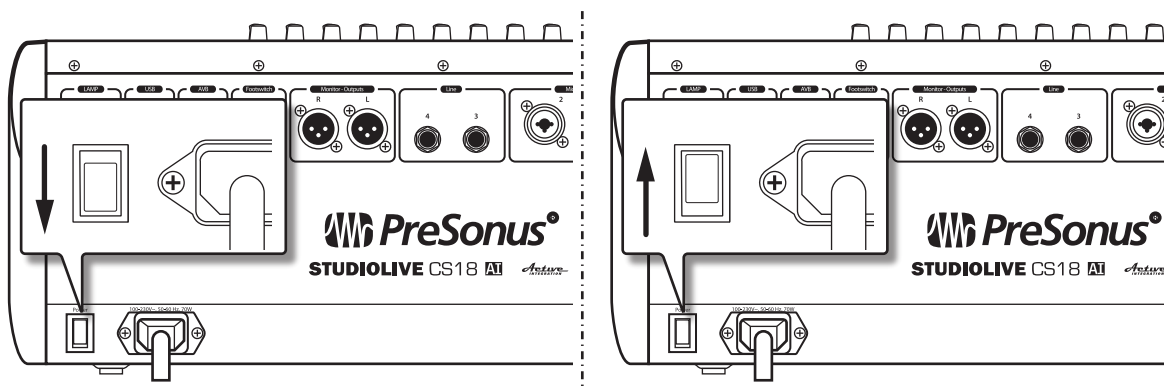


15. The Firmware Version page has a section for the CS18AI and another for the RM mixer. (The mixer section will be empty if no RM mixer is connected.) Click the “Check for update” button in the CS18AI section.

**Power User Tip:** Most small USB drives (16 GB or less) should be formatted correctly, but if your CS18AI does not detect your thumb drive at first, we suggest reformatting it, even if it's already formatted as FAT32. On Windows, be sure to do a “Full” format as opposed to a “Quick” format. On Macs, the choice will be listed as MS-DOS (FAT). Please refer to the list of suggested drives that can be found on our Knowledge Base.



16. The update process takes about a minute to complete. When it finishes, you will be prompted to power cycle your unit.



17. When you restart the CS18AI, go to the Firmware Version page and verify that the last four digits of the firmware version on your CS18AI are the same as the firmware files you downloaded.

## 2.3 Step 3: Network Your CS18AI

### Control and Audio Data Connections

There are two types of data flowing between your CS18AI control surface and your RM mixer or computer: control and audio. Control connections can be made over standard Ethernet networks, including WiFi networks. Sending and receiving audio requires an AVB network. Unlike control, AVB audio cannot be sent wirelessly.

- **Control:** This is the primary communication between the CS18AI controller and your StudioLive RM-series mixer or your computer. When connected to RM-series mixers, the CS18AI controls the mixers' functions. When connected to a computer, the CS18AI can control Studio One or Capture software.
- **Audio:** An AVB network connection enables routing audio to and from the CS18AI's audio inputs and outputs with an RM-series mixer. Note that audio networking between the CS18AI and a computer is not possible.

**Power User Tip:** Network connections occasionally require troubleshooting, especially when a lot of wireless networks are in use. Because of this, it is always a good idea to get your networked devices and CS18AI control surface happily communicating before the pressure is on and you have a singer trying to dial in a monitor mix while you're trying to mic the drum kit.

## About AVB Networking

AVB (Audio Video Bridging) is an extension to the Ethernet standard designed to provide “guaranteed quality of service,” which simply means that audio samples will reach their destinations on time. AVB has been adopted by numerous audio companies, and more companies are adding it all the time.

AVB networking offers a number of features that make it ideal for audio applications:

- **Long, light cable runs.** A single lightweight CAT5e or CAT6 cable can be run up to 100 meters (300 feet). This makes it easy to have audio I/O located in different rooms (or even different venues in the same building) and run multichannel audio between them in real time.
- **Low, predictable latency.** The AVB specification states latency of no longer than 2 ms sending an audio stream point-to-point over up to seven “hops” (trips through switches or other devices) at 1x (less than or equal to 48 kHz) sample rates.
- **Scalable, with high channel counts.** AVB’s bandwidth is sufficient to carry hundreds of real-time channels using a single Ethernet cable. This offers the future possibility of expanding your system with additional devices that contain different kinds of audio I/O, multiple controllers, and other useful functions.
- **Integrated clock signal.** In a digital audio system with multiple devices, having a master clock is absolutely critical. The AVB specification defines such a clock to be accurately distributed to all devices in the system.
- **High sample rates.** AVB is capable of operating at high sample rates for high-resolution recording.

***Power User Tip:** The most important rule to keep in mind when setting up an AVB network is that the talker (device sending audio) and listener (device receiving audio) must be connected to an AVB-compatible switch. Connecting the CS18AI to a standard LAN network will disable its audio functions, however it can still be used to send control data.*

## StudioLive CS18AI Controller System Configurations

You can connect your CS18AI controller as follows:

- Wired directly to an RM-series mixer.
- Wirelessly using the USB WiFi LAN adapter (control only).
- Wired to an AVB (control and audio) network.
- Wired to a standard LAN network (control only).

In the sections that follow, we will describe all of these configurations in detail.

### Every time you turn on your StudioLive CS18AI, it will:

1. Look for a wired Ethernet connection and use it if one is found.
2. If no wired connection is found, the CS18AI will check for the USB Wi-Fi LAN adapter. If it is available, the CS18AI will then scan for the wireless network to which it was last connected.

***Note:** StudioLive RM-series mixers and CS18AI support only WPA and WPA2 security. Please be sure that your router is configured using one of these security protocols.*

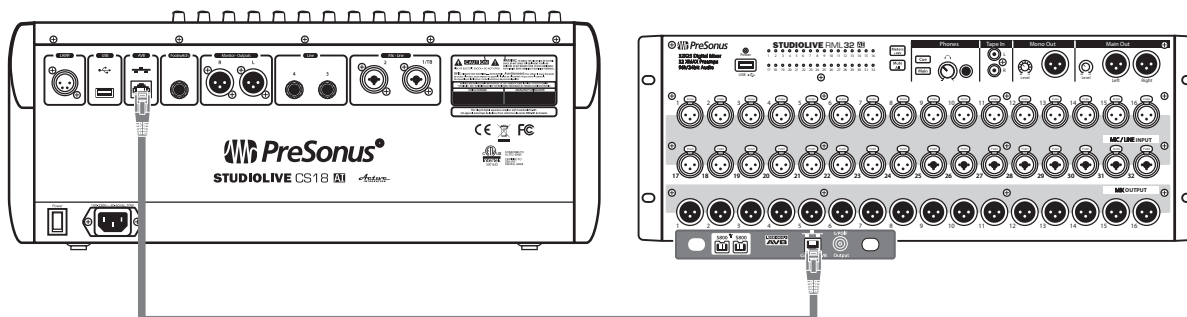
***Power User Tip:** WPA and WPA2 are protocols created to make wireless networks secure. WPA stands for “Wi-Fi Protected Access,” and WPA2 is a later version that conforms to the IEEE 802.11i networking standard. Most routers have settings that manage their security protocols; consult the documentation for your router to learn how to change these settings.*

### 2.3.1 Direct Connection to one StudioLive RM Mixer

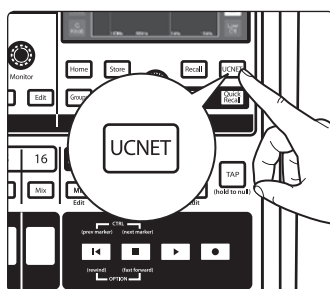
Your StudioLive CS18AI can be connected to a single StudioLive RM-series mixer without the need for a switch or router between the two devices.

To connect directly between an RM-series mixer and a CS18AI, you must first connect the RM-series mixer to UC Surface and select a self-assigned IP address. Please refer to the StudioLive Software Library Reference manual for complete instructions.

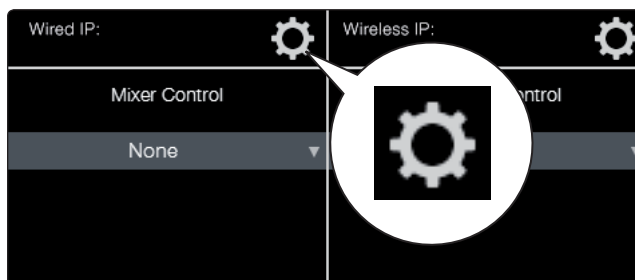
1. Connect a CAT5e or CAT6 cable from the AVB port on the rear panel of the CS18AI to the Control port on the RM-series mixer.



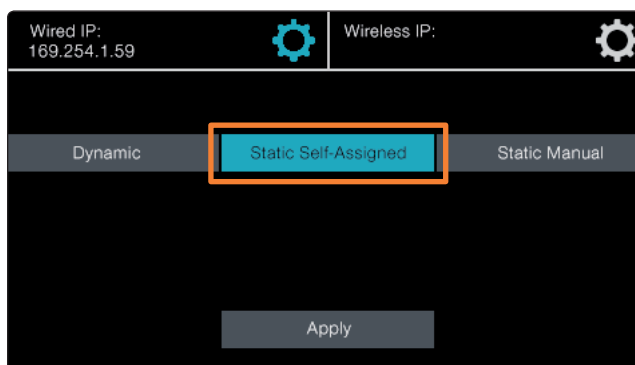
2. Press the UCNET button in the Master Control area.



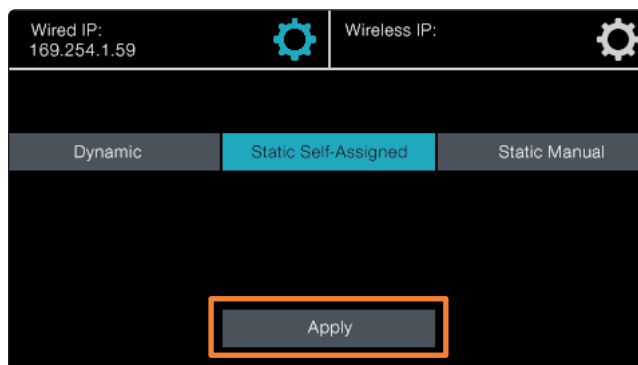
3. On the CS18AI touchscreen, press the Settings button in the Wired IP column.



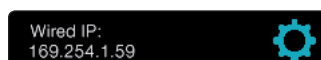
4. On the CS18AI touchscreen, select the "Static Self-Assigned" tab.



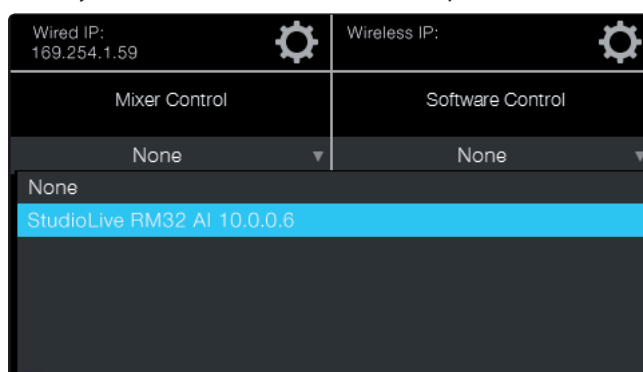
- Press the "Apply" button.



- When the IP address is displayed below Wired IP, close the Settings menu.



- Select your RM-series mixer from the drop-down menu in the Mixer control field.



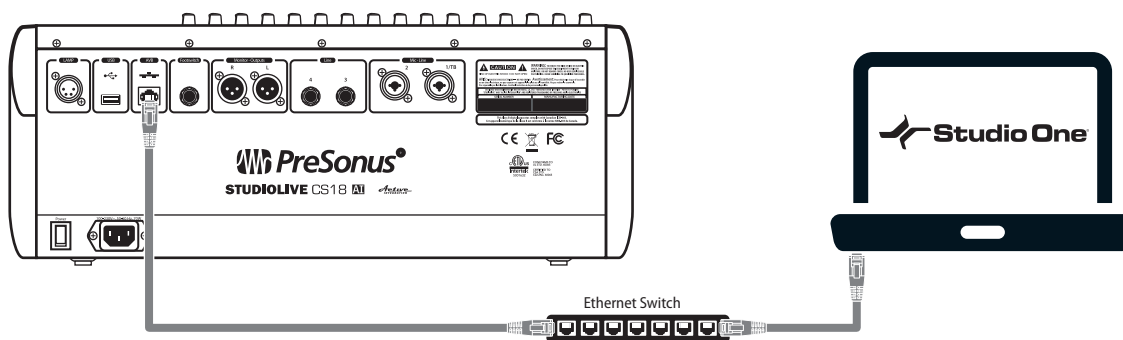
- The power LED on the RM-series mixer will turn blue once its connected and communicating to the CS18AI.



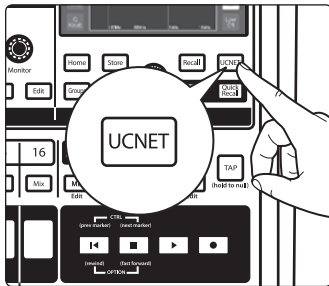
### 2.3.2 Direct Connection to Studio One

To directly connect your CS18AI to your computer, you will need to use a crossover Ethernet cable, or to connect both your computer and your CS18AI to a standard Ethernet switch. This section will describe the latter. This setup is only recommended if you do not require Internet or extended network access for your computer to access printers and other network devices.

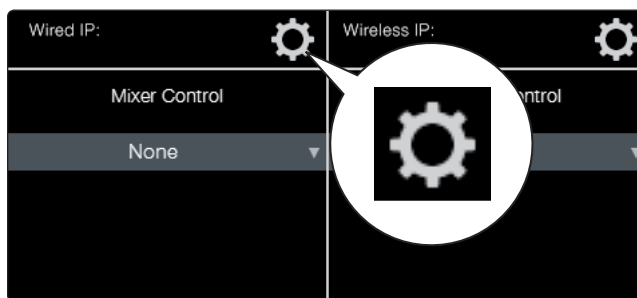
- Connect both your CS18AI and your computer to an Ethernet switch. Power both on.



2. Press the UCNET button on the CS18AI.



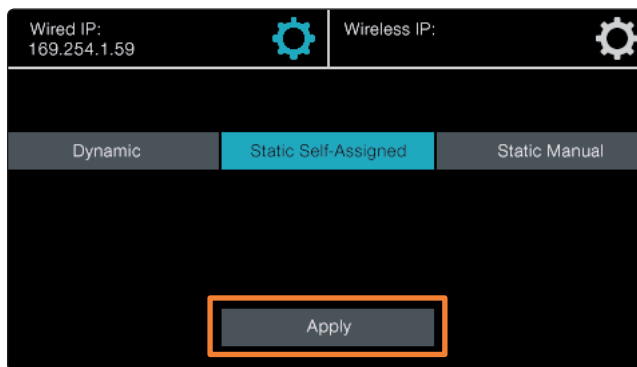
3. On the CS18AI touchscreen, press the Settings button in the Wired IP column.



4. On the CS18AI touchscreen, select the "Static Self-Assigned" tab.



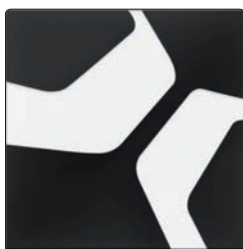
5. Press the "Apply" button.



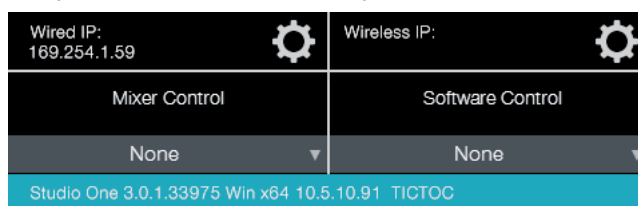
6. When the IP address is displayed below Wired IP, close the Settings menu.



7. Disable WiFi on your computer (if applicable) and make sure your computer has a self-assigned IP address. If you are unsure of how to verify this, please check your operating system's networking documentation.
8. Launch Studio One.



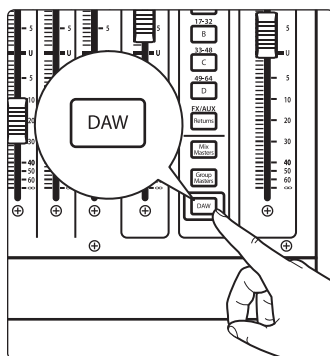
9. On the touchscreen of your CS18AI, you will see your computer's IP address and description.



10. Touch to select.



11. On the CS18AI, press the DAW button.



Your CS18AI is now ready to control Studio One!

**Power User Tip:** After you have launched Studio One and successfully connected your CS18AI, you can re-enable WiFi on your computer. However, because WiFi must be disabled for Studio One to pair to your CS18AI initially, it is recommended that you use a router if you want to use WiFi functionality on your computer.

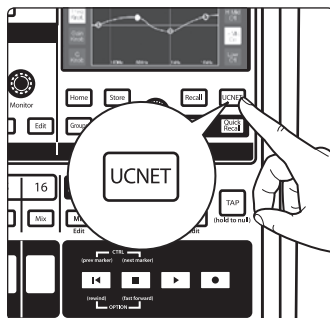
### 2.3.3 Wireless Networking

Your CS18AI can be connected to a standard LAN network wirelessly, using the PreSonus WF-150 USB Wi-Fi LAN adapter and a standard wireless router. A wireless connection can only carry control data, which is useful for controlling Studio One software or any application where the CS18AI's onboard audio inputs and outputs are not needed.

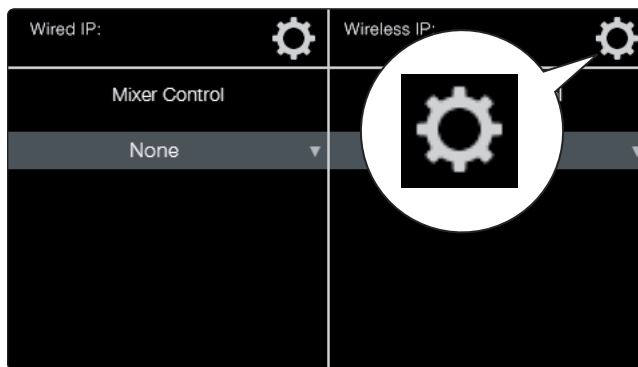
**Note:** The StudioLive CS18AI does not support hot-swapping the Wi-Fi LAN adapter. The LAN adapter must be connected when you power up your CS18AI. Once you make the connection, the CS18AI will automatically see the RM-series mixer and will show it in the UCNET page.

To connect a StudioLive CS18AI wirelessly to a network, first make sure the USB Wi-Fi LAN adapter is inserted in the USB port on the rear of the CS18AI, then power on the unit.

1. Press the UCNET button to open the Network Connection screen.

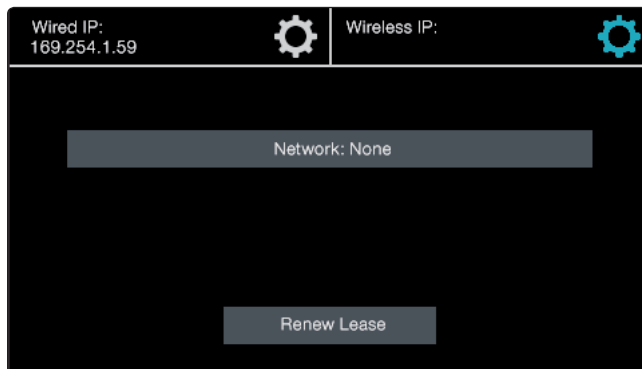


2. Press the Wireless IP settings button at the top of the touchscreen.

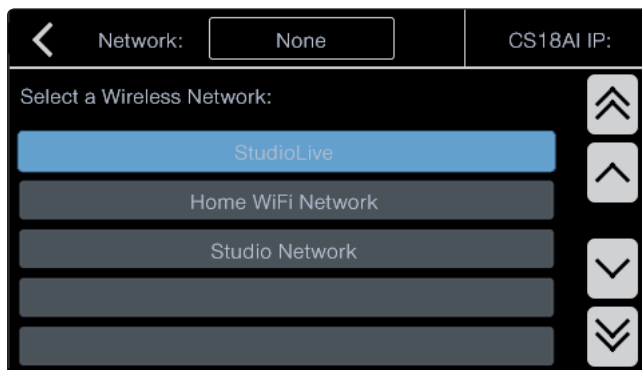


3. Press the network button in the middle of the screen.

**Note:** Scanning for networks can take a little time.



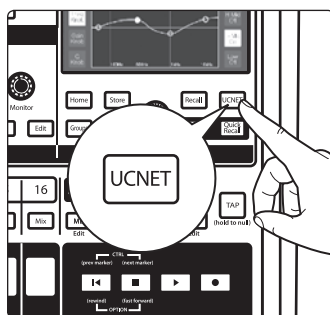
4. Press the name of the wireless network you want to use, from the list of available wireless networks.



5. Type the network password when prompted and press the Enter button.



- Press the UCNET button; the name of the network you just joined should be displayed at the top of the screen. If it is not, you did not successfully join the network and must try again or troubleshoot the network connections.



Your system is now configured to connect to the new wireless network.

### Connecting to an RM Mixer

- Connect your RM-series mixer to the same wireless router network, either using an Ethernet cable, or the USB WiFi LAN adapter.
- Press the UCNET button on the CS18AI and select the mixer from drop-down list in the Mixer Control section.

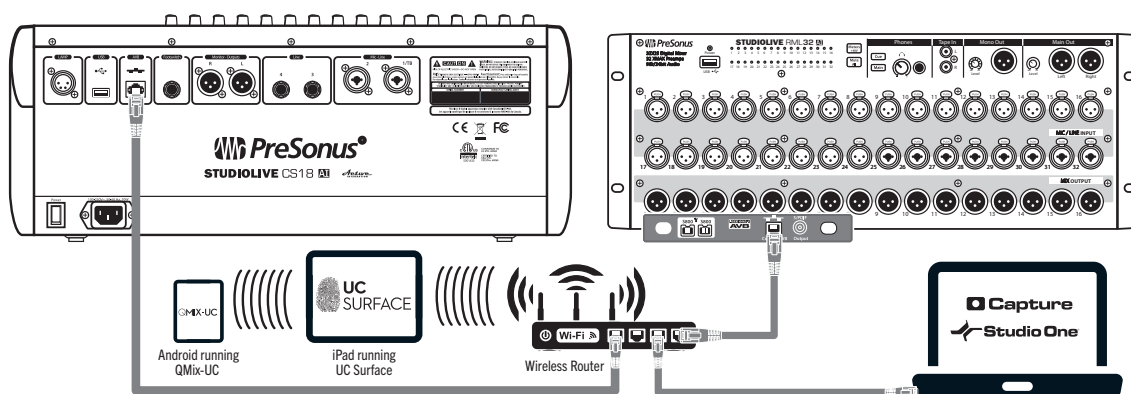
### Connecting to Studio One

- Connect your computer to same wireless router network.
- Launch Studio One
- Press the UCNET button on the CS18AI and select your computer from the drop-down list in the Software Control section.
- Press the DAW button on the CS18AI.

## 2.3.4 LAN Networking

The easiest way to configure your control network is to connect both your RM-series mixer and CS18AI to a wireless router. This allows you to quickly connect wireless mobile devices for remote control using UC Surface and QMix-UC.

- Connect your StudioLive CS18AI and your StudioLive RM mixer to the same wireless router.



- Power on the router and then power on both the CS18AI and the RM mixer.
- The power LED on the RM mixer will turn blue once it is connected and communicating properly to the CS18AI.



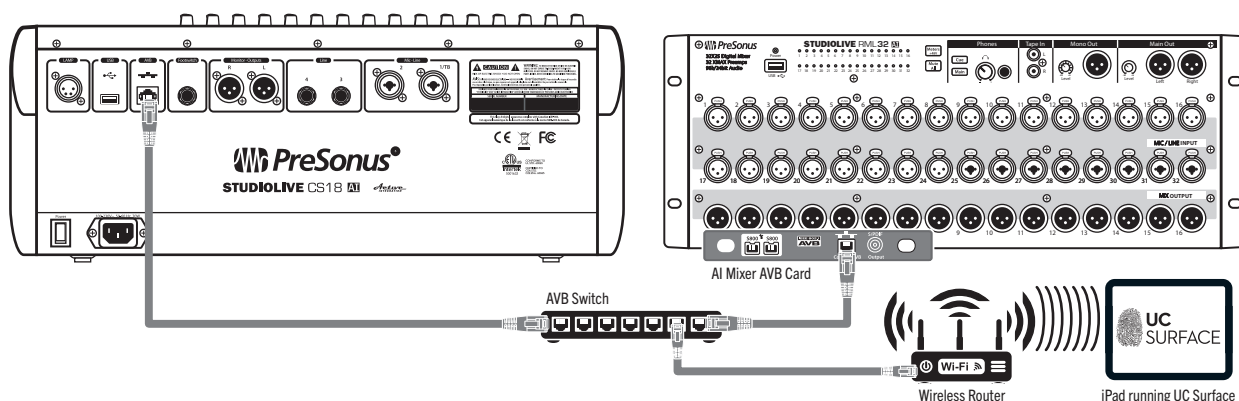
- Connect your Android and iOS device to the wireless network.

### 2.3.5 AVB Networking

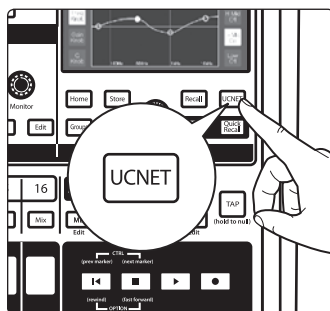
When connecting using an AVB switch, you can also connect a wireless router to the AVB switch for wireless control from UC Surface and QMix-UC. For the most current list of compatible AVB switches please refer to [www.presonus.com](http://www.presonus.com).

**Note:** A standard Ethernet switch allows control of an RM-series mixer from the CS18AI but routing audio to and from the CS18AI's audio inputs and outputs requires an AVB-compatible switch.

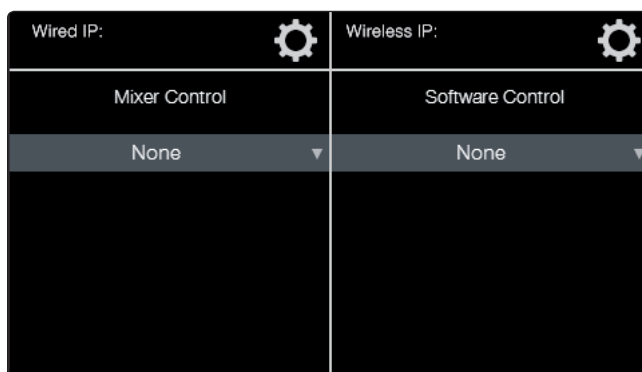
1. Connect your StudioLive CS18AI and your StudioLive RM mixer using an AVB switch, as shown, before powering on your system.



2. Power on the switch and then power on both the CS18AI and the RM mixer.
3. On the CS18AI, press the UCNET button in the Master Control area.



4. Select the RM-series mixer from the drop-down list in the Mixer Control section.



5. The power LED on the RM mixer will turn blue once it is connected and communicating properly to the CS18AI.



**Note:** If you also want wireless control of your RM-series mixer from UC Surface or QMix-UC software, you'll need to connect a wireless router to the AVB switch.

## 2.4 Step 4: Connecting the CS18AI Networked Audio

The CS18AI is primarily a control surface, but its rear panel includes a selection of audio inputs and outputs. These are convenient for providing talkback and for playing source audio from front-of-house and from the CS18AI headphone/monitor outputs.

By default, CS18AI audio is routed as follows to a StudioLive RM mixer, no additional set-up is required:

**Mic/Line input 1/TB** is assigned as the source for the StudioLive RM mixer Talkback. It will also be available as the network source for Input 31 of the RM mixer.

**Mic/Line input 2** is unassigned by default but will be available as the network source for Input 32 of the RM mixer.

**Line inputs 3 and 4** are assigned as the stereo Digital Return input of the RM mixer.

### 2.4.1 Mic and Line Inputs

The StudioLive CS18AI has two line inputs on TRS jacks and two combo jack inputs that accept either microphone-level signals on XLR connectors or line-level signals on 1/4-inch TRS jacks.



The microphone inputs on the CS18AI utilize the same recallable XMAX preamps as RM-series mixers, ensuring you have high-quality audio that's sonically matched with your mixer.

### Connecting Microphones

Your CS18AI control surface is equipped with two recallable PreSonus XMAX microphone preamplifiers for use with all types of microphones. The XMAX preamplifier has a Class A input buffer, allowing you to boost signals without increasing background noise.

The microphone inputs are wired as follows:



Pin 1 = GND; Pin 2 = Signal +; Pin 3 = Signal -

### +48V Phantom Power

The +48V phantom power can be individually enabled for each mic input.

**Power User Tip:** Phantom power is a system for powering condenser microphones, DI boxes, and other devices by supplying a DC voltage over a mic cable. The StudioLive CS18AI controller supplies +48V, which is the most commonly used phantom power voltage.

**Note:** Always be sure that phantom power is disabled for an input before plugging or unplugging a microphone.

### Connecting Line-Level Sources to the Combo Jacks

Line-level sources can be connected to the combo jacks instead of microphones. The line inputs bypass the preamps, going directly to the analog-to-digital converters.

### Connecting Line-Level Sources to the TRS Jacks



The CS18AI rear panel includes two TRS Line Input jacks. These jacks provide additional line inputs for sources from front-of-house, such as 2-track or computer playback. On a StudioLive RM-series mixer connected to the CS18AI via AVB, these two inputs show up as digital returns 33 and 34.

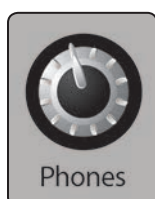
## 2.4.2 Headphone and Monitor Outputs

### Headphone Output

A 1/4-inch stereo headphone jack is located on the front right corner of the CS18AI front panel, just under the armrest.



- To control the level of the Phones output, adjust the Phones knob in the Monitor area of the CS18AI's front panel.



## Monitor Outputs



The monitor outputs are balanced XLR-M jacks and are convenient for control room monitoring when the CS18AI is used to control Studio One or for monitoring in broadcast applications. The signal routed to these outputs is the same as what is sent to headphone outputs.

- To control the level of the Monitor outputs, adjust the Monitor knob in the Monitor area of the CS18AI's front panel.



## Selecting a Headphone/Monitor Source

The phones jack and monitor outputs on the CS18AI carry the same source.

To select a monitor source:



- Press the **Solo** button in the Monitor area to select the Solo bus as the source.
- Press the **Main** button in the Monitor area to select the main mix as the source.
- Press the **Cue** button in the Monitor area to select the cue source.

To set the cue source:

- Press the **Edit** button in the Monitor area to open the Monitor Cue Routing page.

Monitor Cue Routing			
	Mono	Digital	Tape
Mix 1	Mix 2	Mix 3	Mix 4
Mix 5	Mix 6	Mix 7	Mix 8
Mix 9	Mix 10	Mix 11	Mix 12
Mix 13	Mix 14	Mix 15	Mix 16

- Touch the source you want to monitor.

## 3 Controlling StudioLive RM-series Mixers

### 3.1 Layers, Filter DCAs, and Mixes

The StudioLive CS18AI is capable of controlling up to 64 StudioLive RM-series mixer channels and provides active access to 16 channels at a time:

**Power User Tip:** The scribble strips indicate the active channel numbers and names. Refer to these to know which channels are shown on the CS18AI channel strips.

#### 3.1.1 Navigating Layers



The CS18AI has eight layers for accessing all available channels for control. Using the buttons in the Faders area you can switch between the channel layers. Once a layer has been selected, it remains active on the channel strips until you navigate to another layer.

**Layer A (1-16).** Displays Channels 1-16 on the channel strips.

**Layer B (17-32).** Displays Channels 17-32 on the channel strips.

**Layer C (33-48).** Displays Channels 33-48 on the channel strips.

**Layer D (49-64).** Displays Channels 49-64 on the channel strips.

**Returns.** Displays the returns from the four stereo effects processors, talkback source, stereo digital return, and stereo Tape In on the channel strips.

**Mix Masters.** Displays the master send channels for the 16 mix buses on the channel strips.

**Group Masters.** Displays the Filter DCA group masters on your channel strips. For information on Filter DCA Groups .

**DAW.** Switches your CS18AI between controlling your RM mixer and controlling Studio One DAW software.

#### 3.1.2 Filter DCA Groups

Professional mixing consoles have addressed the problem of managing complex mixes with population groups that reduce the channels you're viewing at one time and DCAs to control the overall level of a group of channels.

We've combined the best aspects of these solutions with Filter DCAs. A Filter DCA can contain any combination of the available input channels and effects returns, and you can create as many Filter DCA Groups as you need. You can even include the same channel in multiple Filter DCAs so you can manage your mixes in multiple ways. Each group is given a master level control, so you can control the overall level of the group while maintaining each channel's relative balance in the mix. In this way, for example, you can create a single fader to control every drum in a monitor mix and maintain the relative level of the drum mix that you created.

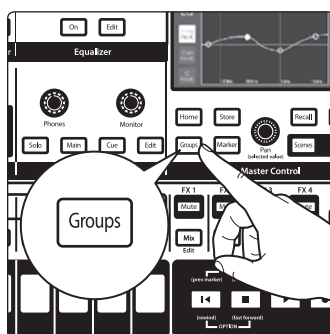
Once selected, a Filter DCA group stays active until exited regardless of which mix is selected. This allows you to adjust the group independently across different mixes. You can also flip between groups on the fly to change the view of a selected mix.

Here are some of the things Filter DCA Groups can do that make your job easier:

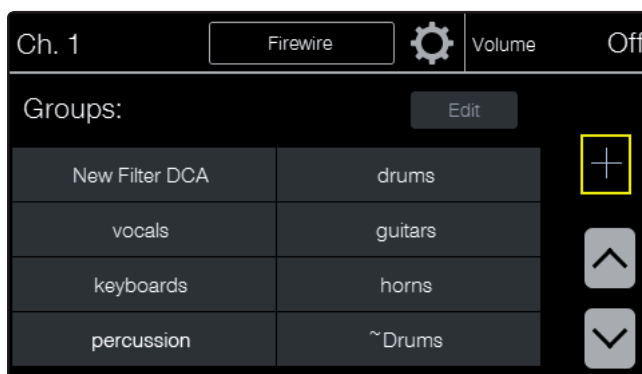
- Channels are automatically grouped based on channel type. Drums, Vocals, Guitars, and Keyboards are just a few of the factory-supplied channel types for tagging channels. The act of designating a channel type for a channel automatically puts the channel into the Filter DCA group for the chosen channel type. Fast and easy, that's how we like it.
- Custom grouping is available when needed. It's easy to create and name your own group and then add the channels you want.
- Visual filtering of Filter DCA Groups brings the channels in the group to the surface, while channels you don't need are filtered out of the way. Flipping between groups is the fastest and cleanest way of getting to exactly the channels that need adjustment without having to navigate multiple layers regardless of what's in the layer.
- The Filter DCA Group Masters layer provides a custom layer of control groups. Creating a group with just one channel, such as lead vocals, is a great way to setup your custom Group Masters layer. Once you've established your groups, you can run your mix from the Group Masters layer and simply dig into groups to adjust individual channels as needed.

### 3.1.2.1 Creating a New Filter DCA Group

1. Press the Groups button in the Master Control section to open the main Groups screen.

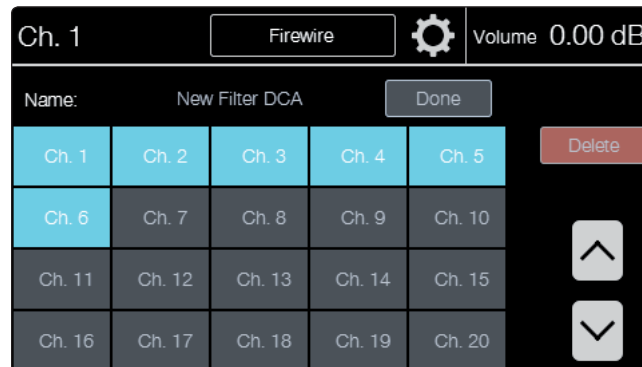


2. Touch the + (plus sign) in the touchscreen to create a new Filter DCA group to open the Group Edit page.



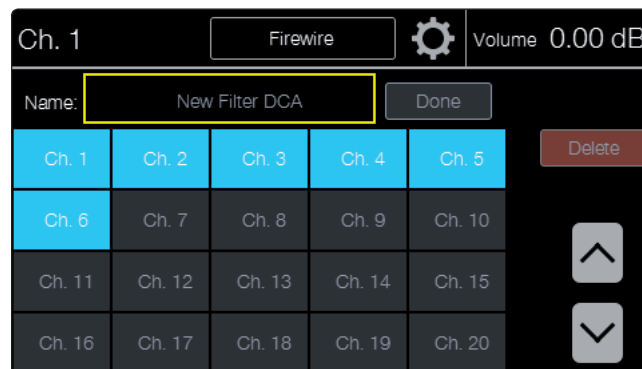


3. Touch the channels you want included in the group. Touch the up and down arrows or use the encoder under the touchscreen to scroll through the list of available channels.

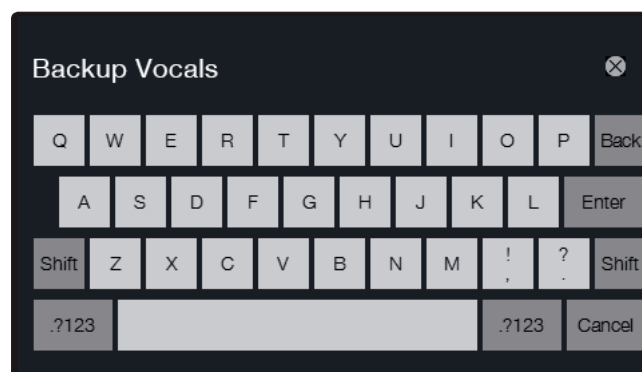


**Power User Tip:** Channels can be a part of multiple Filter DCA Groups.

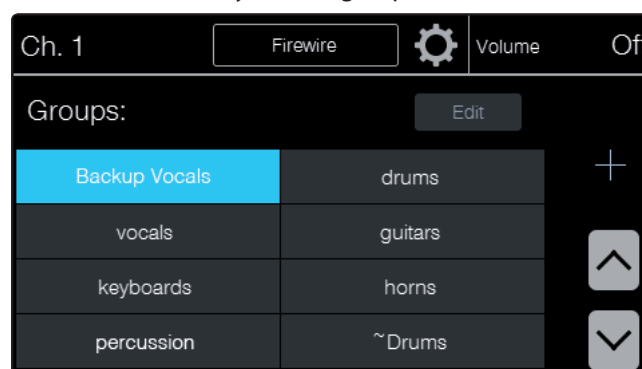
4. When you have configured the group as desired, touch the Name field to open the text entry screen.



5. Enter a name for the new group using the onscreen keys. Press the onscreen Enter button when you are finished entering the name or use the onscreen Back button to leave the page without renaming the group.



6. When you're done setting up your group, press the Done button. This will save the group and return you to the Groups screen with the newly created group selected.



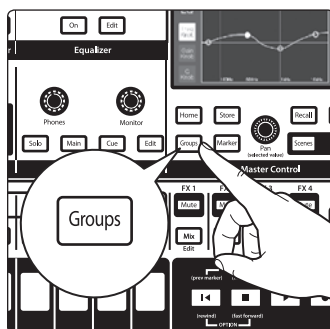


When a group is selected two things will happen:

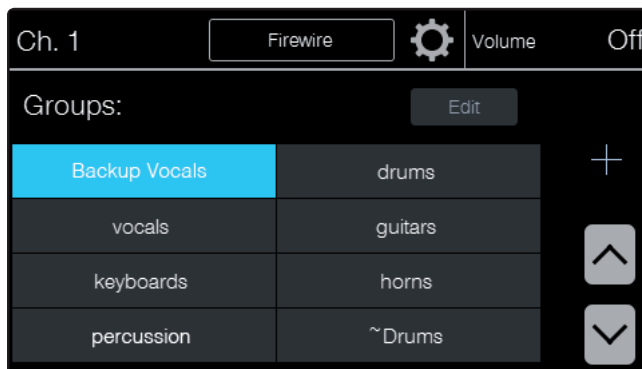
- The channel strips will filter out all channels not in the group, only displaying the channels in the group. For example, if you have channels 1, 18, and 30 in group A, when that group is selected you'll see those channels displayed on channel strips 1 through 3 of the CS18AI.
- The Flex Master fader will become the main group control for the selected group. Moving the Flex Master fader will move all the faders for all channels in the group, relative to one another, so that the mix balance is maintained. Muting the Flex fader will mute all channels in the group.

### 3.1.2.2 Editing a Filter DCA Group

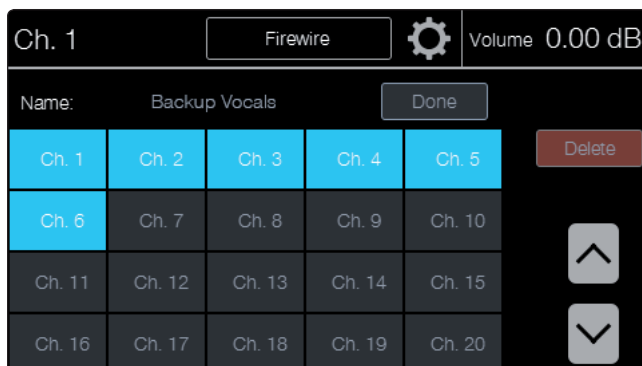
1. Press the Groups button in the Master Control area of the front panel to open the Groups screen.



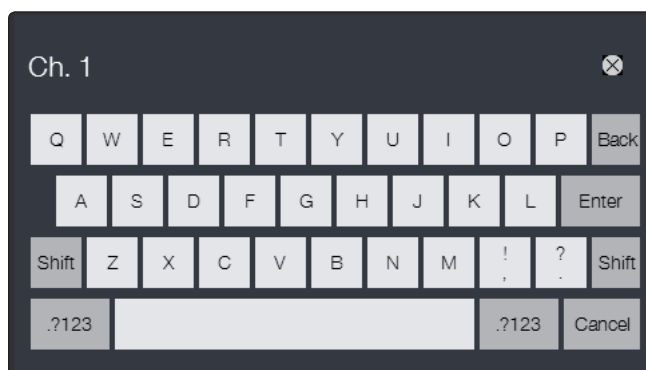
2. Touch the name of the group you'd like to edit. This will simultaneously select the group.



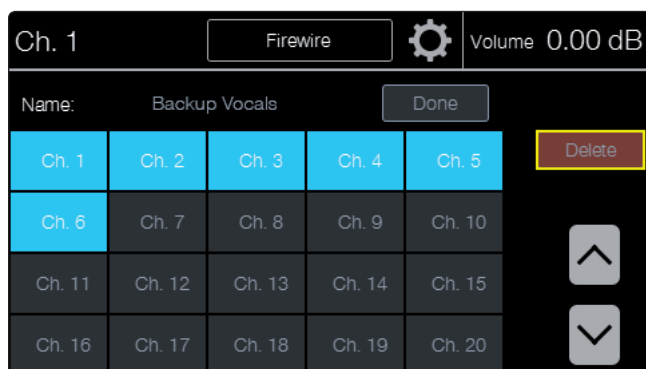
3. Touch the onscreen Edit button to open the Group Edit page. From here you can add and remove channels in the group, rename the group, or delete the group.



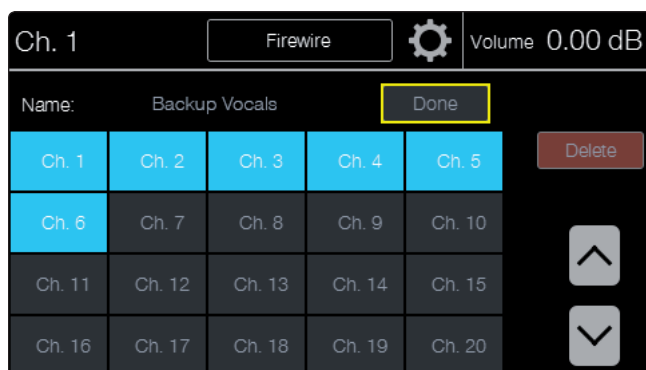
4. Touch the channel number or name on the page to add or remove the channel from the group. When the channel number is highlighted blue, it is in the group; when it is gray, it is not included in the group. Touching the channel toggles its status.
5. Touch the Name field to change the name of the group. This will open the Text Entry screen, where you can enter a new name.



6. Pressing the Delete button will delete the group and return you to the main Groups screen.



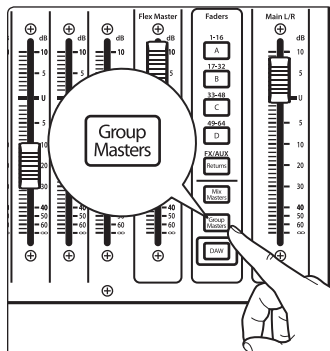
7. Touch Done when you are finished configuring the channels in the group.



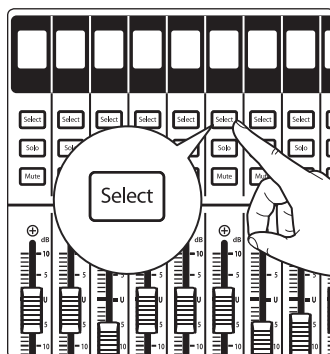
### 3.1.2.3 Mixing with Filter DCA Groups

Filter DCA Groups simplifies mixing and managing large channel counts. This section is an example of how to use this tool in a real-world application.

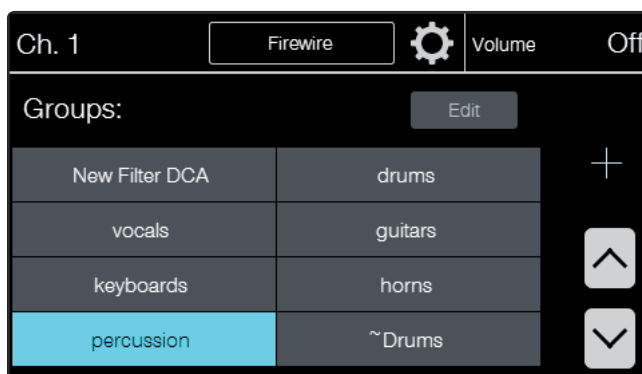
1. Select the Group Masters layer. Here you'll see the master controls for each of the groups you've created. All primary level control and muting can be managed from here.



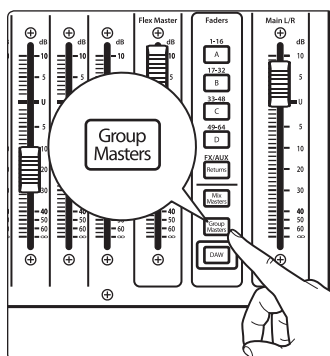
2. From the Group Masters layer, pressing the Select button on any group will spill out the channels contained within it across the faders on the CS18AI. The Flex Master fader will now be the selected group master, and the touchscreen will show the Groups screen.



3. From here, if you need to jump to another group for more individual channel adjustments, simply touch the group you want to bring up on the touchscreen.



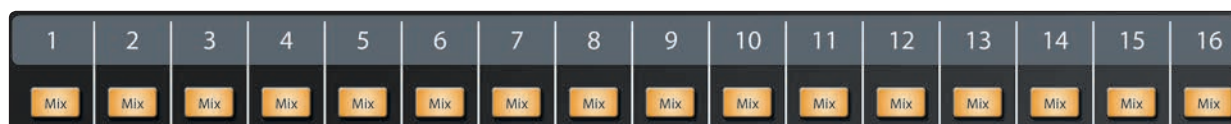
4. When you're done making adjustment to the individual channels, press the Group Masters button again to exit the group and return to the Group Master layer.



Filter DCA Groups can be accessed using the Groups view on the touchscreen or from the Group Masters layer.

### 3.1.3 Accessing Mixes

To access any of your RM-series mixer's Flex mixes, simply press the corresponding Mix button. While active, the faders will control the selected Flex mix and the Flex Master will control its output.



To access all mix masters, press the Mix Masters button in the Faders area to make the Mix Masters layer active. The channel strips now control the master outputs for the 16 flex mixes.

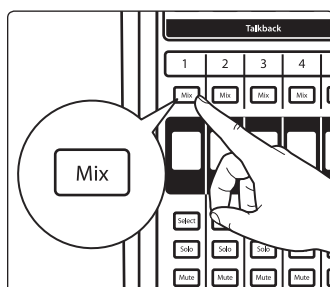


#### 3.1.3.1 Creating Monitor Mixes

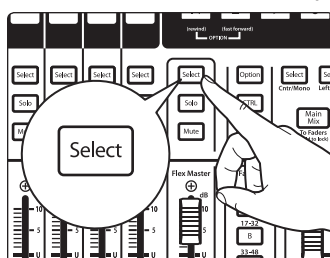
Creating custom monitor mixes is critical. If musicians can't hear themselves or their bandmates, their performance will suffer. A monitor mix can be mono or stereo.

As an example, let's create a stereo in-ear-monitor mix on Aux 1 and 2.

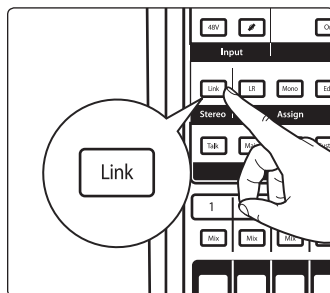
1. To begin, press the Mix 1 button above the scribble strip. The channel strips will display each input channel's send level to Aux 1.



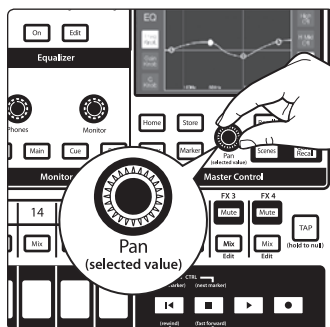
2. Press the Select button on the Flex Master fader to select the Aux 1 master. The Fat Channel will now display the settings for the Aux 1 master send.



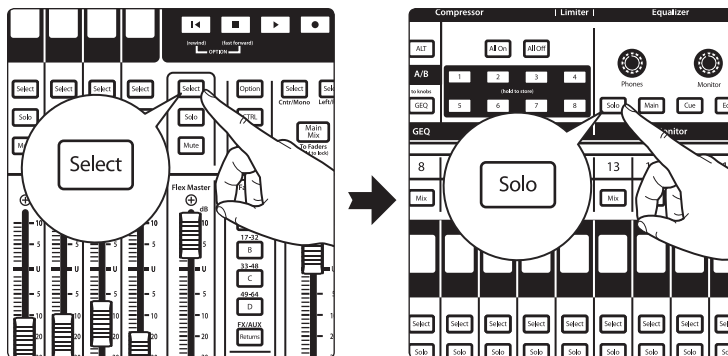
3. Press the Link button in the Fat Channel to stereo link Aux 1 and Aux 2. When linked, both Mix buttons will illuminate.



4. Turn up the Flex Master fader to unity. This will turn up the master send level for Aux Mix 1/2.
5. Ask your musicians what they would like in their monitor mix and use their requests as a starting point. Turn up the faders to send the associated channels to the aux mix.
6. To pan a channel in the stereo aux mix, select the channel and use the Pan/Value encoder under the touchscreen to adjust the pan for the selected channel. You'll see the pan position in the scribble strip indicator and the parameter value display in the top right of the touchscreen.



7. You can listen to the aux mixes you're creating, using headphones or monitors, by simply soloing the Aux Master on the Flex Master fader and selecting Solo as the source in the Monitor section.

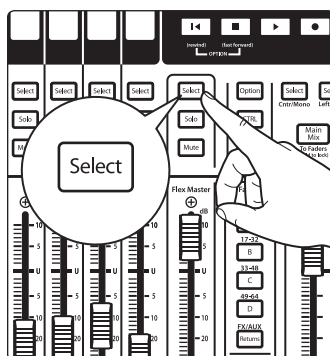


### 3.1.3.2 Creating Subgroups

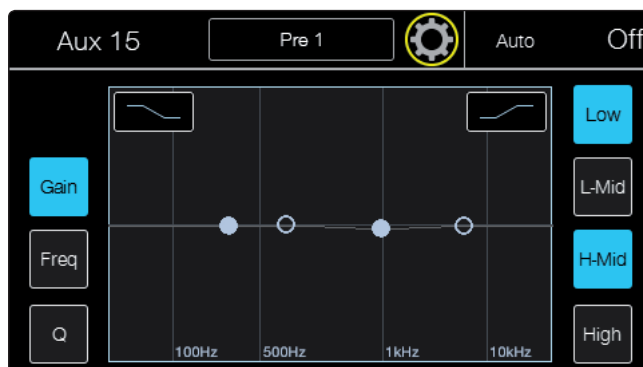
A subgroup allows you to combine multiple channels into a single bus, providing a master level fader and Fat Channel processing for the entire group. Subgroups can be soloed, muted, and routed to the Main Left/Right and Mono/Center mixes. On the CS18AI, selecting a subgroup Mix button will still show the Main Mix channel strips but will filter them to only show the channels assigned to the subgroup. The Flex Master fader will be the subgroup master control.

#### Creating a Subgroup

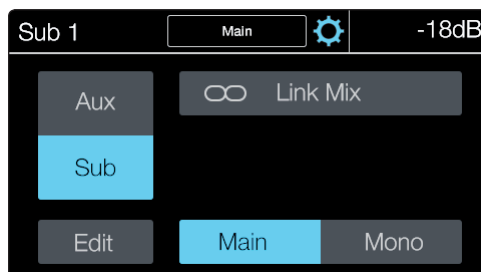
1. The 16 Flex Mixes on the RM-series mixer can be switched between Aux Mix and Subgroup functionality. By default, all Flex Mixes are assigned as aux mixes. To make a Flex Mix function as a Subgroup, press its Mix button and then select the master output from the Flex Master.



2. Open the Mix Settings page by pressing the gear icon to the right of the selected mix name on the touchscreen.



3. Press the Sub button on this screen to change the Flex Mix to function as a subgroup.



4. Press the Edit button.

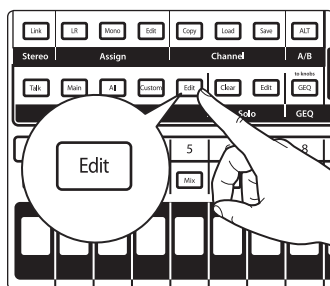
5. Select the channels you'd like to add to the Subgroup. When you've finished your channel assignments, press Done.



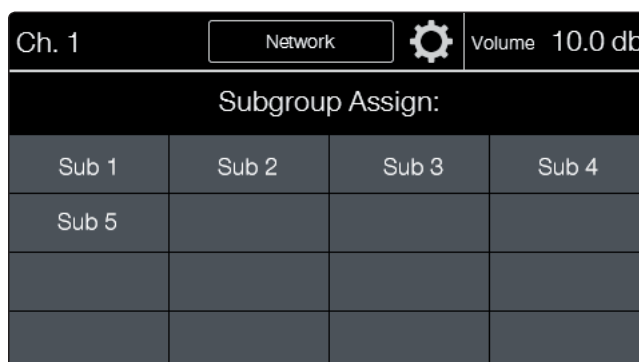
### Changing Subgroup Assignments

You can add or remove a channel from a subgroup at any time from the Assign Edit menu.

1. Select the channel you'd like to assign to or remote from a subgroup by pressing the Select button on the associated channel strip. This will display the Fat Channel for the selected channel.
2. Press the Edit button in the Assign section of the Fat Channel to open the subgroup Assignment view in the touchscreen.



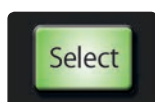
3. Any mixes you have set as subgroups will show as assignable subgroups on the Assignment view. Touch the subgroups you'd like to assign.



## 3.2 Basic Channel Operation

The Fat Channel is the heart of the StudioLive RM-series mixer. The Fat Channel section of the CS18AI makes dynamics, EQ, and routing for every input and output on the StudioLive RM available at the touch of a Select button.

### Selecting Channels



To select a channel within a layer:

1. Be sure the proper layer is active.
2. Press the Select button for the channel you want to access. The button lights to show that the channel is selected, and the top left of the touchscreen will display the channel name and source.

When a channel is selected, the following controls are available:

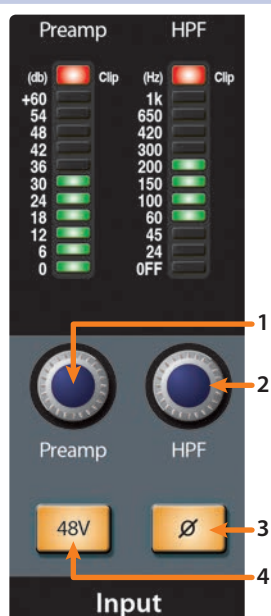
- Preamp functions
- Fat Channel Processing with A/B
- Stereo Linking
- Main and Subgroup Assignments
- Level and Gain Reduction Metering (Compressor and Gate)
- Pan control
- Input Source Selection
- Custom Naming
- Color Code Selection

**Note:** Fat Channel processing is disabled on all output buses on RM-series mixers when HD Mode (88.2 and 96 kHz) is active. AVB Networked audio on both the CS18AI and RM-series mixers is also disabled in this mode

When editing Fat Channel settings with these controls, the settings values are displayed in two ways:

- In the Fat Channel meter mode, the meter above each parameter indicates its value.
- When a control is adjusted, the exact value is displayed in the upper right corner of the touchscreen.

### 3.2.1 Input



The Input section contains the settings for preamp gain, highpass filter (HPF), +48V phantom power, and polarity.

1. **Preamp.** Adjusts the gain of the channel's analog input.

**Power User Tip:** The preamp level for the 16 currently visible channels can be adjusted simultaneously using Preamp Mode from the Home screen. Please see Section 3.7 for more information.

2. **High Pass Filter.** Sets the High Pass Filter frequency threshold for the selected channel or output bus. Frequency range is indicated to the left of the meter. The filter's threshold can be set from 24 Hz to 1 kHz. When the meter is set to its lowest point, the filter is off.

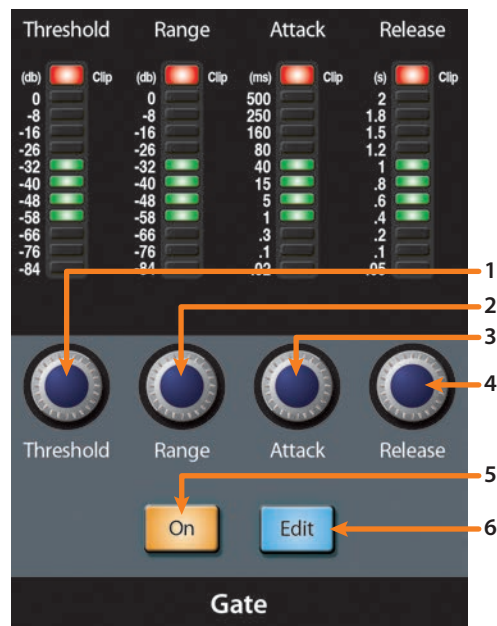


3. **Polarity Invert.** Alters the polarity of the selected channel's signal by 180°. The Polarity Invert button can be used to correct out-of-phase audio signals that are canceling/reinforcing each other.
4. **48V** engages phantom power for the microphone input on the selected channel. This feature can be individually enabled for each channel.



**WARNING:** Phantom power is required for condenser microphones but can severely damage some dynamic mics, especially ribbon mics. Therefore, switch phantom power off for all channels where it is not required.

### 3.2.2 Noise Gate and Expander

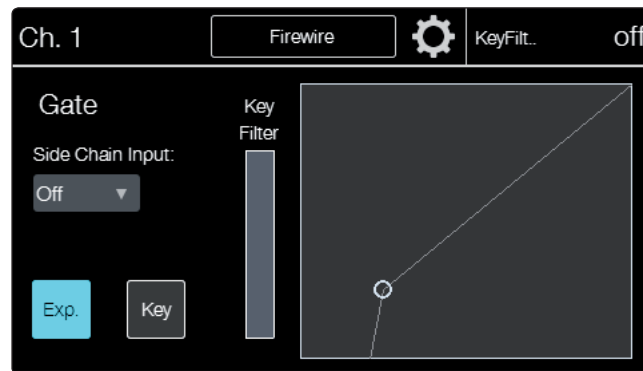


1. **Gate Threshold.** Sets the gate threshold—the level at which the gate opens—for the selected channel. If the threshold is set fully counterclockwise, the gate is turned off (always open), allowing all signals to pass through unaffected. You can set the threshold from 0 to -84 dB.

***Power User Tip:** The Gate meter in the Selected Channel area displays the amount of gain reduction currently being applied by the noise gate/expander.*

2. **Gate Range.** Sets the amount of gain reduction that the gate produces. The range can be set from 0 to -84 dB. Range control is not available when using the expander.
3. **Gate Attack.** Sets the rate at which the gate opens on the selected channel or output. You can set the attack time from 0.02 to 500 ms.
4. **Gate Release.** Sets the rate at which the gate for the selected channel closes. The release time can be set from 0.05 to 2 seconds.
5. **Gate On.** Toggles the gate on and off for the selected channel. It will illuminate to indicate that the gate has been enabled.

6. **Gate Edit.** Opens the Gate view on the touchscreen and provides access to more gate parameters.



**Exp** turns the noise gate into an expander. StudioLive RM mixers allow you to choose between an expander and a noise gate for each channel or output. By default, the expander will be enabled.

**Power User Tip:** In practice, expanders and noise gates are used almost identically. The main difference is that an expander is smoother and more gradual, so that it is easier to set the attack and release times correctly.

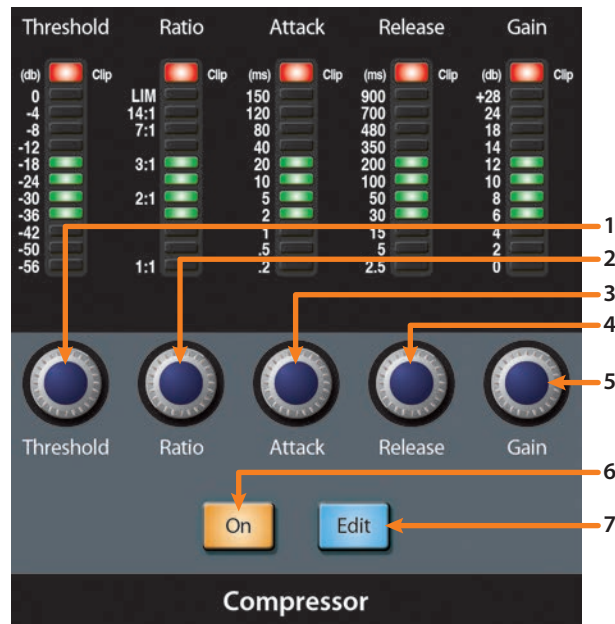
**Key Listen.** Enables Key Listen in the Solo bus. The button will illuminate to indicate that Key Listen is active. When Key Listen is enabled, and the selected channel is soloed, you can use the Headphone or Monitor outputs to monitor what the gate key filter is removing.

**Key Filter.** Sets the frequency at which the gate will open. Setting a specific frequency, in addition to a specific decibel level, provides more sonic shaping. The key filter can be triggered by the selected channel or bus's signal or by side chaining a channel and using its signal as the source.

**Power User Tip:** A properly set key filter on a gate can greatly improve the overall sound quality of a mix. For example, if you are inserting a gate on a snare-drum mic, you may get enough bleed from the kick drum to open the gate. This is where a key filter can come in handy. By setting the key filter to remove some of those low frequencies, the gate won't be as apt to open for the kick drum.

**Side Chain Input.** Allows you to select a different channel as the trigger source for the gate's key filter.

### 3.2.3 Compressor

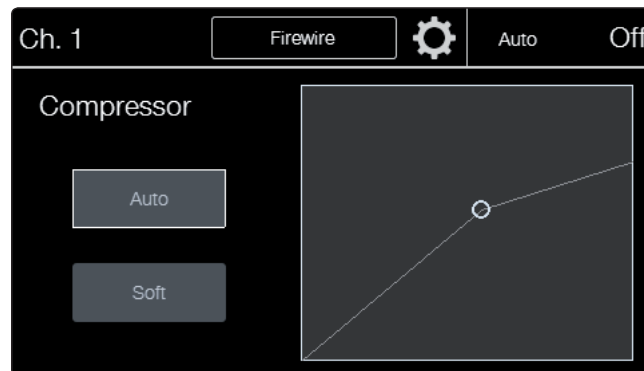


1. **Compressor Threshold.** Sets the compressor threshold for the selected channel or output bus. When the signal's amplitude (level) exceeds the threshold setting, the compressor engages. The threshold can be set from -56 to 0 dB.

***Power User Tip:** The Compressor meter in the Selected Channel area displays the amount of gain reduction currently being applied by the compressor.*

2. **Ratio.** Sets the compression ratio (or slope) for the selected channel or output bus. The ratio can be set from 1:1 to 14:1.
3. **Compressor Attack.** Sets the compressor's attack setting for the selected channel or output bus. Attack sets the speed at which the compressor acts on the input signal. You can set the attack from 0.2 to 150 milliseconds.
4. **Compressor Release.** Sets the release setting of the compressor for the selected channel or output bus. Release sets the length of time the compressor takes to return the gain reduction back to zero (no gain reduction) after crossing below the compression threshold. Release can be set from 2.5 to 900 milliseconds.
5. **Compressor Gain.** Sets the makeup gain setting of the compressor for the selected channel or output bus. When compressing a signal, gain reduction usually results in an overall attenuation of level. The Gain control allows you to restore this loss in level, readjusting the volume to the precompression level (if desired). You can adjust Compressor Gain from 0 dB (no gain adjustment) to +28 dB.
6. **Compressor On.** Toggles the compressor on and off for the selected channel or output bus. The button will illuminate to indicate that the compressor has been enabled.

7. **Compressor Edit.** Opens the Compressor view on the touchscreen and provides additional parameters.



**Soft Knee.** Engages soft-knee compression. In normal operating mode, the compressor is set for hard-knee compression, meaning that the gain reduction applied to the signal occurs as soon as the signal exceeds the level set by the threshold. When the Soft Knee button is engaged, the ratio increases gradually as the signal reaches the threshold.

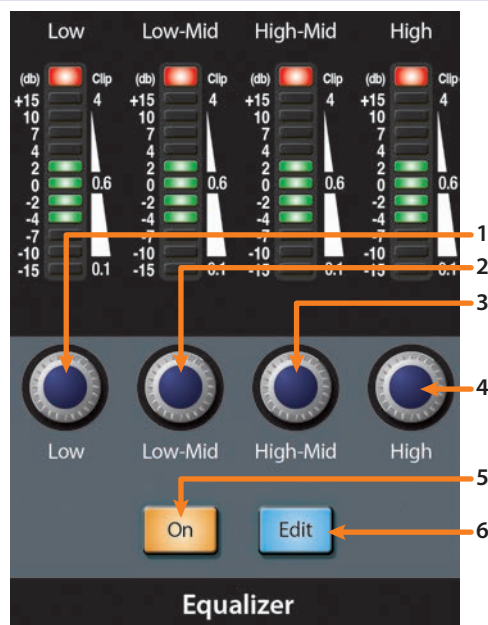
**Auto.** Enables the automatic attack and release mode. When Auto mode is active, the Attack and Release controls become inoperative, and preprogrammed attack and release curves are used. The attack is set to 10 ms, and the release is set to 150 ms. All other compressor parameters can still be adjusted manually.

### 3.2.4 Limiter



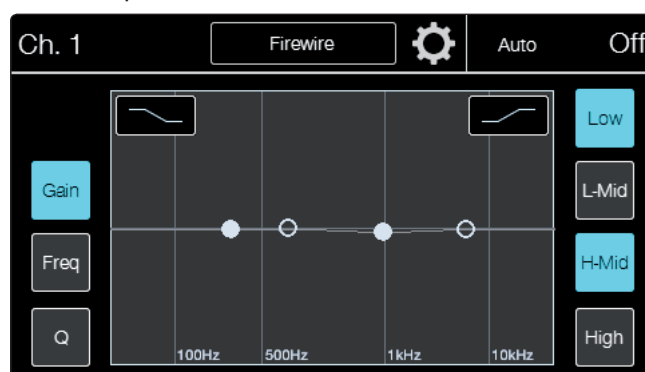
1. **Limiter Threshold.** Sets the threshold of the limiter for the selected channel or output bus. When the signal's amplitude (level) exceeds the threshold setting, the limiter is engaged. The threshold can be set from -28 to 0 dB.
2. **Limiter On.** Toggles the limiter for the selected input channel or output bus. When the limiter is engaged the button will illuminate. The ratio is  $\infty$ :1.

### 3.2.5 Equalizer



There are four Fat Channel controls in the Equalizer section, one for each of the four bands in the equalizer. These controls can be switched between adjusting frequency, gain, or Q for the indicated band. The meters show the values for the chosen settings.

1. **Low Band control.** Set the gain, frequency, or Q for the Low EQ band. By default it controls the gain.
2. **Low-Mid Band control.** Set the gain, frequency, or Q for the Low-Mid EQ band. By default it controls the gain.
3. **High-Mid Band control.** Set the gain, frequency, or Q for the High-Mid EQ band. By default it controls the gain.
4. **High Band control.** Set the gain, frequency, or Q for the HighEQ band. By default it controls the gain.
5. **Equalizer On.** Globally switches all EQ bands on or off for the selected input channel or output bus.
6. **EQ Edit.** Opens the EQ view on the touchscreen.



The three button on the left of the screen toggle the parameters being controlled by the four EQ encoders. By default the encoders are set to gain. They'll return to controlling the gain when the EQ screen is exited.

**Gain.** Enabling this sets the four EQ encoders and meters to control the gain of the associated EQ band. Gain will cut or boost at the center frequency for the Low band. The level of the center frequency can be set between -15 and +15 dB.

**Freq.** Enabling this sets the four EQ encoders and meters to control the center frequency of the associated EQ band. You can adjust the center frequency for each band as follows:

- **Low Band:** 36 to 465 Hz
- **Low-Mid Band:** 90 Hz to 1.2 kHz
- **High-Mid Band:** 380 Hz to 5 kHz
- **High Band:** 1.4 kHz to 18 kHz

**Q.** Enabling this sets the four EQ encoders and meters to control the Q of the associated EQ band. The Q is the ratio of the center frequency to the bandwidth.

In the top left and right corners of the EQ graph are buttons to engage the High or Low band's Shelf mode.

**Low Shelf.** Enabling the Shelf button turns the Low band into a low shelving EQ that alters, by a fixed amount, a band of low frequencies at and below a user-selected frequency. When the Shelf button is not engaged, the Low band is parametric.

***Power User Tip:** A low shelving EQ is like a bass control knob on a stereo. In this mode, the Center Frequency control selects the shelving frequency.*

**High Shelf.** Enabling the Shelf button turns the High band into a high shelving EQ that alters, by a fixed amount, a band of high frequencies at and above a user-selected frequency. When the Shelf button is not engaged, the High band is parametric.

***Power User Tip:** A high shelving EQ is like a treble control knob on a stereo. In this mode, the Center Frequency control selects the shelving frequency.*

**Band On/Off** buttons are located on the right of the screen. These toggle the individual EQ bands on and off.

### 3.2.6 Panning and Stereo Linking



Panning for each input and output bus is set from the Pan (Selected Value) in the Master Control section.

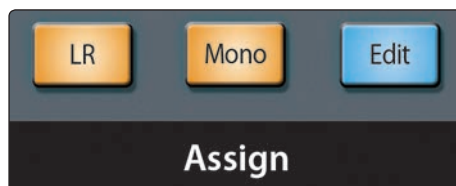
The Scribble Strip display for the selected channel shows the Pan setting. When two channels are linked as a stereo pair, the Pan graphic display will automatically change to a stereo pan.



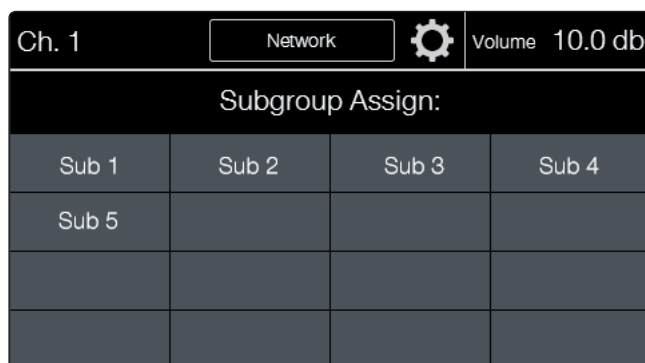
Stereo linking is done within the Fat Channel. Input channels, aux buses, and subgroups can be linked to create a stereo pair. The stereo pairs are predefined and cannot be changed.

### 3.2.7 Mix Bus Assignments

Use the Assignment section to route channel and subgroups to the Main L/R, and Mono buses.



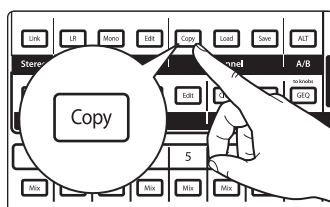
Press the Edit button to open the Subgroup assign menu:



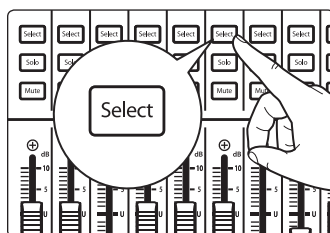
### 3.2.8 Copying, Loading, and Saving Fat Channel Settings

In addition to being able to create and save custom Fat Channel presets, every setting in the Fat Channel can be copied from one channel or bus to any other channel or bus.

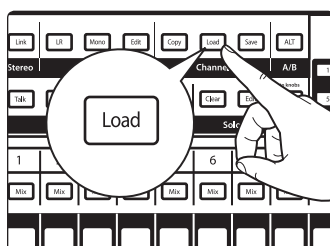
1. Press the Copy button to copy the settings on the selected channel or bus. Every Select button on the CS18AI, except the button for the currently selected channel, will begin to flash.



2. To paste the current channel's Fat Channel setting to another channel or bus, simply press that channel's Select button. It will stop flashing and will illuminate.



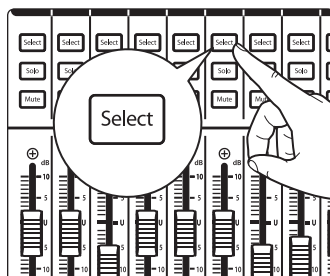
3. After you have selected every channel to which you want the settings pasted, press the Load button. The StudioLive will return to its normal state, indicating that the Fat Channel settings have been successfully pasted.



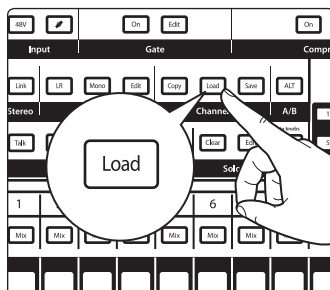
## Loading Fat Channel Presets

StudioLive RM-series mixers comes with a suite of channel-strip presets created by professional users of PreSonus products. These presets provide a great jumping-off point to create a mix quickly and easily. The StudioLive mixers also allows you to create your own library of presets.

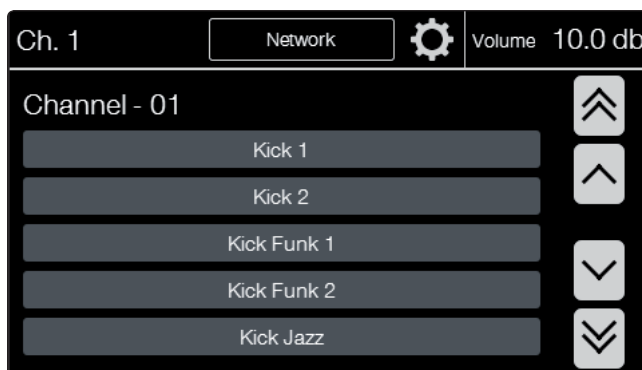
1. To load a preset to any channel on the CS18AI, first press the Select button for the desired channel.



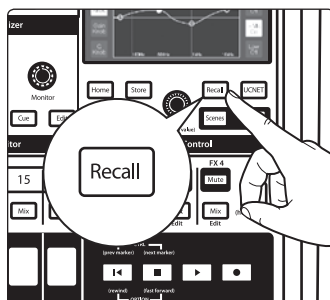
2. From the Fat Channel, press the Load button. You will notice that the touchscreen now displays the Channel Preset Load screen.



3. The Channel Preset Load menu always displays the selected channel onto which the preset will be loaded. Use the encoder under the touchscreen to scroll through the preset library.



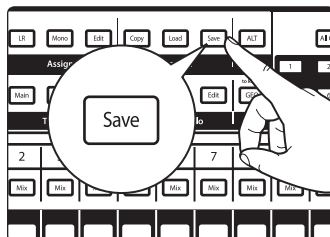
4. Once you have made your selection, press the Recall button.



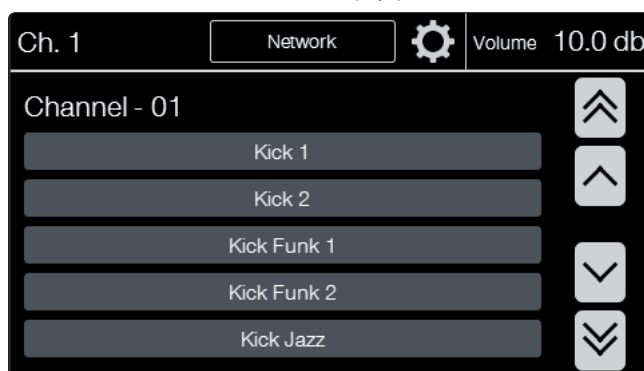


## Saving Fat Channel Presets

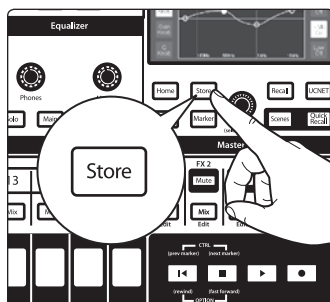
If you have created a channel-strip setting in the Fat Channel that you would like to save to the Channel Preset library, press the Fat Channel's Save button.



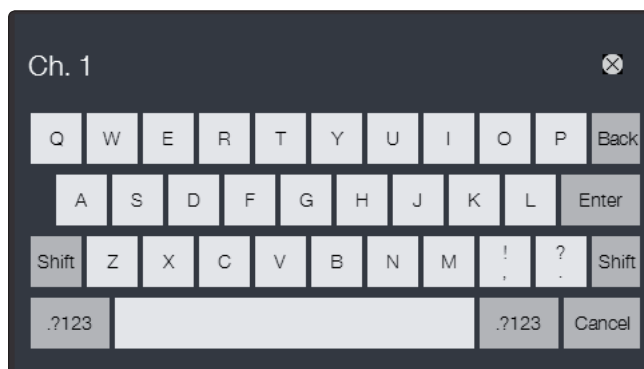
1. Notice that the touchscreen displays the Channel Preset menu. Use the Value encoder to scroll to an empty position in the Channel Preset library.



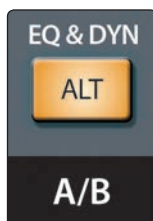
2. Select the Preset position you'd like to save to and press the Store button.



3. The Text Entry screen will be shown; enter the name for your preset. When you're done, press Enter. Press Cancel to exit this operation.



### 3.2.9 A/B Fat Channel Settings

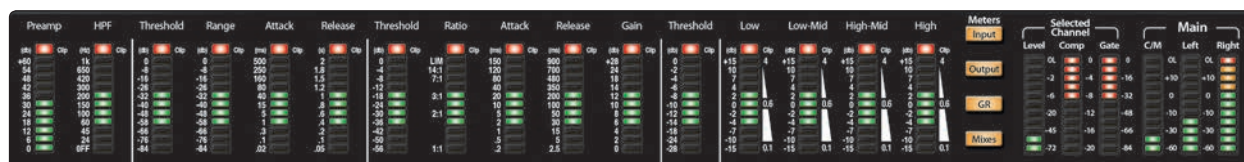


StudioLive RM-series mixers let you create two complete Fat Channel settings for each channel and bus and compare the two using the Alt EQ & Dyn button. In this way, you can experiment with a new sound without having to struggle to re-create your old standby, and after several minutes of careful adjustment, you can verify that a new Fat Channel setting is better than it was before you started tweaking. It can also be used to store settings for two different sources or tones on the same channel, like when the guitar player switches from a Les Paul to a Telecaster.

To A/B Fat Channel settings:

1. Select a channel and adjust the Fat Channel settings to taste.
2. Press the Alt EQ & Dyn button. The button will light up to alert you that you are using the Alt Fat Channel layer.
3. Dial in a new Fat Channel setting.
4. Press the Alt EQ & Dyn button again to listen to your original Fat Channel setting.

### 3.2.10 Metering



The Meters section of the CS18AI is located to the right of the Fat Channel meters. Each of these buttons are toggle switches; turn them on and off by pressing them. The meter state can be changed by pressing another button in the Meters section. Your CS18AI defaults to peak metering. Peak-hold metering is also available and can be enabled in the System menu.

**Power User Tip:** It is important to mention that the meters simply overlay the selected Fat Channel state. For instance, if you have Channel 16 selected and then press the Output button in the Meters section, the knobs and buttons in the Fat Channel section will still be active. The advantage of this is that you can make adjustments in the Fat Channel while monitoring your entire mix.

**Input.** Switches the meters to display the pre-dynamics, pre-fader level of the input bus. Meters are one-to-one (Meter 1 shows the level of Channel 1, etc.).

**Output.** Switches the meters to display the post-dynamics, post-fader level of the Input bus. Meters are one-to-one (Meter 1 shows the level of Channel 1, etc.).

**GR.** Displays the gain reduction of the associated channels.

**Mixes.** Displays the output level of each of the 16 aux mixes or subgroups.

In addition to the 16 individual channel meters, your CS18AI is equipped with dedicated Selected Channel and Main bus meters:

**Selected Channel** meters are dedicated to displaying information about the currently selected channel. The meter on the far left of this section displays the pre-fader input level for the selected channel. The two meters to the right of it display the compressor and gate gain reduction applied to the selected channel. These meters are only active when one of the input channels or an aux bus is selected.

**Main.** Displays the level of the Main Center/Mono, Left, and Right outputs. These meters are scaled from -60 to +24 dBu.

### 3.3 Channel Strip Controls

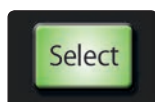
The CS18AI has 16 channel strips used to display input channels, return channels, mix masters, and group masters. Each channel strip includes a scribble strip display; buttons for Select, Solo, and Mute; and a touch-sensitive motorized fader.

#### Scribble Strip Display

Above each of the 16 channel strips is a scribble strip display to help you identify which channels are being shown on the channel strips. Each display will show the channel name, channel identifier, and pan location.

When displaying the input channels, the channel identifier will be the channel number. When on the Mix Masters layer, it will show the mix number, with an "A" for aux mixes and "S" for subgroups.

#### Multicolor Select

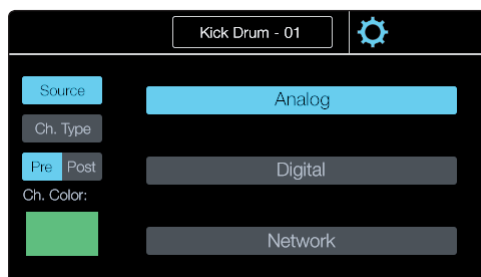


**The Select button** brings up the Fat Channel for the selected channel or mix and displays the channel number, name, and input source or routing setting in the touchscreen.

The Select buttons are multicolored to make it easy for you to quickly identify the channels of your mix. By default, the Select button colors are configured to match the color of the associated fader layer when you're viewing the main mix. The main mix channel Select colors can be customized, allowing you to create channel color groups. For example, you could make all drums green, guitars blue, and vocals pink.

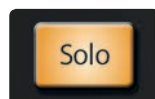
To change the color of the Select button, first select the channel you'd like to change.

1. Press the Channel Settings gear icon in the touchscreen to the right of the channel name. This will open the Channel Settings screen.

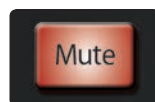


2. From this screen you can select the Channel Color button. This will open the screen with the available color options. Select the color you'd like to assign to the selected channel.

#### Solo and Mute



**Solo.** Press solo to isolate the corresponding channel in the main outputs or to the monitor outputs, depending on whether PFL (Pre-Fader Listening) or SIP (Solo In Place) is selected in the Solo bus section. Please **review Section 3.5.2** for details on Solo modes.



**Mute.** Press this button to toggle the channel mute on and off. It will illuminate red when the channel is muted. The Global Mute setting in the System menu determines where a channel will be muted. By default, Global Mute is set to "Yes." While in this mode, engaging a channel Mute button will mute the channel in all of its assigned outputs (subgroups, mains, aux buses, and FX buses). Disabling Global Mute will allow the channel to continue to be heard in the Aux bus mixes while muting in all other bus mixes.

## Faders



The CS18AI is equipped with touch-sensitive motorized faders to give you precision control over you mix. Touch sensitivity means the fader knows when you touch it. This means the faders won't fight you when beginning to make a movement. It also means we can provide information about the fader position without you needing to move the fader.

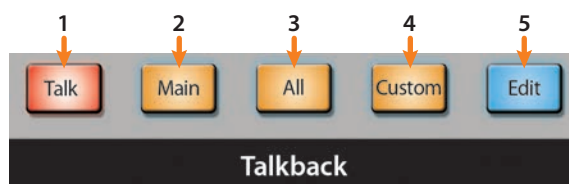
**Channel Fader** controls the overall level of the channel. Each input channel features a 100 mm long-throw fader for accurate level adjustment. Unity gain (0 dB) is denoted by a "U."

**Power User Tip:** *Because the faders are motorized, they've been designed to have upper and lower limits just before the top and bottom of the fader throw. This will avoid having the fader hit the top and bottom of the fader rails, which over time could cause damage to your faders. Moving the fader to the absolute top or bottom of the throw will still behave properly but when you navigate back to the layer or recall a scene, you'll notice the fader will be located slightly off the end of the rail.*

## 3.4 Global Mixer Controls

In addition to the Fat Channel controls, the StudioLive CS18AI has a section of Global controls for accessing talkback, Solo modes, graphic EQ, mute groups, monitoring, and more. These sections are designed to provide quick and intuitive access to the most essential mix controls.

### 3.4.1 Talkback



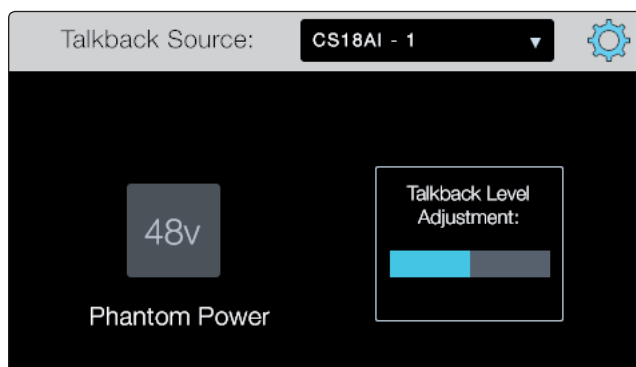
The CS18AI will automatically assign Input 1/TB as the talkback source for the connected RM mixer. This can be routed to the aux outputs and to the mains.

1. **Talk.** Turns the talkback mic on and off. It will illuminate to indicate that the talkback mic is active. When illuminated, the talkback-mic signal will be patched to all assigned outputs.
2. **Main.** Assigns the talkback mic to the Main outputs.
3. **All.** Assigns the talkback mic to all Aux and Main outputs.
4. **Custom.** Assigns the talkback mic to a custom configuration of aux mixes. The aux mix assignments can be selected in the Talkback Edit screen.
5. **Edit.** Opens the talkback custom assignment page in the touchscreen. From here you can select any combination of aux mixes to receive talkback.



At the top of the Talkback Assign screen you can see the current talkback input source and a gear icon.

Pressing the gear icon opens the Talkback Settings screen. Here you can select a different talkback source, adjust the talkback preamp level, and engage +48 phantom power on the talkback input.



**Power User Tip:** While the talkback can be assigned and unassigned to multiple aux buses at once, each aux mix provides its own individual level control for the talkback via the Returns layer.

### 3.4.2 Solo Bus

StudioLive RM mixers feature an independent Solo bus. This feature is extremely useful in setting levels for monitor mixes, dialing in dynamics processing on each channel, and fixing issues during a live show without interrupting the main mix. The Solo bus has three different modes: AFL (default), PFL, and SIP.

**AFL** (After-Fader Listen) sends the channel or subgroup signal to the Solo bus post-fader so that you can control the level of the soloed signal with the fader. This is the StudioLive RM's default setting.

**PFL** (Pre-Fader Listen) sends the channel or subgroup signal to the Solo bus before it reaches the fader so the fader does not affect the soloed signal.

**SIP** (Solo In Place) is also known as "destructive solo." When channels are soloed in this mode, every channel that isn't soloed will be muted, and only the soloed channels will be sent to their assigned outputs. While useful in dialing in dynamics processing during soundcheck, this mode is dangerous during a live show. We recommend that this mode be turned off when mixing live events.

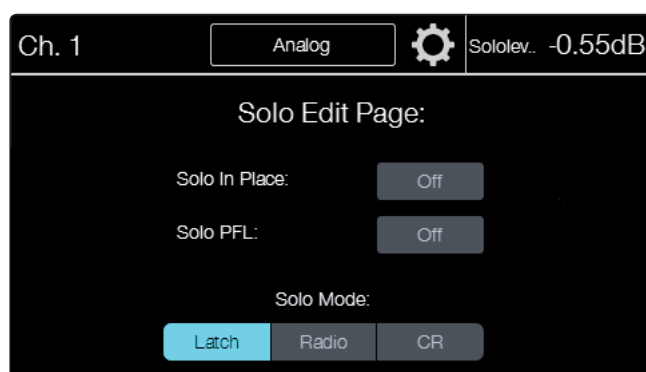
**Power User Tip:** When SIP is engaged, channel mutes will only apply to the subgroup and main bus assignments. SIP does not mute input channels in aux bus mixes. Because of this, you can use SIP to dial in a mix in the mains without disturbing the musicians' last-minute rehearsal onstage. Destructive soloing is also a great way to tune each channel's dynamics individually in live-mixing situations or do surgical editing in the studio. SIP mode mutes every channel and bus that is not soloed in the Main bus (that is, if Channel 3 is soloed, you will only hear Channel 3 in your mains). This makes a great fine-tuning tool but it can quickly destroy a live mix. We highly recommend that you drop out of this mode once the show has started.



**Clear** will disengage all active solos on the mixer.

**Edit** will bring up the Solo bus options in the touchscreen.

#### Solo Modes



**Latch** is the default Solo mode. When Latch Solo mode is active, you can solo multiple channels and buses at once.

**Radio** mode allows you to solo only one channel or bus at a time.

**CR** is designed for studio-style soloing. Soloing any channel while in this mode will automatically patch the Solo bus to the Main Mix bus and disable any other buses that are currently engaged in the Solo bus. While in CR Solo mode, you can solo multiple channels and buses at once but you can only patch one input or bus to the monitor bus at a time.

### 3.4.3 Graphic Equalizer (GEQ)

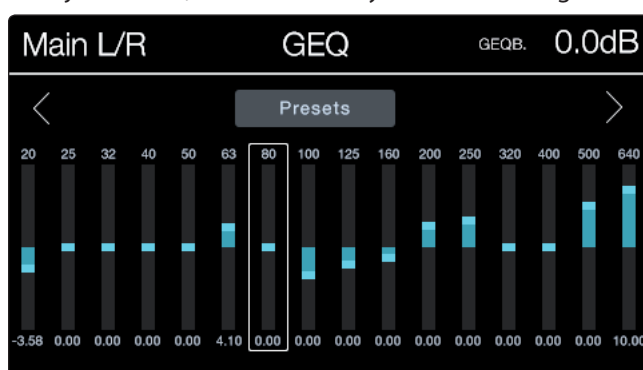
Each graphic equalizer on your StudioLive RM mixer is assigned to a specific bus: Main Left, Main Right, Main Mono/Center, and Auxes 1 through 12. The bus assignment cannot be changed. When the GEQ menu is active, the touchscreen will display the controls and settings for the graphic EQ.



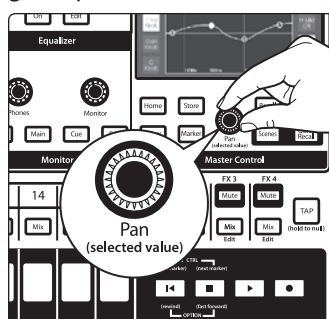
Pressing the **GEQ** button will open the GEQ on the touchscreen for the selected mix on the touchscreen. Pressing the button a second time will exit the GEQ screen. When you're on the Main Mix, you'll see the Main L/R GEQ. To change to the Mono/Center GEQ, first press the Mono/Center Select button, next press the GEQ button and then the Main Mix button. Pressing the Mix button for any of the first 12 Mix buses will display the GEQ for that mix.

When in the GEQ screen, you'll see EQ bands for 20 Hz to 640 Hz. Pressing the right arrow will display 640 Hz to 20 kHz.

1. To adjust a band, touch the band you want to change.



2. Use the encoder under the touchscreen to turn the gain up or down for the selected band.



Pressing the Presets button in the touchscreen will bring up the GEQ Presets menu.

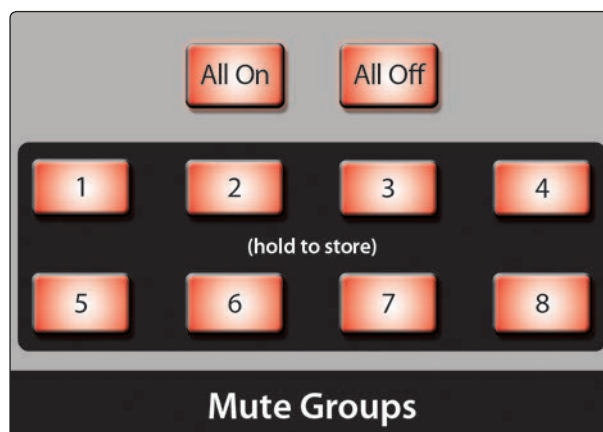


From here you can select a preset location to **store** or **recall** the preset. Use the encoder under the touchscreen to scroll through the preset list.



### 3.4.4 Mute Groups

StudioLive RM-series mixers feature eight mute groups. A mute group allows you to mute and unmute multiple channels and buses with the press of a single button. With eight mute groups, you could, for example, assign the drum mics to Mute Group 1, the instrumentalists to Mute Group 2, the background vocalists to Mute Group 3, all the aux buses to Mute Group 4, all four effects buses to Mute Group 5, and every channel on the mixer to Mute Group 6. Then, during the acoustic jam, you can mute all of the drum mics with one button. When the lead singer is introducing the band and saying "Hello, New Orleans!" you can mute all effects assigned to his vocal. When the band goes on break, you can mute all channels at once. And when it's time to break down the stage and start unplugging things, you can just lower the main fader and mute all stage monitors with one button.



**All On** is a preconfigured mute group that includes every channel and bus with a Mute button. Pressing this button activates every mute on the RM mixer. Press it again to unmute them.

**All Off** clears all mutes. When the All Off button is pressed, any channel or bus that has been muted will be unmuted.

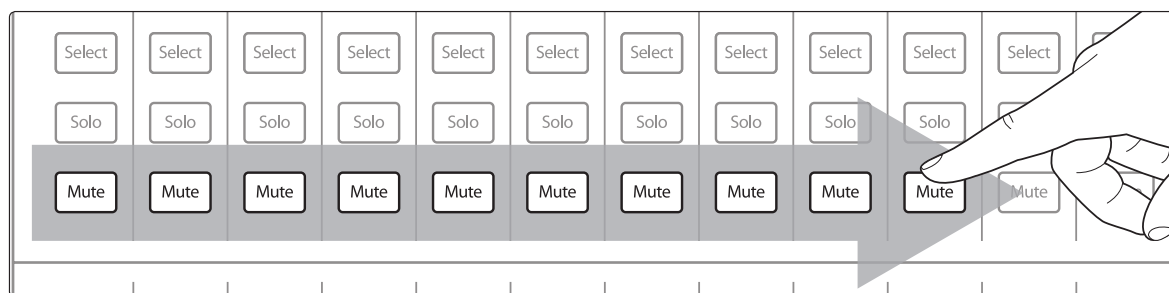
**Mute Group 1-8** buttons engage/disengage assigned Mute Groups. When any of the Mute Group buttons is pressed, the assigned group of channels or buses will be muted/unmuted. To create a mute group, press and hold any Mute Group button.

**Power User Tip:** Both the mute groups and the All On group only add mutes to your mix and remove the same mutes they added. Mute groups will not clear mutes that were active prior to the mute group being engaged; if a mute is engaged when its mute group or the All On group is enabled, that mute will still be engaged when you disable the mute group or the All On group. The exception to this rule is the All Off button, which will clear any mute that is currently enabled and will deactivate any mute group that is active, including the All On group.

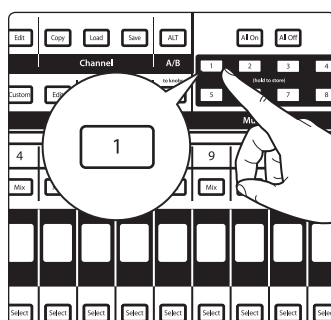


Creating a mute group is quick and easy. In this example, we will create a mute group for Channels 1 through 10, using Mute Group 1.

1. Mute Channels 1-10.



2. Press and hold the Mute Group 1 button. It will flash for one second, indicating that it is storing the group. When the group has been stored, it will illuminate.



### 3.4.5 Monitor Bus Controls



The StudioLive CS18AI features a headphone output and monitor outputs, giving you the ability to monitor multiple sources. The Monitor bus on the CS18AI allows you to monitor the main outputs, Solo bus, or a cue source that is selected from the Main Mono/Center bus, digital return, stereo tape input, or any aux mix.

**Note:** The headphones and Monitor Output jacks carry the same monitor signal. An AVB network must be configured between your CS18AI and your RM-series mixer for the audio outputs on your CS18AI to function. This can be done either by using an AVB switch or connecting your CS18AI directly to your RM-series mixer.

**Phones.** Adjusts the overall level for the Headphone output.

**Monitor.** Adjusts the overall level for the Monitor outputs.

**Solo.** This patches any soloed channel, subgroup, or aux bus to the Monitor bus. This can be useful in a number of ways. For example:

- Auditioning an aux-send monitor mix
- Dialing in the dynamics processing and EQ on a subgroup
- Creating a better blend for instrumental sections (horns, strings, etc.)

**Main.** Routes the Main bus signal to the Monitor bus. This signal is always pre-fader.

**Cue.** This routes a custom-assigned source to the Monitor bus. This source can be selected in the Monitor Cue Routing screen by pressing the Monitor Edit button.

**Edit.** Opens the Monitor Cue Routing view on the touchscreen. From here you can select the Main Mono/Center, digital return, stereo tape input, or any aux mix as the source for the Monitor bus. These sources are always post-fader.

Monitor Cue Routing			
	Mono	Digital	Tape
Mix 1	Mix 2	Mix 3	Mix 4
Mix 5	Mix 6	Mix 7	Mix 8
Mix 9	Mix 10	Mix 11	Mix 12
Mix 13	Mix 14	Mix 15	Mix 16

**Power User Tip:** Monitor selection in the CS18AI uses the controller's monitor facilities and affects only the CS18AI. StudioLive RM-series mixers' monitor facilities are controlled using the front panel of the RM mixer or UC Surface and are entirely independent of the selections on the CS18AI.

## 3.5 Channel and Mix Settings

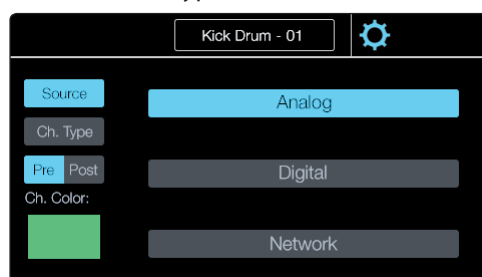
Your StudioLive CS18AI color touchscreen provides contextual information to help you navigate and control your mix. Most views are divided into three primary sections.

The top right corner will always show the value of the parameter currently being adjusted. You'll see the exact fader or preamp level, compressor threshold, EQ frequency, and so on.

To the left of the parameter value display is the Selected Channel or Mix banner. This will show the name of the channel or mix that's selected, the source (Analog, FireWire, Network) if it's an input channel, the routings (Pre 1, Pre 2, Post) if it's an aux mix, and the Settings gear icon for opening the Settings view for the selected channel.

### 3.5.1 Channel Settings

Pressing the gear icon in the Selected Channel banner in the touchscreen will open the Settings screen. Here you can change the name, channel type, source, select button color, and more.



**Name.** Touch the name while on the Channel Settings screen to bring up the Text Entry screen. From here you can customize the name of the channel.

**Power User Tip:** The name will be displayed in the touchscreen when the channel is selected, as well as in its scribble strip display. This will also name the channel on all synchronized networked devices and software (UC Surface, QMix-UC, and Capture).

**Source.** Selects the channel input source: Analog, FireWire, and Network.

**Type.** Allows you to categorize the channel type. This is helpful when setting up a mix and will save you a lot of time. Setting a type will give your channel a default name, tag the channel with the type category, and create an automatic Filter DCA group with all channels tagged with that category type.

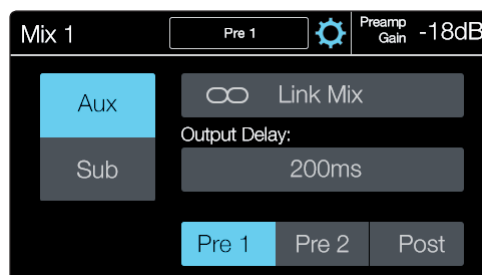
**Pre/Post.** Sets the position of the digital send for the selected channel before or after the Fat Channel processing. When Post is enabled, the signal sent to the digital bus is post-EQ and post-dynamics processing. When Pre is enabled, the signal sent to the digital bus is post-High Pass Filter and polarity, but before all other Fat Channel processing. All digital sends are pre-fader except for the subgroups and the main outputs.

**Color.** Touch to set a custom color for the current channel's Select button while on the main mix.

***Power User Tip:** Creating colors for different channel types is a great way to visually group channels, allowing you to quickly identify a channel by type (drums, guitars, vocals, etc.)*

## 3.5.2 Mix Settings

Pressing the gear icon in the Selected Mix banner in the touchscreen will open the Settings screen. Here you can change the name, mix type, and more.



**Name.** Touch the name to bring up the Text Entry screen. From here you can customize the name of the mix. The name will be displayed in the touchscreen when the mix is selected and in the scribble strip display for that mix's output.

***Power User Tip:** Like channel names, the mix name is also synchronized with all synchronized networked devices and software, such as UC Surface, QMix-UC, and Capture, so you only have to name it once.*

**Aux/Sub.** The 16 mixes of an RM-series mixer can be switched to function as either an aux mix or a subgroup.

***Power User Tip:** Aux mixes are typically used for creating individual monitor mixes that are tailored to each performer's needs. Whereas a subgroup allows you to combine multiple channels into a single bus, giving you level control for the entire group that can be processed by the Fat Channel processing.*

**Edit.** When the selected mix is setup as a subgroup, the Edit button will be visible. Pressing this button will open the Channel Assignments screen. From here you can quickly assign channels to the subgroup.

**Pre 1/Pre 2/Post.** When the selected mix is setup as an aux mix. You will have the option to designate at what point you want the channel sends to be placed.

- **Pre 1:** This is the default setting for all aux mixes. This sends every input channel to each aux bus before the fader, limiter, EQ, and compressor and after the Polarity Invert switch, highpass filter, and gate.
- **Pre 2:** Sends each channel to the aux bus after all Fat Channel processing (polarity invert, high pass filter, gate, compressor, EQ, and limiter) but before the fader.
- **Post:** Sends each channel to the Aux bus after all Fat Channel processing (polarity invert, highpass filter, gate, compressor, EQ, and limiter) and after the fader.

***Power User Tip:** Use the Pre 2 position for headphone and in-ear mixes to give your performers a polished "studio" sound. This setting should be avoided for floor wedges, as compression can cause feedback problems.*

**Delay.** Output delay is available on the last four mixes with physical outputs on the RM mixer (13-16 on the RM32 and 5-8 on the RM16). Delays can be adjusted, in 0.5 ms increments, from 0.5 to 300 ms.

**Power User Tip:** When you correctly set the delay time for these outputs, you ensure that the sound from each speaker in the P.A. system arrives at the listening position at the same time. The delay should be set for the speakers to which your listener will be closest. For instance, let's say you are using a StudioLive RM mixer in a large theater with a balcony, and you have three pairs of speakers: a pair in front of the stage, a pair in the rear of the auditorium, and a pair at the front of the balcony. You will need to delay the rear speakers so that the listeners closest to them will hear the audio from both the rear and stage speakers at the same time. This is also true for the audience in the balcony. While the balcony speakers will provide the loudest source of audio, the balcony audience will still be able to hear the stage speakers, so a delay must be set for the balcony speakers. You will need to calculate approximately 1.1 ms of delay time per foot of distance from the stage speakers. So if the balcony speakers in our example are 61 feet from the stage speakers, set their delay time to 67 ms.

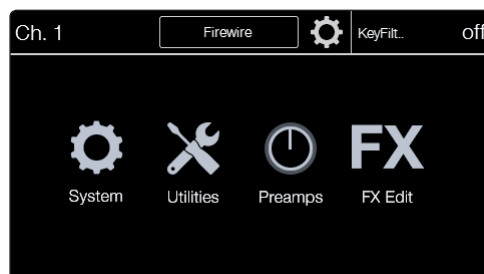
Speaker delay can also be used to correct off-axis phasing issues in small clubs. Because of space restrictions, you can't always place your main speakers for the best possible sound reproduction. Sometimes your left-side speaker will need to be closer to the audience to make room for a pillar or a staircase or the bathroom, so an audience member standing in the center of the room will not have the best listening experience. By using a pair of subgroups as the source for your mains, you can factor in that 2 to 4 ms delay the left speaker needs so that unbalanced speaker placement is no longer an issue.

UC Surface features the Smaart® System Delay wizard, which is designed to calculate and set this delay automatically by analyzing your main and delay systems with a measurement microphone. For more information on this powerful feature, as well as additional information on configuring a delay system, **please review "Smaart System Delay Wizard" in the StudioLive AI-Series Software Library Manual.**

## 3.6 Home Screen



The Home screen is the default screen when the StudioLive CS18AI is powered on. From here you can navigate to the primary menus and mix options. This screen can be opened at any time by pressing the Home button.



**System.** Opens the main system settings for the CS18AI and the connected RM mixer. This screen is broken into two sections. On the left are settings and on the right are the additional setup menus. For details about the System settings, refer to **Section 3.7.1**.

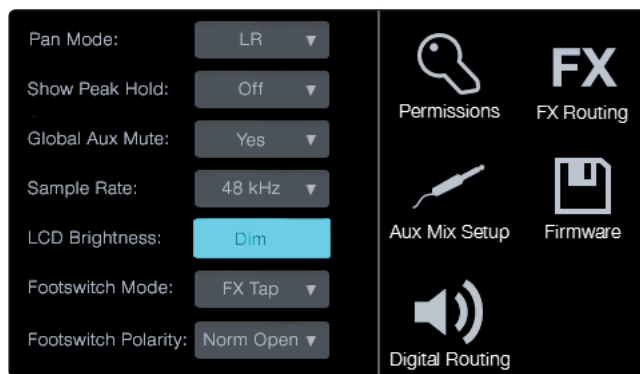
**Utilities.** Opens CS18AI surface test modes. These allow you to test the functionality of the screens, LEDs, and faders. For details about the test modes refer to **Section 3.7.2**.

**Preamps.** Allows you to change the functionality of the Fat Channel encoders control the preamp gains for all 16 currently displayed input channels simultaneously.

**Power User Tip:** This mode is especially useful when initially gain staging your inputs. ght down the line of inputs. When you navigate away from the Preamps view, the CS18AI will exit Preamps mode and return the Fat Channel to its normal state.

**FX Edit.** Opens the four effects processors. Touching one of them will open the associated FX view for editing the effects. For more information on effects refer to **Section 3.9 Internal Effects Mixes**.

### 3.6.1 System Menu



The System Menu is split into two sections. On the left are settings, and on the right are the additional setup menus.

**Pan Mode.** Sets the main bus output type. The main bus for StudioLive RM-series mixers can be configured as stereo L/R or as LCR (Left-Center-Right).

**Peak Hold.** Sets the type of metering. StudioLive RM mixers offer both Peak and Peak Hold metering. To view the Peak Hold, simply enable this preference.

**Global Aux Mute.** Controls how channel mutes function in the aux mixes. By default, channels are set to mute globally in all output buses. Setting Global Aux Mute to “No” allows you to mute your channels per mix. Aux and effects buses will follow the send position setting (i.e., post-fader sends will mute in the bus but Pre1/Pre2 sends will not).

**Sample Rate.** Changes the sample rate on both the CS18AI and the connected RM-series mixer. You can set the sample rate to 44.1, 48, 88.2, or 96 kHz. A higher sample rate will increase the fidelity of the recording but will increase the file size and the amount of system resources necessary to process the audio.

**Note:** All DSP functions are available at 44.1 and 48 kHz. At 88.2 and 96 kHz, the Fat Channel processing for all mix bus outputs will be disabled. Selects the channel input source:

**LCD Brightness.** Toggles the screen brightness between full on and dim.

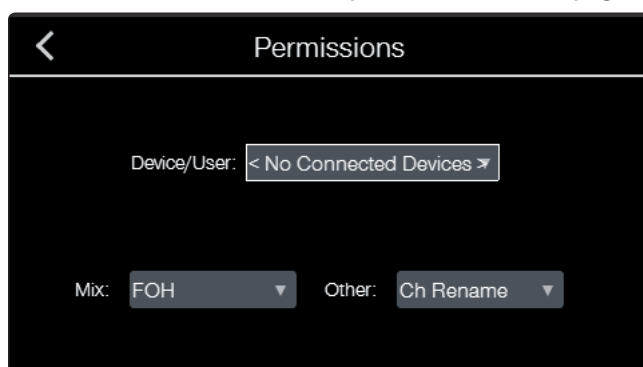
**Footswitch Mode.** Changes the parameter assigned to the rear-panel footswitch jack. By default the footswitch is set to Tap Tempo. You can also assign it to control the effects mute, load scene, talkback enable, DAW record start/stop, or DAW drop marker.

**Footswitch Polarity.** Sets the polarity of the footswitch operation.

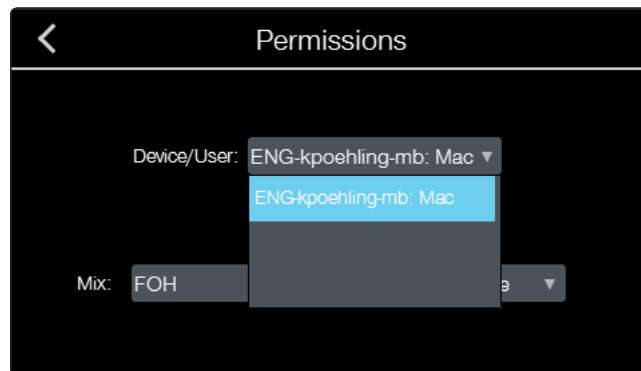
#### 3.6.1.1 Setting Device Permissions

The CS18AI can set permissions to restrict access for other devices connected to the mixer. To set permissions for a device:

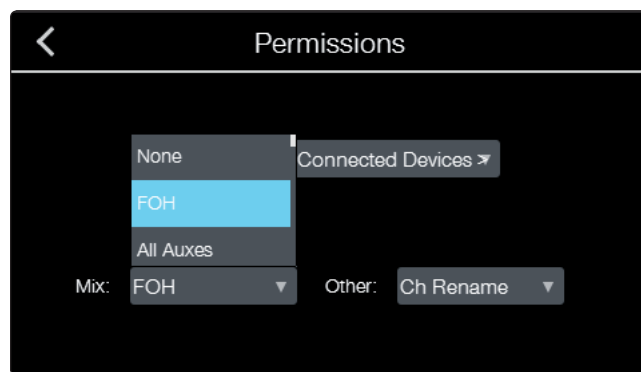
1. Touch the Permissions icon to open the Permissions page.



2. Touch the Device/User field and choose the device for which you want to set permissions from the drop-down menu.



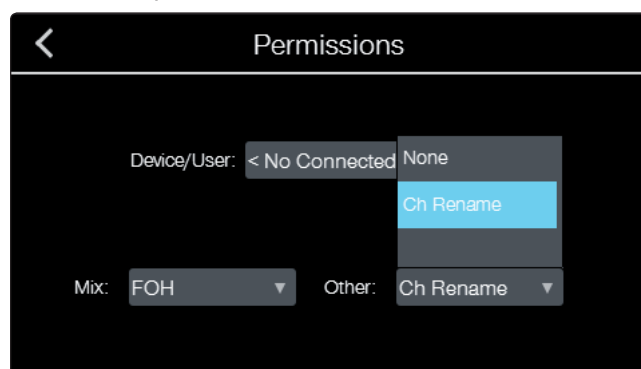
3. Touch the Mix field and choose the desired access level from the drop-down menu.



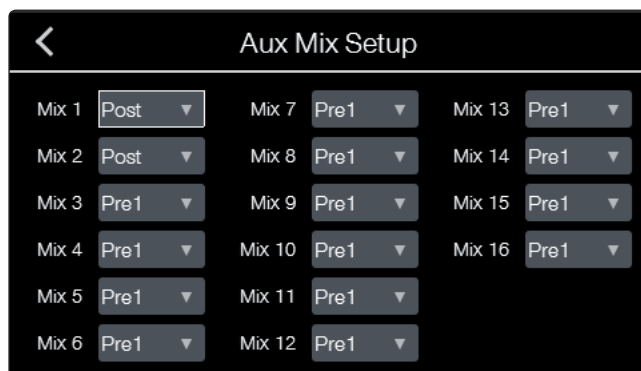
Devices running QMix-UC can be set to None, All Auxes, or to any individual aux (or linked stereo pair of auxes). For devices running UC Surface, FOH is also available, providing full access to the mixer.

4. Touch the Other field and set the option as desired. For devices running QMix-UC, the choices are None or Wheel Only. Wheel Only restricts the user to using only the Wheel of Me on the mix to which the device has access.

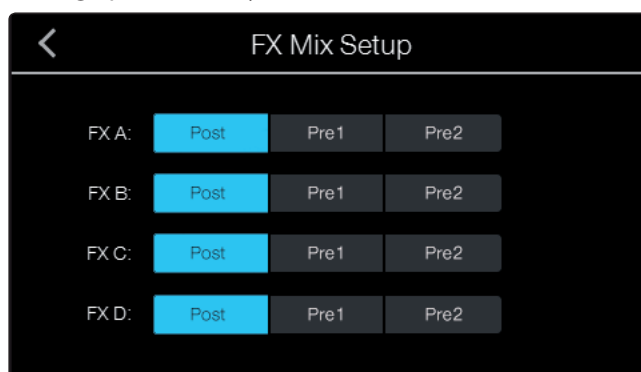
For devices running UC Surface, the choices are None or Ch Rename. When None is selected, input channel and aux mix names are locked and cannot be edited.



### 3.6.1.2 Aux and FX Routing Menus



The Aux and FX Routing menus let you configure the pre/post routing options for all your aux and FX mixes at once.



**Pre 1:** Sends each channel to the Aux bus after the polarity invert, highpass filter, and gate. This is the default state for all aux mixes.

**Pre 2:** Sends each channel to the aux bus after all Fat Channel processing (polarity invert, highpass filter, gate, compressor, EQ, and limiter) but before the fader.

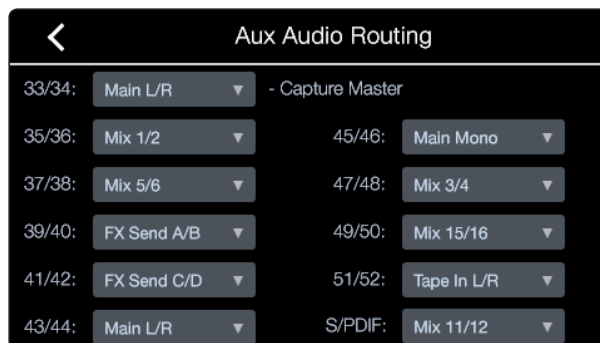
**Power User Tip:** Use the Pre 2 position for headphone and in-ear mixes to give your performers a polished “studio” sound. This setting should be avoided for floor wedges, as compression can cause feedback problems.

**Post:** Sends each channel to the Aux bus after all Fat Channel processing (polarity invert, highpass filter, gate, compressor, EQ, and limiter) and after the fader. This is the default state for all FX mixes.

### 3.6.1.3 Digital Routing

In addition to the 32 input channels, StudioLive RM-series mixers allow you to route a number of other buses and inputs out the digital FireWire and Network sends. This is managed via the Digital Output Routing menu. To route these additional Digital Sends, simply select the source from the drop-down list for the output pair you want. Remember, all of these buses and inputs are automatically set to send their signals post-Fat Channel dynamics and post-EQ (where applicable). The inputs and buses selected in the Auxiliary Input Router will be displayed in your recording application, along with the name of their routing.

The Aux Router also allows you to designate a specific bus to the S/PDIF output and enables you to select which stereo pair will be recorded on the auxiliary stereo track in Capture.



### 3.6.1.4 Firmware Updates

The Firmware Version screen provides valuable information about the firmware versions being run on your StudioLive CS18AI and connected StudioLive RM mixer. The left side of the screen will show the firmware version and update button for the connected StudioLive RM mixer. The right side shows the same for the StudioLive CS18AI. For detailed instructions on updating your firmware refer to **Section 2.2**.



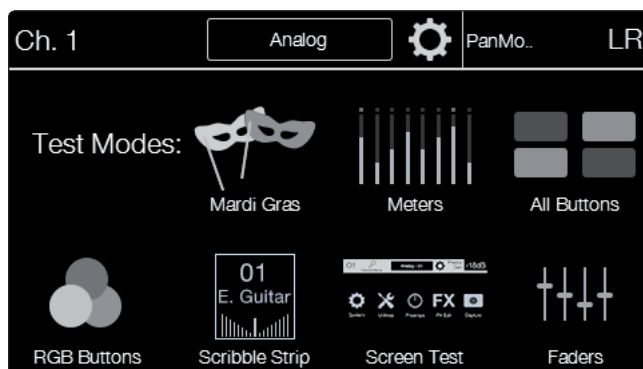


### 3.6.2 Utilities

Your CS18AI features a suite of test modes useful for confirming basic operation of the front panel controls.

**IMPORTANT:** The StudioLive CS18AI should be disconnected from your RM-series mixer or computer running Studio One while performing these tests. When testing is complete, power cycle (power off and then on) your unit.

To run the test modes, press the Utilities button on the Home screen.



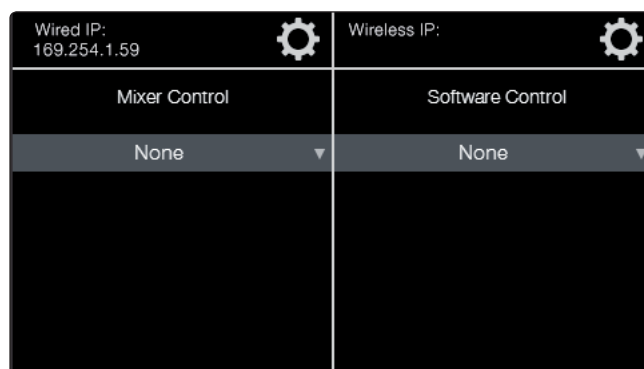
Touch the icon for the test mode you want to enable. The icon becomes colored to show the test is active. Multiple tests can be enabled and run simultaneously.

- **Mardi Gras:** This test runs the Meters, All Buttons, RGB Buttons, and Faders routines simultaneously.
- **Meters:** All meters in the meter array along the top of the CS18AI go up and down, creating “the wave” effect.
- **All Buttons:** Buttons flash on and off in pseudo-random groups. Multi-color buttons change color but never fully light. Any given button will light every 10 seconds or so, at most.
- **RGB Buttons:** This tests only multi-color buttons, putting them through all of their variations of color and brightness.
- **Scribble Strip:** All scribble strip displays show the same image patterns.
- **Screen Test:** Cycles the color touchscreen between primary colors. Touch anywhere on the screen to exit this test.
- **Faders:** The channel faders sequence through five different routines. Moving the master fader from the bottom to the top will cycle through all faders up, all faders down, faders diagonally positioned from down to up, faders diagonally positioned from up to down, and wave movement cycles.

### 3.7 UCNET



UCNET stands for Universal Control Network. This is the communications system that allows all StudioLive systems and peripherals to stay in sync and work together.



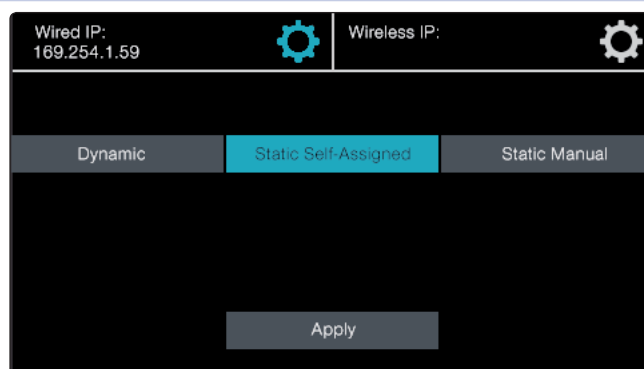
The top banner of this screen will display the IP address of the currently network by type: Wired or Wireless. Pressing the Settings icon to the right of the of either, will open the corresponding network settings option.

In the main section of the screen, you will find two sections.

In the Mixer Control section, you will find the connected RM-series mixer. Tapping on the pull-down menu will open a list of every available RM-series mixer on the network

In the Software Control section, you will find the connected instance of Studio One. Tapping on the pull-down menu will open a list of every available instance of Studio One on the network.

#### 3.7.1 Wired Settings Menu



Once your CS18AI is connected to a wired LAN network, you'll see the current IP address of your CS18AI. This IP address can be assigned in one of three ways. Select the necessary IP assignment mode by touching one of the following buttons:

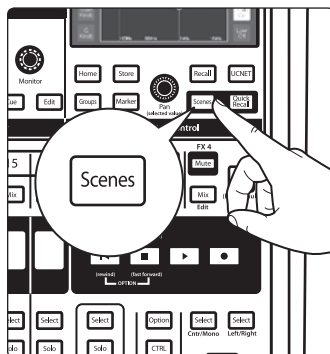
- **Dynamic.** The IP address is assigned automatically upon connection to the network, and can shift to a new address when necessary due to changes in network availability. In this mode, a Renew Lease button is shown onscreen. Touch this button to renew the DHCP lease for your CS18AI.
- **Static Self-Assigned.** The IP address is assigned automatically, but stays the same thereafter until you need to change it. In this mode, an Apply button is shown. Touch this button to auto-assign a new static IP address to your StudioLive.
- **Static Manual.** The IP address can be set manually, and remains the same until it is changed. In this mode, an Edit button is shown. Touch this button to open the Static Manual Edit screen, where you can specify IP address, subnet mask, and gateway settings for your StudioLive as needed for your network configuration. Touch each field in the form to bring up an onscreen keyboard for entry. When you're finished entering the settings, press Apply to establish the new settings. To exit without re-setting IP settings, switch to another IP assignment mode.

## 3.8 Scenes and Quick Scenes

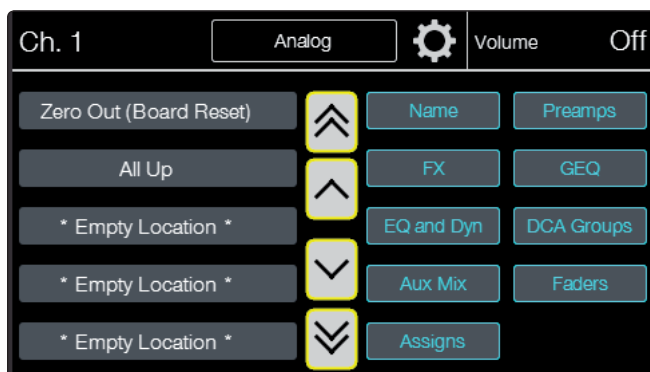
Creating a scene requires simply dialing in a mix and saving it. This has obvious benefits for both studio and live sound. For example, in the studio, saving and recalling a scene allows you to move to another song or project and come back to the current mix later. For live shows with multiple bands, you can set up custom mixes for each band at soundcheck and recall the mix when that band goes onstage. You also can save custom mixes for each venue that a band plays repeatedly.

To store a mix scene:

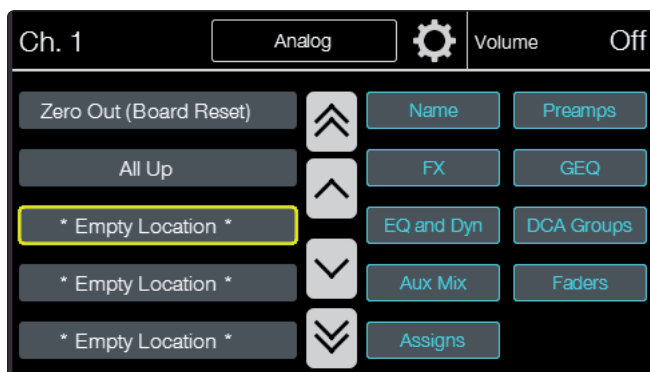
1. Configure your mixer to the state you want to store as a mix scene. Remember that all settings are stored.
2. Press the Scenes button in the Master Control area to open Scenes page.



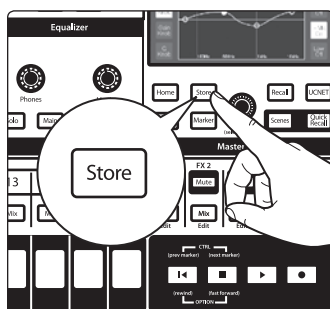
3. Use the onscreen arrow buttons to scroll to the location where you want to store the mix scene. The single arrows scroll one location at a time, while the double arrows scroll a page at a time.



4. Touch the location to which you want to store a mix scene to select it.

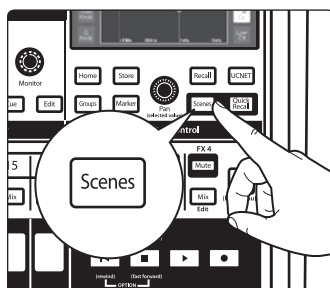


5. Press the Store button in the Master Control area to open the text entry screen, allowing you to name the scene. When you're done, press Enter to save the scene.



### 3.8.1 Recalling a Mix Scene

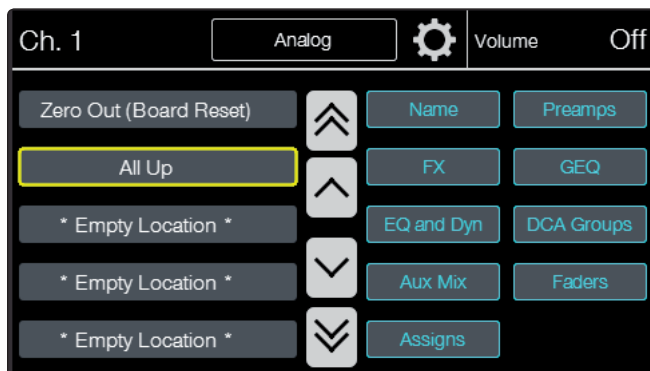
1. Press the Scenes button in the Master Control area to open the Scenes page.



2. Use the onscreen arrow buttons to scroll to the location of the mix scene you want to load. The single arrows scroll one location at a time, while the double arrows scroll a page at a time.



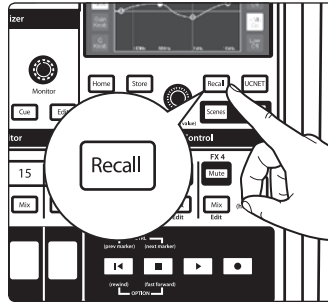
3. Touch the location from which you want to recall a mix scene to select it.



4. Set up any scene filters you want to use to limit which data is loaded.



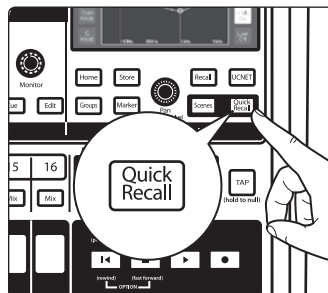
5. Press the Recall button in the Master Control area. The scene is recalled.



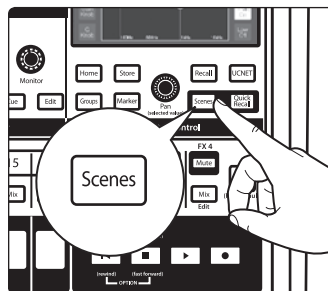
### 3.8.2 Quick Scene Recall

Quick Recall mode allows you to load a scene, simply by selecting it in the Scene Library. To use Quick Recall mode:

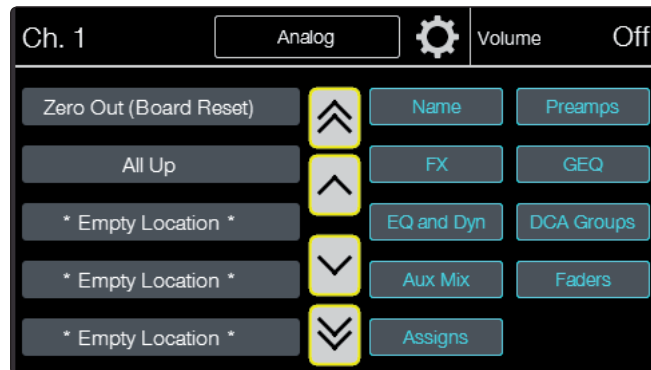
1. Press the Quick Recall button. The button stays lit to show you are in Quick Recall mode.



2. Press the Scenes button in the Master Control area to open the Screens page.



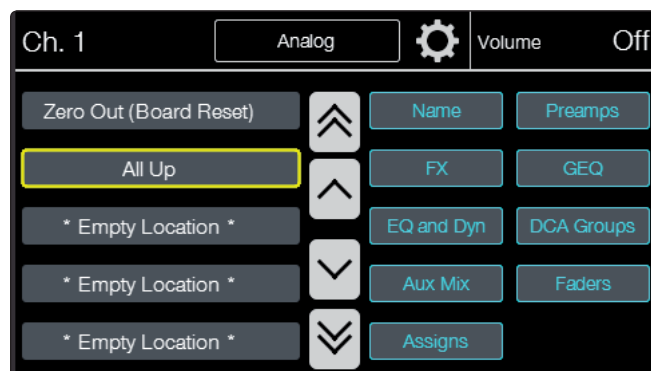
3. Use the onscreen arrow buttons to scroll to the location of the mix scene you want to load. The single arrows scroll one location at a time, while the double arrows scroll a page at a time.



4. Set up any scene filters you want to use to limit which data is loaded.



5. Touch the name of the stored scene to load it.



### 3.8.3 Scene Filters

The scene filters on the Scenes page allow you to specify which settings get loaded from a mix scene. When a scene filter in the Scenes page is selected, the indicated settings will be loaded, overwriting the existing settings. Settings are not loaded for unselected scene filters, and those settings are left at their existing values. Blue-green colored labels and borders on the Filter buttons indicate selected filters.

- **Name.** Loads the channels and mix names.
- **FX.** Loads all FX settings and mixes.
- **EQ and Dyn.** Loads all Fat Channel EQ and Dynamics parameters.
- **Aux Mix.** Loads all Aux Mix sends and output levels.
- **Assigns.** Loads all Channel and Bus output assignments.
- **Preamps.** Loads all preamp parameters.
- **GEQ.** Loads all GEQ settings.
- **DCA Groups.** Loads all Filter DCA groups.
- **Faders.** Loads all fader levels.

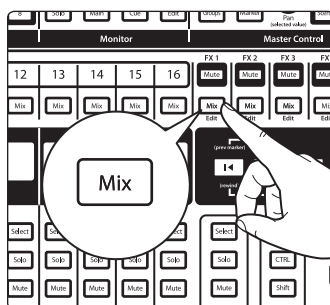
## 3.9 Internal Effects Mixes

StudioLive RM mixers feature four internal effects processors. The processors for FX A and FX B are dedicated to reverb. The processors for FX C and FX D are dedicated to delay effects. These effects buses can be routed to any of the subgroups, the aux buses, or the main outputs.

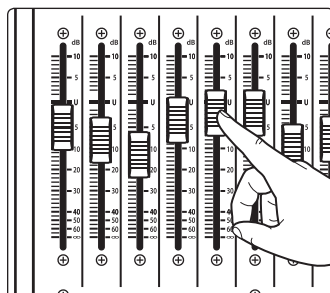
*Note: FX B and FX D are disabled on RM-series mixers when HD Mode (88.2 and 96 kHz) is active. Local AVB audio is also disabled at these higher sample rates.*

### Setting Up an Effects Mix

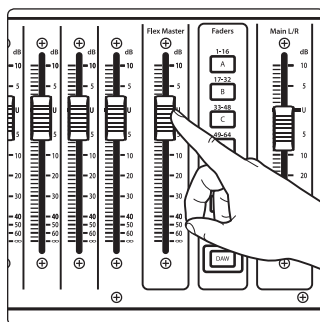
1. Press the Mix Select button for the effects mix you'd like to setup. The channel strip faders will then control the send levels of the associated channel to the selected effects mix. The Flex Master will become the master send level for the selected effects mix. The FX Edit screen will also be displayed on the touchscreen.



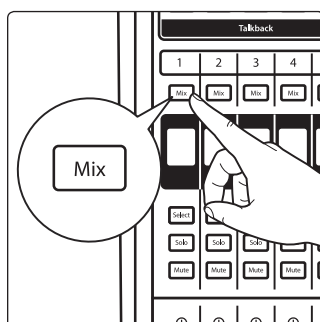
2. Turn up the faders for the channels you'd like to send to the effects processor.



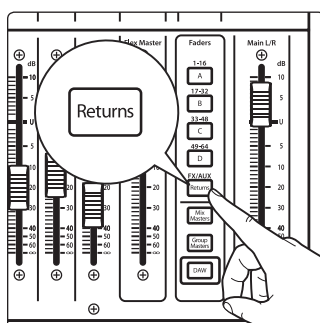
3. Turn up the master effects-send level using the Flex Master fader. Since the effects returns for the Main Mix are turned up to unity by default, if you're monitoring your Main Mix you should now hear the effects in your mix.



4. To add effects to an Aux Mix, press the associated Mix Select button to bring that mix to the channel strip faders.



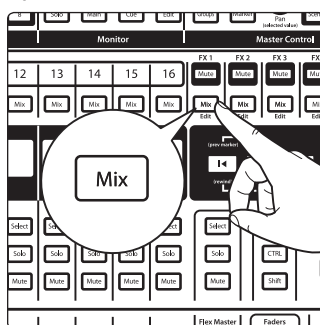
5. Select the Returns layer.



6. The first four channels on the Returns layer are the effects returns from FX A, B, C, and D. Turn these up to add effects to the selected mix.

## Editing an Effects Processor

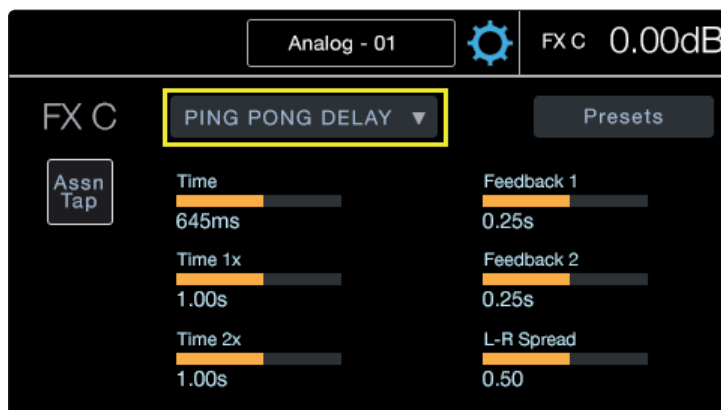
1. To open the FX Edit view, you can press the FX Mix button for the processor you want to use. Pressing the FX Mix button will automatically open the associated FX Edit view on the touchscreen.



**Power User Tip:** You can also open the FX Edit page from the Home screen by touching FX Edit in the touchscreen.

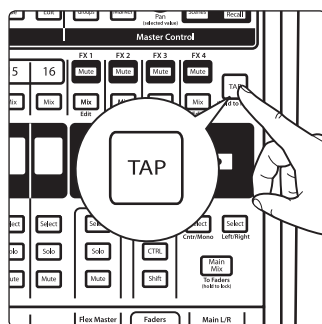


- Once in the desired FX Edit view, you can change the effects type, adjust the parameters, and load or save a preset. Parameters will populate on the screen based on the effects type you've chosen.



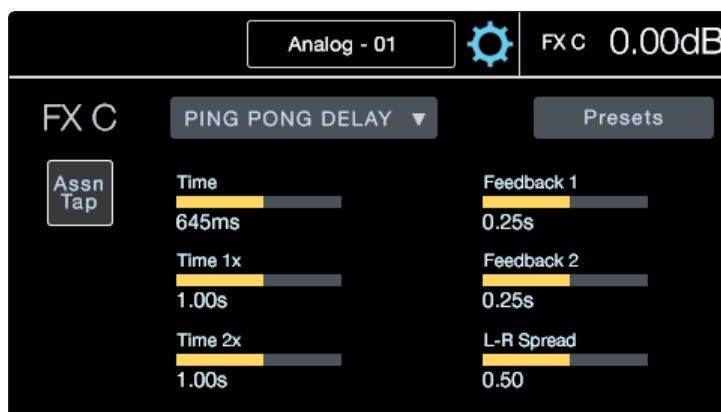
## Tap Tempo

The Tap Tempo button lets you easily set the time of the delay effect to match the tempo of the song being played. Tap can be assigned to either the FX C or FX D delay processor. Once assigned, pressing the Tap button will set the time parameter for the associated delay no matter what screen you're viewing. This way you don't have to leave where you're at to tap out the time of the next song.



To assign the Tap Tempo button to a delay:

- Open the FX Edit screen for the delay you'd like to assign. You can do this by going to the FX Edit menu from the Home screen or by pressing the Mix button for FX D or FX C.
- In the FX Edit screen for the delay is a button labeled "ASN Tap." Press this to assign the Tap button to the selected delay. Tap will always control the time for that delay until it's unassigned or assign it to the other delay.



## Reverb and its Parameters

Reverberation—or reverb, as it is more commonly known—is perhaps the most widely used effect. Natural reverb is created by sound waves reflecting off of a surface or many surfaces. For example, when you walk across the wooden stage in a large hall, thousands of reflections are generated almost instantaneously as the sound waves bounce off the floor, walls, and ceilings. These are known as early reflections, and their pattern provides psychoacoustic indications of the nature of the space that you are in. As each reflection is reflected off of more surfaces, the complexity of the sound increases, while the reverb slowly decays.

The reason for the widespread use of reverb in audio recording is fairly self-evident: Humans don't live in a vacuum. Because our brains receive cues about the nature of the space around us based partially on audio reflections, a sense of space makes an audio recording sound more natural and, therefore, more pleasing.

**Note:** *Reverb types and presets can only be loaded on FX A and FX B.*

The following parameters are available for the nine reverb types the StudioLive offers:

**Decay.** Decay is the time (in seconds) required for the reflections (reverberation) to die away. In most modern music production, reverb decay times of between one and three seconds are prevalent. A reverb setting with strong early reflections and a quick decay are a great way to create a stereo effect from a mono source.

**Predelay.** Predelay is the time (in milliseconds) between the end of the initial sound and the moment when the first reflections become audible. Imagine you're back on that stage in a large music hall. This time you stand on the very edge of the stage and shout "Hello world!" toward the center of the hall. There will be a brief pause before you hear the first noticeable reflections of your voice because the sound waves can travel much farther before encountering a surface and bouncing back. (There are closer surfaces, of course—notably the floor and the ceiling just in front of the stage—but only a small part of the direct sound will go there, so those reflections will be much less noticeable.) Adjusting the predelay parameter on a reverb allows you to change the apparent size of the room without having to change the overall decay time. This will give your mix a little more transparency by leaving some space between the original sound and its reverb.

**Note:** Predelay control is not available on every reverb type.

**Early Reflections.** Early reflections are those that reach the listener a few milliseconds after the direct signal arrives. Your brain uses them to identify the size of the room you're in. If you are trying to simulate a specific type of room, this control will be extremely important. This control allows you to set the level (in decibels) of the early reflections. The louder the early reflections, the smaller the room will seem.

**Note:** *Early Reflections control is not available on every reverb type.*

## Delay and its Parameters

A delay essentially creates an echo, although you can often use delays to create more complex time-based effects. The source signal is delayed so that it is heard later than it actually occurred.

**Note:** *Delay types and presets can only be loaded on FX C and FX D.*

The following parameters are available for the four delay types the StudioLive offers:

**Time.** This is the time (in milliseconds) between the source signal and its echo. The simplest delay effect is a single repeat. A short delay between 30 and 100 ms can be used to create slap-back echo, while longer delay times produce a more distant echo. Delay times that are too short to hear as distinct echoes can be used to create thickening effects. Whether these echoes are timed with the tempo is a matter of stylistic choice.

This is the parameter that is controlled by the Tap Tempo button. Using the Tap button on the CS18AI, you can speed up or slow down these repeats or, more commonly, time the repeats to occur with the tempo of the music.

**Power User Tip:** *While you have to select the Time parameter in order to use the Tap button, you only have to do this the first time you use the Tap button for that effect. Once the Tap button has been used to control the Time parameter on FX buses C or D, it will always control the time of that particular delay, no matter what page you are currently viewing. To assign the Tap button to control another delay, simply navigate to that delay's Time parameter and use the button to enter the desired delay time.*

**Time X.** Time X is the value of the beat you are using as a reference for the tempo. The basic unit of measure is a quarter note, so for example, if the beats you are tapping represent quarter notes in the music, you would set Time X to 1.00. If they are eighth notes, you would set Time X to 0.50, half notes would be set to 2.00, and so on. In this way, you can precisely synchronize or syncopate the delay echoes to the music in real time.

**Note:** *The Stereo Delay offers two Time X controls. With the Ping Pong delay, the Pong X parameter serves the same purpose.*

**Variable Feedback.** Variable feedback, or regeneration, produces multiple decaying repeats. Increasing the feedback value increases the number of echoes, as well as the resonance that is created as one echo disappears into another.

**F\_Frequency.** Sets the center frequency in Hz for the Filter Delay.

**F\_Gain.** Sets the boost at the center frequency for the Filter Delay.

**F\_Q.** Sets the Q for the Filter Delay. The Q is the ratio of the center frequency to the bandwidth. When the center frequency is constant, the bandwidth is inversely proportional to the Q, so as you raise the Q, you narrow the bandwidth.

## Digital FX Types

The StudioLive contains 13 different effects types with which you can create custom presets or redesign the included library of presets.

NAME	POS	PARAM (L1)	PARAM (L2)	PARAM (L2)	PARAM (L2)	PARAM (L2)	PARAM (L2)	PARAM (L2)
Ambience	T1	Reverb	Decay (s) Default: 0.69 Range: 0.29 ~ 1.09					
Small Room	T2	Reverb	Decay (s) Default: 0.79 Range: 0.39 ~ 0.59	Predelay (ms) Default: 12.0 Range: 1.00 ~ 40.0	Early Reflec (dB) Default: -15.0 Range: -25.0 ~ -8.00			
Bright Room	T3	Reverb	Decay (s) Default: 1.00 Range: 0.50 ~ 1.79	Predelay (ms) Default: 12.0 Range: 1.00 ~ 40.0	Early Reflec (dB) Default: -16.0 Range: -22.0 ~ -10.0			
Small Hall	T4	Reverb	Decay (s) Default: 1.39 Range: 0.59 ~ 2.19	Predelay (ms) Default: 20.0 Range: 1.00 ~ 50.0	Early Reflec (dB) Default: -22 Range: -35.0 ~ -15.0			
Bright Hall	T5	Reverb	Decay (s) Default: 1.59 Range: 0.79 ~ 2.39	Predelay (ms) Default: 24.0 Range: 1.00 ~ 60.0	Early Reflec (dB) Default: -22.0 Range: -35.0 ~ -15.0			
Warm Hall	T6	Reverb	Decay (s) Default: 1.59 Range: 0.79 ~ 2.50	Predelay (ms) Default: 50.0 Range: 10.0 ~ 100.0	Early Reflec (dB) Default: -30.0 Range: -40.0 ~ -20.0			
Gated Hall	T7	Reverb	Decay (s) Default: 1.00 Range: 0.59 ~ 1.79	Predelay (ms) Default: 40 Range: 5.00 ~ 80.0				
Large Hall	T8	Reverb	Decay (s) Default: 2.39 Range: 1.39 ~ 5.00	Predelay (ms) Default: 35.0 Range: 40.0 ~ 90.0	Early Reflec (dB) Default: -30.0 Range: -40.0 ~ -20.0			
Plate	T9	Reverb	Decay (s) Default: 1.39 Range: 0.50 ~ 4.00	Predelay (ms) Default: 10.0 Range: 1.00 ~ 40.0				
Mono Delay	T10	Delay	Time (ms) Default: 645 Range: 5.00 ~ 1.28k	Time X Default: 1.00 Range: 0.25 ~ 2.00	Feedback Default: 0.25 Range: 0.000 ~ 0.94			
Filter Delay	T11	Delay	Time (ms) Default: 645 Range: 5.00 ~ 1.28k	Time X Default: 1.00 Range: 0.25 ~ 2.00	Feedback Default: 0.25 Range: 0.000 ~ 0.94	F_Freq (Hz) Default: 800 Range: 100 ~ 3.00k	F_Gain Default: 12.0 Range: 0.000 ~ 24.0	F_Q Default: 0.69 Range: 0.19 ~ 2.00
Stereo Delay	T12	Delay	Time (ms) Default: 645 Range: 5.00 ~ 1.28k	Time1 X Default: 1.00 Range: 0.25 ~ 2.00	Time2 X Default: 1.00 Range: 0.25 ~ 2.00	Feedback1 Default: 0.25 Range: 0.000 ~ 0.94	Feedback2 Default: 0.25 Range: 0.000 ~ 0.94	L-R Spread Default: 0.50 Range: 0.000 ~ 1.00
Ping Pong	T13	Delay	Time (ms) Default: 645 Range: 5.00 ~ 1.28k	Pong X Default: 1.00 Range: 0.25 ~ 2.00	Pong X Default: 1.00 Range: 0.25 ~ 2.00	Feedback Default: 0.25 Range: 0.000 ~ 0.94	L-R Spread Default: 0.50 Range: 0.000 ~ 1.00	

## 4 Controlling Studio One

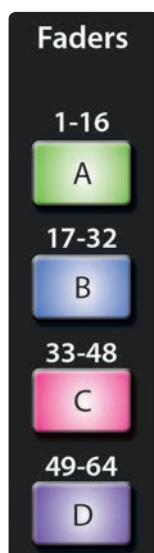
Your StudioLive CS18AI provides extensive hardware control over Studio One 3. Control channel faders and automation, plugin parameters, transport functions, and more. Controlling Studio One with a StudioLive CS18AI is like mixing with a large studio console, with more flexibility and deeper integration with Studio One functions.

To connect to Studio One, follow one of the networking methods described in **Section 2.3** of this manual.

### 4.1 Channel Controls



1. **Track Name and Number.** Displays the track/bus name and number that the channel strip functions are controlling.
2. **Automation Mode.** Displays the currently selected automation mode for the track.
3. **Pan Position.** Displays the track's current pan position.
4. **Select button.** This button selects the corresponding channel in Studio One and changes color to match the channel color codes you have chosen in your session. Press Option + Channel Select to arm the track for recording.
5. **Solo.** Isolates the corresponding track's output signal in the mix.
6. **Mute.** Mutes the corresponding track's output signal in the mix.
7. **Touch-Sensitive Fader.** This 100 mm motorized fader can be used to control volume levels depending on which fader bank is selected, as follows:



Fader banks A-D. Track volume levels for tracks 1-64. Press Shift + Fader Bank A-D to access tracks 65-128. Press CTRL + Fader Bank A-D to access tracks 129-192.



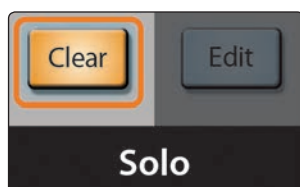
**Returns.** FX Bus masters level



**Mix Masters.** Master bus levels.



**Group Masters.** Output levels.



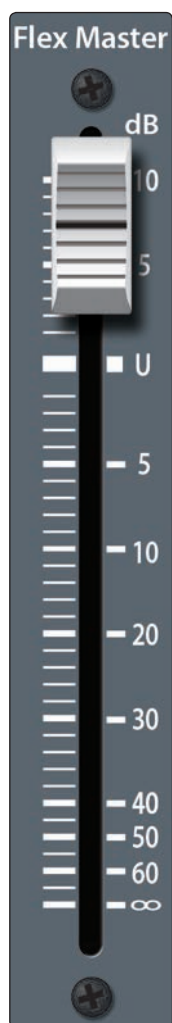
Press Solo Clear to clear all solos.



When a channel is selected, you can use the Pan encoder to adjust the pan.

The 16 Fat Channel encoders can also be used to control pan for the corresponding track.

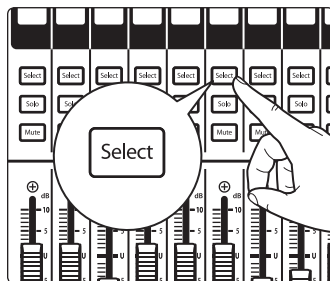
## 4.2 Flex Fader



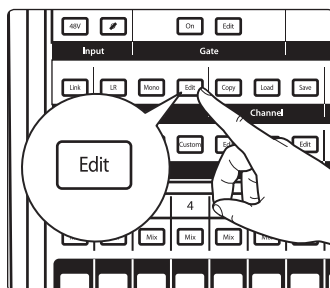
The Flex Fader on the CS18AI can be assigned to control any track in your Studio One session so that you have access to critical track functions at all times. This can be especially useful when writing automation for a lead vocal or instrument channel.

To assign the Flex Fader:

1. Select the Track you'd like to assign to the Flex Fader.



2. Press Edit in the Assign section on your CS18AI.



The track is now assigned to the Flex Fader.

### 4.3 Mix Navigation

By default, your CS18AI will control and display the tracks in the Main Mix of your Studio One session.



Press Mix button 1-8 to display corresponding send mix on the faders. Mix 1 will display the topmost send slot. Mix 8 will display the bottommost.

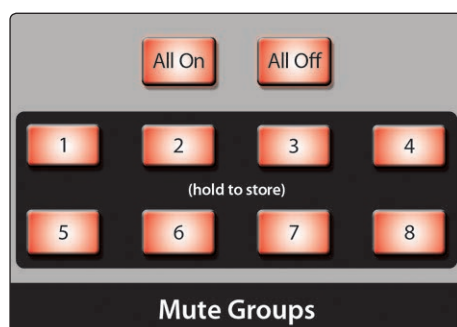


Press Mix button 9-16 to display the associated cue mix on the faders. As with the send mixes, the Cue mixes are accessed from top to bottom.

Press the currently active Mix button again to return to the Main Mix.

### 4.4 Automation Modes

The Mute Group controls on the CS18AI control the automation modes for the selected tracks in Studio One as follows:

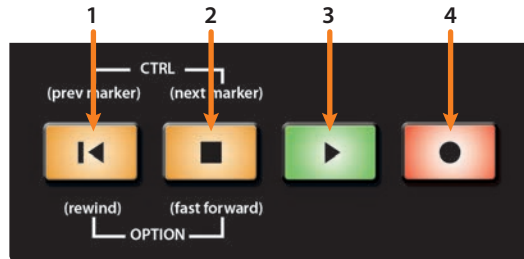


1. **Mute Group 1.** Sets currently selected track to Read Automation.
2. **Mute Group 2.** Sets currently selected track to Touch Automation.
3. **Mute Group 3.** Sets currently selected track to Latch Automation.
4. **Mute Group 4.** Sets currently selected track to Write Automation.
5. **Mute Group 5.** Sets every track to Read Automation.
6. **Mute Group 6.** Sets every track to Touch Automation.



7. **Mute Group 7.** Sets every track to Latch Automation.
8. **Mute Group 8.** Turns automation off on the currently selected track.
9. **All On.** Sets every track to Read Automation.
10. **All Off.** Turns automation off on every track.

## 4.5 Transport



1. **Return to Zero.** Returns playback to the start position. Press with Option for Rewind. Press with CTRL to navigate to the previous marker.
2. **Stop.** Stops playback. Press with Option for Fast Forward. Press with CTRL to navigate to the next marker.
3. **Play.** Starts playback at current position.
4. **Record.** Starts Record at current position.

## 4.6 FX Inserts / Sends

Pressing the Home button will bring up the FX Edit option.



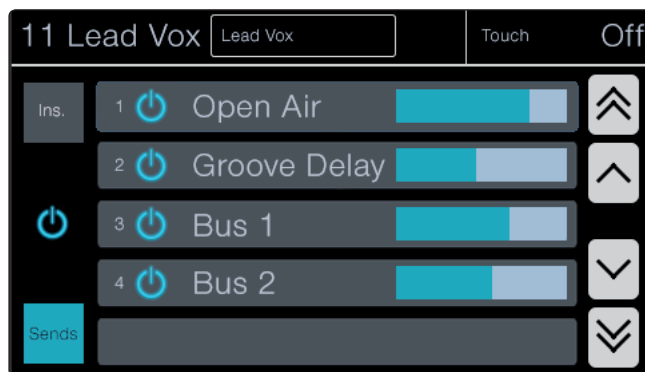
Tapping FX on the touchscreen will open the inserted plugins and sends for the selected channel.



Tap Inserts to display the track's inserted plugins.

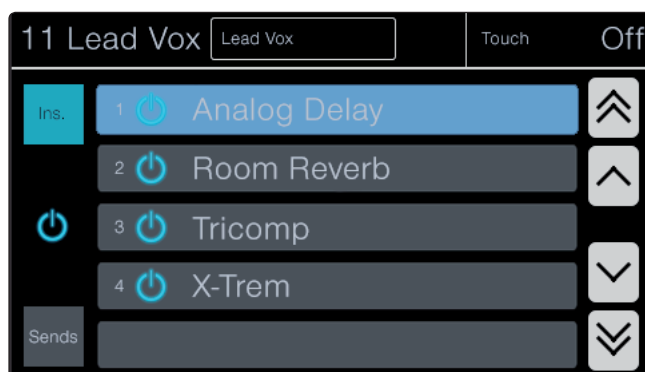


Tap Sends to display the track's sends.



#### 4.6.1 Editing Plugins

Tap the plugin name in the Insert list to map the 16 Fat Channel encoders to the plugin's parameters. This will also launch the plugin in Studio One.

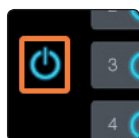


The parameter names will be displayed at the bottom of the scribble strip displays.



Tap the plugin name again to unlink the Fat Channel encoders from the plugin parameters and dismiss the plugin window in Studio One.

Pressing the power button next to any of the plugins will disable that insert on the selected track.

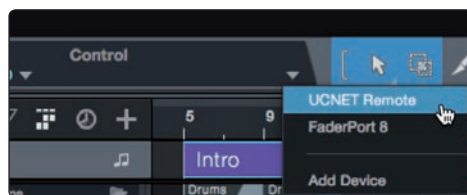


Pressing the global power button to the left of the plugin list will disable the entire insert chain for the selected channel



Use the value encoder to scroll through all available inserts.

Click on the Control Link menu in Studio One to view your CS18AI controls.

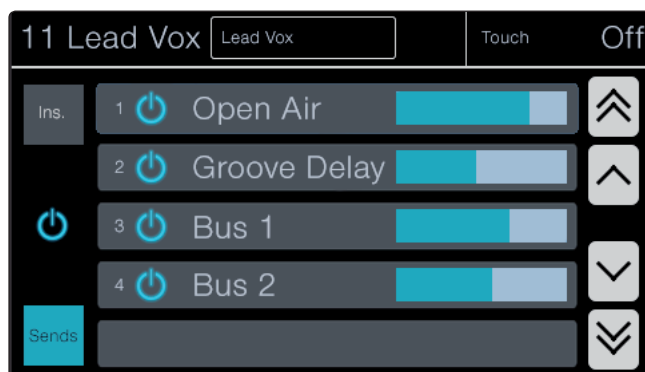


This will open the UCNet Remote window in Studio One, allowing you to view all the CS18AI mapping in a single view.



## 4.6.2 Editing FX Sends

Tap the Send level of the design bus to assign the send level to the Value encoder.



Use the Value encoder to adjust the send level for the selected channel. The send level will be displayed in the Touchscreen.

## 5 Rear Panel

### 5.1 Physical Connections and Controls



**Power Switch.** Powers your CS18AI on and off.



**Power Inlet.** This is a standard IEC AC power inlet.



**Lamp Jack.** The 4-pin XLR lamp jack provides 12 volts to support high-intensity lamps.



**USB Port.** The USB Type-A port is used for firmware updates using a thumb drive and for Wi-Fi connections using the included USB Wi-Fi LAN adapter.



**Ethernet AVB Jack.** This RJ-45 jack supports Ethernet AVB networking, with integrated connection and activity indicators. It provides the primary control and audio transport. When connected on an AVB-compliant network or to an AVB-compliant device, the built-in 4x2 audio is available on the network. When connected to a non-AVB-compliant network or device, only control data is available.



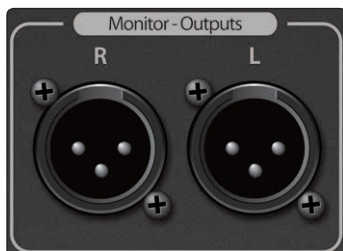
**Footswitch Input.** A 1/4-inch jack supports a momentary footswitch. The target for footswitch control is set in the Master Control touchscreen.



**Mic/Line Inputs.** These XLR-TRS combo jacks feed the microphone and line inputs for the control surface. The XLR feeds through a recallable XMAX preamp. The TRS input feeds the line-level input and bypasses the preamp with a fixed signal to the analog-to-digital converter.



**Line Inputs.** TRS jacks provide two additional line inputs, perfect for 2-track playback devices at front-of-house.



**Monitor Outputs.** Electrically balanced XLR-M jacks provide the monitor outputs for the control surface. The level is controlled with the top-panel Monitor knob. The source mirrors the headphone outputs.

## 6 Reference

### 6.1 StudioLive CS18 Technical Specifications

#### Network

Type	Ethernet / AVB
------	----------------

#### Microphone Inputs

Type	XLR Female (via Combo), Balanced Remote
Maximum Input Level	+12 dBu, $\pm 0.5$ dB, Unity Gain
Gain Control Range	65 dB, $\pm 1$ dB
Gain	0 to +65 dB, $\pm 1$ dB
Frequency Response to Main Output	20 Hz-20 kHz, $\pm 0.5$ dB
Frequency Response (A-D)	10 Hz to 40 kHz, $\pm 0.2$ dB
Input Impedance	1 k $\Omega$
THD to Main Output	<0.005% max, +4 dBu, 20 Hz-20 kHz, unity gain, unwt'd
THD+N (min. gain, a-wtd)	< 0.005%
Dynamic Range (min. gain, a-wtd)	> 114 dB
Dynamic Range (mid. gain, unwt'd)	> 105 dB
Signal-to-Noise Ratio to Main Output	94 dB
Common Mode Rejection	65 dB (1 kHz, unity gain)
EIN (+55 dB gain, 150 $\Omega$ input, 20 Hz-22 kHz, a-wtd)	< 128 dBu
Phantom Power	+48 V ( $\pm 2$ V, > 8 mA per channel)

#### Line Inputs

Type	¼" TRS Female (via Combo), Balanced
Maximum Input Level	+18 dBu
Frequency Response (A-D)	20 Hz to 20 kHz, $\pm 0.2$ dB
Frequency Response to Main Out	20 Hz to 20 kHz, $\pm 0.5$ dBu
THD to Main Output	<0.005% max, +4 dBu, 20 Hz-20 kHz, unity gain, unwt'd
THD+N (1 kHz, -1 dBFS, a-wtd)	< 0.005%
Input Impedance	10 k $\Omega$
Signal-to-Noise Ratio to Main Output	94 dB
Max Input Level	+18 dBu
Dynamic Range (min. gain, a-wtd)	> 114 dB
Dynamic Range (mid. gain, unwt'd)	> 105 dB
Crosstalk (1 kHz, channel-to-channel)	< -80 dB

#### Monitor Line Outputs

Type	XLR Male, Electrically Balanced
Maximum Output Level	+24 dBu, $\pm 0.5$

Frequency Response	20 Hz to 20 kHz, $\pm 0.2$ dB
Dynamic Range (a-wtd)	> 112 dB
THD+N (1 kHz, -1 dBFS, unwtd)	< 0.005%
Output Impedance	100 $\Omega$
Crosstalk (1 kHz, channel-to-channel)	< -80 dB

### Headphone Outputs

Type	¼" TRS Female, Stereo, Unbalanced
Maximum Output Level	120 mW/channel @ 60 $\Omega$
Frequency Response	20 Hz to 20 kHz, $\pm 0.5$ dB
Dynamic Range (A-wtd)	> 103 dB
THD+N	0.01%, 1 kHz, max gain, 20 Hz BW, unwtd
Crosstalk (1 kHz, channel-to-channel)	< -80 dB
Signal-to-Noise Ratio	96 dB 1 kHz, max gain, 20 kHz BW, unwtd

### System Crosstalk

Input to Output	-90 dBu +4 dBu, 20 Hz-20 kHz, unwtd
Adjacent Channels	-87 dBu +4 dBu, 20 Hz-20 kHz, unwtd

### Digital Audio

ADC Dynamic Range	118 dB min (A-wtd, 48 kHz)
DAC Dynamic Range	118 dB min (A-wtd, 48 kHz)
Sample Rate	44.1, 48, 88.2, 96 kHz
Reference Level for 0 dBFS	+18 dBu

### Clock

Clock Jitter	<20 Ps RMS, 20 Hz-20 kHz
Jitter Attenuation	>60 dB 1 ns in ~1 ps out

### Power / Environmental

Connector	IEC
Input-Voltage Range	100 to 230V, 50-60 Hz
Power Requirements	200W
Temperature Range	0° to 40° Celsius / 32° to 104° Fahrenheit

### Physical

Length	22.35" (58.6 cm)
Width (chassis only)	17.22" (43.74 cm)
Maximum Height	6.9" (17.53 cm)
Weight	23 lbs. (10.43 kg)

## 7 Warranty Information

PreSonus' warranty obligations for this hardware product are limited to the terms set forth below:

### 7.1 How Consumer Law Relates To This Warranty

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE (OR BY COUNTRY OR PROVINCE). OTHER THAN AS PERMITTED BY LAW, PRESONUS DOES NOT EXCLUDE, LIMIT OR SUSPEND OTHER RIGHTS YOU MAY HAVE, INCLUDING THOSE THAT MAY ARISE FROM THE NONCONFORMITY OF A SALES CONTRACT. FOR A FULL UNDERSTANDING OF YOUR RIGHTS YOU SHOULD CONSULT THE LAWS OF YOUR COUNTRY PROVINCE OR STATE.

#### PreSonus Products And EU Statutory Warranty

When you purchase PreSonus products, European Union consumer law provides statutory warranty rights in addition to the coverage you receive from the PreSonus limited warranty. A summary of the EU Statutory Warranty and the PreSonus Limited Warranty is below:

	EU Consumer Law	PreSonus Limited Warranty
Repair or Replacement Coverage For	Defects present when customer takes delivery	Defects arising after customer takes delivery
Warranty Period	2 years (minimum) from original date of purchase (unless superseded by PreSonus)	1 year from original date of purchase (unless superseded by PreSonus)
Cost of Coverage	Provided at no additional cost	Included at no additional cost
Who to contact to make a claim	The seller	PreSonus technical support for your region

#### What This Warranty Covers

PreSonus Audio Electronics, Inc., ("PreSonus") warrants defects in material and workmanship in PreSonus-branded products under normal use. This Limited Warranty applies only to hardware products manufactured by or for PreSonus that can be identified by the PreSonus trademark, trade name, or logo affixed to them.

#### Exclusions and Limitations

This warranty does **not** cover the following:

1. Damage caused by accident, abuse, improper installation, failure to follow instructions in the applicable owner's manual or improper operation, rental, product modification, alteration, or neglect.
2. Damage from improper grounding, faulty wiring (AC and signal), faulty equipment, or connection to a voltage range outside published specifications (see applicable owner's manual).
3. Damage to drivers or diaphragm assemblies found to have burnt voice coils from over/under driving or signal surge from another device.
4. Damage occurring during shipment or improper handling.
5. Damage caused by repair or service performed by persons not authorized by PreSonus.
6. Products on which the serial number has been altered, defaced, or removed.
7. Products purchased from an unauthorized PreSonus dealer (products that have transferable warranties are excluded from this provision provided the customer and the product are registered with PreSonus).



### **Who This Warranty Protects**

This Warranty protects only the original retail purchaser of the product (products that have transferable warranties are excluded from this provision provided the customer and the product are registered with PreSonus)

### **How Long This Warranty Lasts**

A 1-Year Limited Warranty begins on the original date of purchase from the retail purchaser.

### **What PreSonus Will Do**

PreSonus will repair or replace, at our sole and absolute option, products covered by this warranty at no charge for labor or materials. If the product must be shipped to PreSonus for warranty service, the customer must pay the initial shipping charges. PreSonus will pay the return shipping charges.

### **How to Get Warranty Service (USA)**

1. You must have an active user account with PreSonus and your hardware must be on file with your account. If you do not have an account, please go to <https://my.presonus.com> and complete the registration process.
2. Contact our Technical Support Department at (225) 216-7887 or log a support ticket at: <http://support.presonus.com>. TO AVOID THE POSSIBILITY OF SENDING IN A PRODUCT THAT DOES NOT HAVE A PROBLEM, ALL SERVICE REQUESTS SHALL BE CONFIRMED BY OUR TECH SUPPORT DEPARTMENT.
3. The return authorization number, as well as shipping instructions, shall be provided after your service request is reviewed and confirmed.
4. The product should be returned for service in the original product packaging. Products may be shipped in a manufactured "flight" or "road" style cases but PreSonus will NOT cover any shipping damage to these cases. Products that are not shipped in the original product package or a manufactured case may not receive a warranty repair, at PreSonus' sole discretion. Depending on the product model and the condition of your original packaging, your product may not be returned to you in the original packaging. The return shipping box may be a generic box that has been fitted for that model tested if the original gift box is not available.

### **How to Get Warranty Service (outside of USA)**

1. You must have an active user account with PreSonus and your hardware must be on file with your account. If you do not have an account, please go to: <https://my.presonus.com> and complete the registration process.
2. Contact the Technical Support/Service Department for your region at [www.presonus.com/buy/international\\_distributors](http://www.presonus.com/buy/international_distributors) and follow procedures provided by your PreSonus contact.

### **Limitation of Implied Warranties**

ANY IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

Some states, countries, or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

## **Exclusion of Damages**

PRESONUS'S LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT, AT PRESONUS'S SOLE OPTION. IF PRESONUS ELECTS TO REPLACE THE PRODUCT, THE REPLACEMENT MAY BE A RECONDITIONED UNIT. IN NO EVENT WILL PRESONUS BE LIABLE FOR DAMAGES BASED ON INCONVENIENCE, LOSS OF USE, LOST PROFITS, LOST SAVINGS, DAMAGE TO ANY OTHER EQUIPMENT OR OTHER ITEMS AT THE SITE OF USE, AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY, OR ANY OTHER DAMAGES WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, EVEN IF PRESONUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states, countries, or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

If you have any questions about this warranty or service received, please contact PreSonus (USA) at +1-225-216-7887 or contact one of our authorized international distributors at [www.presonus.com/buy/international\\_distributors](http://www.presonus.com/buy/international_distributors).

Product features, design, and specifications are subject to change without notice.

Added bonus: PreSonus' previously Top Secret recipe for...

## Chicken and Andouille Gumbo

### Ingredients:

- 1 C All-Purpose flour
- $\frac{3}{4}$  C Vegetable Oil
- 1 large onion (diced)
- 1 small onion (quartered)
- 6 celery stalks (diced)
- 1 large green bell pepper (diced)
- 3 cloves garlic (2 minced, 1 whole)
- 1 lb link Andouille sausage
- 4 Chicken leg quarters
- 4 qt water
- 4 bay leaves
- 1 tsp thyme
- 1 tsp Old Bay seasoning
- 1-2 C frozen okra, sliced
- $\frac{1}{4}$  C fresh parsley, minced
- 6-8 eggs (optional)

### Cooking Instructions:

1. In a large pot, combine whole chicken leg quarters, water, quartered onion, Old Bay, 2 bay leaves and 1 whole clove garlic. Cover and bring to a low boil. Simmer stock until chicken is falling off the bone. Remove the chicken and set aside. Discard the onion, bay leaves, and garlic, reserving the liquid.
2. In a heavy saucepan, heat 1 Tbsp of the oil on medium high heat and brown the andouille until it is cooked through. Set aside sausage for later.
3. In the same saucepan, add and heat remaining oil. Slowly add flour 1-2 Tbsp at a time, stirring continuously. Continue cooking and stirring the roux until it is a dark brown (it should look like melted dark chocolate). Be careful to not to get the oil too hot or the flour will burn and you'll have to start over.
4. Once roux has reached the correct color, add diced onion, celery, green pepper, and minced garlic. Cook until vegetables are very tender. Do not cover.
5. Slowly add 1 quart of chicken broth and bring to a low boil, stirring constantly.
6. Transfer roux mixture to a soup pot and bring to low boil. Do not cover, the roux will settle on the bottom of the pot and burn.
7. Add remaining chicken broth, bay leaves, and thyme. Simmer for 30 minutes.
8. While gumbo is simmering, debone and shred chicken and slice the andouille.
9. Add chicken and andouille to gumbo and return to a simmer. Simmer for 30-45 minutes.
10. Stir in frozen okra and parsley and bring to a rolling boil.
11. **Optional:** Crack one egg into a teacup and quickly pour into the boiling gumbo. Repeat with the other eggs being careful not to cluster them too closely. After all the eggs have risen back to the surface, reduce heat and simmer.
12. Correct seasoning with salt and pepper (red, white and/or black) if necessary.
13. Serve over rice with potato salad.

**Serves 12**

# StudioLive™ CS18AI

## Ethernet AVB Control Surface

### Owner's Manual



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