Quantum 4848

Ultra-low latency Thunderbolt™ Audio Interface

雷电二代机架式音频接口

Owner's Manual 用户手册

PreSonus® www.presonus.com

English

Table of Contents 目录内容

1 Overview 概述 — 1

1.1 Introduction 简介 — 1

1.2 Product Registration 产品注册 — 1

1.2 What is in the Box 包装里有什么 — 2

1.3 What's in your MyPreSonus Account
MyPreSonus 账户里有什么 — 2

1.4 Companion PreSonus Products 产品伙伴— 3

2 Hookup 连接 — 4

2.1 Front Panel Indicators 前面板指示器 — 4

2.2 Back Panel Connections 后面板连接 — 5

2.3 Quantum 4848 Hookup Diagram 连接图 — 7

3 Connecting to a Computer 连接计算机— 8

3.1 Installation for Windows and macOS 系统安装 — 8

3.2 Using a Quantum Interface
with Popular Audio Applications
使用 Quantum接口与热门音频应用
— 9

4 Universal Control and UC Surface — 11

4.2 Universal Control Launch Window
Universal Control 启动窗口 — 11

4.3 Metering 音频观察计量 — 13

4.4 RTA（实时分析） — 13

5 Aggregating Devices 聚集设备 — 15

5.1 macOS 系统 — 15

5.2 Windows 系统 — 17

6 Studio One Profesional Quick Start Studio One 专业版快速入门 — 19

6.1 Installation and Authorization 安装和授权 — 19

6.2 Setting Up Studio One Studio One 的设置— 20

6.2.1 Configuring Audio Devices 配置音频装置— 21

6.2.2 Configuring MIDI Devices 配置MIDI装置— 21

6.3 Creating a New Song 创建一首新歌曲 — 24

6.3.1 Configuring Your I/O 配置你的 I/O— 25

6.3.2 Creating Audio and MIDI Tracks 创建音频和MIDI音轨— 26

6.3.3 Recording an Audio Track 录制音频轨道 — 28

6.3.4 Adding Virtual Instruments and Effects 添加虚拟乐器与效果器 — 28

6.4 Optimizing Latency and Performance 延时和性能优化— 30

6.4.1 Device Block Size 块设备大小— 30

6.4.2 Audio Dropout Protection 音频中断保护 — 30

6.4.3 Plug-in Use with Native Low-Latency Monitoring 插件与本地低延迟监听的使用 — 31

6.5 Monitor Mixing in Studio One Studio One 监听混音 — 31

6.5.1 Cue Mix Functions Cue Mix 特点— 32

6.5.2 Punching In （播放中）开始 — 33

6.6 Pipeline XT — 34

7 Technical Information技术信息 —36

7.1 Specifications 规格 — 36

1 Overview 概述

1.1 Introduction 简介

Thank you for purchasing a PreSonus Quantum 4848 Thunderbolt Audio Interface. PreSonus Audio Electronic s has designed the Quantum 4848 for the recording professional. Route audio from your vintage gear to your DAW and back without any signal degradation, capturing every nuance of your favorite boutique equipment at extremely low latency thanks to our custom Thunderbolt drivers.

感谢你 购买 PreSonus Quantum 4848 Thunderbolt 音频接口。PreSonus Audio Electronic 公司为专业录音师设计了Quantum 4848。 将音频从你的设备输送到你的 DAW，然后再返回，没有任何信号衰减，Thunderbolt 是定制的驱动器，可以在极低的延迟下，捕捉到你设备中的每一个细微差别。

We encourage you to contact us with questions or comments regarding your PreSonus Quantum 4848 interface. PreSonus Audio Electronics is committed to constant product improvement, and we highly value your suggestions. 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 have shown us through the purchase of this product and are confident that you will enjoy your Quantum 4848 interface!

我们鼓励你与我们联系，提出 PreSonus Quantum 4848 接口的问题或意见。 PreSonus Audio Electronics 致力于不断改进产品，我们高度重视你的建议。我们相信，实现不断改进产品的目标的最好方法是倾听真正的专家的建议：我们宝贵的客户。感谢你通过购买该产品对我们的支持，相信你一定会喜欢 上 Quantum 4848 接口!

About this manual: We suggest that you use this manual to familiarize yourself with the features, applications, and correct connection procedures for your Quantum 4848 interface before trying to connect it to your computer. This will help you avoid problems during installation and setup.

关于本手册：我们建议，连接 Quantum 4848 接口到你的计算机之前，通过使用本手册，熟悉它的功能、应用和正确的连接程序。这将有助于你在安装和设置过程中避免问题。

Through out this manual you will find **Power User Tips** that can quickly make you a Quantum-series interface expert. In addition to the Power User Tips, you will find tutorials on Studio One Professional and Pipeline. These tutorials are designed to get you up and running with the included professional software suite as quickly as possible.

在这本手册中，你会发现 "**Power User Tips**" 用户提示，可以使你迅速成为 Quantum 系列的界面专家。除了用户提示外，你还可以找到 Studio One Professional 和 Pipeline 的教程。这些教程的目的是让你尽快地使用专业软件套件。

1.2 Product Registration 产品注册

PreSonus is committed to delivering the best experience for our customers. My PreSonus is a one-stop portal for all our registered customers' needs. From your My PreSonus account, you can view all your PreSonus hardware and software registrations; download drivers, installers, and content; contact support; track orders and more.

PreSonus 致力于为客户提供最佳的体验。My PreSonus 是一个满足所有注册客户需求的一站式门户。通过你的 "My PreSonus " 帐户，可以查看你所有的 PreSonus 硬件和软件注册；下载驱动程序、安装程序和内容；联系支持；跟踪订单等等。

To register your Quantum 4848 需要注册你的 Quantum 4848

Go to My.PreSonus.com and follow the onscreen instructions.
进入网站 My.PreSonus.com，按照屏幕上的指示操作。

–OR– 或者

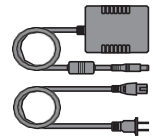
Download the MyPreSonus app from the Apple App Store or Google Play.
从”Apple App Store” 苹果应用商店或 ”Google Play” 下载 MyPreSonus 应用程序。

1.2 What is in the Box 包装里有什么

Your Quantum-series interface package contains the following :

你的Quantum系列接口包含以下内容:

PreSonus Quantum 4848 Thunderbolt Audio Interface



External power supply 外接电源

Product registration and software authorization card 产品注册和软件授权卡

PreSonus Health Safety and Compliance Guide 健康安全与合规指南

Power User Tip: *All companion software and drivers for your PreSonus Quantum-series interface are available for download from your My PreSonus user account. Simply visit http://my.presonus.com and register your Quantum-series interface to receive downloads and licenses.*

用户提示：*你的 PreSonus Quantum 系列接口的所有配套软件和驱动程序都可以从你的 My PreSonus用户账户中下载。只需访问 http://my.presonus.com，并注册你的 Quantum 系列接口，即可获得下载和许可。*

1.3 What's in your My PreSonus Account 账户里有什么

Once you register your Quantum-series interface, you will be able to download the following:

一旦注册了你的 Quantum-series 接口，以下内容可以下载：

Studio One Professional recording software and content

Studio One Professional 专业版 录音软件与内容

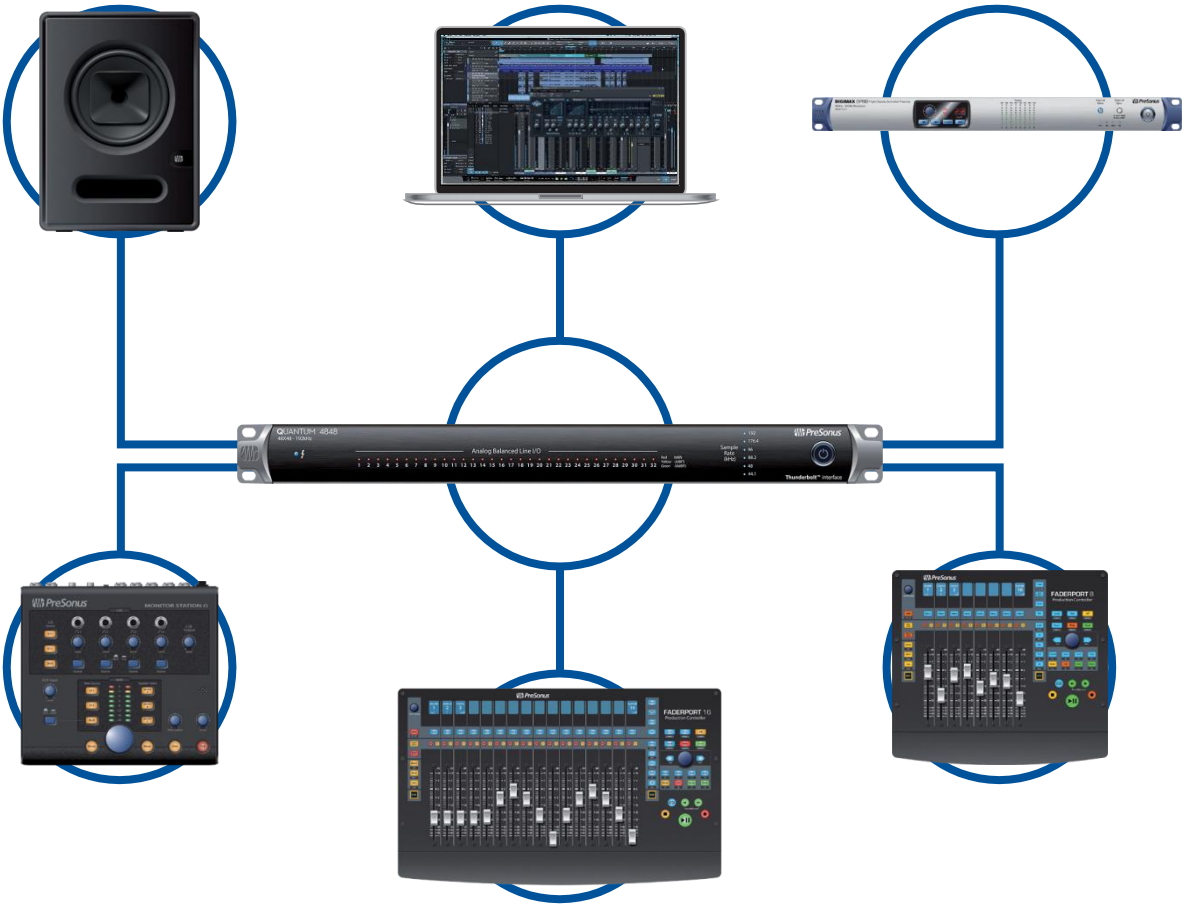
Universal Control (necessary for firmware updates)

Universal Control (固件更新所需)

1.4 Companion PreSonus Products 产品伙伴

Thanks for choosing PreSonus! As a solutions company, we believe the best way to take care of our customers (that's you) is to ensure that you have the best possible experience from the beginning of your signal chain to the end. To achieve this goal, we've prioritized seamless integration throughout every design phase of these products from day one. The result is systems that communicate with each other as intended—straight out of the box—without excessive configuration hassles. We're here for you. Find out more at www.presonus.com.

感谢你选择 PreSonus! 作为一家解决方案公司，我们相信照顾客户（也就是你）的最佳方式是确保你从信号链的起点到终点都能获得最佳体验。为了实现这一目标，我们从第一天起就把无缝集成放在这些产品的每个设计阶段。其结果是，系统可以按照预期的方式相互通信--开箱即用--而没有过多的配置麻烦。我们在这里为你服务。了解更多信息，请访问 www.presonus.com 。



2 Hookup 连接

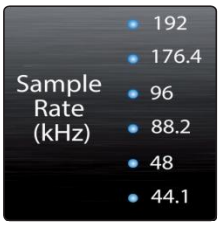
2.1 Front Panel Indicators 前面板指示器

Thunderbolt Sync. This indicator will illuminate blue when your Quantum 4848 is properly synced to your computer over Thunderbolt.

Thunderbolt Sync. 当你的 Quantum 4848通过 Thunderbolt正确地同步到你的计算机时，这个指示灯将亮起蓝色。

Signal Indicators. These 32 indicators can be set to monitor either the analog input or analog output signal from UC Surface. ***See Section 4.2.***

Signal Indicators. 这32个指示灯可以被设置为监听 UC Surface 的模拟输入或模拟输出信号。***见第4.2节。***



Sample Rate Indicators. These LEDs display the currently set Sample Rate for your Quantum 4848.

Sample Rate Indicators. 采样率指示器。这些 LED灯，显示了你的 Quantum 4848当前的采样率设置。

Power button and Sync light. The lighted ring around the power button of your Quantum 4848 is a clock source / sync indicator. It lets you know if your unit is receiving word clock correctly.

Power button and Sync light. 电源按钮和同步指示灯。Quantum 4848的电源按钮周围的光环是一个时钟源/同步指示灯。这样你知道设备是否能正确地接收字时钟。

- **Blue.** When this light is blue, your Quantum 4848 is correctly synced via Thunderbolt, word clock, or ADAT.
- **Blue.** 当灯亮起蓝色时，你的 Quantum 4848通过 Thunderbolt、字时钟或 ADAT正确同步。
- **Flashing red and blue.** Quantum 4848 is in the process of trying to sync to a received clock signal.
- **Flashing red and blue. 闪烁灯为红色和蓝色。** Quantum 4848正在尝试与接收到的时钟信号进行同步。
- **Red.** Quantum 4848 is either not synced to your computer or its external clock source is not present.
- **Red.** Quantum 4848要么没有与你的计算机同步，要么其外部时钟源不存在。
- **Flashing purple.** The identify button is active in UC Surface.
- **Flashing purple. 闪烁灯为紫色。** 识别按钮在 UC Surface 中是激活的。

Power User Tip: *Word clock is the timing signal with which digital devices sync frame rates. Proper word clock sync prevents digital devices from having pops, clicks, and distortion in the audio signal due to mismatched digital audio transmission. In general, you will use your Quantum 4848 interface as the master clock in your studio; it provides high-quality word clock for this purpose. However, if you would like to use another device as the master clock, you can set the input source for clocking in UC Surface.* ***See Section 4.1 for details****.*

用户提示：*字时钟是数字设备同步帧率的计时信号。正确的字时钟同步可以防止数字设备由于不匹配的数字音频传输而导致音频信号出现爆音、咔嗒声和失真。一般你会使用 Quantum 4848接口，作为工作室的主时钟，它提供高质量的字时钟。如果你想使用其他设备作为主时钟，你可以在 UC Surface 中设置时钟的输入源。****详见第 4.1 节。***

2.2 Back Panel Connections 后面板连接

Line Inputs. *The lower row of DB25 connections are for use with line-level devices. These inputs are scaled to accept line-level signals up to +18 dBu.*

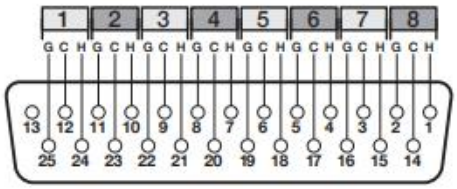
Line Inputs. *下面一排DB25连接是用于线路设备的。这些输入按比例可以接受高达+18dBu的线级信号。*

Line Outputs. *The upper row of DB25 connections provide 32 balanced line outputs to route to external devices, such as headphone amps, signal processors, and patchbays. Each output has an independent playback stream.*

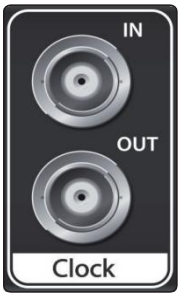
Line Outputs. *上排的DB25连接提供了32个平衡线路输出，以路由到外部设备，如耳机放大器、信号处理器和跳线架。每个输出都有一个独立的播放流。*

A Quick Note About DB25

简要说明有关 DB25



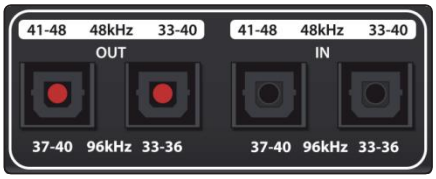
The Tascam format DB25 connectors DB25 connectors provide eight balanced channels on a single analog connector. Balanced DB25 fan-out snakes can be obtained in various configurations at most recording and live-sound retailers. Common configurations are DB25 to (8) XLRM, DB25 to (8) XLRF, and DB25 to (8) TRS.
Tascam格式的DB25连接器在一个模拟连接器上提供八个平衡通道。平衡的DB25扇出曲线可以在大多数录音和现场声音零售商处获得各种配置。常见的配置是DB25到（8）XLRM，DB25到（8）XLRF，以及DB25到（8）TRS。



Clock In and Out. These BNC connections allow Quantum-series interfaces to receive and transmit word clock to and from other digital audio devices.
Clock In and Out. 这些 BNC连接允许 Quantum系列接口接收和传输字时钟到其他数字音频设备。

Power User Tip: *When using the BNC Clock input for external clock, you will need to set "Wordclock" as the Clock Source in Universal Control as well as to set the sample rate to be the same as the external clocksource device.* ***See Section 4.1 for details.*** *A 75Ω BNC word clock cable is required to achieve proper sync.*

用户提示：当使用 BNC时钟输入作为外部时钟时，你需要在 Universal Control 中设置 "Wordclock "作为时钟源，并将采样率设置为与外部时钟源设备相同。***详见第 4.1 节***。为了实现正确的同步，需要一根 75Ω的 BNC字时钟线缆。



ADAT – S/MUX In and Out. These are the ADAT – Dual S/MUX connections for your external digital devices. When recording or playing back at 44.1 or 48 kHz, each ADAT I/O will provide 8 of the 16 available channels consecutively, from left to right. When recording or playing back at 88.2 or 96 kHz, each connection will provide four of the available eight channels.

ADAT – S/MUX In and Out. 这是用于外部数字设备的ADAT-双S/MUX连接。当以 44.1或48kHz 录音或回放时，每个ADAT输入/输出将连续提供16个可用通道中的8个，从左至右。当以 88.2或96kHz 录音或回放时，每个连接将提供8个可用通道中的4个。

These inputs and outputs do not function at 176.4 or 192 kHz:

这些输入和输出在 176.4 或 192kHz 时，不发挥作用。

	ADAT 1 Input	ADAT 2 Input	ADAT 1 Output	ADAT 2 Output
44.1 / 48 kHz	Channels 33-40	Channels 41-48	Channels 33-40	Channels 41-48
88.2 / 96 kHz	Channels 33-36	Channels 37-40	Channels 33-36	Channels 37-40

When connecting a PreSonus DigiMax DP88 to your Quantum 4848, the ADAT connections will also send and receive preamp control information for the DigiMax DP88, so that it can be controlled directly from UC Surface or Studio One.

当 PreSonus DigiMax DP88连接到你的 Quantum 4848 时，ADAT连接也将发送和接收DigiMax DP88的前放大器数据，这样就可以直接从UC Surface或Studio One控制它。

Power User Tip: *You will need to set "ADAT 1" as the Clock Source in Universal Control as well as to set the sample rate to be the same as the external clocksource device when clocking external via ADAT. See Section 4.1 for details. The ADAT 2 input cannot be used to receive word clock.*

用户提示： *你需要在 Universal Control 中设置 "ADAT 1 "作为时钟源，并且通过 ADAT 为外部时钟源设备提供时钟时，将采样率设置为与外部时钟源相同。* ***详情见第 4.1 节。"ADAT 2"*** *输入不能用于接收字时钟。*

Thunderbolt ports. Use these ports to connect your Quantum 4848 to your computer. The second Thunderbolt port can be used to connect other Thunderbolt devices to your computer.

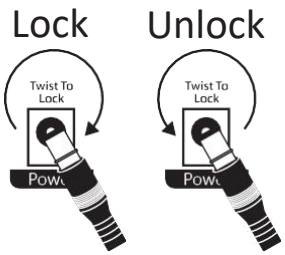
Thunderbolt ports. 使用这些端口连接你的Quantum 4848到你的计算机上。第二个 Thunderbolt 端口，可以用来连接其他 Thunderbolt 设备到你的计算机上。

Power User Tip: *Quantum interfaces support clustering over Thunderbolt. In addition to allowing you to use your Quantum-series interface as a Thunderbolt hub, this allows you to chain up to four Quantum interfaces, aggregated over Thunderbolt, for higher I/O counts.* ***See Section 5*** *for more information.*

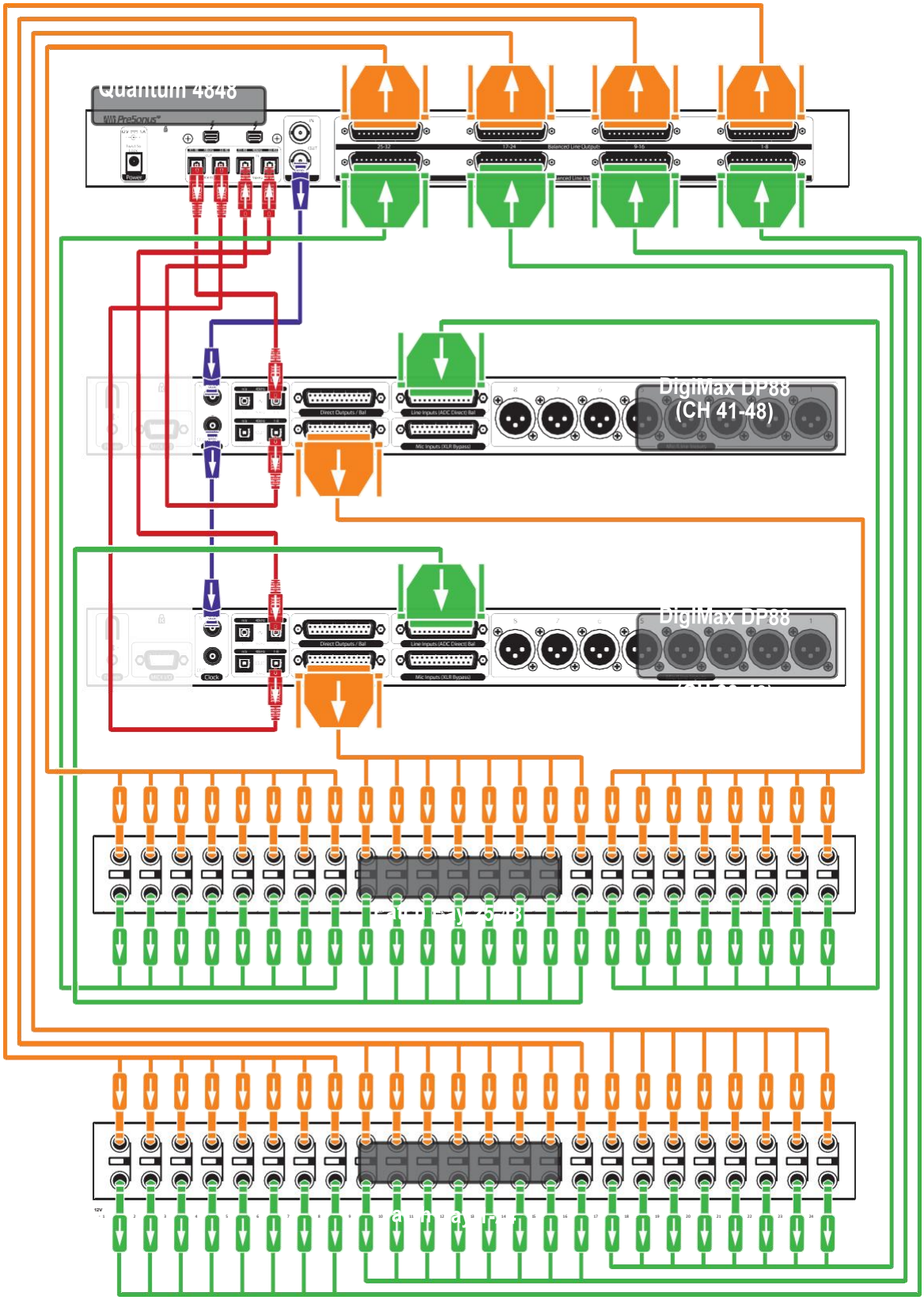
用户提示：Quantum接口支持通过Thunderbolt的集群。除了你可以将Quantum系列接口作为Thunderbolt集线器使用外，你还可以将多达四个Quantum接口串联起来，通过Thunderbolt聚合，以获得更高的I/O数量。更多信息见第 5 节。

Power Connection. This is where you connect the external power supply for your Quantum 4848. Your Quantum interface is equipped with a twist-lock power connection, keep this in mind when connecting disconnecting it from your interface.

Power Connection. 这是为 Quantum 4848连接外部电源的位置。你的Quantum接口配备了一个旋锁式的电源连接，在连接和断开接口的时候，要记住这一点。



2.3 Quantum 4848 Hookup Diagram 连接图



3 Connecting to a Computer 连接到计算机

Before connecting your Quantum 4848 to a computer, please visit www.presonus. com/products/Quantum-4848/techspecs to verify the latest system requirements.

在将Quantum 4848连接到电脑之前，请访问www.presonus. com/products/Quantum-4848/techspecs 以验证最新的系统要求。

Note: *The speed of your processor, amount of RAM, and capacity, size, and speed of your hard drives will greatly affect the overall performance of your recording system. A faster processor and more RAM can reduce signal latency (delay) and improve overall performance.*

注意： *你处理器的速度、内存的数量以及硬盘的容量、大小和速度将大大影响你的录音系统的整体性能。更快的处理器和更多的内存，可以减少信号延迟（延时），提高整体性能。*

The Universal Control installer for macOS and Windows is available for download from your My PreSonus user account. This bundled installer includes Universal Control, UC Surface, and the audio driver for Quantum-series interfaces. To begin, you must create or log into your My PreSonus user account, and register your Quantum interface, either by downloading the My PreSonus app for your iOS or Android device or by visiting http://my.presonus.com. Once registered, all software downloads will be available from within your My PreSonus user account.

适用于Universal Control的安装程序macOS 和Windows，可以从你的My PreSonus用户账户下载。捆绑的安装程序包括Universal Control、UC Surface和Quantum系列接口的音频驱动程序。你必须先创建或登录你的My PreSonus用户帐户，并注册你的Quantum接口，可以通过下载 iOS或Android设备的My PreSonus应用程序，或访问 http://my.presonus.com 一旦注册，所有的软件下载，都可以从你的My PreSonus用户账户中获得。

3.1 Installation for Windows and macOS 系统安装

Connect your Quantum 4848 to an available Thunderbolt port and launch the Universal Control installer. The installer will take you through each step of the installation process. This application will install the macOS or Windows drivers as well as UC Surface. Please read each message carefully.

将你的Quantum 4848连接到一个可用的Thunderbolt端口，然后启动Universal Control安装程序。安装程序会带你完成安装过程的每一步。这个程序可以安装 macOS或 Windows驱动以及UC Surface。请认真阅读每条信息。

It is recommended that you quit all applications before you start the installation.

在开始安装前，建议你退出所有的应用程序。

The Universal Control installer will take you through each step of the installation process.

Universal Control 安装程序将带你完成安装过程的每一步。

On the first installation of Universal Control, MacOS will prompt for security access to install the Thunderbolt driver.

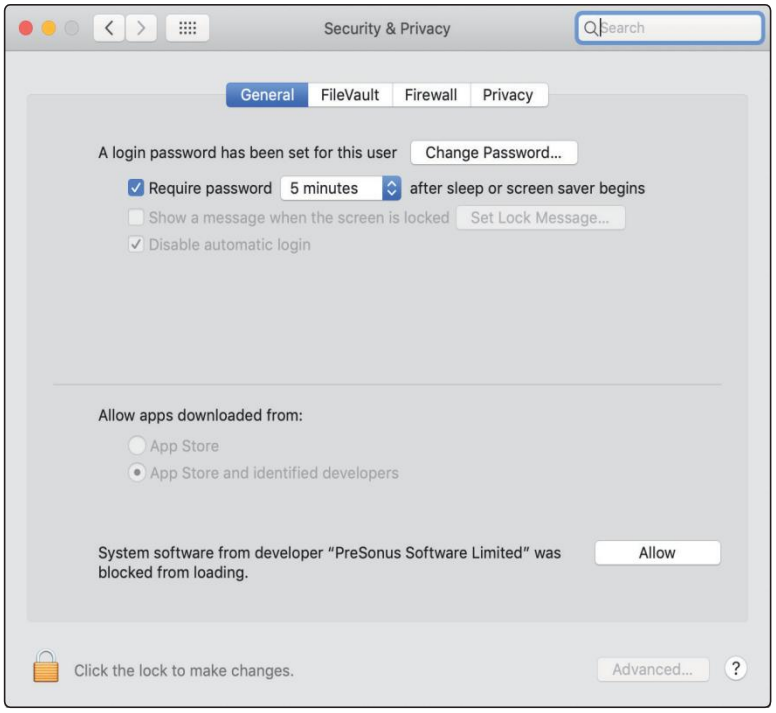
第一次安装Universal Control时，MacOS会提示安全访问以安装Thunderbolt 驱动程序。

Open System Preferences and click Security & Privacy to “Allow” the installation.

打开系统优先，点击 “Security” & “Privacy” ， "Allow"允许安装。

If this message does not appear in Security & Privacy, restart the computer.

如果该信息没有出现在“Security” & “Privacy” 中，请重新启动计算机。



Note: *If Universal Control has already been installed and Quantum is not syncing, run the uninstaller and reinstall the latest version of Universal Control to install the driver.*

注意： *如果已经安装了Universal Control，而Quantum没有同步，请运行卸载程序并重新安装最新版本的Universal Control来安装驱动程序。*

3.2 Using a Quantum Interface with Popular Audio Applications
在热门的音频应用程序中使用Quantum

Complete setup instructions for Studio One Professional and a brief tutorial on its features can be found in Section 6 of this manual. However, you can use your Quantum 4848 with any audio-recording application that supports Core Audio or ASIO. Please consult the documentation that came with your audio application for specific instructions on how to select the Quantum-series interface driver as the audio-device driver for your software.

Studio One Professional 的完整设置说明和其功能的简要教程，可以在本手册的第6部分找到。你还可以将Quantum 4848与任何支持 Core Audio 或 ASIO 的音频录制应用程序一起使用。关于如何选择Quantum-系列接口驱动作为软件的音频设备驱动，请查阅音频应用程序附带的文件，以获得具体说明。

Below are basic driver-setup instructions for a few popular audio applications.
下面是几个热门的音频应用程序的基本驱动设置说明。

Ableton Live

1. Launch Ableton Live.

   启动 Ableton Live

2. Go to Options | Preferences | Audio.

   进入选项|首选项|音频。

3. Choose Driver Type: ASIO | Audio Device: ASIO PreSonus Quantum 4848.

   选择驱动类型：ASIO | 音频设备：ASIO PreSonus Quantum 4848。

4. Go to Input Config: Enable and select the desired Input channels.

   进入输入配置: 启用并选择需要的输入通道。

5. Go to Output Config: Enable and select the desired Output channels.

   进入输出配置：启用并选择所需的输出通道。

Avid Pro Tools 10+

1. Launch Pro Tools

   启动Pro Tools

2. Go to Setup | Hardware and select Quantum 4848 from the Peripherals list. Click OK.

   进入设置 | 从外围设备列表中选择 Quantum 4848。点击 ”OK” 确认。

3. Go to Setup | Playback Engine and select Quantum 4848 from the menu at the top of the window. Click OK.

   进入设置 | 播放引擎，从窗口顶部的菜单中,选择 Quantum 4848。点击 ”OK” 确认。

Apple Logic

1. Launch Logic.

2.Go to Logic | Preferences | Audio.

3.Click on the Devices Tab.

4.On the Core Audio tab, check Enabled.

5.Select PreSonus Quantum 4848 from the device menu.

6.You will be asked if you'd like to relaunch Logic. Click try (re)launch.

7.Your Quantum 4848 features custom I/O labels for faster workflow. To enable these labels for use in Logic, go to Options | Audio | I/O Labels.

8.The second column in the pop-up window will be named Provided by Driver. Activate each of these labels for your Quantum 4848.

1. 启动 Logic。

2.进入Logic | 首选项 | 音频。

3.点击 "设备 "标签。

4.在Core Audio标签上，选中Enabled。

5.从设备菜单中选择 PreSonus Quantum 4848。

6.你会被问：是否要重新启动 Logic。点击尝试（重新）启动。

7.你的 Quantum 4848 具有自定义的I/O标签，以加快工作流程。要启用这些标签以便在Logic中使用，请进入选项|音频|I/O标签。

8.在弹出的窗口中，第二栏将被命名为 "Provided by Driver"。为你的 Quantum 4848激活这些标签。

Cakewalk Sonar

1. Launch Sonar.
2. Go to Options | Audio... and click on the Advanced tab.
3. Change the Driver Mode to "ASIO." (Note: Using WDM, rather than ASIO, for pro audio applications is not recommended.)
4. Click the "OK" button.
5. Restart Sonar.
6. Go to Options | Audio... and click on the Drivers tab.
7. Highlight all input and output drivers beginning with "PreSonus Quantum 4848"
8. Go to Options | Audio... and click on the General tab.
9. Set the Playback Timing Master to "PreSonus Quantum 4848... DAW Out 1."
10. Set the Recording Timing Master to "PreSonus Quantum 4848... Line 1."

1. 启动 Sonar。

2.进入选项|音频...并点击 ”Advanced ”标签。

3.将驱动模式改为 "ASIO"。(注意：不建议在专业音频应用中使用WDM)。

4.点击 "OK " 确定 按钮。

5.重新启动 Sonar。

6.进入选项|音频...并点击 ”Drivers” 标签。

7.突出显示所有以 "PreSonus Quantum 4848 " 开头的输入和输出驱动程序。

8.进入选项|音频...并点击 ” General” 标签。

9.将 ”Playback Timing Master ” 为 "PreSonus Quantum 4848... DAW Out 1."

10.将 ”Recording Timing Master”为 "PreSonus Quantum 4848...DAW Out 1"。Line 1"。

Steinberg Cubase

1. Launch Cubase.
2. Go to Devices | Device Setup.
3. Select “VST Audio System” from the Devices column in the Device Setup.
4. Select PreSonus Quantum 4848 from the ASIO Driver dropdown list.
5. Click “Switch” to begin using the Quantum driver.
6. Once you have successfully changed the driver, go to Devices | VST Connections to enable your input and output buses.

1.启动 Cubase。

2. 进入设备|设备设置。

3.在设备设置的设备栏中，选择 "VST音频系统"。

4.从ASIO驱动下拉列表中，选择 PreSonus Quantum 4848。

5.点击 "Switch"，开始使用 Quantum 驱动。

6.驱动程序一旦改变，进入设备|VST连接，启用你的输入和输出总线。

4 Universal Control and UC Surface

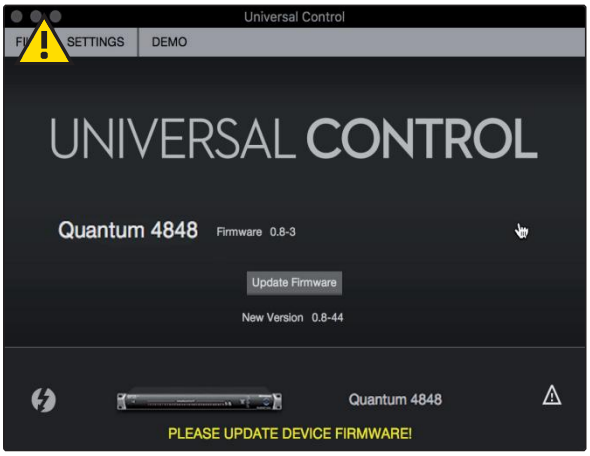
Included in Universal Control is UC Surface, a powerful control software for your Quantum 4848 that provides extensive metering as well as configuration options for Quantum 4848 users.

Universal Control 中包括UC Surface，这是一个强大的控制软件，为你的Quantum 4848提供广泛的计量以及配置选项，供Quantum 4848用户使用。

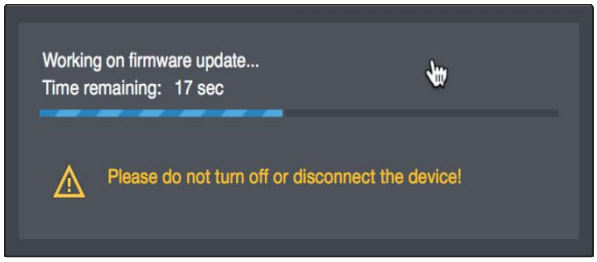
4.1 Firmware Updates 固件更新

UC Surface is designed to verify that your Quantum 4848 has the correct firmware version installed. You will be prompted if your Quantum 4848 interface needs its firmware updated. Click on the Update Firmware button to begin the update.

UC Surface 是用来验证你的Quantum 4848，是否安装了正确的固件版本。你会被提示，如果你的Quantum 4848接口需要更新其固件。点击"Update Firmware "按钮，开始更新。



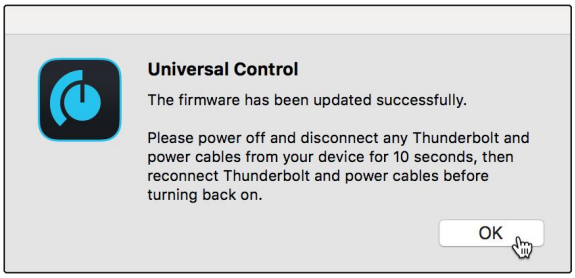
Warning: Do not power off or disconnect your Quantum 4848 during the firmware update. Once the firmware update is successfully completed, you will be alerted and instructed to disconnect your power supply and Thunderbolt cable and reconnect it before rebooting your device. I***t is not sufficient to simply power down your unit, you must disconnect the power source in addition to the Thunderbolt cable.***



警告: 在固件更新期间，请不要关闭或断开你的Quantum 4848的电源。一旦固件完成更新，你将被提醒，并指示你断开电源和Thunderbolt电缆，在重新启动你的设备之前，重新连接它。***仅仅关闭设备的电源是不够的，除了Thunderbolt电缆，你还必须断开电源。***

When the firmware update is complete, you must disconnect the physical power source from your Quantum 4848 and reconnect it. Powering it off it will not complete the update process.

当固件更新完成后，你必须断开 Quantum 4848的物理电源并重新连接。关闭电源将无法完成更新过程。



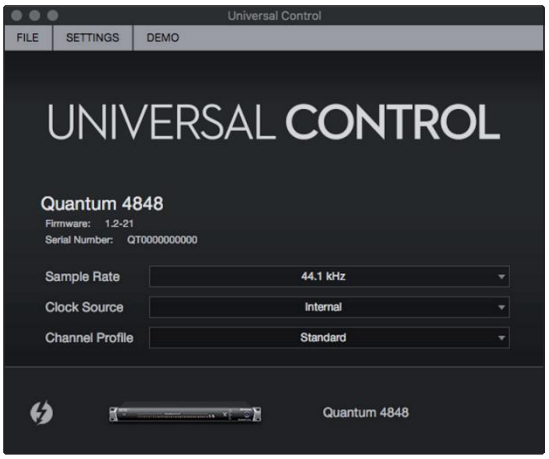
4.2 Universal Control Launch Window

Universal Control is a powerful hardware-management application for all PreSonus interface products. It allows you to view any PreSonus interface product connected to your computer or your computer's network.

When Universal Control is launched, you will see the Launch window. From this window, you can manage all the driver settings.

Universal Control 是一个强大的硬件管理应用程序，适用于所有 PreSonus 接口产品。它允许你查看任何连接到你的计算机或计算机网络的 PreSonus 接口产品。

当 Universal Control 启动时，你会看到启动窗口。从这个窗口，你可以管理所有的驱动程序设置。



Sample Rate. Changes the sample rate.

Sample Rate. 改变采样率。

You can set the sample rate to 44.1,48,88.2,96,176.4,or192kHz.Ahigher 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.

你可以将采样率设置为 44.1、48、88.2、96、176.4 或 192kHz。 更高的采样率将提高录音的保真度，但会增加文件的大小和处理音频所需的系统资源量。

Clock Source. Sets the digital clock source.

Clock Source. 设置数字时钟源。

From this menu, you can set the clock source for your Quantum interface: Internal, or External ADAT. Please note: Only ADAT 1 can be used as a clock source input for your Quantum.

在这个菜单中，你可以为你的 Quantum 接口设置时钟源：内部，或外部 ADAT。请注意：仅有 ADAT 1可以作为Quantum的时钟源输入。

Channel Profile. Some third-party DAW applications, like ProTools Native, limit simultaneous I/O to 32 ins and outs. Channel Profile modes are provided so that you can customize your 48-channel I/O configuration for 32-channel application as follows:

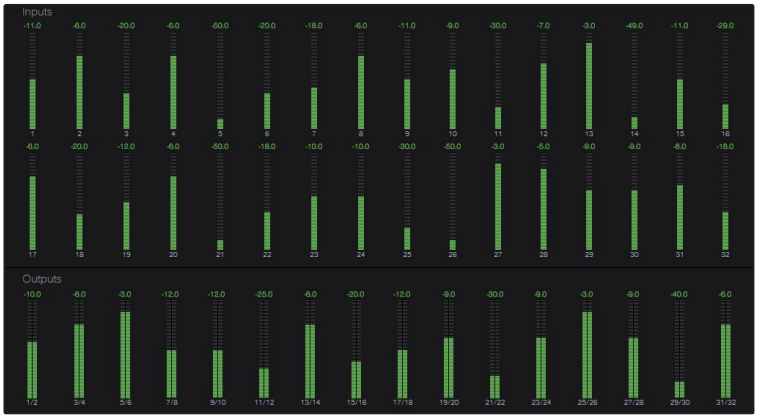
Channel Profile. 一些第三方DAW应用程序，如 ProTools Native，限制同时I/O 为32个输入和输出。提供了 "Channel Profile modes" 模式，这样你就可以为32个通道的应用定制48个通道的 I/O 配置，具体如下：

	Standard	16 Line + 16 ADAT	24 Line + 8 ADAT
Input Streams			
Recording Streams 1-8	Analog 1-8	Analog 1-8	Analog 1-8
Recording Streams 9-16	Analog 9-16	Analog 9-16	Analog 9-16
Recording Streams 17-24	Analog 17-24	ADAT 1 1-8	Analog 17-24
Recording Streams 25-32	Analog 25-32	ADAT 2 1-8	ADAT 1 1-8
Recording Streams 33-42	ADAT 1 1-8	Disabled	Disabled
Recording Streams 43-48	ADAT 2 1-8	Disabled	Disabled
Output Streams			
Playback Streams 1-8	Analog 1-8	Analog 1-8	Analog 1-8
Playback Streams 9-16	Analog 9-16	Analog 9-16	Analog 9-16
Playback Streams 17-24	Analog 17-24	ADAT 1 1-8	Analog 17-24
Playback Streams 25-32	Analog 25-32	ADAT 2 1-8	ADAT 1 1-8
Playback Streams 33-42	ADAT 1 1-8	Disabled	Disabled
Playback Streams 43-48	ADAT 2 1-8	Disabled	Disabled

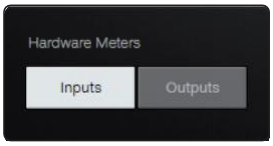
4.3 Metering 音频观察计量

When you first launch UC Surface, you will be able to view the input metering for all 32 analog inputs and outputs:

当你第一次启动 UC Surface 时，可以查看所有32个模拟输入和输出的输入计量。



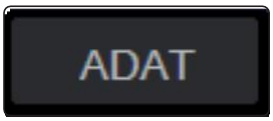
Front Panel Metering Toggle



By default, the 32 LEDs on the front panel of your Quantum 4848 display the signal level for your 32 analog inputs. From UC Surface, you can toggle them to display the signal from the 32 analog outputs instead.

默认情况下，Quantum 4848 前面板上的32个 LED灯显示的是32个模拟输入的信号电平。在UC表面，你可以切换它们来显示32个模拟输出的信号。

ADAT Inputs



When a DigiMax DP88 is connected to the ADAT Input and Output on your Quantum 4848, you will be presented with ADAT controls, allowing you to remote control your DigiMax DP88's preamps, direct line input, and phantom power. To view these controls, click on the ADAT button in the upper right corner of the UC Surface window.

当 DigiMax DP88 连接到Quantum 4848的 ADAT 输入和输出时，你会看到 ADAT 控制，允许你远程控制DigiMax DP88的前置放大器、直接线路输入和幻象电源。要查看这些控制，请点击 UC 表面窗口右上角的 ADAT 按钮。

4.4 RTA

UC Surface provides a real-time analyzer (RTA) in which x = frequency and y = amplitude for every input and output. An RTA provides a close visual representation of what you are hearing. It provides a view of the long-term spectrum of the signal, such as the one third-octave spectrum long-term average of a musical performance.

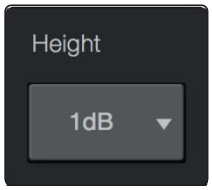
UC Surface 提供了一个实时分析器（RTA），其中 x=频率，y=每个输入和输出的振幅。RTA 提供了你所听到的东西的近距离视觉表现。它提供了信号的长期频谱视图，如音乐表演的三分之一倍频程频谱长期平均值。

To enable the RTA for any input or output, select its meter from the top of the screen.

要启用任何输入或输出的 RTA，请从屏幕上方选择其计量。

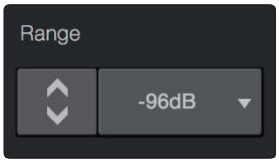
The Quantum RTA provides several customization features that allow you to view the RTA in the way that is most useful for your application.

Quantum RTA 提供了一些定制功能，使你能够以对你的应用最有用的方式查看 RTA。



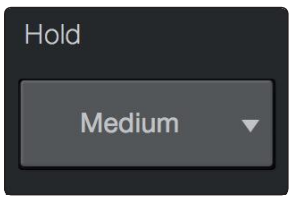
Height. This provides a more or less granular display for the RTA.

Height. 这为 RTA 提供了一个或多或少的细化显示。



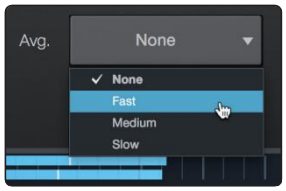
Range. Use the Range controls to set the upper and lower decibel limits that the RTA will display.

Range. 使用 "Range controls" 来设置RTA将显示的上下限分贝。



Hold. Use this control to set the peak hold time for each band of the RTA.

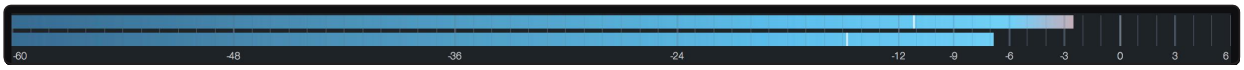
Hold. 使用这个控制来设置RTA每个频段的峰值保持时间。



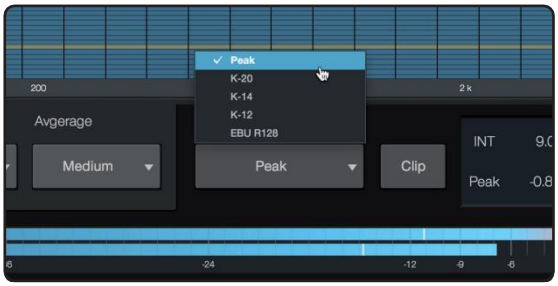
Average. Averaging is a mathematical process that takes multiple data samples and performs division to acquire a statistically more accurate calculation of the response. That's a technical way of saying that it slows down the "real-time" of a real-time analyzer.

Average. 平均化是一个数学过程，它采取多个数据样本并进行除法以获得统计上更准确的反应计算。 这是一种技术上的说法，它减慢了实时分析仪的"实时性"。

At the bottom of the screen, you will find the signal meter. This meter can be customized for your application.
在屏幕的底部，你会发现信号表。这个表可以根据你的应用进行定制。



Meter Style. This menu allows you to change the type of output metering displayed at the bottom of the screen.



- **Peak.** This type of metering displays the instantaneous level of the audio signal.
- **Peak.** 这种类型的计量显示音频信号的瞬时电平。
- **K-20, K-14, and K-12.** K-System metering displays loudness metering and dynamic range. Select the scale based on the genre or media format. K-20 is used for film, classical music, and high-fidelity recordings. It provides the most dynamic range visualization. K-14 is used for mainstream pop, rock, and country. K-12 is used for broadcast and radio and provides the least dynamic range visualization.
- **K-20, K-14, and K-12.** K-System 测光显示响度测光和动态范围。根据体裁或媒体格式来选择刻度。K-20用于电影、古典音乐和高保真录音。它提供了最多的动态范围的可视化。K-14用于主流流行音乐、摇滚和乡村音乐。K-12用于广播和无线电，提供最小的动态范围的可视化。
- **EBU R128.** Displays the perceived loudness of the signal based on the EBU R128 standard.
- **EBU R128.** 显示基于EBU R128标准的信号的感知响度。

5 Aggregating Devices 聚集设备

Up to four Quantum 4848 interfaces can be aggregated together for combined 192 inputs and 192 outputs at 44.1 and 48 kHz . Quantum-series interfaces are fully compatible with one another and PreSonus supports the aggregation of any four Quantum-series interfaces together.

最多四个Quantum 4848接口可以聚合在一起，在44.1和48kHz下实现192个输入和192个输出。Quantum系列接口彼此完全兼容，PreSonus 支持将任何四个Quantum系列接口聚合在一起。

From UC Surface, you can easily locate every Quantum interface connected to your computer by pressing the Identify button in the Device Tab. This will flash the power button purple.

在 UC Surface 中，你可以通过按下设备标签中的识别按钮，轻松找到连接到计算机上的每个Quantum接口。这将使电源按钮闪烁紫色。

5.1 macOS 系统

1. Connect the Quantum-series interface you'd like to use as the master clock to your computer first.

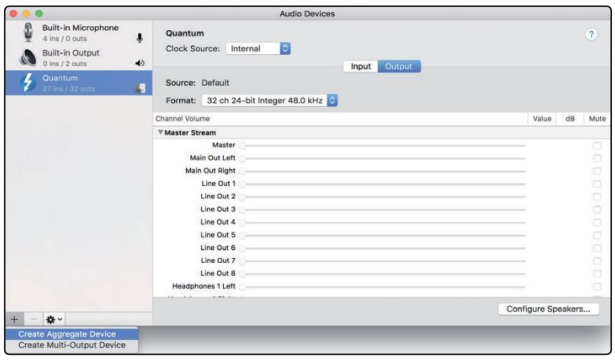
   先把你想用作主时钟的 Quantum 系列接口连接到你的计算机上。

2. Launch Audio MIDI Setup.

   启动音频MIDI设置。

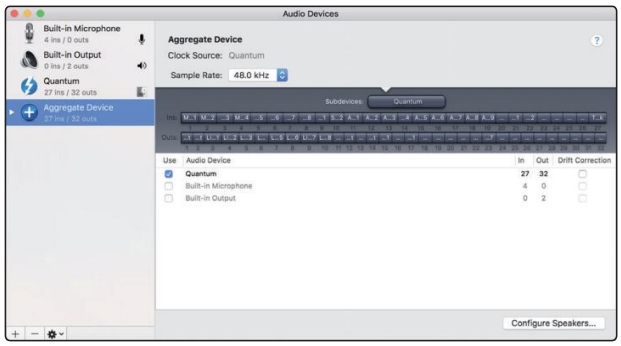
3. Select the Quantum model, and click on the plus sign in the lower left hand corner. Select "Create Aggregate Device."

   选择 Quantum 型号，并点击左下角的加号。选择 "Create Aggregate Device"。



4. Check the Use box to the left of the master Quantum-series interface.

   勾选主 Quantum 系列接口左边的使用框。

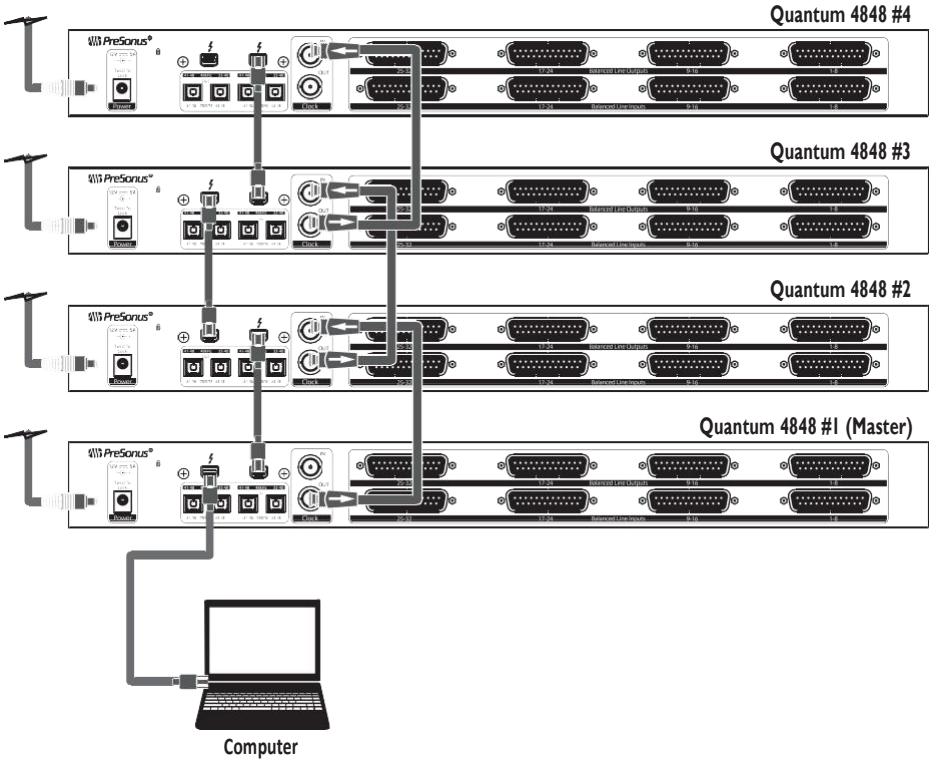


5. Connect your other Quantum interfaces. Each unit will be require a Thunderbolt cable to daisy-chain it to the previous unit as well as a BNC cable for clocking.

   连接你的其他Quantum接口。每个设备都需要一条Thunderbolt电缆，以便与前一个设备进行菊花链连接，同时还需要一条BNC电缆进行时钟连接。

6. Designate one Quantum interface as the Master Clock and set the other units to follow using BNC.

   指定一个Quantum接口作为主时钟，并设置其他设备使用BNC来跟随。



Your Quantum system is now ready to use.

你的Quantum 系统现在可以使用了。

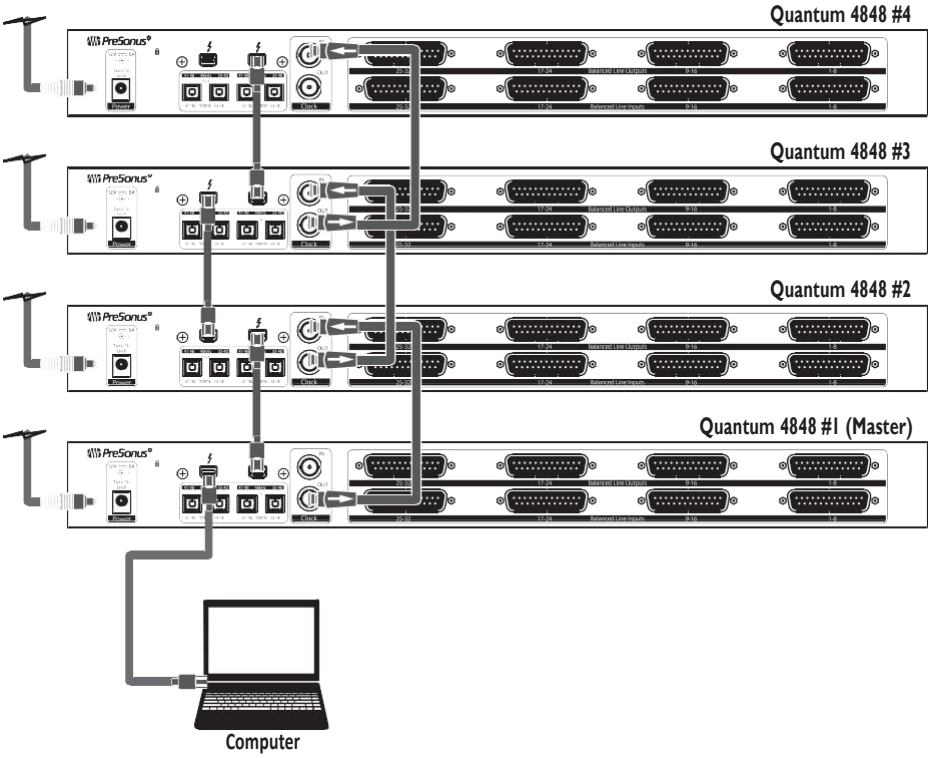
5.2 Windows 系统

1. Connect your Quantum interfaces to your computer and launch Universal Control.

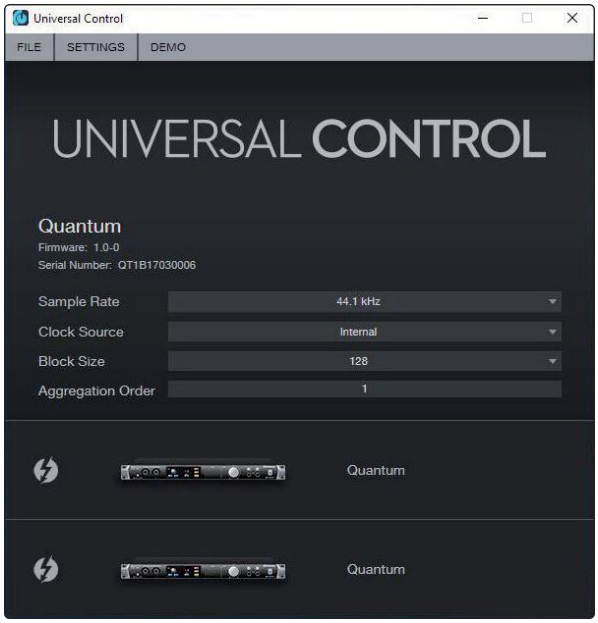
   将你的Quantum接口连接到你的计算机上，并启动 Universal Control。

   Please Note: *Your Quantum interfaces must be clocked to each other via BNC and one unit must be designated as the master.*

   请注意： *你的Quantum接口必须通过BNC相互时钟连接，并且必须指定一个设备作为主设备。*



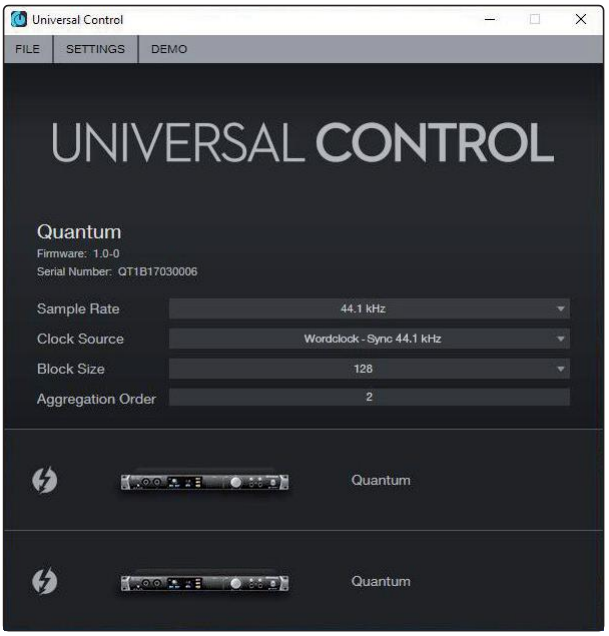
2. Select the Quantum interface you would like to use as the first bank of channels and set the priority to "1."



选择你想作为第一组通道的Quantum接口，并将优先级设置为 "1"。

3. Select the Quantum interface you would like to use for the next bank of channels. Set the priority to “2” and the Clock Source to Wordclock.

   选择你想用于下一组通道的Quantum接口。将优先级设置为 "2"，将时钟源设置为字时钟。



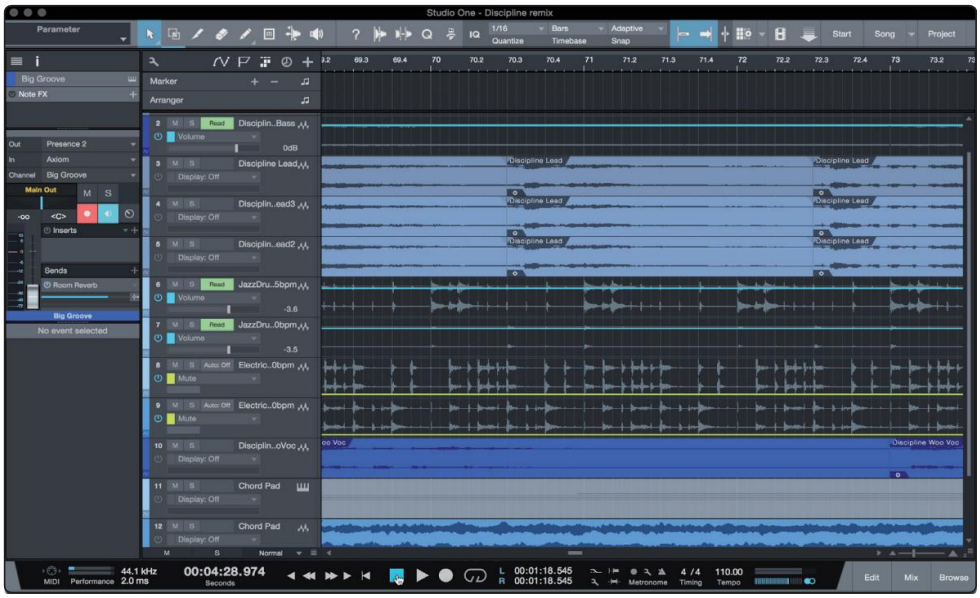
4. If you are connected three or four Quantum interfaces, you will repeat step 3 and set the priority to 3 and 4 respectively.

   如果你连接了三个或四个Quantum接口，你将重复步骤3，并将优先级分别设置为3和 4。

Your Quantum system is now ready to use.

你的 Quantum系统现在可以使用了。

6 Studio One Professional Quick Start Studio One专业版快速入门



Quantum 4848 users will find a license for Studio One Professional in their My PreSonus user account. As an integrated system, Studio One Professional allows you to unleash the full potential of their Quantum 4848.

Quantum 4848用户可以在他们的 My PreSonus 用户账户中找到Studio One Professional 的授权。作为一个集成系统，Studio One Professional 可以让你释放出 Quantum 4848的全部潜力。

A complete user reference manual is installed with Studio One Professional. This Quick Start will guide you through set-up and configuration as well as some specialized functions for Quantum 4848. For all other functions, please consult the Studio One Reference Manual.

一本完整的用户参考手册已随Studio One Professional安装。这个快速入门将指导你完成设置和配置，以及Quantum 4848的一些专业功能。对于所有其他功能，请参考 Studio One 参考手册。

6.1 Installation and Authorization 安装与授权

Once you have installed the drivers for your audio interface and connected it to your computer, you can use the included PreSonus Studio One music-production software to begin recording, mixing, producing, and mastering your music.

一旦你安装了音频接口的驱动程序并将其连接到电脑上，你就可以使用附带的PreSonus Studio One音乐制作软件来开始录音、混音、制作和制作你的音乐。

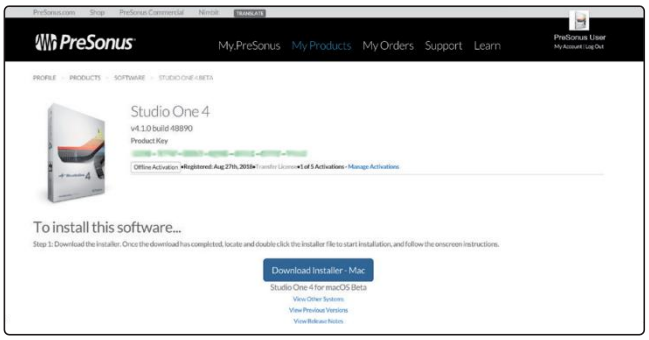
To install Studio One, log into your My PreSonus account and register your interface. Your product key for Studio One will automatically be registered to your My PreSonus account with your hardware registration.

要安装 Studio One，请登录你的 My PreSonus 帐户并注册你的接口。你的Studio One的产品密钥将随着你的硬件注册而自动注册到你的My PreSonus帐户。

Downloading and running the Studio One installer.下载并运行Studio One安装程序。

To install Studio One, download the Studio One installer from your My PreSonus account to the computer on which you will use it.

要安装 Studio One，请从你的 My PreSonus 帐户下载 Studio One 安装程序到你要使用它的计算机上。



- **Windows users:** Launch the Studio One installer and follow the onscreen instructions.
- **Windows users:** 启动Studio One安装程序并按照屏幕上的指示操作。
- **Mac users:** Drag the Studio One application into the Applications folder on your Mac hard drive.
- **Mac users:** 将Studio One应用程序，拖入到你Mac硬盘上的应用程序文件夹。

Authorizing Studio One

When Studio One is launched for the first time on your computer, it will communicate with your My PreSonus account and verify your registration. To ensure a seamless authorization process, make sure to download your installer to the computer on which you will be using it and be sure that your computer is connected to the Internet when you launch the application for the first time.

在计算机上第一次启动 Studio One 时，它将与你的 My PreSonus 账户 进行连接，并验证你的注册。为了确保无缝的授权过程，请确保安装程序下载到你要使用的计算机上，你的电脑在第一次启动应用程序时连接到互联网。

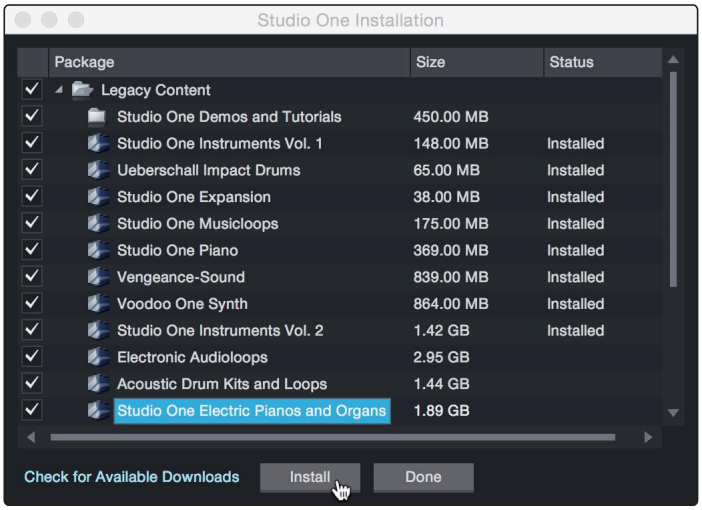
Installing bundled content for Studio One

Studio One comes bundled with an array of demo and tutorial materials, instruments, loops, and samples. The Studio One bundle includes all that you need to begin producing music.

Studio One捆绑了一系列的演示和教程材料、乐器、循环和样本。还包括从你开始制作音乐所需的全部内容。

The first time you launch Studio One, you will be prompted to install its companion content. Select the content you wish to add and click “Install” The content will automatically begin to download and install from your My PreSonus user account.

当Studio One第一次启动时，你会被提示安装其配套内容。选择你想添加的内容，然后点击 "Install"。这些内容将自动开始从你的 "My PreSonus " 用户账户中下载和安装。



Power User Tip: *You may be prompted to enter your My PreSonus user account information. Clicking “Remember Credentials” will allow you to have immediate access to any content you purchase from the PreSonus Marketplace.*

用户提示： *可能你会被提示输入 "My PreSonus "用户账户信息。点击 "Remember Credentials "你将能够立即访问从 PreSonus Marketplace 中购买的任何内容。*

6.2 Setting Up Studio One 设置Studio One

Studio One was designed to work with PreSonus interfaces and provides unique interoperability and simplified setup. When Studio One is launched, by default you will be taken to the Start page. On this page, you will find document-management and device-configuration controls, as well as a customizable artist profile, a news feed, and links to demos and tutorials from PreSonus. If you have an Internet connection on your computer, these links will be updated as new tutorials become available on the PreSonus Web site.

Studio One 被设计为与 PreSonus 接口一起使用，并提供独特的互操作性和简化设置。当Studio One启动时，默认情况下，你将被带到 "Start" 页面。在这个页面上，你会发现文件管理和设备配置控制，以及一个可定制的艺术家档案，一个新闻提要，还有PreSonus的演示和教程链接。这些链接将随着PreSonus网站上新教程出现而更新。

As mentioned previously, complete information on all aspects of Studio One is available in the Reference Manual PDF located within Studio One. The information in this tutorial covers only the basic aspects of Studio One and is intended to get you set up and recording as quickly as possible.

如前所述，关于Studio One各方面的完整信息可在Studio One的参考手册PDF中找到。本教程中的信息只包括Studio One的基本方面，目的是让你尽快完成设置和录音。

6.2.1 Configuring Audio Devices 配置音频装置

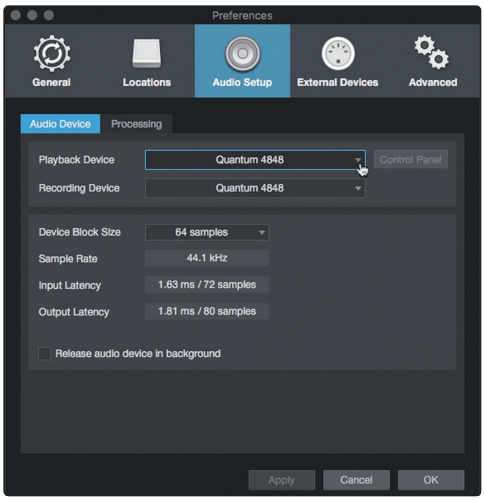
1. In the middle of the Start page, you will see the Setup area. Studio One automatically scans your system for all available drivers and selects a driver. By default, it will choose a PreSonus driver if one is available.

   你会看到 "Start" 页面的中间的设置区域。Studio One会自动扫描你的系统，寻找所有可用的驱动程序，并选择一个驱动程序。默认情况下，如果有PreSonus的驱动程序，它将选择一个PreSonus的驱动程序。

2. If you do not see your device listed on the Start page when you launch Studio One, click on the Configure Audio Devices link in the Setup area to open the Options window.

   如果你在启动 Studio One 时，没有看到你的设备列在 "Start " 页上，点击设置区域”Configure Audio Devices”链接，打开”Options” 选项窗口。

   In the Options window, click on the Audio Setup tab and select your device driver from the pull-down.



   在”Options” 窗口中，点击 ”Audio Setup” 标签，从下拉菜单中选择你的设备驱动程序。

6.2.2 Configuring MIDI Devices 配置 MIDI 装置

From the External Devices window in Studio One, you can configure your MIDI keyboard controller, sound modules, and control surfaces. This section will guide you through setting up your MIDI keyboard controller and sound modules. Please consult the Reference Manual located within Studio One for complete setup instructions for other MIDI devices.

在 Studio One 的”External Devices ”窗口，你可以配置你的 MIDI 键盘控制器、声音模块和控制面。本节将指导你完成对 MIDI 键盘控制器和声音模块的设置。有关其他MIDI设备的完整设置说明，请查阅 Studio One 中的 “Reference Manual”《参考手册》。

If you are using a third-party MIDI interface or USB MIDI-controller keyboard, you must install any required drivers for these devices before beginning this section. Please consult the documentation that came with your MIDI hardware for complete installation instructions.

如果你使用的是第三方 MIDI 接口或USB MIDI 控制器键盘，在开始本节之前，你需要为这些设备安装任何所需的驱动程序。有关完整的安装说明，请查阅你的 MIDI 硬件附带的文件。

If you do not have any MIDI devices, please skip to Section 6.3.

如果你没有任何MIDI设备，请跳到6.3节。

Setting up an external MIDI keyboard controller from the Start page.

A MIDI keyboard controller is a hardware device that is generally used for playing and controlling other MIDI devices, virtual instruments, and software parameters. In Studio One, these devices are referred to as Keyboards, and they must be configured before they are available for use. In some cases, your MIDI keyboard controller is also used as a tone generator. Studio One views the controller and tone-generation functions as two different devices; a MIDI keyboard controller and a sound module. The MIDI controls (keyboard, knobs, faders, etc.) will be set up as a Keyboard. The sound modules will be set up as an Instrument.

MIDI 键盘控制器是一种硬件设备，一般用于演奏和控制其他MIDI设备、虚拟乐器和软件参数。在Studio One中，这些设备被称为键盘，在使用前，必须对其进行配置。在某些情况下，你的MIDI键盘控制器也被用作音色发生器。Studio One 把控制器和音调发生器的功能看作是两个不同的设备：一个 MIDI 键盘控制器和一个声音模块。MIDI控制器（键盘、旋钮、音量推子等）将被设置为键盘。声音模块将被设置为一个乐器。

You can set up your external MIDI devices from the Setup area in the Start page. Before setting up a new Song for recording, take a moment to configure external devices.

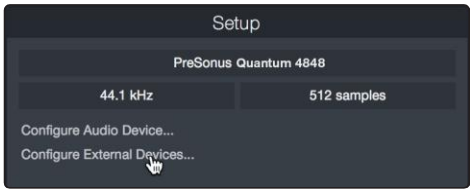
你可以在 "Start" 页面的 "Setup"区域设置你的外部MIDI设备。设置新的歌曲进行录音之前，需要花点时间配置一下外部设备。

Make sure you have connected the MIDI Out of your external MIDI controller to a MIDI In on your MIDI interface. If you are using a USB MIDI controller, connect it to your computer and power it on.

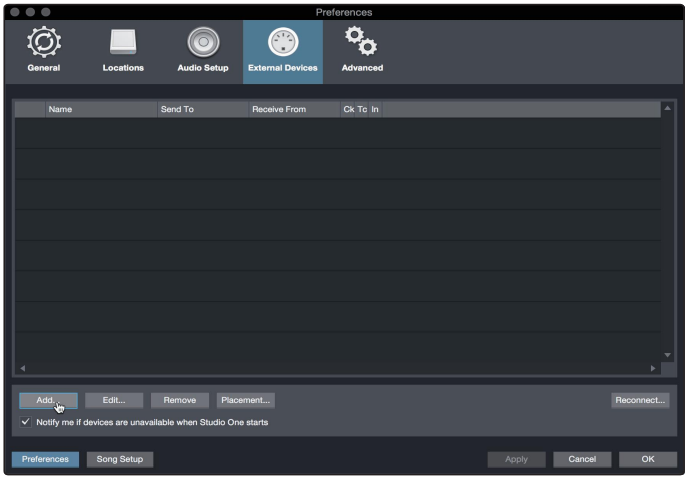
确保你已经把外部MIDI控制器的MIDI输出，连接到你的MIDI接口的MIDI输入上。如果你使用的是 USB MIDI 控制器，请将它连接到你的电脑上并接通电源。

1. Click on the Configure External Devices link in the Setup area on the Start page to launch the External Devices window.

   点击 "Start" 页面设置区的 "Configure External Devices " 链接，启动 ”External Devices” 窗口。



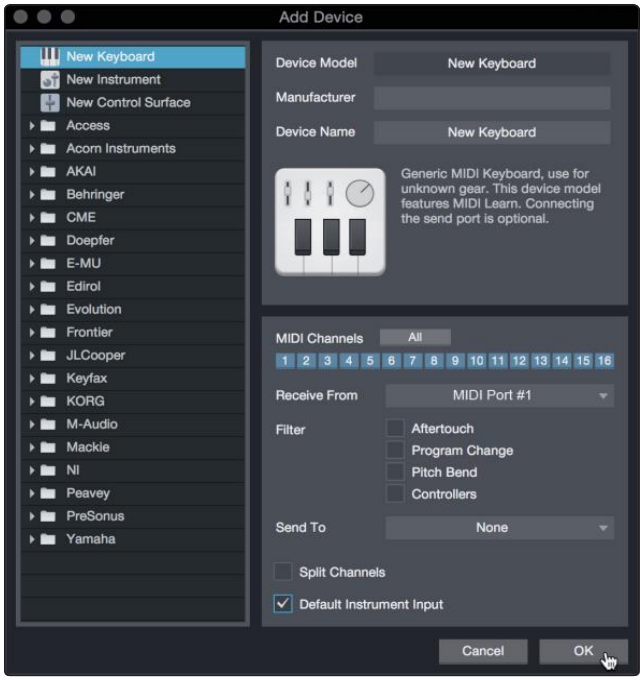
2. Click the Add button. This will launch the Add Device window.



单击 "Add" 按钮。这将启动 "Add Device" 窗口。

3. From the menu on the left, select your MIDI controller from the list of manufacturers and models. If you do not see your MIDI controller listed, select New Keyboard. At this point, you can customize the name of your keyboard by entering the manufacturer and device names.

   在左边的菜单中，从制造商和型号的列表中，选择你的MIDI控制器。如果你没有看到被列出，请选择 "New Keyboard"。这时，你可以通过输入制造商和设备名称来定制你的键盘名称。



4. You must specify which MIDI channels will be used to communicate with this keyboard. For most purposes, you should select all MIDI channels. If you are unsure of which MIDI channels to choose, select all 16.

   你必须指定哪些 MIDI 通道将被用来与该键盘通信。在大多数情况下，你会选择所有的MIDI通道。
   如果你不确定要选择哪些MIDI通道，请选择全部16个。

5. Studio One allows you to filter out specific control functions. If you would like Studio One to ignore Aftertouch, Pitch Bend, Program Change, or All CC messages, enable filtering for any or all of these messages.

   Studio One 允许你过滤掉特定的控制功能。如果你想让 Studio One 忽略 Aftertouch、Pitch Bend、Program Change 或 All CC 信息，请为这些信息中的任何一个或全部启用过滤功能。

6. In the Receive From drop-down menu, select the MIDI interface input from which Studio One will receive MIDI data (that is, the MIDI port to which your keyboard is connected).

   在"Receive From"（接收自）下拉菜单中，选择 Studio One 接收 MIDI 数据的MIDI接口输入（即你的键盘所连接的 MIDI 端口）。

Power User Tip: *In the Send To drop-down menu, select the MIDI interface output from which your Studio One will send MIDI data to your keyboard. If your keyboard controller doesn't need to receive MIDI data from Studio One, you can leave this unselected.*

用户提示：*在"Send To"下拉菜单中，选择MIDI接口输出，Studio One将从该接口向你的键盘发送MIDI数据。如果你的键盘控制器不需要从Studio One接收MIDI 数据，你可以放弃选择。*

7. If this is the only keyboard that you will use to control your external synthesizers and virtual instruments, you should check the box next to Default Instrument Input. This will automatically assign your keyboard to control all MIDI devices in Studio One.

   如果这是你用来控制外部合成器和虚拟乐器的唯一键盘，你应该勾选"Default Instrument Input"旁边的方框。这将自动分配你的键盘来控制Studio One中的所有MIDI设备。

8. Click OK.

   点击 "OK" 确认。

   If you have a sound module that you'd like to connect, leave the External Devices window open and proceed to the next part of this section. If not, you can close the window and **skip to Section 6.3.**

   如果你有一个你想连接的声音模块，让 " External Devices " 窗口打开，继续本节的下一部分。如果没有，你可以关闭该窗口，**跳到第6.3节。**

Setting up an external MIDI sound module from the Start page.

MIDI instrument controllers (keyboards, MIDI guitars, etc.) send musical information in the form of MIDI data to tone modules and virtual instruments, which respond by generating sound, as instructed. Tone modules can be standalone sound devices or can be integrated into a MIDI instrument, such as a keyboard synthesizer. Studio One refers to all tone generators as Instruments. Once you have set up your MIDI keyboard controller, take a moment to configure your sound module.

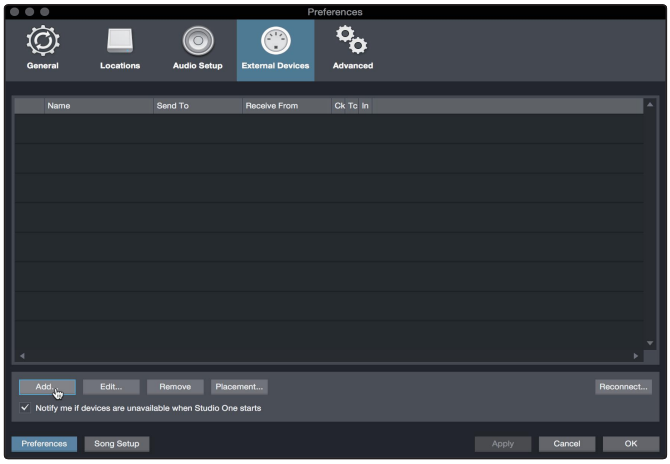
MIDI乐器控制器（键盘、MIDI吉他等）以MIDI数据的形式向音色模块和虚拟乐器发送音乐信息，后者按照指示通过产生声音做出反应。音色模块可以是独立的声音设备，也可以集成到一个MIDI乐器中，如键盘合成器。Studio One把所有的音色发生器都称为乐器。一旦你设置了你的MIDI键盘控制器，花点时间来配置你的声音模块。

Make sure you have connected the MIDI In of your external sound module to the MIDI Out of your MIDI interface.

你的外部声音模块的MIDI输入，确保你已经将它连接到你的MIDI接口的MIDI输出。

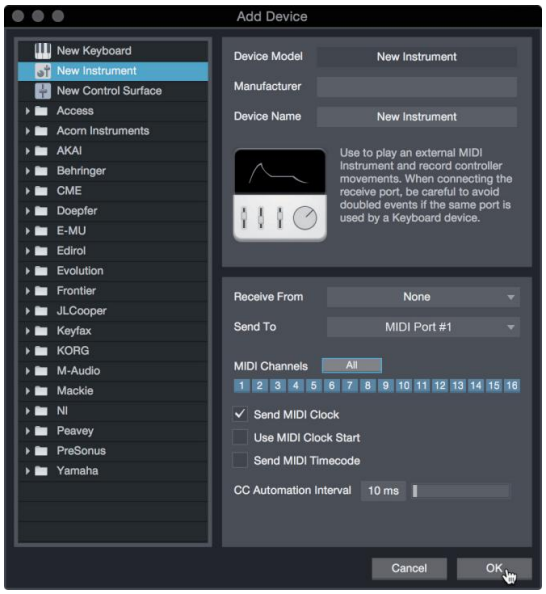
9. In the External Devices window, click the Add button.

   在 "External Devices" 窗口，单击 "Add" 按钮。



10. Select your device in the menu on the left. If your device is not listed, select New Instrument. At this point you can customize the name of your keyboard by entering the manufacturer and device names.

    在左边的菜单中选择你的仪器。如果你的设备没有被列出，请选择 "New Instrument"。这时，你可以通过输入制造商和设备名称来定制你的键盘名称。



11. Specify which MIDI channels will be used to communicate with this sound module. For most purposes, you should select all MIDI channels. If you are unsure of which MIDI channels to select, we suggest you select all 16.

    指定哪些 MIDI 通道将被用来与这个声音模块。在大多数情况下，你应该选择所有的MIDI通道相连。如果你不确定要选择哪些MIDI通道，我们建议你选择全部16个。

12. In the Send To menu, select the MIDI interface output from which Studio One will send MIDI data to your sound module. Click OK and close the External Devices window. You are now ready to start recording in Studio One.

    在"Send To"菜单中，选择MIDI接口输出，Studio One 将从该接口向你的声音模块发送MIDI数据。点击确定，关闭 "External Devices"窗口。现在准备好，你已经可以开始在Studio One中录音了。

The rest of this Quick Start Guide will go over how to set up a Song and will discuss some general workflow tips for navigating through the Studio One environment.

本 " Quick Start Guide" 快速入门指南的其余部分，将介绍如何设置歌曲，并将讨论在Studio One环境中，浏览的一些一般性的工作流程提示。

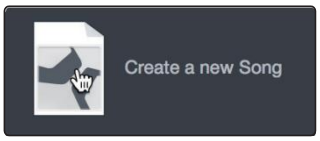
6.3 Creating a New Song 创建一首新的歌曲

Now that you've configured your audio and MIDI devices, let's create a new Song. We'll start by setting up your default audio I/O.

现在你已经配置了音频和MIDI设备，让我们来创建一首新的歌曲。我们将从设置默认音频输入/输出开始。

1. From the Start page, select Create a New Song.

   从 "Start" 页面，选择 "Create a New Song"。

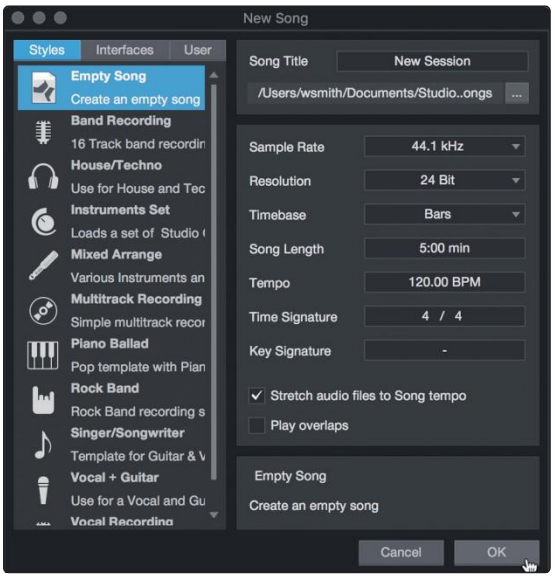


Power User Tip: *Studio One Professional is an integrated recording and mastering solution. To create a new environment to record, create a New Song. To create a mastering project, create a New Project. Complete information on using the Project Page to master Studio One sessions and audio files can be found in the Studio One Reference Manual.*

用户提示: *Studio One Professional （专业版）是一个集成的录音和母带制作解决方案。要创建一个新的录音环境，创建一首新的歌曲。要创建一个母带项目，请创建一个新项目。关于使用"Project Page"来掌握Studio One录音和音频文件的完整信息,可以在 Studio One Reference Manual 参考手册中找到。*

2. In the New Song window, name your Song and choose the directory in which you'd like it saved. You'll notice a list of templates on the left. These templates provide quick setups for a variety of devices and recording situations. The section will describe creating a Song from an empty session.

   在 " New Song" 窗口中，为你的歌曲命名，并选择你想保存的目录。你会注意到左边有一个模板列表， 这些模板为各种设备和录音，提供快速设置。本节将描述从一个空的会话中创建一首歌曲。



3. Select Empty Song from the Templates list. At this point, you should give your Song a name and select your preferred sample rate and bit depth for recording and playback. You can also set the length of your Song and the type of time format you would like the timeline to follow (notation bars, seconds, samples, or frames). Click the OK button when you are finished.

   从模板列表中选择" Empty Song"。在这一点上，你应该给歌曲起个名字，并选择你喜欢的采样率和比特深度来进行录音和播放。你还可以设置歌曲的长度和你希望时间线遵循的时间格式类型（记号条、秒、样本或帧）。完成后，点击 "OK" 确认按钮。

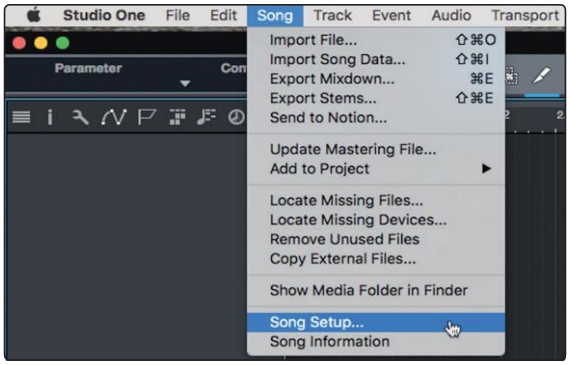
Power User Tip: *If you plan to import loops into your Song, make sure that the Stretch Audio Files to Song Tempo option is selected. This will automatically import loops at the correct BPM.*

用户提示：*如果你打算将循环播放导入你的歌曲，请确保选择 "将 Stretch Audio Files to Song Tempo"选项。这将自动以正确的 BPM 导入循环。*

6.3.1 Configuring Your I/O 配置你的 I/O

1. Click on Song | Song Setup to set your sample rate and resolution and configure your audio I/O.

   点击歌曲|歌曲设置，设置你的采样率和分辨率，配置你的音频I/O。

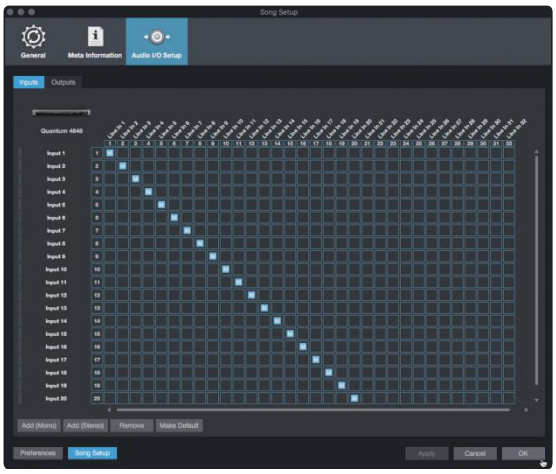


2. Click on the Audio I/O Setup tab.

   点击音频I/O设置标签。

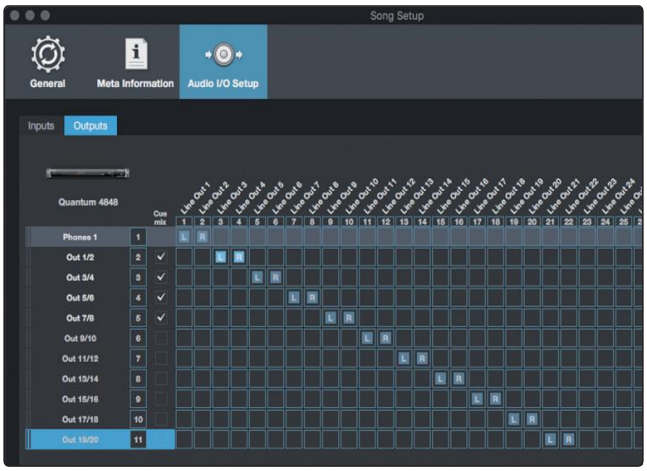
3. From the Inputs tab, you can enable any or all of the inputs on your PreSonus Quantum audio interface that you'd like to have available. We recommend that you create a mono input for each of the inputs on your interface. If you plan on recording in stereo, you should also create a few stereo inputs.

   在Inputs（输入）选项卡中，你可以启用 PreSonus Quantum 音频接口上任何或所有你想用的输入。我们建议，为你的接口上的每个输入创建一个单声道输入。如果你打算用立体声录音，你也应该创建一些立体声输入。



4. Click on the Outputs tabs to enable any or all of the outputs on your Quantum audio interface. In the lower right corner, you will see the Audition select menu. This allows you to choose the output from which you will audition audio files prior to importing them into Studio One. In general, you will want this to be the main output bus.

   点击" Outputs"标签，启用 Quantum音频接口上的任何或所有输出。在右下角，你会看到"Audition"选择菜单。你可以选择输出，在将音频文件导入Studio One之前，你将从该输出中进行试听。一般来说，你希望它是主输出总线。



Power User Tip: *If you would like this I/O configuration to be the same every time you open Studio One, click the Make Default button.*

用户提示：*如果你希望每次打开 Studio One 时，这个 I/O配置都是一样的，请点击 "Make Default"按钮。*

Studio One allows you to create monitor mixes right from the console. To enable this function, you must designate at least one output pair to be a Cue Mix output. Click on the Cue Mix box next to any output pair you'd like to use as a monitor mix output to enable this feature.

Studio One 允许你直接从控制台创建监听混音。要启用这个功能，你必须指定至少一个输出对组为Cue Mix 输出。点击你想用作监听混音输出的任何输出对组旁边的 "Cue Mix box"，以启用这一项功能。

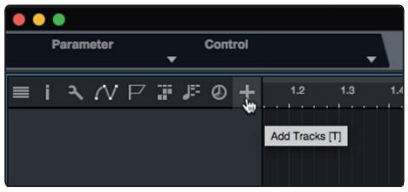
For more information, ***see Section 6.4***.

更多信息，***请见 6.4部分***

6.3.2 Creating Audio and MIDI Tracks 创建音频和MIDI音轨

1. In the upper left corner of the Arrange window, you will notice several buttons. The button furthest to the right is the Add Tracks button. Click on this button to open the Add Tracks window.

   在编曲窗口的左上角，你会注意到几个按钮。最靠右的按钮是 "Add Tracks"按钮。点击这个按钮，打开 "Add Tracks"窗口。

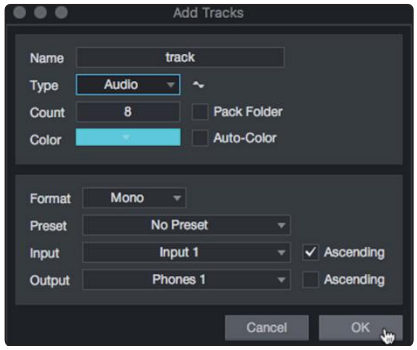


2. In the Add Tracks window, you can customize the track name and color, add a preset rack of effects, and set the physical source for the input and output of your audio tracks. Most important, you can select the number and type of tracks you'd like to create.

   在 "Add Tracks" 窗口中，你可以自定义音轨的名称和颜色，添加预设的效果器，并为音轨的输入和输出设置物理源。最重要的是，你可以选择你想创建的轨道的数量和类型。

Power User Tip: If you'd like the Talkback mic available for your session, create a track with the Talkback input (Input 27) set as the source. This will allow you to route it to your Cue Mix outputs. ***See Section 6.5***.

用户提示：如果你想让对讲机在你的会话中使用，可以创建一个轨道，将对讲机输入（Input 27）设置为信号源。这将允许你把它路由到你的提示混合输出。***见第 6.5 节。***

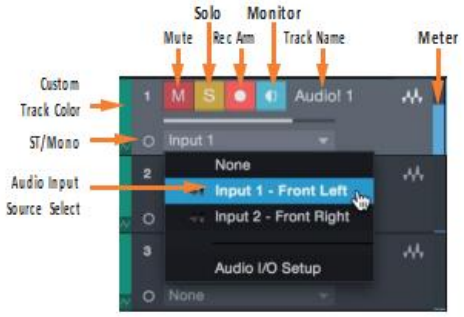


- **Audio.** Use this track type to record and playback audio files.
- **Instrument.** Use this track to record and playback MIDI data to control external MIDI devices or Virtual Instrument plug-ins.
- **Automation.** This track type lets you create automated parameter controls for your session.
- **Folder.** This track helps you to manage your session as well as to quickly edit multiple tracks at once.
- **Audio.** 使用这种轨道类型来记录和播放音频文件。
- **Instrument.** 使用这种轨道来记录和播放MIDI数据，以控制外部MIDI设备或虚拟乐器插件。
- **Automation.** 这种轨道类型让你为你的会话，创建自动参数控制。
- **Folder.** 这个轨道可以帮助你管理你的会话，以及一次快速编辑多个轨道。

Power User Tip: *If you would like to add an audio track for each of the available inputs, simply go to Track | Add Tracks for All Inputs.*

用户提示：如果你想为每个可用的输入添加一个音轨，只需进入Track | Add Tracks for All Inputs。

Track anatomy 音轨剖析:



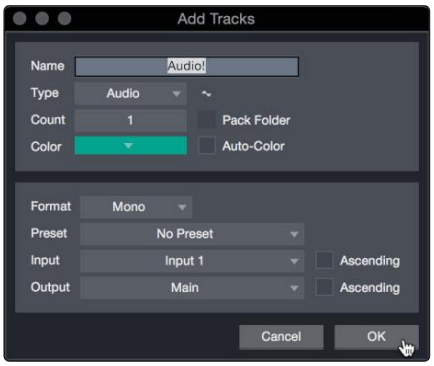
Note:*MIDI tracks are nearly identical to Audio tracks. The Input Source list for MIDI tracks lists available external MIDI devices as well as any virtual instruments that have been added to the Song.*

注意：*MIDI轨道与音频轨道几乎相同。MIDI轨道的输入源列表列出了可用的外部MIDI设备，以及任何已经添加到歌曲中的虚拟乐器。*

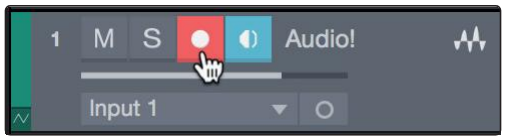
6.3.3 Recording an AudioTrack

1. To begin recording, create an audio track from the Add Tracks window, set its input to Input 1 on your Quantum 4848 interface, and connect a source to the same input.

   要开始录音，从" Add Tracks"窗口创建一个音轨，将其输入设置为Quantum 4848接口的输入1，并将一个音源连接到同一输入。



2. Select Record Enable on the track. Turn up the Input 1 level on your audio interface while speaking/singing into the microphone. You should see the input meter in Studio One react to the input. Adjust the gain so the input level is near its maximum without clipping (distorting).



   在音轨上选择 "Select Record Enable"。对着麦克风说话/唱歌时，调高音频接口上的 Input1电平。你应该看到 Studio One 中的输入仪表对输入的反应。调整增益，使输入电平接近其最大值而不出现削波（失真）。

You are now ready to start recording. For complete instructions, ***please consult the Studio One Reference manual located in Help | Studio One Reference Manual.***

现在你可以开始录音了。如需完整的说明，请查阅位于 "Help" 中的"***Studio One Reference manual***"|"***Studio One*** "参考手册。

6.3.4 Adding Virtual Instruments and Effects 添加虚拟音乐与效果器

You can add plug-ins and instruments to your Song by dragging-and-dropping them from the browser. You can also drag an effect or group of effects from one channel to another, drag in customized effects chains, and instantly load your favorite virtual-instrument preset without ever scrolling through a menu.

从浏览器中你可以通过拖放插件和乐器，为你的歌曲添加插件和乐器。你还可以把一个或一组效果器从一个通道拖到另一个通道，拖入定制的效果器链，并立即加载你最喜欢的虚拟乐器预设，而无需滚动菜单。

Opening the browser.

In the lower right corner of the Arrange window are three buttons:

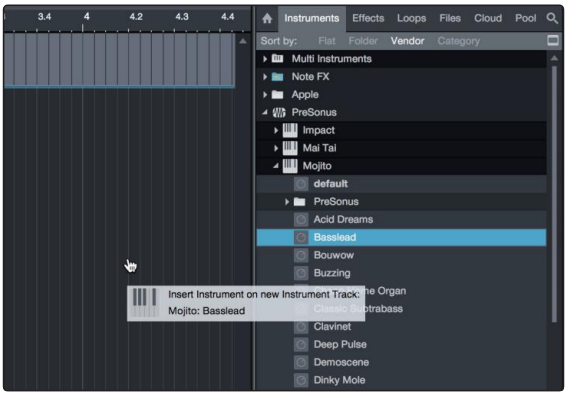
在 "Arrange" 窗口的右下角有三个按钮：

- The **Edit** button opens and closes the audio and MIDI editors.
- The **Mix** button opens and closes the Mixer window.
- The **Browse** button opens the browser, which displays all of the available virtual instruments, plug-in effects, audio files, and MIDI files, as well as the pool of audio files loaded into the current session.
- "**Edit**" 按钮可以打开和关闭音频和MIDI编辑器。
- "**Mix**" 按钮打开和关闭混合器窗口。
- "**Browse**" 浏览按钮打开浏览器，显示所有可用的虚拟乐器、插件效果、音频文件和 MIDI 文件，以及加载到当前会话的音频文件库。

Drag-and-drop virtual instruments.

To add a virtual instrument to you session, open the browser and click on the Instrument button. Select the instrument or one of its patches from the instrument browser and drag it into the Arrange view. Studio One will automatically create a new track and load the instrument as the input.

要添加一个虚拟乐器到你的会话中，打开浏览器并点击乐器按钮。从乐器浏览器中选择乐器或它的一个补丁，然后把它拖到"Arrange"视图中。Studio One会自动创建一个新的音轨，并将该乐器作为输入载入。



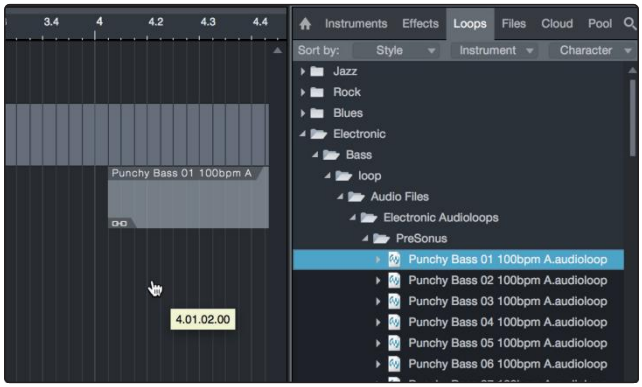
Drag-and-drop effects.

To add a plug-in effect to a track, click the Effects button in the browser and select the plug-in or one of its presets in the effects browser. Drag-and-drop the selection over the track to which you would like to add the effect.

要将插件效果添加到轨道上，请单击浏览器中的 "Effects" 按钮，并在效果浏览器中选择插件或其预置之一。将选择的内容拖放到你想添加效果的轨道上。

Drag-and-drop audio and MIDI files.

Audio and MIDI files can be quickly located, auditioned, and imported into your Song by dragging them from the file browser into the Arrange view. If you drag the file to an empty space, a new track will be created with that file placed at the position to which you dragged it. If you drag the file to an existing track, the file will be placed as a new part of the track.



将Audio和MIDI文件从文件浏览器拖到”Arrange”视图中，，可以快速定位、试听并导入你的歌曲中。如果你把文件拖到一个空位上，把该文件放在你拖动的位置上，一个新的轨道会被创建。如果你把文件拖到一个现有的轨道上，该文件将作为该轨道的一个新部分被放置。

6.4 Optimizing Latency and Performance 优化延时和性能

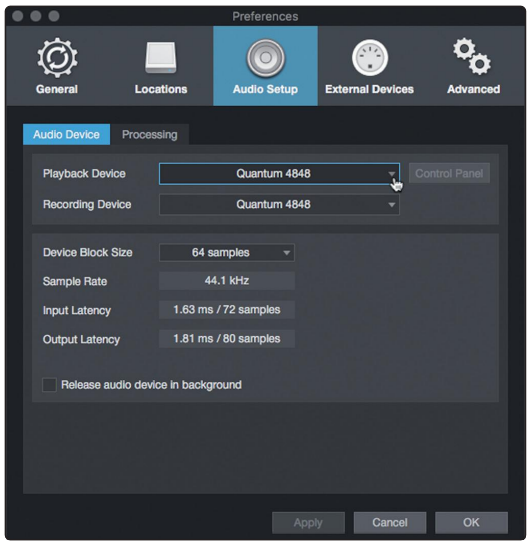
When you are working with a large amount of audio tracks and virtual instruments, computer performance can limit your capabilities. Increasing the buffer size will free up computer resources, but this comes at the cost of greater latency (or delay) when monitoring audio inputs or playing virtual instruments. Setting the buffer too low can cause audio dropouts and glitches.

当你在处理大量的音轨和虚拟乐器时，计算机性能会限制你的发挥。增加缓冲区的大小可以释放计算机资源，但这是以监听音频输入或播放虚拟乐器时。出现更大的延迟（或延误）为代价的。缓冲区设置得太低会导致音频掉线和故障。

To solve this paradox, Studio One lets you set two processing buffers: one for playback and effects processing separately and another for audio input and virtual instrument monitoring.

为了解决这个矛盾，Studio One 让你设置两个处理缓冲区：一个用于播放和效果处理，另一个用于音频输入和虚拟乐器监听。

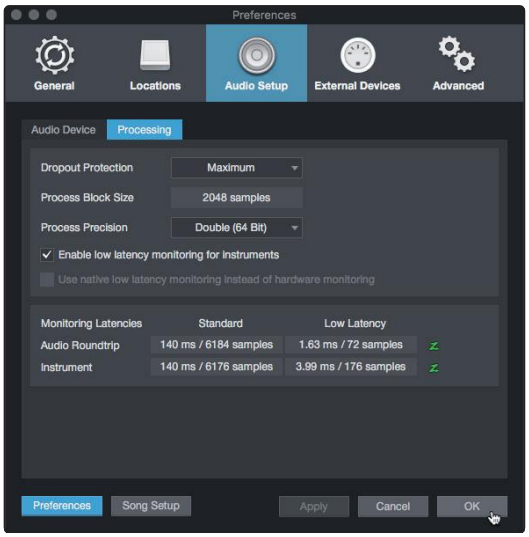
6.4.1 Device Block Size 块设备大小



From the Audio Setup Preferences menu we used to select the audio driver in **Section 6.2.1**, you can also set the Device Block Size. This determines the amount latency that you hear when monitoring audio inputs or playing virtual instruments. For the lowest latency, Device Block Size should be set to the lowest setting that provides the performance you need.

从我们在**第6.2.1节**中, 用来选择音频驱动程序的 "Audio Setup Preferences" 菜单中，你也可以设置设备块大小。这决定了你在监听音频输入或播放虚拟乐器时，听到的延迟量。为了获得最低的延迟，设备块大小应该被设置为能提供你所需性能的最低设置。

6.4.2 Audio Dropout Protection



Clicking on the Processing tab in the Audio Setup Preferences window, will allow you to set the amount of Audio Dropout Protection you would like to employ. This will automatically set a buffer size for playback and processing of audio tracks, distinct from the Device Block Size setting.

点击 "Audio Setup Preferences" 窗口中的 "Processing"标签，你可以设置你想使用的 ”Audio Dropout Protection” 数量。这将自动设置一个用于播放和处理音轨的缓冲区大小，与设备块大小设置不同。

If you use Native or Hardware Low-Latency Monitoring, the Dropout Protection level has no effect on audible latency, though higher levels can affect the responsiveness of onscreen meters and displays.

如果你使用 ” Native” 或者 ”Hardware Low-Latency Monitoring” 本地或硬件低延迟监听，”Dropout Protection”掉电保护级别对听觉延迟没有影响，尽管更高的电平会影响到屏幕上的仪表和显示器的反应能力。

Setting the process Block Size to an amount greater than the Device Block Size will automatically let you have the option to use Native Low-Latency Monitoring.
The Monitoring Latencies display shows you the latency values for audio inputs (round-trip, from input to output) and virtual instruments, based on the current Device Block Size and Dropout Protection settings. The “Standard” column shows the latency for the current settings if you choose not to use Low-Latency Monitoring, while the “Low Latency” column shows values for the Native Low-Latency Monitoring system.

将进程块大小设置为大于设备块大小的数量，自动让你选择使用本地低延迟监听。

Monitoring Latencies 显示了基于当前设备块大小和 Dropout Protection 设置的音频输入（往返，从输入到输出）和虚拟乐器的延时值。如果你选择不使用低延迟监听，"Standard" 栏显示当前设置的延迟，而 "Low Latency"栏显示本地低延迟监听系统的数值。

6.4.3 Plug-in Use with Native Low-Latency Monitoring

When monitoring an audio input or virtual instrument through the Native Low-Latency Monitoring system, any inserted FX on the corresponding Channel continue to function and can be heard in real time, provided that they add 3 ms or less of latency. Plug-ins that meet this latency requirement show a green power button in the Console (rather than blue or gray).

当通过Native低延迟监听系统监听音频输入或虚拟乐器时，相应通道上的任何插入的FX都会继续工作，并且可以实时听到，只要它们增加了3ms或更少的延迟。符合这个延迟要求的插件会在 ”Console” 控制台中显示一个绿色的电源按钮（而不是蓝色或灰色）。

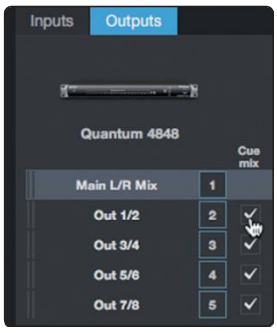
Any inserted plug-ins that introduce more than 3 ms of latency are not audible in the monitoring path while a Channel is armed for monitoring or recording under Native Low-Latency Monitoring. They begin functioning again when recording/monitoring mode is disengaged.

当一个通道在本地低延迟监听模式下，进行监听或录音时，任何插入的插件如果引入了超过3ms的延迟，在监听路径中是听不到的。当录音/监听模式解除时，它们又开始发挥作用。

6.5 Monitor Mixing in Studio One

You can set up monitor mixes with your Quantum interface using Studio One's unique Cue Mix feature. This feature provide monitor mix control for your Quantum 4848 with independent level and pan control for each channel in each mix. Simply designate a pair or pairs of outputs as a cue mix, and you'll find the Cue Mix controls in your Studio One mixer.

你可以使用 Studio One 独特的 Cue Mix 功能来设置Quantum接口的监听混音。这个功能为你的Quantum 4848提供监听混音控制，每个混音中的每个通道都有独立的电平和 pan 控制。只需指定一对或几对输出作为监听混音，你就可以在Studio One混音器中找到Cue Mix控制。



You can create a cue mix and send it to any output pair on your Quantum 4848. You simply need to create a stereo output bus and enable Cue Mix.

你可以创建一个监听混音，并将其发送到Quantum 4848的任何输出对组。你只需要创建一个立体声输出总线并启用 Cue Mix。

Power User Tip: *It is possible to designate the main output as a cue mix. This is helpful if you often record yourself and require quick access to monitoring for live inputs. When the main output is designated as a Cue Mix, a button will appear on any audio channel, with an assigned audio input in the Console, below the Mute, Solo, Record, and Monitor buttons.*

用户提示：*可以将主输出指定为监听混音。如果你经常自己录音，并且需要快速访问现场输入的监听，这很有帮助。当主输出被指定为Cue Mix时，在任何音频通道上都会出现一个按钮，在”Console”里有一个指定的音频输入，在静音、独奏、录音和监听按钮下面。*

6.5.1 Cue Mix Functions

Once you have created a cue mix output, you will notice a special Send object in the channels of the Console. This Send object is called a Cue Mix object.

一旦你创建了一个监听混音输出，你会注意到”Console” 控制台的通道中有一个特殊的” Send ”发送对象。这个 ” Send ” 对象被称为Cue Mix object。

In the Small Console view, Cue Mix objects appear in the far left column of the extended channel.

在” Small Console” 视图中，Cue Mix对象出现在扩展通道的最左边一栏。

In the Large Console view, Cue Mix objects appear below the Send device rack on each channel.

在Large Console 视图中，Cue Mix objects 出现在每个通道的 Send 设备架下面。

1. **Activate Button.** To completely remove any channel from a Cue Mix, simply deactivate the Cue Mix object for that channel. In most instances, you will leave this enabled.

2. **Horizontal Level Fader.** This is the channel's Cue Mix volume control. By default this level will be identical to the level set on the channel's fader. Once you move the Cue Mix level fader, the volume of that channel in the Cue Mix will be independent of the main mix or any other cue mix in the session.

3. **Pan Control.** This sets the pan position for the channel in the Cue Mix outputs. Like volume, panning is identical to the main mix by default.

4. **Lock to Channel button.** By default, the Lock to Channel button is enabled, and level and pan values are locked to the Channel level and pan controls for the Main mix. This means that each Cue Mix will be identical to the Main mix in the Console. Changing the level or panning in the Main mix will change the level or panning in the Cue Mix. However, changing the level or panning in the Cue Mix object will unlock both settings, allowing independent control of level and panning for each channel in each Cue Mix. Thus, the level and panning for channels in a Cue Mix can be completely different from the related level and pan in the Main mix. At any time, you can lock the Cue Mix level and pan back to the channel settings by clicking on the Lock to Channel button.

Activate Button. 要从 Cue Mix 中完全删除任何通道，只需停用该通道的Cue Mix object。在大多数情况下，你会让它处于启用状态。

Horizontal Level Fader. 这是该通道的监听混音音量控制。默认情况下，这个电平将与该通道音量推子上的设置电平相同。一旦你移动了Cue Mix 音量推子，该通道在监听混音中的音量，将独立于会话中的主混音或任何其他监听混音。

Pan Control. 这是为监听混音输出中的通道，设置pan的位置。像音量一样默认情况下，panning 与主混音是相同的。

Lock to Channel button. 默认情况下，"Lock to Channel" 按钮被启用，电平和pan值, 被锁定到主混音的通道电平和pan控制中。这意味着，每个监听混音将与控制台中的主混音相同。改变主混音的电平或摇摄，将改变监听混音的电平或摇摄。然而，改变 Cue Mix object 中的电平或 pan将解锁这两个设置，允许独立控制每个 Cue Mix 中每个通道的电平和panning。因此，监听混音中的通道电平和panning，可以与主混音中的相关电平和panning完全不同。在任何时候，你都可以通过点击"Lock to Channel button"按钮，将监听混音的电平和pan锁定到通道设置上。

6.5.2 Punching In

The Quantum 4848's unique integration with Studio One and ultra-low latency performance make punching in easier than ever. This section will guide you through setting up a punch in so that there is no change sonically between audio you're playing back and the audio you're recording.

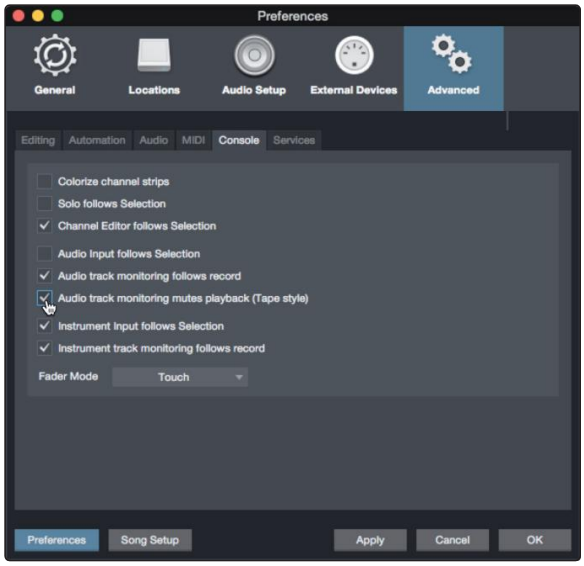
Quantum 4848与Studio One的独特集成和超低延迟性能，使punching in比以往更容易。本节将指导你如何设置 punching in，使你正在播放的音频和正在录制的音频之间没有声音上的变化。

1. Before you begin, go to Studio One>Preferences and click on the Advanced tab.

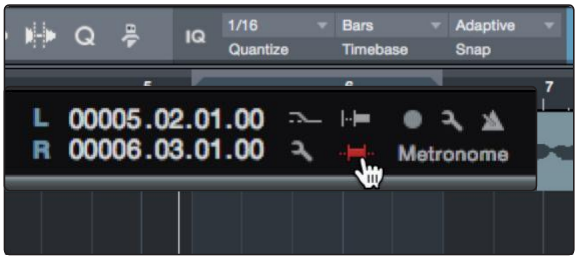
   在你开始之前，进入 Studio One>Preferences 并点击 Advanced（高级）标签。

2. On the Console preference tab, check the box next to "Audio track monitoring mutes playback (Tape Style). This will allow you use Cue Mix to monitor during a punch in. Click Apply and then OK.

   在控制台优先选项卡上，勾选 "Audio track monitoring mutes playback（磁带风格）" 旁边的方框。这可以使你在 punch in过程中，使用Cue Mix来监听。点击 "Apply"，然后"OK" 确定。



3. After you have recorded your audio, set the punch in and out points in the timeline.
   录制完音频后，在时间轴上设置 "punch in & out"。



4. Enable the Autopunch button the left of the Metronome settings in the transport.
   启用传输工具中节拍器设置左侧的 " Autopunch"按钮。

5. Record Arm your track, making sure to disable input monitoring.
录制 配备你的轨道，确保禁用输入监听。

You're now ready to punch in.
Simply rewind to the point in the song at which you'd like to start and click record.
现在可以准备好 punch in。
只需倒退到歌曲中，你想开始的那个点，然后点击录制。

6.6 Pipeline XT

Pipeline XT is a unique plug-in that allows you to insert external hardware into your session and treat it just like a plug-in. Once inserted, Pipeline XT can be dragged and dropped in the insert path to change order with other plug- ins, presets can be stored, and more. With automatic latency compensation and the Quantum 4848's low-latency Thunderbolt drivers, Pipeline XT is the perfect tool to integrate your hardware rack into your Studio One session.

Pipeline XT是一个独特的插件，它允许你将外部硬件插入到你的会话中，并将其视为一个插件。一旦插入，Pipeline XT 可以在插入路径中拖放，以改变与其他插件的顺序，可以存储预置，等等。通过自动延迟补偿和Quantum 4848的低延迟 Thunderbolt 驱动，Pipeline XT是将硬件机架整合到Studio One会话中的完美工具。

1. **Send Output.** This dropdown menu allows you to select the physical Quantum 4848 output you would like to use to connect to your external hardware unit. Note: Mono instances of Pipeline XT require a mono output bus. Stereo instances of Pipeline XT can use mono or stereo output buses.

2. **Send Meter.** Monitors the output level from Studio One to your external hardware unit.

3. **Send Level.** Adjusts the send level from Studio One to your external hardware unit.

4. **Text Edit. C**lick to add notes about your Pipeline setup.

   Notes will appear in the field to the right.

5. **Show Picture.** Pipeline XT supports adding a picture of your hardware unit. This can be especially useful to store setting to recall later. When viewing the image, clicking on the "..." in the upper right corner will allow you to add a new image. Image size is limited to 1200x1200 pixels.

6. **Scope Mode.** Provides a visualization of the live input and output signals. While in this mode, you'll be able to hear both the input and the output signals simultaneously. This will allow you to check for phasing issues and adjust the offset if necessary. Scope Mode is mutually exclusive with Setup Mode (#19).

7. **Sensitivity Control.** Use this control to adjust how the scope reacts to transients. As you move the slider to the right, the sensitivity is lowered.

8. **Difference.** Displays the difference between the send and return signals. If the latency is compensated correctly and both signals are gain staged the same, the curves will be aligned and the difference signal will be zero.

9. **Zoom.** Click to Zoom in on the Scope measurement.

10. **Mix.** Pipeline lets you blend the pre processed signal with the processed signal. Use the Mix control to set the blend.

11. **Phase Invert.** Flips the polarity of the return signal.

12. **Return Level.** Sets the level of the return signal to Studio One.

13. **Scope / Image display.** This field will display the scope result or a custom image depending on the mode.

14. **Return Meter.** Displays the return level from your external hardware unit to Studio One.

15. **Return Input.** This dropdown menu allows you to select the physical input on your Quantum 4848 to which the return signal from your external hardware is connected. Note: Mono instances of Pipeline XT require a mono input. Stereo instances of Pipeline XT require a stereo input.

16. **Manual Offset.** Use these controls to manually adjust the offset to compensate for latency.

17. **Name.** Click to add the name of the hardware to which Pipeline XT is connected.

18. **Auto.** Click the Auto button after wiring and configuring your

input and output connections. This will measure the latency and compensate automatically. Once calculated, you and use the Manual Offset controls (#16) to make manual adjustments as needed.

19. **Setup Mode.** Setup Mode sends a test signal, or "ping" from Studio One to your external hardware. Both the ping and the returned signal will be displayed, however, you will only hear the input signal. Use this mode to set your latency compensation. Setup Mode is mutually exclusive with Scope Mode (#6).

1. **Send Output**。你在这个下拉菜单中，可以选择你想用来连接到外部硬件设备的Quantum 4848物理输出。注意：Pipeline XT的单声道实例需要一个单声道输出总线。Pipeline XT的立体声实例可以使用单声道或立体声输出总线。

2.**Send Meter**。Monitors 从Studio One到外部硬件设备的输出电平。

3.**Send Level**。Adjusts 从Studio One到外部硬件设备的发送电平。

4.**Text Edit**。点击添加关于你的通道设置的注释。

注释将出现在右边的区域。

5. Show Picture. Pipeline XT支持添加你的硬件设备的图片。这对于存储设置以便以后调用特别有用。在查看图片时，点击右上角的"... " 就可以添加新的图片。图像大小限制在1200x1200像素。

6. Scope Mode. 提供实时输入和输出信号的可视化。在这个模式下，你能够同时听到输入和输出信号。这样你能够检查相位问题并在必要时调整" offset "。范围模式与设置模式（#19）是相互排斥的。

7.**Sensitivity Control.** 用这个控制来调整范围对瞬态的反应。当你把滑块向右移动时，灵敏度就会降低。

8.**Difference.**显示发送和返回信号之间的差异。如果延迟被正确地补偿了，并且两个信号的增益等级相同，曲线将被对齐，差值信号将为零。

9.**Zoom.** 点击放大范围内的测量。

10.**Mix.** 通道让你将预处理的信号与处理后的信号混合。使用" Mix" 混合来设置混合。

11.**Phase Invert.** 翻转返回信号的极性。

12.**Return Level.** 设置返回信号的电平到Studio One。

13.**Scope / Image display.** 这个区域将显示范围结果或一个自定义的图像，取决于模式。

14.**Return Meter.** 显示从你的外部硬件设备到Studio One的返回电平。

15.**Return Input.**这个下拉菜单，允许你选择Quantum 4848上的物理输入，来自外部硬件的返回信号被连接到该输入。注意：Pipeline XT的单声道实例需要一个单声道输入。Pipeline XT的立体声实例需要一个立体声输入。

16.**Manual Offset.** 使用这些控件来手动调整偏移量以补偿延迟。

17.**Name.** 点击添加 Pipeline XT 所连接的硬件的名称。

18.**Auto.**在布线和配置你的输入和输出连接后，点击自动按钮。这将测量延时并自动补偿。一旦计算出来，你可以使用手动偏移控制（＃16），根据需要进行手动调整。

19.**Setup Mode.** 设置模式从 Studio One 向你的外部硬件发送一个测试信号，或称 "ping"。Ping 和返回的信号都会被显示出来，但是，你只能听到输入信号。使用这个模式来设置你的延迟补偿。设置模式与范围模式（#6）是相互排斥的。

7 Technical Information 技术信息

7.1 Specifications 技术规格

Line Inputs

Type	DB25 (Tascam Format), Balanced)
Maximum Input Level	+18 dBu (Balanced, min. gain)
Frequency Response	20Hz to 20kHz (+/-0.15dB, unity gain, 48kHz) 20 Hz to 40kHz (+/-0.22dB, unity gain, 96kHz)
Dynamic Range (min. gain, A-wtd)	> 118 dB
THD+N (1kHz, min. gain)	< 0.005%
Input Impedance	10 kΩ

Line Outputs

Type	DB25 (Tascam Format), Impedance Balanced, DC Coupled
Maximum Output Level	+18 dBu
Frequency Response	20Hz to 20kHz (+/-0.15dB, unity gain, 48kHz) 20 Hz to 40kHz (+/-0.22dB, unity gain, 96kHz)
Dynamic Range (A-wtd)	> 118 dB
THD+N	< 0.0035% (1 kHz, +4 dBu)
Output Impedance	51Ω

Crosstalk

Input to Input	<-110 dB
Output to Output	<-115 dB
Input to Output	<-120 dB

Signal Level LEDs

Green	-50 dBFS
Yellow	-2 dBFS
Red	-0.5 dBFS

Digital Audio

Connection Type	Thunderbolt 2
ADC Dynamic Range	120 dB (A-wtd)
DAC Dynamic Range	120 dB (A-wtd)
Bit Depth	24 bits
Internally Supported Sample Rates	44.1, 48, 88.2, 96, 176.4, 192 kHz

Clock

Jitter	<70 ps RMS (20 Hz – 20 kHz)
Jitter Attenuation	>60dB (1 ns in => 1 ps out)

Power

External Power Supply	12 VDC, 5A

Physical

Dimensions (HxDxW)	1.75" x 7" x 19" (45 x 178 x 483 mm)
Weight	6 lbs (2.7 kg)

Addedbonus:PreSonus'previouslyTopSecretrecipefor...

Redfish Couvillion

额外的奖励：PreSonus公司以往的绝密配方是：...

Couvillion 鲑鱼

Ingredients 成分:

- ¼ C Vegetable oil ¼ C 植物油
- ¼ C flour 1/4 C 面粉
- 1 onion diced 1个洋葱切丁
- 1 clove garlic minced 1瓣大蒜切碎
- 1 green pepper diced 1个青椒切丁
- 3 celery stalks diced 3根芹菜茎切丁
- 1 14oz can diced tomatoes 1个14盎司的西红柿丁罐头
- 1 bottle light beer 1瓶淡啤酒
- 2 bay leaves 2片月桂叶
- 1 tsp thyme 1茶匙百里香
- 2 lbs Redfish fillets 2磅红鱼片

Cooking Instructions 烹饪指导：

1. In a heavy saucepan or large skillet, heat oil on medium high and slowly add flour a tablespoon at a time to create a roux. Continue cooking the roux until it begins to brown, creating a dark blond roux.
2. Add garlic, onions, green pepper, and celery to roux.
3. Sauté vegetables for 3-5 minutes until they start to soften.
4. Add tomatoes, bay leaves, thyme, and redfish. Cook for several minutes.
5. Slowly add beer and bring to a low boil.
6. Reduce heat and simmer uncovered for 30-45 minutes until redfish and vegetables are completely cooked, stirring occa- sionally. Break up redfish into bite size chunks and stir in. Add pepper or hot sauce to taste. Do not cover.
7. Serve over rice

1.在一个厚厚的锅或大平底锅中，用中高火加热油，每次慢慢加入一汤匙面粉，形成面糊。继续煮面团，直到它开始变色，形成深色的金黄色面团。

2.在面糊中加入大蒜、洋葱、青椒和芹菜。

3.翻炒蔬菜3-5分钟，直到它们开始变软。

4.加入西红柿，月桂叶，百里香，和红鱼。煮几分钟。

5.慢慢加入啤酒，并将其煮至低沸。

6.小火慢炖30-45分钟，直到红鱼和蔬菜完全熟透，偶尔搅拌一下。将红鱼打碎成一口大小的块状，并搅拌均匀。加入胡椒或辣酱以调味。不要加盖。

7.盖上米饭

Serves 6-8 6-8人份

While not one of Southeast Louisiana's more famous dishes, Redfish Couvillion is a favorite way to serve our favorite Gulf fish. Also known as Reds or Red Drum, Redfish is not only fun to catch, it's also delicious!

虽然不是路易斯安那州东南部最著名的菜肴之一，但Couvillion鲑鱼是我们最喜欢的一种食用方法。也被称为红鱼或红鼓，红鱼捕捉不仅有趣，味道也很鲜美!

Quantum 4848

Ultra-low latency Thunderbolt™ Audio Interface
雷电二代机架式音频接口

Owner's Manual 用户手册

PreSonus®
18011 Grand Bay Ct. • Baton Rouge,
Louisiana 70809 USA• 1-225-216-7887
www.presonus.com

Part# 70-12000108-A