Quantum-series

Quantum系列

Ultra-low latency Thunderbolt™ Audio Interfaces and Studio Command Centers

超低延迟Thunderbolt™音频接口与Studio Command Centers

Owner's Manual 用户手册

PreSonus® www.presonus.com

English

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1 Overview 概述

1.1 Introduction 介绍

Thank you for purchasing a PreSonus Quantum-series Thunderbolt Audio Interface and Studio Command Center. PreSonus Audio Electronics has designed Quantum-series interfaces utilizing high-grade components to ensure optimum performance that will last a lifetime. Loaded with high-headroom, Class A, digitally controlled XMAX™ microphone preamplifiers; an ultra-low latency Thunderbolt recording and playback engine; talkback; monitor functions; and more, Quantum interfaces break new boundaries for musical performances and productions. All you need is a computer with a Thunderbolt connection, a few microphones and cables, powered speakers, and your creativity, and you're ready to record, mix, and release your music.

感谢你 购买PreSonus Quantum系列 Thunderbolt 音频接口和Studio Command Center 工作室指挥中心。PreSonus Audio Electronic 公司设计的Quantum-系列音频接口，采用了高等级的组件，以确保最佳性能，并可终身使用。配有高净空、A类、数字控制的 XMAX™麦克风前置放大器；以及超低延迟的 Thunderbolt 录音和回放引擎；对讲；监听功能等等，Quantum接口打破了音乐表演和制作的新界限。你只需要一台带有Thunderbolt接口的电脑、麦克风和电缆、有源音箱，以及你的创造力，这样就可以开始录制、混音和发布你的音乐。

We encourage you to contact us with questions or comments regarding your PreSonus Quantum 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 interface!

我们鼓励你与我们联系，关于 PreSonus Quantum接口的问题或意见。PreSonus Audio Electronics 公司致力于不断改进产品，我们高度重视你的建议。我们相信，实现我们　　不断改进产品目标的最好方法，就是听取真正的专家的意见：来自我们宝贵的客户。我们感谢你通过购买本产品对我们的支持，并相信你会喜欢上这款Quantum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 interface before trying to connect it to your computer. This will help you avoid problems during installation and setup. This manual covers the operation of both the Quantum and Quantum 2. Whenever a functional difference is described, the Quantum's features will be called out first, followed by the Quantum 2.

关于本手册。我们建议你在尝试将Quantum接口连接到你的计算机之前，使用本手册来熟悉它的功能、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。本手册涵盖了Quantum和Quantum 2的操作。每当描述功能差异时，都会首先指出Quantum的特点，然后是Quantum 2。

Throughout 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 an assortment of tutorials throughout this manual. These tutorials are designed to help you get the most out of your Quantum interface and its suite of companion software.

在这本手册中，你会发现一些 ***Power User Tips*** 用户提示，这些提示可以使你迅速成为Quantum系列的界面的专家。除了用户提示之外，你还会在本手册中找到各种教程。这些教程旨帮助你充分利用你的Quantum音频界面和它配套的软件套件。

1.2 Quantum-series Interface Hardware Features Quantum系列硬件特性

- Pristine 24-bit audio up to 192 kHz
- Flawless analog signal path with top-quality 120 dB digital conversion
- 8/4 digitally controlled XMAX microphone preamps
- Preamp control from Studio One or UC Surface
- Simultaneous I/O up to 26/22 inputs and 32/24 outputs (8x14 / 4x6 at 192 kHz)
- 8/4 DC coupled balanced outputs for flexible monitoring
- 2/1 high-volume headphone amps with dedicated DACs
- Tight integration with Studio One version 3 for multitrack music production
- Compatible with most music software for Mac® and Windows®
- Stackable Thunderbolt Portsfor clustering

- 高达192 kHz的24-bit音频
- 完美的模拟信号路径和高质量的120dB数字转换
- 8/4个数字控制的XMAX麦克风前置放大器
- 从Studio One或UC Surface控制前置放大器
- 同时输入/输出达26/22个输入和32/24个输出（8x14/4x6 在192kHz）。
- 8/4个直流耦合平衡输出，用于灵活监听
- 2/1 高容量耳机放大器与专用DACs
- 与Studio One第三版紧密结合，用于多轨音乐制作
- 与大多数 Mac®和Windows® 的音乐软件兼容
- 可堆叠的 Thunderbolt 端口用于集群

1.3 UC Surface Features UC Surface 特点

UC Surface is a powerful monitor-mixing application that allows you to control your Quantum preamps, talkback and monitoring functions.

UC Surface是一个强大的监听混音应用程序，允许你控制Quantum前置放大器，对讲和监听功能。

- Remote control preamp level and 48V phantom power
- Remote control, talkback, dim, and mute
- Remote control over line input sensitivity
- 远程控制前置放大器的电平和48V幻象电源
- 远程控制、对讲、调光和静音
- 远程控制线路输入的灵敏度

1.4 Studio One Artist Features Studio One Artist 特点

All PreSonus audio interfaces include PreSonus Studio One Artist recording software, which comes with more than 4 GB of plug-ins, loops, and samples, giving you everything you need for music recording and production. All monitor mixing and preamp control functions for your Quantum-series interface are integrated into Studio One's unique Cue Mix feature. The Quick Start Guide in ***Section 6*** of this manual will help you configure your Quantum interface and provide you with a brief overview of Studio One's features.

所有的PreSonus音频接口，都包括PreSonus 录音软件Studio One Artist。该软件带有超过4GB的插件、loops和样本，为你提供音乐录制和制作所需的一切。Quantum 系列接口的所有监听混音和前置放大器的控制功能都集成在 Studio One 独特的 Cue Mix 功能中。本手册**第6部分**的快速入门指南，将帮助你配置你的Quantum接口，并为你提供Studio One功能的简要概述。

- Cue Mix provides complete integrated control over all Quantum functions
- Unlimited track count, inserts, and sends
- 20 high-quality, Native Effects™ plug-ins; amp modeling (Ampire XT), delay (Analog Delay, Beat Delay), distortion (RedLightDist™), dynamics processing (Channel Strip, Compressor, Gate, Expander, Fat Channel, Limiter, Tricomp™), equalizer (Channel Strip, Fat Channel, Pro EQ), modulation (Autofilter, Chorus, Flage, Phaser, X-Trem), reverb (Mixverb™, Room Reverb), and utility (Binaural Pan, Mixtool, Phase Meter, Spectrum Meter, Tuner)
- More than 4 GB of loops, samples, and instruments, featuring: Presence™ XT virtual sample player, Impact virtual drum machine, SampleOne™ virtual sampler, Mai Tai virtual polyphonic analog modeling synth, Mojito virtual analog-modeled subtractive synthesizer
- Innovative and intuitive MIDI mapping
- Powerful drag-and-drop functionality for faster workflow
- Available for macOS and Windows

- Cue Mix 监听混音提供对所有Quantum功能的完全集成控制
- 无限的轨道计数、插入和发送
- 20个高质量的 Native Effects™ 插件。放大器建模（Ampire XT），延迟（Analog Delay, Beat Delay），失真（RedLightDist™），动态处理 （Channel Strip, Compressor, Gate, Expander, Fat Channel, Limiter, Tricomp™），均衡器 （Channel Strip, Fat Channel, Pro EQ），调制（Autofilter, Chorus, Flage, Phaser, X-Trem），混响（Mixverb™, Room Reverb），以及实用（Binaural Pan, Mixtool, Phase Meter, Spectrum Meter, Tuner)

- 超过4GB的 loops、采样和乐器，具有以下特：Presence™ XT 虚拟采样器、Impact 虚拟鼓机、SampleOne™ 虚拟采样器、Mai Tai虚拟多声道模拟造型合成器、Mojito虚拟模拟造型减法合成器。
- 采样器，Mai Tai 虚拟多声道模拟模拟合成器，Mojito 虚拟模拟模拟减法合成器。
- 创新的、直观的MIDI映射
- 强大的拖放功能，加快工作流程
- 适用于 macOS和Windows 系统

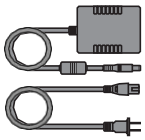
1.5 What is in the Box 包装里有什么

You Quantum-series interface package contains the following:

你的Quantum 系列音频接口包含以下内容：

PreSonus Quantum or Quantum 2 Thunderbolt Audio Interface and Studio Command Center

PreSonus Quantum或Quantum 2 Thunderbolt 音频接口和 Studio Command Center 工作室指挥中心



External power supply 外部电源

Studio One Key Commands Guide
Studio One 关键命令指南

Product registration and software authorization card

产品注册和软件授权卡

PreSonus Health Safety and Compliance Guide

PreSonus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 系列音频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 系列音频接口，以获得下载和许可证。*

2 Hookup 连接图

2.1 Front Panel Connections and Controls 前面板的连接和控制

Microphone inputs. Your Quantum-series interface is equipped with 8/4 digitally controlled PreSonus XMAX microphone preamplifiers for use with all types of microphones. The XMAX design provides a Class A input buffer, followed by a dual-servo gain stage. This arrangement results in ultra-low noise and wide gain control, allowing you to boost signals without increasing noise. The ¼-inch front panel inputs on Quantum can be either line or instrument. By default, they are set to line. These inputs are not switching on the Quantum 2.

麦克风输入。你的Quantum系列接口配备了 PreSonus XMAX 8/4 数字控制的麦克风前置放大器，适用于所有类型的麦克风。XMAX设计提供了a级输入缓冲器，其次是双伺服增益阶段。这种配备会引起超低噪声和宽增益控制，允许你在不增加噪声的情况下，增强信号。Quantum 的1 / 4英寸前面板输入既可以是线输入，也可以是仪器输入。默认情况下，它们被设置为line。这些输入无法接通Quantum2。

Each analog input on the Quantum-series interface features a combo jack. This convenient connector accepts either a ¼-inch phone plug or an XLR plug. Mic Inputs 3-8/4 are located on the rear of the unit. Each input on your Quantum-series interface is also auto-sensing. When an XLR is connected, the signal is routed to the preamp. When a TRS is connected, the preamp is bypassed and the input signal is sent directly to the ADC. When nothing is connected, Channels 1 and 2 on Quantum will default to line inputs, Channel 3-8 will default to mic. All analog inputs on the Quantum 2 default to mic.

Quantum系列音频接口上的每个模拟输入都有一个组合插孔。这个方便的接口可以接受¼英寸电话插头或XLR插头。麦克风输入3-8/4位于设备的后面。Quantum系列接口上的每个输入都是自动感应的。当XLR被连接时，信号会被输送到前置放大器。当TRS被连接时，前置放大器被绕过，输入信号被直接送到ADC。当没有任何连接时，Quantum上的通道1和2将默认为线路输入，通道3-8将默认为麦克风。Quantum 2上的所有模拟输入都默认为麦克风。

Instrument inputs. The ¼-inch TS connectors on Channels 1 and 2 are for use with instruments (guitar, bass, etc.). When an instrument is plugged into the instrument input, the mic preamp is bypassed, and the signal is routed to the instrument preamplifier stage. Quantum users must engage the Inst button to use the Instrument inputs.

Instrument inputs. 通道1和2上的 ¼英寸TS接口是用于乐器（吉他、贝斯等）的。当乐器被插入instrument input时，麦克风前置放大器被绕过，信号被送到乐器前置放大器阶段。Quantum用户必须使用Inst按钮，来使用乐器输入。

Please note: *As with any audio input device, plugging in a microphone or an instrument, or turning phantom power on or off, will create a momentary spike in the audio output of your Quantum-series interface. Because of this, we highly recommend that you turn down the channel trim before changing connections or turning phantom power on or off. This simple step will add years to life of your audio equipment.*

请注意：*与任何音频输入设备一样，插入麦克风或乐器，或者打开或关闭幻象电源，都会在 Quantum 系列音频接口的音频输出中，产生一个瞬间的峰值。正因为如此，我们强烈建议，你在改变连接或打开或关闭幻象电源之前，调低 channel trim。这个简单的步骤，会使你的音频设备寿命延长几年。*

Preamp controls. These controls allow you to adjust the gain and enable phantom power for every onboard microphone and instrument preamp.

Preamp controls. 这些控制允许你调整增益，并为每个板载的麦克风和乐器前置放大器启用幻象电源。

- **Preamp Gain:** Use this control to adjust the level of microphone preamps 1-8/4 and instrument preamps 1 and 2. The display to the far right will show the current trim level. This encoder is also used to change from +4dbu to -10dbv when a line-level TRS jack is connected.
- **Next / Prev:** Use these buttons to select the microphone preamp you wish to control. The display to the right of the trim control will show which preamp is currently being controlled.
- **48V:** The Quantum-series interfaces provide 48V phantom power for each microphone preamp. This feature can be individually enabled for each channel, using this button. When 48V is active, the blue LED at the top of that channel's meters will illuminate.
- **Preamp Gain:** 使用这个控制来调整1-8/4前置放大器电平，以及1和2麦克风前置放大器。最右边的显示屏将显示当前的trim电平。当连接线级TRS接口时，这个编码器也用来从+4dbu变为-10dbv。
- **Next / Prev：** 使用这些按钮，选择你想控制的麦克风前置放大器。微调控制右边的显示屏，将显示当前正在控制的前置放大器。
- **48V：** Quantum系列音频接口，为每个麦克风前置放大器提供48V幻象电源。这个功能可以通过这个按钮，为每个通道单独启用。当48V激活时，该通道仪表顶部的蓝色LED灯将亮起。

Warning: Phantom power is only required for condenser microphones and can severely damage dynamic mics, especially ribbon mics. Therefore, switch phantom power off for all channels where it is not required.

警示：幻象电源只对电容式麦克风有要求，会严重损坏动圈麦克风，特别是带状麦克风。 因此，请关闭所有不需要幻象电源的通道的幻象电源。

XLR connector wiring for phantom power:

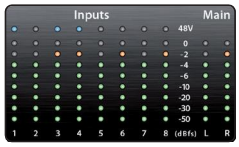
幻象电源的 XLR连接器接线：

Pin 1 = GND **Pin 2** = +48V **Pin 3** = +48V

Talkback mic and controls (Quantum). Quantum features an onboard talkback microphone. Press the Talk button to patch the signal to the selected mixes. To control the level of the onboard Talkback mic, select the "c" (Comm) channel in the preamp control section and use the encoder to adjust the level.

Power User Tip: *Talkback routing for Quantum is handled inside your DAW. It will show up as an input stream in your DAW I/O set-up.*

Talkback mic and controls (Quantum). Quantum具有一个板载的对讲麦克风。按下 "Talk" 按钮，可以将信号接入到所选的混音中。要控制板载对讲麦克风的电平，请在前置放大器控制部分选择 "c"（Comm）通道，并使用编码器来调整电平。



Input meters. These eight-LED meters show the input level of the analog inputs on your Quantum-series interface. The green LEDs will illuminate when the input signal ranges from -50dBFS to -4dBFS. The yellow LEDs will illuminate when the input signal reaches -2dBFS. The red Clip LED will illuminate when your input signal reaches -0.5dBFS. At this level, the signal will begin to overload the analog-to-digital converters and exhibit signs of clipping. Use the gain controls to keep the signal below this level.

Input meters. 8个LED仪表显示了Quantum系列音频接口上模拟输入的输入电平。当输入信号在 -50dBFS 到 -4dBFS 之间时，绿色 LED灯会亮起。当输入信号达到-2dBFS 时，黄色的LED灯将会亮起。当你的输入信号达到 - 0.5dBFS 时，红色的剪辑LED灯将亮起。在这个电平上，信号将开始超过模数转换器的负荷，并表现出削波的迹象。使用增益控制来保持信号低于这个电平。

Main. The Main knob can control any or all of the outputs on the rear panel of your Quantum and has a range of -80 dB to 0 dB. In addition to level control, the main outputs have the following controls:

Main. 主旋钮可以控制Quantum后面板上的任何或所有的输出，其范围是 -80dB到0dB。除了电平控制之外，主输出还有以下控制：

- **Meters.** These meters display the signal level received from Driver Returns 1 and 2 (Main Left/Right). These meters have the same range as the input meters (-50 dBFS to -0.5 dBFS) and are before the main output level.

  Meters. 这些仪表显示从驱动返回1和2（主左/右）收到的信号电平。这些仪表的范围与输入仪表相同（-50dBFS到-0.5dBFS），并且在main output level主输出电平之前。

- **Dim / Mute (Quantum).** This button controls both the Dim and Mute functions for the Main Outputs. Press the button and release it to lower the outputs signal by 20 dB. Press and hold the button to Mute the Main Output signal. The button will illuminate yellow when Dim is active and red when Mute is active. These functions are also available from within UC Surface and Studio One.

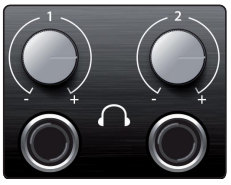
  Dim / Mute (Quantum). 这个按钮同时控制主输出的调光和静音功能。按下该按钮并释放它，可以将输出信号降低20dB。按住该按钮可以使主输出信号静音。当 "调光" 功能激活时，该按钮将亮起黄色，当 "静音" 功能激活时，将亮起红色。这些功能也可以在UC Surface和Studio One中使用。

- **Mono (Quantum).** Press this button to sum the Main stereo output signal to mono. The mono function is also available from within UC Surface and Studio One.

  Mono (Quantum). 按这个按钮，可以把 Main stereo output 主立体声输出信号加到单声道。单声道功能也可以在UC Surface和Studio One中使用。

  Power User Tip: *Use the Mono feature to verify mono compatibility and to check for phase cancellation in your stereo mixes.*

  用户提示：*使用单声道功能来验证单声道的兼容性，并检查立体声混音中的相位消除情况。*



Headphones. Your Quantum-series interface provides two/one headphone output(s), each with its own level control. Each headphone output is provided with its own unique output stream to route audio directly from your DAW (Quantum: playback streams 11/12 and 13/14; Quantum 2: playback streams 5/6). These streams are labeled as "Phones 1" and "Phones 2" in UC Surface. From UC Surface, any mix can be routed to either headphone output. By default on Quantum, Headphone 1 mirrors the Main Output and Headphone 2 mirrors Output 1-2.

Headphones. 你的Quantum系列接口提供两个/一个耳机输出，每个都有自己的电平控制。每个耳机输出都有自己独特的输出流，可以直接从DAW（Quantum：播放流11/12和13/14；Quantum 2：播放流5/6）传送音频。这些数据流在UC Surface中，被标记为 "Phones 1 "和 "Phones 2"。在 UC Surface 中，任何混音都可以被路由到任何一个耳机输出。Quantum 默认情况下，Headphone 1反映 Main Output 主输出，Headphone 2 反映 Output 输出1-2。

A/B (Quantum 2). The A/B button allows you to switch between two mixes. When UC Surface is not accessed, this will toggle between the Headphone streams (5/6) and the Main Mix streams (1/2). When UC Surface is active, you can choose the "B" source from any mix pair.

A/B (Quantum 2). A/B按钮允许你在两个混音之间切换。当UC Surface未被访问时，这将在Headphone streams 耳机流（5/6）和 Main Mix streams 主混音流（1/2）之间切换。当 UC Surface 被激活时，你可以从任何一对混音中选择 "B " 源。

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

Power button and Sync light. （电源按钮和同步指示灯） Quantum 电源按钮周围的发光环，是一个时钟源/同步指示灯。它让你知道你的设备是否能正确地接收字时钟。

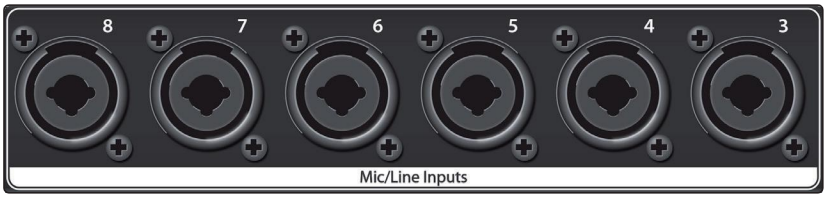
- **Blue.** When this light is blue, your Quantum is correctly synced via Thunderbolt, word clock, ADAT, or S/PDIF
- **Flashing red and blue.** Quantum is in the process of trying to sync to a received clock signal.
- **Red.** Quantum is either not synced to your computer or its external clock source is not present.
- **Flashing purple.** The identify button is active in UC Surface.

- **Blue.** 当这个灯为蓝色时，你的Quantum通过Thunderbolt、字时钟、ADAT 或 S/PDIF 被准确同步。
- **Flashing red and blue.** Quantum 正在尝试与接收到的时钟信号进行同步。
- **Red.** 红色是 Quantum没有与你的电脑同步，或者其外部时钟源不存在。
- **Flashing purple.** 闪烁紫色是识别按钮在 UC Surface 中被激活。

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-series 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。一般来说，你会用Quantum系列音频接口，作为演播室的主时钟；它提供了高质量的字时钟来实现这一目的。然而，如果你想使用另一个设备作为主时钟，你可以在UC Surface中设置时钟的输入源。****详情见第4.1节。***

2.2 Back Panel Connections 后面板连接



Rear-panel Mic Inputs. As previously mentioned in Section 2.1, additional microphone preamps are available on the rear of your Quantum interface.

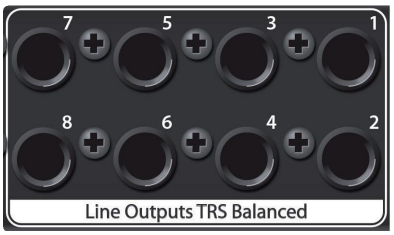
Line Inputs. The ¼-inch TRS connectors on Channels 3-8/4 are for use with line-level devices. These inputs are scaled to accept line-level signals up to +18 dBu.

Rear-panel Mic Inputs.（面板的麦克风输入）后正如之前在第2.1节中提到的，Quantum接口的后部有额外的麦克风前置放大器。

Line Inputs.（线路输入）通道3-8/4上的¼英寸TRS连接器，它是用来连接线级设备的。这些输入可以接受高达+18dBu的线路电平信号。

Power User Tip: *When these inputs are engaged, the microphone preamp circuit is bypassed completely, and no trim control is available. Typical examples of line-level connections are synthesizer outputs, signal processors, and stand-alone mic preamps and channel strips. Use the output level control on your line-level device to adjust its level.*

用户提示：*当这些输入被使用时，完全绕过麦克风前置放大器电路，并且没有微调控制可用。线路连接的典型例子是合成器的输出，信号处理器，以及独立麦克风前置放大器和通道条。使用线级设备的输出电平控制来调整其电平。*



Line Outputs. Quantum-series interfaces have 8/4 line balanced line outputs to route to external devices, such as headphone amps, signal processors, and additional monitors. Each output has an independent playback streams. Every line output is DC coupled to provide control voltage to external analog equipment. This feature can be used with any plug-in that supports it.

Line Outputs. Quantum 系列音频接口有8/4个平衡线路输出，可以路由到外部设备，如耳机放大器、信号处理器和额外的监视器。每个输出都有一个独立的播放流。每个线路输出都是直流耦合的，以提供控制电压，给外部模拟设备。这个功能可以与任何支持它的插件一起使用。

Power User Tip: *The Main Level knob on the front of your Quantum-series interface can be used to control any or all of these outputs. This is set from UC Surface.* ***See Section 4.3*** *for more information.*

用户提示：Quantum系列音频接口前面的主电平旋钮，是控制任何或所有输出。这是从UC表面设置的。**更多信息见第 4.3 节。**

Main Outs (Quantum). These are the main outputs for Quantum. The output level of the Main Outputs is controlled by the Main level control on the front of the unit. Like the eight line outputs, the main outputs have independent playback streams (playback streams 1-2). Both Main Outputs are DC coupled to provide control voltage to external analog equipment. This feature can be used with any pug-in that supports it.

Main Outs (Quantum). 这些为Quantum的主输出。主输出的输出电平，是由设备前面的Main Outputs主电平控制来控制的。和8个线路输出一样，主输出有独立的播放流（播放流1-2）。两个主输出都是直流耦合，为外部模拟设备提供控制电压。这个功能可以与任何支持它的pug-in一起使用。

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. 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: *In UC Surface, when using the BNC Clock input, you will need to set "BNC" as the Clock Source and set the sample rate to correspond to that of the external device.* ***See Section 4.1*** *for details. A 75Ω BNC word clock cable is required to achieve proper sync.*

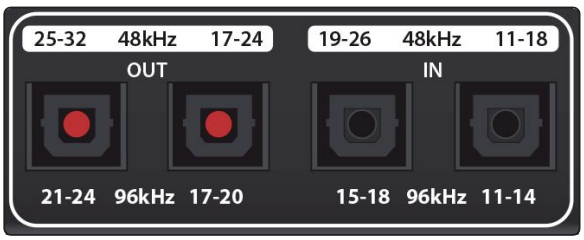
用户提示：*在UC Surface中，当使用BNC时钟输入时，你需要将"BNC"设置为时钟源，并将采样率设置为与外部设备的采样率一致。* ***详见第4.1节。****为了实现准确的同步，需要使用75Ω的BNC字时钟电缆。*

S/PDIF In and Out. The S/PDIF connections allow two channels of audio to be transmitted and received at rates up to 24-bit, 96 kHz. The S/PDIF I/O also allows all Quantum-series interfaces to send and receive word clock to external digital devices.

S/PDIF In and Out. S/PDIF连接，允许两个通道的音频以高达24位、96kHz的速率传输和接收。S/PDIF 的输入/输出，还允许所有Quantum系列接口发送和接收字时钟到外部数字设备。

Power User Tip: *In UC Surface, you will need to set "S/PDIF" as the Clock Source and the sample rate to correspond to the external device when using an external S/PDIF device as your master clock.* ***See Section 4.1*** *for details.*

用户提示：*在 UC Surface中，当使用外部S/PDIF的设备作为主时钟时，你需要将"S/PDIF"设置为时钟源，并将采样率与外部设备对应。* ***详见第4.1节。***



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.（ADAT - S/MUX输入和输出）这些是用于外部数字设备的 ADAT-双S/MUX 连接。当以44.1或48kHz时，每个ADAT 输入/输出将连续提供16个可用通道中的8个，从左到右。当以88.2或96kHz录音或播放时，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：

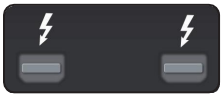
	ADAT 1 Input	ADAT 2 Input	ADAT 1 Output	ADAT 2 Output
44.1 / 48 kHz	Channels 11-18 / 7-14	Channels 19-26 / 15-22	Channels 17-24 / 9-16	Channels 25-32 / 17-24
88.2 / 96 kHz	Channels 11-14 / 7-10	Channels 15-18 / 11-14	Channels 17-20 / 9-12	Channels 21-24 / 13-16

When connecting a DigiMax DP88 to your Quantum interface, 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.

当把DigiMax DP88连接到你的Quantum接口时，ADAT连接也将发送和接收DigiMax DP88的前置放大器控制信息，这样就可以直接从UC Surface或Studio One控制它。

Power User Tip: *In UC Surface, you will need to set "ADAT 1" as the Clock Source and the sample rate to correspond to the external device when using an external ADAT device as your master clock.* ***See Section 4.1*** *for details. The ADAT 2 input cannot be used to receive word clock.*

用户提示：*在 UC Surface 中，当使用外部 ADAT 设备作为主时钟时，你需要将 "ADAT 1 "设置为时钟源，并将采样率与外部设备对应。详见第4.1 节。ADAT 2 输入不能用于接收字时钟。*

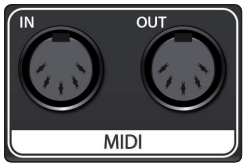


Thunderbolt ports. Use these ports to connect your Quantum-series interface to your computer. The second Thunderbolt port can be used to connect other Thunderbolt devices to your computer.

Thunderbolt ports. 使用这些端口，将你的Quantum 系列接口连接到你的电脑上。第二个Thunderbolt端口，可以用来连接其他Thunderbolt设备到你的电脑。

Power User Tip: *Your Quantum interface supports 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：你的Quantum接口支持通过Thunderbolt的集群。除了允许将你的Quantum系列接口，作为Thunderbolt集线器使用外，这还允许你将多达四个Quantum接口连锁起来，通过Thunderbolt聚合，以获得更高的I/O数量。**更多信息见第5节。**



MIDI I/O. These are the MIDI input and output connections. MIDI stands for "Musical Instrument Digital Interface." However, MIDI can be used for many things other than instruments and sequencing. The MIDI inputs and outputs allow connection to a variety of MIDI-equipped hardware, such as keyboard controllers, and can be used to send and receive MIDI Machine Control and MIDI Time Code.

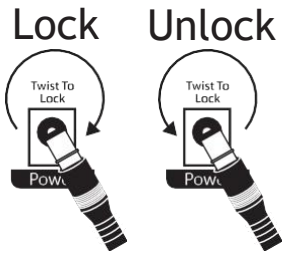
MIDI输入/输出。这些是MIDI输入和输出连接。MIDI是 "Musical Instrument Digital Interface. "的意思。然而，除了乐器和音序之外，MIDI还可用于许多其他方面。MIDI输入和输出允许连接到各种配备MIDI的硬件，如键盘控制器，并可用于发送和接收MIDI Machine Control和MIDI Time Code。

Note: *MIDI does not carry audio signals but is frequently used to trigger or control an audio source, such as a virtual instrument or hardware synthesizer. You should ensure that MIDI data is correctly sent and received by the appropriate hardware or software. You may also need to route hardware sound sources' audio to the inputs of your Quantum-series interface.* ***Please consult the User's Manual of your MIDI devices*** *for help with MIDI setup and usage.*

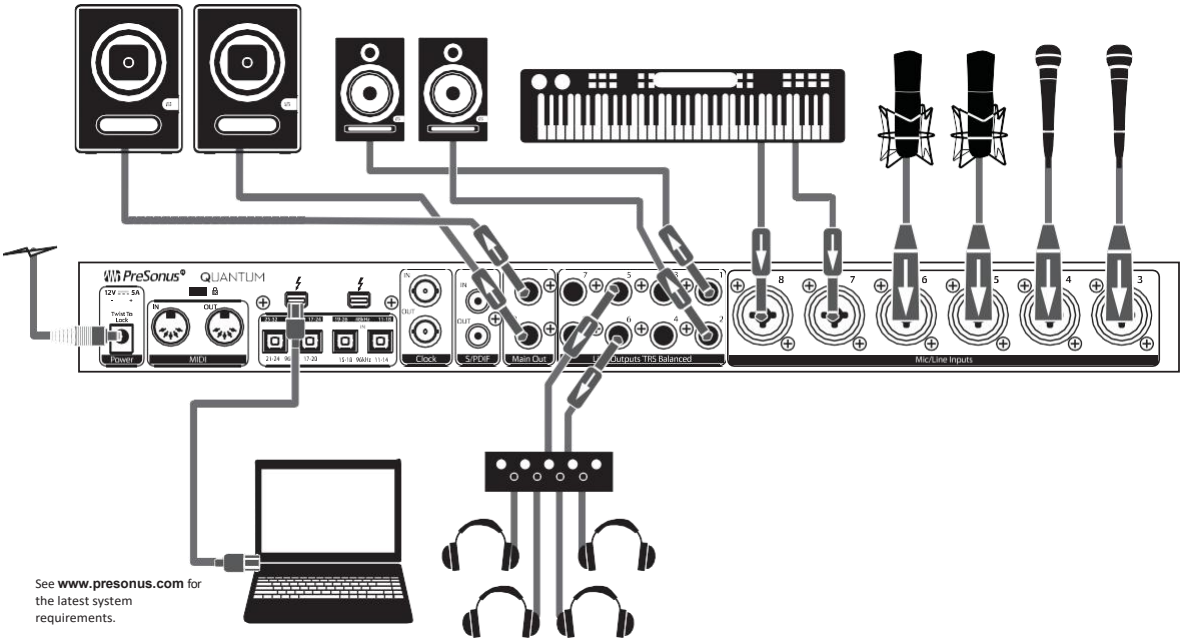
注意：*MIDI不携带音频信号，但经常被用来触发或控制一个音频源，如虚拟乐器或硬件合成器。你应该确保MIDI数据被相应的硬件或软件正确地发送和接收。可能你还需要将硬件声源的音频，路由到Quantum系列音频接口的输入。请查阅你的MIDI设备的用户手册，以获得有关MIDI设置和使用的帮助。*

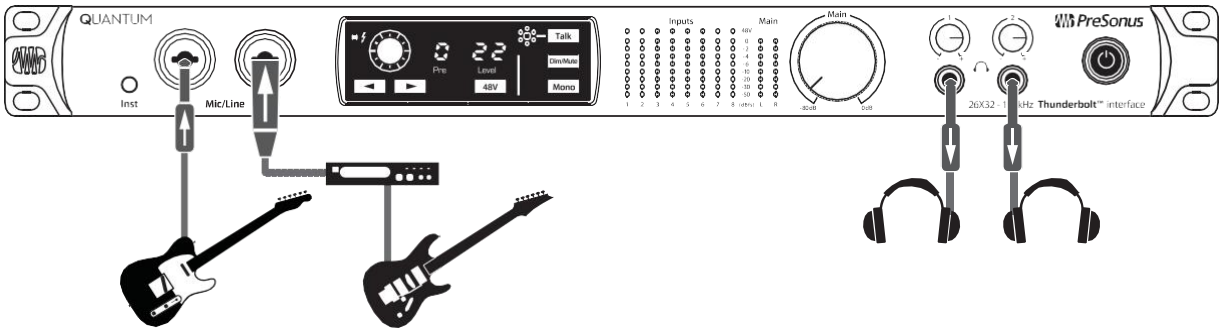
Power Connection. This is where you connect the Quantum-series interface's external power supply. Your Quantum interface is equipped with a twist-lock power connection, keep this in mind when connecting disconnecting it from your interface.

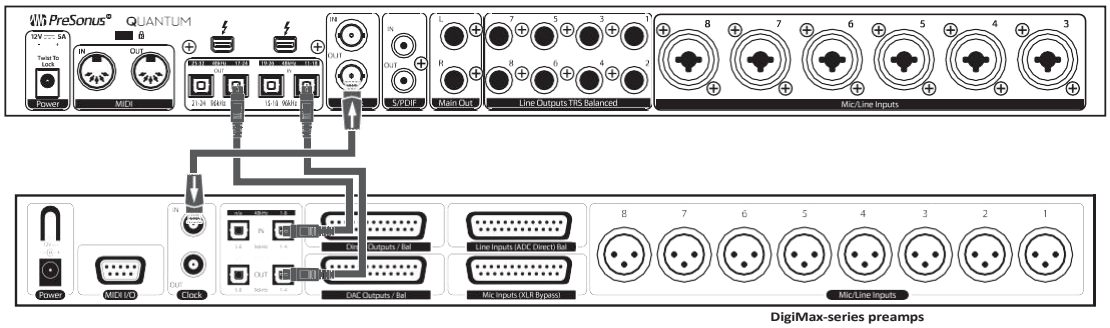
Power Connection. 这是你连接Quantum系列接口的外部电源的位置。你的Quantum接口配备了一个扭锁式的电源连接，在连接和断开接口时，请记住这一点。



2.3 Quantum Hookup Diagram “Quantum”连接图

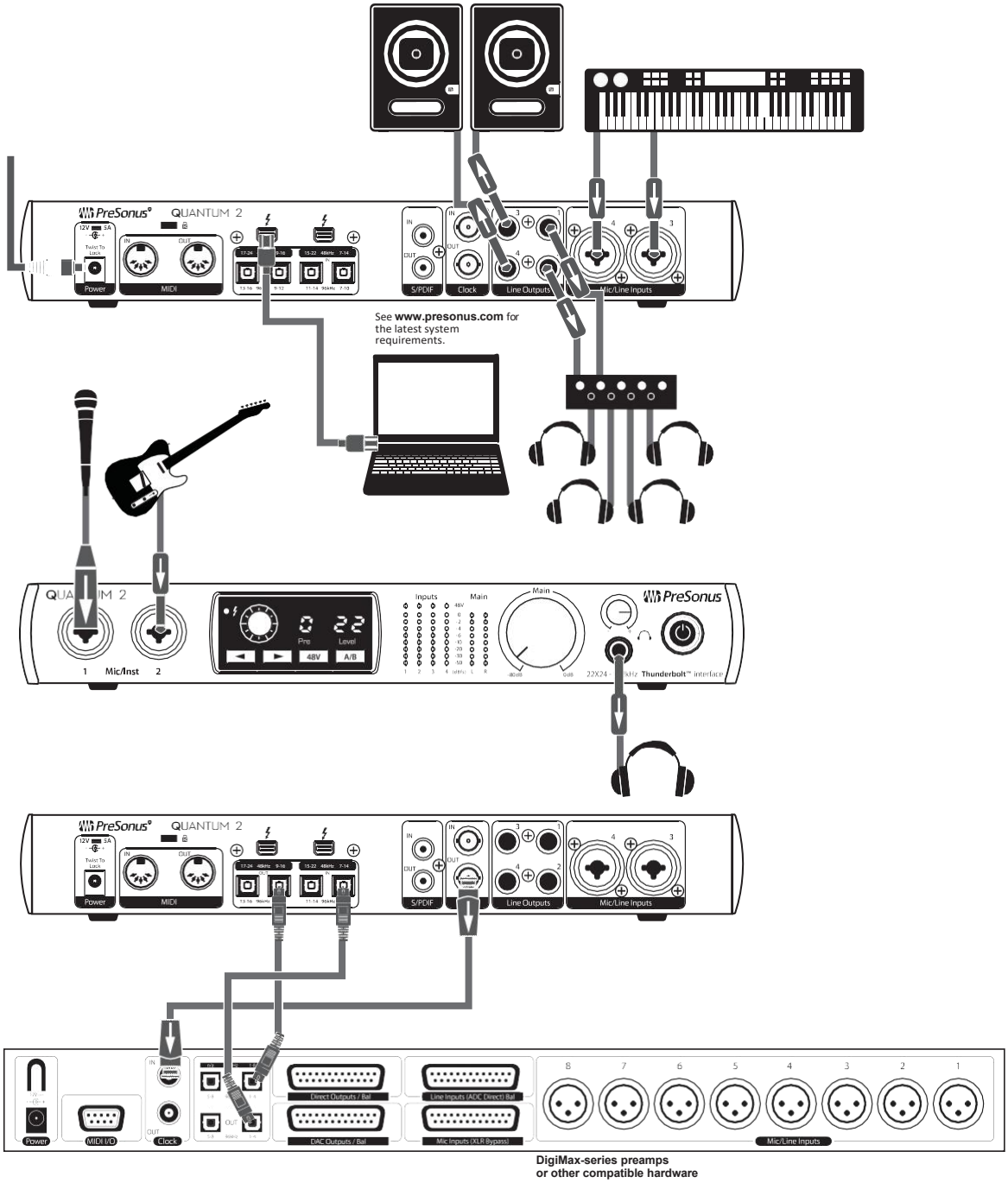






DigiMax-series preamps
or other compatible hardware

2.4 Quantum 2 Hookup Diagram “Quantum2”连接图



3 Connecting to a Computer 连接到计算机

Your Quantum-series interface is loaded with professional audio tools and flexible monitoring controls. Before connecting to a computer, please visit www.presonus.com/products/Quantum/techspecs to verify the latest system requirements.

你的Quantum系列接口配备了专业的音频工具和灵活的监听控制。在连接到计算机之前，请访问 www.presonus.com/products/Quantum/techspecs 来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：你的处理器的速度、RAM的数量以及硬盘的容量、大小和速度将极大地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 first visit http://my.presonus.com, create or log into your user account, and register your Quantum interface. Once registered, all software downloads will be available from within your My PreSonus user account.

可从你的My PreSonus用户账户下载，适用于macOS 和 Windows 的 Universal Control 安装程序。这个捆绑安装程序，包括 Universal Control、UC Surface 和 Quantum 系列接口的音频驱动程序。要开始，你必须首先访问PreSonus官网 http://my.presonus.com， 创建或登录你的用户账户，并注册你的Quantum接口。一旦注册，所有的软件下载，都可以从你的My PreSonus用户帐户中获得。

3.1 Installation for Windows and macOS Windows and macOS 的系统安装

Connect your Quantum-series interface 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.

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

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

将你的Quantum系列音频接口连接到一个可用的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。这个应用程序将安装macOS或Windows驱动以及UC Surface。请仔细阅读每条信息。

建议你在开始安装之前，退出所有的应用程序。

Universal Control 安装程序，将带你完成安装过程的每一步。

3.2 Using a Quantum Interface with Popular Audio Applications 在流行的音频应用程序中，使用Quantum音频接口

Complete setup instructions for Studio One Artist and a brief tutorial on its features can be found in ***Section 6*** of this manual. However, you can use your Quantum-series interface 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 Artist 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。你可以将Quantum系列接口与任何支持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的相关文档。

Below are basic driver-setup instructions for a few popular audio applications.

下面是几个流行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 or Quantum 2.

选择驱动类型：ASIO | 音频设备。ASIO PreSonus Quantum 或 Quantum 2。

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

转到输入配置：启用并选择所需的输入通道。

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

转到输出配置：启用并选择需要的输出通道。

Apple Logic

1. Launch Logic 启动Logic
2. Go to Logic | Preferences | Audio. 进入Logic | 首选项 | 音频。
3. Click on the Devices Tab. 单击 "Devices Tab " 。
4. On the Core Audio tab, check Enabled. 在Core Audio标签上，选中Enabled。
5. Select PreSonus Quantum or Quantum 2 from the device menu.

从设备菜单中，选择PreSonus Quantum或Quantum 2。

6. You will be asked if you'd like to relaunch. 你会被问到是否要重新启动。
7. Your Quantum features custom I/O labels for faster workflow. To enable these labels for use in Logic, go to Options | Audio | I/O Labels.

你的Quantum具有自定义I/O标签，以加快工作流程。以便在Logic中使用这些要启用的标签，请进入选项|音频|I/O标签。

8. The second column in the pop-up window will be named Provided by Driver. Activate each of these labels for your Quantum. When you are done, close this window.

pop-up窗口中的第二列将被命名为 "Provided by Driver"。为你的Quantum激活这些标签。完成后，关闭这个窗口。

Avid Pro Tools 10+

1. Launch Pro Tools. 启动Pro Tools。
2. Go to Setup | Hardware and select Quantum or Quantum 2 from the Peripherals list. Click OK.

进入设置|硬件，从外围设备列表中，选择Quantum或Quantum 2。点击确定。

3. Go to Setup | Playback Engine and select Quantum or Quantum 2 from the menu at the top of the window. Click OK.

进入设置 | Playback Engine，从窗口顶部的菜单中，选择Quantum或Quantum 2。单击 "确定"。

Cakewalk Sonar

1. Launch Sonar. 启动Sonar。
2. Go to Options | Audio... and click on the Advanced tab. 进入选项|音频...并点击Advanced tab。
3. Change the Driver Mode to "ASIO." (Note: Using WDM, rather than ASIO, for pro audio applications is not recommended.)

   将驱动模式改为 "ASIO"。(注意：不建议在专业音频应用中使用WDM，而不是ASIO)。
4. Click the "OK" button. 点击 "OK " 按钮。
5. Restart Sonar. 重新启动 Sonar。
6. Go to Options | Audio... and click on the Drivers tab. 进入选项|音频...并点击驱动 Drivers tab。
7. Highlight all input and output drivers beginning with "PreSonus Quantum" or "PreSonus Quantum 2"

   突出显示所有以 "PreSonus Quantum "或 "PreSonus Quantum 2 "开头的输入和输出驱动程序。
8. Go to Options | Audio... and click on the General tab. 进入选项|音频...并点击General tab。
9. Set the Playback Timing Master to "PreSonus Quantum... DAW Out 1" or "PreSonus Quantum 2... DAW Out 1."

   将播放时序主控设置为 "PreSonus Quantum... DAW Out 1 " 或 "PreSonus Quantum 2... DAW Out 1"。
10. Set the Recording Timing Master to "PreSonus Quantum... Mic/Inst 1" or "PreSonus Quantum 2... Mic/Inst 1."

    将录音定时主控设置为 "PreSonus Quantum... Mic/Inst 1 " 或 "PreSonus Quantum 2... Mic/Inst 1"。

Steinberg Cubase

1. Launch Cubase. 启动 Cubase。
2. Go to Devices | Device Setup. 转到设备|设备设置
3. Select "VST Audio System" from the Devices column in the Device Setup.

   在Device Setup设备设置的设备栏中，选择 "VST Audio System"。
4. Select PreSonus Quantum or Quantum 2 from the ASIO Driver dropdown list.

   从ASIO驱动下拉列表中，选择 PreSonus Quantum 或 Quantum 2。
5. Click "Switch" to begin using the Quantum driver. 点击 "Switch"，开始使用Quantum驱动。
6. Once you have successfully changed the driver, go to Devices | VST Connections to enable your input and output buses.

   一旦你成功地改变了驱动程序，进入Devices| 连接VST，启用你的输入和输出总线。

3.3 Controlling Quantum Mic Preamps with MIDI 用MIDI控制Quantum麦克风前置放大器

Quantum microphone preamps can be controlled from the front panel, UC Surface, or Studio One. If you configure your Quantum interface as a MIDI device inside your DAW application, you can also control trim and phantom power from within your DAW environment and store those settings with your session.
Quantum麦克风前置放大器可以通过前面板、UC Surface或Studio One进行控制。如果你把Quantum接口配置成DAW应用程序中的MIDI设备，你也可以从DAW环境中，控制微调和幻象电源，并将这些设置与你的会话一起存储。

Below is a chart explaining the MIDI controls for your Quantum preamps:
下面是一张图表，解释了Quantum前置放大器的MIDI控制：

Preamp	MIDI Channel	Trim Level	Phantom Power ON /OFF
Preamp 1	Channel 1	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 2	Channel 2	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 3	Channel 3	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 4	Channel 4	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 5 (Quantum)	Channel 5	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 6 (Quantum)	Channel 6	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 7 (Quantum)	Channel 7	CC #7	CC#14(0to63=On, 64to127=Off)
Preamp 8 (Quantum)	Channel 8	CC #7	CC#14(0to63=On, 64to127=Off)

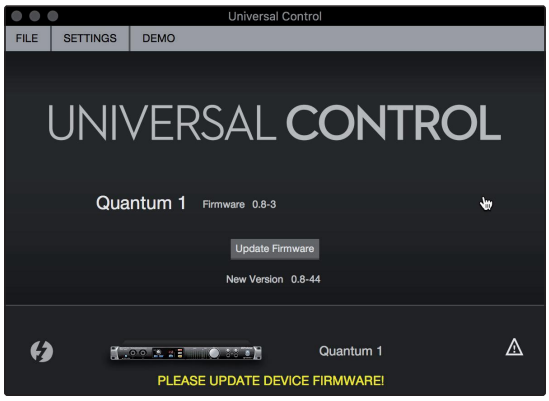
4 UC Surface Control Software UC Surface 控制软件

UC Surface is a powerful control software for your Quantum-series interface. These control functions are completely integrated inside Studio One. UC Surface allows users of other popular DAW applications to access these functions. UC Surface provides preamp level controls, phantom power, line-level input sensitivity switching, main encoder assignments, and, for Quantum users, mute/dim and mono functions.

UC Surface 是一个强大的控制软件，适用于你的Quantum-系列接口。这些控制功能在Studio One内部可完全集成。UC Surface 接受其他流行的DAW应用程序的用户访问这些功能。UC Surface 提供了前置放大器电平控制、幻象电源、线路级输入灵敏度切换、主编码器分配，并为Quantum用户提供了静音/调光和单声道功能。

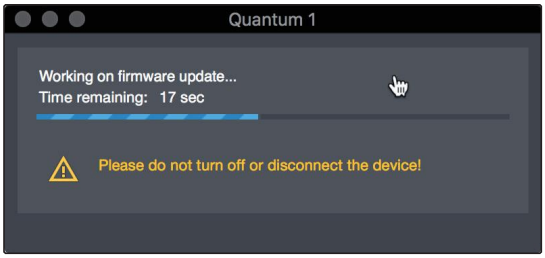
UC Surface is designed to verify that your Quantum-series interface has the correct firmware version installed. You will be prompted if your Quantum-series interface needs its firmware updated. Click on the Update Firmware button to begin the update.

UC Surface旨在验证你的Quantum系列接口，是否安装了正确的固件版本。如果你的Quantum-系列接口需要更新其固件，你会被提示。点击更新固件按钮，开始更新。



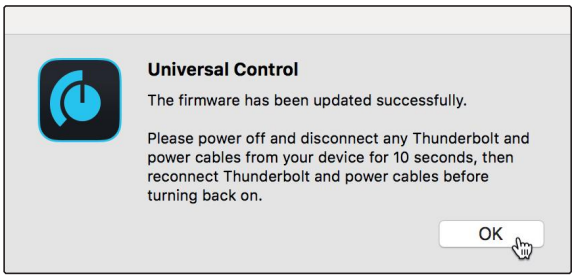
Warning: Do not power off or disconnect your Quantum-series interface during the firmware update. Once the firmware update is successfully completed, you will be alerted and instructed to disconnect your power supply and Thunderbolt cable and reconnect it before rebooting your device. ***It is not sufficient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

警告：在固件更新期间，不要关闭或断开你的Quantum系列接口的电源。一旦固件更新成功，你会被提醒并被指示断开电源和Thunderbolt的电缆，并在重新启动你的设备前重新连接。***仅仅关闭设备的电源是不够的，你必须断开电源的连接。***

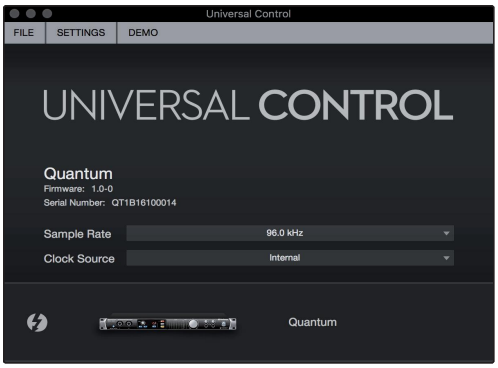


When the firmware update is complete, you must disconnect the physical power source from your Quantum-series interface and reconnect it. Powering it off it will not complete the update process.

当固件更新完成后，你必须断开Quantum系列接口的物理电源并重新连接。关掉电源将不会完成更新过程。



4.1 UC Surface Launch Window UC Surface 启动窗口



Sample Rate. Changes the sample rate. 改变采样率。

You can set the sample rate to 44.1, 48, 88.2, 96, 176.4, or 192 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.

你可以将采样率设置为 44.1、48、88.2、96、176.4或192kHz。较高的采样率会增加录音的保真度，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. 设置数字时钟源。

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

*从这个菜单中，你可以为你的Quantum接口设置时钟源。内部，外部S/PDIF，或外部ADAT。**请注意：**只有ADAT 1可以作为Quantum 的时钟源输入。*

4.2 Input Controls 输入控制装置

The following controls are available for your Quantum-series interface inputs:

以下是你的Quantum系列接口输入的控制方式：

Microphone and Instrument Preamps 麦克风和乐器前置放大器

The inputs on your Quantum-series interface are auto-sensing. When an XLR cable is connected, controls for the microphone preamp will be available in UC Surface. These controls include a fully variable gain control and phantom power as well as input metering.

你的Quantum系列接口的输入是自动感应的。当XLR电缆被连接时，UC Surface 麦克风前置放大器的控制是可用的。

这些控制包括一个完全可变的增益控制和幻象电源以及输入计量。

Line Inputs 线路输入

When a ¼-inch TRS cable is connected to the inputs of your Quantum-series interface, you will be provided with an input sensitivity toggle switch. By default, the input sensitivity is set to +4 dBu. Most professional line-level devices output at this level. Consumer line level is usually -10 dBV. For these lower output devices, switch the input sensitivity to -10 dBV to match your device.

当¼英寸TRS电缆连接到 Quantum 系列接口的输入端时，你会得到一个输入灵敏度的切换开关。默认情况下，输入灵敏度设置为 +4dBu。大多数专业线级设备的输出都是这个电平。消费者线路电平通常是 -10dBV。对于这些较低的输出设备，将输入灵敏度切换到 -10dBV，以配合你的设备。

Power User Tip (Quantum users): *By default, inputs 1 and 2 are set to line, inputs 3-8 default to mic when nothing is connected.*

用户提示（Quantum 用户们）：*默认情况下，输入1和2被设置为线路，输入3-8在没有连接时默认为麦克风。*

ADAT Inputs

When a DigiMax DP88 is connected to your Quantum interface's ADAT Input and Output, you will be presented with ADAT controls, allowing you to remote control your DigiMax DP88's preamps, direct line input, and phantom power.

当 DigiMax DP88 连接到你的 Quantum接口的 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。

4.3 Main Knob Controls

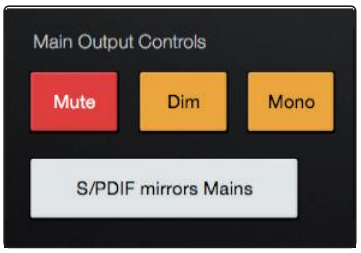
The large Main level encoder can be used to control any or every output on your Quantum-series interface. Use these controls to select which output levels are adjusted with this knob. It should be noted that this knob always controls the Main Left/Right outputs on Quantum and Outputs 1/2 on Quantum 2. Other analog outputs pairs can be added.

large Main level电平编码器可以用来控制Quantum 系列接口上的任何或每一个输出。这个旋钮是用来调整输出电平的控制选择。应该注意的是，这个 旋钮总是控制 Quantum上的主左/右输出和 Quantum 2上的输出。1/2在 Quantum 2上。其他的模拟输出对可以被添加。

Power User Tip: *The volume of any output pair will jump to 0 dB when it is unassigned from the Main Knob. Because of this, make sure to manage your output volume in your DAW before disengaging this option.*

用户提示：*当任何输出对从主旋钮上取消指定时，其音量将跳到0 dB。由于这个原因，在取消这个选项之前，请确保在DAW中管理好你的输出音量。*

4.4 Main Output Controls 主输出控制



These controls mimic the front panel options on the Quantum, allowing you to remote control the Main Output Mute, Dim and Mono options. These control are not available for Quantum 2.

这些控制措施模仿了Quantum上的前面板选项，你可以远程控制 主输出静音、调光和单声道选项。这些控制并不适用于Quantum 2。

From here, you can also choose to have your S/PDIF outputs mirror the Main outputs.

在这里，你也可以选择让你的S/PDIF 输出与主输出相匹配。

4.5 Talkback (Quantum) 对讲系统 (Quantum)

The Talkback feature lets you communicate with the performers. Talkback routing is handled directly to your DAW, simply create a track and assign its input to the Talkback and route the track to the desired outputs.

对讲功能可以让你与表演者交流。对讲机的路由直接处理到你的DAW，只需创建一个轨道并将其输入分配给对讲机，然后将轨道路由到所需的输出。

Click on the Talkback button to enable the Talk function on your Quantum. You can then turn on the Talkback mic in any of the mixes from your DAW.

The level of the Talkback mic can also be remote controlled from Studio One, UC Surface, or by selecting the “c” (Comm) channel in the preamp control section and use the encoder to adjust the level(Quantum only).

点击 Talkback 按钮，在你的Quantum上启用Talk功能。然后你就可以在DAW的任何混音中打开Talkback麦克风。

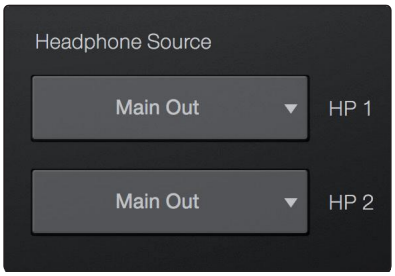
对讲麦克风的电平也可以从Studio One、UC Surface中远程控制，或者在前置放大器控制部分选择 "c"（Comm）通道，使用编码器来调整电平（仅适用于Quantum）。

Note: *Talkback must be routed to the output pair from your DAW and have its Talkback level above zero for it to heard through that output. If either has not been done, talkback cannot be heard in that output.*

注意： *对讲机必须被路由到DAW的输出对，并使其对讲机电平高于零，才能通过该输出听到它。如果没有做到这两点，就不能在该输出中听到对讲。*

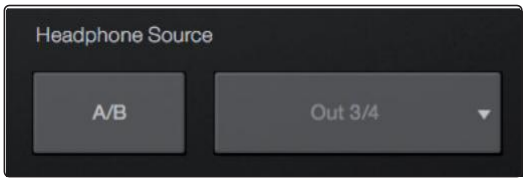
4.6 Headphone Select 耳机选择

The Headphone outputs on your Quantum-series interface feature independent DACs. For Quantum users, the source for both headphone outputs can be selected from any output pair. By default, both headphone outputs mirror the Main Left/Right mix.



你的Quantum系列接口上的耳机输出具有独立的 DAC。对于Quantum用户来说，两个耳机输出的来源可以从任何输出组中选择。默认情况下，两个耳机输出反映了主左/右混音。

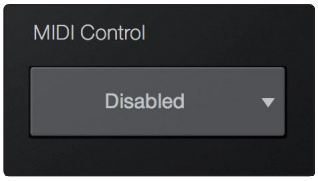
For Quantum 2 users, UC Surface allows you to select the "B" source from any output pair. The "A" source always mirrors outputs 1/2



Quantum 2用户，UC Surface 允许你从任何输出组中选择 "B "信号源。"A" 信号源总是反映输出的1/2

4.7 MIDI Control MIDI 控制

As previously mentioned, the preamps on your Quantum-series interface can be controlled via MIDI over Thunderbolt. This feature can be enabled and disabled from UC Surface.



如前所述，Quantum系列接口上的前置放大器可以通过Thunderbolt的MIDI控制。这个功能可以从UC表面启用和禁用。

The preamp functions on your Quantum-series interface can be controlled via MIDI from your DAW application, an external MIDI controller, both, or neither. Select 'Internal MIDI Only' if you only want your DAW to send and receive MIDI information to and from the preamp controls. Select 'External MIDI Only' if you would like to control your preamp functions from a MIDI device that is connected to the MIDI connections on the back of your Quantum-series interface. Select 'Enabled' to use both. Select 'Disabled' if you only want local control of your preamps.

Quantum系列接口的前置放大器功能可以通过DAW应用程序的MIDI控制，也可以通过外部MIDI控制器控制，或者两者都不控制。如果你只想让DAW发送和接收前级放大器控制的MIDI信息，请选择'Internal MIDI Only'。如果你想通过连接到Quantum系列接口背面的MIDI设备，来控制你的前置放大器功能，请选择 "External MIDI Only"。选择 "Enabled" 可以同时使用。如果你只想对你的前置放大器进行本地控制，请选择 "Disabled"。

Note: *Even when MIDI control is disabled, you can still control your preamp functions from UC Surface and Studio One.*

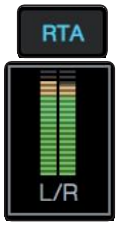
注意： *即使MIDI控制被禁用，你仍然可以从UC Surface和Studio One控制你的前置放大器功能。*

See Section 3.3 for the Quantum preamp MIDI mappings.

请参阅第3.3节，了解 Quantum前置放大器的MIDI 匹配度。

4.8 RTA

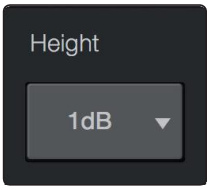
UC Surface provides a real-time analyzer (RTA) in which x = frequency and y = amplitude for every input and output. An RTA provides a close visual representation of what you are hearing. It provides a view of the long-term spectrum of the signal, such as the one third-octave spectrum long-term average 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，从屏幕的顶部选择其仪表。

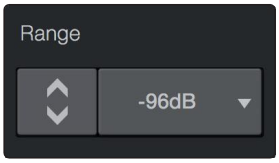


The Quantum RTA provides several customization features that allow you to view the RTA in the way that is most useful for your application.

Quantum RTA 提供了几个定制功能，对你的应用，你能够以最有用的方式查看RTA。

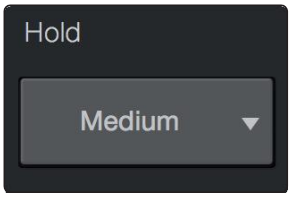
Height. This provides a more or less granular display for the RTA.

Height. 这为RTA提供了一个或多或少的细化显示。



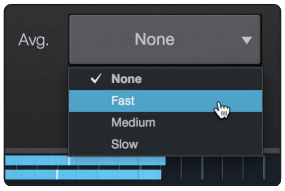
Range. Use the Range controls to set the upper and lower decibel limits that the RTA will display.

Range. 使用Range控制RTA将显示的上下限分贝的设置。



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

Hold. 使用该控制为RTA的每个频段设置峰值保持时间。

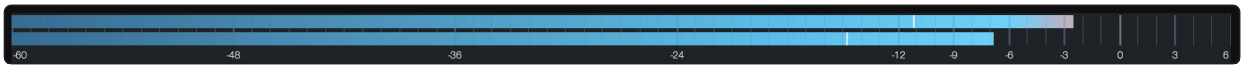


Average. Averaging is a mathematical process that takes multiple data samples and performs division to acquire a statistically more accurate calculation of the response. That's a technical way of saying that it slows down the "real-time" of a real-time analyzer.

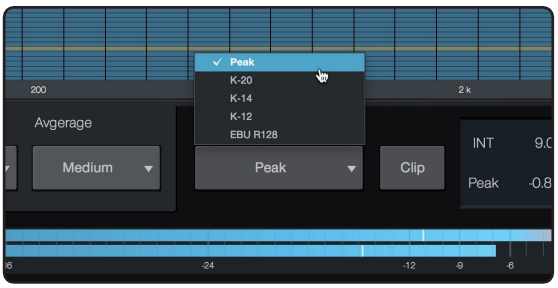
Average. 平均化是一个数学过程，它采取多个数据样本并进行除法，以获得统计上更准确的反应计算。这是一种技术上的说法，它减慢了实时分析仪的"real-time"。

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。这个仪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.



Meter Style. 这个菜单允许你改变在屏幕底部显示的输出计量的类型。

- **Peak.** This type of metering displays the instantaneous level of the audio signal.
- **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.
- **EBU R128.** Displays the perceived loudness of the signal based on the EBU R128 standard.

- **Peak.** 这种类型的计量显示的是音频信号的瞬时电平。
- **K-20, K-14, and K-12.** K-System测量显示响度测量和动态范围。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.** 显示基于EBU R128标准的信号的感知响度。

5 Aggregating Devices

Up to four Quantum interfaces can be aggregated together for combined 104 inputs and 128 outputs at 44.1 and 48 kHz.

多达四个Quantum接口可以聚合在一起，在44.1和48kHz下，实现104个输入和128个输出。

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，你可以通过Device Tab 按下Identify按钮，轻松找到连接到电脑上的每个Quantum接口。这将使电源按钮闪烁紫色。

5.1 macOS

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

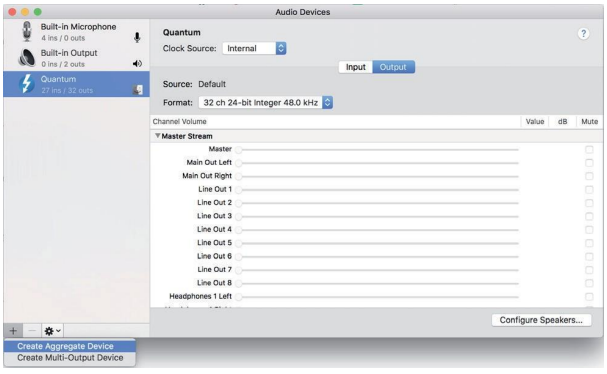
   首先将你想用作 master clock 的Quantum系列音频接口连接到你的电脑。

2. Launch Audio MIDI Setup.

   启动音频 MIDI 设置。

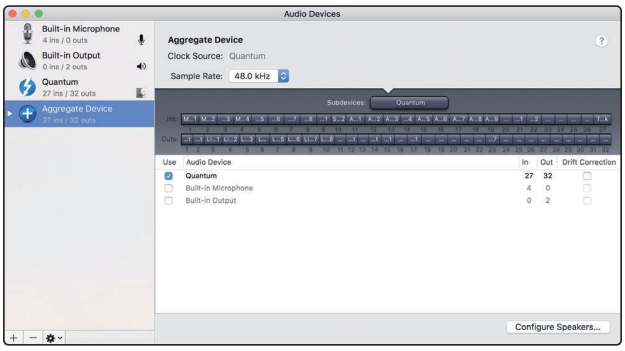
3. Select Quantum or Quantum 2, and click on the plus sign in the lower left hand corner. Select "Create Aggregate Device."

   选择 Quantum或 Quantum 2，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Quantum系列音频接口左边的使用框。

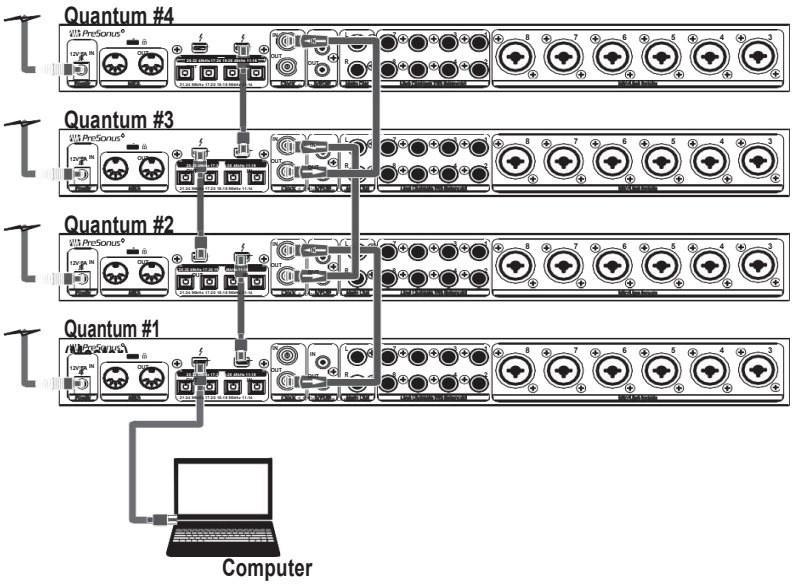

Audio Devices
Built-in Microphone
4 ins / 0 outs
Built-in Output
0 ins / 2 outs
Quantum
27 ins / 32 outs
Aggregate Device
27 ins / 32 outs
Aggregate Device
Clock Source: Quantum
Sample Rate: 48.0 kHz
Subdevices: Quantum
Use
Audio Device
In
Out
Drift Correction
Quantum 27 32
Built-in Microphone 4 0
Built-in Output 0 2
Configure Speakers...

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 daisy-chain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 Master Clock，并设置其他单元使用BNC来跟随。



Your Quantum system is now ready to use.

你的Quantum系统已经可以使用了。

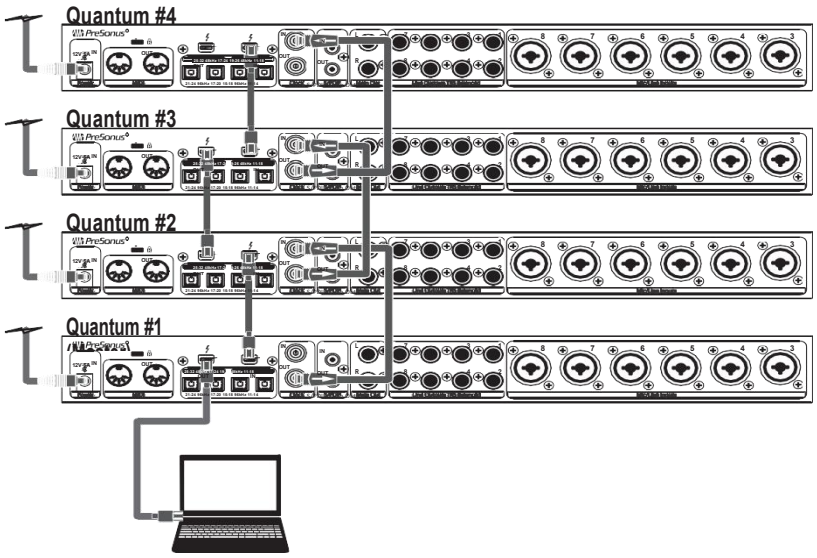
5.2 Windows

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

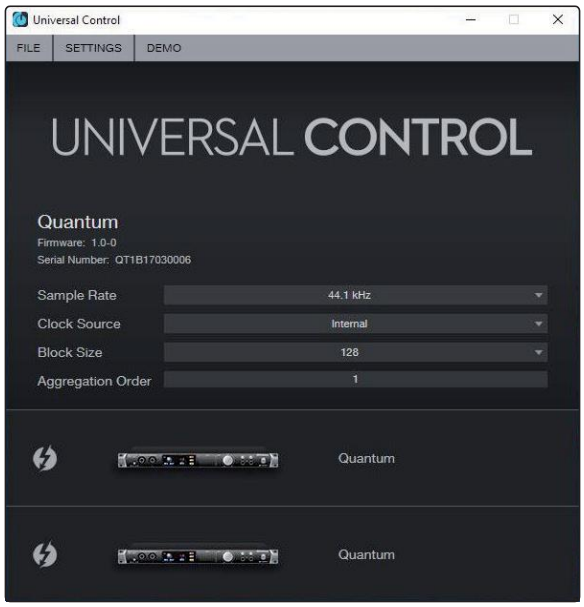
   将你的Quantum音频接口连接到你的电脑，并启动Universal Control。

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

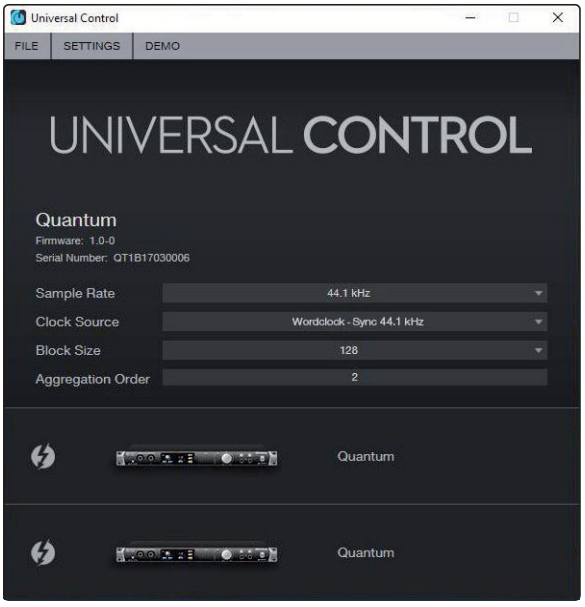
   请注意： *你的 Quantum 音频接口必须通过 BNC 相互时钟连接，并且必须指定一个设备作为主控。*



2. Select the Quantum interface you would like to use as the first bank of channels and set the priority to "1."
选择你想用来作为第一组通道的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 Clock 源设置为 Wordclock。

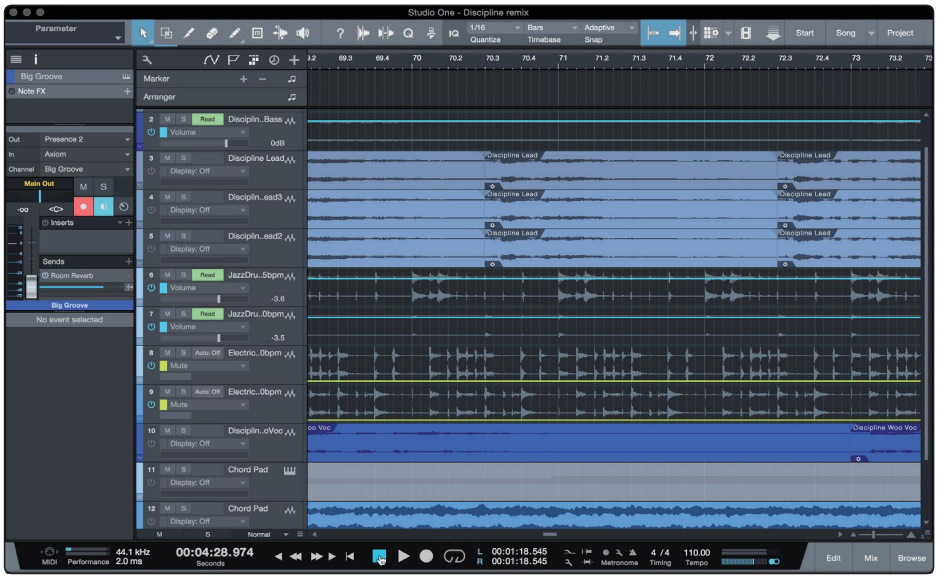


4. If you are connected three or four Quantum interfaces, you will repeat step 3 and set the priority to 3 and 4 respectively.
如果你连接了三个或四个Quantum接口，你将重复步骤"3"，并分别设置优先级为"3和4"。

Your Quantum system is now ready to use.

你的Quantum系统现在可以使用了。

6 Studio One Artist Quick Start Studio One Artist快速启动



All PreSonus professional recording products come with Studio One Artist recording and production software. Whether you are about to record your first album or your fiftieth, Studio One Artist provides you with all of the tools necessary to capture and mix a great performance. PreSonus audio interfaces also have access to advanced functions in Studio One's exclusive Cue Mix feature for PreSonus interfaces.

所有 PreSonus 专业录音产品都配有Studio One Artist录音和制作软件。无论你是准备录制你的第一张专辑还是第五十张专辑，Studio One Artist 都能为你提供所有必要的工具，来捕捉和混合精彩的表演。 PreSonus 音频接口还可以使用 Studio One，提供给PreSonus接口独家的 Cue Mix 功能中的高级功能。

Power User Tip: *As a valued PreSonus customer, you are eligible for a discount upgrade to Studio One Professional. For more details on the Studio One upgrade program for PreSonus customers, please visit http://studioone.presonus.com/.*

用户提示：*作为 PreSonus的重要客户，你有资格以折扣价升级到Studio One Professional。关于 PreSonus客户的 Studio One升级计划的更多细节，请访问 PreSonus 官方 http://studioone.presonus.com/*

6.1 Installation and Authorization 安装和授权

Once you have installed the drivers for your audio interface and connected it to your computer, you can use the included PreSonus Studio One Artist music-production software to begin recording, mixing, and producing your music. To install Studio One Artist, log into your My PreSonus account and register your interface. Your product key for Studio One Artist will automatically be registered to your My PreSonus account with your hardware registration.

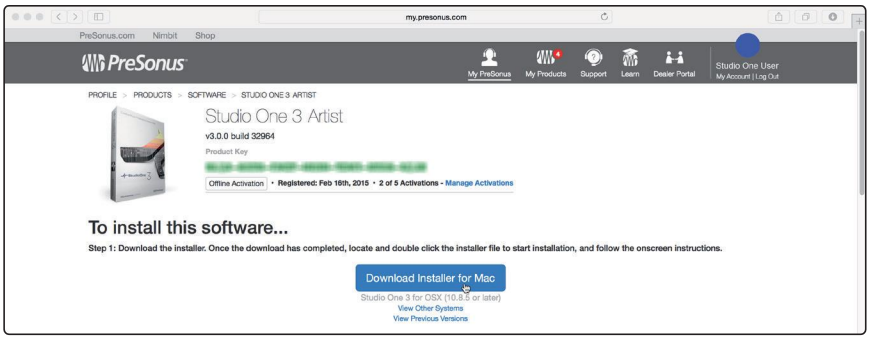
一旦你安装了音频接口的驱动程序，并将其连接到电脑上，这样就可以使用附带的PreSonus Studio One Artist音乐制作软件，开始录音、混音和制作音乐。要安装 Studio One Artist，请登录你的 My PreSonus 帐户并注册你的接口。你的 Studio One Artist 的产品密钥将随着你的硬件注册而自动注册到你的 My PreSonus 帐户中。

Downloading and running the Studio One installer.

下载并运行Studio One安装程序。

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

要安装Studio One Artist，请从你的My PreSonus账户下载Studio One Artist安装程序，并安装到你要使用的电脑上。



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

Authorizing Studio One

授权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.

你的电脑第一次启动 Studio One 时，它将与你的My PreSonus账户进行相连，并验证你的注册。为了无缝的授权过程，请确保将安装程序下载到你将要使用的电脑上，并确定你的电脑在第一次启动应用程序时，与互联网链接。

Installing bundled content for Studio One Artist.

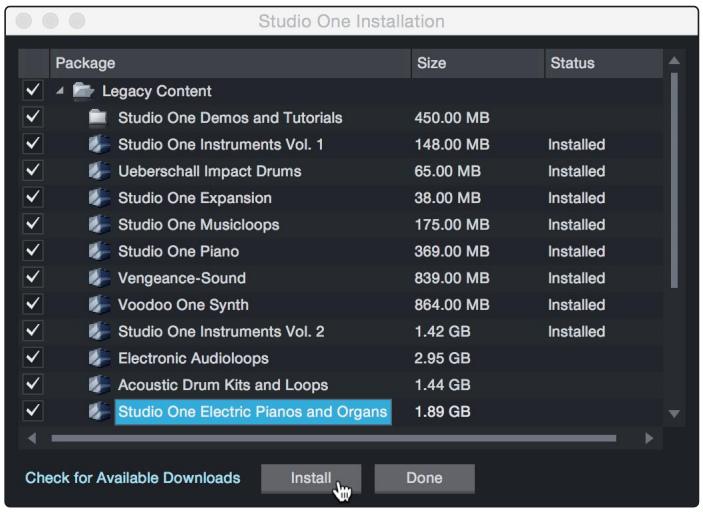
安装Studio One Artist的捆绑内容

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

Studio One Artist捆绑了一系列的演示和教程材料、乐器、loops和样本。Studio One Artist 捆绑包包括了你开始制作音乐所需的所有东西。

The first time you launch Studio One Artist, 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.

当你第一次启动 Studio One Artist 时，会提示你安装其配套内容。选择你想添加的内容，点击 "Install"。该内容将会自动开始从你的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： *可能会提示你输入 "My PreSonus" 用户账户信息。点击 "Remember Credential " 你能够立即访问从 PreSonusMarketplace 购买的任何内容。*

6.2 Setting Up Studio One 设置Studio One

Studio One Artist was designed to work with PreSonus interfaces and provides unique interoperability and simplified setup. When Studio One Artist 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 Artist 的设计是可以与PreSonus接口一起使用，并提供独特的互操作性和简化的设置。默认情况下，当 Studio One Artist 启动时，你会被带到 "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库，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网站上新教程的出现而更新，确保你的电脑与互联网连接。

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

关于Studio One Artist各方面的完整信息，可以在 Studio One的《参考手册》PDF中找到。本教程中的信息只包括Studio One Artist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 Artist automatically scans your system for all available drivers and selects a driver. By default, it will choose a PreSonus driver if one is available.

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

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.

   如果你启动 Studio One 时，你的设备没有列在 "Start"页面上，点击设置区的 "Configure Audio Devices" 配置音频设备链接，打开选项窗口。

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

   在选项窗口中，点击音频设置标签，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设备

From the External Devices window in Studio One Artist, 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.

从Studio One Artist的 " External Devices " 窗口中，你可以配置你的MIDI键盘控制器、声音模块和控制面。本节将指导你如何设置你的MIDI键盘控制器和声音模块。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，你必须为这些设备安装所需的所有驱动程序。请查阅你的MIDI硬件附带的文件，以获得完整的安装说明。

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

如果你没有任何 MIDI 设备，请跳到第 6.3 节

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

从 "Start "页面设置一个外部 MIDI键盘控制器。

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 Artist, 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 Artist 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键盘控制器是一个硬件设备，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 Artist中，这些设备被称为键盘，它们必须经过配置才能使用。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 Artist 将控制器和音色生成功能视为两个不同的设备；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。

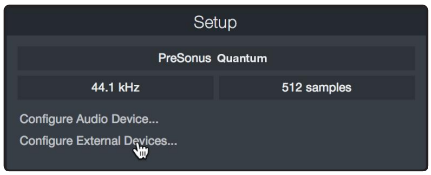
You can set up your external MIDI devices from the Setup area in the Start page. Before setting up a new Song for recording, take a moment to configure external devices.
你可以在 " Start" 页面的 "Setup"区域设置你的外部MIDI设备。在设置新歌曲进行录音之前，花点时间来配置外部设备。

Make sure you have connected the MIDI Out of your external MIDI controller to a MIDI In on your PreSonus audio interface (if available) or other MIDI interface. If you are using a USB MIDI controller, connect it to your computer and power it on.

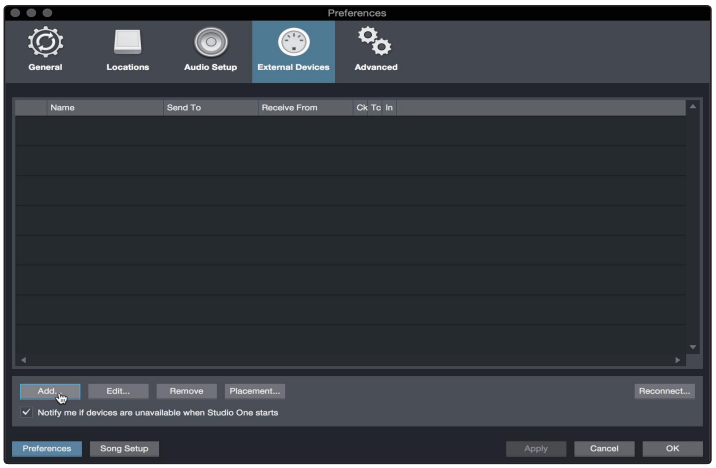
确保你已经把外部MIDI控制器的MIDI输出连接到PreSonus音频接口（如果有的话），或其他MIDI接口的MIDI输入。如果你使用的是USB MIDI控制器，请将它连接到你的电脑上，并接通电源。

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

   点击 "开始 "页面设置区的 "配置外部设备 "链接，启动 "外部设备 "窗口。

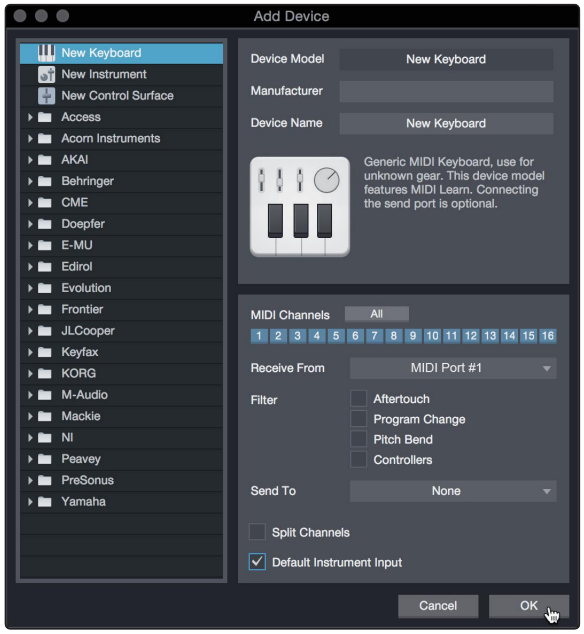


2. Click the Add button. This will launch the Add Device window.



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.



从左边的菜单中，从制造商和型号的列表中选择你的MIDI控制器。如果你的MIDI控制器没有被列出，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.

需要你指定哪些MIDI通道是用来与该键盘相连的。在大多数情况下，你应该选择所有的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忽略触屏、弯音、程序变化或所有CC信息，请启用这些信息的过滤功能。

6. In the Receive From drop-down menu, select the MIDI interface input from which Studio One Artist 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 Artist 接收 MIDI 数据的MIDI接口输入（也就是你键盘所连接的 MIDI 端口）。

   Power User Tip: *In the Send To drop-down menu, select the MIDI interface output from which your Studio One Artist 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 Artist 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，你可以不选择此项。*

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 Artist.

   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 Inpu" 方框。这将自动分配你的键盘来控制Studio One Artist中的所有MIDI设备。

8. Click OK.

   点击 "OK"。

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" 外部设备窗口打开，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.

从 "Start" 页设置一个外部 MIDI 声音模块。

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 Artist refers to all tone generators as Instruments. Once you have set up your MIDI keyboard controller, take a moment to configure your sound module.

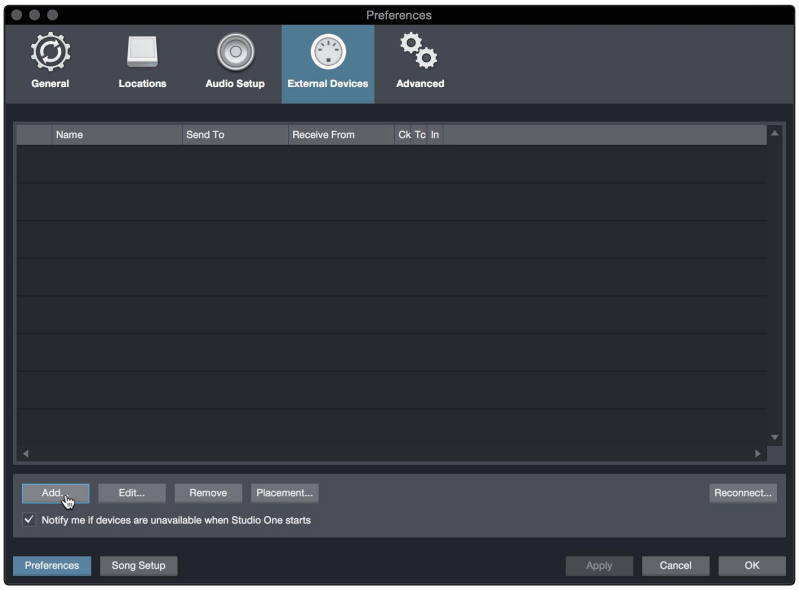
MIDI乐器控制器（键盘、MIDI吉他等）以MIDI数据的形式向音色模块和虚拟乐器发送音乐信息，它们按照指示通过产生声音作出反应。音色模块可以是独立的声音设备，也可以集成到一个MIDI乐器中，如键盘合成器。Studio One Artist 把所有的音色发生器都称为乐器。一旦你设置好了你的MIDI键盘控制器，要花点时间来配置你的声音模块。

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

确保你已经把你的外部声音模块的MIDI输入连接到你的MIDI接口的MIDI输出。

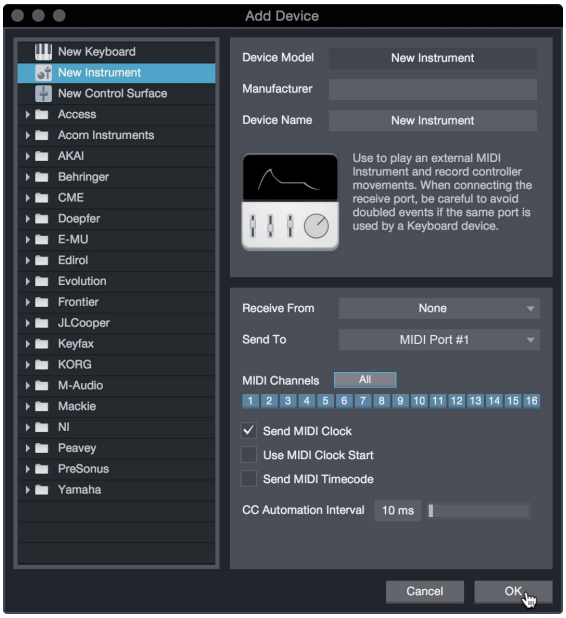
1. In the External Devices window, click the Add button.

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



2. 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设备。如果没有列出你的设备，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。



3. 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通信。在大多数情况下，你应该选择所有的MIDI通道。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。

4. In the Send To menu, select the MIDI interface output from which Studio One Artist 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 Artist.

   在 "Send To" 菜单中，选择MIDI接口输出，Studio One Artist将从该接口发送MIDI数据到你的声音模块。点击确定，关闭 "External Devices" 窗口。你现在准备好。开始在Studio One Artist中录音。

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 Artist environment.

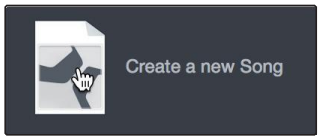
本快速入门指南的其余部分将介绍如何设置歌曲，并将讨论一些在 Studio One Artist 环境中，导航的通常工作流程提示。

6.3 Creating a New Song 建立一首新歌曲

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，你已经配置了你的音频和MIDI设备，让我们来创建一个新的歌曲。将从设置你的默认音频输入/输出开始。

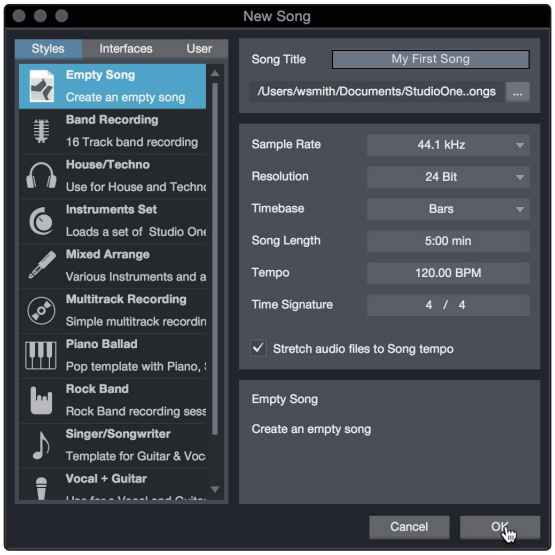
1. From the Start page, select Create a New Song.



从 "Start" 页面，选择 "Create a New Song."。

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情况提供快速设置。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.

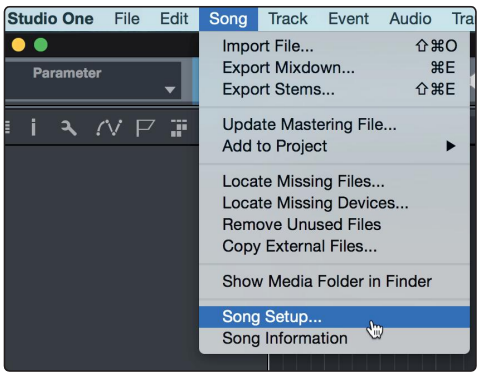
   从模板列表中选择空的歌曲。在这一点上，你应该给你的歌曲起个名字，并选择你喜欢的采样率和比特深度来进行录音和播放。你还可以设置歌曲的长度和你希望时间线遵循的时间格式类型（记号条、秒、样本或帧）。完成后，点击 "OK" 按钮。

PowerUser 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 "Stretch Audio Files "选项。这将自动以正确的 BPM 导入循环。*

6.3.1 Configuring Your I/O 配置你的输入 / 输出

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



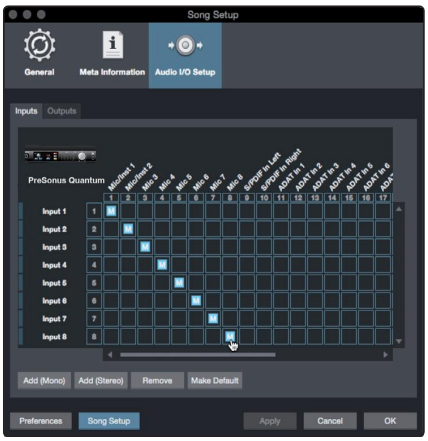
   点击歌曲|歌曲设置，设置你的采样率和分辨率，配置你的音频I/O。

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选项卡上，你可以启用 PreSonus Quantum 音频接口上的任何或所有你想要的输入。我们建议为你的音频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。

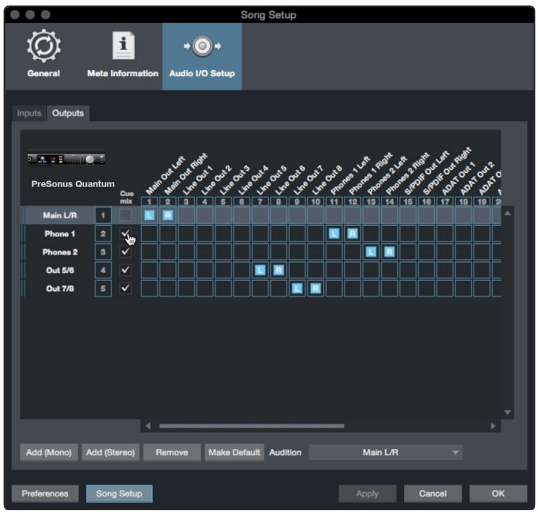


PowerUser Tip: *If you plan on using the Talkback mic, you will need to enable it as an input for your session and create a track for it.*

用户提示：*如果你打算使用对讲系统，你需要为会话做一个输入，并为它创建一个轨道。*

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 Artist. In general, you will want this to be the main output bus.

   点击 " Outputs"选项卡，启用Quantum音频接口上的任何或所有输出。在右下角，你会看到试听选择菜单。将音频文件导入 Studio One Artist 之前，你可以选择用于试听的输出。一般来说，你希望这是主输出总线。



PowerUser 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：*如果你想让这个I/O配置在你每次打开Studio One时都是一样的，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组为 "Cue Mix" 输出。点击你想用作监听混合输出的任何输出，对旁边的"Cue Mix" 方框，以启用这一功能。

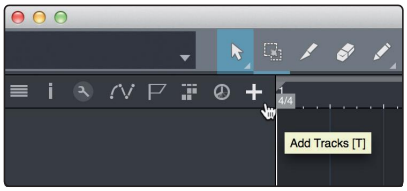
For more information, ***see Section 6.4***.

更多信息，**见第6.4节。**

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 "Arrange" 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。点击这个按钮可以打开 "Add Tracks" 窗口。

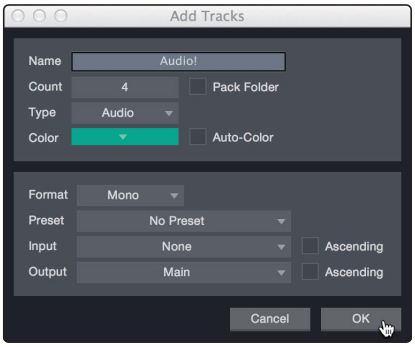


2. In the Add Tracks window, you can customize the track name and color, add a preset rack of effects, and set the physical source for the input and output of your audio tracks. Most important, you can select the number and type of tracks you'd like to create.

   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，请创建一个将对讲机输入（Input27）设置为信号源的轨道。这样你可以将它路由到你的Cue Mix输出。****见第6.5节。***



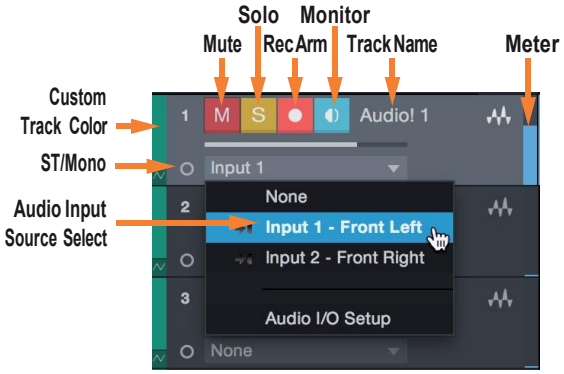
- **Audio.** Use this track type to record and playback audio files.
- **Instrument.** Use this track to record and playback MIDI data to control external MIDI devices or Virtual Instrument plug-ins.
- **Automation.** This track type lets you create automated parameter controls for your session.
- **Folder.** 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 音轨结构图:



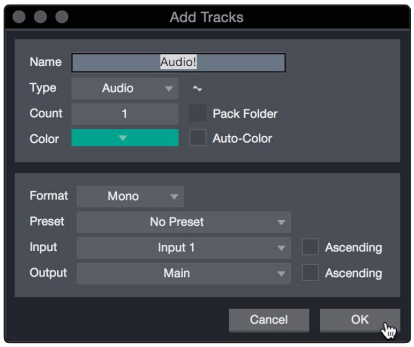
Note: *MIDI tracks are nearly identical to Audio tracks. The Input Source list for MIDI tracks lists available external MIDI devices as well as any virtual instruments that have been added to the Song.*

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。*

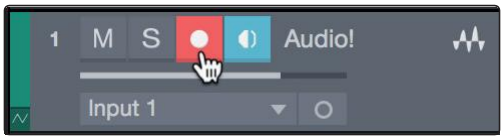
6.3.3 Recording an Audio Track

1. To begin recording, create an audio track from the Add Tracks window, set its input to Input 1 on your Quantum-series interface, and connect a microphone 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系列接口的输入1，并将麦克风连接到同一输入。



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 Artist react to the input. Adjust the gain so the input level is near its maximum without clipping (distorting).



选择轨道上的Record Enable。对着麦克风说话/唱歌时，调高音频接口上的输入1电平。你应该看到在Studio One Artist中的输入计量，对输入的反应。调整增益，使输入电平接近其最大值而不发生削波（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***.

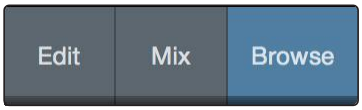
你现在可以开始录音了。有关完整的说明，***请查阅位于"Help" 中的"Studio One Reference manual"| Studio One 参考手册。***

6.3.4 Adding Virtual Instruments and Effects 添加虚拟乐器和效果

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.

你可以通过从浏览器中拖放插件和乐器来添加你的歌曲。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. 打开浏览器



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

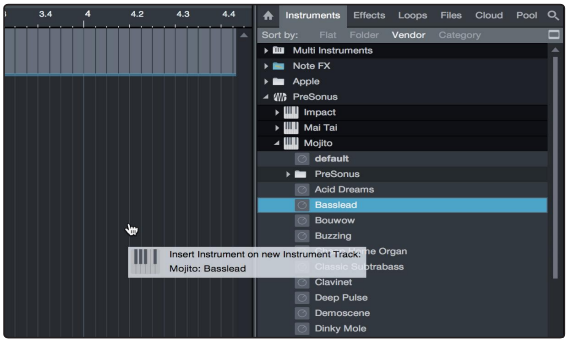
- The **Edit** button opens and closes the audio and MIDI editors.
- The **Mix** button opens and closes the Mixer window.
- The **Browse** button opens the browser, which displays all of the available virtual instruments, plug-in effects, audio files, and MIDI files, as well as the pool of audio files loaded into the current session.

在 Arrange 窗口的右下角有三个按钮：

- **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** 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. 拖放虚拟乐器

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 Artist will automatically create a new track and load the instrument as the input.

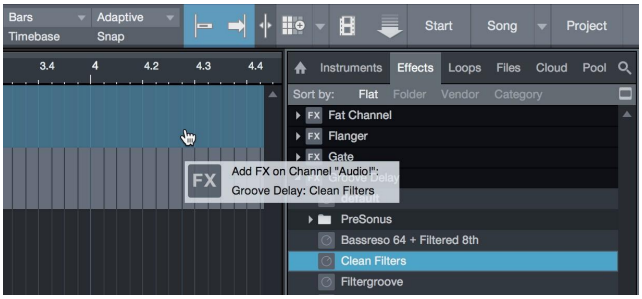


要在你的会话中添加一个虚拟乐器，打开浏览器并点击Instrument 按钮。从乐器浏览器中，选择乐器或它的一个补丁，然后把它拖到编曲视图中。Studio One Artist会自动创建一个新的音轨，并将该乐器作为输入载入。

Drag-and-drop effects. 拖放效果

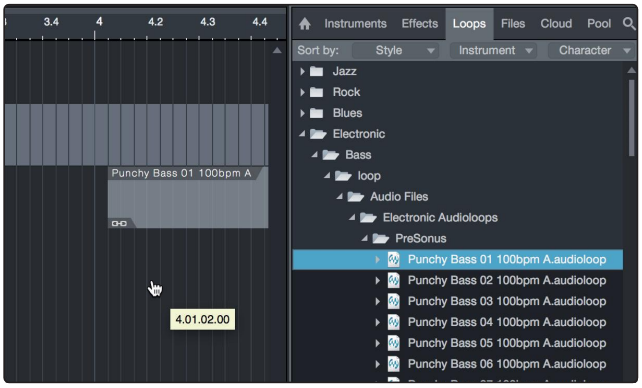
To add a plug-in effect to a track, click the Effects button in the browser and select the plug-in or one of its presets in the effects browser. Drag-and-drop the selection over the track to which you would like to add the effect.

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该插件或其预置之一。在你想添加效果的轨道上拖放选择。



Drag-and-drop audio and MIDI files.拖放音频和MIDI文件

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.



通过将音频和MIDI文件，从文件浏览器拖入编曲视图，可以快速定位、试听并导入到歌曲中。如果你把文件拖到一个空位上，就会创建一个新的轨道，把该文件放在你拖动的位置上。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 Integrated Quantum Controls 集成的Quantum控制

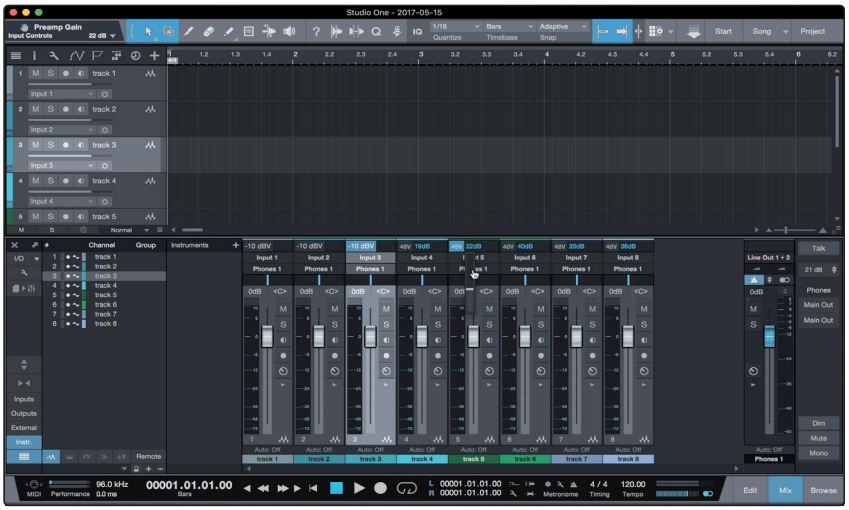
You can control the hardware functions of your Quantum interface from within Studio One.

你可以在Studio One中，控制你的Quantum接口硬件功能。

6.4.1 Preamp Controls 前置放大器控制

As soon as you set an analog Quantum input as the input source for a track in Studio One, you'll find its preamp controls in the Studio One mixer. If a DigiMax DP88 is connected to the ADAT inputs on your Quantum, you'll find these controls available for those inputs as well.

只要你在Studio One中，把模拟Quantum输入设置为一个音轨的输入源，你就会在Studio One混音器中发现它的前置放大器控制。如果DigiMax DP88连接到Quantum的ADAT输入，你会发现这些控制也可以用于这些输入。



You can choose to hide the preamp controls for your Quantum interface from the Console Options menu. Simply uncheck the box next to "Show audio device controls."

你可以在"Console Options"选项菜单中，选择隐藏你的Quantum接口的前置放大器控制。只需取消勾选 "Show audio device controls "旁边的方框。

***Note:** Because preamp control for the DigiMax DP88 is bidirectional, both the ADAT input and the ADAT output must be connected in order for Studio One to display its preamp controls.*

***注意：** 由于DigiMax DP88的前置放大器控制是双向的，必须同时连接ADAT输入和ADAT输出，以便Studio One显示其前置放大器控制。*

6.4.2 Talkback and Monitoring 对讲和监听

1. **Talk Button (Quantum).** Use this to engage the Talk function. This will route the onboard talkback microphone to the cue mix outputs.
2. **Talkback Level (Quantum).** Sets the level of the onboard talkback microphone.
3. **Headphone Source.** For Quantum users, you can set the source for both headphone outputs. For Quantum 2 users, you can select the "B" source for your headphones. These outputs can also be accessed from the audio outputs list inside Studio One or UC Surface.
4. **Dim (Quantum).** Lowers the output level of the Main Left / Right Outputs by 20 dB.
5. **Mute (Quantum).** Mutes the Main Left / Right Outputs.
6. **Mono (Quantum).** Sums the stereo Main Left / Right Output signal to mono.

1. **TalkButton（Quantum）**。用它来启动通话功能。这将会把板载的通话麦克风传送到cut mix 提示混音输出。
2. **Talkback Level (Quantum).**设置板载对讲机的电平。
3. **Headphone Source.**对于Quantum用户，你可以设置两个耳机输出的来源，对于Quantum 2用户，可以为你的耳机选择 "B " 源。这些输出也可以从Studio One或UC Surface的音频输出列表中访问。
4. **Dim (Quantum).** 将主左/右输出的输出电平降低20dB。
5. **Mute(Quantum)**。将主左/右输出静音。
6. **MONO(Quantum)**。将立体声主左/右输出信号合成为单声道。

6.5 Monitor Mixing in Studio One 在Studio One 中监听混音

You can set up monitor mixes with your Quantum interface using Studio One's unique Cue Mix feature. This feature takes over the monitor mix control software for your Quantum-series interface and provides level and pan control from within Studio One. 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，为你的Quantum接口设置监听混音。这项功能管理你的Quantum系列接口的监听混音控制软件，并在Studio One中，提供电平和pan控制。只要指定一对或几对输出为cue mix提示混音，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 on your Quantum (Mains, Headphones, General Purpose, ADAT, or S/PDIF). You simply need to create an output bus and enable Cue Mix.

你可以创建一个cue mix，并将其发送到Quantum的任何输出（主电源、耳机、通用、ADAT或S/PDIF）。你只需要创建一个输出总线并启用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cue mix 。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，在控制台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 Cue Mix 功能

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.

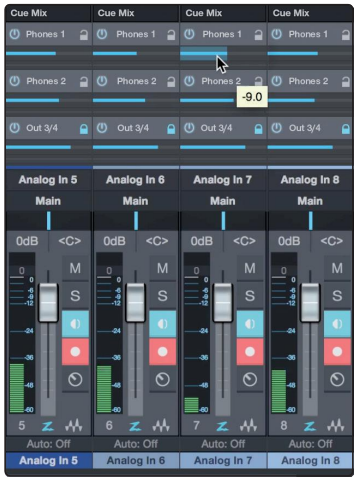
In the Small Console view, Cue Mix objects appear in the far left column of the extended channel.

一旦你创建了一个提示混合输出，你会注意到控制台的通道中，有一个特殊的发送对象。这个发送对象被称为Cue Mix对象。

在Small Console视图中，Cue Mix对象出现在扩展通道的最左边一列。

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对象出现在每个通道的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 locBy 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对象。在大多数情况下，你会保留这个功能。

Horizontal Level Fader. 这是该通道的提示混合音量控制。默认情况下，这个电平将与该通道音量推子上设置的电平相同。一旦你移动了提示混音音量推子，该通道在Cue Mix中的音量，将独立于会话中的主混音或任何其他提示混音。

Pan Control. 这是设置通道在提示混音输出中的pan位置。像音量一样，平移默认情况下，与主混音是相同的。

Lock to Channel button. 默认情况下，锁定通道的按钮被启用，电平和pan值被锁定到主混音的通道电平和pan控制上。这意味着每个提示混音将与调音台中的主混音相同。改变主混音的电平或pan将改变提示混音的电平或平移。然而，改变Cue Mix对象中的电平或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pan。因此，提示混音中的通道的电平和声音的位置，可以与主混音中的相关电平和声音的位置完全不同。在任何时候，你都可以通过点击Lock to Channel按钮，将Cue Mix的电平和pan锁定到通道设置上。

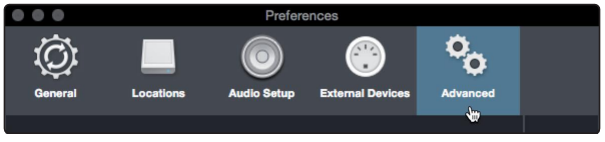
6.5.2 Punching In 开始录音

The Quantum'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与Studio One的独特集成和超低延迟性能，可以使Punching In 比以往更容易。本节将指导你如何设置它，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。

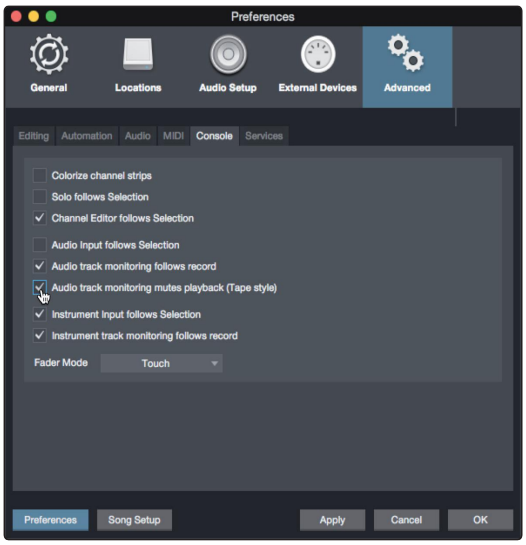
1. Before you begin, go to Studio One>Preferences and click on the Advanced tab.

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 Console preference（控制台偏好）选项卡上，选中 "Audio track monitoring mutes playback (Tape Style) "旁边的方框。这将允许你在 Punch in 期间，可以使用Cue Mix来监听。点击Apply应用，然后确定。

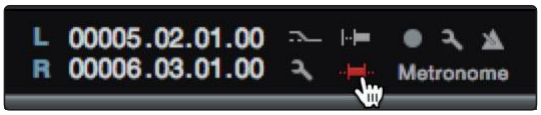


3. After you have recorded your audio, set the punch in and out points in the timeline.

   在你录制完音频后，在时间轴上设置"punch in and out" 开始/停止录音.

4. Enable the Autopunch button the left of the Metronome settings in the transport.

   启用传输工具中，启动节拍器设置左侧的"Autopunch" 按钮。



5. Record Arm your track, making sure to disable input monitoring.

   录制Arm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.
现在你已经准备 punch in。仅需倒退到你想开始歌曲中的位置，然后点击录音。

7 Technical Information 技术信息

7.1 Specifications 规格

Microphone Preamp (XLR Balanced)

Type	XLR Female (via Combo), Balanced Remote
Maximum Input level	+10 dBu (Balanced, min. gain)
Gain Control Range	60 dB
Frequency Response	20 Hz to 20 kHz (+/- 0.15 dB, unity gain, 48 kHz) 20 Hz to 40 kHz (+/- 0.22 dB, unity gain, 96 kHz)
Dynamic Range	> 110 dB
THD+N (min. gain, A-wtd)	< 0.005%
Input Impedance	1600Ω
EIN (max gain, 40Ω, 22 kHz BW, A-wtd)	< -131 dBu
Input Impedance	1.6kΩ
Phantom Power	+48V, > 8 mA per channel

Instrument Inputs

Type	¼" TS Female (via Combo), Unbalanced
Maximum Input Level	+15 dBu
Gain Control Range	60 dB
Frequency Response	20 Hz to 20 kHz (+/- 0.15 dB, unity gain, 48 kHz) 20 Hz to 40 kHz (+/- 0.22 dB, unity gain, 96 kHz)
Dynamic Range (min. gain, A-wtd)	> 106 dB
Dynamic Range (mid. Gain, unwtd)	> 105 dB
THD+N (min. gain)	< 0.005%
Input Impedance	> 1 MΩ

Line Inputs

Type	¼" TRS Female (via Combo), Balanced
Maximum Input Level	+18 dBu (Balanced, min. gain)
Frequency Response	20 Hz to 20 kHz (+/- 0.15 dB, unity gain, 48 kHz) 20 Hz to 40 kHz (+/- 0.22 dB, unity gain, 96 kHz)
Dynamic Range (min. gain, A-wtd)	> 118 dB
THD+N (1 kHz, min. gain)	< 0.005%
Input Impedance	10 kΩ

Main and Line Outputs

Type	¼" TRS Female, Impedance Balanced
Maximum Output Level	+18 dBu
Frequency Response	20 Hz to 20 kHz (+/- 0.15 dB, unity gain, 48 kHz) 20 Hz to 40 kHz (+/- 0.22 dB, unity gain, 96 kHz)
Dynamic Range (A-wtd)	> 118 dB
THD+N	< 0.0035% (1 kHz, +4 dBu)
Output Impedance	51Ω

Headphone Outputs

Type	1/4" TRS Female, Stereo, Unbalanced, (x2 Quantum, x1 Quantum 2)
Maximum Output Level	175 mW / channel (56Ω load)
Frequency Response	20 Hz to 20 kHz (+/- 0.5 dB, 48 kHz)
Dynamic Range (A-wtd)	> 110 dB
THD+N	< 0.03% (1 kHz)
Headphone Impedance (working range)	16Ω to 300Ω

Crosstalk

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

Internal Talkback Microphone

Type	Electret Condenser
Sensitivity	-42 dB

Signal Level LEDs

Signal 1	-50 dBFS
Signal 2	-30 dBFS
Signal 3	-20 dBFS
Signal 4	-10 dBFS
Signal 5	-6 dBFS
Signal 6	-4 dBFS
Signal 7	-2 dBFS
Clip	-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	>60 dB (1 ns in => 1 ps out)

Limitation of Implied Warranties隐含担保的限制

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

任何默示保证，包括对适销性和特定用途的适用性的保证，在时间上仅限于本保证的长度。

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.
一些州、国家或省不允许限制隐含担保的持续时间，因此上述限制可能不适用于你。

Addedbonus:PreSonus'previouslyTop Secretrecipefor...Redfish Couvillion

额外的奖励：PreSonus以前的绝密配方是：... Couvillion 红鱼

Ingredients 成分:

- ¼ CVegetable oil
- ¼ C flour
- 1 onion diced
- 1 clove garlic minced
- 1 green pepper diced
- 3 celery stalks diced
- 1 14oz can diced tomatoes
- 1 bottle light beer
- 2 bayleaves
- 1 tsp thyme
- 2 lbs Redfish fillets

- 1/4 C 植物油
- 1/4 C 面粉
- 1个洋葱切丁
- 1 瓣大蒜切碎
- 1个青椒切丁
- 3根芹菜茎切丁
- 1个14盎司的西红柿丁罐头
- 1瓶淡啤酒
- 2片月桂叶
- 1茶匙百里香
- 2磅红鱼片

Cooking Instructions 烹饪说明:

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 occasionally. 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. 在一口大平底锅中，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，直到它开始变成棕色，形成深金色的面团。

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 供6-8人食用

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 Redfish Couvillion 是我们食用海湾鱼最喜欢的一种食用方法。也被称为红鱼或红鼓，捕捉红鱼不仅有趣，味道也非常美味的!

Quantum-series

Ultra-low latency Thunderbolt™ Audio Interfaces and Studio Command Centers 超低延迟 Thunderbolt™音频接口与Studio Command Centers

Owner's Manual 用户手册

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