MOTU AVB Switch
User Guide

MOTU®

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SAFETY PRECAUTIONS AND ELECTRICAL REQUIREMENTS FOR THE MOTU AVB SWITCH ("PRODUCT")

CAUTION! Read this Safety Guide before you begin installation or operation. Failure to comply with safety instructions could result in bodily injury or equipment damage.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

HAZARDOUS VOLTAGES: Contact may cause electric shock or burn. Turn off unit before servicing.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR OTHER MOISTURE.

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER OR FACEPLATES. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

IMPORTANT SAFEGUARDS

1. Read these instructions. All the safety and operating instructions should be read before operating the product.
2. Keep these instructions. These safety instructions and the product owner's manual should be retained for future reference.
3. Heed all warnings. All warnings on the product and in the owner's manual should be adhered to.
4. Follow all Instructions. All operating and use instructions should be followed.
5. Do not use the product near water. Do not place objects containing liquids on it. Do not handle the power supply with wet hands.
6. Cleaning — Unplug the product from the power supply and clean only with a dry cloth. Do not use liquid or aerosol cleaners.
7. Ventilation — Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Heat — Do not install the product near any heat sources such as radiators, heat registers, stoves, heat-producing power amplifiers or other apparatus that produce heat. Operating Temperature: 10°C to 40°C (50°F to 104°). Observe the maximum ambient operating temperature.
9. Power Sources — The product should be operated only from the type of power source indicated on the marking label. Refer to the manufacturer's operating instructions for power requirements.
10. Power supply cord — Protect the product power supply cord from being walked on or pinched by items placed on or against it.
11. Disconnect — The main power supply plug is considered to be the disconnect device for the product and shall remain readily operable.
12. Accessories — Only use attachments/accessories specified by the manufacturer.
13. Surge protection — Unplug the product during lightning storms or when unused for long periods of time.
14. Servicing — Do not attempt to service this product yourself as opening or removing covers will expose you to dangerous voltage and other hazards. Refer all servicing to qualified service personnel.
15. Damage requiring service — Unplug the product from the power supply and refer servicing to qualified technicians under these conditions:
    a. When the power supply plug is damaged.
    b. If liquid has been spilled or objects have fallen into the product.
    c. If the product has been exposed to rain or water.
    d. If the product does not operate normally by following the operating instructions in the owner's manual.
    e. If the product has been dropped or the enclosure has been damaged.
    f. When the product exhibits a distinct change in performance, this indicates a need for service.
16. Replacement Parts — When replacement parts are required, be sure the service technician has used parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
17. Safety Check — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating conditions.

FCC COMPLIANCE

This equipment has been type tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by any combination of the following measures:

- Relocate or reorient the receiving antenna
- Increase the separation between the equipment and the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

WARNING: Changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

If necessary, you can consult a dealer or experienced radio/television technician for additional assistance. PLEASE NOTE: only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and it must have shielded interface cables in order to comply with the Class B FCC limits on RF emissions. WARNING: changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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UPDATE POLICY

In order to be eligible to obtain updates of the program, you must complete and return the attached Mark of the Unicorn Purchaser Registration Card to MOTU.

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Limited Warranty on Hardware

Mark of the Unicorn, Inc. ("MOTU") warrants this equipment against defects in materials and workmanship under normal use for a period of TWO (2) YEARS from the date of original retail purchase. The Warranty Term begins on the date of purchase from an authorized MOTU reseller and applies solely to the original retail purchaser, who must activate the warranty by creating a user account at motu.com to register the product within 90 days of purchase. This warranty applies only to hardware products; MOTU software is licensed and warranted pursuant to separate written statements.

If you discover a defect, first contact MOTU technical support by phone, email or web (motu.com/support) to verify the warranty on your MOTU equipment and obtain a Return Merchandise Authorization (RMA). No service will be performed on any product returned without prior authorization. MOTU will, at its option, repair or replace the product at no charge to you, provided you return it during the warranty period as instructed by MOTU, with transportation charges prepaid. If you purchased your equipment in any country other than the US or Canada, you will be instructed to return the equipment to an authorized MOTU distributor or representative in the country of purchase. You must use the product's original packing material for the shipment, and insure the shipment for the value of the product. Please include your name, address, phone number, email address, a description of the problem, and the original, dated bill of sale with the returned unit; do NOT include additional accessories such as cables, power supplies, manuals, etc. Please clearly print the Return Merchandise Authorization Number on the outside of the box below the shipping address. Repaired or replaced equipment will be returned to you via UPS Ground prepaid. (Expedited shipping methods such as UPS next day, 2-day, and 3-day services are available for an additional cost.) Repaired equipment will be warranted for a period equal to the remainder of the original Limited Warranty or for 90 days, whichever is longer.

WARRANTY EXCLUSIONS: This warranty does not apply if the equipment has been damaged by accident, abuse, misuse, or misapplication; has been modified without the written permission of MOTU; or if the product serial number has been removed or defaced. The following examples, without limitation, are NOT covered by this hardware warranty:

- Equipment purchased through any reseller not directly authorized by MOTU or its authorized international distributors.
- "Used" equipment purchased from a third party.
- Equipment purchased in another country.
- Normal cosmetic and mechanical wear of the equipment.
- Equipment damaged by improper installation or connections.
- Equipment damaged in transit to/from MOTU for warranty repair.
- Physically damaged equipment, including but not limited to water damage, cracks or dents, missing or bent parts, burns or other damage caused by faulty or failed electric power

ALL IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO TWO (2) YEARS FROM THE DATE OF THE ORIGINAL RETAIL PURCHASE OF THIS PRODUCT. THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESS OR IMPLIED. No MOTU dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty. MOTU IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, OR UNDER ANY LEGAL THEORY, INCLUDING LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE OR REPLACEMENT OF EQUIPMENT AND PROPERTY AND COST OF RECOVERING REPROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED IN OR USED WITH MOTU PRODUCTS.

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Manual Version 1.21

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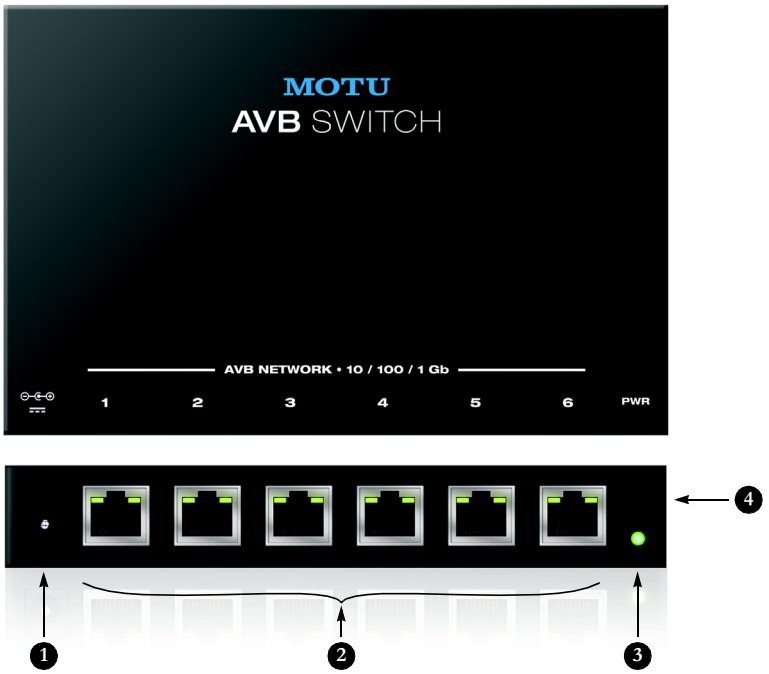
Quick Reference



1. Connect the included 15V DC power supply here.
2. Use these 1 gigabit AVB NETWORK ports to connect any of the following:
   - MOTU AVB interfaces (1248, 8M, 16A, etc.)
   - Another MOTU AVB Switch (to extend the network)
   - A 3rd-party AVB switch
   - An Ethernet device, Wi-Fi router or Ethernet network
   - A third-party AVB device
3. The PWR (power) LED indicates that the unit has power and is switched on.
4. For each port, the left-hand LED indicates a 1 Gbit connection; the right-hand LED indicates a 100 Mbit connection. The LED glows solid when the connection is made and blinks when there is activity on the port.

NOTE: When making network connections, use CAT-5e or CAT-6 cables (a higher grade cable). For local connections, patch cables can be used, but will reduce the maximum total cable run length.

The MOTU AVB Switch provides deep functionality that goes beyond a standard Ethernet switch.

- No configuration is necessary. The switch configures itself and manages all device discovery, configuration, and system resource allocation.
- The switch establishes and maintains extremely accurate timing and synchronization among all connected devices.
- The switch negotiates audio routing throughout the network and guarantees that audio integrity is maintained, regardless of external (non AVB) network traffic.
- The switch consolidates audio, synchronization, and control together.

For more information, see chapter 2, “Networking” (page 8).

Quick Start Guide

Thank you for purchasing a MOTU AVB Switch!

The MOTU AVB Switch is a “plug-and-play” device. Simply connect the included power supply to power it on, make your network connections, and you are ready to go.

For a quick summary of the benefits of AVB networking, see chapter 1, “About the MOTU AVB Switch” (page 7) and chapter 2, “Networking” (page 8).

For information about building a network with multiple switches, see chapter 2, “Networking” (page 8).

To check your switch for the latest firmware version, see Appendix A, “Updating Firmware” page (13).

If you need to configure one or more ports for non-AVB operation for some reason, see Appendix B, “Configuring non-AVB ports” page (14).

To access the latest resources for the MOTU AVB Switch, visit:

https://motu.com/en-us/products/avb/avb-switch/downloads/

CHAPTER 1 About the MOTU AVB Switch

IEEE 802.1 compliant AVB networking
Audio Video Bridging (AVB) is the exciting new IEEE 802.1 extension to Ethernet specifically engineered for real-time, low-latency, fully synchronized streaming of audio and video over Ethernet. AVB fulfills the promise of a true A/V standard that brings together the worlds of networking technology and professional audio/video.

Use the MOTU AVB Switch for all your AVB needs
The MOTU AVB Switch™ allows you to quickly and easily build an AVB-compliant audio (or video) network, with six 1-Gigabit AVB ports for any AVB devices (even other switches), plus compatibility with standard Ethernet. Enjoy the many benefits of AVB, including plug-and-play operation, guaranteed quality of service, and self-regulated network resource management.

Plug-and-play operation
Connect MOTU AVB devices with standard CAT-5e or CAT-6 cables and go. The MOTU AVB Switch supports automatic device discovery and network bandwidth management among connected AVB devices. No IT expertise required.

Standard cabling
Use standard CAT-5e or CAT-6 Ethernet cables up to 100 meters long between the MOTU AVB Switch and other AVB devices or switches.

1-Gigabit operation
1-Gigabit operation means you make the most of what AVB has to offer, with very high audio channel counts and very low network latency.

Guaranteed Quality of Service (QoS)
In an AVB Ethernet network, all existing audio and video streams are maintained, regardless of other network traffic.

Network-wide clock and sync
AVB provides a network-wide time base for better-than-sample-accurate phase lock across all connected audio devices. Timing accuracy is down to the nanosecond. In a MOTU AVB system, network-wide sync can be established with one click.

Support for standard Ethernet
AVB can coexist with standard Ethernet, for connecting standard Ethernet devices like Wi-Fi routers, Ethernet hubs, and even entire Ethernet networks in your home, office or studio. Any of the ports on the MOTU AVB Switch support standard Ethernet. If needed, any port can be configured for non-AVB operation.

CHAPTER 2 Networking

OVERVIEW

The MOTU AVB Switch opens up a world of possibilities for creating expanded, customized audio network systems.

ABOUT AVB

Audio Video Bridging (AVB) is an extension of the Ethernet standard developed by the IEEE (802.1 standards committee) specifically to add high-performance audio and video networking.

AVB brings together the worlds of networking technology and high-end audio. Here is a brief summary of some of the immediate benefits of AVB for you, as a MOTU AVB interface user:

- An open industry standard — AVB has been developed by the IEEE as an international standard specification. It is not proprietary or controlled by one company.

- High channel counts — AVB provides hundreds of network channels.

- Extremely low latency — AVB guarantees low-latency, real-time performance.

- Guaranteed Quality of Service (QoS) — AVB's Stream Reservation Protocol provides Guaranteed Quality of Service for each and every audio stream. If the network cannot continuously maintain every bit of every sample in the audio stream, it will not allow you to make the network connection in the first place. AVB streams are prioritized over other network traffic to ensure high performance.

- Network-wide clocking and sync — AVB devices all clock together over your network for better-than-sample-accurate phase lock across all connected devices. Timing accuracy is down to the nanosecond.

- True plug-and-play operation — AVB has been designed from the ground up to provide automatic device discovery, enumeration, and connection management. Just plug your MOTU AVB interfaces into a standard AVB switch and go. If you wish to make stream connections and have the ability to select media clock, you must use the web app, or some other AVB controller. You don't need an IT professional to configure the network. AVB is a self-managing network protocol.

- Support for standard Ethernet — AVB cooperates with standard Ethernet networks, for connecting traditional Ethernet devices like wireless routers, switches, or any other non-AVB-aware device.

- Support for existing network infrastructure — Replace your existing switches with standard AVB-compatible switches, and your CAT-5e or CAT-6 wired infrastructure now supports AVB.

- Long cable runs — A single AVB network connection can run up to 100 meters with a standard copper wire CAT-5e or CAT-6 cable. Fiber-optic cable runs can be much longer. With multiple switches, you can create a network that covers very large distances, if necessary. You can use up to six "hops" (switch-to-switch connections).

■ AVB is already shipping on current Macs — Apple supports AVB on all current shipping Macs, and your MOTU interface can operate as a standard AVB audio interface when connected to your Mac's AVB-equipped Ethernet port.

MOTU'S AVB IMPLEMENTATION

MOTU engineering has faithfully implemented the IEEE 802.1 AVB standard for the MOTU AVB products. This means that MOTU devices are fully inter-operable with any 3rd party AVB-compatible device. In addition, MOTU has fine-tuned AVB operation among MOTU AVB devices for optimum performance, within the AVB specification. Here is a brief summary of advantages you will enjoy when using MOTU AVB-equipped audio devices together in a network:

■ Support for multiple computer hosts — All computers and all network devices run in sync with each other, resolved to the network's master clock.

■ Gigabit Ethernet — The MOTU AVB Switch delivers 1 Gbit Ethernet performance, which provides substantially higher bandwidth than 100 Mbit Ethernet. This allows you to have many more devices on the AVB network.

■ Over 500 channels of network audio — MOTU's AVB network can stream over 500 channels of audio throughout the network. Depending on the model, some MOTU AVB devices can broadcast sixteen 8-channel network streams and simultaneously listen to sixteen 8-channel network streams.

■ Exceptionally low network latency — Standard AVB network latency is 2 ms. MOTU AVB network latency is an astonishing 0.6 ms, even over six "hops" (switches) and hundreds of meters of cable. By comparison, other commercially available, proprietary audio network protocols have variable (unpredictable) network latency in the range of 2-5 ms.

■ Star configuration — MOTU AVB supports a star network configuration, which is much more flexible than daisy-chain scenarios, which depends on all devices in the chain.

■ Web interface — MOTU AVB devices can be controlled from the MOTU Pro Audio Control web app, which runs within any web browser on any networked laptop, tablet, or smart phone. Although the web app shares the network with AVB, AVB audio streams are never compromised because AVB streams over the network traffic.

■ Support to standard Ethernet — the MOTU AVB Switch supports standard Ethernet operation on the same network for command and control, Internet access, and other standard network traffic. All ports allow connection to standard (non-AVB) network devices. If needed, any port can be configured to operation as a non-AVB Ethernet port.

NETWORKING EXAMPLES

Networking comes into play as soon as you connect a second MOTU interface to your first one, as explained in "Setup for two interfaces" on page 27, to add more I/O to your studio. Here are just a few examples of what is possible.

Personal studio expansion

Let's say you have a 1248 mounted in a rack next to your computer. You could add an 8M interface and position it across the room, near your drum kit, for placing up to 8 mics on the drums. All the mic cabling is kept near the drums, and you have one simple, clean network cable running back to your computer system. Despite the distance, the two interfaces operate as a seamless system, controlled from your computer or iPad.

Studio installation

A studio installation of three to five interfaces can be handled with a single MOTU AVB Switch. See "Setup for three to five interfaces" on page 28.

Networking is ideal for studio installation because you can position interfaces at strategic locations. Running cables becomes much simpler and more cost effective. Not only does a setup like this give you access to all I/O from your computer, even multiple computers, you can also route audio from any input to any output across devices with near zero latency. You can also route audio from one computer to another with very low latency. As a simple example, you could deploy several interfaces in a studio as follows:

Interface	Location	Purpose
1248	Control room	General I/O in control room, outputs to main speakers, etc.
1248	Iso booth	Local mic and instrument I/O in the iso booth.
1248	Studio room	General purpose I/O for studio A
8M	Studio room	More mic inputs, or additional mic inputs for drum kit
8M	Studio room drum kit	8 more mics on the drum kit
16A	Machine room	Analog I/O and patch bay for rack mounted gear

Large studio facility

In a larger studio facility, you could build audio network neighborhoods similar to the studio installation described earlier in multiple rooms, even multiple floors, with multiple computers and WiFi control from anywhere in the facility. All computers and devices can see each other and you can stream audio anywhere on the network with near-zero latency, as if any two devices were connected directly to each other.

Concert systems

Concert systems must be flexible so they can adapt to each new venue while on tour. Because of its modular nature, AVB networking allows you to design systems that are scalable and easy to adapt to each venue. You can easily bring devices on and offline, rerouting audio stems as needed.

Because MOTU AVB networking employs a star configuration, instead of daisy-chaining, you can set up backup computer playback systems on a shared network. For example, in a concert setting, if one computer system goes down, the backup system can be brought on line instantly through the same network infrastructure.

Traditionally, live performance setups often have separate domains for front of house mixing, monitor mixing, computer backline, and other systems. With MOTU AVB networking, these systems can be unified on the same network, opening up many possibilities for shared resources and mixing/routing responsibilities, especially from multiple sources (laptops, iPads, tablets, etc.) MOTU AVB networking handles audio in convenient 8-channel stems, making large-scale network management more manageable. MOTU AVB's very low latency makes it particularly suitable for line arrays and sound reinforcement.

Large-scale venues

With long cable runs and industry standard networking infrastructure, MOTU AVB systems are well-suited for large-scale commercial installations such as arenas, stadiums, theme parks, clubs, casinos, houses of worship, broadcast facilities, schools, universities, and so on. Audio streams can travel long distances with sub-millisecond latency through as many as six switches. Audio can be distributed from a centralized location to anywhere in the venue.

A QUICK GUIDE TO NETWORKING

MOTU AVB networking has been designed to be powerful, yet straightforward to set up and use. Here are a few things that are useful to know.

Networking basics

- Before proceeding below, review the networking connection diagrams on pages 27-29.

■ To make network connections, use CAT-5e or CAT-6 cables (a higher grade cable).

■ Network cable lengths can be long: 100 meters with standard copper wire cables; much longer with fiber-optic network cables.

■ For the most reliable long connections, use high-quality shielded cables, but regular unshielded cables work fine too.

Working with AVB switches

■ Networks of three or more interfaces require an AVB-compatible switch, such as the six-port MOTU AVB Switch™.

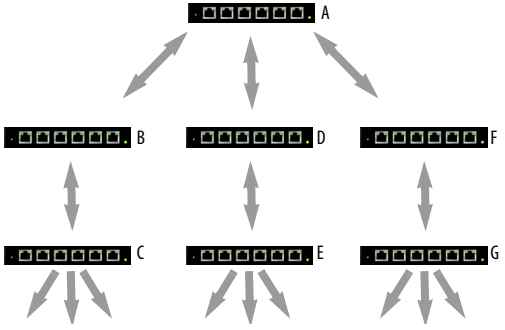
☛ A non-AVB compatible switch will not work.

■ Connect MOTU AVB interfaces to any AVB Switch using their NETWORK ports.

■ On the MOTU AVB Switch, connect MOTU interfaces to any port. Connect any port to a Wi-Fi router, your Local Area Network (LAN) or your computer (for running web app only).

■ Expand the network by adding more switches. Make a single connection from one switch to the other.

■ You can daisy-chain switches in serial fashion, but don't create loops. For example, in the network below, do not make any additional connections between any two switches.



■ AVB audio can't pass through more than six switches. However, you can daisy-chain more than six switches and route audio freely among them. You just won't be able to create point-to-point connects that span more than six switches.

Working with computers on a network

■ Computers are not required for network operation, as you can control the network from iPads, tablets and smart phones.

■ A computer can be connected to the network through its Ethernet port. Recent generation Macs can stream AVB audio to the network over this connection; PCs can only be used for command and control of the network and devices on the network.

■ All computers and interfaces on the network have full access to each other.

■ MOTU employs a 1 Gbit AVB implementation in the MOTU AVB Switch. The switch allows routing of many audio channels on the network.

SETTING UP A MOTU AVB INTERFACE FOR NETWORKING

Depending on the model, MOTU AVB interfaces have the ability to broadcast up to sixteen 8-channel streams to the rest of the network. Conversely, it can "listen" to as many as sixteen 8-channel streams from anywhere else in the network. The specific number of streams supported depends on the model.

Consult your MOTU AVB-equipped interface User Guide for details on how to:

■ Configure it for AVB operation.

■ Map audio to network streams

■ Map computer channels to network streams

■ Manage device presets and AVB stream connections

SUPPORT FOR STANDARD ETHERNET

The MOTU AVB Switch allows you to connect standard network devices, such as:

- A WiFi router
- An Ethernet hub or switch connected to a local home, studio, or office network
- Any other standard networking device

If needed, you can configure each port on the MOTU AVB Switch independently for AVB operation or non-AVB operation. See Appendix B, “Configuring non-AVB ports” page (14).

APPENDIX A Updating Firmware

From time to time, MOTU may provide firmware updates for the MOTU AVB Switch to improve performance.

To update the firmware in a MOTU AVB Switch:

1 Make sure your computer is on the same network as the MOTU AVB Switch.

2 Make sure that your network has access to the internet (required).

3 Go to:

https://motu.com/en-us/products/avb/avb-switch/downloads/

4 Download the MOTU Discovery app (macOS or Windows).

5 For macOS, unzip *MOTU Discovery* and then launch the app. For Windows, run *MOTU Discovery.exe* to launch the app.

6 Click the *Firmware Updater* tab. You should now see your switch in the list of AVB devices on the network (Figure 2-1).

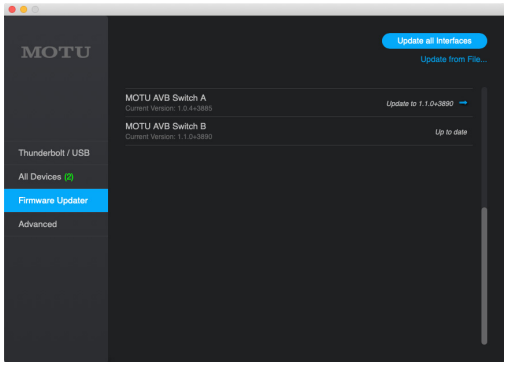


Figure 2-1: The MOTU AVB Switch in MOTU Discovery.

7 If your AVB Switch says *Up to date* as shown in Figure 2-1 for switch B, then the switch has the latest firmware installed already.

8 If, however, the note next to the switch says *Update to x.xx* as shown in Figure 2-1 for switch A, click the blue arrow to update to the latest firmware version.

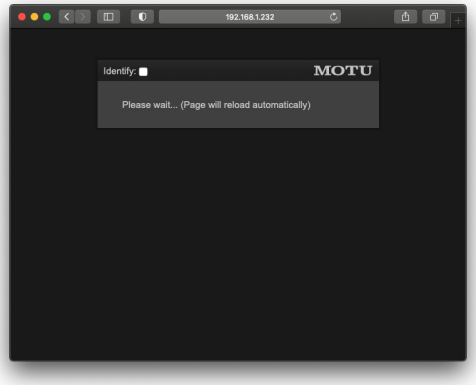


Figure 2-2: After updating the firmware, the switch reboots and re-acquires an IP address from your network's DHCP server.

9 When you see the message *Update Successful!*, the firmware update is complete.

APPENDIX B Configuring non-AVB ports

The MOTU AVB Switch automatically detects whether the device plugged into each port is capable of AVB, and only routes AVB traffic to devices and switches that are capable of it. However, if for some reason you want (or need) to disable AVB protocols, each Ethernet port on the MOTU AVB Switch can be independently configured to operate either as an AVB port or as a non-AVB (standard Ethernet) port.

To configure the ports on a MOTU AVB Switch:

1 Make sure your computer is on the same network as the MOTU AVB Switch.

2 Go to:

https://motu.com/en-us/products/avb/avb-switch/downloads/

3 Download the MOTU Discovery app (macOS or Windows).

4 For macOS, unzip *MOTU Discovery* and then launch the app. For Windows, run *MOTU Discovery.exe* to launch the app.

5 Click the *All Devices* tab. You should now see your switch in the list of AVB devices on the network (Figure 2-3).

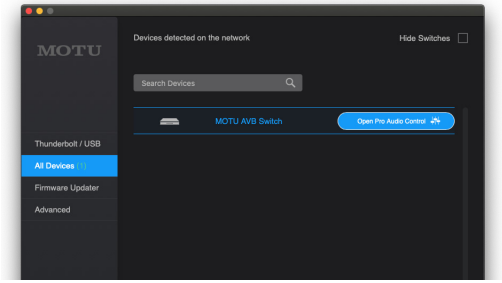


Figure 2-3: The MOTU AVB Switch in MOTU Discovery.

6 Click *Open Pro Audio Control* next to the switch to access its settings (Figure 2-4).

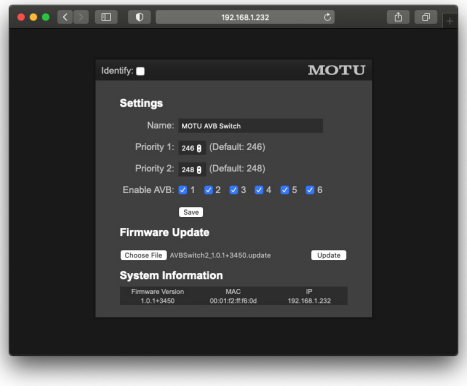


Figure 2-4: The switch settings.

7 In the *Enable AVB* section (Figure 2-4), check or uncheck each port as desired for AVB or non-AVB operation (respectively).

8 Click *Save* to apply your changes.

If you have more than one switch

Each switch can be accessed individually from the AVB Discovery app. You can use the *Identify* button at the top of the Settings page (Figure 2-4) to confirm which switch you are configuring. When you click *Identify*, the switch's power LED flashes.

APPENDIX C Technical Specifications

Supported protocols	gPTP - 802.1AS MVRP - 802.1Q (VLAN 2 only) MSRP - 802.1Q (Class A and B)
AVB ports	6*
Ethernet ports	6*
Operational bandwidth	10 Mbit / 100 Mbit / 1 Gbit
Power	12-18V DC • 0.5A • tip positive
Dimensions	Length: 5.75 in / 14.6 cm Width: 3.6 in / 9.1 cm Height: 1.25 in / 3.2 cm

*Each Ethernet port can be independently configured to operate as an AVB port or a non-AVB (standard Ethernet) port.