Taiko Audio Extreme Router User Guide

Version 0.6

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The Concept

Housed in the same beautiful 22 x 22 x 5 cm / 9 x 9 x 2 inch solid copper chassis as the Taiko Audio Extreme Switch, the Taiko Audio Extreme Router yields a significant lowering of noise by controlling the amount and flow of data on the network.

A basic setup would be for the user to connect the Extreme Music Server to a generic router directly or via a generic network switch. This setup can be upgraded by adding the Taiko Audio Extreme Network Card and Extreme Network Switch to achieve a significant improvement in Sound Quality. To raise the bar even further, the user can add the Extreme Router to create an audio exclusive (isolated) network unimpaired by typical home network processes and traffic.

The Router has a single WAN ("input") network port which connects to your home network to provide internet access for the audio network. It has 3 separately configurable outputs, one of which connects to your music server or, preferably, the Extreme Switch. the 2 others can be used for additional desired connectivity, such as for example a dedicated wifi Access Point and/or a wired control computer.

All networking parameters can be defined and thus allow full control over the data stream being delivered to the Taiko Audio Extreme Switch and/or Extreme Music Server.

Features

- One SFP port that can accept a DAC cable.
- 4 RJ45 ports of which 3 can be used when the DAC port is enabled.
- The Router can be used to create a separate Audio-only network in series with (connected downstream of) your Internet Service Provider-supplied modem/router or any other router.
- Serve as a NAS (for music storage), 2 external USB drives can be connected.

Safety

The Taiko Audio Extreme Router is the perfect solution for networks requiring more than the standard router. This high-performing router is based on the NXP Layerscape® chipset technology and specifically selected router firmware to provide the utmost security. With the Taiko Audio Extreme Router, you can have full access to your network while keeping malicious actors out.

This router was carefully designed with the help of specialized cyber-security engineers to ensure that all possible scenarios to reduce the risk of a data breach and mitigate their impact were taken into consideration.

It is protected against unauthorized access and malicious activity, including disabling services, segmentation of the hardware to restrict access, configuring firewalls, and performing regular updates. Unlike other routers on the market, the Taiko Audio Extreme Router is designed for long-term availability and use, with regular software updates for the next 5 years and a physical TPM that provides secure and tamper-proof hardware-based storage for encryption keys and other sensitive data. This ensures that malicious actors can’t access the audio router and its audio network and that any firmware or software updates are verified and secure. With a TPM, the risk of unauthorized access, hacking, and data breaches are greatly reduced, providing users with peace of mind when it comes to the security of their audio network.

Battling Networking Noise

(Simplified explanation)

We are taking a 180-degree angle approach to networking noise relative to the more common methods that are currently used.

Think of the following analogy:

1) Being stuck in a silent room with a leaking water tap into a bucket of water.

2) Those same drops of water falling into an ocean with you on the beach enjoying the sound of waves.

Our approach is to not drown out irregular noise by hiding it in a wideband high noise floor but rather to make the offending noise itself inaudible allowing you to relax in that silent room and enjoy the sound of silence.

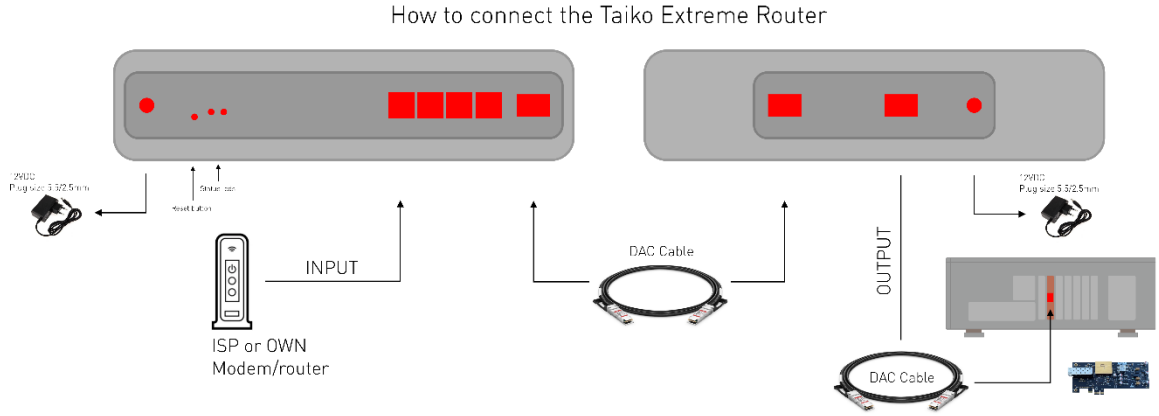
In a normal home setup with an X number of devices, smart TVs, streaming devices, desktop computers, notebooks, smartphones, tablets, smart lighting, smart household appliances, etc., adding more devices with a relatively small increase in total network activity is not very noticeable.

However, when you create a new network for audio, using a dedicated router, with a bare minimum of devices, with overall very low activity, and the activity is controlled on the router and connected devices, any additional device creating additional and uncontrolled network activity suddenly does become noticeable.

Installation

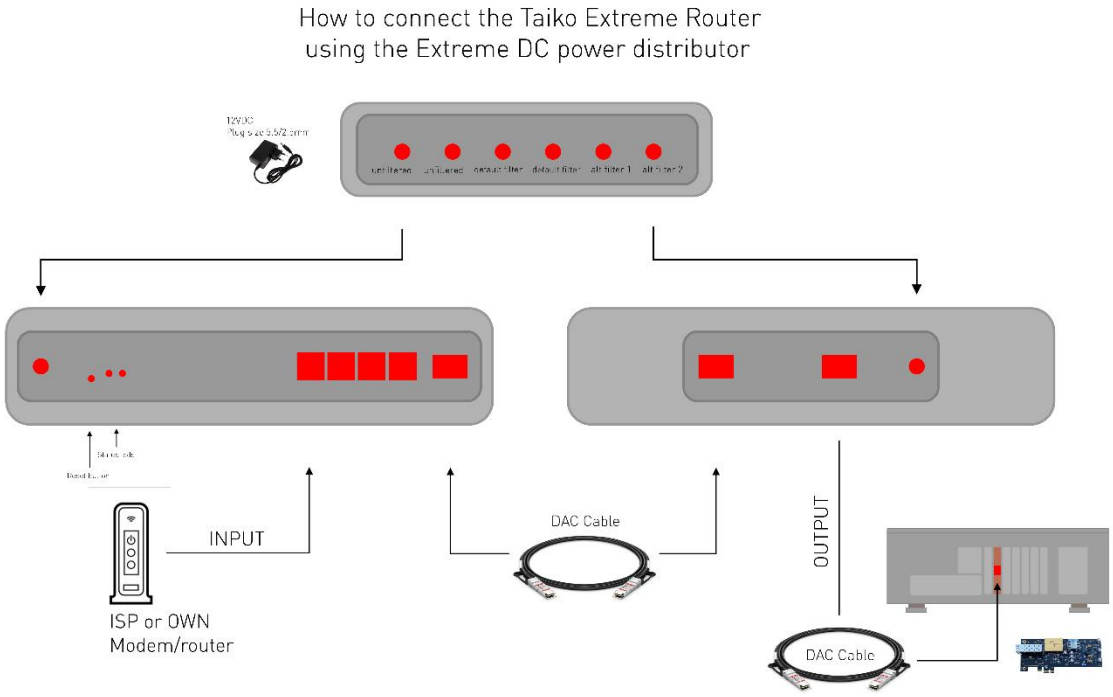
For installation, you need to connect your devices using Ethernet cables with RJ45 connectors. The first port next to the USB ports is the WAN port and the 2 RJ45 ports next to the WAN RJ45 port are general purpose ports. The SFP connecter is used as a LAN port and is the preferred method of connection to the Extreme Switch.

Please see the following image.



The optional new to be released Extreme DC Power Distributor allows you to power both the Extreme Switch and Router from the same power supply while offering improved performance over 2 separate power supplies, especially when using a DAC cable to connect the Extreme Router to the Extreme Switch.

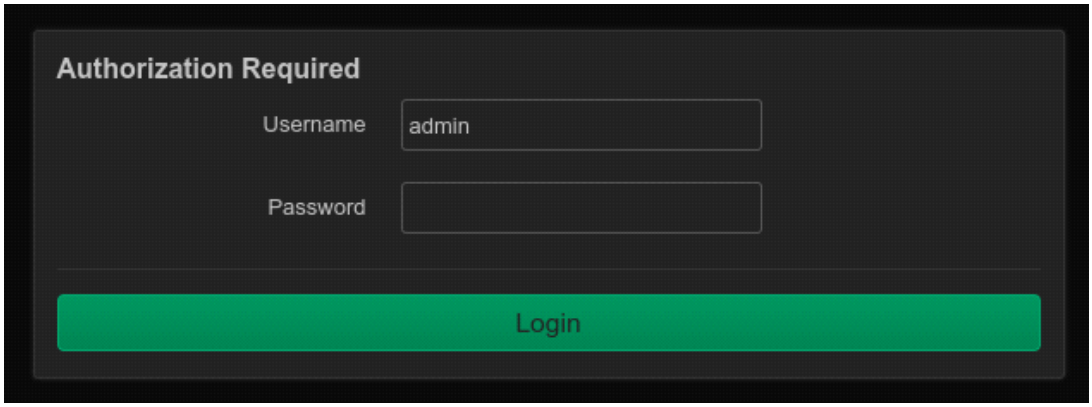
Please see the following image.



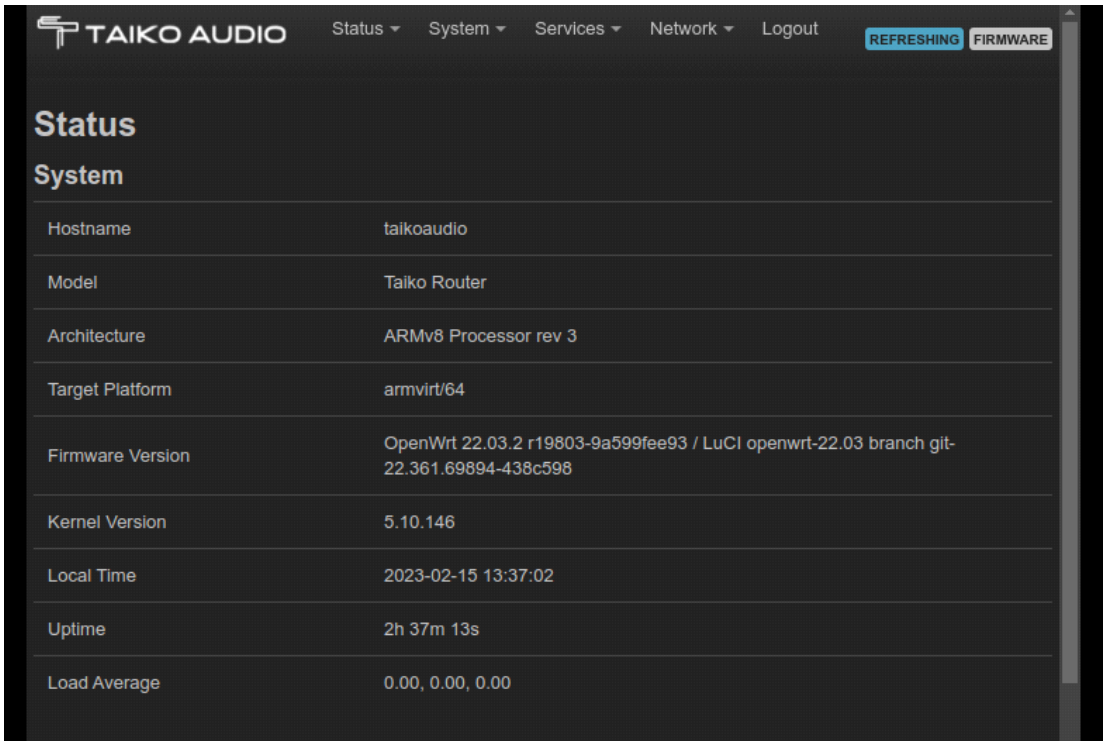
First authentication

Open a web browser on the device connected to the Audio Router. Enter the router's IP address in the browser's address bar. By default, the IP address of the router is 192.168.100.1

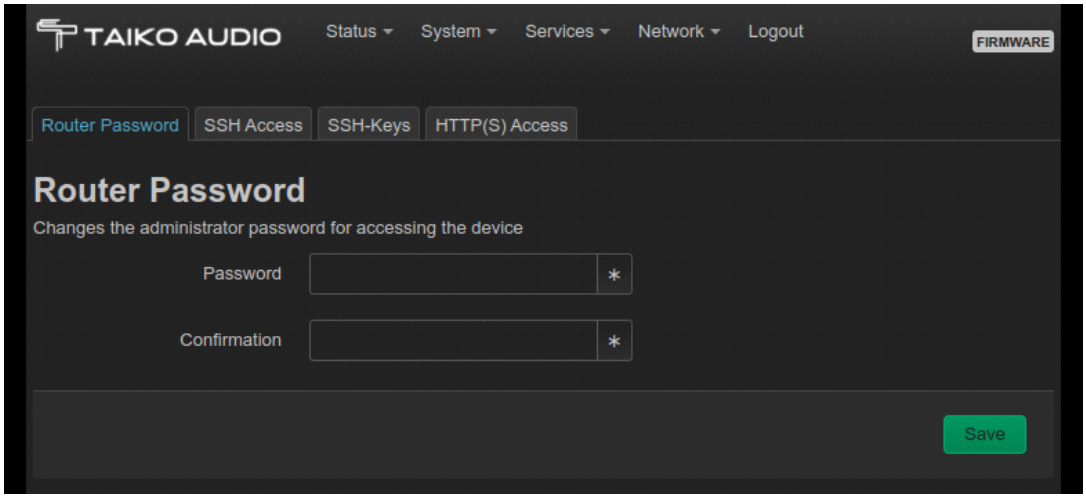
You will see the following login screen:



To log in, you need to use the user 'admin' and enter the password which is located at the bottom of the device. After successful login, you will see the following screen:



For security reasons, you should change the password. Please go to "System->Administration" and enter a new password. See the password change screen:

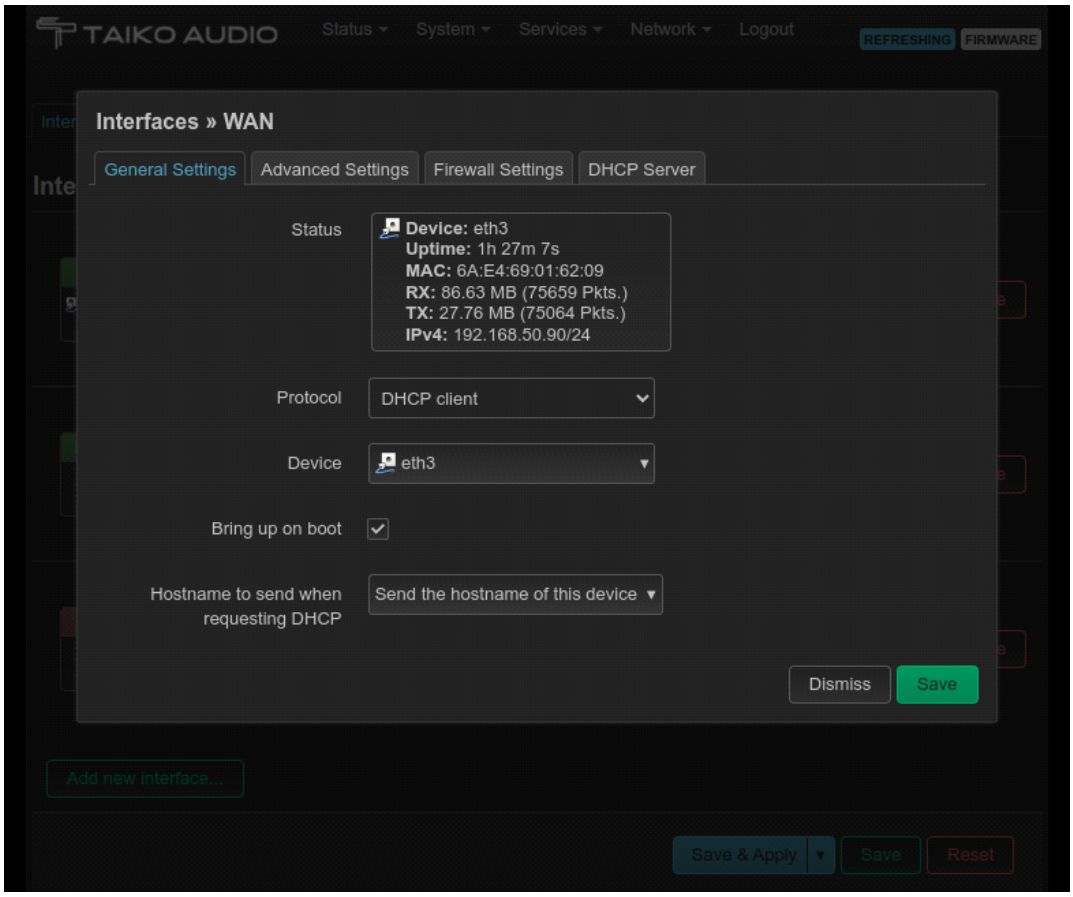

TAIKO AUDIO
Status
System
Services
Network
Logout
FIRMWARE
Router Password
SSH Access
SSH-Keys
HTTP(S) Access
Router Password
Changes the administrator password for accessing the device
Password
Confirmation
Save

Network setup

You can set up your Internet connection.

By default, the router uses Dynamic Host Configuration Protocol (DHCP) to obtain Internet access parameters. Therefore, the Internet connection should work automatically after turning on the router. Most Routers will work this way. If you know that your router does not provide DHCP, then you need to configure access to the Internet in accordance with the recommendations of your provider.

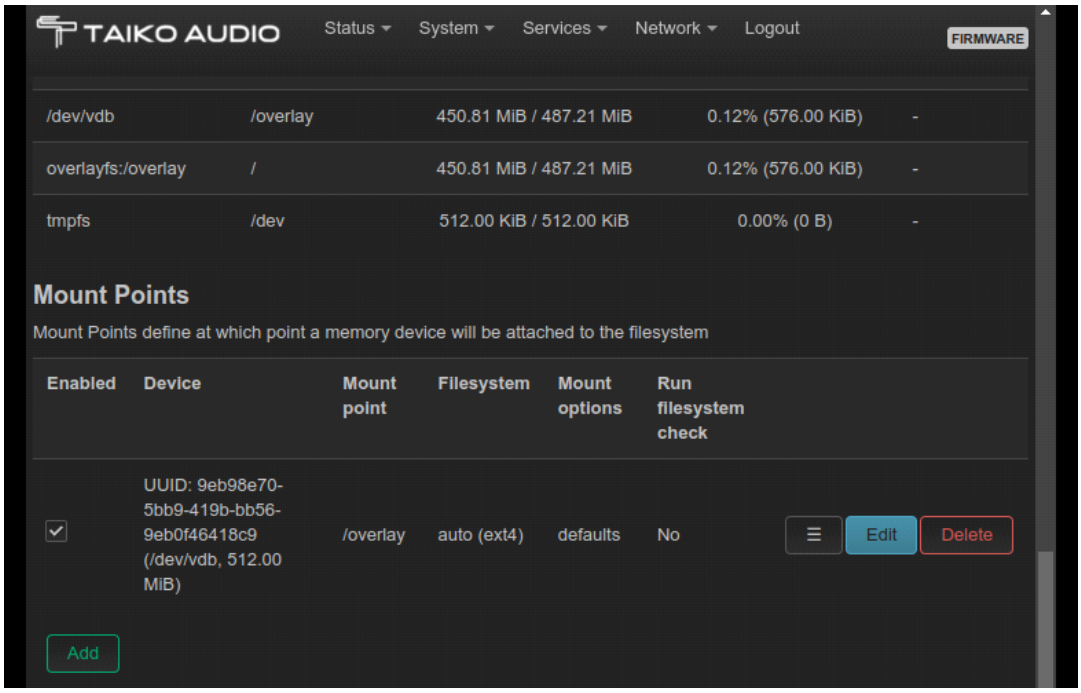
Please, go to “Network->Interfaces” and click on the “Edit” button on the line where the WAN/eth0 interface is located. See the screenshot below:



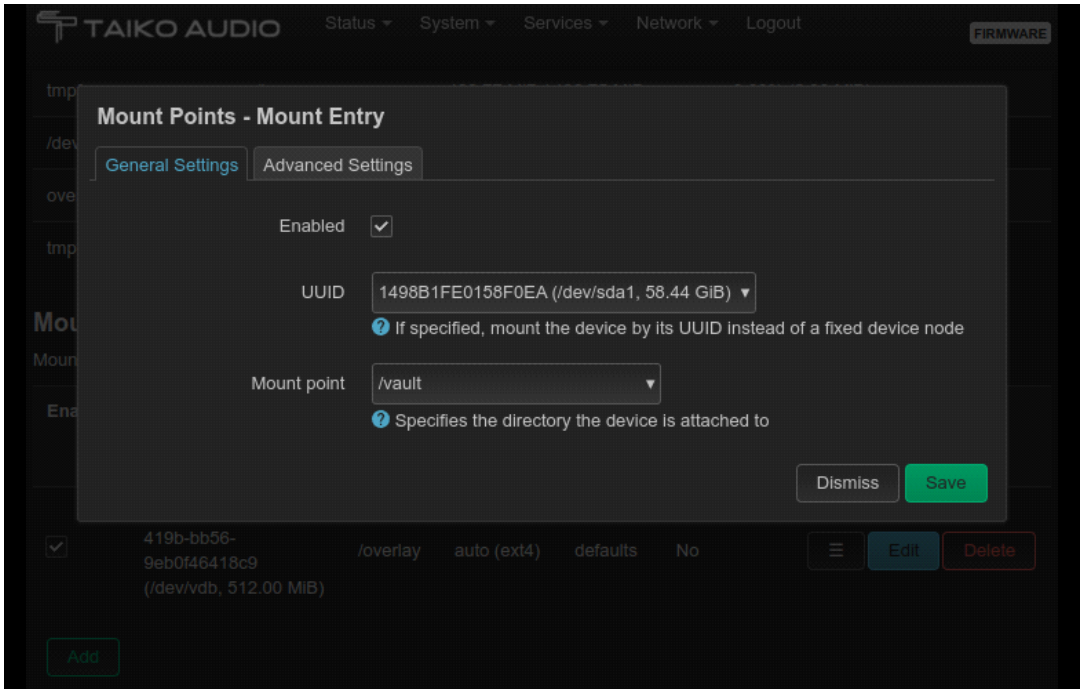
You can set it to manual or specify another protocol for Internet access.

USB drive sharing

Please insert your USB drive into the USB port. Go to “System->Mount Points”, scroll down to “Mount Points” and click on the “Add” button. See the screenshot below:



In the new window, you must select your USB drive and enter the name of the directory to mount and then click the “Save” button. For example, you can type “/vault” directory. See the screenshot below:

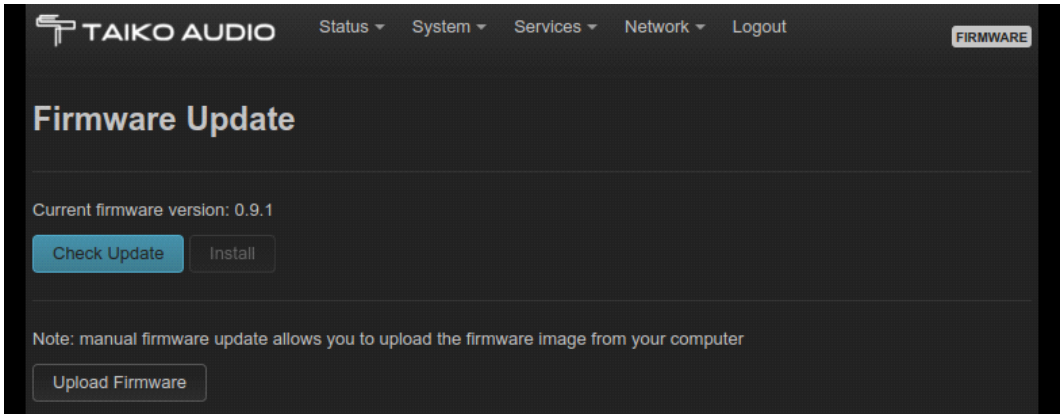


Then, you must scroll down and click the “Save & Apply” button.

Firmware update

To ensure the highest level of security we strongly advise always keeping the router software up to date. To indicate the availability of updates in the user interface, there is a “FIRMWARE” button in the upper right corner. If it is green, then a new update is available. If it is grey, then the system has the latest updates installed and no action is required.

To update the firmware, click on the “FIRMWARE” button or go to “System->Firmware Update” and click on the “Check Update” button. If the update is present, you can click the “Install” button. See the screenshot below:



Specifications

The Router is powered by any normal 7-12V DC power supply. It may also be powered by our new to be released Taiko Audio BPS (Battery Power Supply). This BPS can power the Extreme Music Server in addition to the Router, but if the Router is not placed close to the audio system, it will need its own power supply.

A standard wall-wart power supply is included but the Router will sound better with a higher-end power supply. The ultimate solution would be to add the optional new to be released Extreme DC Power Distributor. This allows you to power both the Extreme Switch and Router from the same power supply while offering improved performance over 2 separate power supplies, especially when using a DAC cable to connect the Extreme Router to the Extreme Switch.

Power input:
7-12V DC. (12V is the optimal voltage)

Current draw at 12V:
500mA natively. Note that the total current draw depends on the supplied voltage.

Connector dimensions:
2.5 inner / 5.5 outer / 11.3mm length
(this is the same connector as for the Extreme Switch)

Dimensions (WxDxH):
22 x 22 x 5 cm / 9 x 9 x 2 inch

Weight:
15 Kg / 33 lbs