

Thank you for your purchase of:



AudioFetch Express – Dual Band

By Broadcastvision Entertainment



AudioFetch Express – Dual Band is a compact cost effective solution delivering high-quality low-latency audio from TVs, STBs, or other audio sources via Wi-Fi to personal mobile devices such as smartphones and tablets.

The integrated Wi-Fi is by default configured as an Access Point. Or the AudioFetch Express can be connected wired or wirelessly into a pre-existing Wi-Fi network enabling greatly simplified installations in fitness clubs, sports bars, movie theaters, waiting rooms, meetings, conventions or wherever users need convenient access to in-house audio sources. The AudioFetch Express – Dual Band can be configured to operate in either the 2.4GHz or 5GHz WiFi band.

Your AudioFetch application is:

Proposal Number : _____

AF Express Networking Mode : Access Point / Wireless Client / Wired Only

Specific Cables Requested : _____

Note: If no specific cables or lengths are requested the following will be provided:

6' RCA to 3.5mm jack (audio), USB Cable (for power)

Additional cable lengths and types are available at: www.monoprice.com or www.amazon.com

Please call technical support at 888.330.4283 x3 if your application differs from the above.

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1 Safety Information

Connect the AudioFetch Express – Dual Band USB-C power jack only to a dedicated USB power supply which provides 5V at 1.5A (or more) output. Do not connect the AudioFetch Express – Dual Band to USB ports on TVs, computers, or other equipment.

Do not block air flow to/from the air vents on the enclosure.

2 The AudioFetch App

Download the latest AudioFetch app for free from the Google Play® or Apple iTunes® store.

Familiarize yourself with the drop down menu including the help menu section should it be needed during installation. Note that the appearance of the app may differ from the example shown here.



3 AudioFetch Marketing Kit - TV Signage, Table Tents, Cardio Clings, Window Stickers, Handout Cards...



Post the provided signage on the TVs. Cardio clings, table tents and door/window stickers are provided to enable patrons to easily obtain and use the AudioFetch app.

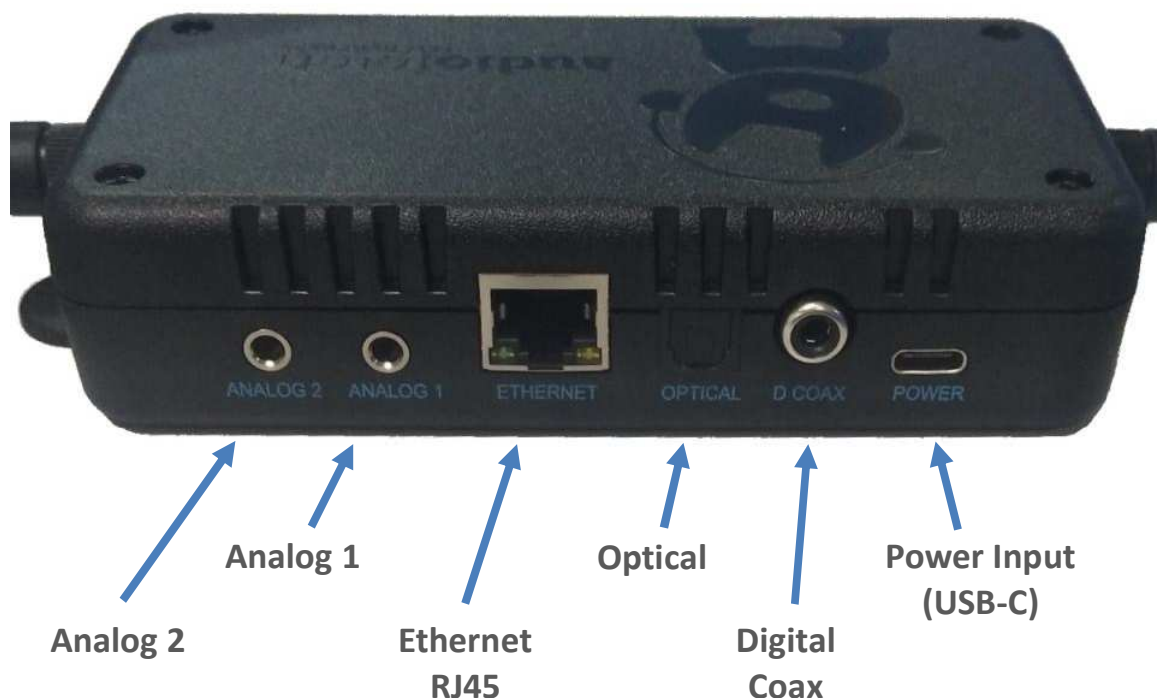
4 The Free AudioFetch Ad Portal

The AudioFetch app displays custom ads and notices which can be managed from the cloud. Log into the ad portal at www.audiofetch.com/portal using the username and password provided below to post your ad/info graphic that can direct users to website, an e-mail address, and/or phone number that you specify. Add multiple graphics that rotate through at the time duration you specify. Call 888.330.4283 x3 to confirm your log-in credentials if needed.

Username:

Password:

5 AudioFetch Express – Dual Band Connectors



Power Input	USB-C connector for power only (no USB communication). Must be connected to USP power adapter with 5V 1.5A (or greater) output.	
Analog 1	1-Channel mode:	3.5mm stereo analog audio input
	2-Channel mode:	3.5mm stereo analog audio input – internally mixed to mono for audio CH 1
Analog 2	1-Channel mode:	Normally not used If Microphone feature enabled – is a 3.5mm condenser microphone input
	2-Channel mode:	3.5mm stereo analog audio input – internally mixed to mono for audio CH 2
Optical	Optical digital audio input	
Digital Coax	Digital audio input	
Ethernet RJ45	Used for optional wired network connection – see section 10 (Networking Modes)	

NOTE: For details on configuring 1 or 2-channel modes and optional microphone input, refer to section **Error! Reference source not found.**

A typical connection scenario is shown below – in this example the AudioFetch Express – Dual Band is configured to operate in Access Point mode

6 Connecting Power

The AudioFetch Express – Dual Band receives power from a dedicated USB power supply capable of providing 5V 1.5A (or more) output.

WARNING: Do not connect AudioFetch Express – Dual Band to USB ports on TVs, computers, or other equipment – doing so could damage the AudioFetch Express – Dual Band and/or the equipment it is connected to. Connect only to a dedicated USB power supply.

Connect the provided USB cable to the dedicated USB power supply. There is no power switch, the AudioFetch Express – Dual Band will power up automatically when connected to its power supply. Should the AudioFetch Express – Dual Band need to be power-cycled, simply unplug the USB cable for 3 or more seconds then plug it back in again.

Longer USB cables can be ordered from: www.monoprice.com or www.amazon.com Be sure to search for and order only cables with **24AWG conductors for the power lines**, as smaller conductors may cause problems with AudioFetch Express – Dual Band operation.

7 Connecting Audio Sources

For default 1-channel operation (a single stereo audio channel), connect an audio source to one of the 3 audio input options, **choose only one input connection**:

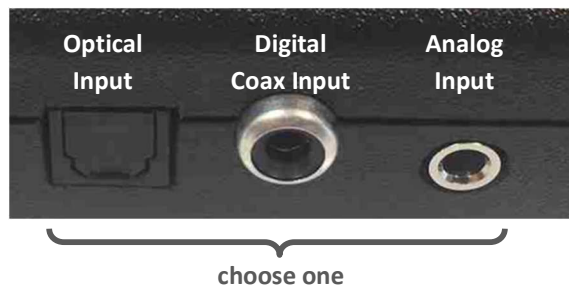
Analog 1
Optical
Digital Coax

Two popular analog connections on TVs are RCA (one red and one white) or a 3.5mm stereo jack (headphone jack). Either one can be connected into the Analog input of AudioFetch which is a 3.5mm stereo jack. Digital connection options are optical and digital coax.

Note that RCA and digital coax connections are not the same. A digital coax output (on TV, etc.) cannot connect into the AudioFetch Express – Dual Band analog input. An RCA analog output (from TV, etc.) cannot connect into the digital coax input. The configuration management pages can be logged into as described below to determine if a good audio signal is connected into the channel.

When connecting via digital inputs, always choose the audio output type in the source device (such as TV or STB) as PCM since Dolby Digital encoded signals are not supported.

Picture A: Cable Types

Picture B: Audio Input Types


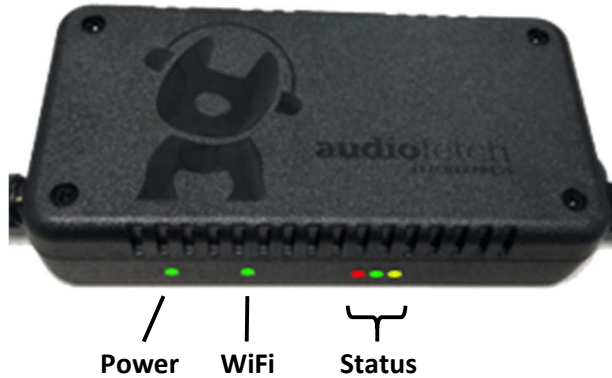
8 External Button

The External Button (small red button) can be found on the left side of the AudioFetch Express – Dual Band, just behind the antenna connector



The External Button is used to restore factory settings to the AudioFetch Express – Dual Band. Refer to section 13 for more details on its use.

9 LED Indicators



LED	Description
Power	On when unit has power
WiFi	On when WiFi is operating
Status – RED	Blinking when no connection to network Off when connected to network (IP address received from DHCP server, etc.)
Status – GREEN	Off when no connection to network yet On when connected to network
Status – YELLOW	Normally off Rarely, indicates firmware update active (on) Contact AudioFetch support if flashing continuously

During boot-up (takes about 45 seconds) the LEDs will sequence through different indications. **After boot-up is complete** the normal operating indication is:

Power WiFi Status
● ● ○ ● ○ (Power, WiFi, and Status-GREEN on, all others off)

NOTES: WiFi will remain off when configured for wired-only operation

Quick Troubleshooting:

In Wireless Client mode: If Status-RED remains blinking indefinitely, the AudioFetch Express – Dual Band cannot connect into your existing WiFi network and/or it is not receiving IP addresses from the DHCP server. Things to try or check:

- Check that your existing WiFi network is on and other devices can connect successfully
- Check that your existing network is configured to hand out two IP addresses (see section 11)
- If your WiFi is configured for Captive Portal (there is a splash screen or login page) then **both** MAC addresses of the AudioFetch Express – Dual Band (MAC for internal WiFi module and MAC for internal AudioFetch audio server – see App Note “Wireless Client Networking Info”) must be added your network’s whitelist of clients allowed to bypass the captive portal.
- Try power cycling the AudioFetch Express – Dual Band (as troubleshooting step)
- Try repositioning the AudioFetch Express – Dual Band antennas, try repositioning the AudioFetch Express – Dual Band itself, or your Access Point/Router to check if WiFi signal strength is weak
- Check that your WiFi SSID and password are correctly configured in the AudioFetch Express – Dual Band. Double check information provided to AudioFetch when ordered and if necessary re-configure the SSID/password settings as described in section 0
- [Changing SSID/password in Wireless Client Mode](#)

Rarely, AudioFetch Express – Dual Band will receive firmware updates (if connected to the internet). During an update, the yellow status LED will flash irregularly to indicate download in progress followed by the status LEDs going through a number of different sequences (not described here) and finally the

AudioFetch Express – Dual Band will reboot and return to normal operation. During firmware update audio transmission will be briefly interrupted (about 1 minute). Note that configuration settings are preserved through this firmware update process.

10 Operating Modes

The AudioFetch Express – Dual Band is capable of operating as a stand-alone Access Point or connecting into existing WiFi networks. WiFi operation can be selected in 2.4 GHz or 5 GHz band but not both simultaneously. An Ethernet jack is also provided for connections into wired networks. Four networking modes are supported:

A) Access Point

- With optional wired Ethernet connection for Internet access

B) Wireless Client

- Connects into existing facility WiFi

C) Access Point with Wireless Internet Connection

- Connects into existing facility WiFi for Internet Access

D) Wired Only

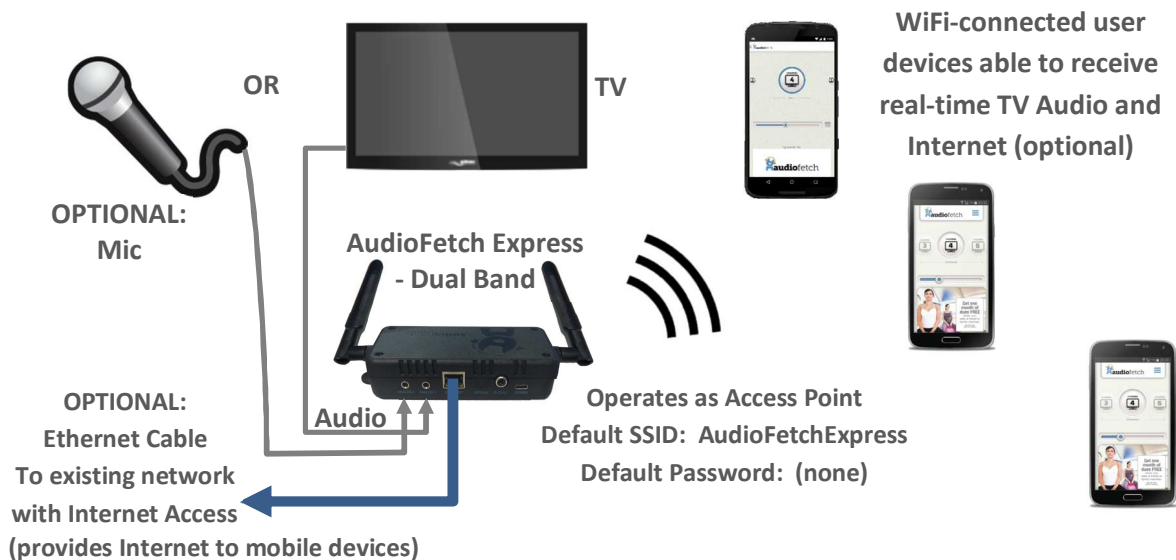
- Connects into existing facility network via Ethernet

Each operating mode is explained in more detail on the following pages.

A) Access Point

The AudioFetch Express – Dual Band operates as an Access Point and provides its own WiFi network in either the 2.4GHz or 5GHz WiFi band selectable in the Doghouse – see section **Error! Reference source not found..** Mobile devices receive audio by connecting to this WiFi network.

Optional: Internet access can be provided to mobile devices by connecting the Ethernet port into a pre-existing network which has internet access (like a WAN connection on a consumer wireless router)



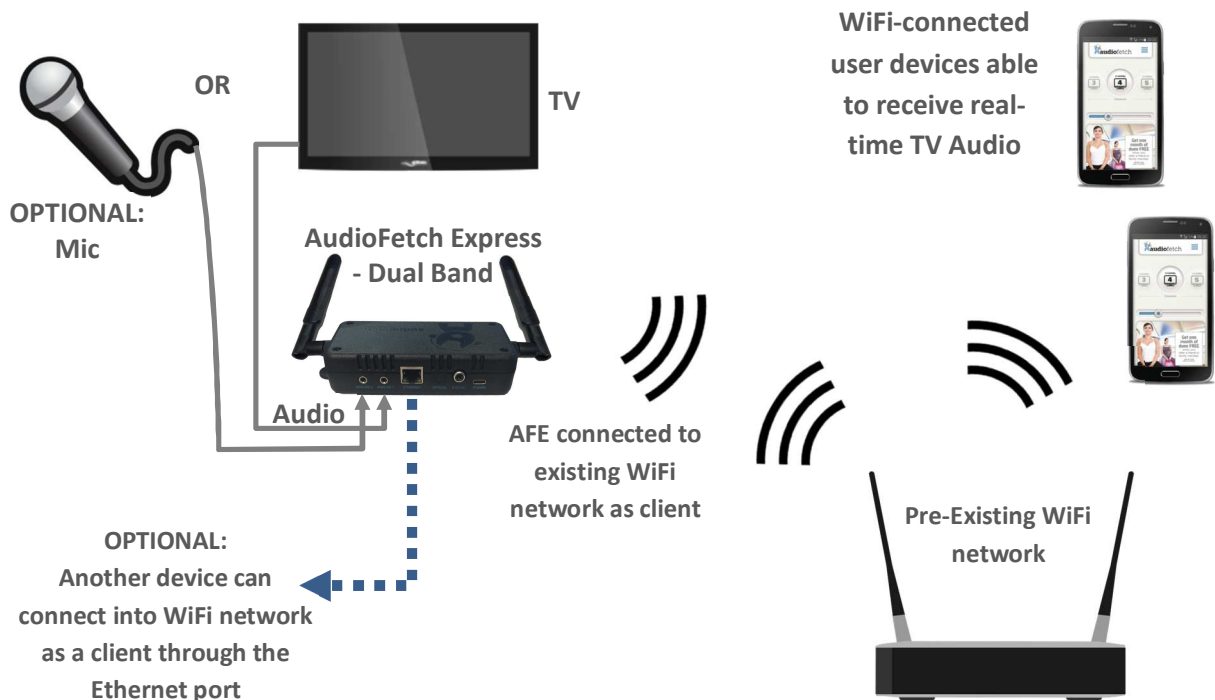
Note: This is the default networking mode – it will be active after factory defaults are restored using the External Button as described in section 13.

The default SSID is: AudioFetchExpress with no password

B) Wireless Client

The AudioFetch Express – Dual Band connects to a pre-existing 2.4 GHz or 5 GHz WiFi network as a client. Mobile devices receive audio by connecting to the pre-existing WiFi network.

The pre-existing WiFi network provides internet access.



NOTE: The AudioFetch Express – Dual Band contains an internal wireless router operating in bridge mode, plus an internal audio server which appear as separate client devices on the Pre-Existing WiFi network (with separate MAC addresses). Each of these will make its own DHCP request for IP address from the pre-existing network's DHCP server, which must be able to provide two separate IP addresses to the AudioFetch Express – Dual Band connecting in Wireless Client mode:

- One IP address for the internal wireless router (operating in bridge mode)
- Another IP address for the internal AudioFetch audio server

Please see the app note: "FetchExpress App Note – Wired & Wireless Client Networking Info" for additional information.

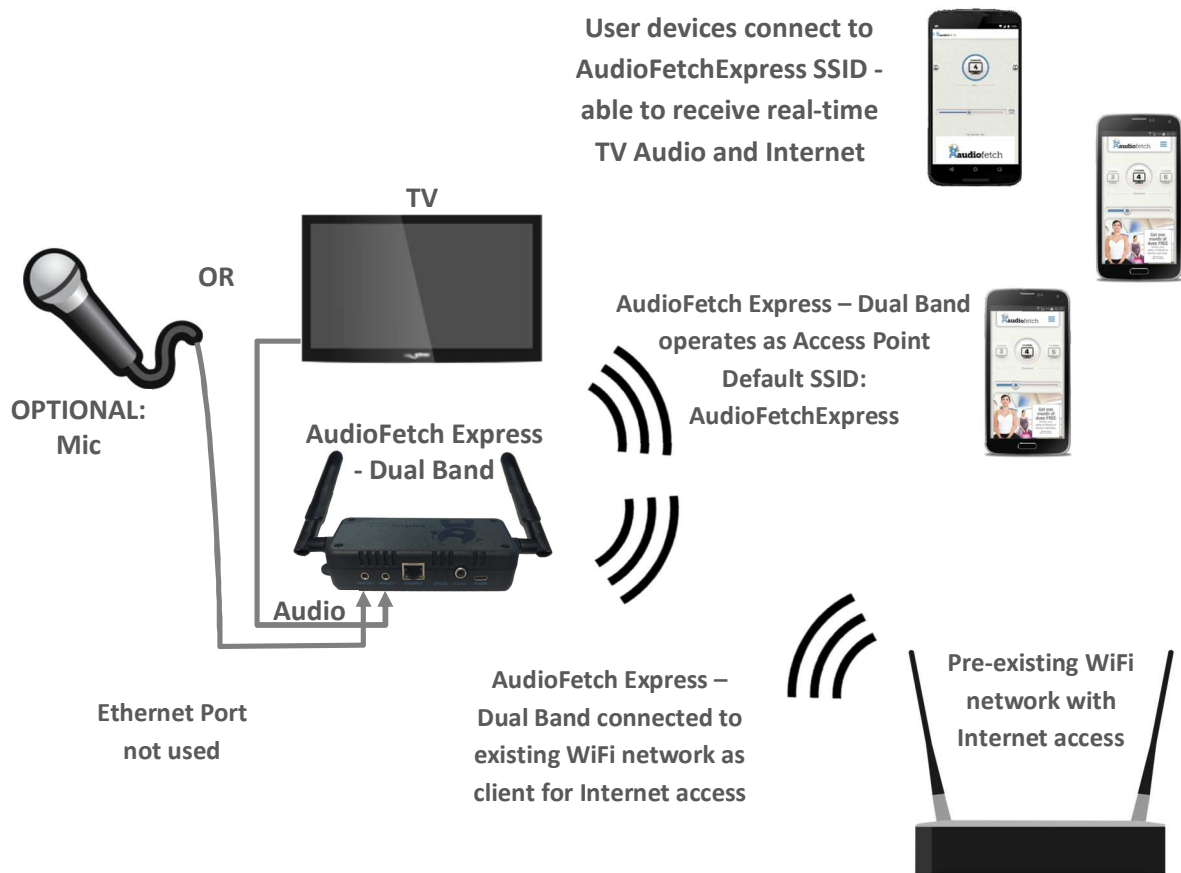
IMPORTANT: In Wireless Client Mode, AudioFetch Express – Dual Band will automatically connect to the "best" WiFi network (strongest signal) having the specified SSID. If the Pre-Existing WiFi network operates in both 2.4 and 5 GHz bands both using the same SSID, the AudioFetch Express – Dual Band will automatically choose the band. To restrict operation to a specific band, ensure the Pre-Existing WiFi network uses different SSIDs for each band.

C) Access Point with Wireless Internet

The AudioFetch Express – Dual Band operates as an Access Point and provides its own WiFi network. Mobile devices receive audio by connecting to this WiFi network.

The AudioFetch Express – Dual Band connects as a client into a pre-existing WiFi network to provide internet access.

AudioFetch Express – Dual Band operation selectable in 2.4 GHz or 5 GHz band, but not both simultaneously.

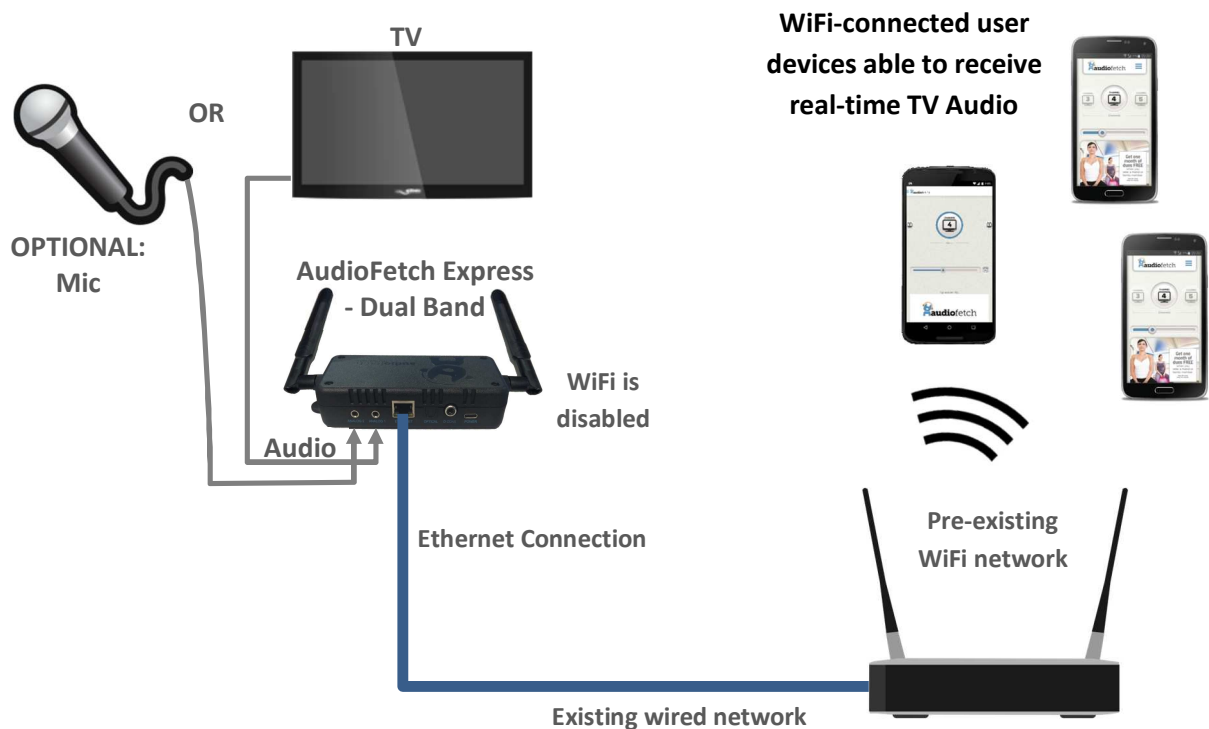


NOTE: As explained in the Wireless Client section earlier, the pre-existing WiFi network DHCP server must supply two separate IP addresses to the AudioFetch Express – Dual Band.

D) Wired Only

The AudioFetch Express – Dual Band connects to a pre-existing wired network via its Ethernet connector. Mobile devices receive audio by connecting to the pre-existing WiFi network.

The pre-existing WiFi network provides internet access.



NOTE: The AudioFetch Express – Dual Band contains an internal router plus an internal audio server. Each of these will make separate DHCP requests for IP address from the existing wired network's DHCP server which must be able to provide two separate IP addresses to the AudioFetch Express – Dual Band connecting in Wired Only mode:

- One IP address for the internal router (operating in bridge mode)
- Another IP address for the internal AudioFetch audio server

Please see the app note: "FetchExpress App Note – Wired & Wireless Client Networking Info" for additional information.

Typically, AudioFetch Express – Dual Band is shipped pre-configured for correct network mode, but only if complete information is provided about your network and installation requirements when ordering.

Networking mode can be re-configured in the Doghouse if needed, see section 12 for more details.

11 Important networking information for wireless and wired client operating modes

11.1 Wireless/Wired Client operating modes require two separate IP addresses on the local network

When operating in a wireless or wired client mode, the AudioFetch Express connects to the local network through an internal router operating as a bridge. In this situation, both the internal bridging router and the internal AudioFetch Express – Dual Band server require their own unique IP addresses on the local network.

For example: if DHCP is being used, then the AudioFetch Express – Dual Band will make two separate DHCP requests (from two separate MAC addresses) as it boots up. Both requests need to be answered, and two individual IP addresses handed out by the DHCP server. Where the local network is configured with reserved IP addresses, two separate reservations need to be made for each AudioFetch Express – Dual Band.

On more complex networks, it is especially important to be aware of this information.

For further details, please refer to the AudioFetch App Note “Wired & Wireless Client Networking Info”.

12 Configuration Management – “The Doghouse”

12.1 Introduction to the Doghouse and Doghouse App

Configuration settings (“The Doghouse”) for each AudioFetch box can be viewed using a web browser on a Windows PC/Laptop, Android/iOS tablet, or Android/iOS mobile phone, ***which must be connected to the same network/subnet as AudioFetch Express – Dual Band.*** Accessing the Doghouse is currently not supported on Apple MAC computers.

Most applications do not require access to the Doghouse since the default settings are usually adequate. When adjustments are required, please review information in this section.

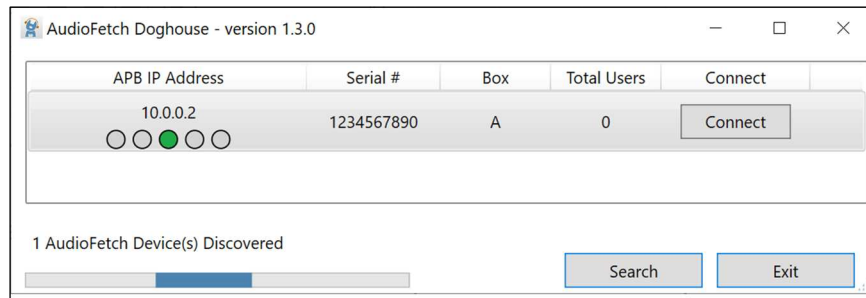
The “Doghouse App” can be used to search for AudioFetch Express – Dual Band boxes on the network and provide easy one-click access to the Doghouse for each box. The Doghouse App is available for Windows, Android, and iOS mobile devices (not available for MAC), further information and install links can be found here:

www.audiofetch.com/doghouse

To achieve a successful connection to the Doghouse on AudioFetch – Dual Band:

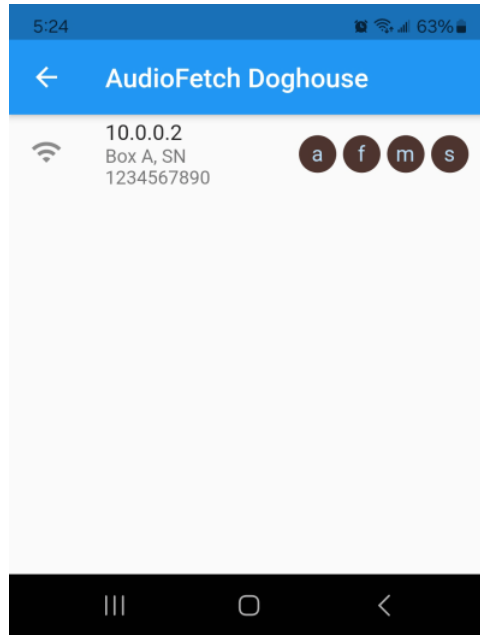
- Ensure your device (PC, mobile phone, tablet, etc.) is connected to the same network/subnet as AudioFetch Express – Dual Band.
- Also ensure that the network/WiFi settings do not prohibit direct communication between devices on the network (ie: “client isolation” should not be enabled).

On a Windows device: Install then run the Windows version Doghouse App to locate AudioFetch box(s) on the network. The Windows version Doghouse App looks like this:

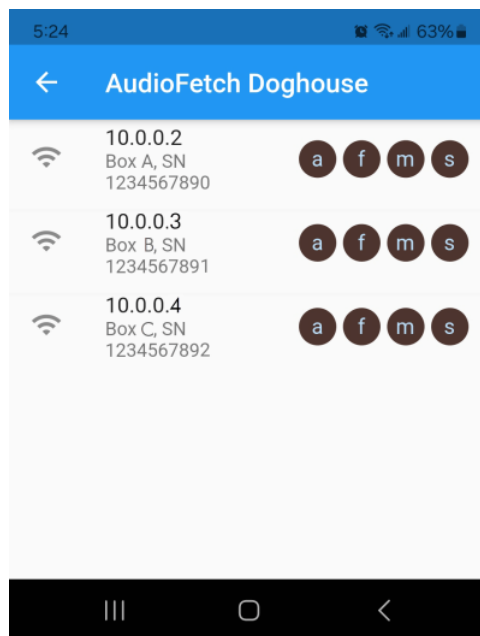


On Android or Apple (iOS) devices: Search and install “AudioFetch Doghouse” in the Google Play or Apple App store, direct links to the store locations are provided on the www.audiofetch.com/doghouse web page.

Here is an example screenshot of the Android version Doghouse App after it has discovered an AudioFetch Express – Dual Band on the network (Apple version app looks similar):



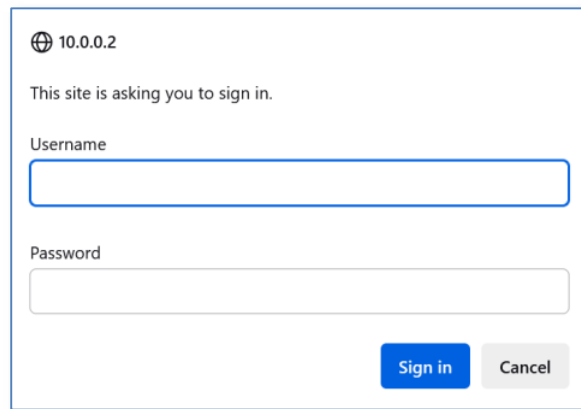
In AudioFetch systems employing more than one AudioFetch Express – Dual Band box (or a mix of standard/wired AudioFetch boxes and AudioFetch Express boxes), all of the boxes present should appear in the listing, like this example from the Android Doghouse App:



Each box has its own configuration settings, in other words each box has its own independent Doghouse. When installing a system with multiple boxes, each and every Doghouse must be accessed in order to configure the boxes correctly.

12.2 Doghouse Login

Once the AudioFetch Express – Dual Band box(s) are displayed in the Doghouse App, tap in the information area for the box to open the Doghouse for the desired box in your default web browser (click the “Connect” button in Windows app). A login dialog will be displayed (this is the Windows version, Android/Apple will look different but request the same info):



A login dialog box with a blue border. At the top left is a globe icon followed by the text "10.0.0.2". Below this is the text "This site is asking you to sign in." There are two input fields: "Username" and "Password". At the bottom right are two buttons: "Sign in" (blue) and "Cancel" (grey).

Default username is: **ADMIN** (all upper case)
Default password is: **admin** (all lower case)

12.3 WELCOME PAGE and basic navigation

After successful login you will see a welcome page similar to below:

**DOGHOUSE NAVIGATION**[Welcome
Page](#)[Network
Setup](#)[Multi-Box
Setup](#)[Channels
Setup](#)[Audio
Settings](#)[System
Status](#)[Tools &
Utilities](#)[Contact &
Links](#)[Discovery
List](#)**WELCOME**

Welcome to the AudioFetch Doghouse
(configuration management)

Navigate using the links above

[Link to AudioFetch reporting and ads portal online](#)

Click the links in the **DOGHOUSE NAVIGATION** section to access each of the configuration pages. The **DOGHOUSE NAVIGATION** section appears on all Doghouse pages, however it may not be shown in examples on following pages.

12.4 NETWORK SETUP page

The **NETWORK SETUP** Doghouse Page configures the network operating modes and provides additional network-related information (such as MAC addresses):

NETWORK SETUP - FetchExpress

Changes are not saved until the SAVE button at bottom of page is clicked

Undo all changes

Operating Mode

What WiFi do users connect to

FetchExpress gets Internet from

WiFi Radio Settings

Band

Band currently used

(Wireless Client may auto select different band if same SSID available)

Bandwidth

Bandwidth currently used

Access Point Settings

SSID (1-32 characters)

Encryption

Password (8-63 characters or 64 hex digits)

WiFi Channel

WiFi Channel currently being used

Wireless Client Settings

SSID (must be exact!)

Encryption

Password

Internal Router Information (WiFi and Ethernet connections)

WiFi MAC Address

28:A1:EB:FD:05:B4

Ethernet Port MAC Address

28:A1:EB:FD:05:B3

Internal AudioFetch Server Settings

These do not affect the WiFi module

Use Automatic IP Address



Manual IP Address

10.175.175.175

Subnet Mask (being used)

255.255.255.0

Gateway (being used)

10.0.0.1

IP Address (being used)

10.0.0.2

Internal AudioFetch MAC Address

00:1E:C0:AE:AC:E4

(bridged to external network in Wireless Client & Wired Only modes)

Save Settings

Click here to restore all fields to current saved/operating values

Selection Options

Access Point (default)

Access Point & Wireless Internet
Wireless Client
Wired Only

Selection Options

5 GHz (default)

2.4 GHz

Selection Options

HT40 (default)

HT20

Rename the Access Point
WiFi SSID if desired

Selection Options

none (default)

WPA-PSK
WPA2-PSK (this is most common)
WPA-PSK/WPA2-PSK Mixed Mode

Enter password if
encryption is enabled

Selection Options

auto (default)

(or specific channel)

Enter your network's
WiFi SSID here

Selection Options

none (default)

WPA-PSK
WPA2-PSK (this is most common)
WPA-PSK/WPA2-PSK Mixed Mode

Select what matches your network settings

Enter your network's
WiFi password here

NOTE: Some selection/entry boxes will be disabled when different Operating Modes are selected

NOTE: In Wireless Client operating mode, the connection to Pre-Existing Network will be automatically selected from the "best" available WiFi band/channel (strongest signal) with matching SSID. The selected band may be different than what is set in the WiFi Radio Settings if the Pre-Existing Network uses same SSID for its 2.4 and 5 GHz bands.

Important points when using the NETWORK SETUP page to reconfigure the network settings:

- Changing to a new Networking Mode will cause your browser to disconnect from the Doghouse (after clicking the “Save Settings” button)
 - You will need to reconnect your PC/device to the AudioFetch Express – Dual Band (or network it is connected to as a client) via the new networking mode, in order to re-establish access to the Doghouse - just like starting from scratch
- Any mistake made in the settings, could cause the AudioFetch Express – Dual Band to become inaccessible after the “Save Settings” button is clicked
- For any problem, best course of action is:
 - Use the red External Button to restore factory defaults in the Wi-Fi Module as described in section 13 **Restoring Factory Defaults with External Button**
 - Reconnect to the default AudioFetch Express – Dual Band Access Point (SSID: AudioFetchExpress)
 - Access the Doghouse
 - Start over again entering the desired new network configuration settings

Further details on individual settings:

- AudioFetch Express – Dual Band can be configured to operate in 5 GHz or 2.4 GHz WiFi band, but not both simultaneously.
 - Audio streaming performance will be better when 5 GHz band is used
 - Maximum number of simultaneous users will be much higher when 5 GHz band is used
- HT40 bandwidth setting (as opposed to HT20) will generally provide better audio streaming performance and capacity for more simultaneous users at the cost of using more of the available WiFi spectrum in the selected band (WiFi transmission will spread across multiple channels). HT20 may be required for environments crowded with many WiFi networks nearby. Contact your IT network administrator for help if needed.
- Wireless Client Mode will automatically connect to the “best” available Pre-Existing WiFi network band/channel (strongest signal) with matching SSID. To ensure Wireless Client Mode will connect into 5GHz WiFi band, the Pre-Existing Network should use different SSIDs for its 2.4 and 5 GHz bands, or its 2.4 GHz WiFi should be disabled.

Steps to reconfigure the network mode:

1. Connect to the AudioFetch Express – Dual Band (AFE) and access the Doghouse via the current networking mode
 - a. In **Access Point** mode: Access the Doghouse through the AFE’s Wi-Fi network
 - b. In **Access Point & Wireless Internet** mode: Access the Doghouse through the AFE’s Wi-Fi network
 - c. In **Wireless Client** mode: Access the Doghouse through the pre-existing Wi-Fi network
 - d. In **Wired Only** mode: Access the Doghouse through the pre-existing wired or Wi-Fi network
2. Adjust the desired settings
 - a. Nothing is activated or saved until the “Save Settings” button is clicked
3. Carefully review the settings
4. Click the “Save Settings” button and review the warning dialog that pops up
5. Click the “OK” button in the warning dialog
 - a. The Status LEDs to begin a “marching” pattern to indicate the save is still in- progress. The march will be: yellow, green, red, repeat....
 - b. The save will take some time (one minute or more), be patient and **do not disconnect power**

- c. Then the AudioFetch Express – Dual Band will automatically restart and should begin operating in the new mode
6. After restart, the new networking mode should be active and if correctly configured the status LEDs should indicate the ready condition
7. If any problem after the restart (ie: new networking mode doesn't seem to work), then:
 - a. Try is a power cycle (wait at least 40 seconds after cycling power before trying to access again)
 - b. Use the red External Button to restore factory defaults in the Wi-Fi Module as described in section13, then repeat this procedure

The NETWORK SETUP page is designed to be as foolproof as possible:

- Only those settings applicable for the selected Networking Mode will be available for editing (automatically grayed out if not applicable)
- Once any setting is changed, a warning notice will appear that the new settings have not been saved. This warning will persist until one of the following occurs
 - Restore button is clicked
 - Save Settings button is clicked and OK is clicked in the warning dialog
- The “Restore” button that undoes all the changes and shows current/saved values in all fields
- A warning dialog will automatically display if the Save Settings button is clicked and any required settings are missing
 - For example: if encryption has been enabled but no password entered

The lower section of the **NETWORK SETUP** page configures settings of the internal AudioFetch audio server. Check “Use Automatic IP Address” to have the AudioFetch audio server receive its’ IP address automatically from the network’s DHCP server, this is the recommended setting. Or uncheck and enter values for: Manual IP Address, Subnet Mask, and Gateway.

Internal Router Information (WiFi and Ethernet connections)

WiFi MAC Address: 28:A1:EB:FD:05:B4

Ethernet Port MAC Address: 28:A1:EB:FD:05:B3

Internal AudioFetch Server Settings

Use Automatic IP Address: ☒

Manual IP Address:

Subnet Mask (being used):

Gateway (being used):

IP Address (being used): 192.168.11.5

Internal AudioFetch MAC Address: 00:1E:C0:AE:AC:E4
(bridged to external network in Wireless Client & Wired Only modes)

These do not affect the WiFi module

Enable checkbox for automatic settings (recommended)

If checkbox not enabled, then make these entries:

Enter desired manual/fixed IP address

Enter desired subnet mask

Enter desired gateway IP address

The values must be correct for operation with the connected network, contact your IT network administrator for instructions if needed.

Usually it is best to leave “Use Automatic IP Address” enabled and let the network’s DHCP server assign an IP address. It is not necessary to enter a manual IP address when the network’s DHCP server has been configured with a reservation IP address for the AudioFetch Box, just leave Use Automatic IP Address enabled – the DHCP server should be able to assign the reserved IP address based on the AudioFetch Express – Dual Band MAC address.

IMPORTANT NOTE FOR IT PERSONNEL: In Wireless Client networking mode, the AudioFetch Express – Dual Band will present two distinct clients to the pre-existing WiFi network. One client is the internal WiFi router module (operating in a bridging mode) and the other client is the AudioFetch server (which serves the audio). ***Both clients will request (and should receive) individual IP addresses from the DHCP server.*** If using Wireless Client mode and experiencing connectivity issues please request the AudioFetch App Note: “AudioFetch Express Wireless Client Networking Info,” which explains in greater detail. The same situation exists in Wired Only mode where two distinct clients will request (and should receive) individual IP addresses from the DHCP server through the wired Ethernet connection to the network. Contact AudioFetch Technical Support if further assistance is required.

After any changes are made on the **NETWORK SETUP** page, the “Save Settings” button at bottom of page must be clicked in order for the new settings to take effect. When the Save Settings button is clicked, the settings are saved and then the AudioFetch Express – Dual Band will automatically restart. If DHCP assigns a new/different IP address after the restart, then use the Doghouse Utility again to re-connect to the Doghouse.

12.5 MULTI-BOX SETUP page

Where more audio channels are required, multiple AudioFetch Express (and/or wired AudioFetch Signature) boxes can be connected to the same network. The **MULTI-BOX SETUP** page is used to configure AudioFetch to work correctly in multi-box installations by uniquely identifying each box.

There are 2 types of identification supported in multi-box installations:

- (optional) Location Name
- (required) Box Identification

Use of Location Name is optional and by default disabled. The example screenshot on next page shows this default setting (Location Features disabled).

MULTI-BOX SETUP

Multiple AudioFetch boxes may be used in a system. Default operation is with location features disabled, in which case up to 32 boxes may be used on a network and each box must be assigned a unique box letter (in Box Identification section below). Assign this unit's unique box letter below, and then access the Doghouse for every other box on the network to assign different unique box letters for them.

Enabling location features allows multiple locations of up to 32 boxes at each location to be used on a network. There is no limit to the number of different locations. If any box on a network has location enabled, then the AudioFetch App upon startup will ask the user to select a location to access. Channels will be displayed for boxes at the selected location only (boxes with that location name set). When using location features, all boxes on the network should have location features enabled and location names specified.

Default Operation (location features disabled):

- Maximum 32 boxes on network
- All boxes must have location features disabled
- Every box must be assigned a different/unique identification (box letter, see further below)
- AudioFetch App will not ask user to choose location, all enabled channels of all boxes will be displayed

To use Location Features:

- All boxes should have location features enabled and location name specified
- Maximum 32 boxes at each location, no limit on number of different locations
- AudioFetch App will ask user to choose location, then will display all enabled channels for boxes at that location only
- At each location, every box must be assigned a different/unique identification (box letter, see further below)
- Box letters can be re-used at other locations
- Use of GPS coordinates is optional, if used then enter same GPS coordinates into all boxes at a particular location (do the same for all other locations)
- If GPS coordinates specified then App will use them to sort the list of locations displayed to the user (based on location of user's mobile device)

Location Features (optional)

Use of location features is optional, if used here then all boxes on network should use

Enable Location features

☐ All other location settings disabled when this checkbox not enabled

Location Name for this box

(maximum 40 characters)

Enable GPS (optional)

☐

Latitude

Enter value between -90.00000 and 90.00000 (5 decimal places max)

Longitude

Enter value between -180.00000 and 180.00000 (5 decimal places max)

[Save Location Settings](#)

[Undo Changes](#)

Assigning an identification letter (A, B, C, D) to each box determines the order of channels displayed in the AudioFetch App. The channels from BOX A will appear first, BOX B channels will be next, etc. **Each box must be assigned a different unique letter** by going into the Doghouse for each box. If location features are enabled then each box within a particular location must be assigned a different unique letter but boxes at other locations can re-use the letters (but must be assigned different/unique letters within their location). Please see the AudioFetch User Manual for further details and examples. Select the letter for **this AudioFetch box** in the dropdown list below, if only using one AudioFetch box then leave it set to BOX A.

Box Identification (mandatory)

Single-box systems: set to BOX A, Multi-box systems: refer to instructions above and user manual

This box (SN: 123456789) is set to be:

(changes to box letter saved immediately)

Changing this setting will clear the list of AF Boxes below - just click the detect link again.

[Click here to detect other AudioFetch Boxes](#)

Other boxes must be on the same subnet to detect, network must support SSDP (multicast) discovery. Detection will not work on systems using other discovery methods including DNS, mDNS, etc. **If the same box (sn) appears twice**, please click the link again to re-scan.

IP Address	MAC Address	Serial Number	Setting
192.168.174.101	00:1E:C0:AE:AC:E4	123456789	BOX A
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

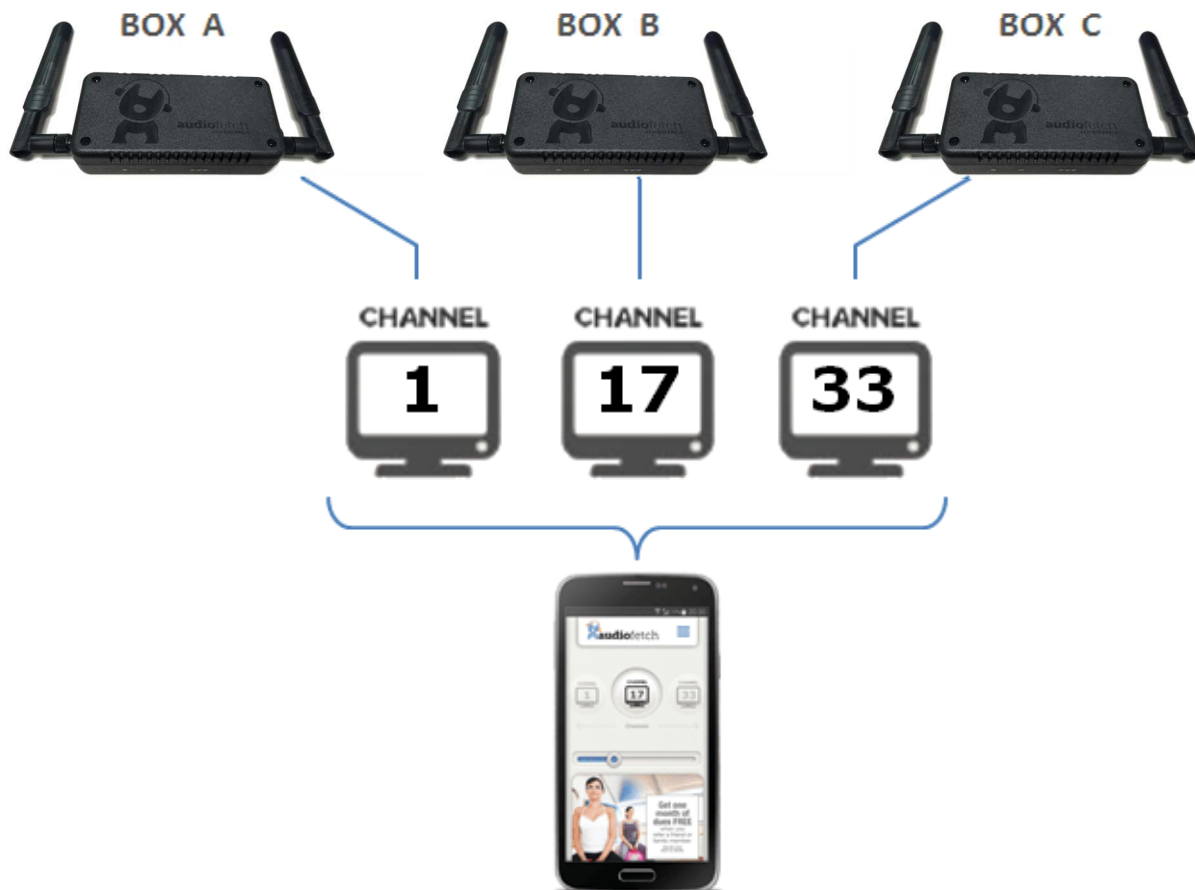
Selection
Options

Box A
⋮
Box AF

Most AudioFetch installations are single-box, in this case ensure that “BOX A” is selected from the drop-down Box Identification list - as shown in the image above (this is factory default).

With multiple boxes, and when all boxes in a system have Location Features disabled, up to 32 boxes are supported and each box must be assigned a unique Box Identification letter (BOX A, BOX B, BOX C, etc.) in the Box Identification section of the Multi-Box Setup page. There are 32 choices available for box letter: BOX A through BOX AF.

The box identifier controls the order of channels displayed in the AudioFetch App. The channels from BOX A will be displayed first, channels from BOX B will be displayed next, etc. For example, in a 3-box installation (three AudioFetch Express boxes) where the boxes have been designated: BOX A, BOX B, and BOX C, channels will be displayed by the App like this:



Note that the system default channel numbers are shown in the example above – channel 17 is displayed for BOX B and channel 33 for BOX C due to system compatibility requirements with other types of AudioFetch boxes (such as a 16-channel box). If channel names have been assigned in each of the AudioFetch Express Doghouses, the channel names will be displayed by the app instead of default

channel numbers shown above, but the ordering will still be determined by the BOX A/B/C designation. Channel naming is described in the next section.

Each AudioFetch box must be separately configured with a BOX A/B/C/D... designation. Default from the factory is BOX A, so when installing a multi-box AudioFetch system, one must access the Doghouse for each and every box and set the IDs to be different/unique for each box, to ensure channels from each of the boxes are mapped to the desired display order (and numbering) on the AudioFetch App.

IMPORTANT: Each box must have a different designation!

If two or more boxes have the same ID designation (in a system with Location Features disabled), then some channels will not be available in the AudioFetch App. Accessing the Doghouse and configuring the BOX designations is mandatory in multi-box installations.

Note: When multiple AudioFetch Express boxes are ordered to work together on the same network, they will be pre-configured for you and this procedure will not be necessary.

To configure the boxes in a multi-box installation:

1. Decide how you want the channels from each box to be ordered by the App (which box's channels display first, second, third, etc.).
2. Use the Doghouse App to find/display all of the boxes on the network.
3. Access the Doghouse for the first box (You want the App to display this box's channels first), navigate to the **MULTI-BOX SETUP** page ensure the Location Features checkbox is not checked, then use the drop-down selector to select "BOX A", the new box letter setting is saved automatically.
4. 4. Access the Doghouse for the second box, ensure Location Features not enabled, and select "BOX B".
 - a. NOTE: Each box has its own Doghouse, you must access each box's Doghouse separately.
5. If a third box is present: access the Doghouse for the third box, navigate to the MULTI-BOX SETUP page, ensure Location Features not enabled, and use the drop-down selector to select "BOX C".
6. If a fourth box is present: Access the Doghouse for the second box, ensure Location Features not enabled, and select "BOX D".
7. Continue this procedure for any additional boxes present.

A maximum of 32 boxes are supported in a multi-box system with Location Features disabled.

Box Identification (mandatory) Single-box systems: set to BOX A, Multi-box systems: refer to instructions above and user manual

This box (SN: 123456789) is set to be: (changes to box letter saved immediately)

Changing this setting will clear the list of AF Boxes below - just click the detect link again.

[Click here to detect other AudioFetch Boxes](#)

Other boxes must be on the same subnet to detect, network must support SSDP (multicast) discovery. Detection will not work on systems using other discovery methods including DNS, mDNS, etc. **If the same box (sn) appears twice**, please click the link again to re-scan.

IP Address	MAC Address	Serial Number	Setting
192.168.123.123	00:1E:C0:AE:BD:C9	3987083008	BOX A
192.168.123.143	54:10:EC:3B:35:D7	1255484672	BOX B
192.168.123.102	00:1E:C0:AE:AC:E4	123456789	BOX C
--	--	--	--
--	--	--	--
--	--	--	--

To assist in setup, the Doghouse **MULTI-BOX SETUP** page contains a link to detect/display info about other boxes present on the local network. Click the link, and then a notification page will appear for about 5 seconds while the other boxes are being detected. Note that other-box detection in the Multi-Box Setup page works only on networks which fully support SSDP discovery protocol. Some network configurations do not support SSDP, in this case use the Doghouse Utility as an alternative to discover all the boxes on the network and display their box settings.

When the drop-down selector is used to change the box designation, the list of other boxes is cleared. In this case just click the detection link again to re-display all the boxes.

After detection, the box setting for each will be displayed as shown above (in the column labeled "Setting"). When configuring a multi-box system, use the detect link to double-check that all boxes have different/unique designations. For example, this display of detected boxes indicates a problem because two boxes are set to the same designation:

IP Address	MAC Address	Serial Number	Setting
192.168.11.4	54:10:EC:3B:35:D7	1255484672	BOX A
192.168.11.7	00:1E:C0:DD:09:E9	3386052608	BOX A
192.168.11.5	00:1E:C0:AE:AC:E4	123456789	BOX C

In this case, one of the conflicting boxes should be changed to BOX C.

Note that other-box detection works only on networks which fully support SSDP discovery protocol. Some network configurations do not, in which case use the Doghouse Utility as an alternative to discover all the boxes on the network and display their box settings.

Location Features:

Location Features help simplify use of the AudioFetch App in large AudioFetch systems where many different boxes may exist on a network operating in multiple different physical locations. Instead of displaying all of the channels from all of the boxes (which may be very many channels), the App will ask the user to select a location from a list when the App starts up. Only channels from boxes configured with that exact same location name will be displayed, so that the user is presented only those channels relevant to his or her physical location.

Use of location features is optional. If not used then all boxes on the network must have the Location Features checkbox unchecked. This will ensure the AudioFetch App operates in default mode (no location list). If just one box on the network has Location Features enabled, it will trigger the AudioFetch App to operate with a location list.

If Location Features are enabled, then each and every box on the network should have a location name specified in the MULTI-BOX SETUP page. All boxes within the same physical location should have exactly the same name specified, boxes in a different physical location should have exactly that other location name specified, etc. Any boxes with location name unspecified will automatically be grouped into “Unknown Location” location by the AudioFetch App. Location names can be up to 40 characters long.

For a group of boxes using the same location name (ie: boxes within one specific location), the App still needs to know how to order the displayed channels. Therefore, all boxes using the same location name must each be assigned a different/unique box letter. However boxes in a different location can re-use box letters, so long as boxes within that different location each have a different/unique box letter. Like this:

Location Name:	Rec Room	Customer Lounge	Hall 1	etc...
Boxes Present:	BOX A	BOX A	BOX A	
	BOX B	BOX B	BOX B	
	BOX C		BOX C	
			BOX D	

There is no limit to the number of different location names in an AudioFetch system. At each location up to 32 boxes can use the same location name. Therefore, using Location Features the number of boxes in an AudioFetch system is unlimited. Exception: When a network is configured for DNS discovery of AudioFetch boxes, the maximum number of boxes supported (for DNS discovery) is 130. If needed, the Discovery List feature can be used to expand beyond the 130 box limit— contact AudioFetch Support for further help.

When Location Features are enabled, the use of GPS coordinates is optional. When used, the GPS coordinates simply help the AudioFetch App sort/order the list of locations displayed to the user, with the location closest to the user’s mobile device displayed at the top of the list. To use GPS coordinates:

Enable the checkbox then enter GPS coordinates (latitude and longitude) for that location. For all the boxes with a given location name specified, the same GPS coordinates should be entered.

12.6 CHANNELS SETUP page

The **CHANNELS SETUP** page shows the installed channel(s) and allows alternate name or number to be assigned. The “Enable” checkbox can be de-selected to disable the channel - the App will no longer display the channel when it is un-checked.

The default channel number displayed by the App may be replaced by making an entry in the “Name” field such as the entry “ESPN” shown in the example below. Although up to 10 characters may be entered in the Doghouse, the App will display *only the first five characters* of the channel name entry.

IMPORTANT: The “Save Settings” button must be clicked after any changes are made, otherwise the new settings will be lost at navigation away from this page or the next power cycle.



Name	Enable
Channel 1 ESPN	☒

Maximum 10 characters for channel names entered here
Only first 5 characters are displayed in AudioFetch App

Save Settings

Optional: Enter desired channel name here

Note that only a single channel will be shown when the AudioFetch Express – Dual Band has been configured for 1-Channel Mode. When configured for 2-Channel mode then a list of two channels will be displayed, each with their own configurable settings. For more information about 1 or 2 Channel modes please refer to section 12.7.

12.7 AUDIO SETTINGS page (gain, microphone, ACE feature, 1 or 2 Channel mode)

The **AUDIO SETTINGS** page is used to access different sets of configurations:

AUDIO GAINS & MICROPHONE
ACE (Audio Control and Enhance)
1 OR 2 CHANNEL OPERATING MODE

AUDIO GAINS:

The **AUDIO GAINS** section displays current audio status for the input channel selected from the drop-down list, and allows the gain for each available channel to be adjusted.

AUDIO GAINS 1-Channel

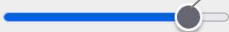
Adjust Master Audio Gain for channel: Channel 1 ▾

Master Audio Gain 4.0 dB

Move slider to desired new setting then release it to change the gain, click Save button to save new gain
Adjust gain so that Peak Audio Status below is within approx: 70% - 95% with your usual audio source
After adjusting slider, can use R/L arrow keys to increment or decrement gain value step-by-step

Peak Audio Status 80.5 % Adjust Master Audio Gain so max value here is 70% - 95%

Source Digital Coax Shows automatically selected input being used



Save **Cancel**

Selection Options
Channel 1
Channel 2
Channel 2 is available only when 2-Channel Mode is configured

Adjust slider to set maximum volume available in App playback on selected channel
Adjust gain up if users need more volume
Adjust gain down if audio is distorted

Use Peak Audio Status to help monitor when signal distortion may be occurring

Indicates which external connector is receiving the audio signal

To set the Audio Gain:

1. Channel 1 will be the only channel available in the drop-down list unless 2-Channel Mode is configured, in which case Channel 1 and Channel 2 will be available. Details on 1 or 2 Channel mode configuration are further below.
2. Ensure audio source(s) are connected to the AudioFetch Express – Dual Band.
3. Select a channel to adjust .
4. Monitor the Peak Audio Status number, if an active audio source is connected then it will constantly change.
 - a. NOTE: There will be no status indicated if the selected channel is not enabled in Doghouse Channels Setup page.
 - b. If the Audio Gain setting is very low (a large negative number) then this might be the problem – try changing the Master Audio Gain setting to a high positive number like 20 at first, then reduce as needed.
 - c. If Peak Audio Status remains at 0% then check if enabled in the Channels Setup page, check the audio connections, else something is likely wrong in the cabling or audio source.
5. Optimum Peak Audio Status is when the status hits 70% to 95% at its maximum.
6. If Peak Audio Status is too low or too high, adjust the Master Audio Gain slider as needed until Peak Audio Status is within optimum range and maximum playback volume on user devices is acceptable.
7. Remember to click the “Save” button to set/save the new gain value.
8. Repeat this procedure for all audio channels.

The example shown above shows an Audio Gain setting of 4.0 dB and resulting Peak Audio Status of 80.5% (this will change continuously), which is near the middle of the optimum peak audio range.

MICROPHONE SETTINGS:

The Analog 2 connector operates as a microphone input when AudioFetch Express – Dual Band is configured for 1-Channel mode. In 2-Channel mode the Analog 2 connector operates as the 2nd channel line level input and will not work with a microphone. Note that the microphone input is disabled by default – follow the procedure below to enable it.

- **IMPORTANT:** The microphone input will not work if an audio source is connected to either the Optical or Digital Coax input connectors
- The microphone signal is internally mixed with the Channel 1 analog signal (from Analog 1 connector)
- The Channel 1 gain adjustment described above acts as a master volume control for both Channel 1 signal and microphone signal, there is a separate gain control to further adjust microphone volume to a desired mix with Channel 2 signal

The microphone used must be a condenser type **compatible with standard PC sound card mic input**, compatible with the 4.7V phantom power (through 3.9K resistor) provided by the AudioFetch Express – Dual Band. AudioFetch recommends the **Pyle Double Over Ear Microphone Headset** readily available through online retailers. Other similar condenser microphones/brands will work however some may not provide good audio quality.

Microphone Settings:

Microphone Enable ☐

Microphone Gain 20 %

Mic Gain Boost ☒

Save Cancel

Enable when microphone connected to the 2nd analog audio input

Enable only if mic volume still too low even when Mic Gain above is maximized

Click to enable Microphone input on Analog 2 connector

Adjust Gain slider until microphone volume is at desired level, then click Save button

Enable Mic Gain Boost only if mic volume still to low with gain slider set to maximum

Audio Instructions:

- Connect audio source, if source has volume control then set to usual volume output level
- Peak Audio Status should update/change continuously, if not check audio source and cabling
- Adjust Master Audio Gain value until Peak Audio Status reads between 70-95%
- For lowest noise, adjust source device volume higher and Master Audio Gain (above) lower
- If using 2-Channel mode, then select next channel and repeat Master Audio Gain adjustment
 - 2-Channel mode supports the two 3.5mm analog audio inputs only
- If using microphone (only in 1-Channel mode) then plug condenser mic into MIC input
 - Condenser mic = same as used with PC sound card inputs
 - Optional: Connect/play audio source into first analog input (if mixing mic with other audio)
 - ONLY 3.5mm analog audio inputs may be used - do not connect anything to other audio inputs
 - Use AudioFetch App on mobile device to connect/listen to audio from this box
 - Click the Microphone Enable checkbox
 - Adjust the Microphone Gain slider to set desired microphone volume
 - Click Mic Gain Boost checkbox if more mic volume needed
 - Check that the Peak Audio Status is not exceeding 95%
 - If so then lower Master Audio Gain setting
 - Click the Save button next to Microphone Gain slider to save the gain settings

To use a microphone with AudioFetch Express – Dual Band:

1. Ensure AudioFetch Express – Dual Band is operating in 1-Channel mode
2. Ensure no audio sources are or will be connected to Optical or Digital Coax inputs
3. Connect a compatible microphone to Analog 2 input
4. Access the Doghouse and navigate to the AUDIO SETTINGS page
5. If microphone will be mixed with another source connected to Analog 1 input – adjust Channel 1 gain (top section of AUDIO GAINS section on Doghouse page) for Channel 1 audio signal as described further above
 - a. For microphone-only application, set Channel 1 gain to 10 dB (positive 10 dB)
6. Temporarily disconnect the Channel 1 audio source from Analog 1 connector (if used), or turn off the source device/signal connected to Analog 1 connector
7. Check the Microphone Enable box, the new setting is saved and takes effect immediately
8. Initially, the “Mic Gain Boost” box should be un-checked
9. Position the microphone and speak into it as the microphone will be used normally, speaking a bit louder than will normally occur
10. While monitoring the Peak Audio Status indicator, adjust the Microphone Gain up or down as needed to achieve maximum peak audio level between 60% to 80%
11. If the peak audio level is still too low with Microphone Gain adjusted to its maximum setting of 20, then check the Mic Gain Boost box and re-adjust Microphone Gain to achieve desired peak audio level
12. If microphone will be mixed with another audio source connected to Analog 1 input, then re-connect/re-enable the other audio source and further adjust Microphone Gain to achieve desired mix

Most headset style microphones are designed to be located close to the speaker’s mouth in which case the microphone produces a strong output signal, and the Mic Gain Boost box does not need to be checked. The Mic Gain Boost is intended for situations where the microphone might be located further away from the speaker such as a desktop/podium microphone (remember: the microphone must be compatible with standard PC sound card input). Use the Mic Gain Boost feature carefully – follow the procedure above – enabling it with strong microphone signal could result in audio distortion.

ACE:

The **ACE** section (please scroll further down on the **AUDIO SETTINGS** page) provides optional adjustments which can improve audio quality where network/WiFi conditions may not be optimum for AudioFetch. Increasing the ACE setting will increase the amount of audio buffering used by the AudioFetch App – this can improve audio quality at the expense of slightly more latency (more delay between on-screen video and the audio heard by users). Usually the latency is not noticeable for ACE

settings 1, 1.5, and 2. The latency may be just slightly noticeable for higher settings, but not so much in a fitness club or sports bar environment. Please review the displayed information and instructions, then contact AudioFetch Technical Support if further assistance is needed with the ACE settings.

ACE

Audio Control and Enhance - buffer feature (optional)

As a first option to solve poor quality audio, please consult the AudioFetch troubleshooting guide and/or AudioFetch Technical Support (888.330.4283 x3) to ensure network settings and source audio settings are optimized. However some WiFi networks may benefit from additional audio buffering at the expense of audio delay (latency).

To employ the ACE feature, first be sure that your mobile device is running latest version of AudioFetch App from iTunes or Google Play store. Then move setting (below) one place to the right corresponding to the type of mobile device being tested (Apple or Android) then click the Save button. On your mobile device completely close the AudioFetch App, re-open the App, and check the audio quality again counting any audio interruptions over a 1-2 minute test period. Progressively choose settings further to the right (remember to close then open the App after each setting change), until the overall experience is satisfactory. Hint: Typically Apple phones are more forgiving of WiFi issues so it may be wise to make changes to Android only initially. **Reminder:** encourage your users to update their AudioFetch App to latest version in order to experience the benefits of ACE!

Contact AudioFetch Technical Support if these adjustments either do not resolve audio issues or result in an unsatisfactory user experience.

Default settings are 1 for Apple (iOS) and 1 for Android. Choosing 1, 1.5, or 2 is optimal for most environments. Choosing settings 3 and 4 may be masking other issues.

ACE SETTING	1	1.5	2	3	4
Apple (iOS)	☒	☐	☐	☐	☐
Android	☐	☒	☐	☐	☐

Save

(must click Save to apply changes)

REMINDER: After saving a change, the AudioFetch App on your mobile device must be closed then re-started.

The **1 OR 2 CHANNEL OPERATING MODE** section allows the AudioFetch Express – Dual Band to be configured to provide one or two independent audio channels. Default mode (1-Channel) provides a single stereo channel, the 2-Channel mode provides two mono channels.

1-Channel operation:

A single channel will appear in the Channels Setup page

One stereo channel will be available in the AudioFetch App

Any of the audio input connectors may be used (Optical, Digital Coax, Analog 1) to connect a single stereo audio source

2-Channel operation:

Two channels will appear in the Channels Setup page

The Analog input connectors (Analog 1 and Analog 2) must be used – ***do not use Optical or Digital Coax inputs!***

The Analog input connectors (3.5mm stereo jacks) accept stereo input signals, which are mixed down internally into two mono channels

1 OR 2 CHANNEL OPERATING MODE

1-Channel mode provides a single stereo audio channel, any input can be used (analog/digital-coax/optical).

2-Channel mode provides 2 independent mono audio channels and only the analog 3.5mm inputs can be used.

Microphone feature is only available when using analog 3.5mm inputs in 1-Channel mode. Microphone (on CH-2 connector) will be mixed in with the audio source on CH-1 connector, or may be used stand-alone without an audio source connected to CH-1 connector. Microphone must be condensor type such as those commonly used with PC mic inputs.

Do not use the digital-coax or optical connectors when 2-Channel mode is selected, instead connect one analog audio source to 3.5mm CH-1 connector and a second analog audio source to 3.5mm CH-2 connector. Note that each of the connectors accepts a stereo input which is mixed internally to mono (when 2-Channel mode is selected). Note that Microphone functionality is not supported in 2-Channel mode.

When the operating mode is changed (and save button clicked), the new setting will be saved and then there will be an automatic reboot of this unit before the new mode becomes operational.

Select operating mode: 1-Channel ▾

Save

Selection Options

1-Channel (default)
2-Channel

Changes not saved until
the Save button is clicked

To change the operating mode:

1. Click the dropdown list and select 1-Channel or 2-Channel
2. Click the Save button
3. Click the OK button in the confirmation dialog box

When the mode is changed and Save/OK buttons clicked, the new mode will be saved and the AudioFetch Express – Dual Band will automatically reboot, which will take about 45 seconds. During this time do not remove power from the AudioFetch Express – Dual Band.

When configured for 2-Channel operation, the Analog input connectors must be used, do not use Optical or Digital Coax inputs. The Analog input connectors are standard 3.5mm stereo jacks.

12.8 SYSTEM STATUS page

The **SYSTEM STATUS** page shows basic information about the system and connected users. Not all information is refreshed automatically, click the “Refresh” button at the bottom of the page to update the display of latest status.

Click the “Reset Statistics” button to reset the general statistics in the upper area.

SYSTEM STATUS - STEREO

Serial Number:	1255484672
Main AudioFetch Firmware Version:	2021-08-02
WiFi Module Firmware Version:	2017-02-14
Installed Channels:	1
Enabled Channels:	1
Connected Users:	2
Max. Connected Users past 24 hours:	2
Connected Users past 7 days:	2
Max. Connected Users past 30 days:	2
Max. Connected Users ever:	2

Reset Statistics

Connected Users per channel

Ch 1: 2

Click table for user details

Refresh

[Link to AudioFetch reporting portal online](#)

Click anywhere in the “Connected Users per channel” area and a detailed list of currently connected users is displayed with various sorting options provided by the drop-down selector:

CONNECTED USER LIST

Sort-IP ▾

No. 1	IP = 192.168.11.2	Ch. = 1	Time =	00:00:55
No. 2	IP = 192.168.11.8	Ch. = 1	Time =	00:02:21

Refresh

[Return to System Status Menu](#)

AudioFetch provides additional monitoring statistics online, click the link at the bottom of the **SYSTEM STATUS** page to access the online reporting service. Contact AudioFetch Support if you have lost or forgotten your online login credentials.

12.9 TOOLS AND UTILITIES page

The **TOOLS AND UTILITIES** page provides means to change the Doghouse username/password, an alternate QoS adjustment which can improve audio quality on some networks, settings related to how automatic firmware updates are delivered, and other utility functions.

To change username/password (for accessing the Doghouse), enter the current credentials into the first two boxes, then enter the new username/password into the last two boxes and click the “Modify Name/Password” button.

The “Force alternate WMM VOICE QoS” checkbox is enabled by default. Normally with AudioFetch Express – Dual Band this box should remain checked, however if experiencing audio quality issues then try unchecking to determine if it can provide improvement.

“Enable alternate SSDP advertisements” adjusts the information sent out in SSDP advertisement packets once every second. On some networks, enabling this setting may help allow the AudioFetch App (on user mobile devices) to more easily connect to AudioFetch boxes. This is especially true for networks based on Aruba equipment. If the App cannot connect and receive AudioFetch audio streams try experimenting with this setting. See AudioFetch app note “Network Quick Start Guide” or app note “Network Details” for more information about SSDP advertisement packets.

TOOLS AND UTILITIES

All entries 7 char max.

Name	
Password	
New Name	
New Password	

Force alternate WMM VOICE QoS ☒

Enable alternate SSDP advertisements ☐

Installed Main AudioFetch Firmware: 2021-08-02

Enable Online Automatic Firmware Updates ☒

Local Update - disable Automatic Updates checkbox and browse for update file

No file selected.

Restrict Doghouse Access (timed window after power-on)
Use this to set a time window for initial log-in to Doghouse after power-on. If window time expires with no log-in then Doghouse is disabled until next power cycle. Once successfully logged-in, Doghouse access remains enabled until next power cycle. Clicking the Disable button will disable access until next power cycle.

Initial Doghouse log-in window (minutes):

Click here to disable Doghouse now:

Blink LEDs	RED	GREEN	YELLOW
(To ID this box)	☐	☐	☐

Cycle through all LEDs ☐

This does not restore WiFi networking mode settings (Use the external button)

There is a checkbox to enable/disable Online Automatic Firmware Updates, which are provided from time to time by AudioFetch (only if the AudioFetch Express – Dual Band is connected to a network with Internet access). Default setting is enabled, AudioFetch recommends this be left enabled. AudioFetch system firmware updates are rare and generally occur late at night. The AudioFetch Express – Dual Band checks for an available update once just after power-on and then once every 5 hours thereafter.

If desired, the “Check now for online update” button may be clicked. A confirmation will pop up, click the “OK” button to proceed. There is no subsequent display about an update being available or starting, but if an update is available then it will begin automatically and the download progress is indicated by the yellow status LED on the AudioFetch box flashing (during download). After the

download completes, AudioFetch Express – Dual Band will reset itself, execute the update (yellow LED will turn on again during update), then reboot several times. Completing all of this typically takes about 40-60 seconds.

New firmware may be manually uploaded to AudioFetch Express – Dual Band if needed (see buttons under “Local Update”) but this would be rare and should be accomplished while receiving guidance from AudioFetch tech support on a case-by-case basis. Note that this feature currently supports browsers running only in Windows operating system.

“Restrict Doghouse Access” is a security feature to help prevent unauthorized access into the Doghouse by end users of the AudioFetch system. By default, the Doghouse may be accessed at any time so long as the correct username/password credentials are entered. By selecting a specific log-in window of time from the dropdown box, the Doghouse will only be accessible if the initial log-in occurs within the selected number of minutes after power-on. The choices are: 1 minute, 2 minutes, 5 minutes, 10 minutes, and “Forever”. If an initial log-in does not occur within the selected time window, then the Doghouse becomes and remains completely inaccessible until the next power cycle occurs. For example, if a 1 minute time window is selected, you must log-in to the Doghouse within 1 minute of power-on (it’s actually 1 minute from the time the green status LED turns on solid). Once successfully logged-in, the Doghouse will remain accessible indefinitely, until either: the next power cycle, or the “Disable” button is clicked. If access to the Doghouse is needed again, just power cycle the box and log-in again within the 1 minute window.

The “Blink LEDs” section provides checkboxes for each of the three status LEDs on the AudioFetch Express – Dual Band. When any of these checkboxes are enabled, the normal status display is temporarily replaced by the enabled LEDs blinking. This is simply a way to force the status LEDs on a particular box to blink – which can be useful for identifying specific boxes in a multi-box installation. Be sure to uncheck all of these to return the LEDs to normal display of status.

Clicking the “Restore Factory Settings” button clears most AudioFetch Doghouse settings, restoring to factory default values, **but does not restore the networking mode settings on the NETWORK SETTINGS page**. AudioFetch will automatically reboot after clicking this button. After performing a factory restore, Doghouse settings should be reviewed and adjusted as necessary (don’t forget that the username/password will be reset back to default ADMIN/admin as well).

NOTE: AudioFetch recommends using the external button to restore factory defaults, as this provides means to restore all settings to default values, including the networking mode settings. Use of the external button is described in section 13.

12.10 CONTACTS & LINKS page

The **CONTACT & LINKS** page contains contact information in case support is required, as well as a link to the online portal.

CONTACT & AD PORTAL

844.443.3824

support@audiofetch.com

[Link to AudioFetch reporting and ads portal online](#)

12.11 DISCOVERY LIST page

The **DISCOVERY LIST** page contains special settings to be used only in rare situations. Generally this page should be left disabled (default).

If a network is configured to use DNS Lookup discovery method (see AudioFetch networking app notes), and if more than 4 AudioFetch boxes will be operating on the network, then the settings on the DISCOVERY LIST page must be used. The settings should be enabled/entered by IT support personnel together with assistance from AudioFetch Technical Support. Further information and instructions are presented on the DISCOVERY LIST page itself – and please contact AudioFetch Technical Support if you have any questions.

DISCOVERY LIST

Settings on this page allow more than 4 AudioFetch boxes to be used in a system when the network is configured to use DNS LOOKUP discovery method (which is normally limited to 4 boxes max). See the User Guide for your AudioFetch product for more information about the settings on this page.

If your network does not use DNS LOOKUP discovery method for AudioFetch, or if you are unsure, then leave this page disabled. Your IT support personnel can provide more information, or contact AudioFetch Tech Support at 844.443.3824 if you have questions about the use of these settings.

Instructions:

1. If DNS LOOKUP is **not** being used with your AudioFetch system then stop here - do not enable the settings on this page.
2. If using DNS LOOKUP with 4 or fewer boxes then stop here - do not enable the settings on this page. Instead configure network for DNS LOOKUP on all of those boxes.
3. If using DNS LOOKUP with 5 or more boxes then proceed...
4. Ensure your network reserves fixed IP addresses for all AudioFetch boxes on your network (reservations usually made in your network's DHCP server settings).
5. Configure your network for DNS LOOKUP on 4 of the AudioFetch boxes - see App Note "Network Quick Start Guide" for DNS LOOKUP instructions.
6. Access the Doghouse on each of the 4 AudioFetch boxes configured for DNS LOOKUP on your network, follow remaining instructions (on each of the boxes).
7. Check the "Enable This List" box (just following these instructions).
8. In the list below click the individual enable checkboxes and enter IP addresses for all of the AudioFetch boxes on the network (including the boxes configured to use DNS LOOKUP). Order of the entries does not matter and it is OK to have disabled entries in the middle of the list.
9. All unused entries in the list must have IP address equal to: 0.0.0.0 (this disables the entry).
10. Reminder: this page should be disabled on all boxes which are not configured for DNS LOOKUP on your network.
11. Double-check that the entries in the list are all correct and the corresponding boxes are indeed present on your network.
12. Click the SAVE button.
13. Test that all AudioFetch boxes/channels can be accessed in the AudioFetch App.
14. If more AudioFetch boxes are added in the future, ensure that your network reserves a fixed IP address and then add it to this list in the 4 boxes which are configured for DNS LOOKUP on your network.

Enable This List ☐ Enable only after reading instructions above

	Enable	IP Address	Notes
1	☐		Entering 0.0.0.0 will result in blank field after save (effectively disabled)
2	☐		Values > 255 will cause unpredictable results after save, just re-enter
3	☐		Order does not matter, OK to have disabled entries in middle of list
4	☐		
5	☐		
6	☐		
7	☐		
8	☐		
9	☐		
10	☐		

11	☐	
12	☐	
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25	☐	
26	☐	
27	☐	
28	☐	
29	☐	
30	☐	
31	☐	
32	☐	

Save Settings Must click Save to apply changes

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13 Restoring Factory Defaults with External Button

The External Button is used to restore factory default settings. There are two choices: A) restore only WiFi-related settings or B) restore all settings.

IMPORTANT: Do not remove power during the restore procedure.

A) Restore only the WiFi Module settings in the Network Setup Doghouse page:

1. Power up the AudioFetch Express – Dual Band and allow it to fully boot (about 45 seconds)

2. Press and hold the User Button, as soon as it is pressed all status LEDs will turn off
3. Continue pressing the button for 10 seconds
4. At 10 seconds all three status LEDs will turn on solid for a window of 3 seconds
 - o Release the button while the status LEDs are on to restore defaults for only the WiFi module (just the WiFi module settings on the Network Setup doghouse page)
 - Red and green LEDs will turn off, yellow LED will flash indicating WiFi module restore is in progress
 - AudioFetch Express – Dual Band will automatically reboot when restore is complete

B) Restore all settings on all Doghouse pages:

1. Power up the AudioFetch Express – Dual Band and allow it to fully boot (about 45 seconds)
2. Press and hold the User Button, as soon as it is pressed all status LEDs will turn off
3. Continue pressing the button
4. At 10 seconds all three status LEDs will turn on solid for a window of 3 seconds
 - o **Do not release the button yet**, continue pressing button and the status LEDs turn off again
5. After the status LEDs turn off, continue pressing button for another 7 seconds
6. When all three status LEDs turn on again:
 - o Release the button while the status LEDs are on to restore factory defaults for all Doghouse settings
 - Red LED will turn off, green and yellow LEDs will flash indicating full restore is in progress
 - AudioFetch Express – Dual Band will automatically reboot when restore is complete
7. Note: in step 6 above the three status LEDs will remain on for 5 seconds, then turn off. If the button is not released before they turn off, then nothing will happen (no restore). In this case, simply release the button then repeat this procedure starting from step 1.

There is a “Restore Factory Defaults” link/button in the Doghouse Tools & Utilities page, this will restore all the Doghouse settings except for the WiFi settings.

When the WiFi settings are restored to default, AudioFetch Express – Dual Band will operate in Access Point mode:

SSID: AudioFetchExpress
no encryption or password

14 Changing SSID/password in Wireless Client Mode

In Wireless Client Mode the AudioFetch Express – Dual Band connects into your existing WiFi network and must be configured with your existing network's correct SSID and password. If your WiFi network settings are changed (SSID/password), or if AudioFetch Express – Dual Band was not shipped with pre-configured settings matching your WiFi, then follow this procedure:

1. Restore the WiFi module to default settings – follow procedure A) in section 13 [Restoring Factory Defaults with External Button](#)
2. The AudioFetch Express – Dual Band will restart in Access Point mode with SSID: AudioFetchExpress and no encryption/password
3. Connect a mobile phone, tablet, or PC to the AudioFetchExpress WiFi and access the Doghouse using current username/password (ADMIN/admin are defaults after a full factory restore)
4. Select **Wireless Client** from the Operating Mode dropdown list
5. Enter your network SSID, Encryption, and Password information in the Client Mode Settings section

NETWORK SETUP - FetchExpress

Changes are not saved until the SAVE button at bottom of page is clicked

Undo all changes

Restore

Click to undo changes

Operating Mode

What WiFi do users connect to

FetchExpress gets Internet from

Wireless Client

Existing WiFi

N/A (operating as bridged client)

Select Wireless Client

WiFi Radio Settings

Must match your existing WiFi network

Band

5 GHz

Band currently used

5 GHz

(Wireless Client may auto select different band if same SSID available)

Bandwidth

HT40

Bandwidth currently used

HT40

Access Point Settings

Not used for selected Operating Mode

SSID (1-32 characters)

AudioFetchExpress

Encryption

none

Password (8-63 characters or 64 hex digits)

WiFi Channel (must be auto this mode)

auto

WiFi Channel currently being used

140

Enter your network's WiFi SSID here

Wireless Client Settings

Must match your existing WiFi network exactly

SSID (must be exact!)

YourWiFiNetworkSSID

Encryption

WPA2-PSK

Password

YourWiFiPassword

Enter your network's WiFi password here

Selection Options

none (default)

WPA-PSK

WPA2-PSK (this is most common)

WPA-PSK/WPA2-PSK Mixed Mode

Select what matches your network settings

6. Click Save Settings button at the bottom of the page
7. Click the "OK" button in the warning dialog

- a. The Status LEDs to begin a “marching” pattern to indicate the save is still in- progress. The march will be: yellow, green, red, repeat....
 - b. The save will take some time, be patient and **do not disconnect power**
 - c. Then the AudioFetch Express – Dual Band will automatically restart and should begin operating in the new mode
8. After the restart, the new networking mode should be active and if correctly configured the status LEDs should indicate the ready condition
9. If any problems after the restart (AudioFetch Express – Dual Band not connecting to your WiFi network) then:
 - a. Try a power cycle
 - b. Try repeating this procedure one more time – carefully checking that the SSID and password used exactly match your existing WiFi network SSID and password
 - c. Check the existing WiFi network settings to ensure no restrictions on AudioFetch Express – Dual Band connecting into the WiFi network

15 Reference Information - Network Traffic

When AudioFetch Express – Dual Band is used in Access Point Mode, the built-in Wi-Fi is compatible with all required network traffic to/from connected mobile devices.

However when Wireless Client or Wired Only modes are used to connect to a pre-existing network, it is important to ensure that the required network traffic is not blocked between AudioFetch Express – Dual Band and mobile devices running the AudioFetch App.

When in Wireless Client or Wired Only modes, AudioFetch Express – Dual Band typically works out of the box on simple networks such as when connected into a single small business wireless router using the main (not guest) WiFi. Note that guest WiFi networks typically restrict communication between devices on the network blocking AudioFetch traffic. More complex networks may require configuration adjustments (firewall, etc.). Information in this section is provided to assist IT/Network personnel when such adjustments are necessary.

Network traffic used by the AudioFetch System, unless otherwise noted packets are unicast between IP address of the Mobile Device (running AudioFetch App) and IP address of AudioFetch Box:

Traffic direction: Mobile Device (AudioFetch app) → AudioFetch Express – Dual Band device:

<u>Protocol</u>	<u>source port</u>	<u>dest port</u>	
UDP multicast (239.255.255.250)	p_1 *	1900	(this is primary SSDP discovery)
TCP	p_2 *	80	
TCP	p_3 *	6971	
UDP broadcast (255.255.255.255)	30981	30981	(used for fallback discovery)
DNS LOOKUP	(usual for DNS)	(usual)	(used for fallback discovery)
mDNS One-Shot QUERY	p_4 *	5353	(used for fallback discovery)

Traffic direction: AudioFetch Express – Dual Band device → Mobile Device (AudioFetch app):

<u>Protocol</u>	<u>source port</u>	<u>dest port</u>	
UDP	1900	p_1 *	
TCP	80	p_2 *	
TCP	6971	p_3 *	
UDP	6970	6970	This is the audio stream
UDP multicast (239.255.255.250)	1900	1900	(used for SSDP and fallback discovery)
UDP	30981	30981	(used for fallback discovery)
DNS RESPONSE	(usual for DNS)	(usual)	(used for fallback discovery)
UDP	5353	p_4 *	(used for fallback discovery)

* p_1, p_2, p_3, p_4 indicate port numbers which have been chosen by the mobile device's operating system and typically are different each time the app runs

Fallback discovery traffic is required only if the network blocks standard SSDP discovery mechanism. If SSDP fails then AudioFetch will automatically fall back to alternate discovery mechanisms.

In some cases, with a complex network and tight security restrictions on traffic, a DNS discovery method is required. If so, please contact AudioFetch for information about making minor adjustments to your network's DNS server entries.

16 Regulatory Compliance Statements

Contains Transmitter Module FCC ID: Z9W-RMB

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications are not permitted and will void the product warranty.

This product meets the applicable Industry Canada technical specifications.

