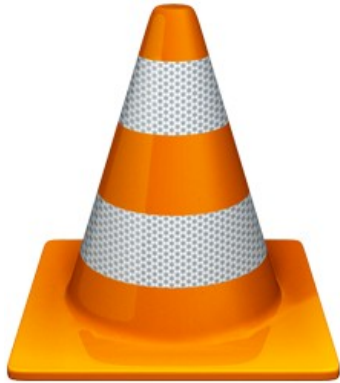
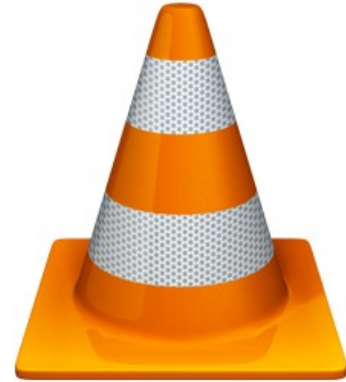


# Stream Audio from your computer using VLC



By John Krout  
For PATACS+OPCUG  
August 20, 2022



# Why this topic should interest you

- If you enjoy music and have a digital music collection on your computer. Anyone who wanted or now wants to be a DJ will enjoy this presentation.
- VLC is a free application and can stream your digital music collection from your computer to your Local Area Network (LAN)
- Other computers, smart phones and tablets connected to your LAN can receive that audio stream
- A great way to make the music of your choice available throughout your residence, and maybe your yard too.

# Agenda

- A short history of digital music
- How to obtain free VLC
- Why a VLC personal **playlist** is valuable, and how to create, maintain and play a playlist
- Why and how to create a Firewall Rule to permit audio streaming
- How to Stream a Digital music playlist from your computer using VLC
- How to receive the audio stream from your computer

# How I got started

- For roughly 22 years, I have been using an iPod or a retired Android phone to play holiday music on powered speakers behind our Christmas tree.
- In December 2021, I decided I wanted to hear the music throughout my house.
- I knew VLC for Windows claimed to be able to originate streaming audio to other devices connected to my Local Area Network (LAN).
- I tried VLC audio streaming, and it worked! VLC streamed holiday music to my phone and an iPod Touch or retired phone driving powered speakers sets around my house.

# History of Digital Music

- CD audio, the first digital music format to reach consumers hands, was introduced in the early 1980s.
- Software became available to copy CD songs to a computer in MP3 and other audio file formats.
- The consumer Internet/Web enabled iTunes, Amazon Music, Bandcamp and many other sites to sell or give away digital music to play on portable MP3 players and smart phones.
- Next came Web sites that act like radio stations, streaming audio *without* downloading MP3 song files to your computer.

# What is Audio Streaming?

- A radio-like method of sending digital audio from one server across the Internet to many listeners.
- The audience uses the server's Web page or apps on smart phones and tablets to listen to the audio stream.
- Streaming audio is available through popular apps such as **Pandora Radio**



and **iHeartRadio**



and hundreds of other apps!

# Internet Radio stations

- I showed some examples of Internet Radio stations during my **Internet Radio on the Road** presentation for PATACS+OPCUG, 4/16/22

- You can download the presentation slide deck PDF:

<https://tinyurl.com/4ryvbre9>

Scan the  
QR code



- You can download the presentation video recording:

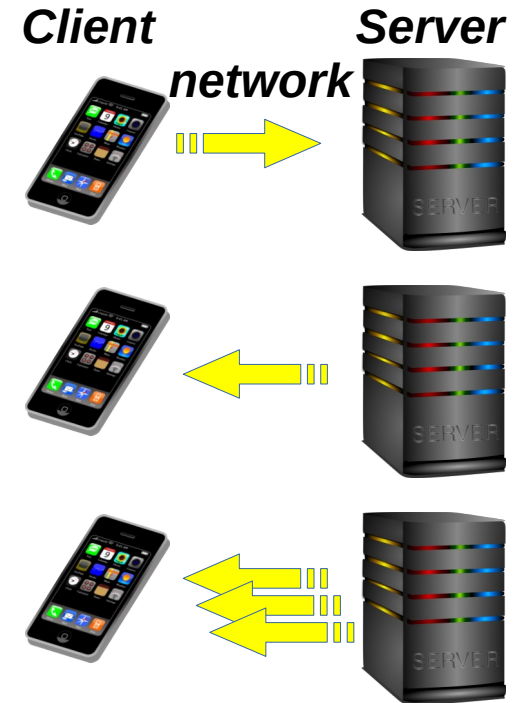
[https://www.nctcug.org/videos/2022-04-16/220416\\_jk\\_inet\\_radio\\_onroad.mp4](https://www.nctcug.org/videos/2022-04-16/220416_jk_inet_radio_onroad.mp4)

Scan the  
QR code



# How streaming starts: a client/server outline

- The user provides the streaming server URL to a client application on a computer or phone or tablet (i.e., a client device)
- The client device sends a network request to the streaming server URL
- The streaming server receives that request and grants permission via network response
- The client device receives and plays the audio stream from the streaming server

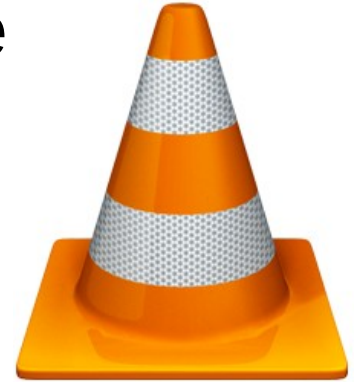




# VLC

VLC is a free media player application for Apple Linux and Windows computers that can also:

- Play Internet radio stations
- Create and play your own Playlists
- Stream your own digital audio collection on your computer through your Local Area Network (LAN).  
VLC and your computer become the **streaming server**.
- The free VLC computer application can be downloaded from: <https://www.videolan.org>

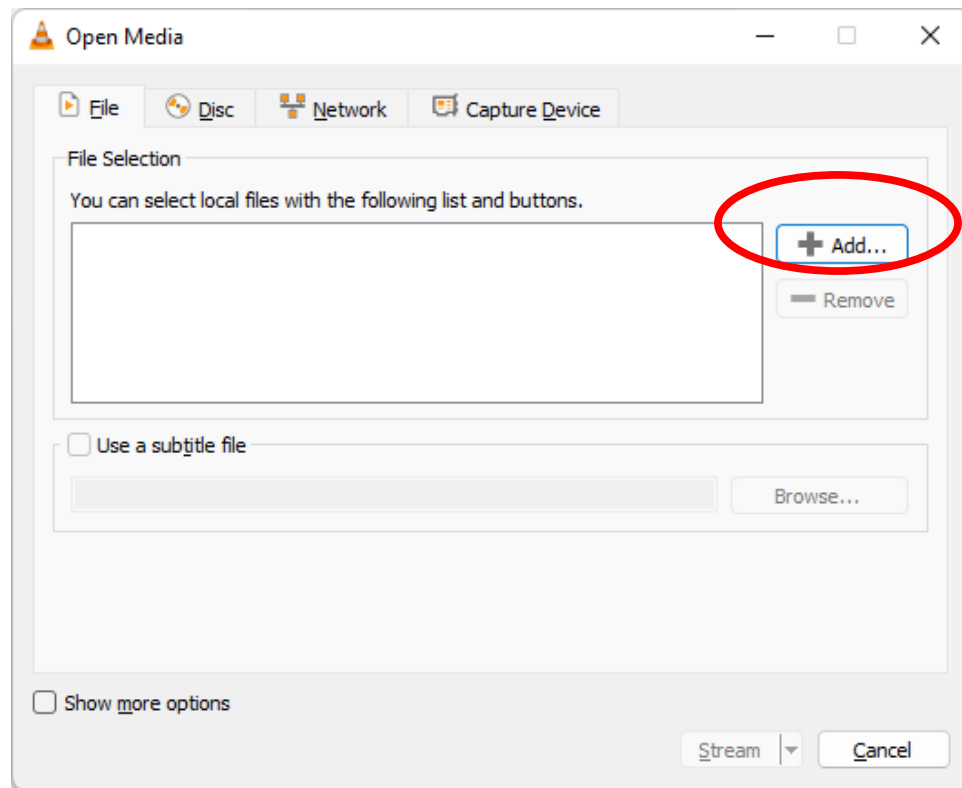


# VLC for portable devices

- The free VLC app for portable devices can receive streaming audio from your computer.
- The VLC app is available for Android on the Play Store and for Apple devices on the App Store.
- Other free apps can receive streaming audio, such as **VRadio** (for Android) and **TuneIn**.
- QR codes for installing these free apps appear at the end of this presentation.

# The VLC Streaming Glitch

- We will learn to use the entire VLC Streaming Wizard dialog window sequence later.
- Here is the Wizard dialog window 1, for specifying audio files to be streamed.
- The **Add button** reveals a standard Open File dialog window for choosing audio files to be streamed.



# The VLC Streaming Glitch

- The glitch is that VLC allows you to add more than one audio file to be played, but **VLC plays *only* the first audio file, and ignores the rest.**
- A playlist file is valuable because it is a single file and it forces VLC to play all the songs identified inside the file.
- A playlist is therefore a workaround for the VLC Streaming Glitch.

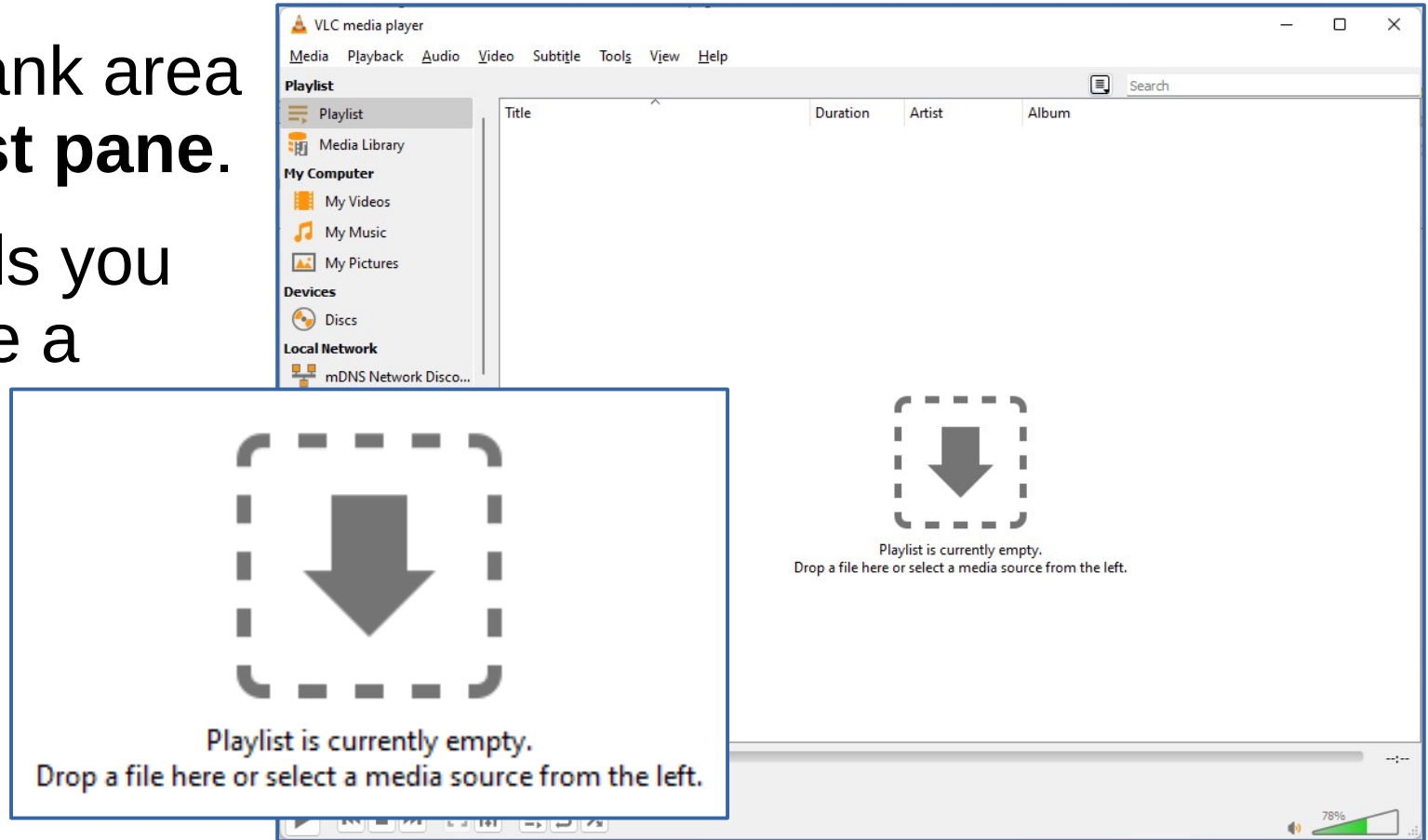
# **Part 1.**

# **How to stream audio from a Windows computer**

# **CREATE A PLAYLIST FILE USING VLC ON A COMPUTER**

# Create a VLC Playlist file

- Here is the initial VLC application window.
- The large blank area is the **Playlist pane**.
- The pane tells you how to create a Playlist.



# Example of a VLC Playlist



The screenshot shows the VLC media player interface. The title bar reads "VLC media player" and includes standard window controls. The menu bar contains "Media", "Playback", "Audio", "Video", "Subtitle", "Tools", "View", and "Help". The main area is divided into a left sidebar and a central playlist table.

**Playlist**

Search

Title	Duration	Artist	Album
Blue Collar	06:10	Bachman-Turner Overdrive	Best of BTO
Spinning Wheel	04:05	Blood Sweat & Tears	Blood Sweat & Tears
Baker Street	06:01	Gerry Rafferty	City To City
Volcano	03:38	Jimmy Buffet	Songs You Know By Heart

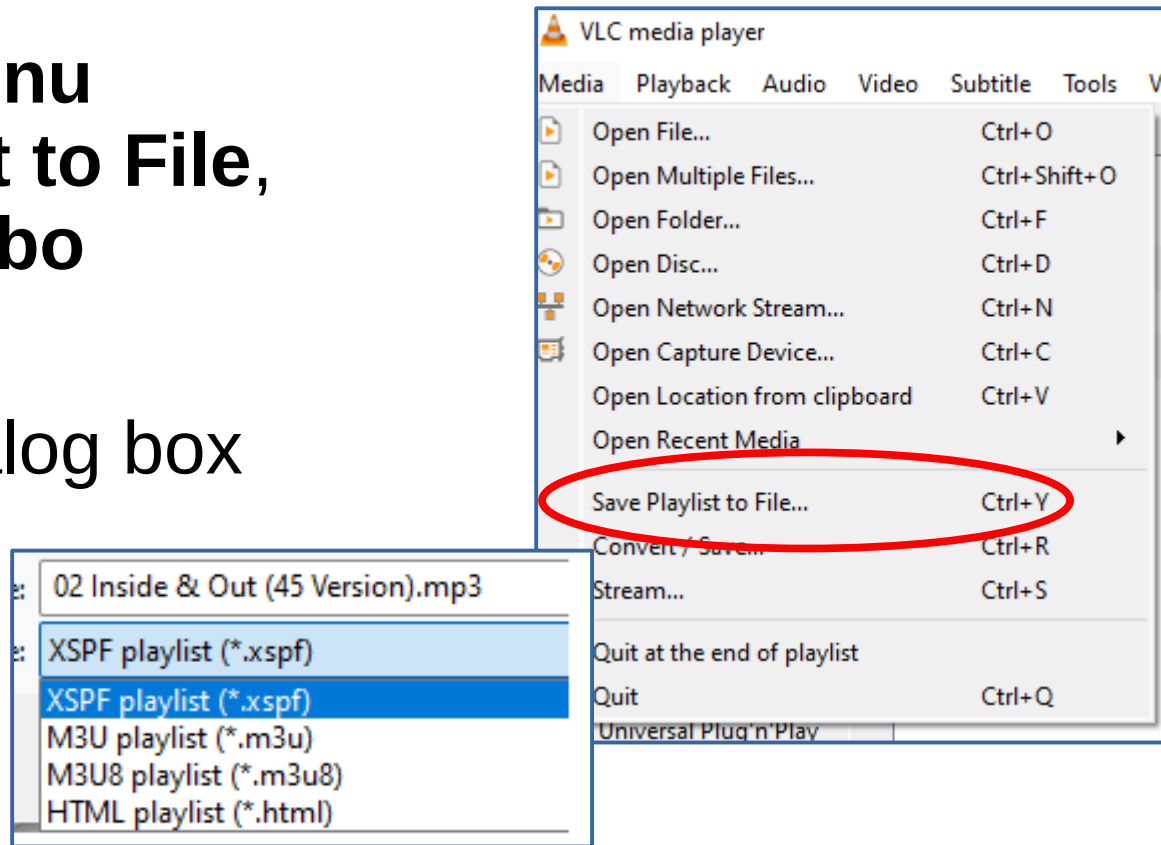
The sidebar on the left is titled "Playlist" and contains the following items:

- Playlist [19:55]
- Media Library
- My Computer**
  - My Videos
  - My Music
  - My Pictures
- Devices



# Save a VLC Playlist file

- After placing audio files in the VLC Playlist pane, you can Save the playlist as a file in a known folder.
- Pull down the **Media menu** and select **Save Playlist to File**, or tap the **CTRL+Y** combo **keystroke**.
- A standard Save File dialog box appears.
- VLC 3.1.3 supports four **Playlist file types** for audio



# How to Break a Playlist File

- CAUTION: If you delete or move any of the audio files listed in the Playlist file, then VLC won't be able to find the audio file and won't be able to play the audio file.

# Maintaining a Playlist file

- You can reload a Playlist file: pull down the Media menu and select **Open File**. Browse to the folder where the file is stored and select your playlist file to be opened.
- **Add an audio file** to the opened playlist by the same process used to create the playlist. Then save the playlist.
- **To change the song sequence** in the playlist, drag & drop the files inside the Playlist pane up/down.
- **To remove a song**, select it in the Playlist pane and tap Delete on your keyboard. **VLC Delete does NOT remove the audio file** from your computer, just the audio file **info** in the playlist.

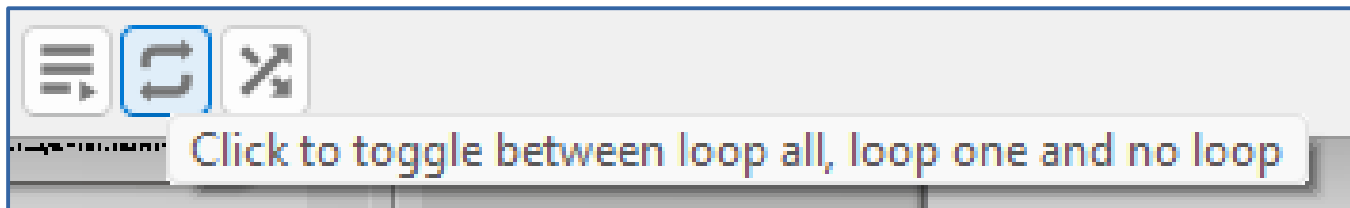
# More about Playlists

Additional buttons in the VLC application window lower left corner provide playlist options.

- The **Repeat button** has three states:  
**repeat 1 song** (button icon shows a 1 between the arrows),  
and  
**repeat all songs**,  
and  
**no repetition**
- These buttons also apply to VLC audio streaming.



# John's Tip about Repeat Playing a VLC Playlist



- The repeat button cycle through three states: **Repeat All** (entire playlist), **Repeat 1**, and **No Repeat**.
- The button faces for **Repeat All** and **No Repeat** look identical.
- To set the button for **Repeat All**, first click the button until the Repeat 1 button face appears. Then **click the button two more times**.



# **PREPARATION FOR AUDIO STREAMING: FIREWALL RULE SETTING**

# What is a personal firewall?

- A personal firewall is an operating system (OS) application that prevents delivery of incoming requests to an application like VLC.
- Some incoming requests are designed to cause mischief or grief. But not all aim to do that.
- An example of a ***desirable* incoming request** is one from a computer or portable device on your LAN to receive a VLC audio stream.
- By default, the firewall prevents incoming requests from reaching VLC or any other computer application

# Outline of a new Windows Firewall rule

- First, choose an application such as VLC to be the **subject** of a firewall rule.
- Second, choose a **verb**:  
**Allow**, or **Block**
- Third, choose a group of computers from which requests to connect to a VLC audio stream will be allowed.
- In Norton firewall rule management, the default group is ALL computers, even those outside of your LAN.

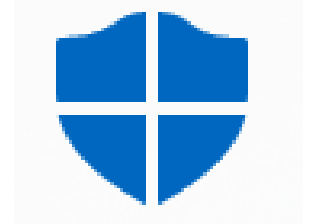


# Add a personal firewall rule for VLC

- I use **Norton 360** on Windows at home. This how-to section will be illustrated using Norton 360, which includes personal firewall rule management by Norton.
- There are some obscure nuances in Norton 360. I blew one when I bought and configured my Windows 11 computer in June 2022.
- I figured out the nuance and fixed it in July.
- If you use a different security product, or a different OS, then your firewall rule management process may differ. Look for a how-to video on YouTube or on the security product's Web site.

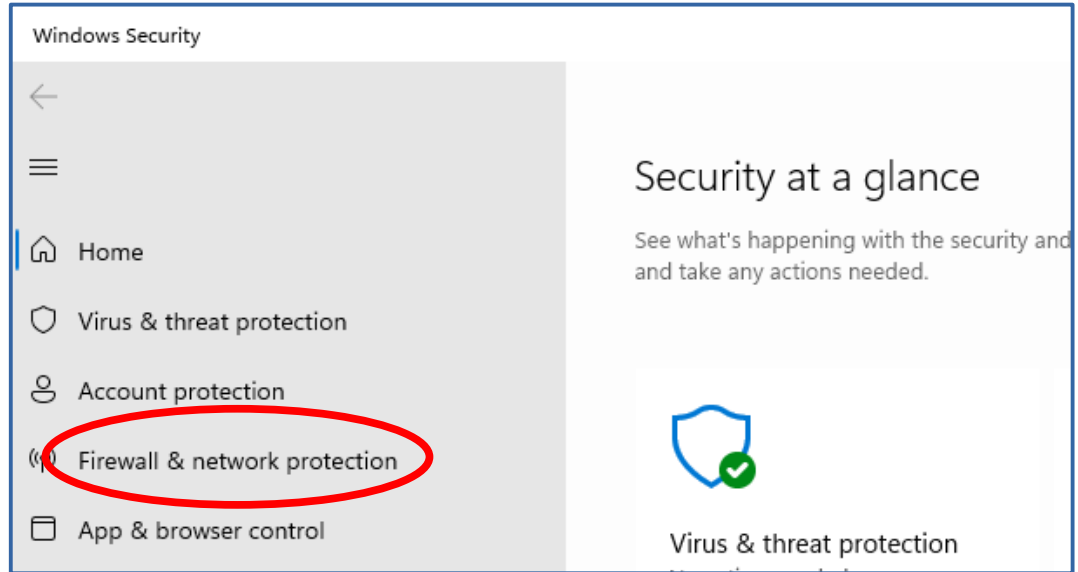
# What's managing your personal firewall?

- Some security applications take over firewall rule management from Windows. You can find out what application does rule management on your computer.
- Tap the **Windows Start Key**. The Start menu appears.
- In the Start menu, tap the Search field and type **Windows Security**. The Windows Security icon appears.
- Click that icon.



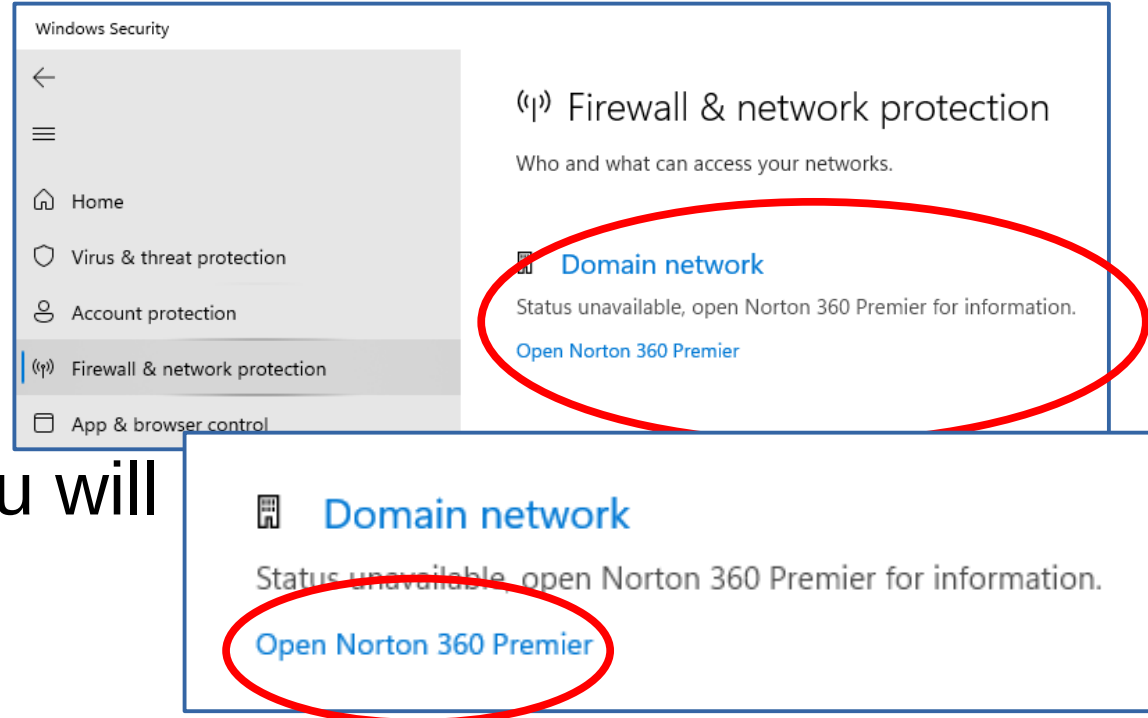
# What's managing your personal firewall?

- The Windows Security app starts on your screen.
- In the left pane of the Windows Security window, click **Firewall & Network Protection**.



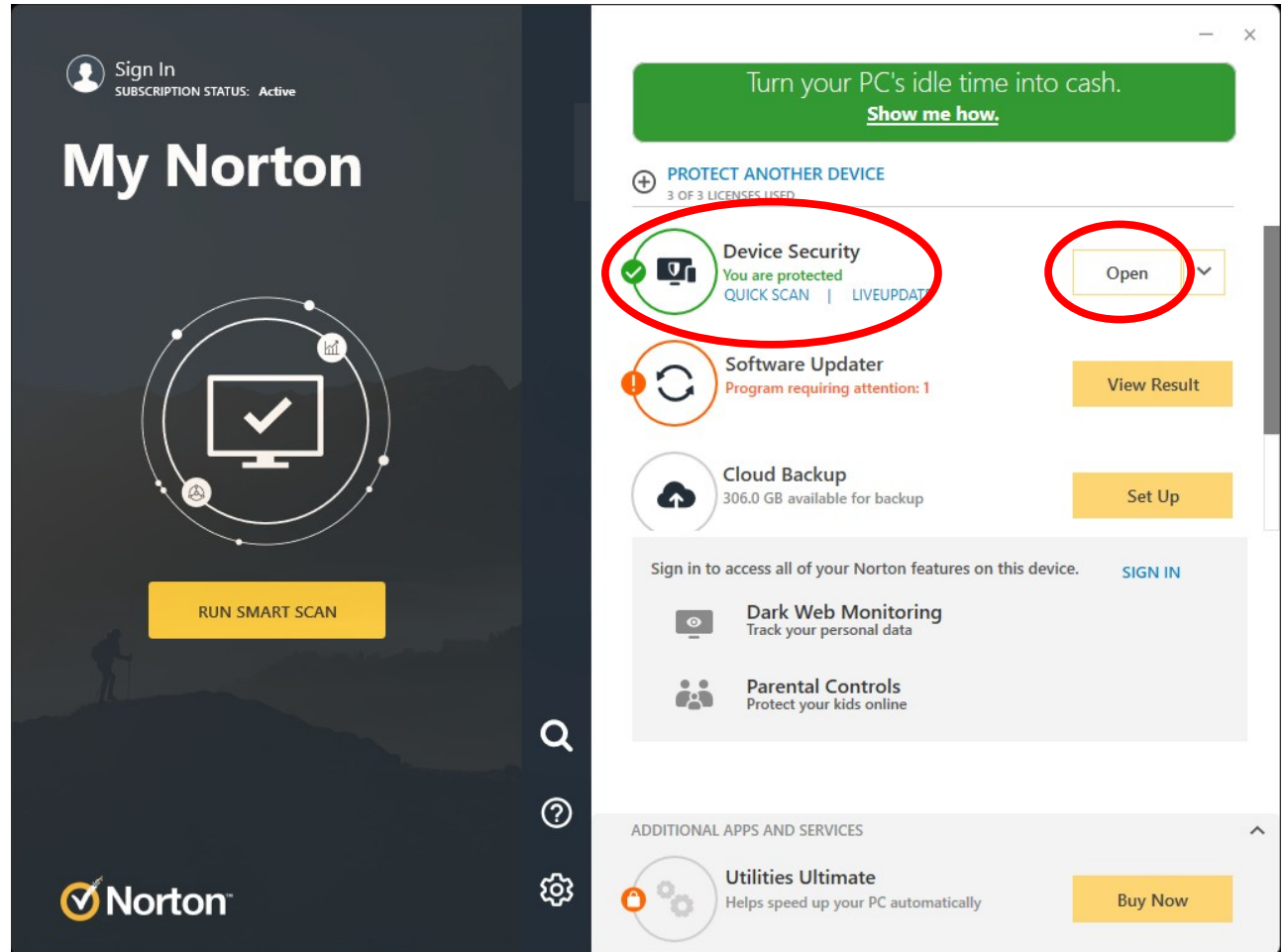
# What's managing your personal firewall?

- The window now shows info about the computer's connection to your LAN.
- Under the heading **DOMAIN NETWORK**, you will see the firewall manager application name.
- In this case, the firewall manager application is **Norton 360**
- Click **Open Norton 360**



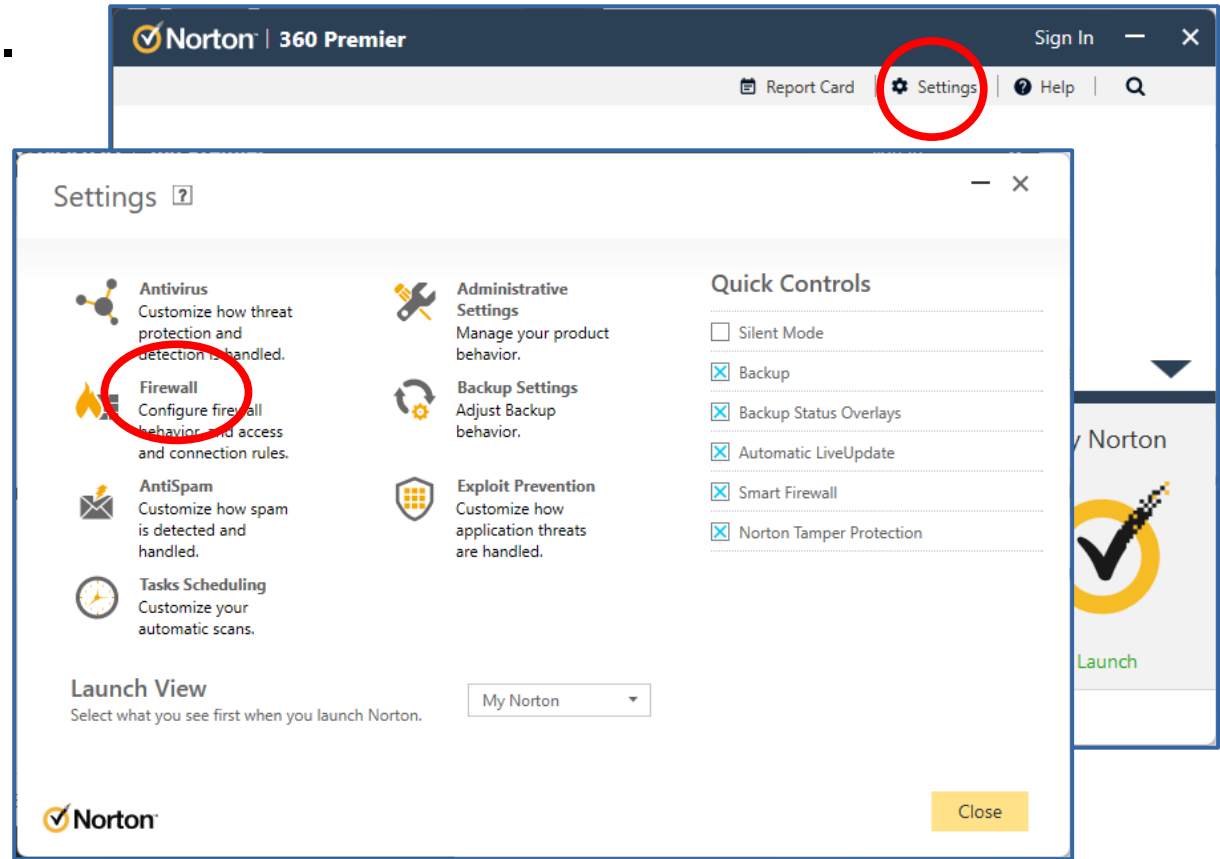
# The My Norton window

- The My Norton window appears
- To the right of the **Device Security** circle, click the **Open** button.



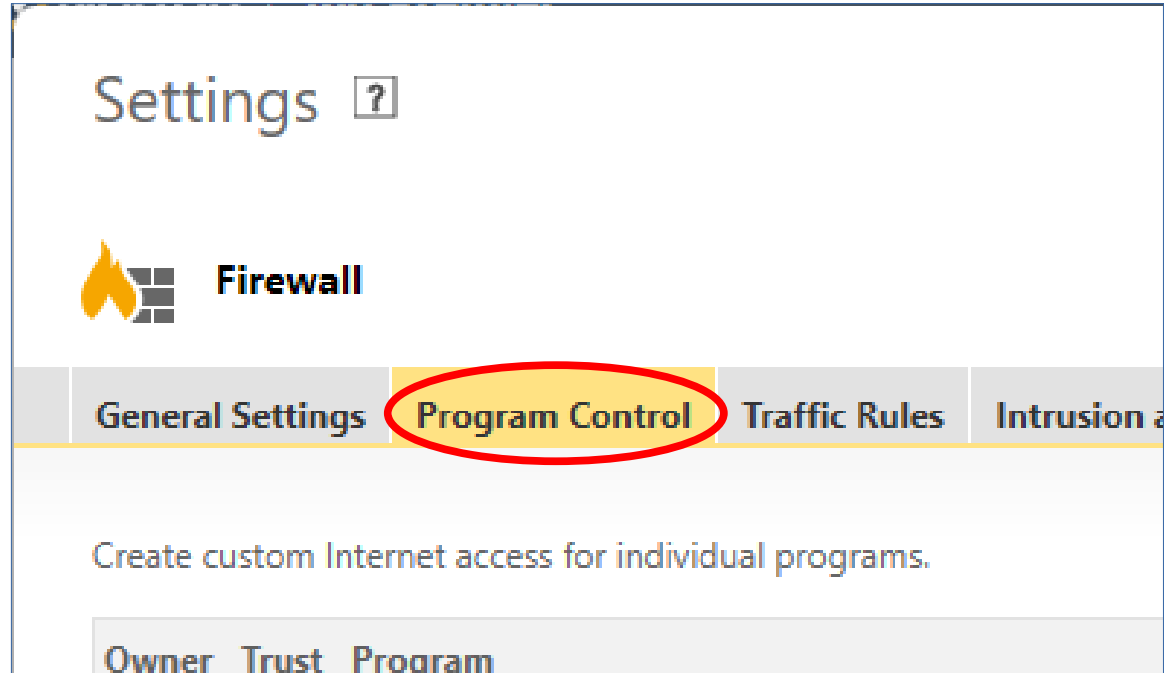
# See and Manage Firewall Rules

- Another window opens.
- In that window, click the **Settings** button.
- The **Norton settings** window opens.
- In that window, click the **Firewall** heading.



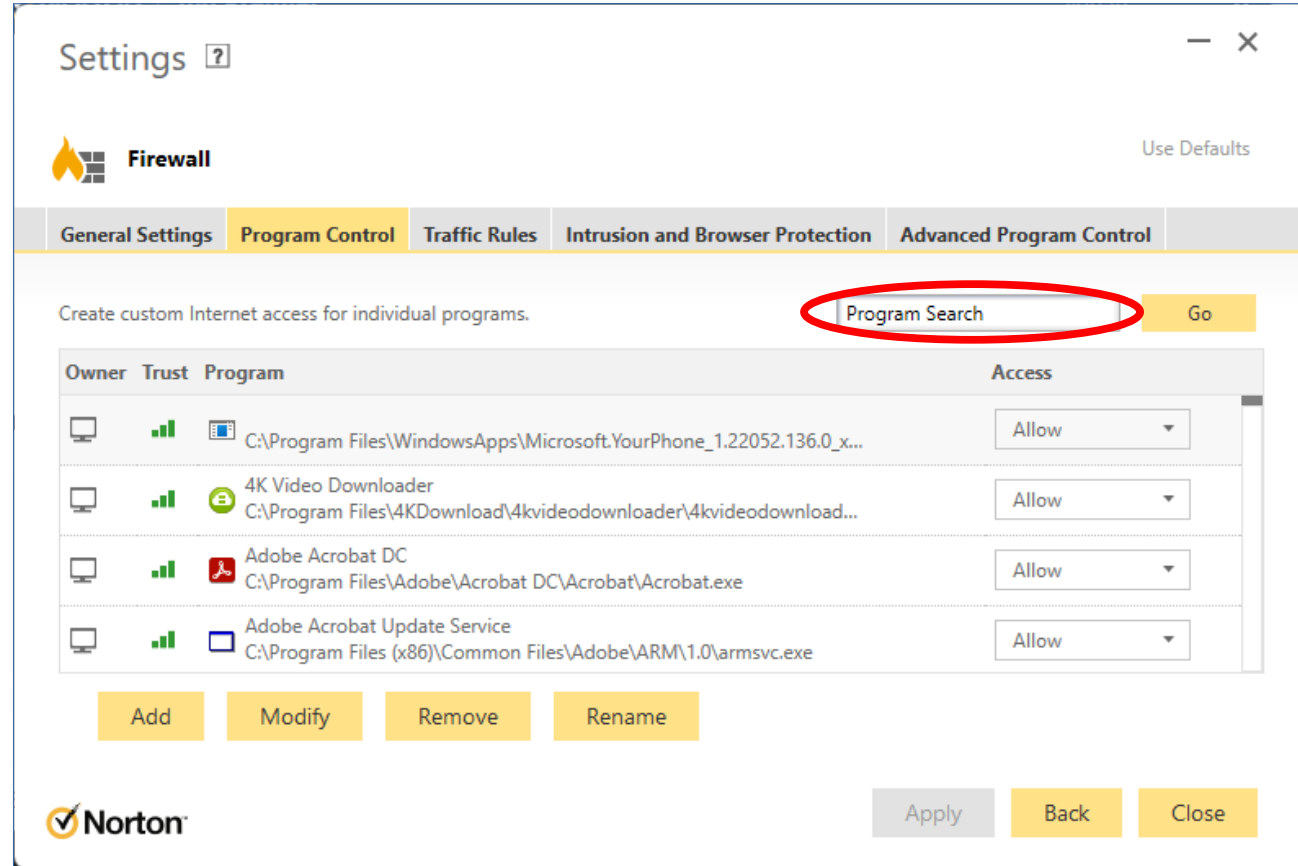
# See and Manage Firewall Rules

- The **Norton Firewall Settings** window opens.
- This window has several tabs.
- We will use the **Program Control** tab. Click that tab.
- Several rules may exist already, created during installation of several applications.



# Norton Firewall Settings tabs

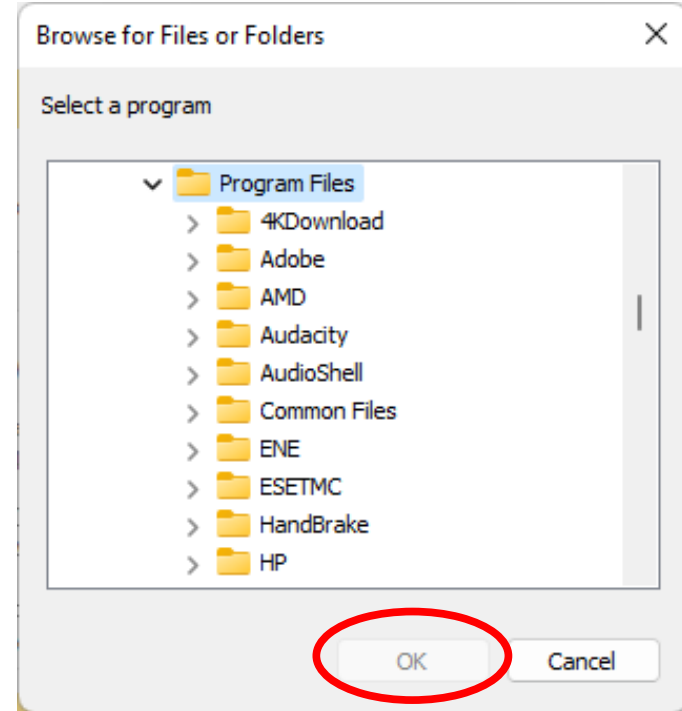
- You can browse the alphabetic list of program rules using the window's **vertical scroll bar**.
- Many programs installed their own default firewall rules.
- You can use the **Program Search** field to search for a specific program.





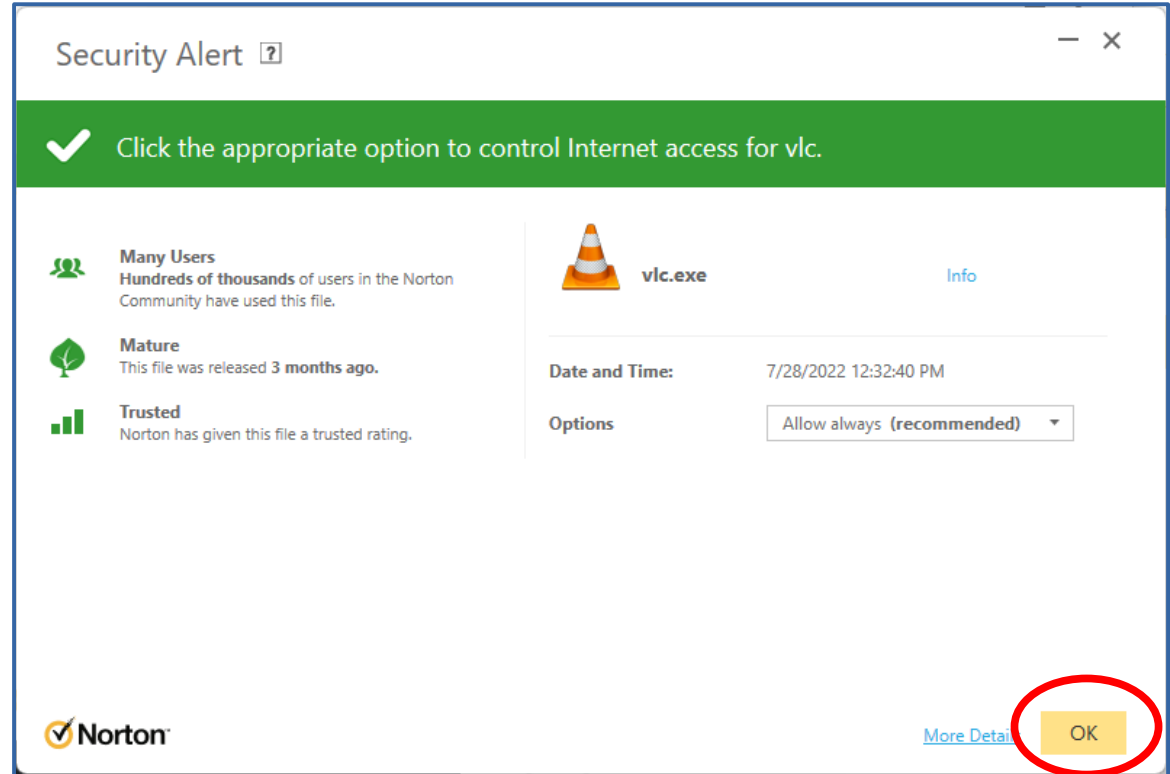
# VLC firewall rule

- During VLC installation, VLC does not install a firewall rule.
- We will add a VLC rule. Click the **Add** button in the lower left corner of the window (not shown).
- Norton opens a **Browse Files** window.
- The path to VLC.exe is  
Program files (x86) → VideoLAN → VLC
- Find and click VLC.exe. The **OK** button at the bottom of the window becomes active. Click the **OK button**. The window closes.



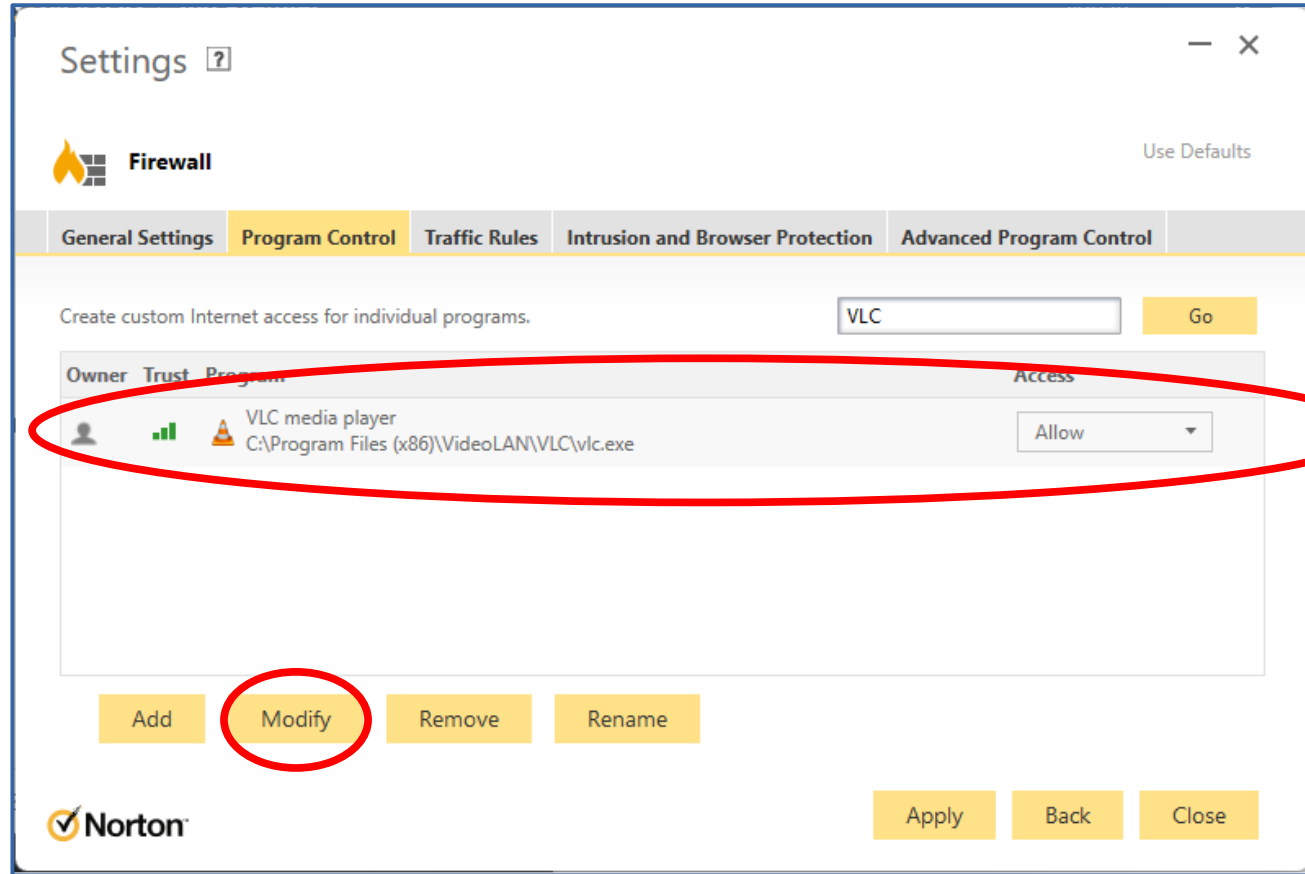
# VLC firewall rule

- The firewall setting shows a **Security Alert** window for VLC.
- Tap the **OK** button.



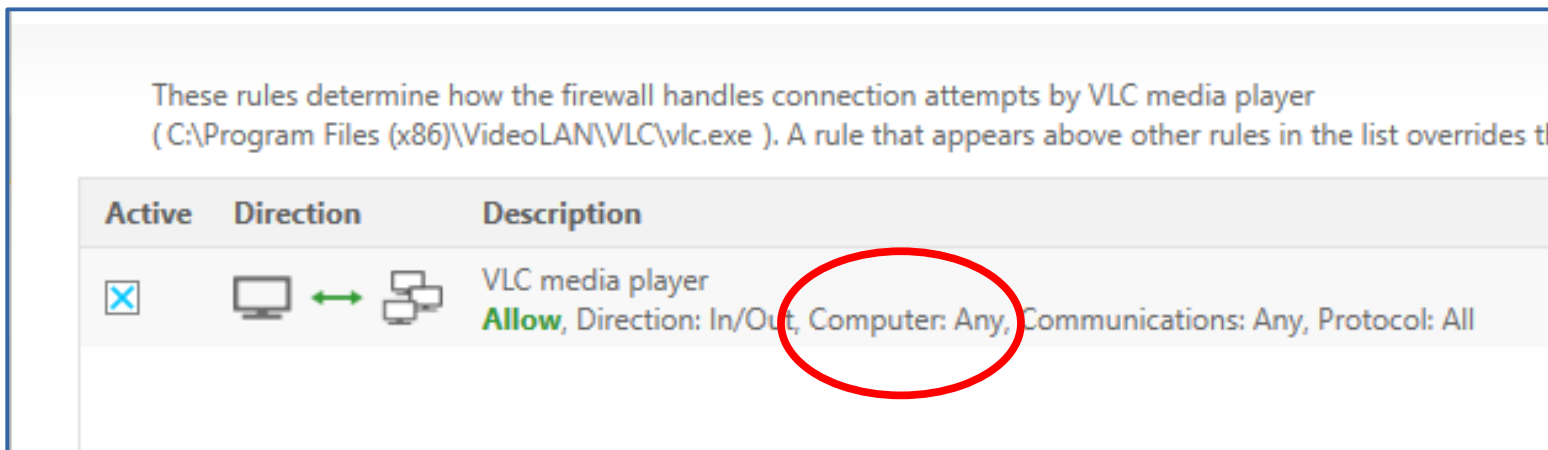
# VLC firewall rule

- The **Firewall Settings** window **Program Control** tab shows the new default VLC firewall rule
- Click the **Modify** button to see the rule details



# VLC Firewall Rule

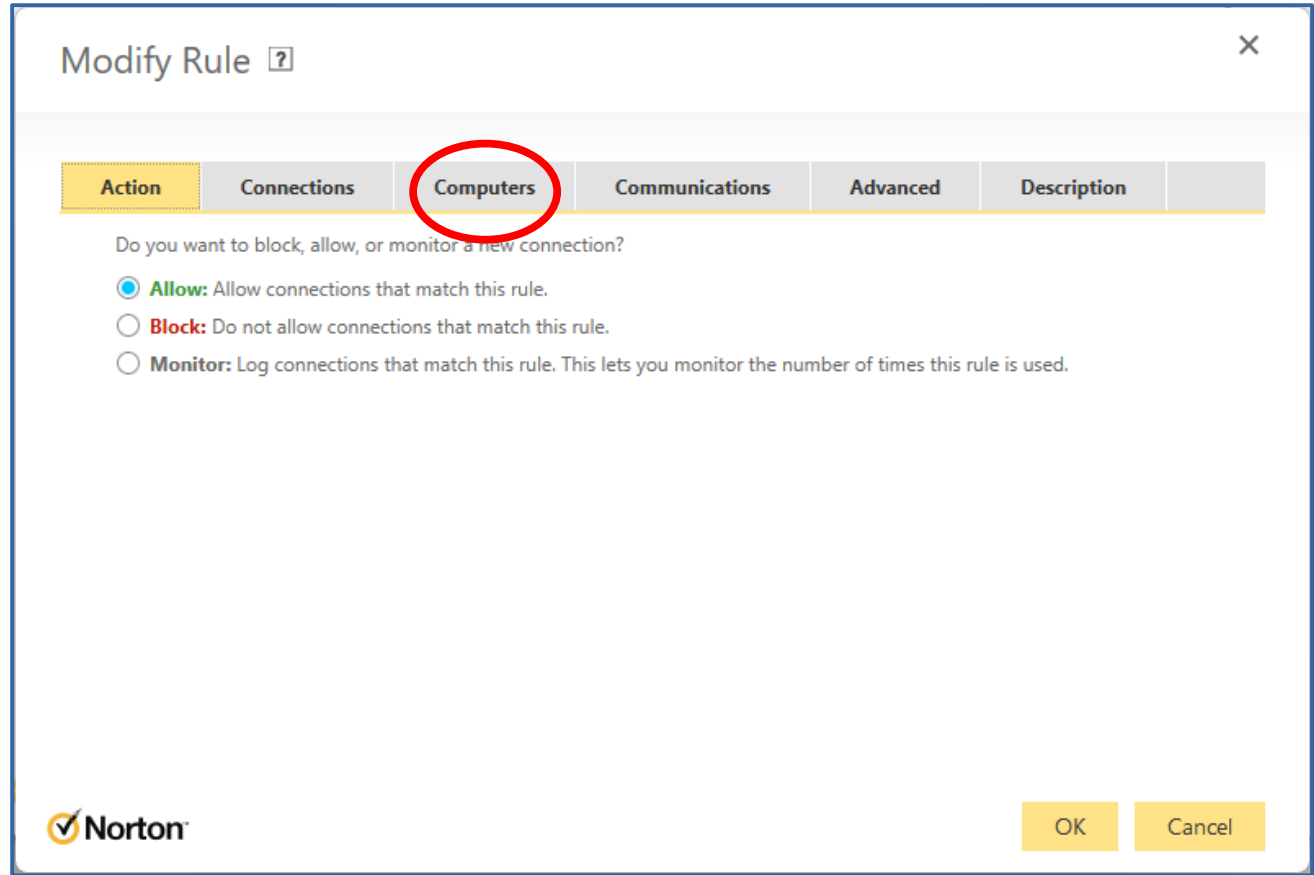
- The default VLC rule allows **any computer from any network** to contact VLC.



- That group of allowed computers is too broad. We want only devices on the LAN to request access the VLC audio stream. Click the **Modify button** again.

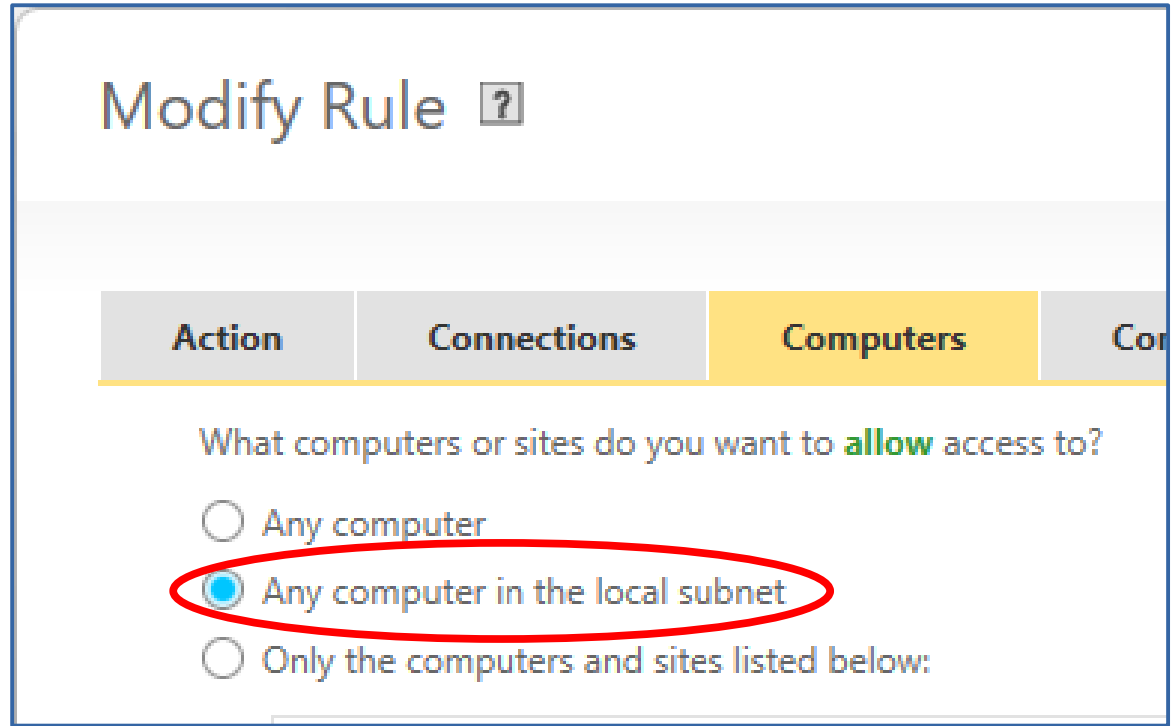
# VLC Firewall Rule

- The **Modify Rule** window opens. It has several tabs.
- The default tab is the **Actions tab (the verb)**.
- Click the **Computers tab**.



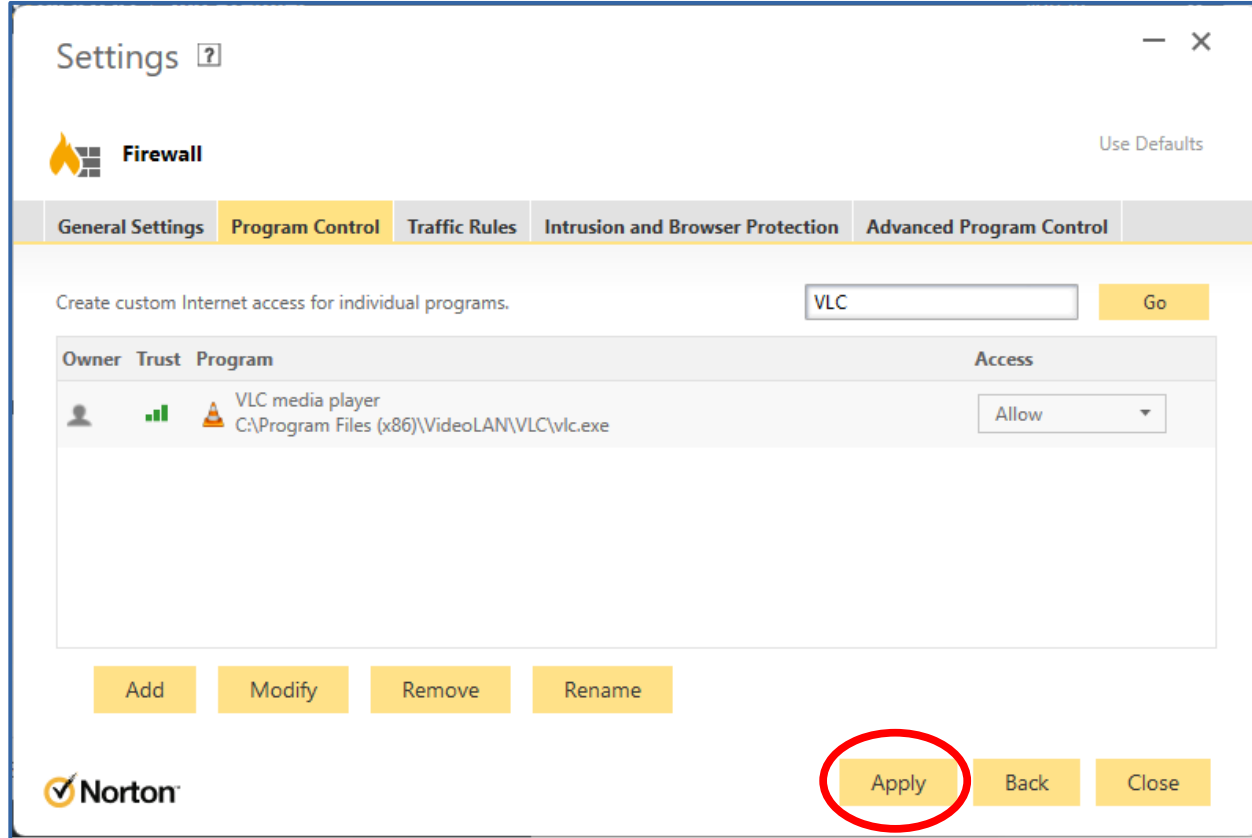
# VLC Firewall Rule

- In the Computers tab, There are 3 radio button choices for access controls.
- Click **Any computer in the local subnet.**
- Click the **OK button** in the lower right corner (not shown here).
- The Modify Rule window closes.



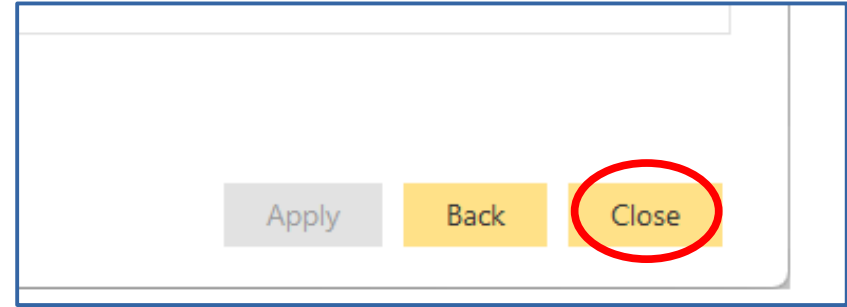
# VLC Firewall Rule

- The **Firewall Settings** window reappears.
- This is where I made my mistake in June: **I failed to click the Apply button.**
- The firewall retains the new rule but does not apply the rule unless and until you click the **Apply button.**



# VLC Firewall Rule

- When you have clicked the **Apply** button, it turns from yellow to grey, like you see here.
- Then click the **Close** button.
- Close the other Norton windows.
- Your VLC firewall rule is in effect.

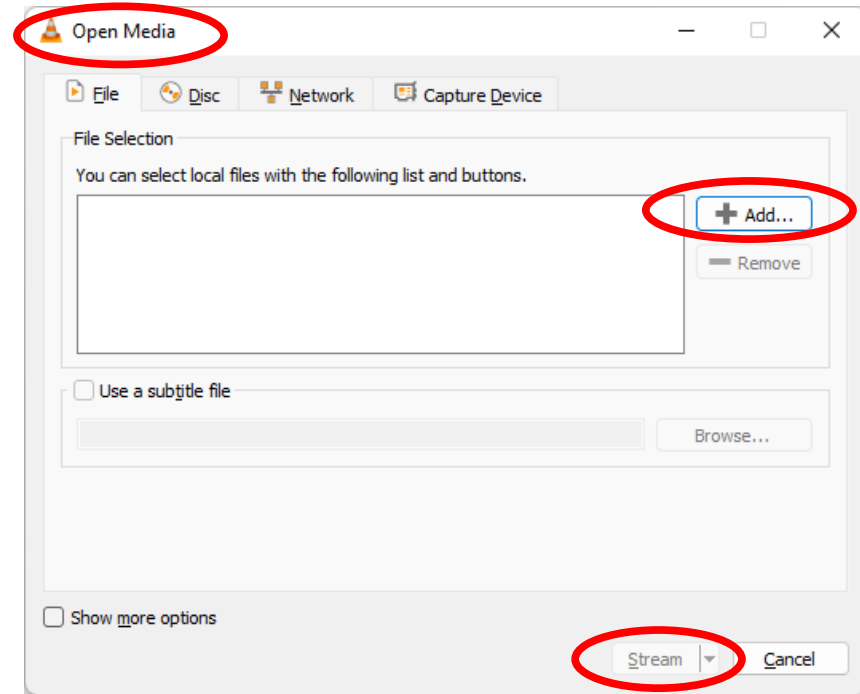




# **HOW TO STREAM A VLC PLAYLIST**

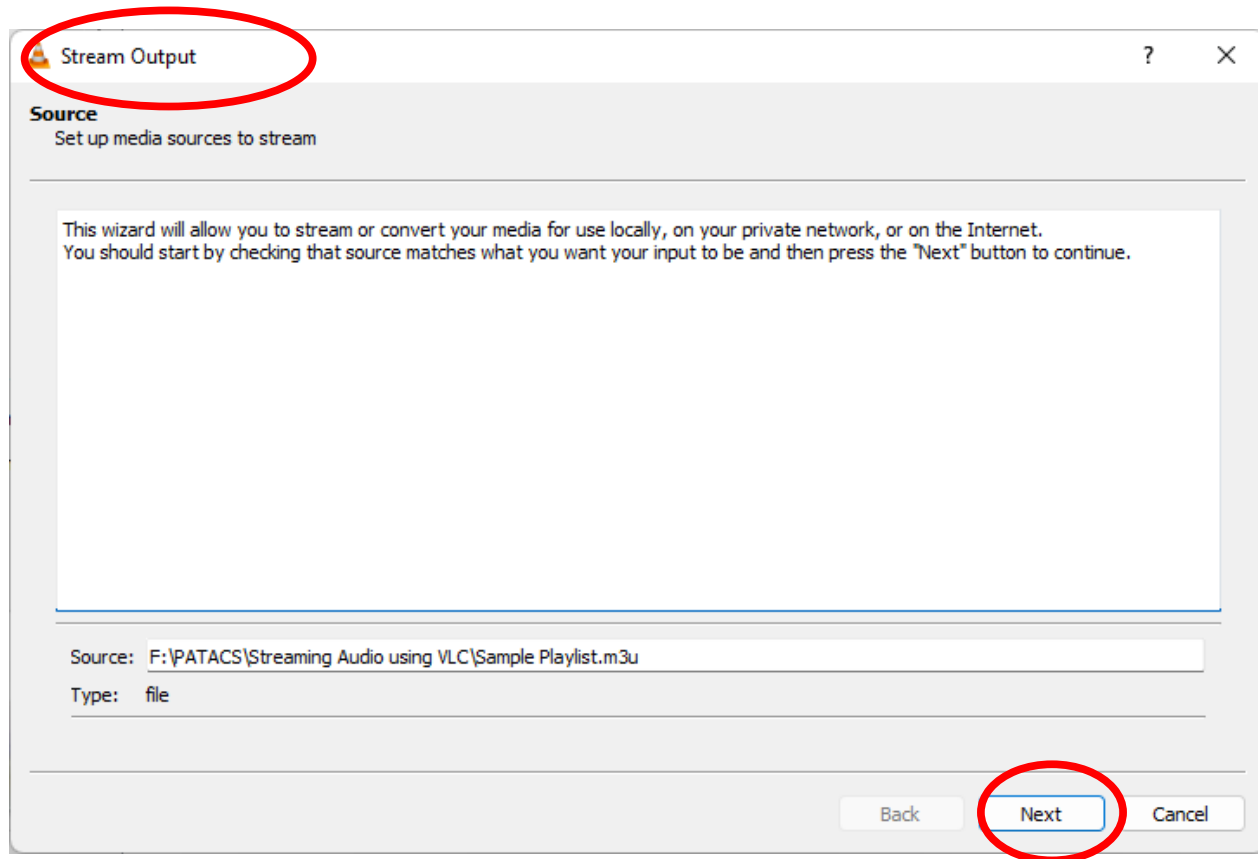
# Start the VLC Streaming Wizard

- Pull down the **VLC Media** menu and select **Stream**, or tap the **CTRL+S** combo keystroke.
- The **Streaming Wizard** opens the **Open Media** dialog window.
- Click **+ADD**
- A standard Open File dialog window appears. Navigate to the Playlists folder and open the desired Playlist file.
- The **Stream** button becomes active. Click that button.



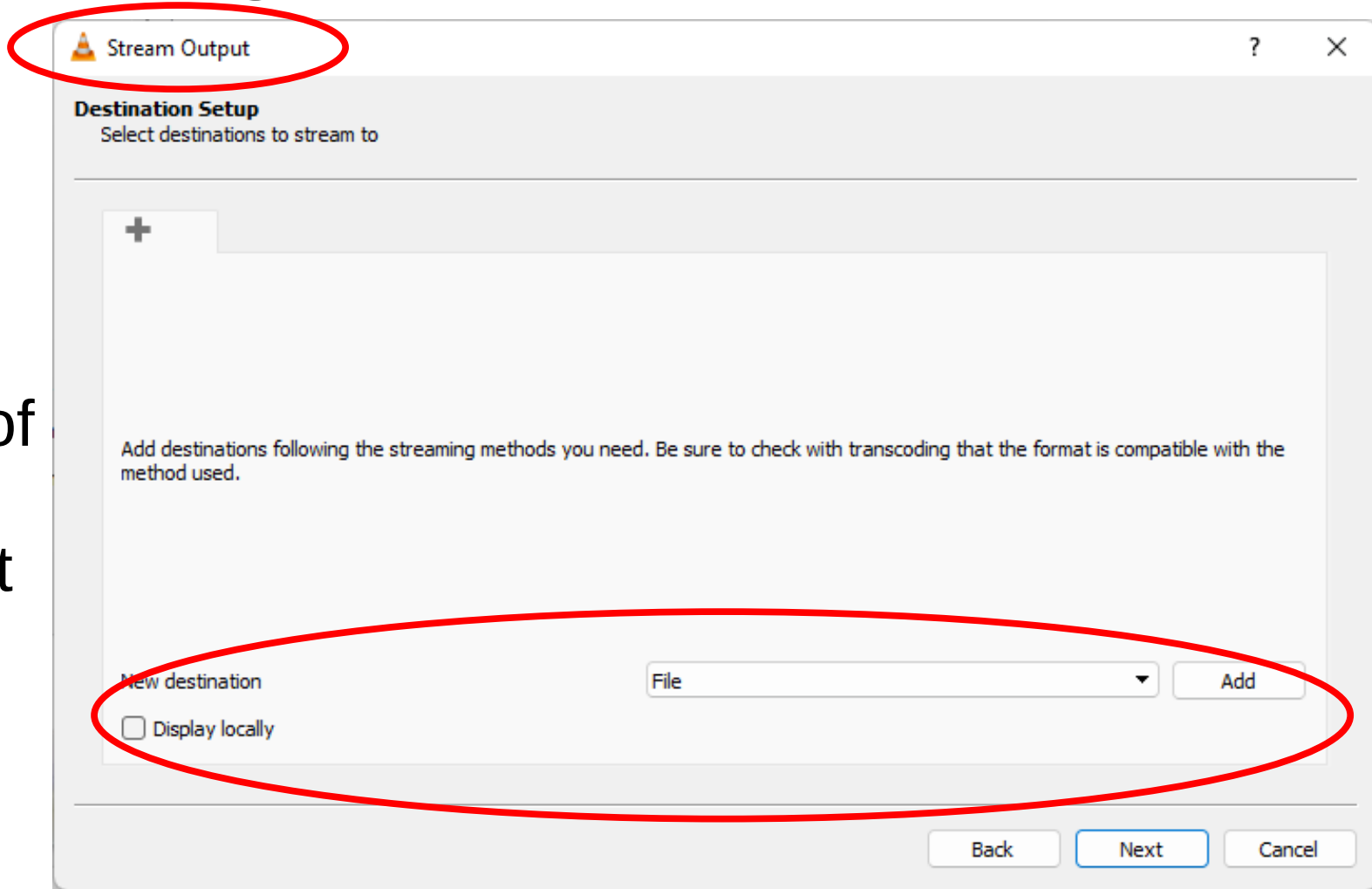
# Streaming Wizard window 2

- Window title: **Stream Output**
- To proceed, click **Next**
- To cancel or restart, click **Cancel**
- I could not find a way to make the **Back** button active.



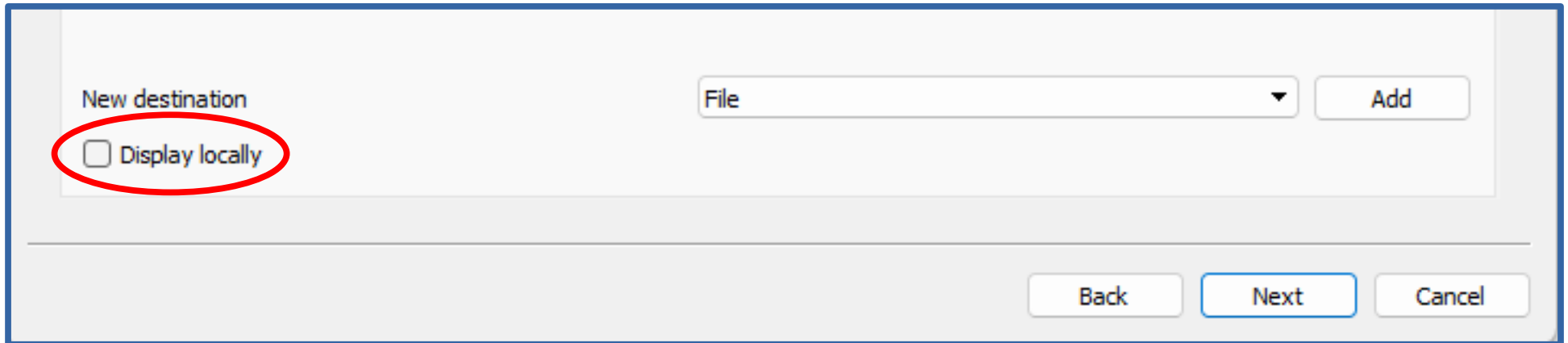
# Streaming Wizard Window 3

- The window name is also **Stream Output**.
- Three parts of this window are important and useful.



# Streaming Wizard Window 3

1. The default behavior on your streaming computer is to stream *without playing on the computer speakers*.
- If you want to hear the streaming audio on the computer speakers, Check the **Display Locally** box on the far left.

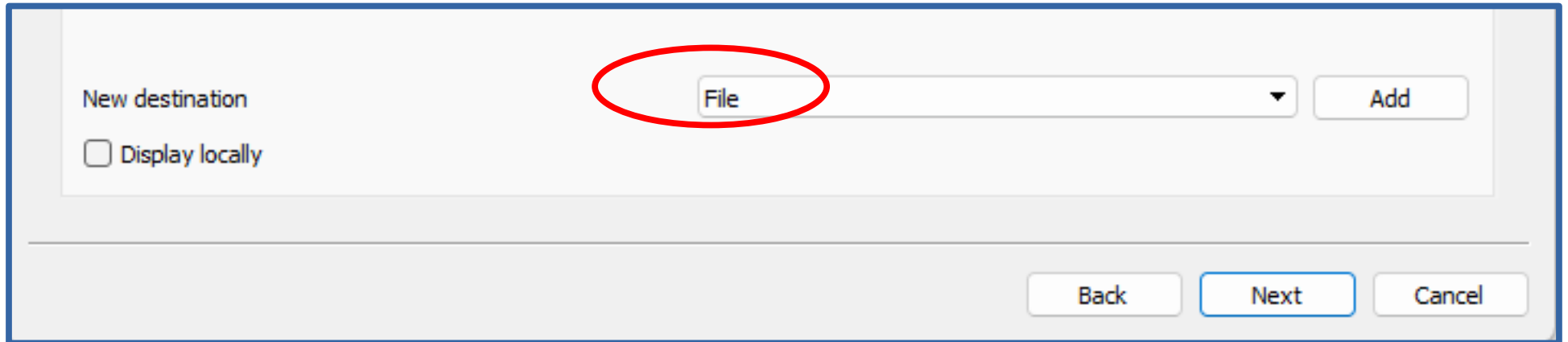
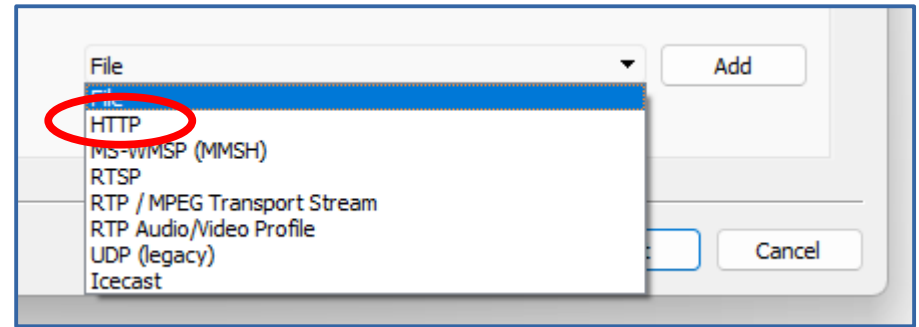


The screenshot shows a window titled "New destination" with a dropdown menu set to "File" and an "Add" button. Below this, there is a checkbox labeled "Display locally" which is circled in red. At the bottom of the window, there are three buttons: "Back", "Next", and "Cancel".

# Streaming Wizard Window 3

2. The default destination on your streaming computer is to stream to a **local file**, not onto your LAN.

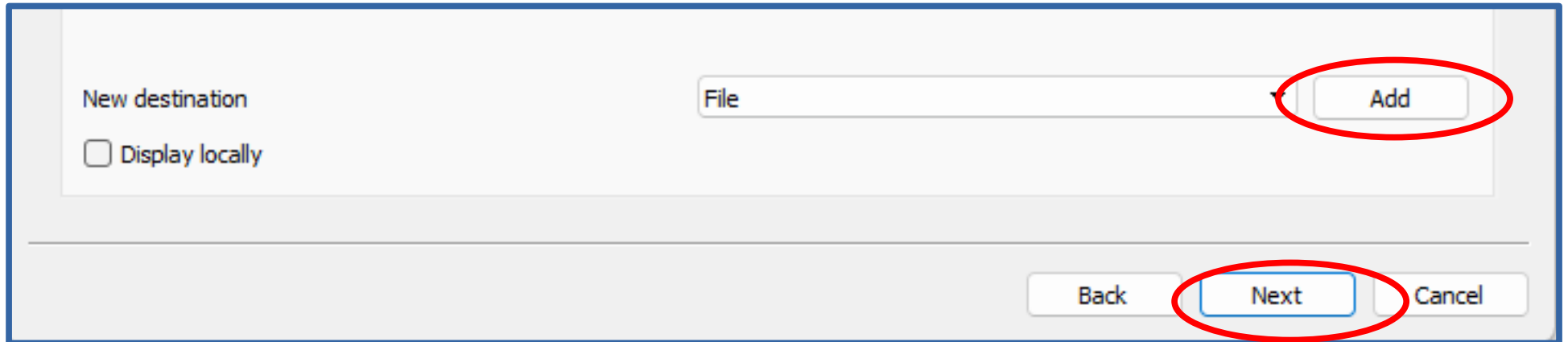
- That field has a menu. Pull down the menu and select **HTTP**.



# Streaming Wizard Window 3

3. Very Important! Click the **Add button** to add the chosen destination HTTP.

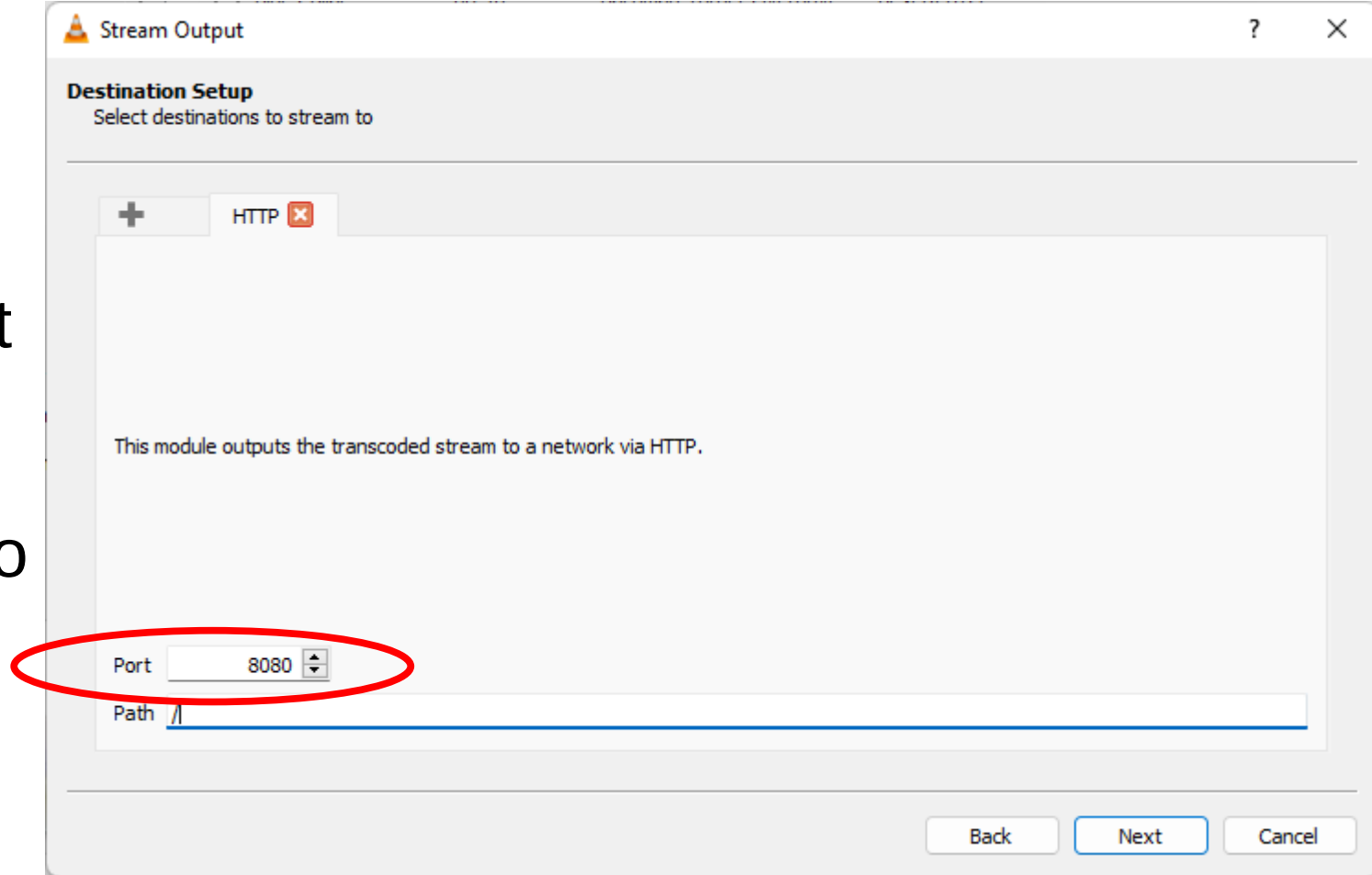
- Then tap the **Next** button. This window changes to a form depending on the destination you specified.



The screenshot shows a window titled "New destination" with a text input field containing "File" and a button labeled "Add". Below the input field is a checkbox labeled "Display locally". At the bottom of the window, there are three buttons: "Back", "Next", and "Cancel". The "Add" button and the "Next" button are both circled in red.

# Streaming Wizard Window 3

This window identifies the default port through which VLC will accept incoming requests from other devices to connect to the VLC audio stream.

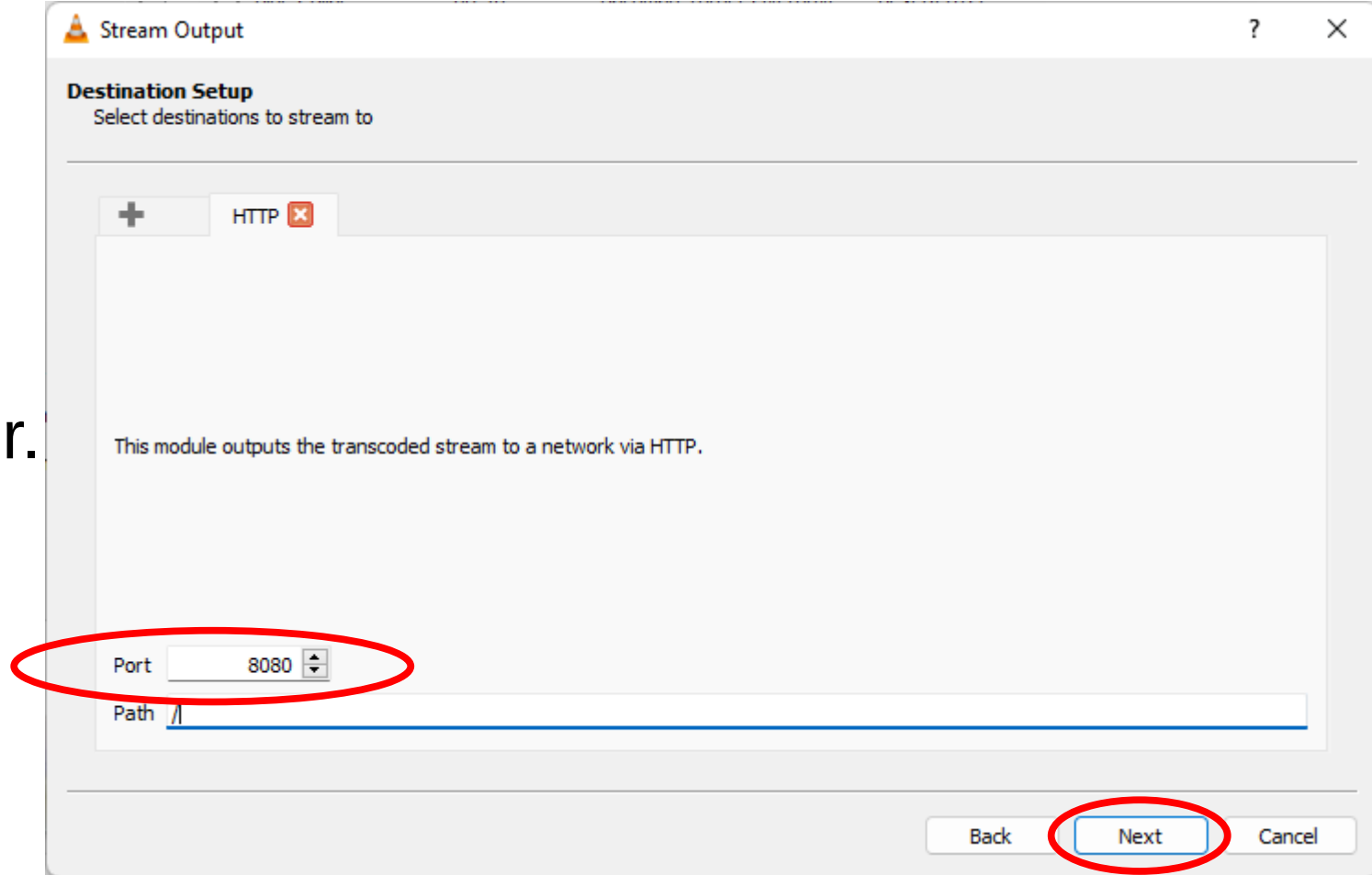




# Streaming Wizard Window 3

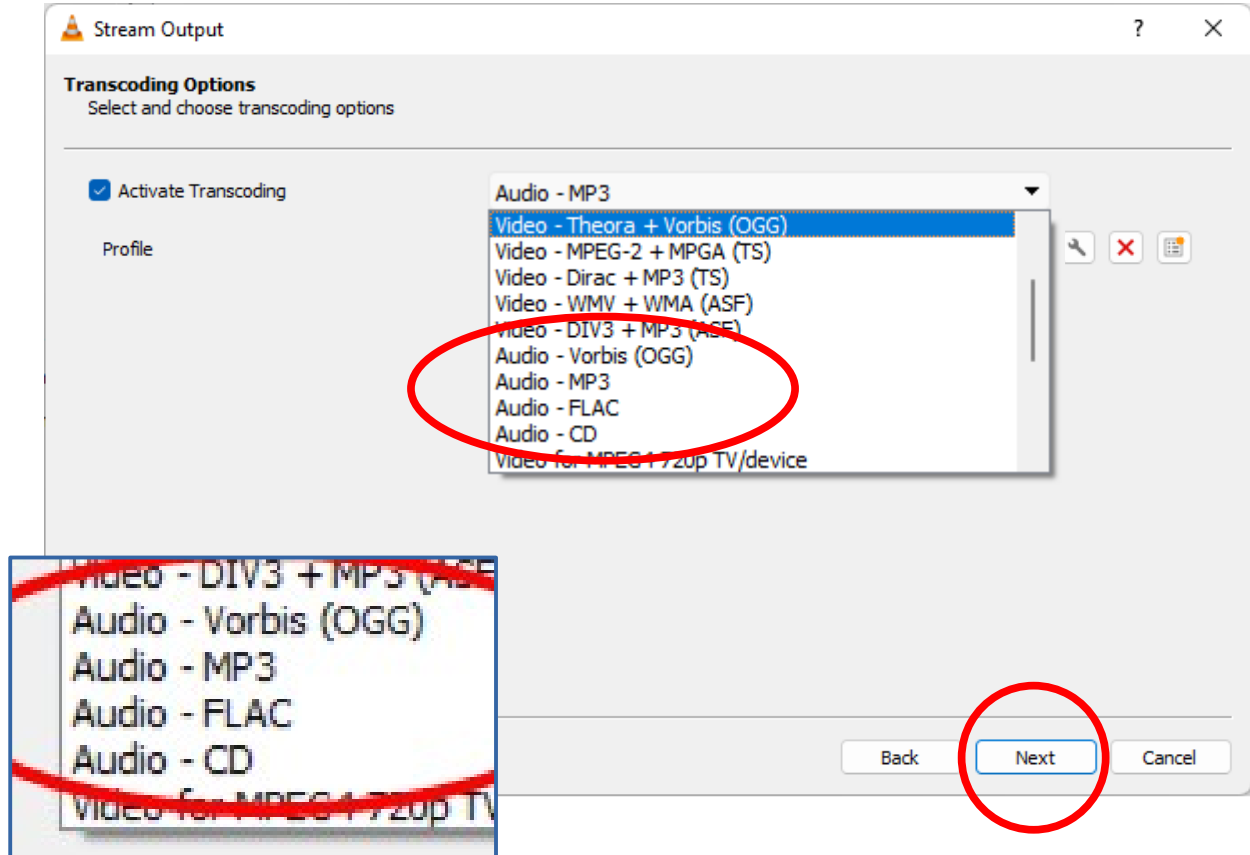
You can also adjust the port number, if you wish.

- Make note of the port number. You will need it later.
- When done, click the **Next** button



# Streaming Wizard Window 3

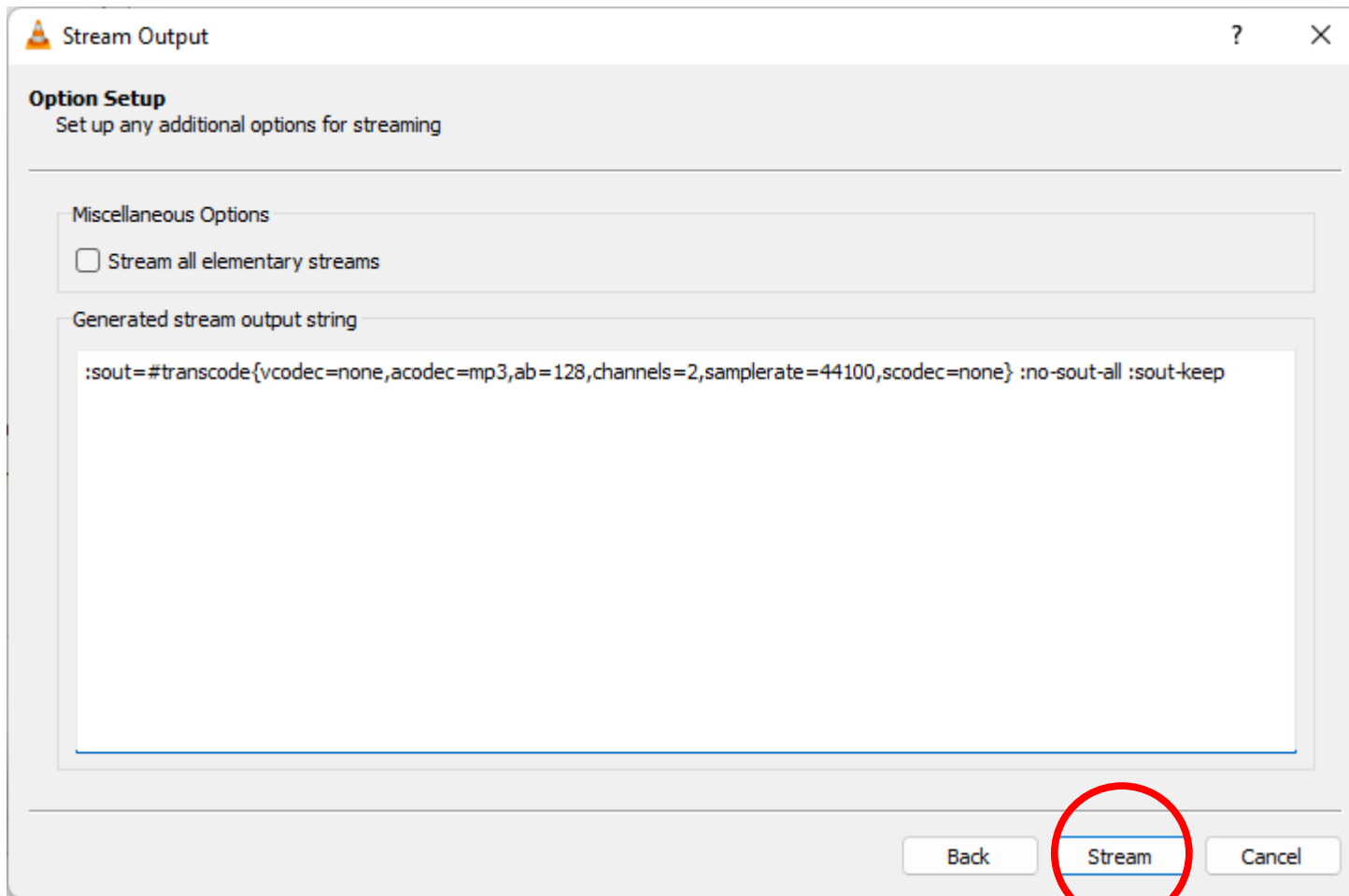
- Here are HTTP audio streaming transcoding options.
- The **Profile** field includes a menu with 4 different audio output types.
- I use **MP3**.
- Choose the preferred audio output type
- Then click the **Next** button.



# What is transcoding? Why do it?

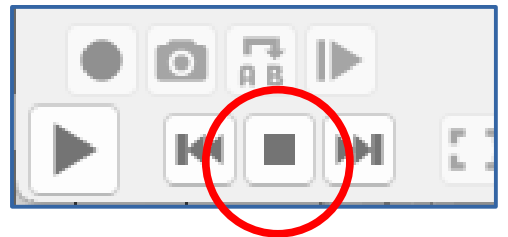
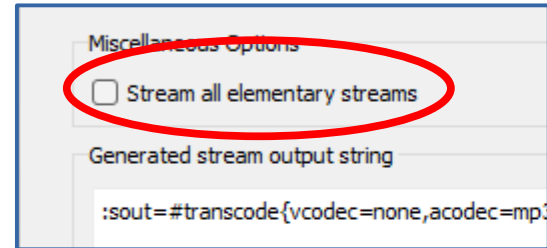
- Audio files of many types can be included in a playlist, such as MP3, M4A (iTunes), and FLAC.
- VLC transcoding means converting every different audio file type to the chosen streaming output file type.
- Transcoding does NOT alter the audio files in the playlist.
- FLAC and CD are very high bandwidth streams, often too fast for accurate playback on older devices.
- I use MP3 as the sole streaming output type. Low-bandwidth MP3 works well for older, slower devices such as iPod Touch or Samsung Galaxy S5.

# Streaming Wizard Window 4



# Streaming Wizard Window 4

- The only required action is to click the **Stream button**. The Wizard window closes and streaming audio begins.
- If some of your LAN-connected devices cannot connect to the audio stream or cannot play the stream, then restart the Streaming Wizard and, in Window 4, check the option to **Stream all elementary Streams**.
- Stop the streaming audio at any time by tapping the **Stop button** in the lower left corner of the VLC window.



# How to loop an audio stream

- Before starting the Streaming Wizard, set the **Repeat** button as desired.

## **Part 2.**

**How to connect and listen  
to a VLC audio stream**

# Info needed to connect to VLC streaming audio

- A URL that consists of:
  1. The **IP address of your streaming server computer**.  
The IP address will be 4 numbers separated by dots:  
an example is **10.7.200.17**
  2. The **port number** used by VLC to accept connection requests. That port number is set in Streaming Wizard Window 3. The the default port number for audio is **8080**.
- Example URL: **http://10.7.200.17:8080**



# Info needed to connect to VLC streaming audio

- If you also specify a path string in Streaming Wizard Window 3, then add a / character followed by that path string.
- For instance, if the path string is **mystream**, then the Example URL becomes:

**`http://10.7.200.17:8080/mystream`**

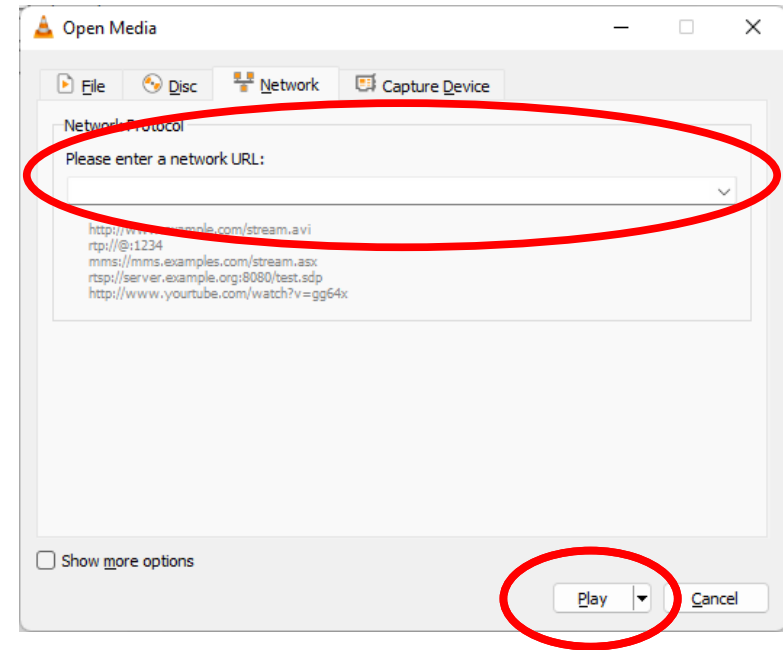
# **Listen to your audio stream using a Windows computer**

This section was developed using:

- A Windows 10 computer
- VLC version 3.0.17.2 on that computer

# Connect to receive streaming audio using VLC on a computer

- Pull down the **Media** menu and select **Open Network Stream**.
- The **Open Media** window opens, displaying a **URL entry field**. Enter the URL and click the **Play button**.

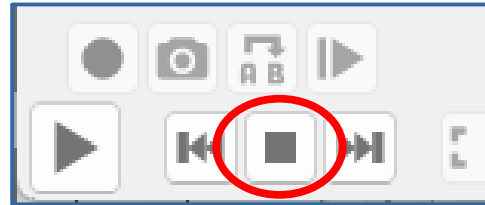


# Save the streaming audio connecton info using VLC

- Each new connection URL to an audio stream from another computer can be saved as a **Playlist file**, so you can resume the streaming audio connection later.
- To store a permanent streaming audio connection Playlist file, pull down the VLC **Media menu** and select **Save Playlist to File**.

# How to Stop the streaming audio connection on your computer

- Click the VLC **STOP** button in the lower left corner.



# How to re-connect using a Playlist stored by VLC on your computer

- Start VLC.
- Reload the stored stream connection Playlist by pulling down the **Media menu** and selecting **Open File**.
- When the Playlist is visible in the VLC Playlist pane, tap the VLC **Play button**.



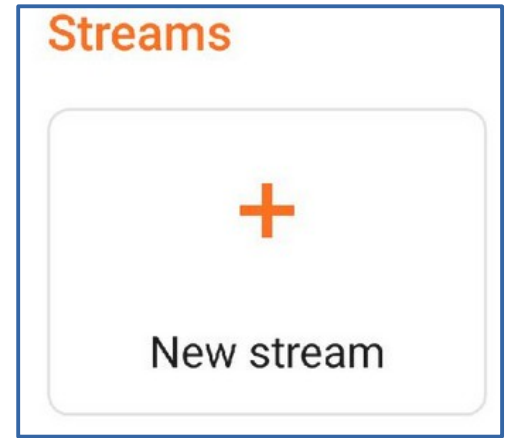
# **Listen to streaming audio using VLC on an Android phone/tablet**

These steps were developed using:

- Android 12
- VLC for Android version 3.4.3

# Connect to streaming audio using VLC on an Android phone/tablet

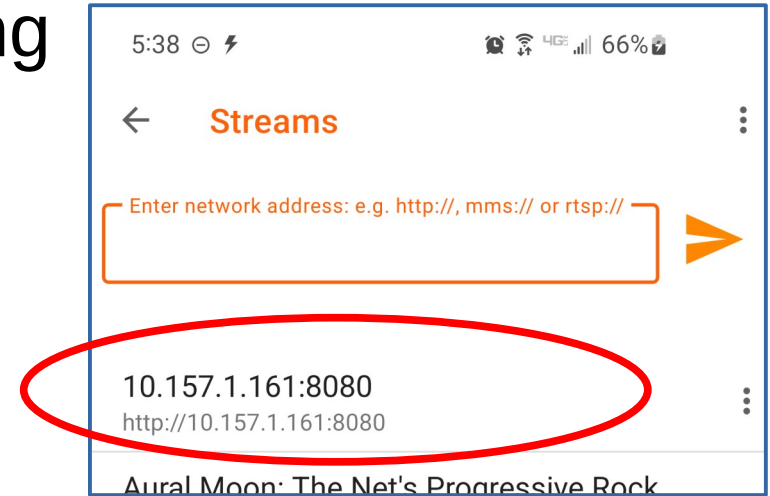
- Open the free VLC app on your Android device.
- If you do NOT see a **New Stream** button, then tap the **More** button at the bottom of the app (not shown). The New Stream button appears.
- Tap the **New Stream** button. A URL entry field appears at the top of the screen.
- Type the Stream URL and tap the **triangle** at the right.





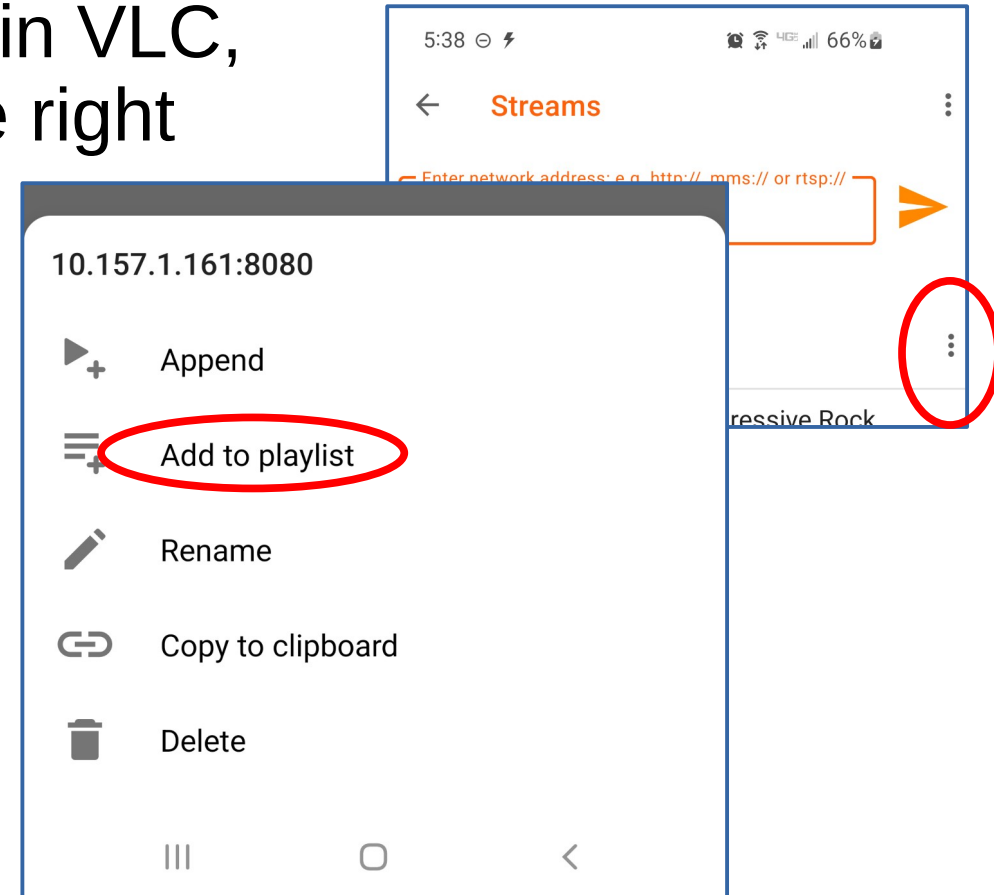
# Connect to streaming audio using VLC on an Android phone/tablet

- VLC receives and plays the streaming audio.
- The URL you entered appears below the URL input field.



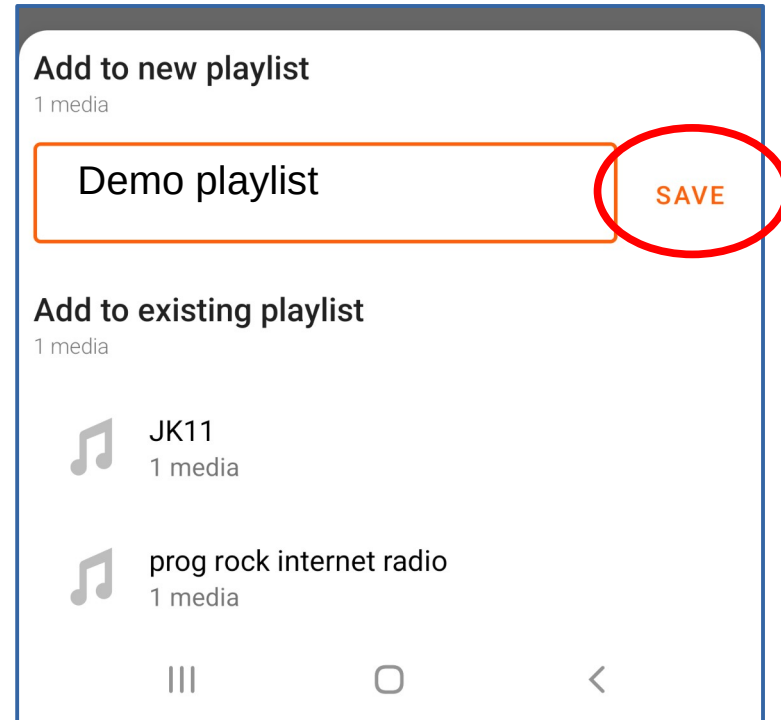
# VLC on an Android phone/tablet: Save the stream info

- To save that URL for later use in VLC, tap the three-button icon to the right of the URL.
- A menu pops up.
- In the menu, tap **Add to Playlist**.



# VLC on an Android phone/tablet: Save the stream info

- An **Add to New Playlist** popup appears.
- Type your name for the audio stream in the Playlist name field.
- Tap the **Save** button to the right of the field.
- You can instead add the URL to any existing playlist.

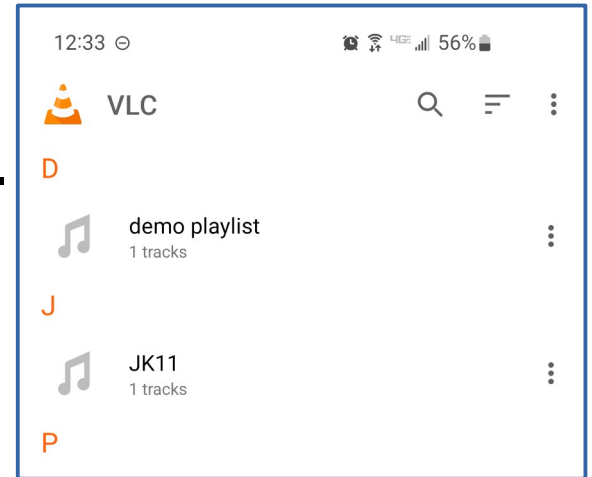


# Re-Connect later using VLC on an Android phone/tablet

- Start VLC. At the bottom of the VLC main screen, tap the **Playlists** button.



- A screen listing saved Playlists appears. Find and tap the Playlist containing the audio stream.



- VLC displays the stream URL and a **Play button** at the bottom right corner (not shown).
- Tap the **Play button**. VLC re-connects to the audio stream.

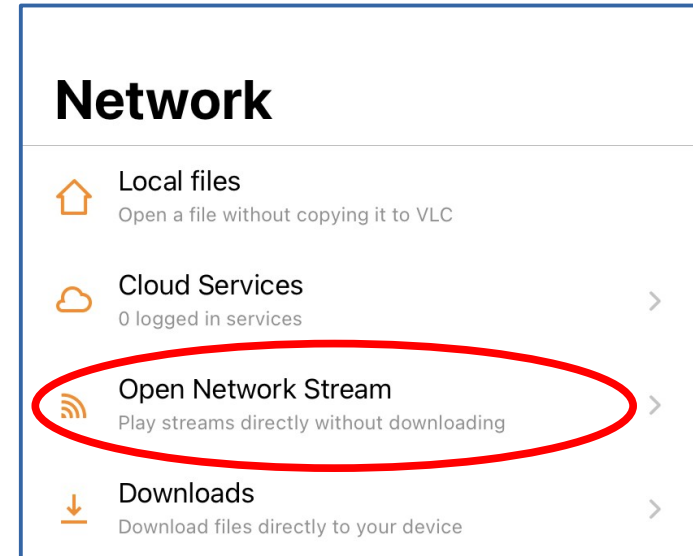
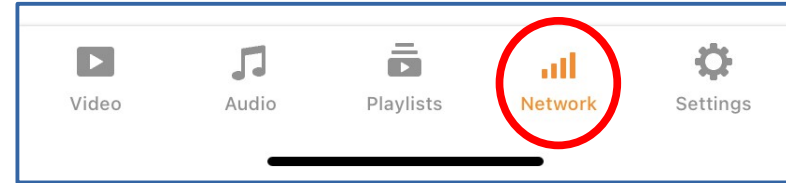
# Listen to your audio stream using iPhone and iPad

These steps were developed using:

- IOS 15.6
- iPhone 11
- VLC for iOS version 3.3.7

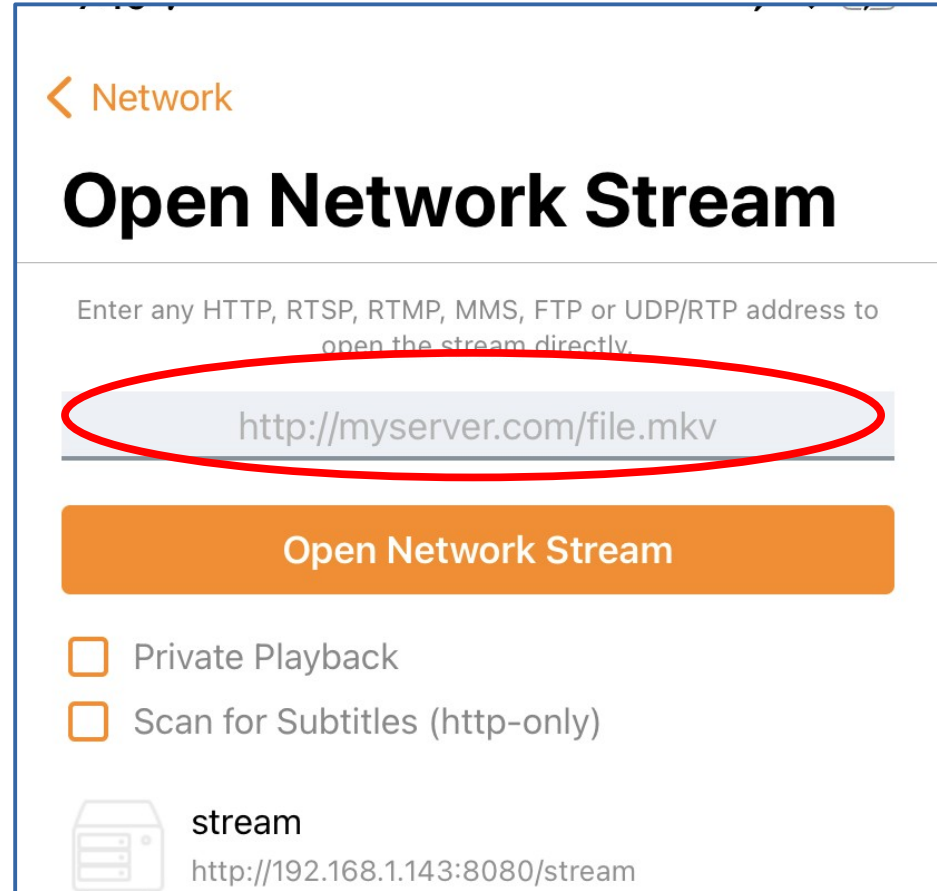
# Connect to streaming audio using VLC for iPhone/iPad

- Start the VLC app. At the bottom of the screen, tap the **Network** button.
- The **VLC Network Screen** opens.
- In the **Network screen**, tap the **Open Network Stream** heading.



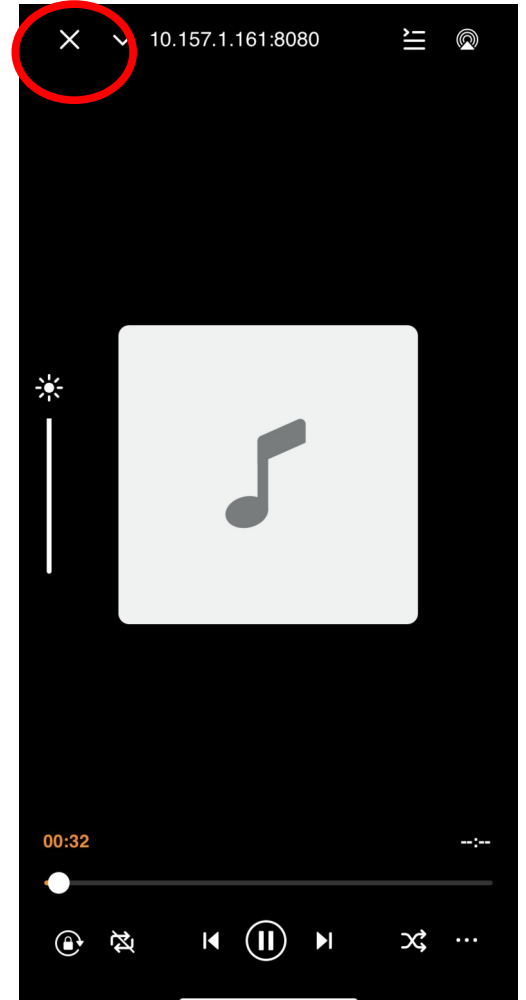
# Connect to streaming audio using VLC for iPhone/iPad

- The VLC **Open Network Stream** screen opens, containing a **URL entry field** and an **Open Network Stream** button below the entry field.
- Type the audio stream URL into the field, and then tap the button.
- VLC begins playing the streaming audio.



# To Stop the streaming audio

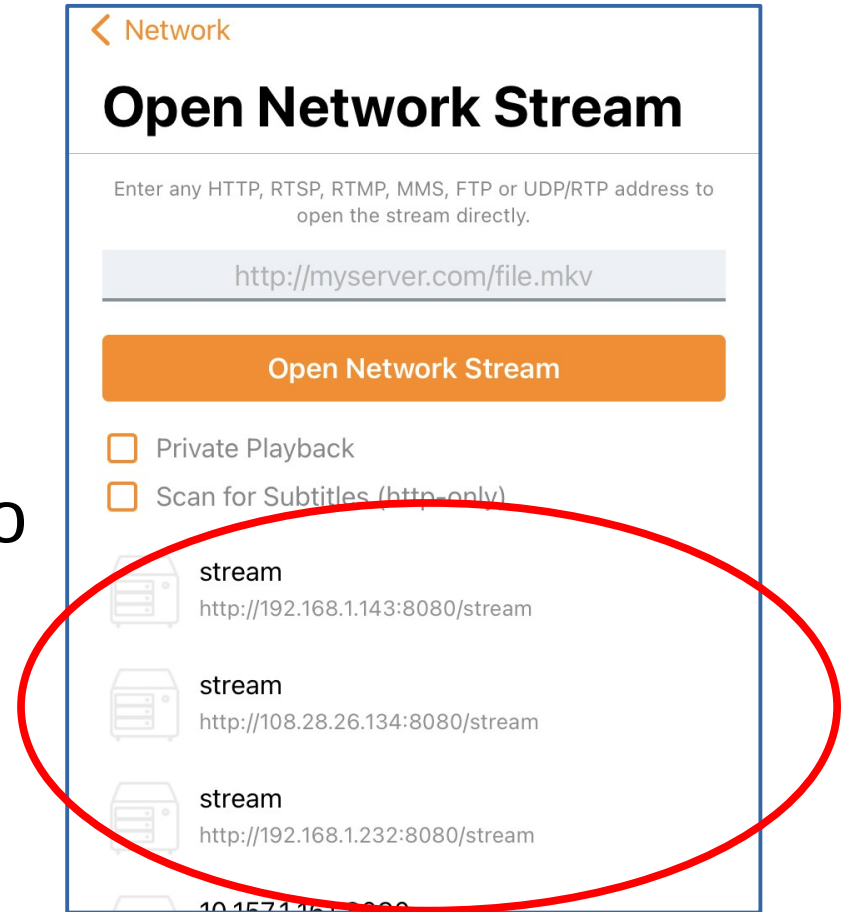
- The playback screen is shown here.
- There is a timeout on the user interface, so the controls on this screen soon disappear. Tap the screen to make the controls reappear.
- To stop playback, tap the **X** in the upper left corner.





# Connect later using the VLC app for iPhone/iPad

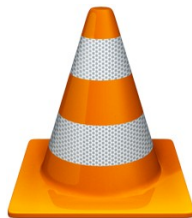
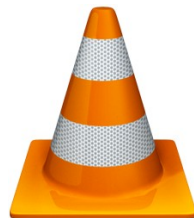
- In the **Open Network Stream** screen, a list of the most-recently-used streaming audio URLs appears just below the **Open Network Stream** button.
- To re-connect to the same audio stream later, go to the **Open Network Stream** screen, find the URL in the list, and tap the URL.



**QR codes for installing Apps**

# VLC app

- **VLC for Android devices:**  
Scan this QR code to open the Play Store to the app page so you can download and install the app



- **VLC for Apple devices:**  
Scan this QR code to open the App Store to the app page so you can download and install the app

# TuneIn app

- **TuneIn for Android devices:**  
Scan this QR code to open the Play Store to the app page so you can download and install the app



THESE APPS CAN RECEIVE STREAMING AUDIO



- **TuneIn for Apple devices:**  
Scan this QR code to open the App Store to the app page so you can download and install the app

# VRadio app

- **VRadio for Android devices:**  
Scan this QR code to open the Play Store to the app page so you can download and install the app



# Pandora Radio app

- **Pandora for Android devices:**

Scan this QR code to open the Play Store to the app page so you can download and install the app



- **Pandora for Apple devices:**  
Scan this QR code to open the App Store to the app page so you can download and install the app

# iHeartRadio app

- **iHeartRadio for Android devices:** Scan this QR code to open the Play Store to the app page so you can download and install the app



- **iHeartRadio for Apple devices:** Scan this QR code to open the App Store to the app page so you can download and install the app

**THE END**