



Rendezvous Best Practices Guide

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Introduction

Anyone streaming professional live video content today needs the ability to bring remote guests into their production. Wirecast Rendezvous is a powerful peer-to-peer video conferencing feature that makes it easy to incorporate high quality audio and video from multiple remote guests into your professionally produced Wirecast live stream. Produce live interviews, talk shows, panel discussions and co-hosted shows as part of your live stream without the need for third-party conferencing systems like Zoom or Skype. In this PDF, we will go over some of the best practices with Rendezvous so you can have the best quality for your next live stream

Rendezvous makes it possible to easily manage multiple callers within your live production without juggling other applications, logins, screen captures or the need to do complex audio routing. With Rendezvous, you simply send your guests a link they can open in a web browser, on their Android or iOS mobile device — and then they will join your broadcast.

With Wirecast Studio, you can invite up to 2 concurrent guests (3 total with the host). Wirecast Pro allows up to 7 concurrent guests (8 total with the host).

Getting Started:

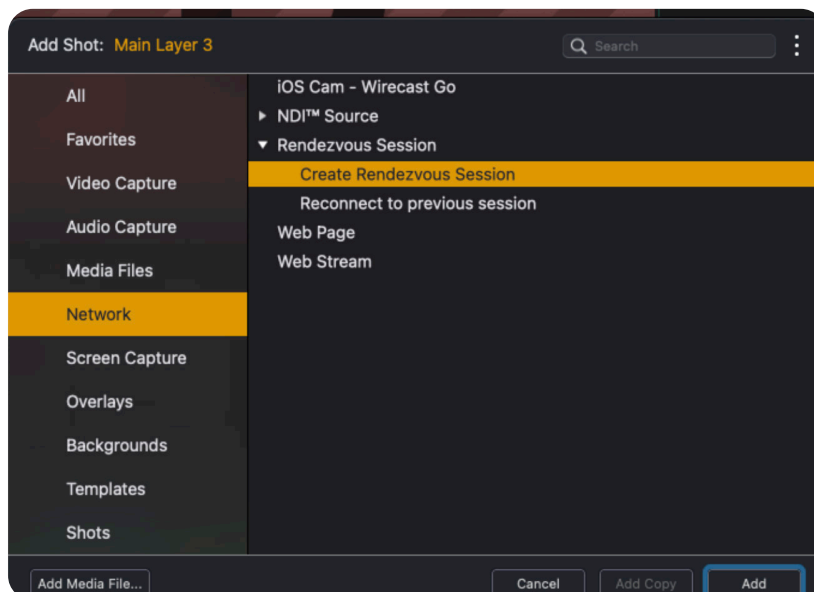
Let's start by setting up a Rendezvous session and inviting some guests.

Open and configure your Wirecast project

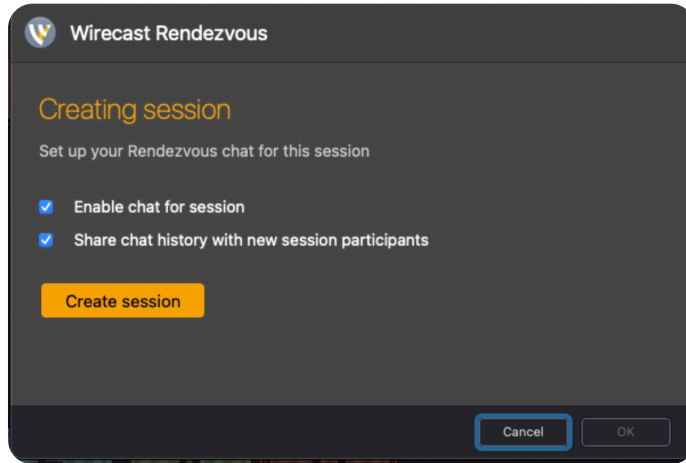
Open your Wirecast project. You may want to get your document all set up with your sources, graphics and shots, and configure your destination before you add your guests in. That way they're not sitting around waiting for you to get your s*%! done.

Create a Rendezvous Session

When you are ready to connect to your guest(s) with Rendezvous, go to Window > Rendezvous Dashboard, or click the "+" button on any layer in the Main Shot Display Layers and in the Add Source dialog box select Network > Rendezvous Session > Create Rendezvous Session.

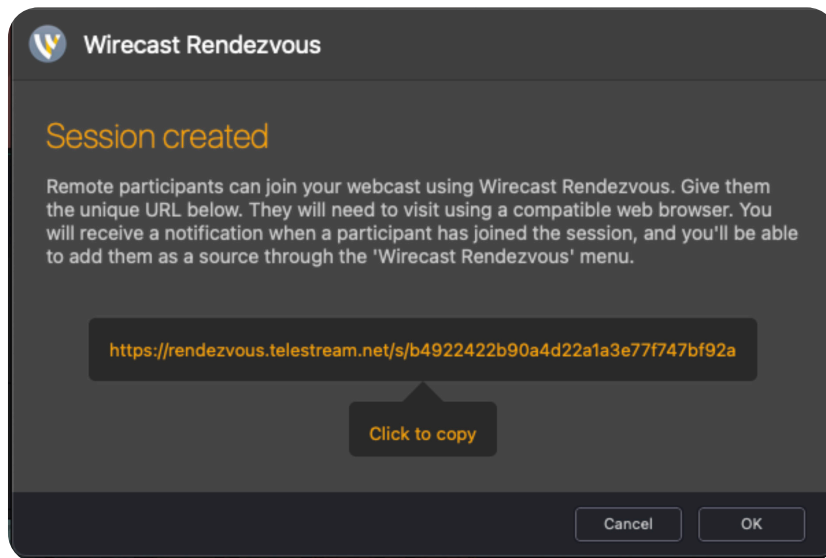


You'll be prompted to configure Rendezvous Chat where you can choose whether to Enable Chat for the Session and whether to Share Chat History with New Session Participants. (more on that next)

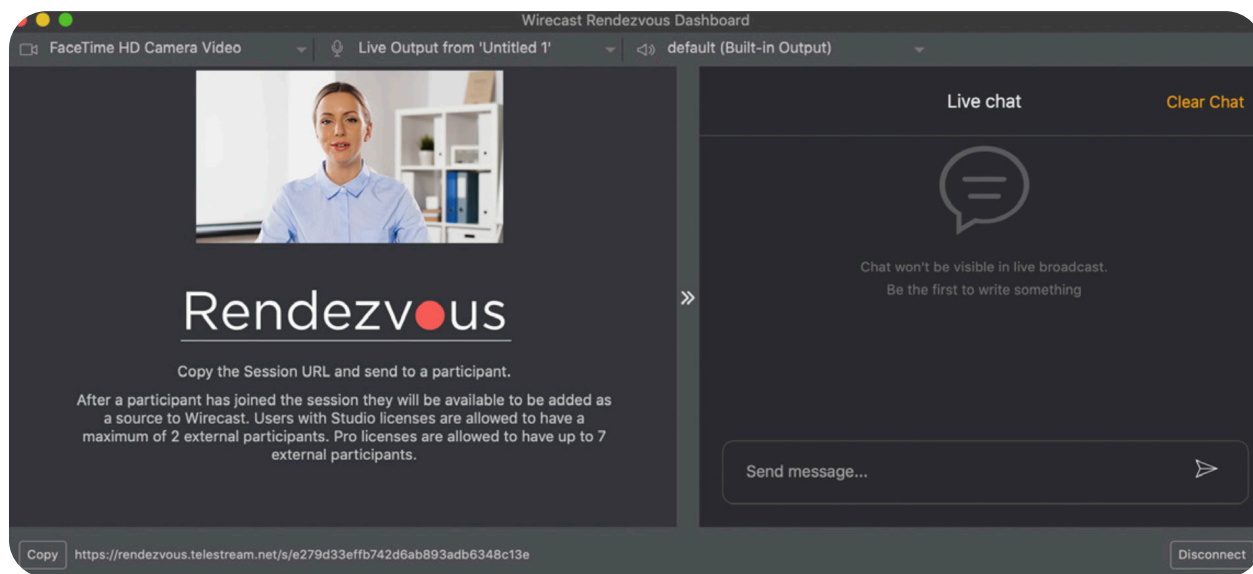


Invite Your Guests

You will need your Rendezvous Invitation Link to invite your guests into the session. Once you create a new session, the Rendezvous Session window will appear with your link. Click 'Copy' to copy the link, which you will see confirmed by a green check mark. You can then send this link to your guests however is most convenient, such as through an email or instant message.






Note: You can also copy this link anytime in the Rendezvous Dashboard





Understanding the Rendezvous Dashboard

Once you click 'OK' after copying your Invitation Link, you will be taken to the Rendezvous Dashboard. This is where you will manage the audio/video connections, for yourself and your guests, in the Rendezvous session.

Across the top of the Rendezvous Dashboard window you'll see three main buttons that will control

- 1)  What your guests will see
- 2)  What your guests will hear
- 3)  How you will hear your guests

 On the far left you set what your guests will see when they connect. You can choose to have them see a video camera (like your own camera, or another camera in your production), or you could show them the live program feed (this will show them whatever is displayed in the Live window of your Wirecast document).

 In the middle area, you choose what audio your guests will hear while in the Rendezvous session. You can choose any connected microphone and/or the audio that's in your Live program window, similar to choosing which video feed to display.

With audio, you can mix several sources to send to your guests – so you might want to include your own microphone, so they can hear you. But you also might want to include the audio from your live document, so that if you have any sound effects or media files with audio, they would hear that as well. Or, say you have a producer in a separate room, you could add their microphone to the mix as well so the producer can give instructions to guests, even if the producer is not a guest in the Rendezvous room.

Wirecast Pro users can also click “Advanced” and select individual device channels to bring in.

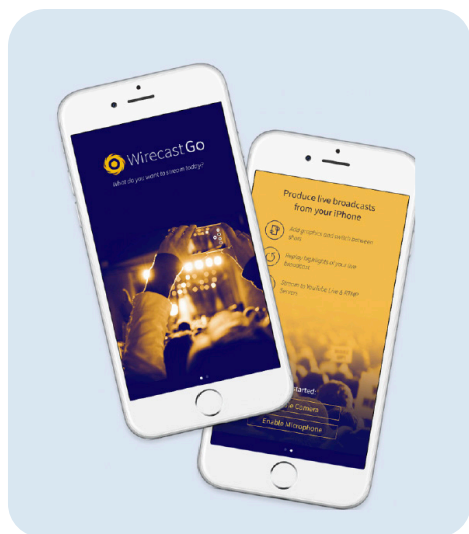
» On the far right, you can choose how you want to hear the audio coming from your guests in the Rendezvous dashboard - for example, through your headphones or through a connected device.

Connecting Your Guests

When you send your Rendezvous Session link to your guests, they just need to click on it to connect.

Computer Users

The preferred method of connection is through a computer connected via ethernet, and a browser. Clicking on the link on a computer will open the default browser. If the guest wants to change the browser that they're using, they can right-click on the link and choose “Open With...” and select a different browser. Some browsers will require the user to allow the camera and microphone to be used by Wirecast Rendezvous. This should usually be prompted the first time the user connects with that browser, but if not, the user can visit the Privacy and Security settings for their browser and make sure they've enabled access to the camera and microphone for rendezvous.telestream.net.



iOS Users

If your guest is connecting from an iOS device, they will be prompted to download Wirecast Go from the app store. This is a free app that is required to participate in the Rendezvous session. Once they have downloaded and installed Wirecast Go, they need to open the app and go through the initial tutorial steps, close the app and then tap the link to connect to the Rendezvous session.

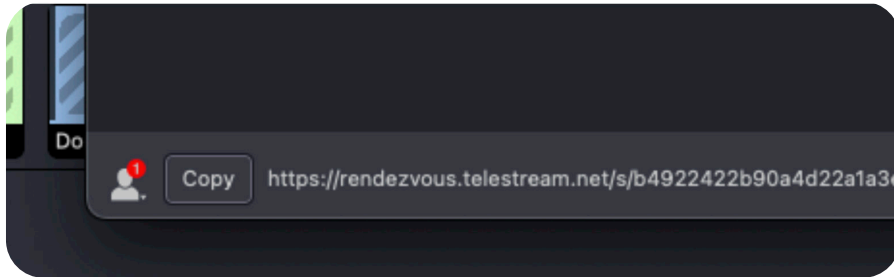
Android Users

The Rendezvous link will open in Google Chrome by default to connect to the session.

Add Your Guests to Your Broadcast

Watch Your Notifications

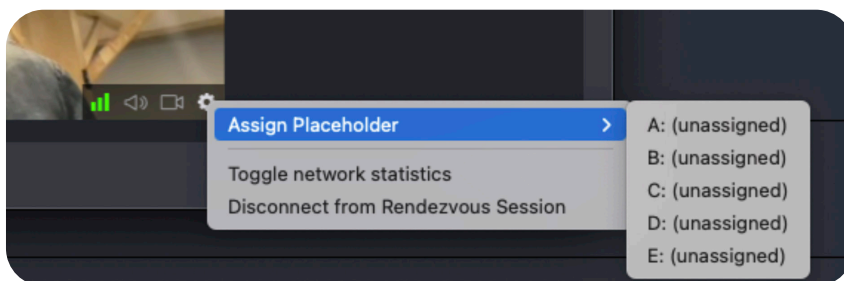
When a guest clicks the link to join the session, a notification will pop up in your System OS Notifications (Mac and Windows). You will also see a notification in the lower left corner of the Rendezvous Dashboard as well as below the Live window in the main Wirecast document window. Click on any of these to add your guest into the Rendezvous session.



Configure Your Shots

Once all of your guests are connected, you should now be able to add their individual video and audio feed(s) as a live source to any layer or shot in your Wirecast project. Just select the (+) on any layer in your Main Shot Display and choose "Network > Rendezvous Session > [Guest Name]". All connected guests should appear listed there with the names they used to identify themselves.

Using Placeholders in your Wirecast document makes it even easier to quickly add all your guests to your pre-configured document. Easily assign a guest to a Placeholder by clicking the Gear menu under the guest's video in the Rendezvous Dashboard and selecting Assign Placeholder > [choose which Placeholder]. When you assign a guest to a placeholder, everywhere that placeholder is used will be replaced with that guest's video feed.



Disconnecting and Reconnecting to a Rendezvous Session

One of the great things about Rendezvous is that you can invite anyone to join your Rendezvous session or disconnect them at any time. Your session link will be active for 24 hours, so if someone gets disconnected, they can easily rejoin the session.

Before the Call Best Practices

Run a Test Call

The only way to truly know the audio/video quality your guests will have is to set up a test session and find out. It's always good to have a practice run, so taking the same steps here as your session for the actual broadcast will be helpful. Ideally, you'll want to run a bandwidth test and your test call at the same time of day, in the same conditions of your actual call.

Notifications & Applications

Make sure you turn off all your computer notifications and applications, so you don't annoy your audience with pop ups or unnecessary sounds.

Getting the Best Quality

Here are some tips to ensure you get the best quality.

Video/Audio Quality










High quality interviews and remote video conferencing need a lot of bandwidth in both directions – upload and download. Rendezvous will intelligently auto-scale the video quality of the guest(s) depending on:

1. How many guests are on the call
2. The guests' bandwidth (upload and download)
3. The host's bandwidth (upload and download)
4. The type of device you are connecting from

The maximum quality video Rendezvous is capable of is 1280 x 720 at 30 fps (frames per second) when connecting from a computer or WebRTC- enabled browser. This quality is sustainable for up to two guests plus the host, simultaneously, for a three-way conference (assuming both guests and host have sufficient bandwidth).

Bandwidth

In order to create a multi-guest Rendezvous session, you and your guests will need enough bandwidth set aside JUST for the purposes of your conferencing connection; this does NOT include the additional bandwidth you may need for streaming, broadcasting, IP cameras or other network activities related or unrelated to your Wirecast production. In general, to get the best quality audio and video possible during your Rendezvous session, follow the guidelines in this table:

# of Guests	Recommended Bandwidth (Host & Guests)
1-2 	4-5 Mbps  up  down
3-4 	5-8 Mbps  up  down
5-7 	6-10 Mbps  up  down

You and your guests need the above amounts of bandwidth, each, for best performance.
This allows all parties to see and hear all other parties in the best possible quality.

Both you and your guest(s) should run a bandwidth/ speed test. Refer to the chart above for how much bandwidth you will need to get the best quality. Try to test in the exact time of day or environment you plan on using during the live broadcast. You can use the following sites/apps to help determine your speeds:

www.speedtest.net

www.testmy.net

If you or your guests are not getting the necessary bandwidth, you can try these steps to improve performance:

- Close non-critical apps/tabs in the browser, computer or device
- Ask other people on the network to stop using it for the duration of the Rendezvous session or use a dedicated network
- Try connecting from a different location or a different device
- Contact the Internet Service Provider

Connection Type

There are different ways to connect to a Rendezvous session. Determine the type of connection you and your guests will be using. Whenever possible, it is recommended that you use a hardwired Ethernet connection to minimize failure points and the chance of packet loss or connectivity issues.

Compatible Browsers

Rendezvous uses WebRTC protocol to connect to your guests. It should work well with most WebRTC-enabled browsers and devices. Here are some we recommend:

- Google Chrome
- Safari
- Mozilla Firefox
- iOS Device (via Wirecast Go)
- Android Device (via Chrome browser)

Remember, whether you are the Rendezvous Host or Guest, your device should be powerful enough to send and receive video in near real-time. The more Rendezvous guests connected to the conference, the more resources your computer or device will need to devote to sending and receiving the audio and video for the session. Keep an eye on your processor and memory if you suspect your hardware is a limitation. If you are a guest on a mobile device, keep an eye on your battery and your signal strength as well.

Camera/Microphones

When guests are using a computer to connect to the call, encourage them to use the best camera or microphone their browser will detect. Please note that not all mobile devices will support the use of an externally connected camera or microphone. Chrome, Safari and Firefox should be able to detect most USB and UVC devices (webcams, USB microphones, etc.) and they should be selectable when joining a Rendezvous conference. Rendezvous hosts can use any live video/audio source available within their Wirecast project.

Headphones

Both you and your guests should use headphones when participating in a Rendezvous session. This improves audio quality and avoids feedback from the microphones.

Muting and Managing Audio

All audio and video for your Rendezvous guests can be muted in your Rendezvous Dashboard. Guests will hear each other and the host's audio at all times unless they mute themselves.

If the Rendezvous Dashboard is closed, you will not hear your guests' audio unless their audio is in a shot that is actively being monitored (i.e. the "Headphone Monitor" icon is yellow) in either the Preview or Live Windows. Your guests will still hear you and each other, even if the Dashboard is closed, unless you mute your return audio in the Dashboard.

Audio Echos

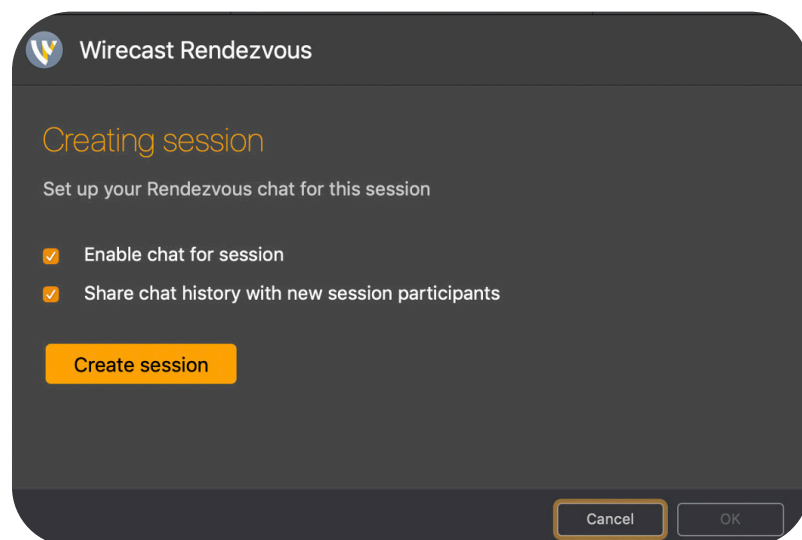
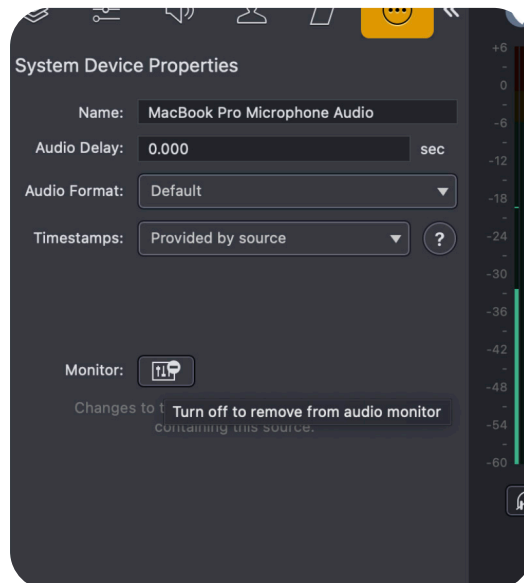
As the host, Rendezvous automatically filters out your voice (mix minus), based on your input device so you won't hear your own voice in the Rendezvous Dashboard.

However, Wirecast does not filter out your voice in active shots - so if you have a microphone or input device in an active shot in your Main Shot Display, you may still hear your own voice. Similarly, if the Rendezvous Dashboard is open, you will hear your guests' audio echoing if you are actively monitoring their audio in a shot in the Live or Preview Windows. To fix this echoing, simply uncheck the 'Monitor' button in the device settings tab for any shots that have your or your guest's audio.

Using Other Rendezvous Features:

Rendezvous Chat

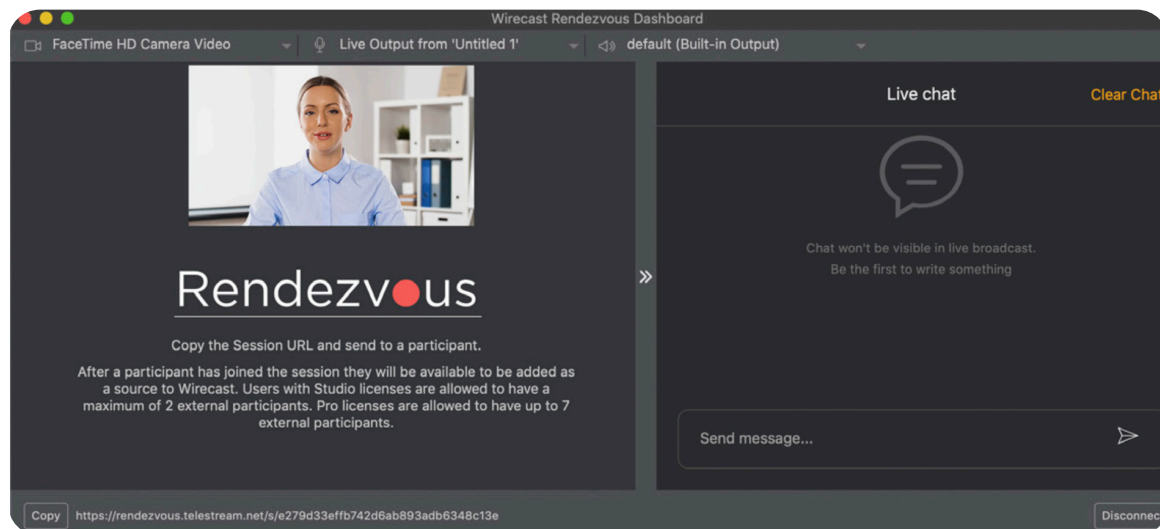
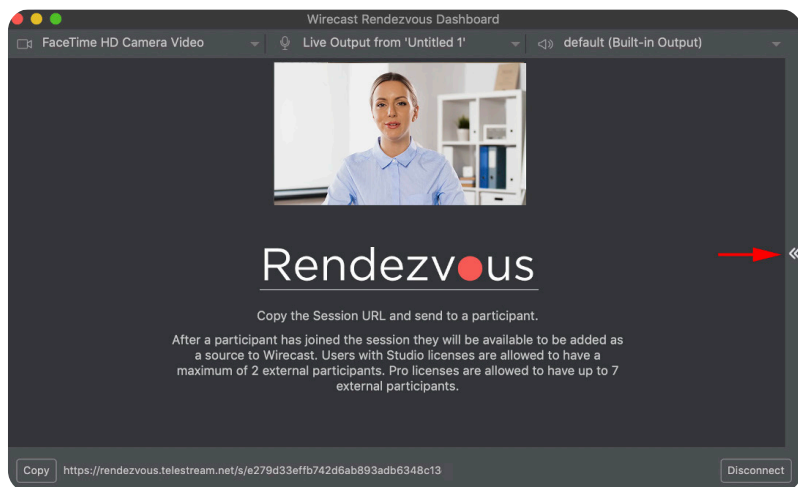
There are times in a live interview where you need to communicate privately with your guests. That is the purpose of the Rendezvous Chat feature in Wirecast. When you initiate a Rendezvous session, you will be asked to choose the chat settings for that session.



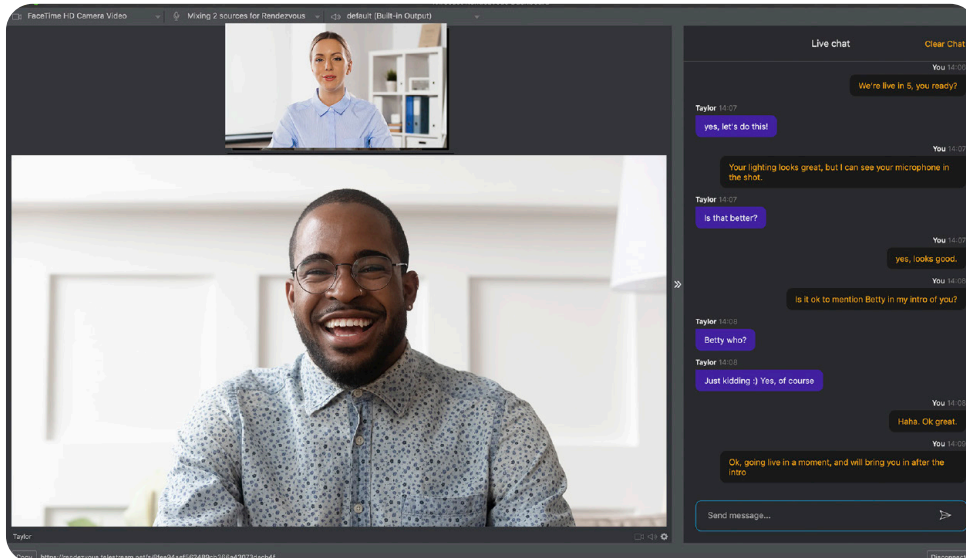
The “Enable chat for session” option will enable a chat dialog between you and your guests.

If you select “Share chat history with new session Participants,” any new guests that arrive at any time in the session will see the full chat history. If you don’t select this option, new guests will only see chat messages that occur after they have joined the session.

There will be a panel on the right side of your Rendezvous Dashboard that, when clicked, will slide out to reveal the Rendezvous Live Chat panel. You can open and close that panel at any time by clicking on the >> to the left of the Live Chat panel.

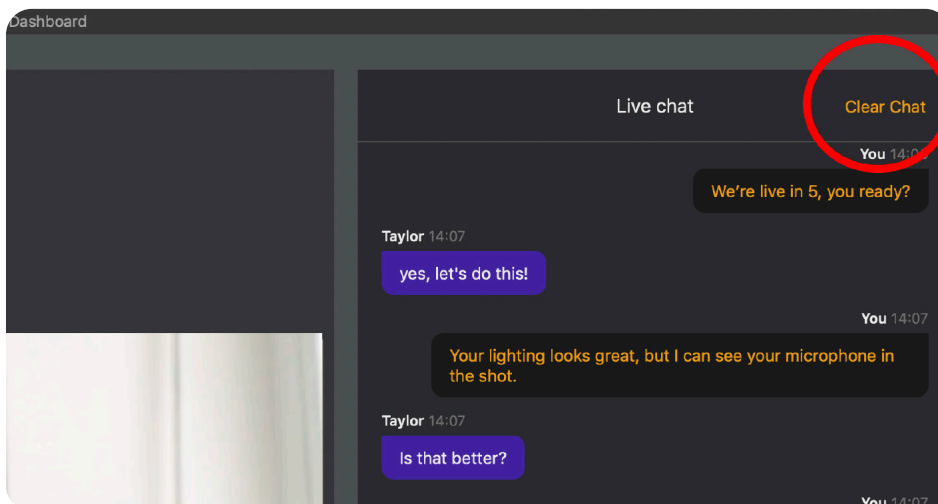


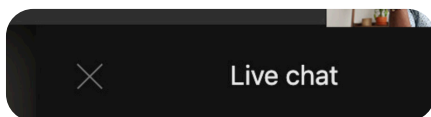
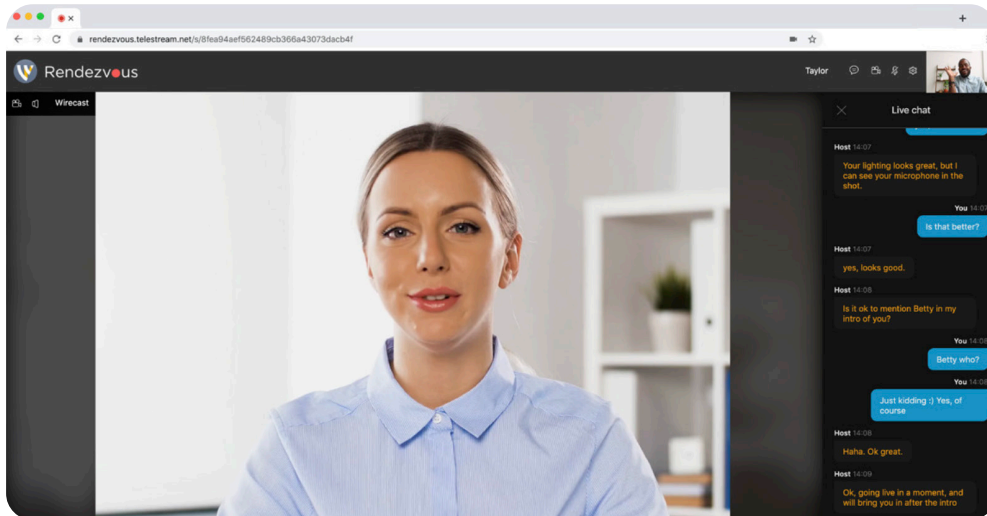
Host and guests can type into the message window to communicate. This chat panel will not be seen on the live broadcast, so you can type private messages you might not want to say over the live stream.



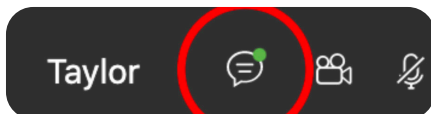
Each guest's name will appear above any messages they send. If you have several guests, each guest will have a different color assigned to their chat bubble windows, for easy identification.

You, as the host, can select "Clear Chat" in the top right corner of your Live Chat panel, at any time, and all the messages will be cleared from your, and your guests', Live Chat panel.



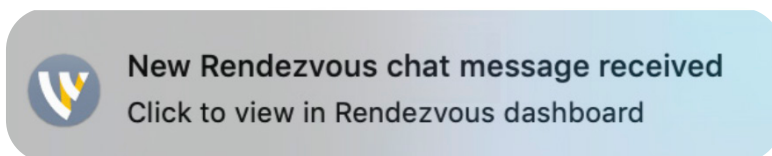


They can close their Live Chat panel by clicking on the X in the top of their panel.



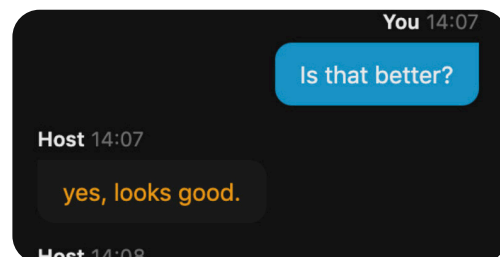
If a message arrives for a guest when they have their Chat panel closed, they will get a green dot on the chat icon, which they can press to re-open their chat panel.

You, as the host, will receive a notification if a guest types a message if you have the Live Chat panel closed or the Rendezvous Dashboard is not in focus.



If a guest disconnects and reconnects to the same session, they will still be able to see the chat history (as long as you selected to enable chat history).

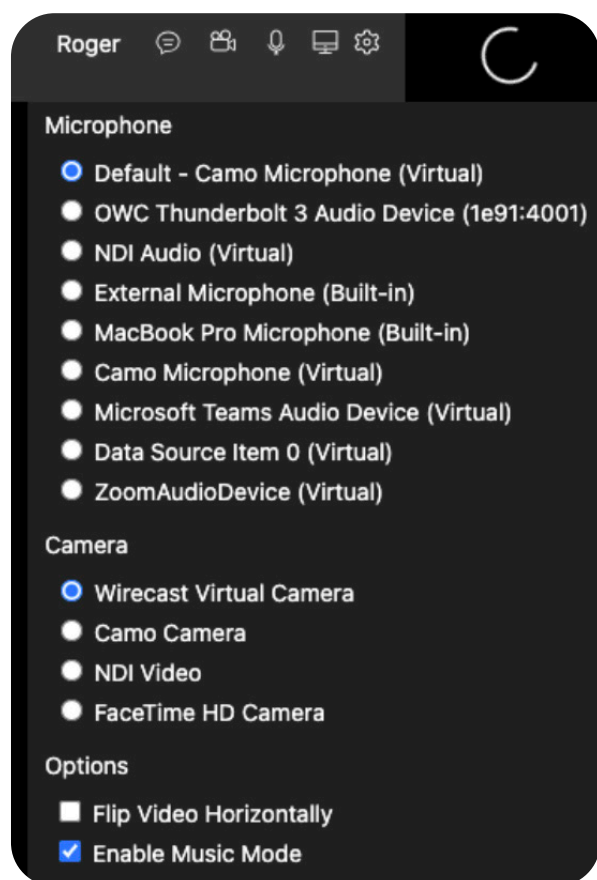
However, if you disconnect your session and force Guests to disconnect, then your chat history will be deleted.



Music Mode

Rendezvous guests can turn on Music Mode, which will greatly improve the audio quality when playing musical instruments over Rendezvous. Specifically, when a Rendezvous guest turns on Music Mode in their browser, this will:

- Enable stereo audio
- Increase the audio bitrate to 256k (by default, audio in Rendezvous is mono 32k. When Music Mode is enabled, it will be two channels, 128k each.)
- Disable audio processing (echo cancellation and noise reduction)



Guests can find the “Enable Music Mode” option in the Settings Gear menu in their Rendezvous browser.

A couple of notes about Music Mode:

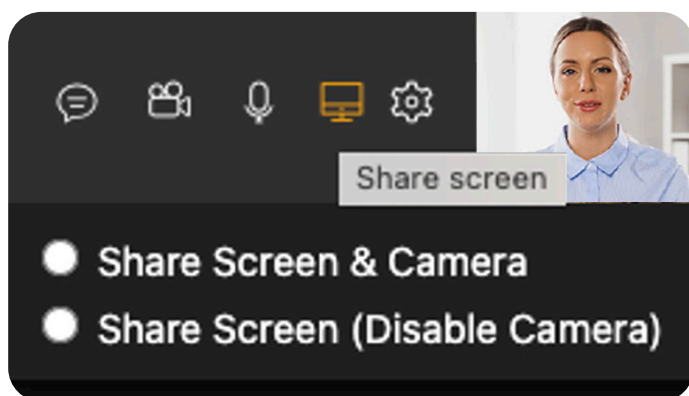
- *This mode applies only for Rendezvous guests sending audio to Wirecast. Higher quality audio will not be sent to other guests in the session (bandwidth utilization would be significantly higher in this case).*
- *Using Music Mode does increase bitrate and will take more bandwidth. So be sure to take that into consideration when looking at your bandwidth requirements.*
- *The audio processing that gets disabled for Music Mode could result in poor quality audio for regular speech. So be sure your guest turns off Music Mode once they are done playing music.*

Screen Share

Rendezvous guests can share their desktop and camera during a broadcast. Only one guest can share both their screen and their camera at the same time. However, multiple people at the same time can share screens with their cameras disabled.

When a Rendezvous guest joins via a browser, they will see a Share Screen icon in the top right corner of their Rendezvous window in their browser.

Click the Share Screen button. Wirecast opens a drop-down menu.



Select one of the following options, as desired:

- **Share screen & camera**
 - If no one else is sharing their screen and camera at the same time, Wirecast asks which screen or window to share. Choose one.
 - *(Note: guests may need to enable security/privacy permissions in the browser in order to allow screen sharing)*
- **Share screen (disable camera)**

When a Guest chooses their screen to share, the Wirecast host will start seeing the shared screen. If the guest has selected Share Screen and Camera, the host will see two separate feeds in their Rendezvous Dashboard - one for the camera and one for the screen share. This allows the Wirecast operator to easily add one or both of these feeds as separate shots into the broadcast, or do a picture-in-picture with the guest camera and the guest screen share. If the Guest chose Screen Share (Disable Camera), only the screen share will display in the Rendezvous dashboard for the Wirecast host.

If a second guest tries to “Share Screen and Camera” while another guest is already sharing both, the second guest will see a notification across the top of their Rendezvous window that tells them only one guest can share both screen and camera at the same time, and they will have the option to share their screen only (disabling the camera).

Rendezvous Diagnostics:

In the bottom right corner of each guest's video, the host can see a call quality indicator, displayed as either Green, Yellow or Red bars. This can alert the Wirecast host to any potential issues with their guests' network quality.

- **Green:** Call is connected and video and audio are coming in smoothly
- **Yellow:** Call may be experiencing dropped frames or disrupted audio
- **Red:** Call is disconnected, or no video or audio is being received.

Additionally, the host can click on the Gear menu for a specific guest and select Toggle Network Statistics. When selected, this will overlay bitrate, audio and video statistics to further aid in diagnosing connection issues.

Packet loss: This stat shows how many packets have been lost somewhere along their journey across the network, and do not arrive at the receiving endpoint. It is presented as percent of all transmitted packets (lost + received). Packet loss can be caused by any number of things: In wireless networks, inadequate signal strength, interference and poor network hand-offs cause loss; In all network types, excessive congestion, system noise, hardware failures and software corruption can cause loss. Often, one of these failures can have a ripple effect, making things even worse.

Jitter: This measures the average variation of packet arrival time. Packets sent through the network usually do not have the same (constant) delays. This metric helps to diagnose quality problems with real-time communications sessions. High jitter values contribute to poor audio quality, which can degrade overall experience.

Round trip time: This displays in milliseconds, the time needed for packets to go from one peer to another and back. This gives an idea how long the network delay is for the connection.