

# Using an iPad as a Virtual Whiteboard in Zoom

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One of the struggles with teaching online can be loss of interactivity of a synchronous class. If you are used to using a whiteboard in the lecture to either jot notes or help students work through problems, its loss can make a class a lot less interactive. I found that there were several ways to get an iPad, particularly when combined with an Apple Pencil, to work as an excellent virtual whiteboard for the instructor through *Zoom*.<sup>1</sup> **I settled on a wireless connection for maximum flexibility.**

Apple's *iPad* has the built-in capability to wirelessly transmit its screen to an other device, called *Screen Mirroring*, using a technology called *AirPlay*. *Zoom* can capture this *AirPlay* transmission and rebroadcast it to your class in almost the same way any other "screen sharing" within *Zoom* works.

## Technology Requirements:

To use an iPad as a virtual whiteboard the way I describe, you will need the following:

1. **A Mac or PC running Zoom**
2. An **iPad** wirelessly connected to the same wireless network as the Mac or PC. If your Mac/PC is connected to the same wifi router as your iPad (even if the connection is wired), you are likely all set.
3. **[Optional]** To ease drawing on the screen, an **Apple Pencil** drawing stylus (which requires an iPad compatible with Apple Pencil, see <https://support.apple.com/en-us/HT211029>).
4. **[Optional]** For a more responsive screen mirroring of the iPad, the inexpensive **AirServer** app for Mac (<https://www.airserver.com/Mac>) or PC (<https://www.airserver.com/PC>) can help. I describe the setup below under "How To Share iPad Screen Via Zoom using AirServer"
5. **[Optional]** A note taking iPad app directly supporting *Screen Mirroring* such as *Notability* or *GoodNotes*.

## Some Considerations Before Sharing an iPad Screen Via Zoom

- **Privacy Considerations:** By default, screen mirroring an *iPad* shares the entire screen to students. This could potentially expose private information. For example, any notifications you get can get mirrored to the screen the students are seeing. You can hide those notifications by turning on *Do Not Disturb* mode on the *iPad* before your class starts. You can also avoid this problem by using a note taking app that directly supports screen mirroring (see below).
- **Advantages of Apps Directly Supporting Screen Mirroring:** If the note taking app your iPad implements direct support for screen mirroring it can prevent sharing the entire screen and instead share only the note taking surface. For example, both the *Notability* or

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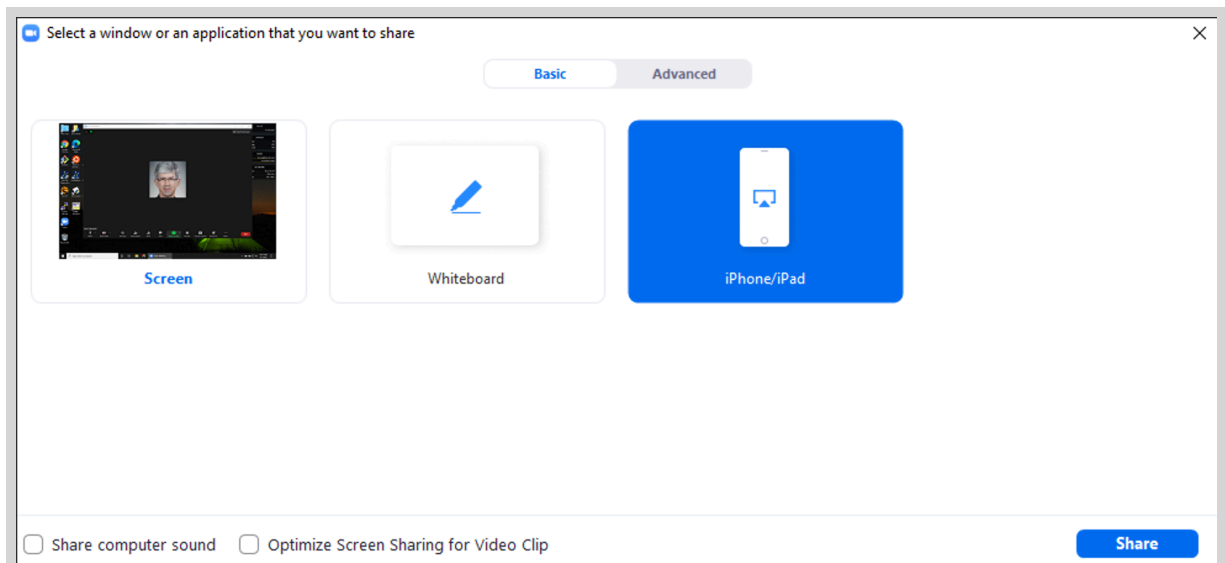
<sup>1</sup> This trick is still only one-way, allowing an instructor to share a whiteboard to the class. In that regard, it can't replace in-lecture use of whiteboards by students. The built-in Whiteboard feature of *Zoom* does offer two way capability, but requires a mouse to draw, rather unnaturally, on the screen. This works for short notes, but I have found it unwieldily for extended use.

*GoodNotes* apps limit screen sharing to just the note-taking surface. The advantage of this is students are not distracted as you select new tools to use, they only see the writing surface. Furthermore, this hides other private information such as notifications flashing on your screen or the list of all the notes in your app.

## How To Share iPad Screen Via Zoom Directly:

Assuming your Mac/PC running *Zoom* and your iPad are on the same network (which is likely if you are home and running a single wifi router), then you can do the following to share your iPad screen to your class through *Zoom*.

1. Start a *Zoom* session on your Mac/PC.
2. Go to the green “Share Screen” button to share your screen. In the sharing dialog box, you should see listed as one of the available screens, “iPhone/iPad via AirPlay” (on Macs) or “iPhone/iPad” on Windows (see Figure 1 below). Select that.



**Figure 1:** Screenshot of Zoom’s screen sharing screen, showing the iPhone/iPad screen sharing option highlighted.

3. If this is your first time running this, you may be told “A plugin is required to share the iPhone/iPad screen” and you need to consent to installing that plugin. Otherwise, you will be immediately presented with an instruction screen (see Figure 2 below) for connecting your iPad to *Zoom*. Follow those instructions, and you will then see your iPad screen mirrored in a window on *Zoom*.

## On your iPhone or iPad:

1. Connect to Wi-Fi network **Please connect to the same network as this PC.**

2. Tap  **Screen Mirroring**

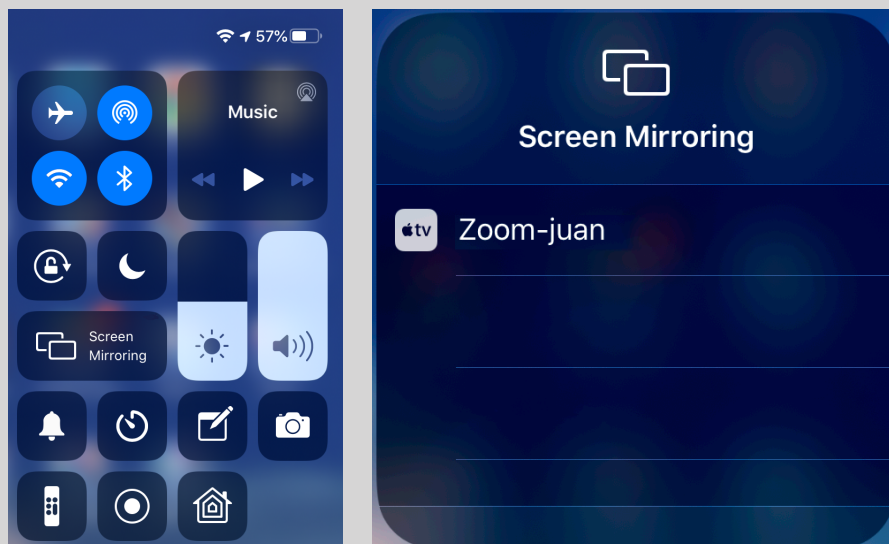
How to find it: swipe down from the top right corner of the screen

On iOS 11 or earlier, swipe up from the bottom of the screen

3. Choose **Zoom-juan**

Don't see it? Restart your device


**Figure 2:** Screenshot of Zoom's screen once iPhone/iPad screen sharing has been activated on my PC, but before connecting iPad to screen. **NOTE:** Your "Zoom-" name will be different!



**Figure 3:** Screenshots of iPad following the on-screen Zoom instructions shown in Figure 2. (left) The iPad control panel, displayed immediately after pulling down on upper right hand corner of screen. Notice the "Screen Mirror" option. Once clicked, you should see the network Zoom says to connect to there (right), click it to connect.

## How To Share iPad Screen Via Zoom using AirServer:

There are a couple of disadvantages to using Zoom's built-in *AirPlay* sharing. I have found it to be very "laggy", sometimes being a full second behind what I draw on my iPad. I discovered that if I instead run the *AirServer* app on my Mac/PC the response of the screen mirroring is much faster. Given the software is relatively inexpensive (educational pricing of \$11.99) and offers a free 30-day trial, its easy to try this and see if it works for you.

1. Confirm you can mirror your iPad's screen using *Zoom* directly using the "How To Share iPad Screen Via Zoom Directly" instructions above. This just confirms there are no network issues before you attempt to use *AirServer*.
2. Delete and reinstall *Zoom*! Sadly, getting *Zoom* working directly with the iPad installs software that interferes with the *AirServer* approach, so you need to uninstall the *Zoom* app and reinstall it to get this approach to work.
3. Download the appropriate version of *AirServer* for your Mac (<https://www.airserver.com/Mac>) or Windows (<https://www.airserver.com/PC>). Install it like any other app on your Mac/PC.
  - The Mac version will reside in the menu bar and looks like this: . To get the server name you will need to connect to, select Preferences for AirServer and look at the AirPlay 'computer name' it displays under General Preferences.
  - The Windows version is a normal Windows app. If you launch it, the lower right hand corner displays the AirPlay 'computer name' you will connect to.
  - **Security Note:** If you are on a more open wifi network (like a campus network) I would strongly suggest setting a password to your AirServer, as this will avoid someone other than yourself connecting to your display without authorization.
4. Start your *AirServer* app on your Mac/PC. On the Mac version of *AirServer*, you can additionally control the resolution of the AirServer display (See Figure 4). My students reported lowering the resolution to 720p made the display much more responsive. Your results may vary. I have not found this option on the Windows version of *AirServer*.



**Figure 4:** Screenshot of *AirServer*'s Mirroring Preferences on the Mac, showing the ability to set the Preferred Mirroring Resolution to 720p. I found this helped the display appear faster to my students viewing it via screen sharing in *Zoom*.

5. Screen Mirror your *iPad* to the *AirServer* using the same instructions as shown in Figures 2 and 3 for use with *Zoom*, but select the *AirServer* name instead of the *Zoom* name for the target to share the screen to. If this works, you should see your *iPad* screen mirrored on your Mac/PC.
6. Start a *Zoom* session on your Mac/PC and click the green “Share Screen” button to share your screen. You should see the *AirServer* window listed as one of the available apps to share, select that and you are sharing your *iPad* screen to your students.