

## **THE VIRTUAL GUITARIST – A SIMPLE GUIDE**

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## INTRODUCTION

- During the pandemic lockdowns of the past year, two main technologies have been taken up by club members as a substitute for live events:
  - Making videos, for incorporation into a virtual Club Evening video, for competition entries, for music exams, or for uploading to YouTube.
  - Using Zoom to meet online and perform live to each other, or to have music lessons.
- As both Trinity and ABRSM are planning to continue with the option of music exams by video, and as many music teachers may well continue to offer lessons over Zoom as an alternative to face-to-face tuition, it seems likely that both of these technologies will continue to be used even when the pandemic is over.
- This Guide is intended to help people get the best results with whatever equipment is available to them. With some devices, particularly tablets and smartphones, the technical options are limited, and good results can be obtained without getting too deeply into technical discussion. Computers, on the other hand, tend to have more options available, so to get the best results, especially when using Zoom, there are a few technical settings you need to know about. Don't be deterred if you're not too keen on technical stuff; you can always ignore it to begin with, and there will always be other club members to help you if you're looking to get better!
- The rest of this Guide is divided into three parts. Part 1, 'Setting Up', is applicable to both making videos and using Zoom. Part 2 is specifically about making videos, and Part 3 is specifically about using Zoom.

## PART 1. SETTING UP

### Equipment

- Better equipment may help to produce better results, but acceptable results can be obtained using equipment that most people already have, provided it is set up properly. This Guide aims to help you get the best out of whatever equipment you use.
- The assumption is that most people will start with an ‘all-in-one’ recording device such as a digital video camera, a tablet, a smartphone, or a laptop or desktop computer with built-in webcam. These devices include both a video camera and a mic (microphone). Some laptops and desktops do not have a built-in webcam, but a separate webcam which plugs into a USB port can be purchased for prices starting at around £30.
- If you own more than one device that could be used, what is the best choice? Tablets and smartphones usually have better cameras than the built-in webcams on most computers, so will usually produce better videos. However, Zoom gives more options for controlling the sound on a computer than it does on a smartphone or tablet, so you are likely to produce a better sound when using Zoom on a computer. You may choose to use different devices for videos and Zoom.
- Some people may already have a separate microphone which can plug into their recording device, and be used in preference to the built-in mic. There are definite advantages in such a setup, in terms of both sound quality and flexibility, so I will include information to help with this setup.
- Built-in speakers on computers, tablets and smartphones are usually very small, and therefore likely to sound rather ‘tinny’. If you have options for using external speakers (wired or Bluetooth) or headphones or earbuds, you will have a better listening experience.
- Otherwise there are so many variations of equipment and recording environment out there, not to mention personal ideas about what is or isn’t a good sound, that this Guide cannot hope to cover every possibility. It’s probably best to regard this document as a starting point, and once you’ve tried the suggestions here, to do a bit of experimenting to see what works best for you.

### Choice of Room

- The sound properties of rooms vary widely, depending on size and shape, and the furniture and furnishings in the room: hard surfaces reflect sound, creating echoes or reverberation, which may enhance the sound or may spoil it; soft materials absorb sound, which may create a deader sound.
- Most of us don’t have much choice about which room we can do our home recording in, but if you do have a choice, you are likely to get better results in a larger room. Avoid bathrooms and cupboards if you can!

### Player Position

- The player’s position in the room can make a big difference. Hard surfaces immediately in front of you can create all sorts of unwanted echoes that may make your sound rather harsh. It is usually better to play into the room, i.e. with a wall not too far behind you, and plenty of space in front.

- Don't choose a position with a bright light source, such as a window, behind you: this is likely to result in you being seen only in silhouette. Try to have the main light source in front of you, for clarity, or to one side for a more moody, artistic effect!

### Camera Position

- There are plenty of stands and tripods on the market, preferably floor-standing rather than table-top, which make it much easier to position a tablet, smartphone or camera to get a good image. The alternative, of propping the device up on a strategically-placed piece of furniture, is less flexible and probably less secure.
- Computer screens, like TV screens, are in landscape mode, i.e. with the screen wider than it is high. If you use a smartphone or a tablet, you may often use them in portrait mode (screen higher than it is wide). However if you do this for making videos or using Zoom, your image will not fill your viewers' screens very well. So it is best to use your device in landscape mode. However, make sure your device is the right way up in landscape mode, else you may get an upside-down image!
- Position the camera so as to fill the frame with a good view of your face and both hands. Don't get so close that your viewers can't see your hands, or so far away that they feel like they are watching you from the back row of a large hall.
- If your recording device is all-in-one, wherever you position your camera is where you also position your microphone. As you are likely to get a better sound by getting the mic reasonably close to the guitar (see the next section) it is probably best not to place your device at a distance where you need to zoom in to fill the picture frame. Better to move the camera in close and not use zoom, so as to bring the mic closer.
- There are no hard-and-fast rules, but generally a good height for the camera is around eye-level.
- If you position the camera slightly to your left (assuming you are right-handed), it may give a better view of your amazing right-hand tremolo technique.

### Microphone Position

- For the reasons explained above in 'Choice of Room', most people's spare bedrooms do not have the acoustic qualities of a professional recording studio, and unwanted reverberation may detract from your sound.
- If you have the use of an external mic, rather than your device's built-in mic, not only is it likely to give a better sound, but also you are able to position the mic independently of the camera. Good mic positioning can play a major part in reducing the negative effects of the room.
- In most rooms, this usually means having the mic fairly close to the guitar, so that the sound coming directly from the guitar is loud in comparison with any echoes in the room.
- However, if you place the mic too close, you will get what is known as the 'proximity effect' where bass frequencies are amplified compared to treble frequencies.
- Finding the best position and distance for the mic is largely a matter of personal preference, and you may have to experiment until you get the sound you are looking for. The 'sweet spot' is likely to be found somewhere at a distance between 20cm and 1m in front of the guitar, at a height between the bottom of the guitar up to perhaps eye level, either directly in front of the guitar or slightly to one side, and pointing towards some part of the guitar

body, but not directly at the sound hole (this will probably cause a booming sound, especially if the mic is close).

- Once you have found a position that sounds good to you, make a note of the position (height, distance and direction from the guitar, where it's pointing), so that you can quickly set it up in future sessions.

## PART 2. MAKING A VIDEO

### Audio Settings

- If you are recording on an all-in-one device, you may not be able to adjust any audio settings, in which case feel free to skip this section.
- If you do have options, then I would suggest choosing WAV format, 48kHz, 24-bit. This will give a high-quality sound recording suitable for video. It will create a big file, but usually you will eventually export it as, say, an MP4 file to make it more manageable for uploading. But it's best to keep your master recording as high-quality as you can.

### Video Settings

- Your device may give you a number of options for the video format. 1920x1080 (also known as 1080p) and 1280x720 (also known as 720p) are both widely-used HD (high definition) formats. The numbers refer to the number of pixels that make up the image horizontally and vertically. Higher resolution images (more pixels) require more storage. There are higher resolutions available, such as UHD (ultra-high definition), but these will need a lot of storage in your device, and will take longer times to upload to the internet. Definitions lower than 720p are known as SD (standard definition), which will not give such a high-quality image, but will save considerably on storage and upload times.
- ABRSM and Trinity both suggest using 720p for exam videos to be sure that your video isn't too big to upload to their websites.

### Recording Level

- An all-in-one device may set the recording level automatically, so you may not have a choice. The disadvantage of this is that when you play loud, it will reduce the recording level, and when you play softly, it will increase it, thus flattening out your dynamics to some extent. So if you are able to adjust the recording level manually, it is best to do so.
- When manually setting the recording level, you are guided by a meter (two if you're recording in stereo), which shows how loud your signal is as you play. The meter will have a scale ranging from 0dB (decibels) at the loudest to something like -48dB or -60dB at the softest. You should try to set the level so that your loudest notes in the whole piece reach a maximum of around -6dB. If you hit 0dB you will get distortion in your recording.

### Making Your Recording

- Okay, you're ready to make your recording. Be prepared for some frustration. If your guitar is anything like mine, it will start playing all the wrong notes the moment it senses that a camera is watching. Don't be surprised if you have to do a number of 'takes' before it finally settles down and starts behaving itself. Getting 'the perfect take' may take a long time. Most of us settle for a result where we feel it's not *too* embarrassing to show our friends and family.

### Editing Your Recording

- Once you have made your recording, there are many options for editing both the video and the soundtrack. Here I consider only the most basic editing. It assumes you have at least a basic video editing app on your device.

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- From the moment you press 'Record', your camera will capture you moving back from the camera and settling into position with your guitar before starting to play. When the last note has died away, your camera will capture you with a satisfied expression on your face, reaching forward to press the 'Stop' button. If your app allows you to cut off this unwanted material at the beginning and end of your performance, it will look a lot more professional.
- After cutting out the unwanted stuff, it adds a nice touch if you can 'fade in' the picture and sound at the beginning, and 'fade out' at the end.

## PART 3. USING ZOOM

### Internet Considerations

- Zoom needs fairly fast broadband to get the best results, especially when using the settings for optimum sound quality in music.
- You don't have any control over the speed of the broadband that is delivered to your home, and this will be the *maximum* speed you can achieve on any device in your home. A less-than-ideal setup may result in your device only achieving a considerably lower speed.
- Most people probably use a wireless connection between their device and their internet hub. This works best when the device and the hub are fairly close, ideally in the same room or adjacent rooms. If they are at opposite ends of the house, or with brick walls or large objects like fridge-freezers or washing machines blocking the straight line between them, you are likely to experience a significant drop in speed, with a resulting drop in image and sound quality from Zoom. If this happens, consider relocating to a position nearer your hub during Zoom sessions.
- Your speed may also be reduced because other members of your household are making heavy use of the internet at the same time. You may have to resort to asking them nicely to desist while you're on your important Zoom session!
- There are other options for getting a good speed if you can't use a room close to the hub, using either wired Ethernet technology or wireless repeater devices, but this will incur some cost. Check the offerings from your Internet Service Provider.

### Starting with Zoom

- A Zoom meeting consists of a Host (the person who initiates and controls the meeting) and any number of Participants. If you are to be a Participant, the Host will send you an email inviting you to join the meeting. You click on the link in the email at the time the meeting starts and Zoom will start up and get you connected. Occasionally you may be asked for a password. If so, it will be included in the email.
- The first time you click on a link to join a Zoom meeting, you will be prompted to install the Zoom program to your computer. This may take a few minutes, so it's a good idea to start this process five minutes or so before the meeting is due to start. You won't need to do this except for your first Zoom meeting. When the installation is complete, Zoom will proceed to get you into the meeting.
- When you first join the meeting, Zoom will usually put you into a 'waiting room' and notifies the Host that you are there. The Host then lets you into the meeting. This mechanism is so that the Host can prevent unwanted people from gate-crashing the meeting. You may see a message stating that Zoom is waiting for the Host to let you in. Just wait till he does.
- Probably your audio and video will not be enabled initially. Zoom will then give you a message saying 'Join Meeting with Audio'. Click it and the other participants will be able to hear you when you say 'Hello'. It may also give a message saying 'Join Meeting with Video' Click that and they will be able to see you. You will also be able to see and hear the other participants.
- Zoom allows you to select one of two views for your screen:
  - Gallery view, in which everyone in the meeting has an equal-sized image on the screen. This is best when you're having a general chat with a limited number of people and you want to be able to see everyone.



- Speaker view, in which the current speaker gets the lion's share of the screen, and all the other participants just get a small image at one edge of the screen. This is best when someone is giving a presentation, or an extended performance.
- You can switch between these two views at will. Simply click on the View symbol. On a laptop this is probably at the top-right of the screen; on a tablet there is probably a symbol top-left which is labelled 'Switch to Speaker/Gallery View'.
- Near the bottom left of a laptop screen, top right on a tablet, you should see a microphone symbol and a movie camera symbol. You can click on these to temporarily mute your microphone or switch off your camera without leaving the meeting, if you don't want to be heard or seen for a minute or two. Click on the same symbols to enable them again.

### Playing Live Over Zoom

- Zoom was originally intended as a tool for business meetings, so the default sound settings are optimised for people talking, and are not necessarily good for music. But over the past year or so, Zoom has introduced new settings which give a better sound for music. These settings are currently available on computers, but not on smartphones or tablets, so if you have a choice, use a computer.
- If you use an external mic, and the mic position you use for recording is quite low and pointing towards the guitar body (see earlier section on 'Microphone Position', it may not pick up your voice very well when you need to talk over Zoom. So you may need to compromise and put the mic into a position where it can pick up both voice and guitar reasonably well.
- Here are the Zoom settings you need to know about on your computer. (Remember, these settings are not currently available on smartphones and tablets). If you set them up correctly, your audience should get a significantly more favourable impression of your guitar's sound quality. However, if you are using Zoom simply to chat to friends or family, you might get better results by turning the music settings off. Normally your settings are retained from one Zoom session to the next, so you should only need to change them when you are switching between music sessions and chatting sessions.
  - Click on the caret symbol (^) to the right of the microphone mute symbol at the bottom-left of the screen.
  - On the pop-up menu, if you have more than one microphone in your system, check that the one you want to use is ticked.
  - Select 'Audio Settings' to bring up the Audio Settings window.
  - Ensure 'Automatically adjust microphone volume' is NOT checked.
  - Set 'Suppress background noise' to 'Low'.
  - Ensure that 'Show in-meeting option to Turn On Original Sound' is checked.
  - If you have fairly fast internet, check 'High fidelity music mode'. If you don't have fast internet, don't check it.
  - Unless you are using headphones, check 'Echo cancellation'. (The jury is still out on this one – Zoom say that you shouldn't check it if you're playing a musical instrument, but I have experienced a music lesson where my teacher was getting terrible echoes, which went away when I checked it).
  - Click on the 'Advanced' button to bring up another panel and ensure 'Echo cancellation' is set to 'Auto'.
  - Close the settings panel.

- Once you are in the meeting, you should see at the top left of your screen a little panel saying either 'Turn on original sound' on a black background, or 'Turn off original sound' on a blue background. If you've got the former, click on it to change it to the latter. That will mean you've got the original sound from the microphone turned on, so that Zoom will not meddle with it. (You probably need to check this every time you use Zoom).
- It's best practice to mute your microphone (click on the Mute symbol at the bottom-left of your screen) while someone else is playing music, to ensure that stray sounds from your household, or even the sounds coming out of your speakers, are not picked up by your mic and fed into the system. This can potentially spoil the quality of someone else's performance. As they finish playing, unmute your microphone (click on the same symbol) to give them some applause.

### Playing a Video Over Zoom

- Zoom allows a participant to share what is on his screen with other participants, so they will get a view of his/her screen instead of the usual view of the other participants. This can be used in various scenarios, and the method for using each scenario is different. Here we are only concerned with its use for sharing videos, and it is important to adhere to the following steps in order to avoid a significant, possibly catastrophic, loss of sound quality.
  1. Click on 'Share Screen' at the bottom of the Zoom window. A panel appears with the heading 'Select a window or an application that you want to share'. There are three tabs near the top: 'Basic', 'Advanced' and 'Files'.
  2. Click on the 'Advanced' tab.
  3. Select 'Video'.
  4. Click on 'Share'.
  5. An 'Open' window pops up which allows you to browse for the video file you want to share. Select the file and click 'Open'.
  6. The video window opens, which all the participants will now see.
  7. Click on the Play button to start the video.
- At the end of the video, you can either revert to normal Zoom usage by clicking on 'Stop Share' at the top of the screen, or immediately show another video by hovering over the 'You are screen sharing' at the top of the screen to bring up a menu, then click on 'New Share'.
- Note that, using this method, if the sharer changes the volume coming from his speakers, it will not affect what the other participants hear. They can adjust the volume on their own computer to suit their own preference.
- If other participants' mics are not muted, they can interfere with the sound quality for everyone. The host should therefore mute everybody while the video is playing. It is not easy for the host to manage this if he is busy presenting a series of videos, and introducing each one with a few words. In this situation, it is recommended to have a 'co-host' who can look after admitting any new participants as they arrive in the meeting, and keeping everyone's mics muted.

## Finally...

There is more that can be learned about using Zoom, including how to schedule a meeting (i.e. be the host) yourself. This is beyond the scope of this document, but for those who are interested, Zoom provide a number of video tutorials at:

<https://support.zoom.us/hc/en-us/articles/206618765-Zoom-video-tutorials>