Live Streaming Guide
Introduction

Live streaming a musical performance is a brilliant way of sharing the benefits of live music with an extended audience that can’t be with you at the event itself. Although watching something on a screen is not the same as actually being there yourself, it can still be a very enjoyable experience and, within the context of our work as music educators, it can have many benefits for helping us provide engaging teaching and learning opportunities.

Live streaming can also be a way of sharing young peoples’ musical achievements with friends and family, or of involving staff in remote locations in training and CPD events.

This document looks at the technical aspects of setting up and broadcasting a musical performance online, in real time.

Live streaming takes many forms. Recent developments have allowed live streaming direct from mobile-phones using services such as Periscope. At the moment, it is only possible to do this through one camera at a time. However, in our work we have live-streamed events with more than one camera. To do this, you’ll need a number of pieces of equipment. These include:

- A video mixer (to take the three video outputs of the cameras and mix them together) and streamer (to broadcast the mixed video output to the Internet). We use Roland’s VR3-EX which combines the two elements into one simple to use, portable piece of technology;

- 3 cameras. We use the Panasonic HC-V180 camcorder to stream the NYMAZ live events. These are a higher quality camera than the Helenlec cameras that we provide as part of the Connect:Resound kits. They also allow you to tilt, pan and zoom more easily. If possible, it is a good idea to try and use the same make and model of camera. This will mean that the colour output of each camera should be evenly matched and allow for a seamless transition when you fade or switch between shots;

- A stereo pair of microphones. We use Rode’s NT5 (a matched pair) These are the same microphones that we use in the Connect: Resound kit and are ideal for capturing the sound from musical ensembles of all sizes.

- A computer with some software installed to help encode and stream the video. We use Adobe’s Media Encoder and stream via You Tube. Both are free!
Setting Up A Live Stream

There are a number of things that you’ll need to set up. Firstly, let’s look at the cameras.

You’ll need to survey the venue and look for appropriate vantage points for the cameras and associated cables. A typical set up would look something like this, with cameras left and right of the performance area, and another one at the back of the room.

Although most cameras have good batteries, we would advise you to ensure that cameras are plugged into mains power. You don’t want a camera running out of power during the performance! You’ll also need to ensure that the cameras have an appropriately sized SD card in them. We use a 32GB (Class 10) card. The ‘class 10’ bit of this specification means that the card can cope with the higher speeds demanded by recorded live video.

The HDMI cables that you will need for the cameras need careful thought. With HDMI cables above 10m the risk of problems arising due to interference or poor cable quality increases. So, if you need to use longer cables be sure to test them thoroughly on location to ensure you won’t run into any issues during the live event.

As with all cabling, the cheaper options are best avoided. If you need longer cables, a basic 25m cable like this should be fine:

If you can afford it, an active cable such as this one would be even better:
Although the VR3-EX does have its own internal microphones, we would recommend you use a matched pair of stereo microphones to capture the sound of the musicians. You’ll need to position the microphones in the centre of the room, towards the front, and run the cables back to the side of the VR3-EX. We use the Rode NT5 microphones and these have proved to be a good quality option for the live streaming events we have done with NYMAZ.

The process of setting up the VR3-EX with the cameras and microphones is exactly the same as that which you can use to live stream instrumental lessons. You can watch a short video that walks you through this process here (please note that you will not be using Skype to broadcast your event):

In addition to the VR3-EX, cameras and microphones, there are some important things that you’ll need to set up prior to the event on your computer. These include encoding software and a streaming platform. For our events, we have used the free Adobe Media Encoder software. This takes the video and audio stream from the VR3-EX and encodes it into a suitable format for broadcasting on the Internet.

You can download the software from here.

You’ll also need to make sure that you have registered your own YouTube channel. This is where the event will be broadcast.

In our video tutorial, Chris Bowes, a member of UCan Play’s technical staff, runs you through the main settings that you’ll need to live stream with the VR3-EX and YouTube. As Chris explains, the Adobe Media Encoder software has to interface with the settings within YouTube (where the live streamed event will be broadcast). The tutorial is available here.

You’ll also find some further advice and tutorials on the use of the Adobe Media Encoder for other purposes (including publishing video content to Twitter and Facebook) here.

Once everything has been set up at the venue, try to find time to have a quick rehearsal and test everything thoroughly. One of the key things you will need to ensure is right are the audio levels. Try to test this with the musicians playing at the sound level and intensity that they will be playing in the event itself. If the audio level is too low, it will be hard for your audience to hear the music clearly; too high, and the sound will be distorting at the peak volumes (or all the time if it is really high!) and this won’t be an enjoyable experience for your viewers either.
Managing the Live Stream

Managing the live stream will require at least one person to operate the VR3-EX and computer. If the cameras and microphones have been set up correctly, and the computer software has been configured appropriately, once the live stream begins you should be able to focus on choosing which video source to send to your broadcast (via the VR3-EX touch screen or buttons).

There may also be a requirement to tweak the audio levels at times. However, if these have been set appropriately during rehearsals they should not require much adjustment.

If additional people are available, it is good to allocate them to camera duties! Alongside the standard viewpoints from the left, right and back of the venue, it is sometimes appropriate to include close up shots of the event. If you can plan for these through a rehearsal prior to the live stream, then this is desirable but it is not always possible. In a professional broadcast a lot of thought is given to this element of the work, and producers will have a list of shots that they work through as the event proceeds. However, within a live stream it is probably more important to have some good, standard shots that you can use confidently and without too much manipulation of the cameras.

We would also recommend that you ask at least one person to monitor the live stream from another device (phone, tablet or computer) using headphones to ensure that the live stream is running well. If possible, it is helpful if they can connect to a separate WIFI connection to the one you are using for the broadcast. They should also be asked to alert you to any issues from the viewer’s perspective. Key issues that you could ask them to look out for include:

- The video and audio not being synchronised together;
- Audio levels too low or too high;
- Strong contrasts in colours between cameras;
- Any other elements that are not working and are deterring from the viewing experience.
After the Live Stream

Following the live stream, you have the option of being able to archive the recording for subsequent viewing. You Tube allows you to do this with either a public or a private viewing option. Public viewing will mean that your live stream is available for all to view as part of your You Tube channel; a private listing means that potential viewers will have to have the direct url for the live stream (only available from yourself).

The option you choose will depend upon the kind of broadcast you have been live streaming, and your agreements with those featured in the recording.

Clearly, you should always get permission from all those who appear in your live streamed video prior to broadcast. If children are involved as performers or audience members, parental permission should be sought in advance. If your live streamed performance is to be made available to the general public then you should ensure you have the correct Performing Right Society (PRS) licence in place, such as: [http://www.prsformusic.com/users/broadcastandonline/onlinemobile/MusicServices/LOML/Pages/LOML.aspx](http://www.prsformusic.com/users/broadcastandonline/onlinemobile/MusicServices/LOML/Pages/LOML.aspx) or similar.

It is important to have a discussion with the artists featured in the live stream to get their permission for the archiving of their performance. Some artists and collectives may be happy for their performance to be live-streamed, but do not wish the video to be available for view following the performance. In other cases, it may be appropriate for the video to be made available to a restricted audience only which you can do using a private link.

Finally …

NYMAZ and UCan Play are here to help and support your work as you get live streaming! Please feel free to contact us with any questions that you might have or if you need further advice or support.