Basic Q-Lab
for Sound Designers

TOWER THEATRE

Q-Lab is a playback system, which, although very simple to operate, is very powerful and can be used to trigger lights, video, reverb etc. We are using it for Sound Cues, replacing the actions you previously would have achieved with Mini-Disks or CDs and the various faders on a sound desk. There is a section on Video, but this manual will mainly concentrate on Audio.

It is a great system to design with – easy to get to grips with and very adaptable. You can design on another Mac and then copy your project onto the Tower's computer, or use the Tower computer to put the project together. I will explain here how to put a basic project together on the Tower computer.

Although Q-Lab is very powerful, designers will usually use a dedicated Audio editing program (ProTools, Audacity etc.) to assemble, edit and mix the raw audio into the sound cues, which will then be loaded into Q-Lab. I am not going to deal with the creation of the sound cues in this document, but when you are familiar with the operation of Q-Lab you will discover for yourself which processes you want to do while preparing the sound effects and which you want to do within Q-Lab.

This manual will expect a working knowledge of computers, audio files and general operation of sound in theatres, but will have some information for the benefit of PC users who are not accustomed to working on Apple Macs. Experienced Mac users may wish to skip certain of these sections.
While the manual will be useful as a reference guide you will greatly benefit from having a Q-Lab system to experiment with as you work through it for the first time.

I have used Q-Lab on a number of projects of varying degrees of complexity and have found it to be very reliable, intuitive and powerful. The more I use it the more I like it and its adaptability makes it able to cope with extreme levels of complexity. I feel I am only really scratching the surface of what it is capable of. It is very easy for operators and provides the reassurance of consistency for the performers.

This document will help you to create a project for a show of moderate complexity; there are many things I have not touched on but once you have a feel for the program you should have the confidence to explore undiscovered areas. Laurence Tuerk has kindly added Appendix C on loading music and effects and converting file types, and Appendix D on using Q-Lab to trigger lighting cues.
Also thanks are due to Leon Chambers, Vic Craven and Jack Baxter for their expertise and advice.

Enjoy!

Colin Guthrie
29th July 2019

1 – Setting up the Project

The Q-Lab system in the Tower Theatre consists of a Mac Mini Computer with monitor, and an Audio Interface, the PreSonus Studio 18 24. The Audio Interface connects the computer to the sound desk, giving you the option to use a number of different outputs, so that as well as using the main theatre speakers you can also use practical stage speakers for sound fx you want to come from a specific point, like a radio or baby crying etc.

At the time of writing, the Q-Lab Version that the theatre is using is Version 3. 'Figure 53', who produce Q-Lab have now released Version 4. If you are downloading the free version of Q-Lab for your own laptop it is advisable to download Version 3, as projects created in Version 4 cannot be opened in a Version 3 system, so you would not be able to transfer a Version 4 project onto the Tower's computer.

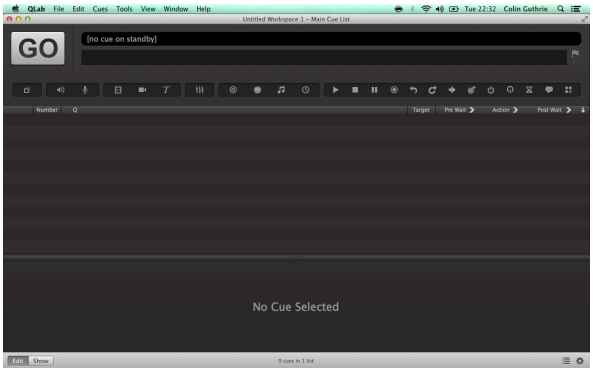
The main output of the Audio Interface is normally plugged to the sound desk and the computer is also connected to the lighting desk, if you want to operate some or all of the lighting cues from Q-Lab. More information on this can be found in Appendix C ('Triggering lighting cues' page 40).

Once the Sound desk and outboard gear is switched on turn on the computer – the small power switch is at the back left.

Once the Computer has booted up enter the password, which you can get from one of the technical team.

When the desktop opens you will see an icon on the tool bar with the Q-Lab symbol: Double clicking on this will open Q-Lab and bring up a new empty Project.

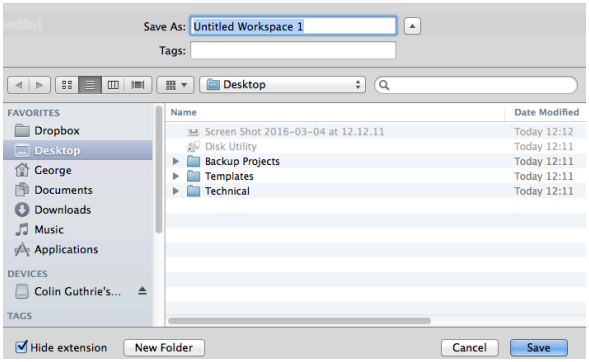
Once the program has finished loading it will show this screen. It may open up the Q-Lab project that was open the last time it was used. In this case, start a new project by clicking on 'File' in the top bar, and click on 'New Workspace'.



There are various other pages you will use in the set up of the project, but this is the one that your operator will use all of the time.

Before you do anything you should 'Save As' with the name of your show. Click on 'File' on the top bar, and then click on 'Save As'.

This is the standard 'Save As' window. If it does not show all these options it might be in 'condensed' mode; if you click on the arrow to the right of the top 'Save As' window, it should expand the display.

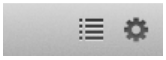


In this example we will save our project to the Desktop. The panel below the 'Tags' window shows where you will be saving to. If 'Desktop' is not showing, you can click on it in the list to the left of the screen. Your project will have a number of elements so it is worth clicking on 'New Folder' button to the bottom of the window to create a new folder where all the different elements can be saved together. A naming window will open up with the name 'Untitled Folder' in the window. You can type the name of your show, and clicking on 'Create' or pressing 'Return' will name the folder and open it up.

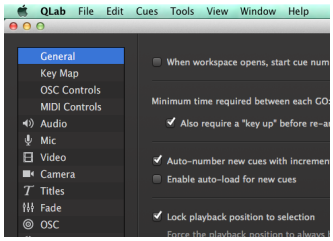
1 – Setting up the Project (*Continued)*

You can now rename the Q-Lab project. I find it useful to give it a date or a version number so that if you make changes or are working on different computers you can keep track of the version you are using. I would avoid using the name 'final' as it tends to tempt fate. Let's call it 'Your Show Vs1'.

'Your Show Vs1 – Main Cue List' will now appear on the top line of the Q-Lab window.

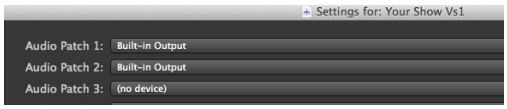


The first thing to do is to check that all the cues you will be adding are going to the correct output. At the bottom right hand corner of the Main window are two symbols. Click on the one in the corner that looks like a cogwheel or a sun. This is the 'Settings' window (like System preferences).



Any changes you make in the 'Settings' page will affect all the cues that are included in the project. In this instance we are just going to look at the 'Audio' section. Click on 'Audio' in the list to the left of the window.

There are many changes that can be done globally on the 'Settings' page. You can make a lot of these changes on a cue-by-cue basis, and with more experience you can decide whether to make the changes globally or individually.



Clicking on the panel which has 'Built-in Output' will show which Output options are available. Select the PreSonus Audio Interface for Audio Patch 1. If you are working on your own computer you will probably want to leave it on 'Built in Output'.

Clicking on 'Done' in the bottom right hand corner will confirm your choices and return you to the main playback window.

2 – Loading Audio

If you are setting up your project on the Tower's Computer you will need to have brought in the Sound effects and Music cues you are intending to use in a digital format. The easiest way is to save them onto a memory stick, which you can plug into the computer. See Appendix C on P39 for more information on importing fx.

File types: If possible bring your cues as WAV files rather than MP3s. The MP format compresses the digital information, whereas WAV files are uncompressed. This, of course, makes them much larger digital files, but they will be of better audio quality. There may be sound files you want to use that will only be available as MP3s, but the aim is to start with uncompressed files of the highest quality if at all possible.

Plug your memory stick into one of the USB sockets at the back of the computer in the flight case.

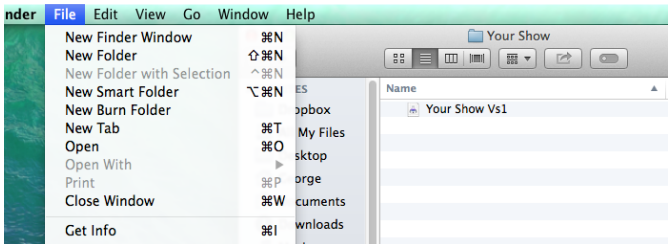
The easiest way to put Audio Cues into your project is simply dragging and dropping them in. We will copy the Audio Cues from your memory stick into the folder we have created on the desktop – this copies the audio onto the computer, so that when Q-Lab accesses the audio it will do so from its own memory rather than from the memory stick. To do the copying we need to be able to see the windows containing the files on the desktop.

The information below is for the benefit of people unfamiliar with copying and dealing with files and windows in the Apple world – experienced Mac users may wish to skip to the next page for loading audio into Q-Lab.

As Q-Lab is open at the moment we cannot see enough of the desktop, so will have to 'minimise' our Q-Lab window. As with all programs on a Mac, in the top left of the window are three buttons – red, yellow and green. Red closes the window, yellow minimises it and green re-sizes it. If you click on the yellow one the window will, like a genie, disappear onto the program bar, which in Mac speak is called the 'Dock'. Moving your cursor down to the bottom of the screen will bring up the Dock again (the Dock usually lives at the bottom of the screen, but can be placed on any of the four sides of the computer screen if the operator prefers it somewhere else). To bring back a window, put your cursor at the bottom of the screen to bring up the dock, and either click on the Q-Lab icon or click on the small image of your Q-Lab project, which is likely to be at the far right of the Dock. Hovering your cursor over it will bring up a panel telling you what it is.

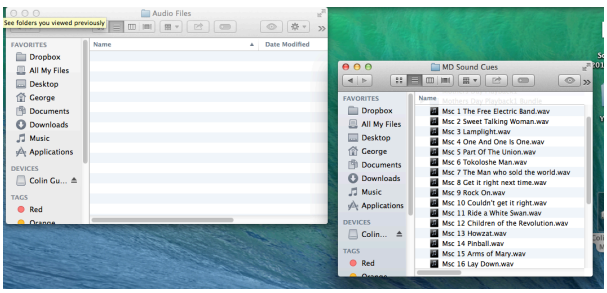
Now you should have a clear desktop where you will be able to see the 'Your show' folder we have created and the icon for your memory stick which has been plugged into one of the USB sockets.

Double click on the 'Your show' folder on the desktop to open it up. Go to 'File' in the top bar and click on 'New Folder'. This creates a folder inside the 'Your show' folder. When a folder is created it assumes the first thing you will do is rename it, as it opens with a naming window. Type in a suitable name, like 'Audio Files', and press 'Return'. Double click on the 'Audio Files' folder to open it up – obviously at the moment it will have nothing in it.



Now double click on the memory stick icon on the desktop so that both windows are open on the desktop. You need to have both windows open side by side. You can resize them by clicking and dragging on a corner of the window. Only one window can be 'active' at a time – to make a window active click inside it. The window that is not active is slightly greyed out. You can move them around on the desktop by clicking and dragging on the top grey bar of the window.

Clicking on a cue in the memory stick window will highlight it and you can drag and drop it into the 'Audio Files' folder. It will copy the file onto the computer.
Usually you will want to drag all the audio cues on your memory stick into the 'Audio Files' folder. Click on the top cue, hold 'Shift' and then click on the last one in the list. They will all be highlighted. You can then click and drag them as a group. A window will open to show they are being copied

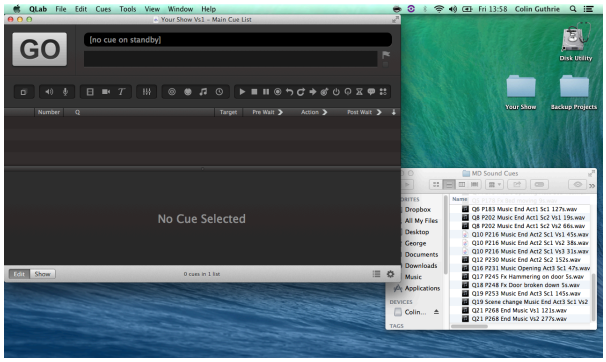


2 – Loading Audio (*Continued)*

and tell you how long it will take – it closes once copying is finished. Close the Memory Stick window by clicking on the red button in the top left hand corner, so that the 'Audio Files' window is the only one open.

Now we want to start loading cues into Q-Lab from our 'Audio Files' folder.

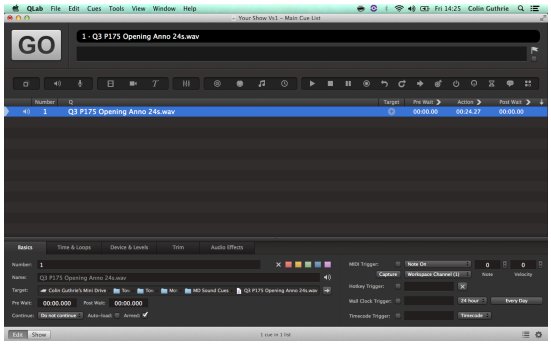
Go down to the Dock to retrieve your Q-Lab window. Clicking on the Green button at the top left hand corner of the window toggles between 'Full screen' and a smaller display of your window. Adjust the size of the Q-Lab window and the Audio Files window so that you can see both at the same time. You can also put your cursor in the bottom corner of the Q-Lab screen and it will turn into a double-headed arrow. Clicking and moving the arrow inwards will re-size the Q-Lab window.



In the display pictured here Q-Lab is active, as 'QLab' is shown next to the Apple in the top left hand corner of the screen.

Click and drag the first of your cues in your 'Audio Files' window onto the Q-Lab window. Move it over the striped section of display, which is above the 'No Cue Selected' bar that takes up the lower half. The area will show a blue border when your cue is over it. You can then release it and it will be dropped into the play list.

The cue you have just put in will be highlighted in blue. You will also see that there is a lot more cue information in the bottom half of the display.



As you did when copying the files, you can drag a number of cues at the same time by clicking on the top one, holding 'Shift' and then clicking on the last one in the list. They will all be highlighted. You can then click and drag them as a group and drop them into the Q-Lab playlist.

You can drag the same piece of Audio from your 'Audio Files' folder into a project as many times as you want.

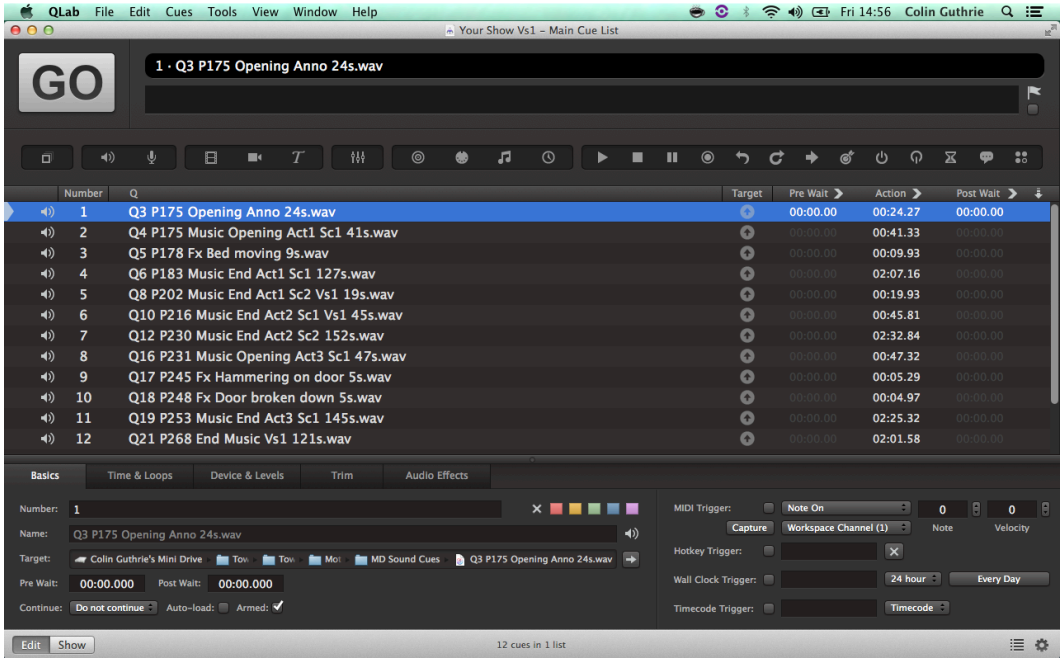
Once the cue is in the playlist and is highlighted blue it will play when you hit the space bar, and you will hear it if the Q-Lab fader on the sound desk is faded up. It will automatically be set at a 'standard' level, which you can alter later if necessary. The cue will play through until the end. If you want to stop it, press 'Esc' (top left of the computer keyboard).

Get into the habit of saving your Project regularly. If for some reason the program unexpectedly quits or there is a power cut you will only be able to retrieve the project at the state when you last saved it.
Regular saving means that this is less likely to be disastrous.

You can Save by clicking on 'File' in the top window and then clicking on 'Save'. However, it is better to get used to the keyboard shortcut, press and hold 'Command' (⌘) and then hit 'S'.

If you are not using an Apple keyboard the key with the Windows logo replaces the 'Command' key.

3 – The Main Cue List Window



Your screen will look something like this when you have dragged in some audio cues. It is worth spending a bit of time getting to know the Main Cue list Window.

Playing and stopping Cues

The cue that is selected is highlighted in blue. When you press the space bar, this cue will play. You can also click on the big 'GO' box in the top left hand corner to start a cue. A green arrow will appear to the left of the cue and the time counter in the 'Action' column will start counting, showing you how long the cue has been playing. The highlight will immediately go onto the next cue in the list, so that it is ready to play.

Without further editing of the project the cue will play until it reaches the end. When you hit the space bar again the next cue will play.

If you want to fade out and stop all cues, hit the 'esc' key at the top left of the keyboard. Hitting 'esc' twice will stop all cues immediately without fading out.

The 'esc' key is particularly useful in a cue-to-cue or technical rehearsal as it stops all cues currently playing. If, during the show, the operator accidentally hits the space bar twice then Q-Lab will start the next cue on the list. If this is also a sound effect or a piece of music it will play out at the same time. To stop the cue that started too early, highlight that cue and press the **S** key. This will fade the cue out – if you want it to stop as quickly as possible press **S** twice.

In rehearsal you can move from cue to cue by clicking on it with the mouse, or by using the up and down buttons on the computer keyboard.

Re-naming Cues

If you wish, you can re-name the cue by double clicking on the name in the playlist and type in a new name to change how the cue is labelled. It is usually worth waiting until you have put together quite a bit of the project before you start re-naming, as your audio cues are likely to be put into groups (see '6 – Groups', page 16), and it makes more sense to name the Group rather than re-naming the Audio.

If you are not putting a cue into a Group you can add cue words, or any particular useful instructions – 'Wait until door has closed' for example. Any changes you make will also appear in the window at the top of the page, which is larger and shows more text. It is important to remember that any re-naming in the playlist is only re-naming the cue in that position. If you dragged the same piece of audio into the project again from your 'Audio Files' folder it would appear in the playlist with its original name. This can lead to confusion.

3 – The Main Cue List Window (*Continued)*

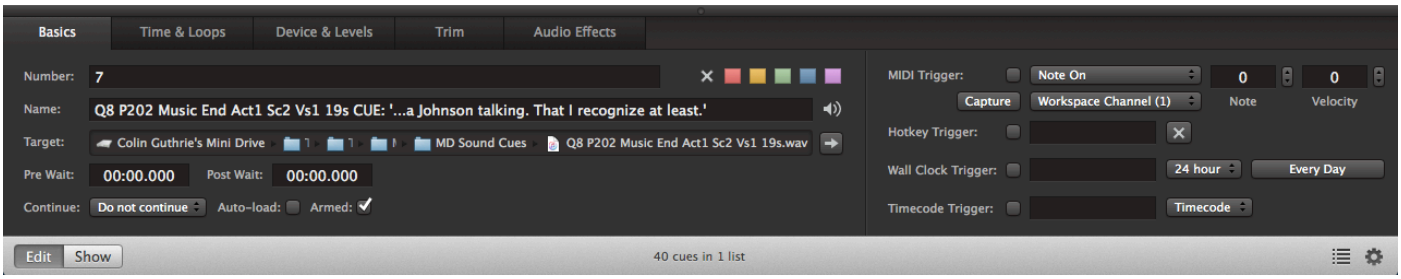
Re-ordering and deleting Cues

You can change the order of cues by clicking and dragging a cue to a new position in the list. It will still retain the original cue number it was given when you loaded it into the session (shown in the 'Number' column, to the left hand side), which you can renumber when you have finished editing the Project (See 'Handing Over', page 27).

To delete a cue from the list, click on it to highlight it, press and hold 'Command' and then hit the backspace or 'delete' key.

The 'Basics' tab

Information about a selected Audio cue is shown in the lower half of the display. There are a number of tabs, 'Basics', 'Time & Loops', 'Device & Levels', 'Trim' and 'Audio Effects'. We will look at an Audio Cue's 'Basics' tab for a moment here and will refer to the other tabs later.

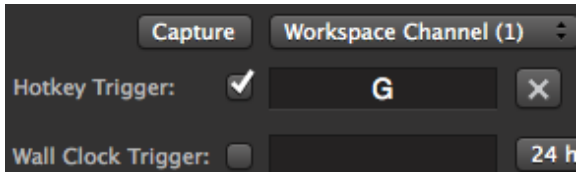


It has a lot of information that is also shown in the main playlist window, but there are a few things here that are worth looking at.

The 'Target' window shows you where Q-Lab is sourcing the audio.

Clicking on one of the colour boxes makes the highlighted cue that colour. If you have a number of cues relating to a particular scene or a particular song you may wish to make them all the same colour, or your operator may wish to highlight certain crucial cues, like gunshots. To remove any colour choice click on the X.

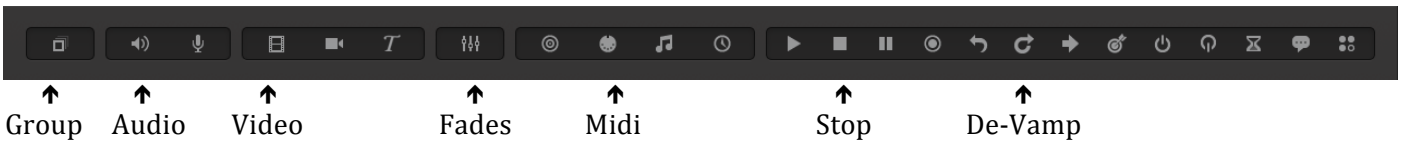
Along the bottom line near the left hand corner is a tick box labelled 'Armed'. In 99% of cases you will want to leave this ticked. If it is un-ticked the cue will not play and the cue appears checked through in the playlist. Normally if you are going to remove a cue you would simply remove it from the playlist, but in some circumstances, for example if you are not sure if the cue is going to be used or not, then you may wish to retain it in the playlist until a definitive decision has been made. As in normal operations the highlight will move onto it once the previous cue has been activated, but you will need to move the cursor down to the next cue manually to be ready for the next item on the playlist. Make sure you have made any decisions about 'disarmed' tracks before you hand the project over to the operator.



You are not likely to use the MIDI controls, but the 'Hotkey Trigger' may be useful in a particular set of circumstances. If you have a sound effect like, say, a gunshot, that is repeated ad lib, there will be a certain amount of leeway as to exactly when and how many times it is used in the excitement of the scene. Ticking on 'Hotkey Trigger' allows you to assign the sound effect to a key on the computer keyboard. Some of the keys are already associated with keyboard shortcuts, so you may have to try a few before you find one that is free. In the middle row, G, H, J and K are available. Enter G in the Hotkey trigger window. No matter where you are in the playlist, every time that you hit G the gunshot effect will play. If you want to delete your Hotkey choice highlight it in the window and press and hold 'Command' and backspace or delete, and un-tick the window.

3 – The Main Cue List Window (*Continued)*

The Toolbar



This is the bar above the playlist window with all the Commands that can be inserted or dragged and dropped into a session. We will look at a few of these later – Groups and Fades particularly. Once you have got used to dealing with Q-Lab it is worth having a look at some of the others. Hovering your cursor over them tells you what they do.

Cue Symbols

Alongside each Cue in the playlist there is a symbol, which tells you which kind of Command it is. There are three that you are most likely to use.

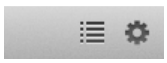
The ones with the symbol of a loudspeaker are 'Audio' cues – pieces of music or sound effects.

The ones with a little representation of a sound desk are 'Fade' cues – these can fade out and stop a cue, fade up a cue from silence or change it to a different volume. See 'Fades' in the next section.

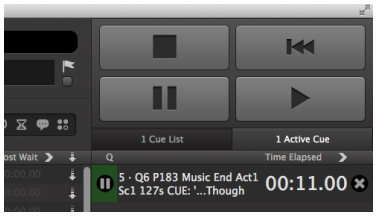
Ones with a File icon are 'Group' cues. You can have a number of cues inside a Group Folder on the playlist. Many operations can be done automatically, with one cue following on from the previous one without the operator having to do anything. Keeping cues in a Group stops the Playback list from getting over-cluttered and confusing. A 'Fade' cue can be applied to a Group: if all the Pre-show music is in a Group it will play through the list automatically, once the cue for the show to start is given then playing the next cue will fade out the Pre-Show Music Group wherever it has got to on the list. Some designers choose to make all cues 'Group' cues to keep the project uncluttered. See 'Groups' on Page 16.

Cue Lists & Active Cues

At the bottom right hand corner, next to the 'Settings' button is a representation of a list, which brings up an extra column to the right of the playlist.

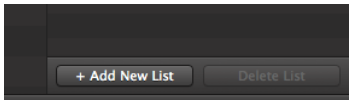


This brings up extra controls, which allow you to pause and restart cues. It is worth experimenting with this to see if it is useful for you. The 'Stop', 'Pause' and 'Play' buttons will work across all cues that are active. The top right hand symbol takes you back to the start of the project, not to the start of an individual cue.



If you select the 'Active Cues' tab it will show you more information about the cue or cues that are currently playing.

This page allows you to create another Cue list within the same project. Some designers like to set up a 'Sound check' cue list, so that there is an easily accessible list you can play through to check that each of the speakers is working – particularly useful if you are using more than two outputs with practical speakers on stage. Also, if, during the rehearsal process, there are different versions of an Fx sequence you could save one option on a separate Cue list – consequently, you have access to it, but it does not confuse the main Cue list.



With the '1 Cue list' tab selected, there is an option at the bottom of the panel to '+ Add New List'. Clicking on this will create a new Playlist, called 'Cue List' which will be added to the panel below the Main Cue list. You can toggle between the two by clicking on them. You can rename the 'Cue List' by double-clicking on it in the normal way. Adding audio to this second Cue List is done in the normal way, and you can copy and paste items from your Main Cue List into this second Cue List.

4 – Fades

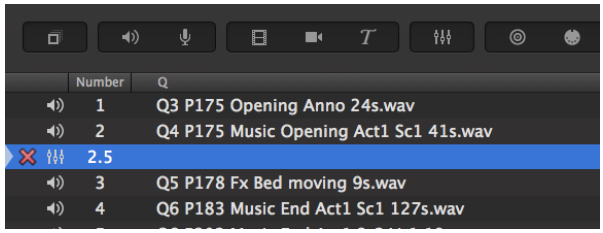
Q-Lab is very versatile and can do most of things you can do with a fader – fade a cue out at a particular point, start a cue at a very low level and then fade up to full level at a particular point, start a cue at full level and then fade and continue at a lower level until fading out completely on cue, and much more.

Each of these actions will be triggered by the Space bar, and, like the programming in a digital lighting desk, you have to enter the amount of time that you want each of these fades to take.

Fading a cue out at a particular point

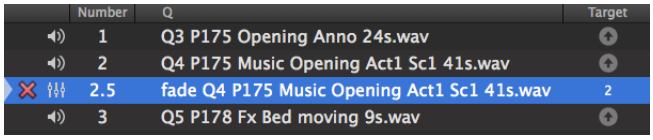
The most common operation you will need – for example, music is playing during a scene change, when the scene change is finished you want the music to fade out and stop.

The 'Fade' command is in the Toolbar, next to the *T* in a little section of its own. The neatest way to add a fade cue is to highlight a cue on the playlist and click on the 'Fade' icon in the toolbar. A fade cue will be added immediately below the highlighted cue. Or you can click and drag on the fade icon to put it wherever you want in the playlist.



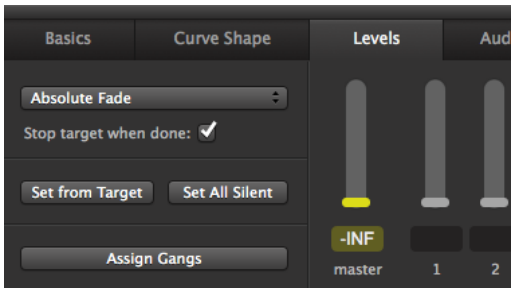
The Fade Cue will have a red cross at the left hand side. This is because it does not know which Audio Cue it is going to be allocated to, and it does not know what type of fading action it is going to be doing.

To allocate the correct Audio Cue to your newly created Fade cue, click on the Cue you want to fade out (in this case Number 2 – Q4 P175 Music opening…), drag and drop it on top of the fade cue. The fade cue will go light blue when your cue is in the right position over it.



It will copy the cue name onto the fade cue and precede it with 'fade'. The red cross will still be there. **Note that in the 'Target' column the Fade cue shows that it is 'targeting' Cue number 2**. This can be a very useful reminder as Fade cues can sometimes be a long way away in the project from the Audio Cue they are controlling.

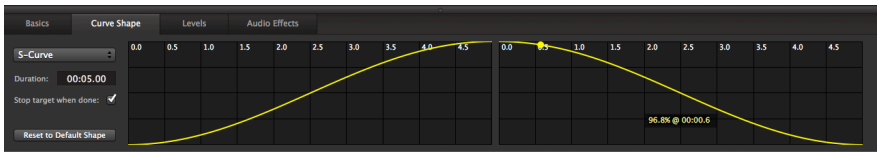
With your Fade cue still highlighted go to the bottom half of the screen and click on 'Levels'. It will show a series of faders all down at zero. Click on the 'master' fader bar, lift it up slightly and then close it completely again. It will go yellow and '-INF' will appear below the fader. This tells the Cue that when it is operated it will completely fade out the cue that it targets.



Tick the 'Stop target when done' box. This will stop the cue playing once the fade is completed.

You will see in the main playback window in the column called 'Action' there is a value of 5 seconds for the fade, which is the default setting. Five seconds is often too abrupt for a piece of music to fade smoothly. To change the value, double click on it. You can then enter a new duration by typing in, say, '10' and then hitting 'Return'. This will give you a fade of 10 seconds.

Clicking on the 'Curve Shape' tab will show you the fade shape. You can alter the shape of the fade curve by clicking on the box that says 'S-Curve'.



Select 'Custom Curve' and it will allow you to click on the line to put in a 'node'. You can drag these nodes up and down to make your own custom shape. However, if you want to try and create a complicated fade to suit a particular circumstance it may be easier and more efficient to do it in a different way, using one or a combination of the techniques set out below.

4 – Fades (*Continued)*

Starting a cue at low level and Fading up to full level

This is often useful – music is started under dialogue at low level, then, when the dialogue has finished at the end of the scene the music is turned up to full level.

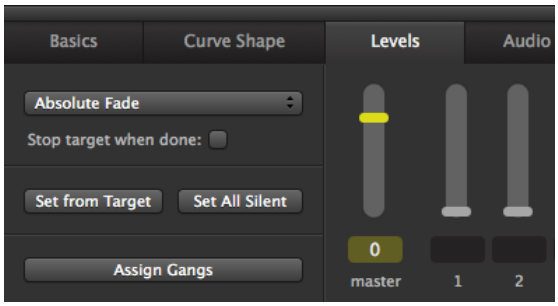
Do the first two steps as with the previous example – put a 'Fade' cue in the playlist below the cue you want to fade up. Drag and drop the Audio cue onto the Fade cue as before.

We will set the level of the Audio Cue at the lower level we want it to be when we first hear it. Then we will use the Fade cue to bring it up to full level for the end of the scene.

Highlight the Audio Cue. You will see that the Tabs you have access to are slightly different to the ones that are available for Fade cues. Select 'Devices & Levels'.

You can click on the yellow fader bar and drag it to the level you want. Or you can click on the number below the fader and enter a value. In this case we have entered '-15'. Once you have typed it in hitting the 'Return' key will confirm this new value.

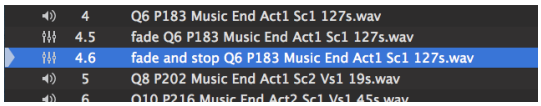
Then highlight the 'Fade' cue you have created. Select the 'Levels' tab. You want this level to be set to '0'. You can do this a number of ways. You can click and drag the fader bar or enter '0' in the 'master' window and hit 'Return'. Probably the easiest way is to press and hold the 'alt' key (⌥) and click on the master fader bar. This will instantly jump it back to zero. Re-clicking will toggle the fader between '0' and fully closed. Using this technique with the 'alt' key works in many other situations – press and holding 'alt' and then clicking on a value will reset it.



In this instance we definitely do not want to tick 'Stop target when done' as we want the cue to continue playing after it has been faded up to full level.

Again, you can adjust the amount of time this fade takes in the 'Action' column of the Fade cue.

You will then want to put in another Fade cue to fade the music out at the appropriate moment. This is done as in the previous example, by adding a new fade cue below the one we have just been dealing with.



Perform the same procedure as for a normal fade out – drag and drop the Audio cue onto the fade cue as before (leap-frogging the first Fade cue), click on the Master fader in the Fade cue's 'Levels' window so it shows '-INF' as in the previous example. Set the fade time. In this instance you will want to tick 'Stop target when done' to stop the cue playing after it has been faded out. You will see that the first Fade cue has added 'fade' to the cue text, but the second one has added 'fade and stop'.

So, you have a Cue to start the music playing at low level under dialogue, a fade cue to fade up the music to full level during the scene change and a final fade cue to fade out and stop the music once the scene has started.

4 – Fades (*Continued)*

Starting a cue at Full level, fading to lower level and then fading out completely

Music is started at the end of scene and remains at full level while the scene change happens, is faded down to a lower level under the first part of the scene and then faded out completely when required.

If you understand the procedures above you will see that it is just a variation on the above methods.

Do the first two steps as with the previous examples – put in a 'Fade' cue below the Music cue. Drag and drop the Music cue onto the fade cue as before. The level of the Music Cue will be at '0' and we leave it like that as we want it to start at full level. Then look at the 'Levels' tab of the Fade cue and put it to an appropriate lower level, say '-15', and adjust the Fade time as required. Again, do not tick 'Stop target when done'.

Add another fade cue to finally fade out completely and stop when required as in the previous example. Tick 'Stop target when done' on this second fade cue so that the cue stops once it has been faded out.

You can add as many fade cues to a cue as you wish, so you can perform complicated balance changes to cover any situation.

These examples have the fades as separate cues because they need to be timed to action or dialogue that is going to be a slightly different length each performance – you will often wish to have fades happening automatically, which we will discuss later in the sections on 'Follow-ons' and 'Groups'.

Starting a cue completely faded out, fading up as soon as the cue is started

This is something that is used regularly – a sound effect is faded up from silence as the scene begins. For this we are going to be using a 'Follow-on', and we will be putting it into a Group, so the action that is taking place is not visible to the operator, keeping the play list much less cluttered. We will discuss this in the next section: '5 Follow-ons' on page 15.

Adjusting levels 'live'

Adjusting the Volume Level under dialogue is very subjective and can only be finalised by trial and error with an understanding director and a cast who are aware of the potential adjustments they may need to make to their delivery. Make sure you check by listening in various places around the auditorium – the sound level can differ depending on where you are placed. You may wish to do fades under dialogue in scenes in two stages.

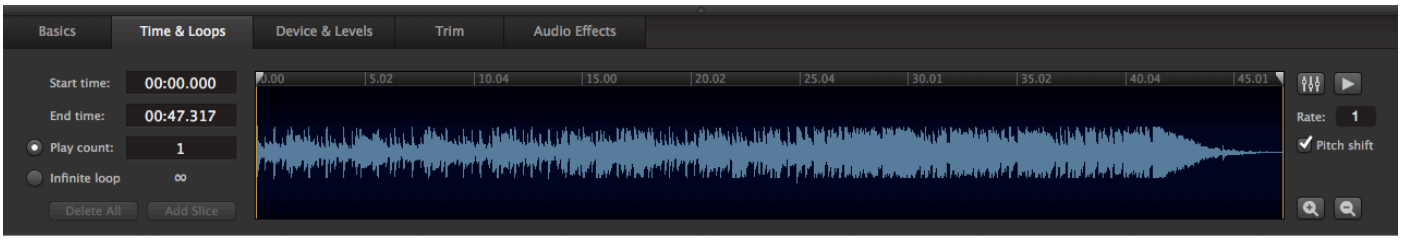
You can adjust the level of a cue while it is playing if you want to make changes 'live' during the technical rehearsal. **However – you must make sure you are adjusting the cue you think you are adjusting**. Once a cue has started playing the highlight immediately passes onto the next cue in the playlist. So the Levels page you are looking at will be for the Cue that is about to play, not the Cue that is currently playing. Simply click on the cue that is currently playing in the playlist and the highlight and Level page will change back to the active cue. Once you are happy with the new level, click on the next cue in the list so that the next cue will play when you hit the space bar. Make sure you Save to retain your newly adjusted level.

4 – Fades (*Continued)*

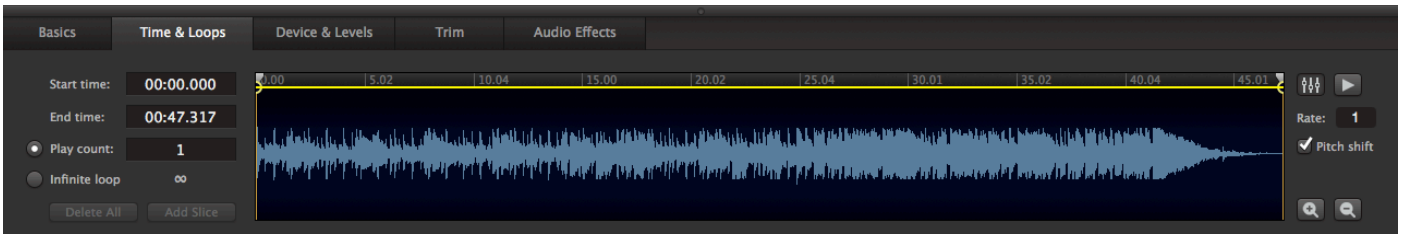
Putting a fade, or altering the volume, on a specific cue

All the above examples have been using 'Fade' cues within the playlist, when something needs to be faded up or down on cue. However you can also adjust the volume on a specific cue – putting a fade at the beginning or the end or altering the level within the cue. These changes are not dependent on reacting to a cue in performance; they are changes you want to make to the basic sound of the cue. I have tended to avoid this method as I find it easier to adjust timings of fade-ins and fade-outs in the technical by using 'fade' cues with 'follow-ons'. Likewise, if there is something in the cue that is too loud I would alter it in my sound design software and re-load it, but I am including it here as there are situations where it is useful.

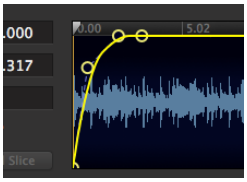
Select the Cue you want to edit and click on the 'Time & Loops' tab.



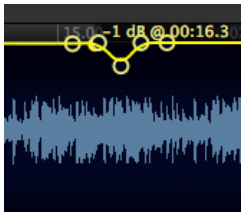
This shows the waveform of your Cue. At the far right of the window there is a small representation of a sound desk, like the 'Fade' cue. Clicking on this brings up the Volume line for the cue.



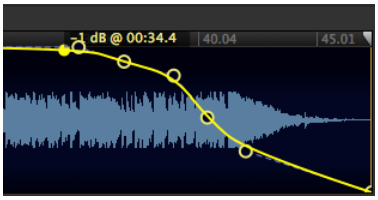
The Volume line is a yellow line, which goes along the top of the waveform diagram, indicating that the level is flat at the moment. You can click on this line to add 'nodes'. These nodes can be clicked and dragged down to alter the volume line as you wish. You can add a fade up, like in the picture here.



If a certain section of your cue is too loud, you can drag the volume line down at that point.



You can fade the cue out early if you wish.



When you are adjusting levels on this page you may not immediately hear the effect of the adjustments you have made to the volume line. If you are not hearing them, stop the cue (pressing 'Esc' is the easiest way), then when you re-start the cue you should hear the effect of the Volume line changes.

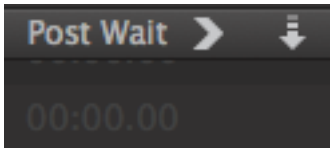
All these actions are independent of 'Fade' cues – when you play this cue the volume will change depending on the way you have adjusted the Volume line. But if you dragged this same music cue from your 'Audio files' folder into the playlist elsewhere it will not be affected by the changes you have made to this particular cue.

If you *do* want to use this music cue somewhere else in the project including the changes you have made to the Volume line, you can copy it and paste it. Highlight the Cue in the playlist and then copy it, either by hitting Command and 'C' or going to 'Edit' and selecting 'Copy'. Then go to where you wish to paste it in, highlight the cue *before* you want it to go and paste it, either by hitting Command and 'V' or going to 'Edit' and selecting 'Paste'. The copied cue will be pasted in immediately after the cue you have highlighted.

5 – Follow-ons

Follow-ons are very useful in a variety of situations and simplify the job of the operator. They basically start the next cue in the playlist when a cue is started – either simultaneously, or once the first one has finished.

At the top right hand side of the list of cues is the symbol for a 'Follow-on'. It is an arrow pointing downwards with a stripy tail. There are two types of Follow-ons. You can toggle between them by clicking in the playlist to the far right of your cue, in the 'Follow-on' column.



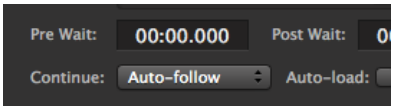
This is a Follow-on that starts the next cue on the playlist at the same time.
Q-Lab calls this an **'auto-continue'**

This is a Follow-on that starts the next cue on the playlist once the first cue has finished.
Q-Lab calls this an **'auto-follow'**

Auto-follow 

The most basic of examples would be a list of music tracks you are using for pre-show music. If you set an 'auto-follow' for all but the last one in the list then, once the first track has finished, the next track in the list will start to play without the operator needing to do anything at all.

On a selected cue, if you look at the bottom left-hand corner of the 'Basics' tab, it will tell you what follow-on has been selected for that cue. You can also change the follow-on here by clicking on the arrows if you prefer.



Auto-continue 

On its most basic level if you have, say, a storm scene with various elements – rain, wind and thunder, you may wish to start them all at the same time, but retain the ability to adjust the levels of each of them independently. At first sight it is hard to imagine many other situations where you would want to start a number of cues at the same time, but this is actually a very useful facility.

You can enter a value into the column on the left of the 'Action' column, which is called 'Pre Wait'. This delays the start of the second cue by that amount of time.

You will see in the picture for the auto-follow example above that a number has appeared in the 'Post Wait' column, to the right of the 'Action' column. This corresponds to the length of time before the follow-on happens – in this instance it is the duration of the cue – so that the next cue starts once the first cue has finished.

If, for example, you wish to start the Sound Effects of your street traffic over the end of the opening announcement, you can enter a Pre Wait time to the FX Cue.

Once you hit the space bar to start the Opening Announcement the 'Pre-wait' time will start counting down and will start after the amount we have entered here – twenty seconds, which is four seconds before the announcement has come to its end.

5 – Follow-ons (*Continued)*

You can also add a follow-on to a 'Fade' cue. Say you wish to start the next cue once the previous one has just started to fade.

In the above picture I have put a 'fade and stop' cue for 'Q8 P202 Music…'. I've added an auto-follow cue to the 'Fade' cue, with a Pre Wait of three seconds. So when you press the space bar to fade the first cue, then 'Q10 P216…' will start three seconds into the fade.

Starting a cue completely faded out, fading up as soon as the cue is started

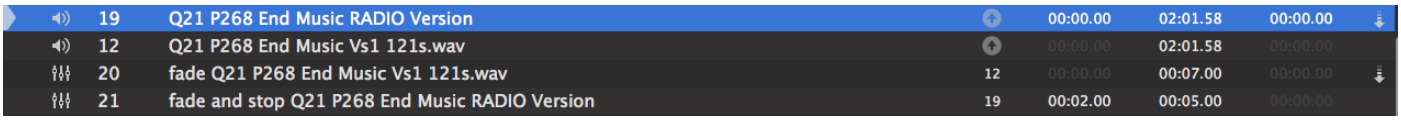
This is something that is used regularly – a sound effect is faded up from silence as the scene begins. The original sound effect might start without a fade up, or the fade up on the beginning of the track is not as gradual as you would like it, or you may have a number of effects starting simultaneously that you want to fade up over the same length of time.

Highlight the sound effect cue, click on the 'Fade' icon to put in a Fade cue just below it. Link the Fade cue to the relevant sound effect by clicking and dragging the Sound effect over the fade cue. Go to the 'Device & Levels' tab of the Sound effect and set the fader to fully closed. Put an 'Auto-continue' follow-on in the Sound effect. This means that the Sound effect and the Fade will happen simultaneously. Go to the 'Levels' page of the Fade cue and set it to the level you want – say '0'. In this instance I have set the 'Action' of the Fade up at 10 seconds, to give a gradual fade up as the cue is hit.

Crossing between different versions of the same Cue

This is for a situation where, for example, a cue is heard as if coming from a tinny radio on stage, at the end of the scene the music from the radio is brought up on the main theatre speakers in full quality.

If you have prepared a version of your Cue and treated it to sound if it is coming from a radio (bass and top cut with a bit of boost around 1 kHz) you can re-label it with 'RADIO version' added. It is important you treat the whole cue, so that both the treated and untreated versions of the cue are exactly the same length.



Put the RADIO version in before the untreated version, with an auto-continue selected, so that both cues start at the same time. On the Levels pages start the RADIO version at full volume (or slightly lower as appropriate), and set the untreated version with the Level fader completely closed.

Put two 'Fade' cues in – one to fade up the untreated version, and the second to fade out and stop the RADIO version. You will need to experiment with the fade times – in the above example I've got the fade out of the RADIO version following on from the fade up, with a 2 second Pre Wait.

You will want the RADIO version to come from a practical loudspeaker on stage from a different output. We will look at this later in the 'Levels and Outputs' section on page 22.

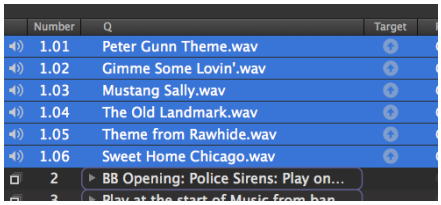
With a little bit of thought you can cover a multitude of situations by using combinations of follow-ons with Pre Wait times using the above techniques and others you will discover for yourself.

6 – Groups

If your project contains a number of Cues involving follow-ons then your playlist will have a number of items that the operator is not going to activate. However they will still, confusingly, be visible on the playlist. It is useful to use 'Group' Folders, with all the automatic actions hidden inside Folders, so the only things on the playlist are things that the operator is going to have to start on cue. It is worth mentioning that some designers put all cues into Groups, even if they consist of one element. Then every Group can be named with relevant cue information without re-naming any audio cues.

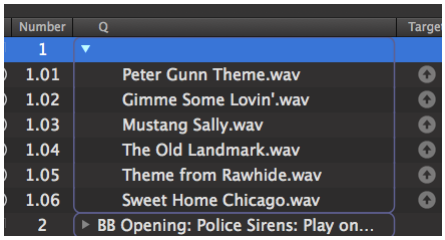
The 'Group' command is to the far left of the Toolbar. You can click on the icon and a Group will appear in the playlist below the cue that is currently highlighted. You can also Drag and Drop them into the playlist.

For example, it is useful to put all the pre-show music into a Group Folder. Highlight all the cues that are part of the Pre-show music by highlighting the first Cue you want in the Group, press and hold 'Shift' and highlighting the last Cue you want in the group. They should all then be selected. Click on the 'Group' icon, and all the highlighted items will be put into a group folder.

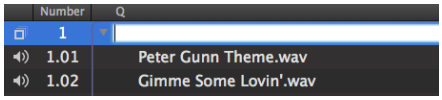


As you can see there is a border around all the items in the group, and a small arrow in the Group folder pointing downwards. This shows that the Group is 'open' so you can see what is inside.

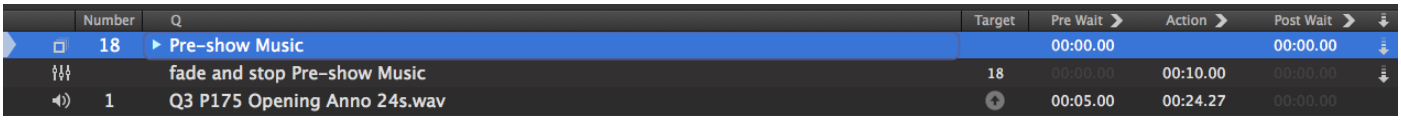
It is easy to Drag and Drop extra things into a Group – either from elsewhere in the Project or from your 'Audio Files' folder.



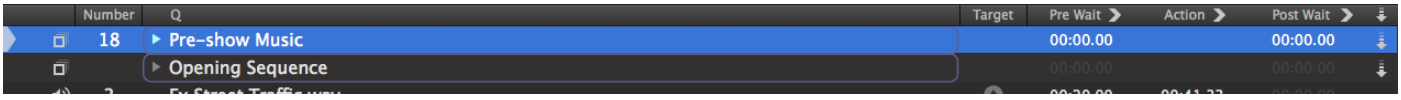
I've double clicked on the Group cue it so that I can type in the group name 'Pre-show Music'. Hitting 'Return' completes the re-naming and clicking on the arrow 'closes' the group.



You can also Drag and Drop a Group cue into the project by clicking and dragging a Group icon from the Toolbar. Then highlight all the things you want to put into the Group, click and drag them over the newly created Group. The Group will go light blue when you are over it. Releasing the mouse button drops them into the Group.



Because there are 'follow-ons' inside the Group Folder it has added an auto-continue symbol to the group line. I've added a fade and stop cue to the Pre-show Music folder with a ten second fade. I've also added a follow-on to the fade so that it starts the Opening Anno with a five second Pre Wait. So, once the space bar is hit to fade the Pre-show Music then the Opening Anno will start 5 seconds into the fade.



You can tidy it up by putting the Fade and the Opening Anno into another group, which I've called 'Opening Sequence'.

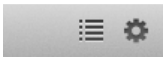
So, although there is a lot going on (the pre-show music tracks playing in sequence, they are then faded when the cue comes from the Stage Manager to start the show, and the Opening Anno starts over the end of the fade) the operator only has to perform two actions – starting the pre-show music and starting the Opening Sequence when cued. Removing from the display things that happen automatically makes it look much less confusing.

6 – Groups (*Continued)*

Group options

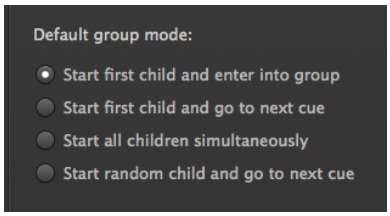
There are a number of options available for the set-up of a Group, and it is worth investigating these.

Access the 'Settings' window. You will recall that at the bottom right hand corner of the Main window are two symbols. Click on the one in the corner that looks like a cogwheel.



We are going to look at the 'Group' section. Click on 'Group' in the list to the left of the window, near the bottom.

This shows what options you can have as default settings when you are creating new Groups. The two which are likely to be most useful are the top one: 'Start first child and enter into group' and the third one: 'Start all children simultaneously'. These options are also available in the 'Mode' tab of a Group. So the Group will be set up with your 'Default' setting, but you can select a different mode for an individual Group if you wish.



'Start first child and enter into group' is the mode we have been using thus far. For the Group to function properly we will have selected follow-ons and set pre-wait times etc. so that Q-Lab works through the Group.

Some designers prefer to have 'Start all children simultaneously' as their default option. For many situations this is the most straightforward option.

A typical Group in 'Start all children simultaneously' mode might have a number of Audio Cues making up a background, all of which are faded up and then faded down to a slightly lower level once they have been established. You would set up all your Pre-wait times for the time when all the effects are faded back down as normal, but you would not need to add follow-ons as Q-Lab will go through the cues automatically. As you have added Pre-wait times they will not actually start *simultaneously* but will play through depending on the Pre-wait times you have selected.

Depending on which Group mode you choose, the Group will appear differently in the Playlist.

'Start first child and enter into group' has a grey outline with rounded corners.

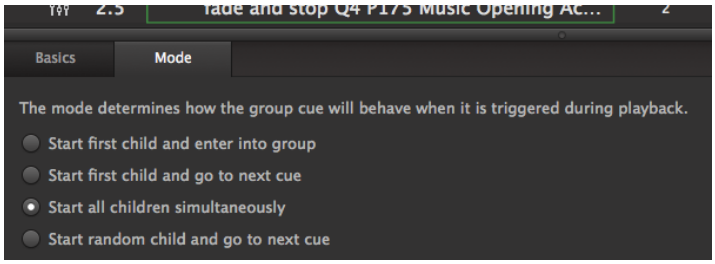
'Start first child and go to next cue' has a grey outline with square corners.

'Start all children simultaneously' has a green outline.

'Start random child and go to next cue' has a purple outline.

Choosing a Default option in 'Settings' will, as mentioned, set a standard Group mode for any new Groups you create. If you wish, you can change this for a particular Group in your Project.

Highlight the Group you want to alter and click on the 'Mode' tab. Select the Group mode you want. All of your other Groups will still have the mode that was set as default.



It is a matter of personal preference and experimentation to find which Default mode you generally prefer, and, you always have the choice to alter the mode 'group by group'.

To OPEN all Groups in a project press and hold 'Shift' and the Right facing arrow >.
To CLOSE all Groups in a project press and hold 'Shift' and the Left facing arrow <.

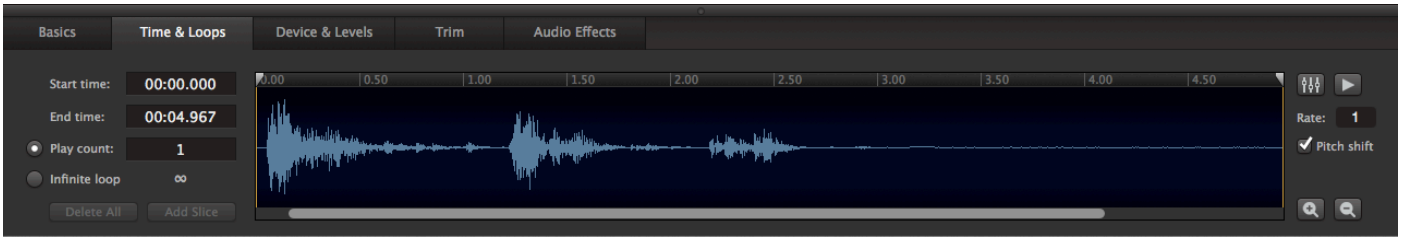
7 – Edits and Loops

While it is advisable to do as much preparation on the Audio Cues in a dedicated Sound Editing program before loading them, there are some editing adjustments that are more practical to do within Q-Lab, with looping being one of the most useful.

Editing Beginnings and Endings

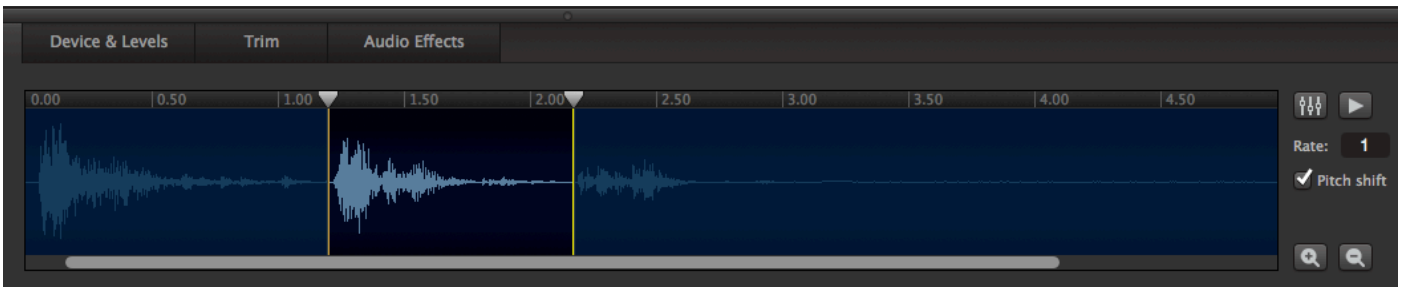
Sometimes it is necessary to tighten up the start of a cue, particularly if a track has been copied from a CD with some blank space at the start of the track. You may only want to use a portion of your Audio Cue, or you may decide to finish a track early once you have seen it in performance.

Select the Cue you want to edit and click on the 'Time & Loops' tab.



This shows the waveform of your Cue. This is a sound effect of three knocks on a door. Let us say we only want to use the second knock.

There are two triangles in the time bar above the waveform window at the beginning and the end. These mark the start and finish points. You can click and drag these to change the start and finish points. The display will grey out the edited sections. This shows that you have not actually deleted any audio, just changed how much of it you hear. You can always change the edit again and retrieve the audio you have trimmed out.



In this instance it is very easy to do the edits visually. You can audition your edit either by using the 'Play' arrow at the top right hand corner of the 'Time & Loops' window, or by pressing **V** which previews the selected cue. **P** can be used to pause and re-start and **S** to stop the previewed cue. You can zoom the display in by clicking on the + and – magnifying glass symbols at the bottom right hand corner. If your mouse has a scroll wheel you can zoom in and out using this – place your cursor over the waveform picture where you want to zoom in. Scrolling the wheel will allow you to zoom in or zoom out from this point. Use a two finger swipe on a trackpad.

Again, once you are happy with your edit make sure you 'Save'.

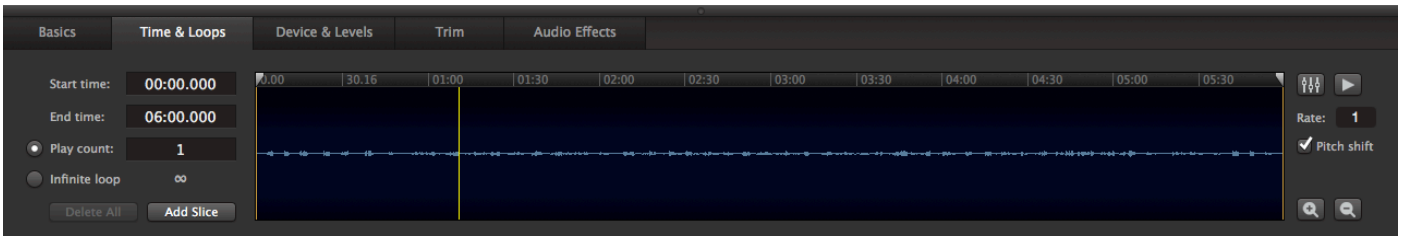
As with the Volume changes demonstrated on page 13, if you have put this same cue into the playlist somewhere else it will play in its entirety and will not be affected by the edits you have made to this particular cue in the playlist.

On the other hand, if you *do* want to use the cue with this edit information elsewhere in the project then you can copy and paste it. Highlight the Cue in the playlist and then copy it, either by hitting Command and 'C' or going to 'Edit' and selecting 'Copy'. Then go to where you wish to paste it in, highlight the cue *before* you want it to go and paste it, either by hitting Command and 'V' or going to 'Edit' and selecting 'Paste'. The copied cue will be pasted in immediately after the cue you have highlighted and will contain the edit decisions you have made.

7 – Edits and Loops (*Continued)*

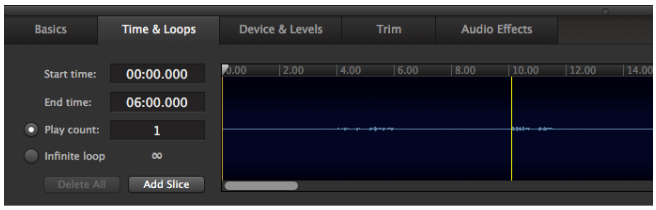
Looping

Looping can be very useful if you have a background you want to play throughout the whole scene. You can load in a track of, say, two minutes and then edit it to loop. This avoids the necessity of knowing how long the scene is going to be in performance and making sure you have enough background loaded.

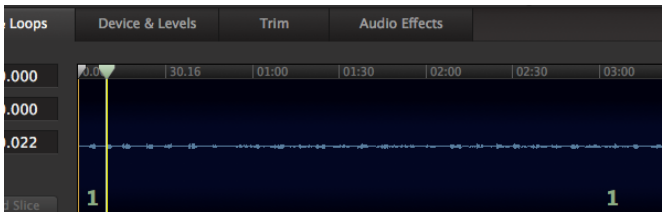


This is the waveform of a park background with birdsong. If the track does not have a fade in and fade out you may get away with just selecting 'Infinite loop' at the far left, which just loops the whole cue. More likely, you will need to edit the beginning and the end to make an acceptable loop. In the left hand section of the display you will see an 'Add Slice' button at the bottom. Q-Lab works with 'Slices' to make loops.

There is a yellow line in the display. You can click anywhere in the waveform display and the yellow line will jump there. Using the 'Play' arrow at the top right hand corner of the 'Time & Loops' window allows you to listen from this point. Zoom in to find a likely start point for your loop. Click on 'Add Slice'.

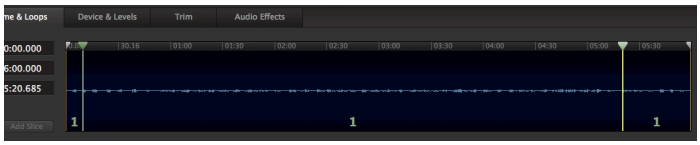


You will see that a marker has been added to the time line and a figure '1' has appeared at the bottom of each of these slices.



Repeat the process by finding somewhere near the end of the cue to find an end point for your loop. Make another slice by clicking on 'Add Slice'.

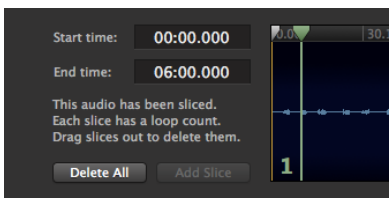
This shows the slice positions where your loop will start and finish.



Double click on the number '1' in the middle section. Here you can enter the number of times you want a loop to play. In this instance we want the loop to play indefinitely, until we make it stop. You can enter zero ('0') from the numeric keys (or 'Shift' and any of the numeric keys) and press 'Return'. It then turns into a figure 8 on its side: ∞, which shows the looped section will repeat infinitely.

You can audition your loop by clicking your yellow line near the slice at end of your loop. Clicking on the 'Play' arrow at the top right hand corner of the 'Time & Loops' window or by pressing **V** will play from this point. When it gets to the slice point it will jump back to the beginning of the loop. If you are not happy you can click on the slice marker in the time line and drag it to a different place. If you want to remove either marker and start again you can click on it and drag it above the window, when it will disappear in a puff of smoke.

The panel on the left of the display tells you that the audio has been sliced. If you wish to start again from scratch you can get rid of all the slices by clicking on 'Delete All'. Once you are happy with your loop make sure you 'Save'.



Now you can put a 'Fade and Stop' cue into your playlist, which will stop the loop when required.

7 – Edits and Loops (*Continued)*

Finding good Loop points

It is worth experimenting to get the loops as seamless as you can. If you loop too short a section it will be noticeable and may sound mechanical. Getting a good cross over point on some backgrounds can be time-consuming, but it is worth taking the time to get it right to avoid the loop becoming obvious to the audience. Zoom in so you can find points where the waveform looks similar.

With the first slice here the waveform is near the centre line.

It would not loop well with the second slice here, where the waveform is at a high point of its cycle.

If you tried to do a loop with these two points you would hear a click every time the edit played through.

Vamping and De-Vamping

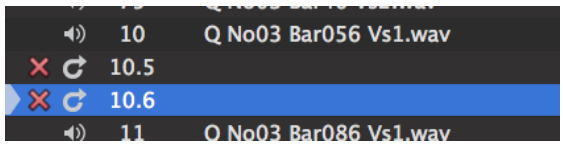
Vamping is a particular type of looping that is useful in music. Often in musicals there is dialogue over a repeated instrumental section of a bar or a few bars, which then jumps on to the next section of music when the cue is reached. The difference between this and a normal loop is that with a Devamp cue you want the looped section to play in its entirety every time and then play on to the next section when the cue comes.

In this example you can see there are two looped sections of a music track, both looping infinitely.

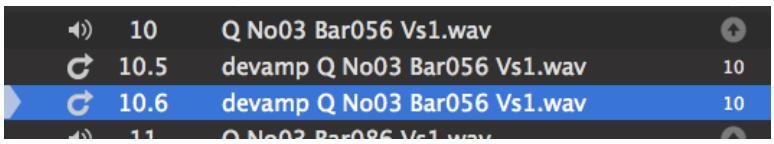
These are two different 'Vamp' bars with the chorus the section between them.

Once you are happy with the loops you need to put in a 'De-Vamp' cue for each of these repeated sections. You will find it in the right hand section of the 'Actions' bar, and is an arrow turning back on itself.

These work in the same basic way as other 'Action' commands like 'Fades', in that you need to tell them which cue to control. Like a 'Fade' cue, you click and drag the cue you want them to control over them and release the mouse button.



Now, when you start the track it will play through from the beginning until it hits the first 'Vamp' section. It will repeat until you hit the space bar for the first 'De-Vamp' cue.



It will then jump to the next section as soon as it has come to the end of the 'Vamp' section and play through until it hits the next section of 'Vamp' bars. Again, it will repeat until you hit the space bar for the next 'De-Vamp' cue. It will then play through until the end of the cue.

This is a rather specialised type of looping, but there are occasions where it is useful. For example, you may wish to loop a section of music for a scene change, and then de-vamp so that the piece of music moves to an ending rather than being faded out on cue. Or, if you have a car start, going into tick over, going into car pulling away, then you could loop the tick over and put in a De-Vamp cue when the cue comes to drive off.

If you are using a free version of Q-Lab you will find that you can use 'De-Vamping', but the project will not save the de-vamp links. You will have to remake the links when the program next opens. This is annoying but not disastrous and does not take long. Red crosses will appear by the broken links – just click and drag the 'Devamp' icon from the toolbar and drop it onto the broken De-Vamp link.

8 – Levels and Outputs

'Standard' volume level

When preparing your audio cues it will save you a lot of time if you try and make them roughly the same level. If you have, it will be easier to set a general level for the output of Q-Lab and you will soon get an idea of the level you need to set for something under dialogue, and something you want to have extra impact etc. If your cues are of wildly different levels you will have to spend a lot of time setting each one when you get into the theatre.

In the theatre there are three places where you can easily adjust the 'Standard' level going to the loudspeakers:

1. The 'Main' volume control from the PreSonus audio interface.
2. The Sound Desk. You can raise or lower the faders on the sound desk or alter the input gain control to the Q-Lab faders. The Input gain knobs are usually found at the very top of the channel strip.
3. The Power Amplifier volume controls. The output of the sound desk is sent to a power amplifier, and its output goes to the loudspeakers in the auditorium.

It is most important to avoid introducing distortion through over-pushing any part of the system.

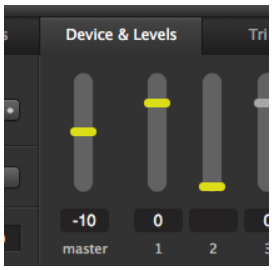
Distortion can be introduced in a number of places. By over-pushing the audio interface, sound desk or the power amplifiers, by sending too high a level out of Q-Lab or during the original recording or transfer of the audio cues. If there is audible distortion it is crucial to work out at which stage it is being introduced; by listening critically to the original cues and by taking down levels at each stage in turn to see if you can pinpoint it. If it exists on the original cue you should try and re-record or re-transfer it. Or you may have to live with it.

Levels of individual cues

If you have prepared well you should not need to do much adjustment of level from cue to cue. There will be some cues you will need to adjust when you hear them in the auditorium. With sound effects that you know are going to be quiet you should avoid the temptation of recording them too quietly – you still want a healthy amount of signal in the original recording. If they are recorded too quietly, then when you try and increase the level you will also increase the level of 'background noise' that is inherent in any system.

Adjusting the level of individual cues is best done on the 'Devices and Levels' page of the highlighted cue. Just bring the master fader up or down as appropriate to set the required level.

If you want the sound to only come out of the speaker on one side of the stage you can use the individual output faders; close the one you do not want the cue to come from.



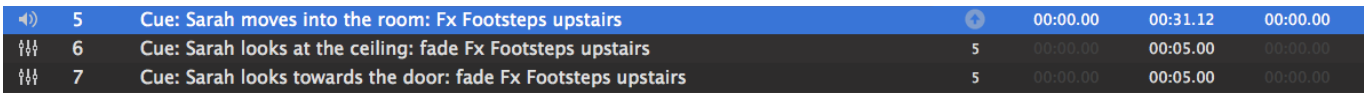
It is worth repeating that you can adjust the level of a cue while it is playing if you want to make changes 'live' during the technical rehearsal. **However – you must make sure you are adjusting the cue you think you are adjusting**. Once a cue has started playing the highlight immediately passes onto the next cue in the playlist. So the Levels page you are looking at will be for the Cue that is about to play, not the Cue that is currently playing. Simply click on the cue that is currently playing in the playlist and the highlight and Level page will change back to the active cue. Once you are happy with the new level, click on the next cue in the list so that the next cue will play when you hit the space bar. Make sure you Save to retain your newly adjusted level.

And it is worth repeating that the sound box is often not the best place to make decisions about appropriate levels. Make sure you move about the auditorium to hear the effect in different parts of the house and get your operator to make the adjustments while you listen.

8 – Levels and Outputs (*Continued)*

Panning

As you might imagine, we can use 'Fade' commands with different Output faders fading up and down to 'Pan' the sound from one auditorium speaker to the other.



If, for example, there is the sound effect of someone walking about upstairs; at the given cue we want the footsteps to move to the centre, then away to the other speaker.

Set up two fade cues for the sound effect, and set the levels as follows:

For the audio cue: 

For the 1st fade cue: 

For the 2nd fade cue: 

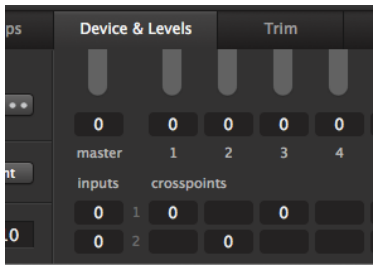
The sound effect will smoothly crossfade between outputs, giving the impression of moving about. You could also add follow-ons and pre-waits so the panning happens automatically without waiting for individual cues:

Using different outputs

Up till now we have only used outputs 1 and 2, sending the output of Q-Lab to the main speakers in the auditorium. In the example on page 15 where we were cross-fading between two different versions of the same cue (one treated to sound as if it is coming from a radio and the other untreated) we would probably want to use a separate practical small loudspeaker on stage so the radio sound is coming from near the on-stage radio.

The Tower system has a number of outputs available that are accessed from the back of the Audio Interface. At the moment we only have jack plugs plugged into Main Out L/R (see Appendix B – Standard plugging, page 37), but we can plug another jack lead from Line Output 3 into another channel on the sound desk. From this channel you can, say, send an Aux send to a stage tie line, or to a powered speaker or another power amplifier that is powering an onstage speaker.

Select the cue you want to send to the onstage speaker and look at the 'Devices and Levels' tab. To the right of the line of faders is an arrow pointing down marked 'Scroll down for routing'. Scroll down and you will see the various 'Crosspoints' for each of the channels. As it stands, there will be a zero in line 1 for channel 1, and a zero in line 2 for channel 2. Click on the window in line 1 for channel 3 and enter '0'. You can now scroll back up to the faders, close the faders for channels 1 and 2 and open the fader for channel 3. This will now only come out of the Line Output 3 jack on the back of the PreSonus into the desk channel you have plugged it into.



The 'Crosspoints' windows are effectively Volume Controls selecting the input level of your Audio Cue – set at '0', they are at the normal, 'standard' level. The Fader selects how much level goes to the Output.

You can have up to 8 separate outputs – just enter 'Crosspoints' for the additional outputs you want to use.

9 – Putting a Project together

Once you have had an initial discussion with the Director and you have started gathering your audio you can begin to assemble your project. The great thing about Q-Lab is that things are very easy to move about, insert or delete so there is no need to have absolutely everything decided before you start assembling. As rehearsals develop many things are likely to change so the project will probably not be finalised until show week, and there may even be changes once the show has opened.

As previously mentioned, I like to give the project a 'Version' number and the date, so I can keep a track of changes. So a show I am assembling on the first of January 2019 would be 'My Show Vs1 010119'. I update show versions quite regularly, particularly if it is a complicated show – you may find you or the director prefer a previous mix of something, or, should anything have been accidentally lost you can retrieve it from a previous version.

Do not feel you have to start from the beginning – I often start working on things that I know are going to be complicated and things which the cast are going to need to hear early in the rehearsal process. There are many ways of putting a project together, I will lay out the way of working I have developed over a number of years. You will find your own techniques as you become more experienced.

Pre-show music

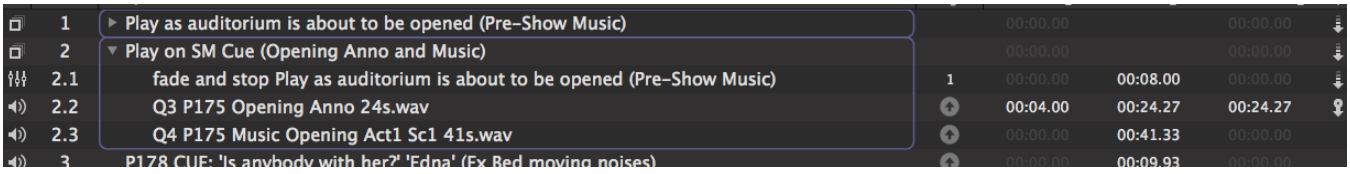
The choice of Pre-show music (if you are having any) is something that may be decided late in the day. When it has been chosen I drag all the cues into the project and put them in a group (see page 16).
I use 'auto-follow' for each of the Pre-show music cues; this is the follow-on that starts the next cue on the playlist once the first cue has finished. However, you must make sure the last cue in the group does not have a follow-on, as you do not want the first show cue to be triggered before you are ready. I always put in more music than would be normally expected for the pre-show and the interval, just in case there is any delay before the show goes up or the second half starts. It is worth going through the cues and tightening the beginnings and endings (see page 18) as some commercial music tracks have a bit of dead air before the start of a track and at the end.

In this instance I have the group in 'Start first child and enter into group' mode (see page 17), as you would have to do a lot of arithmetic if every track needed its pre-wait time calculated from the start of the first track.

I make all the Pre-show music slightly quieter than the general level that I set for the rest of the show. This is so that it is not too overpowering as the audience enters and the first cue for the start of the show has more impact. If you wish, you can adjust the level of the Pre-show tracks you drag into the project by going to 'Settings' and 'Audio'. You can set the Master fader to, say '-10', and all the audio tracks you drag in will have their Master fader set at -10.

The start of the show

A 'standard' start of a show would be the pre-show music is faded out, an auditorium announcement is played, then there is a piece of music while the lights fade out in the auditorium and the lights come up for the start of the play. There may be sound effects that come up as the music fades or ends.



This shows the settings I used for a 'standard' opening: there is an 8 second fade and stop on the Pre-show music group which has an 'auto-continue' into the Opening announcement. The announcement has a 4 second pre-wait, so it starts playing four seconds after the fade has started so the music has not completely gone when the announcement starts. There is then an 'auto-follow' where the opening music starts as soon as the announcement has finished. The music plays through in full – this covered the lights fading, and the opening scene being set as the actors came on.

9 – Putting a Project together (*Continued)*

Backgrounds

A background for a scene may consist of a number of different elements – a scene on the deck of a sailing ship might have wind, the sound of waves against the boat, the creaking of wood and rope, the splash of waves landing on deck amongst other things. It is worth reading the scenes very carefully to see what background you would have as a general 'bed' for the whole scene, and what Fx would be played in at specific points in the scene – an extra loud splash of water on deck, a clap of thunder etc. The 'bed' might run for the complete scene and the 'specials' would be separate cues, played in at precise moments in the scene.

When constructing a 'bed' you have a number of choices. Of course, you can pre-mix the whole 'bed' and load it in as one cue. I used to do this, but have since moved on to loading each of the single elements into a group and adjusting the relative levels within Q-Lab. This does take a bit more effort when you are compiling the project, but allows you much more flexibility – due to the acoustics in the theatre the general sound may be different to what you hear when mixing at home, and you can easily adjust separate elements without having to re-mix the whole cue. You also have the option to isolate any of these elements and use them separately to feature them in the crosses between Fx sections.

A director might wish the cast to have to shout against the Fx throughout the scene, but standard practice is to have the sound Fx louder for the transition into the scene and then dip down after a moment, so that the cast are not constantly 'fighting' the background. This relative balance is always quite tricky to achieve, as you want to be able to feel that the background is still there without making it too difficult for the audience to hear the words. Of course, a lot of this depends on the cast and director understanding the need for clarity and projection.

In this example we start with one loud effect (a thunder roll), which will act as a transition into the scene. We will then load various effects for the 'bed', loop each element, start them all at the same time silently and have them all fading up over 5 seconds, stay at full level, then fade down after 10" to the level that they will stay for the duration of the scene. We will put all these elements in a group and add a 'special' that happens during the course of the scene, playing over the 'bed'. We will create another group for the transition at the end of the scene, including a music cue that plays as the sound Fx fade out.

Start by selecting the sound effects you want to use for the 'bed' and drag them into your project. They will be given numbers incrementing from what is already in the project. At this stage do not worry about the numbers – things are likely to be moved around so it is only worth re-numbering when the project is nearing completion.

Looping – you will not know the precise length of the scene, so you are likely to need to loop each of these elements so that they will last indefinitely. These types of effects can be a bit challenging to loop as they change in volume, intensity and sound and do not have the regularity of, say, a clock tick, so it is worth spending a bit of time finding loop points that are not noticeable. Make sure the Fx cues you have chosen are a reasonable length so you have enough options for finding good loop points and the audience does not become aware of hearing the loop 'coming around again'. See **Edits and Loops – Section 7 Page 18.**

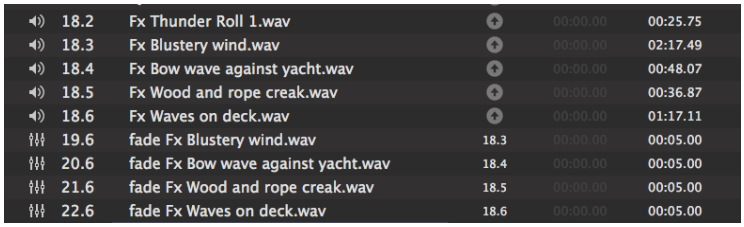
In this example we will be using the group in 'Start all children simultaneously' mode.
See **Groups – Section 6 Page 17**.

Aside from the initial Thunder Roll, in this example we are starting each of the other elements silently and fading them up over five seconds, so you need to go into the 'Devices and Levels' tab of each individual Audio cue. Click and drag each Master fader all the way down, or, while pressing 'Alt', click on the fader. This will jump the level all the way down. You then need to create a fade command for each of these elements. I like to make them in a bunch following the audio cues for reasons that will become clear later. The easiest way to do this is by highlighting the last of your Audio cues (18.6 'Fx Waves on deck') and clicking on the 'Fade' Icon in the Toolbar four times. Four fade cues will be created after the four audio cues.

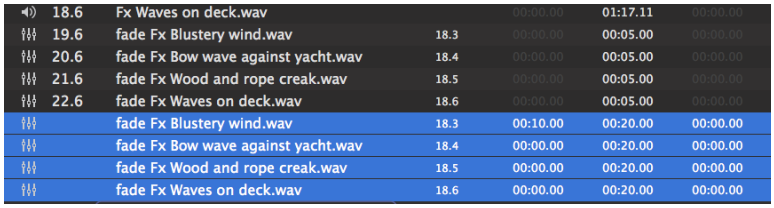
See **Fades – Section 4 Page 10**.

9 – Putting a Project together (*Continued)*

Drag each of the Audio cues over a fade, and set a 'best guess' for the levels of each of the Fade cues. You may not want each of the cues to go up to full level, but it will be easier to set the relative levels once you have completed the Group.

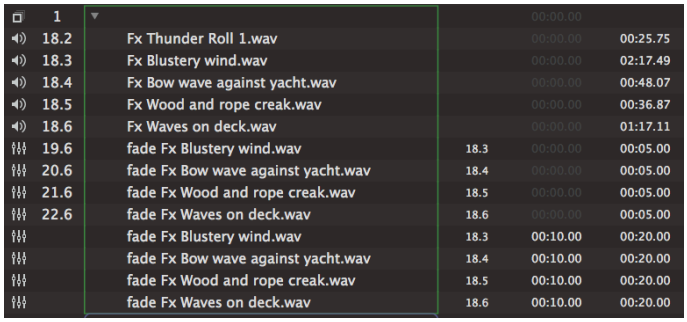


The next step will be to fade down the background to a lower level after 10 seconds. Highlight the four fade cues (numbered 19.6 – 22.6 in our example) and Copy them, either by going to 'Edit' and clicking on 'Copy', or by using the shortcut, Command and 'C'.



Highlight just the last fade cue ('22.6 fade Fx Waves on deck') and Paste, either by going to 'Edit' and clicking on 'Paste', or by using the shortcut, Command and 'V'. This creates four new Fade cues after your first ones. They will have the same parameters that were set for the original cues, but you do not have to re-join them to each original Audio cue. Select a 'Pre-wait' of 10 seconds for all of these new cues, so the cues will be at the higher level for 5 seconds before they start to fade down (the 'Fade down' cue's Pre-Wait time will start counting down once the previous cue has started). I tend to make these fade down cues quite long, in this case 20 seconds, so the fade down to the lower level is not strikingly noticeable to the audience.

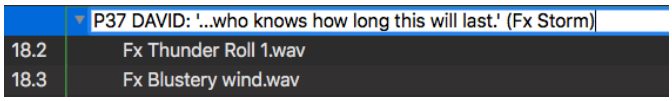
Highlight all the cues associated with this 'bed' and then click on the 'Group' icon in the toolbar – this will put all the elements into its own group. If you have selected 'Start all children simultaneously' as your default Group setting it will come up in that mode. It will have a green line around it. If you have 'Start first child and enter into group' as your default Group setting you can change this by clicking on the 'Mode' tab of this group and changing it to 'Start all children simultaneously' (See page 17).



You can, of course, choose to have the Group in 'Start first child and enter into group' mode, but you would need to put in 'auto-continues' for every cue in the group (except the last one – you do not want it to 'Auto-follow' on to the next cue in the Project), but only the first of the final set of fade down cues would need the Pre-wait.

Have a listen to see how the relative balance sounds and take a bit of time to adjust levels and fade times.

Rename this group with the page number and the cue words, by double clicking on the Group title line. Pressing 'Return' finishes the re-naming.



Copying and Pasting

As you will see, copying and Pasting is very useful while you are building your project. As shown above, you can copy and paste a fade cue, or a group of fade cues which have been assigned to an audio cue or cues and paste them into another part of the project – they will retain the link with the original cue, you will just need to change the action you want the fade cue to perform.

You can copy an audio cue and paste it in anywhere else in the project – any edits, looping and the fader settings will appear in the pasted version.

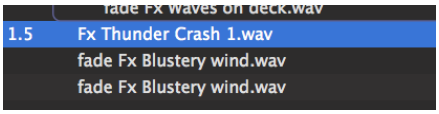
You can copy a Group and paste it in anywhere else in the project – all Group items, including fades will appear in the pasted version. If, during the course of the play, you return to locations which have an associated background (jungle, seaside, city centre etc.) this can save a lot of time when you are assembling.

9 – Putting a Project together (*Continued)*

'Specials'

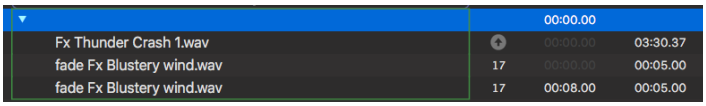
We are now going to add a crash of Thunder, and at the same time lift up the level of the wind. However, we still want the rest of the 'bed' to play out as the scene is continuing.

I have dragged a Thunder Crash into the playlist below the Group we've been working on, and I have also copied the last fade cue which relates to the Blustery wind (18.3) and pasted it in twice below the Thunder.

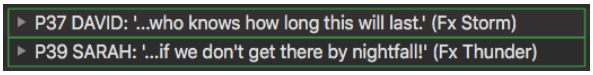


As these are copies of the last fade cue for the Wind they will both be set at the level we put it for when it is playing out under the dialogue. This is the level we will want it to go back to after this moment. But, we will want to alter the first of those two fade cues to bring the level up a little higher under the Thunder.

Create a Group for these three new cues. Again, I will have the Group in 'Start all children simultaneously' mode. Put the level of the first Blustery wind fade cue up as loud as you want it under the thunder crash. Set a Pre-wait on the second fade cue for as long as you want the wind to be louder along with the Thunder. I've set it for 8 seconds. Adjust the timing and the levels to get the effect you want.



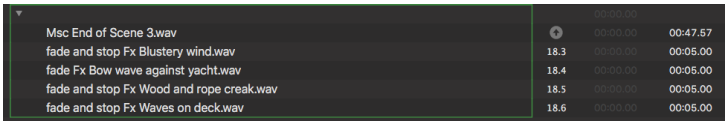
Then Re-name the Group with the page number and the cue words.



End of the Scene

We are now going to move to the end of the scene. We will be fading out most of the background, but using the water lapping and a piece of music to cover the transition between scenes. Once the scene change is completed we will fade out the music and water lapping and bring up the Sound fx for the next scene. Similarly, we will start these at a slightly higher level for the beginning of the scene and then bring the level down once the scene has started.

I've dragged in the Music cue for the end of the scene, and copied and pasted the four fade cues from the first group. I've put them in a Group in 'Start all children simultaneously' mode. I've faded and stopped the Fx Wind, Wood and rope creak and the waves on deck over 5 seconds. But I've faded UP 'Fx Bow wave against yacht' slightly so it continues under the music, acting as a bridge.

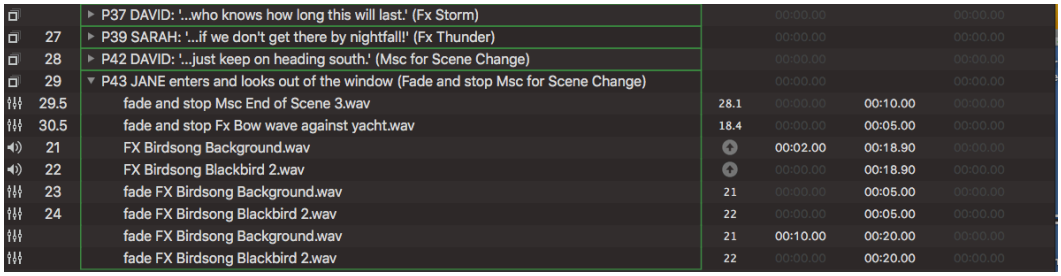


Rename the Group with the page number and word cues. This Group will operate for the length of the scene change.

Then create a fade cue to fade down and stop the Music cue, and a fade cue to fade down and stop the Fx Bow wave against yacht, drag in the Fx Cues for the following scene (in this case a Birdsong background and a Blackbird, which I've given a 2 second Pre-wait), starting them silently, adding Fade cues to fade them for the opening of the scene, then, after a 10 second Pre-wait, fading them down to the level they will remain under the scene. Finally, put them all in a Group, rename it with the page number and word cues.

Experimenting with the fx and music for Scene changes gives many options for adding interest and variety.

For the operator there are just four cues, but there is a lot of texture to the scenes and changes. You also have a lot of control over adjusting levels as necessary.



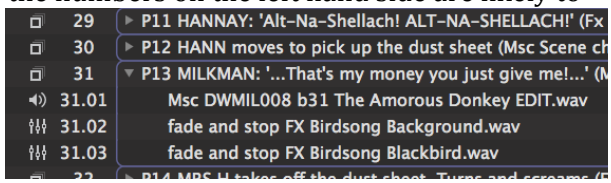
10 – Handing Over

Before the technical

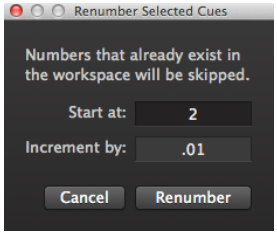
Try and prepare the session as well as you can – the more prepared you are the smoother the technical rehearsal will be.

The less cluttered you can make the project the better. Groups should be used so that the operator only sees the cues that they will need to activate. If the project is laid out clearly the operator is less likely to make mistakes. You should try and tidy up any source of confusion and label things in a way that means for the most part the operator will not need to follow a script, but can just work from the screen.

If you have moved cues around during the preparation process the numbers on the left hand side are likely to have become confusingly jumbled. Your operator will mark up a script, so, if the numbers make sense it will be easier to follow. It is worth taking the time to get the numbering working in a logical fashion; with each cue the operator is going to play numbering from 1, 2, 3 onwards.



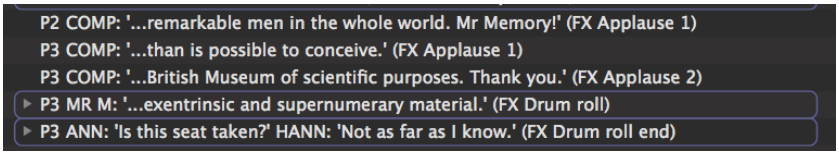
To Renumber cues, select the cues you want to renumber by selecting 'Renumber' from the 'Tools' menu, or press and hold 'Command' and hit 'R'.



This window comes up. It can sometimes be a little tricky to get the numbering right as if the numbers already exist in the Project they will not necessarily be renumbered. It is sometimes easier to work backwards from the end of a session. I prefer to renumber in batches and to number increment the cues in a folder by .01, so that they read 2.01, 2.02, 2.03 etc. inside the folder. You will probably have to renumber the cues in every group separately, but the time it takes is worth it as it will make the marking up of a script much more logical. To OPEN all Groups in a project press and hold 'Shift' and the Right facing arrow >. To CLOSE all Groups in a project press and hold 'Shift' and the Left facing arrow <.

There may be cues that are added in the tech or the dress after the project has been handed to the operator. If your operator has already marked up their script with the original cue numbers I would recommend that the numbering of any new cues does not alter the subsequent cues – if a new cue is to be added between cues 18 and 19, I would suggest calling it something like 18.1.

I have found it very useful to label the cues as clearly as you can and type in the verbal cue into the name box for each one. The clearer you can be with your labelling the easier it will be for the operator, and she or he may not need to refer to a script at all if the written cues are clear enough. I would encourage you to involve your operator in the naming of the cues, as they may wish to add reminders for themselves.



Try and set a reasonable 'Standard' level for the theatre. As previously mentioned, the level for Pre-show and Interval music will be slightly lower that the overall level for cues in the show.

Edit/Show

At the bottom left hand corner of the display you have two buttons that toggle between 'Edit' state and 'Show state. As you might suspect, 'Edit' state allows you to make changes to the project. Once you have completed your changes and you are handing it over to your operator you can put it in 'Show' state. In this state it is now not possible to make changes and the display only shows the playlist of cues, and hides the lower section with cue information and tabs. This gives the operator reassurance that they cannot accidentally alter or delete things.

If you are using a second Cue List for a sound check (see page 9) make sure your operator knows how to open and close the 'Active cues and Cue Lists' column, and that they understand how the sound check operates.

10 – Handing Over (*Continued)*

During the technical

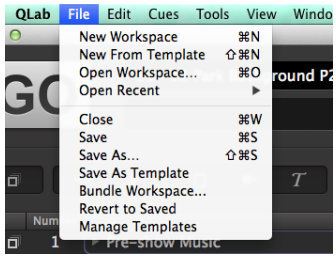
For some reason the opening of a show always seems to take a disproportionately longer time to sort out during the technical rehearsal than it should, as many shows open with a very similar sequence of events. It is worth having a discussion with the Director, Lighting Designer and Stage Manager so that everyone is clear how the opening of the show will run.

Try and adjust the levels during or after the technical so that the Dress Rehearsal can be as near to performance levels as possible. If the overall level for your cues is coherent then when you have set initial levels for Pre-show/Interval music and for cues in the show, you should be able to anticipate where and by how much you will need to change overall levels.

If any of your sound effects need panning, check that they are coming from the correct speakers.

Make sure you spend enough time listening in different places around the auditorium to check the levels are comfortable. Fades that sound fine from the Sound Operator's position may sound too rushed from the auditorium

After the dress – 'Bundle Workspace'



Once you have the project in a 'ready to go' state put the project into 'Show' mode and do a final save.

In the 'File' menu select 'Bundle Workspace'. 'Bundling' selects all the pieces of audio that have actually been used. It will ask you where you wish to save the bundled Workspace. Select the 'Your Show' Folder on the Desktop. It is worth giving it a date, or an increased version number – say 'Vs2'.

Open the 'Your Show' folder, and there will be an folder called 'Your Show Vs2', which contains an 'audio' folder and a Q-Lab project called 'Your Show Vs2' as well as your original program folder. To make it easier for your operator you can drag the Q-Lab project onto the desktop – all they have to do is click on the Q-Lab project on the desktop.

It is also worth doing a bundled back up project to save onto your memory stick. Bundled projects copy all the audio from the project, so they do take up quite a bit of space, but if you do not bundle up all the audio with the updated project when you try and open it from the memory stick the program will not be able to locate the audio.

In show week

There may be changes that need to be done once the show has opened – level adjustments and changes in fade lengths are among the kind of things that may need adjustment once it has been performed in front of an audience.

Ideally, you (rather than the operator) should make the changes and bundle the updated project as a backup to replace the backup you have on your memory stick. As mentioned before, just saving the project on its own may cause problems if you have to try and open the backup from the memory stick, as it may not be able to find any new audio tracks.

If the operator has to make the changes make sure they understand the process and the need to re-save the updated project as a bundled workspace on the memory stick.

I've attached my 'Basic Q-Lab for operators' manual as Appendix A, which you can share with your operator if they have not already seen it. It will give you an idea of what the operator should be able to handle.

11 – Keyboard Shortcuts

There are many useful Keyboard Shortcuts that help in Design and in Operation. You can see some of them in 'Settings', 'Key Map', which is at the top of the list, under 'General'.

Also looking at the headings on the top bar of Q-Lab ('File', 'Edit', 'Cue' etc.) will show you the keyboard shortcuts for various operations.

There is a full list at the Figure 53 Q-Lab website:

https://figure53.com/docs/qlab/v3/general/keyboard-shortcuts/

Here are some of the ones that I have found most useful

Command (⌘) and S	Save
Command and Q	Quit Q-Lab
Command and C	Copy
Command and V	Paste (when pasting into the playlist the copied items will be pasted in immediately below the highlighted cue)
Command and Z	Undo
Shift, Command and Z	Redo
Command and backspace	Delete highlighted cue from project
Command and R	Renumber selected cue/cues
Command and J	Jump to cue – enter the number of the cue you want to jump to
Space bar	Play highlighted cue
esc	Fade out and stop all cues currently playing
esc esc	Stop all cues currently playing instantly without fading out
S	Fade out and stop highlighted cue (if, for example the space bar has been hit twice – highlight the cue played prematurely and press S to fade and stop it)
S S	Stop highlighted cue instantly without fading out (see above)
V	Preview (plays selected cue, but does not move highlight onto the next cue. Can be used in the playlist or while editing in the 'Time & Loops' tab)
Shift, Command and C	Copy levels. This is only operational when you are looking at the levels page of an Audio or fade cue.
Shift, Command and V	Paste levels. As above
Shift and >	Open up all Group cues
Shift and <	Close all Group cues
alt (⌥) and click	With cursor over a fader, clicking toggles between set at normal level and fully closed

12 – Troubleshooting

Q-Lab is a pretty robust program and, if you follow logical procedures and make sure your operator understands all they need to know then it should all work smoothly.

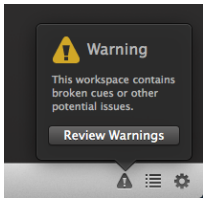
However, there may be issues that bring up problems. Here are some of the ones that you may encounter.

No sound

Obviously this may have many causes.
Try and work back through the system logically to see what is working and where the problem may lie.
Check that everything has been switched on: Power amplifiers, sound desk, audio interface, computer.
Check that things look normal on the sound desk: all necessary routing still in place, all necessary faders open.
Check that all the necessary plugging is still in place: between the Mac mini and the audio interface, and between the audio interface into the mixer.
Try a different sound source through the mixer (CD, mini disk, mp3 player) to check that sound is getting from the sound desk to the speakers.
Does Q-Lab look normal, without any error messages? When you press the space bar, does the arrow next to the cue turn green to indicate it is playing, and the 'Action' value start counting down?
Sometimes, after editing or loading audio Q-Lab can appear to freeze – try quitting and restarting.
Is the PreSonus 18 24 selected as the Audio output in the 'Settings' page?
If Q-Lab appears to be operating normally can you hear the output if you plug a set of headphones into the headphone socket of the Audio Interface? And into the headphone socket of the mixer?
Hopefully, through a logical process it should be possible to pinpoint where the issue is, and what steps you might consider next.

Warnings on opening Q-Lab

Sometimes, on opening up your project you will see a warning in the bottom right hand corner of the desktop and a triangle with an exclamation mark will appear on the bottom bar. There be a number of red crosses in the project indicating where there are problems.



If you click on 'Review Warnings' (or the triangle below it with the exclamation mark) it will bring up a list, showing all of the problem cues and what the issue is. You can toggle through this list with the up and down arrow keys and it will take you from one problem cue to the next.

Here are some of the more common warning messages:

Warning	Suggested areas to investigate
'No audio device. Select one in the "Devices and Levels" tab'	If you have been preparing your project on a different computer it might not load up the Tower's audio interface as the Audio output. Go to 'Settings' and 'Audio' to check that the PreSonus 18 24 has been selected for 'Audio Patch 1'.
'A cue in the group is broken'/'Invalid audio file'	Q-Lab cannot find the piece of audio it is supposed to be playing. Come out of the 'Review warnings' page by clicking on 'Done' and highlight one of the missing audio cues. In the 'Basics' tab of the audio cue there is a window called 'Target'. This shows you where Q-Lab is sourcing the audio. If the cue has been accidentally deleted or Q-Lab cannot access the original site of the cue, then the information in the 'Target' window will be in yellow. You will probably have to go back and re-load the cue. You can drag and drop it back into the project, straight on top of the missing cue – if you have re-labelled the cue in the playlist the replaced cue will retain this re-labelling, so be sure to check the replaced cue is the correct one. This can happen if you have loaded all the original Audio cues directly from a Memory stick, which has subsequently been unplugged. As previously mentioned (see Page 5) it is preferable to copy the Audio cues into a program folder on the Desktop rather than load them directly from a memory stick.

12 – Troubleshooting (*Continued)*

Warning	Suggested areas to investigate
'No target cue'	This is the error message that automatically comes up when you put a new Fade cue into the project before you have allocated it to an audio cue. However, if you have accidentally deleted an audio cue (as part of a Group, maybe) and not deleted its associated Fade cue it will show this warning. Either re-instate and re-link the deleted audio cue or delete the fade cue.
'A Pro Audio licence is needed to run this…'	If you have been preparing your project using the free version of Q-Lab and have used, say, 'De-vamp' cues, then these will not be saved when you re-open your project. You will need to re-link them to their associated Audio cue to re-establish their operation (see page 20). Or if you have been preparing your project on the Tower's computer, using additional outputs, and you then move back to a free version you will not be able to access outputs beyond the main outputs.

Different versions of Q-Lab

The Tower's system is currently working with Q-Lab Version 3. The latest available version of Q-Lab is Version 4. If you download the free version of Q-Lab you are more likely to download the latest version. This can cause problems when you try and transfer your project to the Tower's computer, as a system working with Vs3 cannot run a Vs4 project.

For the time being it is probably easiest to download and use Version 3 to use on your own computer rather than Version 4 (there are few differences in the upgrade that make it worth using Vs4 rather than Vs3 for most of what we do). If you have created a Vs4 project on your own computer you can make it compatible with the Tower's system by copying and pasting cues into a Vs3 project. You need to have both Vs3 and Vs4 installed on your own computer; open both projects and copy and paste cues from the Vs4 project into the Vs3 project.

At the moment it is still possible to download Q-Lab Vs3 from the Figure 53 website:

https://figure53.com/qlab/download/

Next stage…

Q-Lab is pretty intuitive and once you understand the general principles you can solve most problems with a bit of thought and imagination. There are a number of YouTube videos, and a useful 'Getting Started' section on the 'Figure 53' website.

https://figure53.com/docs/qlab/v3/general/getting-started/

There are also various forums that are very helpful for problem solving plus sites that share Q-Lab projects. There are some particularly brilliant people who have put together some amazing solutions at sites like:

https://qlabcookbook.com/

13 – Video

Q-Lab can be used to trigger Video, and in many instances Video Cues can be manipulated just like Audio Cues. Video is not my area of expertise, but I thought it would be useful to share the experience I gained working with Video projections for the production of 'The 39 Steps' (2017).

Before we talk about the practicalities of Video we need to take a bit of time to look at the issue of licenses.

Licenses

The free version of Q-Lab provides most of the features that would be needed for many productions. However, if you want to do anything more complicated with Audio or Video you will need to have a Q-Lab license. The Tower is using a 'Basic Audio' License for Q-Lab Vs3, which gives you the ability to use up to 8 outputs of Audio (see page 22), and allows you to save 'Devamp' cues (see page 20) among other things.

If you want to do anything other than very basic Video operations you will need a Video License. Licenses can either be bought or hired. For 'The 39 Steps' we hired a Video License for two weeks, which came to about £45.

The major advantages of a Video License are:

- You have a choice of screens to which you can send your Video cues. With the free version or with an Audio license, you can only use the 'Default' screen. This is the main computer screen you are operating your Q-Lab playlist from. As soon as a Video cue starts playing it appears on your computer screen, covering your playlist. The license allows you to send the Video cues to a second screen (or 'Surface' as it is known), like a projector.
- You can manipulate the images in a much more sophisticated fashion. Among other things you can fade Video cues in and out, you can apply a number of Video effects, and you can invert or turn a picture upside down. With the free version or with an Audio license the Video clips will just start and stop, without any option of fading in or fading out.

To hire a license you go to the website of the company that produces Q-Lab, Figure 53, at:

https://figure53.com/shop/

You have to create an account, but installing the license is very straightforward. At the time of writing the licenses are for Vs4, but can be used with Vs3, which is the version we are currently using. It does not matter who is the owner of the License that is already installed on a computer – when you log in with your account you can install a license on any computer, which will be active for the length of the hire. At the end of the hire the license will revert to the previously installed license.

Each license can be allocated to up to three computers. They are named 'Main', 'Backup' and 'Edit'. In principle the show is run from the 'Main' computer, the 'Backup' computer is used in case of the 'Main' computer failing and the 'Edit' computer is used in production of a Q-Lab playlist in a home studio. However, in practice, there appears to be no difference to the way any of the three computers access the facilities provided by the license.

You can do a certain amount of preparation before you hire the license, but many of the technical adjustments you will need to address can only be accessed once the license has been installed. Most of the operations described below are only available with a Video License installed.

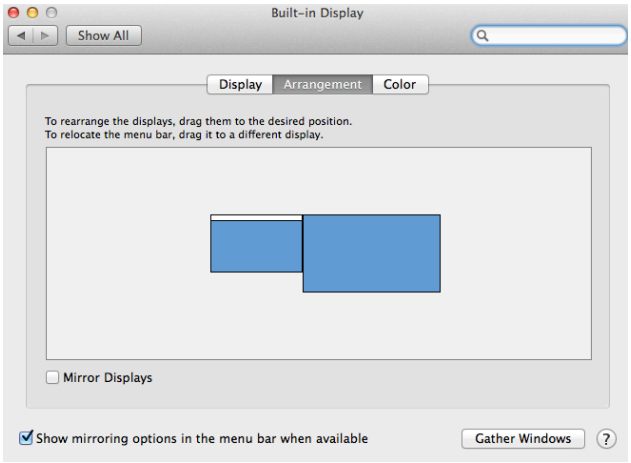
13 – Video (*Continued)*

Allocating a second screen

For most theatrical purposes you need to have one screen for the operator with the Q-Lab playlist, and a second screen for the projector for the Video cues.

In our case the projector was connected to the Mac Mini with a HDMI lead (see image of the back of the Mac Mini on page 3), and the projector and computer were then powered up.

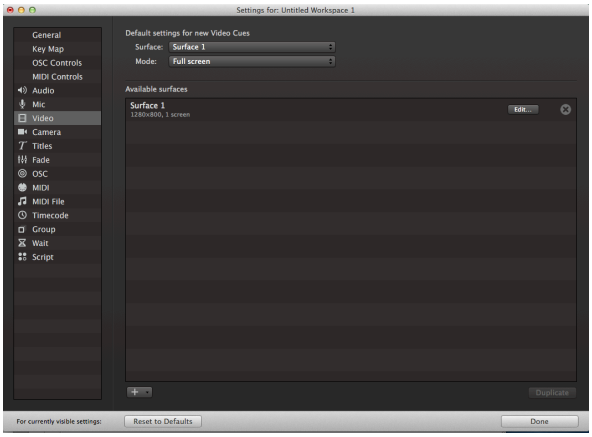
In the 'System Preferences' page of the Mac, select 'Displays'. If the projector has connected to the computer a tab called 'Arrangement' should appear. This page is most usually needed if you are choosing a position for the second screen as a second display for your computer, but for our purposes the tick box 'Mirror Displays' to the bottom left of the window is what we are interested in.



This defaults to being ticked, which means that what you select on the first screen is also shown on the second. So, for our purposes, it is important that this box is un-ticked.

Close 'System Preferences' and open Q-Lab.

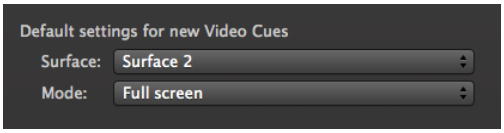
Open 'Settings' and select the 'Video' page. In all likelihood 'Surface 1' is the only screen that will be shown. To add a second screen, click on the **+** at the bottom left of the 'Available Surfaces' panel and you will see options for adding a new surface.



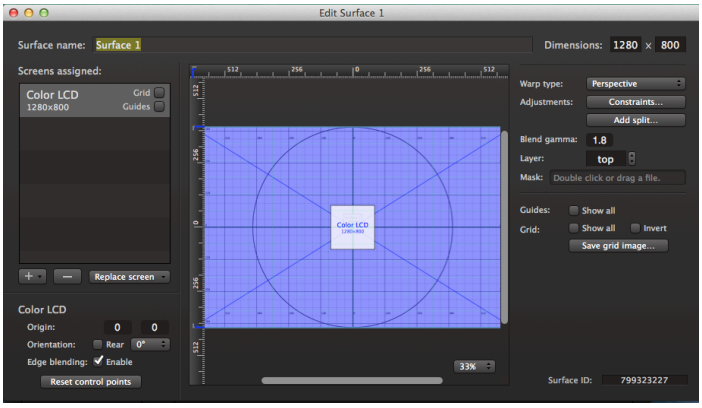
Hold your cursor over 'New with display' and your projector should appear in the list. Click on it and a new surface will appear in the 'Available Surfaces' panel.

In the same way that you can allocate your Audio to come out of a particular output, you can set a default

setting, for where you want any new Video cues to be played from. At the top of the 'Available Surfaces' panel in the 'Surface' options, select 'Surface 2'.

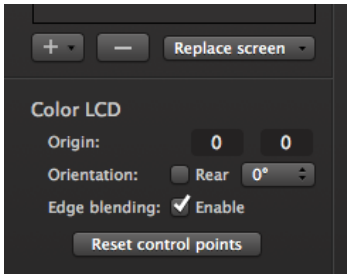


There is an 'Edit' button for each surface. Clicking on this will bring up the Edit page.



If, during the preparation of your session, you have been working on a number of different computers you will find that when you go to a new computer you will get a warning that there is a problem with the Video Surface. Q-Lab is looking for the other second surface that you had used when working on the session elsewhere and cannot find it. On this page there is a 'Replace screen' option, below the 'Screens assigned' panel. Clicking on this will bring up the screens that are available to you and you can select the 2nd surface associated with this computer.

13 – Video (*Continued)*



Depending on the practical situation of where and how you are fixing your projector you may need to turn the picture upside down. Many projectors are designed to be slung from the ceiling, and if you need to have them the other way up you can turn the picture upside down on this page.

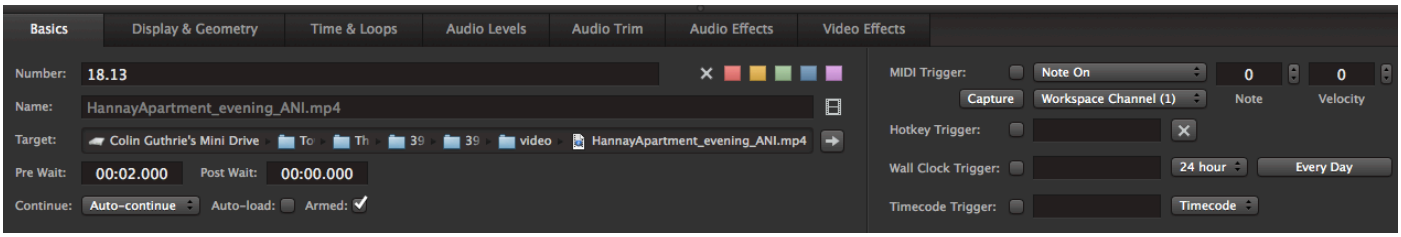
Click on the 0° panel labelled 'Rear'. Here you will find options of turning the image through 90°, 180° or 270°. Select the one that is necessary for the way your projector has been fixed.

As with the 'Audio' page in 'Settings' clicking 'Done' will save your changes and return you to the main page.

Loading Video

Loading Video is as straightforward as loading Audio, clicking and dragging from a hard drive or USB stick into the Q-Lab project. The icon for a Video cue is an image of a piece of film.

The Figure 53 website say that for moving images Q-Lab can play files in any format supported by AV Foundation. It plays still images in all common formats, recommending PNG and JPG (but not PSD or PDF). For 'The 39 Steps' we used mainly mp4 for moving images and PNG for stills. Despite their recommendation it would not play any JPG images we tried to load, but would play PSD.

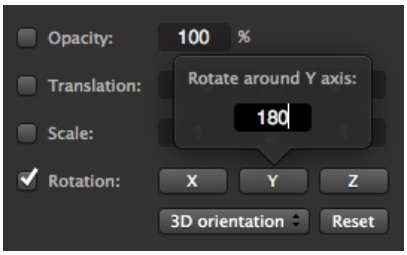


When the cue is highlighted you will see a similar set of options to a normal Audio Cue with a couple of extra tabs, 'Display & Geometry' and 'Video Effects'. It is important to remember that a Video Cue may have Audio content as well – if you look at the 'Time and Loops' tab and see a waveform then the Cue has Audio as well. If you do not wish to use the Audio attached to the cue you can go to the 'Audio Levels' tab and close the Master Fader.

Inverting Video Cues

If you are operating the Projector from in front of the screen then the picture will appear the correct way round. However, if you are using the Projector as back projection, with the projector behind the screen, then the image will appear as a mirror image of the original. You can invert it with a Fade cue.

As normal, create a Fade cue just below the Video Cue and click, drag and drop the original Video Cue over it.



On the 'Geometry' tab of the Fade cue there is a 'Rotation' setting. If you click on the 'Y' axis and enter 180° the image will now appear inverted. You will see any wording in the image is now a mirror image. You will also see that the 'Rotation' box has been ticked.

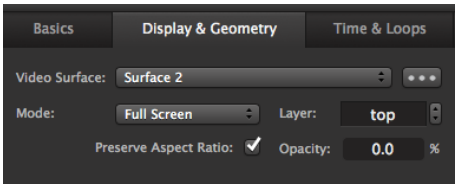
Set an 'auto-continue' on the Video cue, but set the 'Action' time to 0 seconds. That way the image will automatically appear inverted. If you have the default setting of 5 seconds the image will start one way round and then rotate over the course of 5 seconds.

13 – Video (*Continued)*

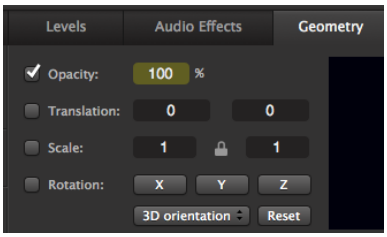
Fading in and fading out a Video Cue

If you want an image to fade in from black, as with an Audio Cue, highlight your Video cue and click on the 'Fade' icon in the toolbar. A fade cue will be added immediately below the highlighted cue. As with an Audio Cue, click and hold on the Video Cue and drag and drop onto the Fade Cue.

If you look at the 'Display & Geometry' tab of a Video Cue, there is a box called 'Opacity'. Its default value is 100%. That means that the image is completely opaque, and will cover over any image that is already on the screen. Click on it and set the value at 0%, which will make the image completely transparent, giving the effect of having a black screen.



Go to the 'Geometry' tab on the Fade cue you have allocated to the Video Cue. The 'Opacity' setting will be at its default setting of 100%. Tick the box next to 'Opacity'.

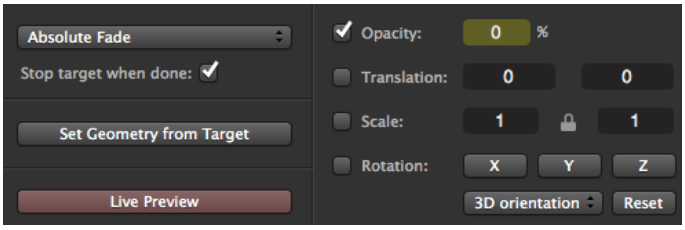


On the Video Cue set an 'Auto Continue':

With the default fade timing of 5 seconds, when you play the Video Cue it will start simultaneously with the Fade Cue, and will fade from 0% Opacity to 100% Opacity over the space of 5 seconds. So the screen will fade from completely black to a full image over the space of 5 seconds. Obviously the fade time can be adjusted as with an Audio cue.

The process of Fading out a Cue is the same, but in reverse. Put another Fade cue in the playlist where you want the cue to fade out. This may be quite some time after the original Video cue, so the process of dragging and dropping the original Video cue onto the new Fade cue can sometimes be a little tricky. It is often easier to copy the first fade cue, highlight the cue immediately below where you want the Fade cue and past. If you do Drag the Video cue, once drag it down to the bottom of the page it will only move beyond that page if you move the cursor where you are gripping the cue over to the left hand side of the screen, where the Cue symbols and Cue numbers are. Once you are over that, you can drag further down the playlist to where your Fade cue is. On the Fade cue set the 'Opacity' setting to 0%. Then, when the cue is activated it will fade from 100% Opacity to 0% Opacity over the space of 5 seconds.

As with an Audio Cue, ticking the 'Stop target when done' box will stop the Video Cue playing.



Overlaying Video Cues

You can use the 'Opacity' setting to overlay one cue on top of another. In 'The 39 Steps' we had an image of a street and a 'Snow falling' video. The street image was started, with 100% opacity. Then the 'Snow falling' video was started, fading in from 0% Opacity to 50% Opacity over 5 seconds. This overlayed the 'Snow falling' onto the street scene.

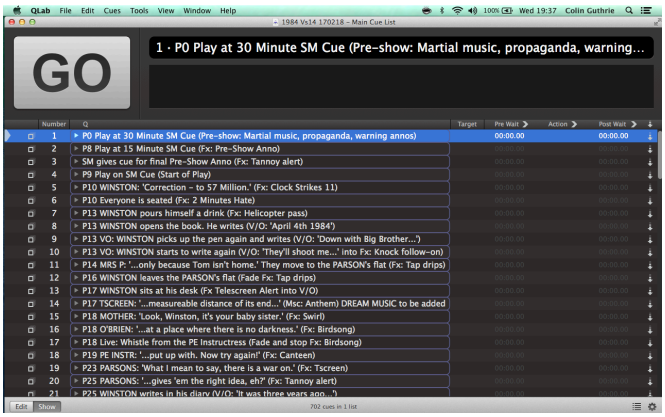
I have a feeling that the Computer was struggling to deal with sound and moving images at the same time, and there were some dropouts in the Audio output during the more complicated sections. They did not always happen at the same moments, so it was difficult to be sure, but the speed of the Processor will have a bearing on how comfortably the Computer deals with Video and Audio at the same time.

14 – Appendix A – Basic Q-Lab for Sound Operators

Q-Lab is a playback system, which, although very simple to operate, is very powerful and can be used to trigger lights, video, reverb etc. We are using it for Sound Cues, replacing the actions you previously would have achieved with Mini-Disks or CDs and the various faders on a sound desk.

Turn on all the hardware – mixer, audio interface and power amps. Once you have switched on the computer enter the password, and when the desktop opens you should see an icon labelled with your show, possibly also with 'Playback bundle'.
It will have the Q-Lab symbol.

Double clicking on this will open Q-Lab. This is the main Playback screen, which you will probably use all of the time. Move the mouse pointer up to the top cue on the list and click. The selected Cue will be highlighted in blue.



Pressing the 'Space' bar will start the Cue.

Once the Cue has started playing a little green arrow will appear in column to the far left of the Cue to indicate that it is active and the blue highlight will move down to the next cue on the playback list.

Alongside each Cue there is an icon. There are three that you are most likely to come across.

The icon of a loudspeaker is for 'Audio' cues – pieces of music or sound effects.

Ones with a representation of a sound desk are 'Fade' cues – these can do anything you can do with a fader on a sound desk: fade out and stop a cue, fade up a cue from silence or change its level.

Ones with a file icon are 'Group' cues, in fact, some designers choose to make every cue a 'Group' cue. These are easy to spot in the playback list as they have a border round them and a small white arrow to the left of the cue name. Clicking on this arrow opens the group to see what is inside. The advantage of Groups is that many operations can be done automatically, with one cue following on from the previous one without you having to do anything. Keeping these actions inside a Group stops the Playback list from getting over-cluttered and confusing. Also, a 'Fade' cue can be applied to a Group. For example, if all the Pre-show music is in a Group it can play through the list automatically, and when you get the cue to start the show you can press the next cue, which will fade and stop all the Pre-show music, wherever it has got to in the list.

Operating a show is generally quite straightforward. Pressing the Space bar starts a Cue and the next Cue is automatically selected.

In rehearsal you can move from cue to cue by clicking on it with the mouse, or by using the up and down arrow buttons on the computer keyboard.

In the show, if you accidentally miss a Cue you will need to decide whether it is better to play it in late or not at all. If you decide not to play it, you will have to move the blue highlight to the next cue.

If you accidentally hit the space bar twice then Q-Lab will start the next cue on the list. If this is also a sound effect or a piece of music it will play out at the same time. To stop the cue that started too early, highlight that cue and press the **S** key. This will fade the cue out – if you want it to stop as quickly as possible press **S** twice. If you want to stop all cues press the 'esc' key (top left of the keyboard) and all cues will fade out. Again, if you want to stop everything immediately (without fading out) press 'esc' twice.

Pressing the 'Esc' key to stop playback is quick and easy and is the easiest way to stop cues in, say, the technical rehearsal when you are doing a 'Cue to Cue' run.

You may find the project is in 'Show' state when you open it. At the bottom left hand corner of the display you have buttons that toggle between 'Edit' and 'Show' state. In 'Show' state you cannot alter anything in the project.

The Sound Designer will have the show in 'Edit' to adjust levels, fade times etc. during the course of the technical rehearsal and these will be saved back to the session, so that the new levels are remembered next time the session is opened. It is good practice to have a copy of the Q-Lab project and the audio on a memory stick, which should stay in the theatre until the end of the run. Any changes to the project should also be saved onto the backup copy. 'Saving' will save to where you opened the project from (i.e. the desktop). The easiest way to put a copy of the updated backup on the memory stick is to select 'Bundle Workspace' from the 'File' menu and select the memory stick as the location. This puts a copy on the memory stick while retaining the original on the desktop. When all changes are completed the designer will put the show back into 'Show' state.

If, during the course of the run, you have to do any major changes to the project and the Sound Designer is not available it is best to do a 'Save As', with a new version number and a date that the changes were made, so that the original project is still available. You can only make changes if you are in 'Edit' mode.

The most likely change you may be asked to do is change the overall level of a Cue. The cue may be inside a 'Group' cue, so you will need to open the Group by clicking on the small white arrow to the left of the cue name. Click on the Audio Cue that needs adjusting and once it is highlighted blue there will be a number of Tabs available in the bottom of the window – 'Basics', 'Time and Loops', 'Devices and Levels' etc.
Select **'Device and Levels'**.

It is easiest to just alter the Master fader, which is at the far left of the faders. You can click and drag the fader up or down with the mouse, or click on the number under the fader and enter a new value – say '-5'. Hitting Return will confirm this.

You can adjust the level while the cue is playing, but you have to make sure you are adjusting the right cue. Once the cue has started playing the highlight will automatically move on to the following cue and you will be looking at the Level page for the next cue. Move the highlight back up to the cue that is currently playing by using the up and down buttons on the computer keyboard and then make the changes to the level.

If your Designer is using a number of outputs with different speakers around the auditorium you will need to adjust the level of the fader of the output that is feeding that speaker.

When you are happy with the changes make sure you 'Save'. A quick way to save is to press and hold 'Command' (⌘) and then S. If you are not using an Apple keyboard the key with the Windows logo replaces the 'Command' key.

You may be asked to change the length of a fade. Again, this is likely to be inside a 'Group' cue. Select the particular Fade cue you want to change. The time the fade takes is shown in the column headed 'Action'. Q-Lab sets a default time of 00:05:00, (5 seconds) for a fade, which is often too short. If you put your mouse over this number and double click you can enter a new value for the fade. Pressing Return confirms this. Save any changes.

A Group or a Cue can be moved up and down the list by clicking and dragging it, and releasing it when it is in the new position. If the Director decides to remove a Cue from the show the safest thing to do is just drag it to the end of the project, where it can be retrieved if necessary. If you decide to remove the Cue completely from the project, then highlight it, press and hold 'Command' and then hit 'Backspace'. Before you do, make sure you have done a 'Save As', just in case. If you want to Undo an action, press and hold 'Command' and then hit Z.

When you have finished and saved any changes use the button in the bottom left hand corner to put the project back into 'Show' mode.

You end your session by Quitting Q-Lab ('Command' and Q, or 'Quit QLab' in the 'QLab' menu at the top of the screen). Once Q-Lab has shut down you turn off the computer by selecting 'Shut Down' from the Apple menu on the desktop, and then clicking on 'OK' or press Return.

CG 22nd November 2018

15 – Appendix B – Standard plugging

The 'Jim Spall' Tower playback system consists of a Mac Mini computer and a PreSonus Studio 18 24 Audio interface that connects to the Sound System at the theatre.

Audio Interface: The power adapter plugs in at the far left of the back panel – the On/Off switch is to the far right on the front of the unit. The Audio Interface is connected to the Mac Mini with a USB lead. The Main Outputs (L/R) are connected via jack leads to the inputs of two channels of the mixer.

USB Midi Main Out 1 and 2

Computer: The mouse and keyboard are plugged into one of the USB sockets of the computer.

The Audio interface is connected to the lighting desk so that the Q-Lab operator has the option to trigger lighting cues as well. They are connected via a M-Audio Uno Midi/USB interface, which has a USB into the lighting desk and two Midi leads out of the Audio Interface. Full details are in Appendix D 'Triggering lighting cues from Q-Lab'.

Monitor: An IEC power cable (Kettle plug) plugs into the back of the monitor. A VGA cable goes from the back of the monitor to a box with a VGA socket that is plugged into the back of the computer via .

IEC Cable

VGA cable

16 – Appendix C – Recording Music and Effects

If the music and effects that you are using are available as downloads in one of the usual audio formats (.mpg, .wav, .aiff etc.), then all you need do is copy the files to the folder that you have set up for your show, and then select them as needed in Q-Lab.

If however, your sound does not exist in one these formats, you need to create a file that Q-Lab can recognise. To do this you need to have an audio recorder/editor installed on your computer. We usually use Audacity as it is pretty powerful, works on both PC and MAC, and is free for personal use.

http://www.audacityteam.org/

There are pretty good help guides on their web site to explain all the options, but for a simple stereo recording:

From a microphone, mixer, CD player etc. via the input jack or via a USB converter

- On a PC, select 'Windows Direct Sound' for the jack input, or 'MME' for the USB input. On a Mac, select 'Core Audio' on a Mac as the input. Then play the track. Click on the output scale at the top right of the Audacity screen. Green bars should start bouncing left and right to show that the audio is being received.
- Reset the audio to the beginning and press record on Audacity (red round button). Play your audio. You should now start seeing the waveform of the audio as it records. At the end press stop (yellow square button).
- You can now use Audacity's editor to edit or trim your track to length. But you can also do this in Q-Lab, so there's no need to be too precise.
- Select 'File', then 'Export Audio'. Choose a file name and file type (we'd recommend .wav) and save it to your Q-Lab folder for the show.
- You can save the raw information on Audacity in its own format, but there's usually not much point. So after exporting the file, just click on the cross by 'Audio Track' on the left hand side to kill the Audacity session.

From the internet via streaming audio (e.g. YouTube, Spotify)

On a PC

- In Audacity, choose 'Windows WASAPI' as the input. You may also need to select the '(loopback)' option in the Recording Device box, or it may be there by default anyway. WASAPI loopback has an advantage over stereo mix or similar inputs provided by the soundcard that the capture is entirely digital (rather than converting to analog for playback, then back to digital when Audacity receives it). Then play the track and proceed as in the previous section.

On a Mac

A little bit of work to set up on a Mac, but once it's installed it works much the same as on a PC.

- Unfortunately Macs do not have loopback option built in, so you need to download an add-on for Audacity to do this. Soundflower seems to work well – full details are here : http://manual.audacityteam.org/man/tutorial_recording_computer_playback_on_mac.html. Take care to install the correct version for your Operating System.
- Once Soundflower is installed, open Audacity. Choose 'Core Audio' as the input and 'Soundflower (2 channel)' as the Recording Device. Then play the track and proceed as before.

LT 19th December 2016

16 – Appendix C – Recording Music and effects (*Continued)*

Finding Sound Effects

There are a variety of online Sound Effects sites – some offering them for free, others where you need to purchase to download.

It probably goes without saying that the quality of the free sound effects is very variable. As mentioned previously it is better to used WAV files rather than mp3s or equivalent, as they are not digitally compressed. This does make them much larger, but they are usually (but not necessarily!) of better audio quality.

You have to be very objective in your selection of Sound Effects – does it tell the message you want it to tell? Is it of good enough quality? Will an audience be able to clearly identify it? It can take quite a long time to find the right sound effect, and the frustration involved can sometimes tempt you to make do with something that you know is not satisfactory. But the wrong sound effect can really distract an audience, completely undermining the effect that you want it to give. The absolutely perfect sound effect is apparently unnoticed by the audience – it is so appropriate that they hear it as part of the scene as a whole without even realising they are doing so.

Obviously, online resources are constantly changing, but here are a few free Sound effects sites:

BBC Sound effects:	http://bbcsfx.acropolis.org.uk Good quality files and a massive selection. Search facility is unsatisfactory; it is often easier to look in the 'Category' section rather than using a word search, but that may not always bring up all the possible options.
Free Fx.co:	freesfx.co.uk
Sound Bible:	soundbible.com
Free Sound:	freesound.org

To pay Sound effects sites:

A Sound effect.com:	asoundeffect.com Signing up to their newsletter gives access to a few free sound fx.
Boom Library:	boomlibrary.com they send out free fx every month.

Review of the top ten sites: https://www.online-tech-tips.com/computer-tips/free-sound-effects/

There is a large library of sound effects on the Tower computer.

17 – Appendix D – Triggering Lighting Cues from Q-Lab

A link is now in place between our Q-Lab system and the new lighting desk in the theatre that enables lighting cues to be operated from Q-Lab. You might want to do this just for a single cue (for example to trigger a very precise simultaneous lighting and sound cue), or you could run the whole show from Q-Lab, with just a single operator for both lighting and sound.

Setting up the Lighting Desk

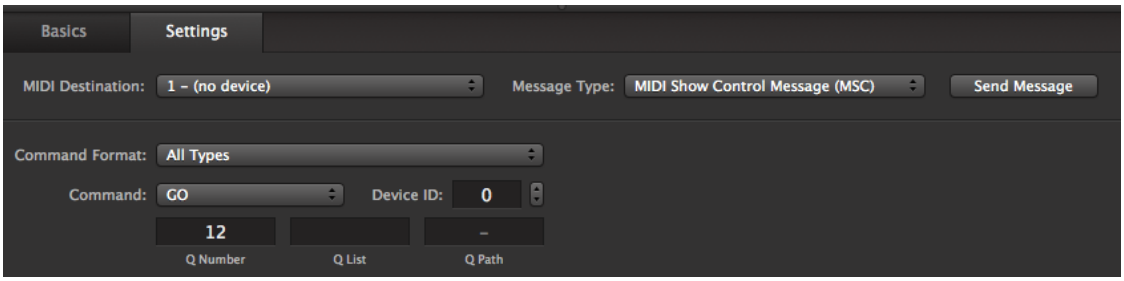
- Programme all lighting cues in the normal way.
- Go to 'Settings', then 'Show Control', then 'Midi'.
- Select 'Midi Receive' to 'Enable' – in two places.
- Check that 'Midi Transmit' is set to 'Disable', 'MSC Receive Channel' is set to '0' and 'MSC Transmit Channel' is set to '0'.

Setting up QLab

For each Lighting cue you want to add:

- Add a new Midi Cue. 

This can be a stand-alone cue, or part of a group, just like a sound cue.



- On the 'Settings' page of the Cue:

  Check that 'MIDI Destination' says 'Midi Interface'

  Change 'Message type' to 'Midi Show Control (MSC)'

  Check that 'Command Format' is 'All types', Command is 'Go' and Device ID is '0'.

  Enter the Lighting Cue number in 'Q Number'

- Trigger the Lighting Cue in the same way as a sound cue by pressing the space bar. The cue timings will be taken from those programmed into the lighting desk.

  NB If the bulk of the lighting cues are being operated by the Lighting operator and only a few are being triggered by Q-Lab, make sure the lighting operator is aware and has noted that they do not need to trigger these cues!

LT October 2018