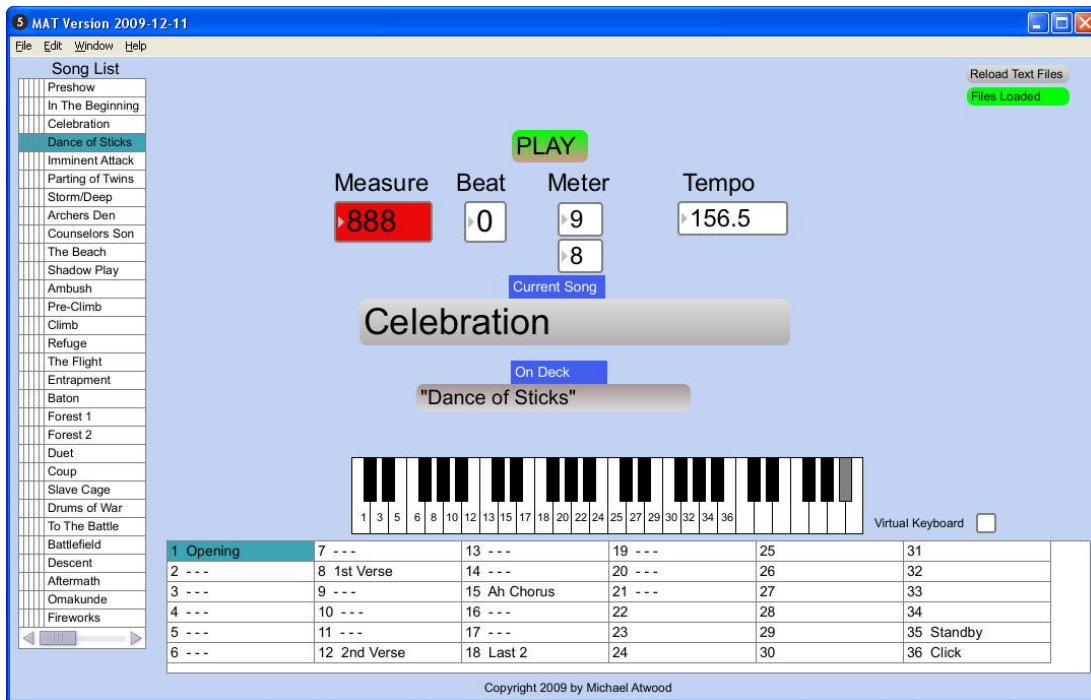


MAX-ABLETON TRANSLATOR (MAT)

Programming and User Guide



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 Live is a registered trademark of Ableton, Inc.

What is MAT[©]?

MAT[©] is a MIDI based helper applet which serves as an alternate Graphical User Interface (GUI) for Ableton Live (From here on, referred to as 'Live'). This GUI gives the user a simplified method of controlling an entire show with 'Live'. This interface allows the user access of up to 2,048 scenes or clips using only the keys on a 49 note midi controller.

It is assumed that the user or programmer is familiar with 'Live' programming. Therefore, when it comes to 'Live' programming, this manual will only cover that which is necessary to use it in conjunction with MAT. When programming an entire show using the MAT/'Live' combination, it's important to understand that 'Live' is doing almost all the work. MAT is just an interface which simplifies the triggering of that show using a keyboard controller. In fact MAT is just a user defined MIDI re-mapping program which maps MIDI channel/note combinations based on the currently selected song. MAT also provides necessary user feedback showing the operator song location and available 'Hotkey' options.

MAT resides on the same computer as 'Live'. MIDI communication between the two applications is handled using a third party application such as MIDI-Yoke, Loop-Be (Windows), or IAC (Macintosh).

1. Installation

Windows

MAT is a runtime executable file. It does not need to be installed like most applications. MAT can be launched by double clicking on the MAT Runtime.exe file. In addition to the executable file, the MAT Runtime folder should also contain the following dynamic link libraries.

maxcrt.dll

maxcrt_p.dll

msvcr70.dll

mxvcr71.dll

The MAT Runtime folder should also contain a subfolder called 'Support'. This is where MAT will look for all of the text files to include the 'songlist.txt' file and each of the songs 'hotkey labels' text files.

"To use a standalone on a computer that has not run the Max installer or the Max 5 installer you must first run the Microsoft Visual C++ 2008 Redistributable Package (x86)."

This previous excerpt from the Cycling 74 website is simply saying to go to the Cycling 74 website, download the Max 5 demo and install it. This will install all of the dependency files that the Max runtime will be looking for. Or, you can do it the hard way and go to the Microsoft website, download the Microsoft Visual C++ 2008 Redistributable Package (x86), and install that instead.

MIDI-Yoke

To facilitate MIDI communication between MAT and Live, you will need to install some sort of virtual MIDI cable applet such as MIDI-Yoke, Loop-Be, etc. I've always used MIDI-Yoke but any of them should work fine. You can go to their respective websites for download and installation instructions.

Macintosh

The Macintosh version of the MAT Runtime executable can also be launched just by double clicking on the executable file. The Macintosh package has a top level folder called 'Contents'. The 'Contents' folder contains four subfolders called Frameworks, MacOS, Resources and Support. The executable file resides in the MacOS folder. The 'songlist.txt' file and all of your 'Hotkey Labels' text files should be placed in the 'Support' folder. MAT will also look for these text files in subfolders of the 'Support' folder.

Setting up MIDI Ports in MAT

The MIDI controller sends MIDI data to MAT. MAT remaps this data according to your programming and sends it to 'Live' via a virtual MIDI cable such as MIDI Yoke or IAC. 'Live' then sends beat and bar information back to MAT via a second virtual MIDI port or cable. 'Live' can also send MIDI information to external devices such as a drum machine, processor, etc.

In the 'File' menu, Click on 'MIDI Setup... ' to bring up the MIDI Setup options.

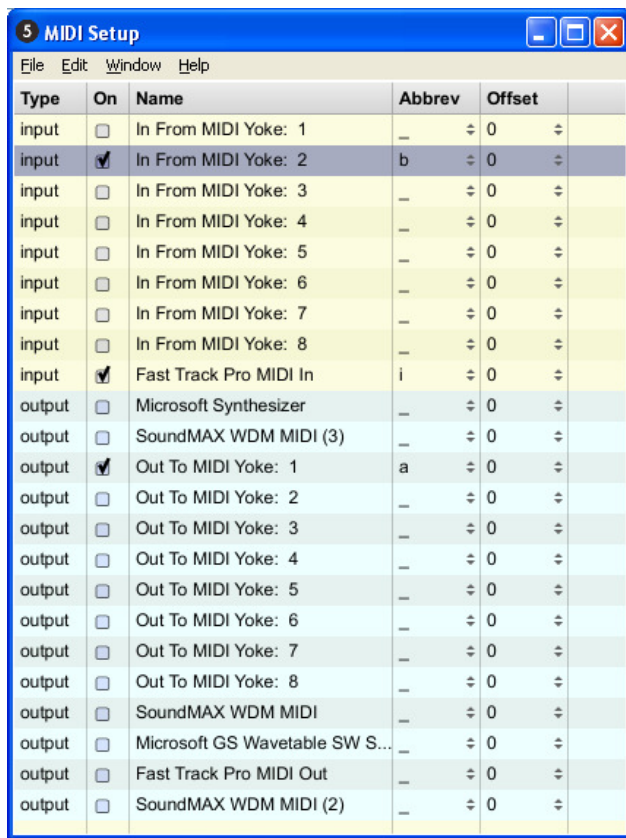


Figure 1.1

Enable one of your virtual MIDI Output ports (In this case MIDI-Yoke Output 1) and assign it to the abbreviation of 'a'. MAT will look for a MIDI port with the abbreviation of 'a' for sending remote control data to 'Live'.

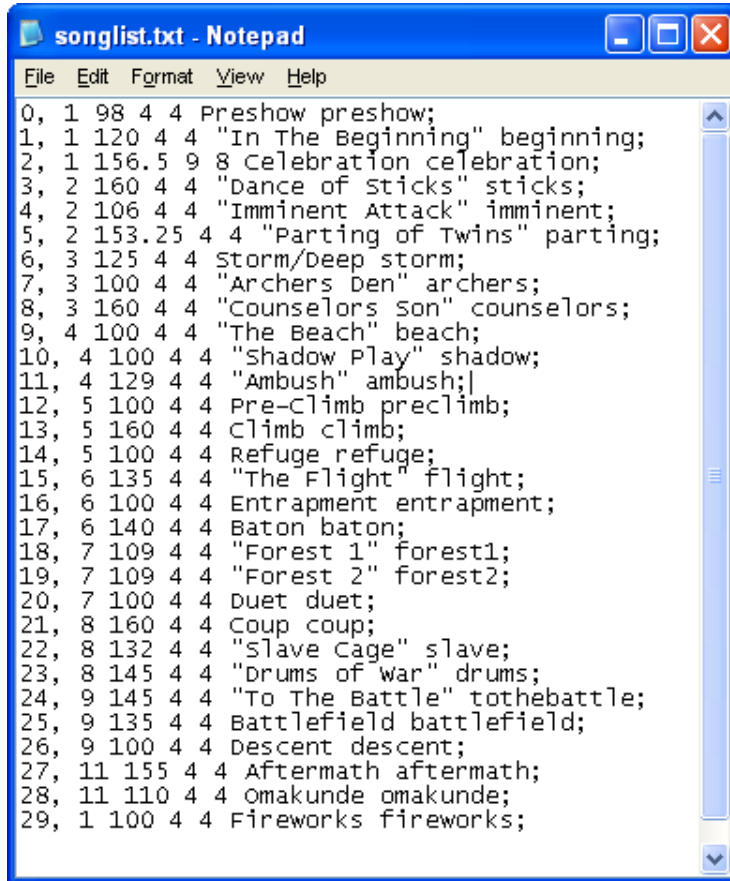
Enable one of your virtual MIDI Input ports (In this case 'In From MIDI Yoke:2') and assign it to the abbreviation of 'b'. MAT will look for MIDI data coming back from 'Live' on the virtual MIDI port with a 'b' abbreviation.

Enable the MIDI input port that your keyboard controller is assigned to and assign it to the abbreviation of 'i'. MAT will look for incoming MIDI control data on the port with an 'i' abbreviation.

2. Programming MAT

All programming for MAT is accomplished via the use of specially formatted text files. These text files can be created and edited using any text editor such as Word Pad or Notepad.

The 'songlist.txt' file



```
songlist.txt - Notepad
File Edit Format View Help
0, 1 98 4 4 Preshow preshow;
1, 1 120 4 4 "In The Beginning" beginning;
2, 1 156.5 9 8 Celebration celebration;
3, 2 160 4 4 "Dance of sticks" sticks;
4, 2 106 4 4 "Imminent Attack" imminent;
5, 2 153.25 4 4 "Parting of Twins" parting;
6, 3 125 4 4 Storm/Deep storm;
7, 3 100 4 4 "Archers Den" archers;
8, 3 160 4 4 "Counselors son" counselors;
9, 4 100 4 4 "The Beach" beach;
10, 4 100 4 4 "shadow Play" shadow;
11, 4 129 4 4 "Ambush" ambush;
12, 5 100 4 4 Pre-Climb preclimb;
13, 5 160 4 4 Climb climb;
14, 5 100 4 4 Refuge refuge;
15, 6 135 4 4 "The Flight" flight;
16, 6 100 4 4 Entrapment entrapment;
17, 6 140 4 4 Baton baton;
18, 7 109 4 4 "Forest 1" forest1;
19, 7 109 4 4 "Forest 2" forest2;
20, 7 100 4 4 Duet duet;
21, 8 160 4 4 Coup coup;
22, 8 132 4 4 "slave Cage" slave;
23, 8 145 4 4 "Drums of war" drums;
24, 9 145 4 4 "To The Battle" tothebattle;
25, 9 135 4 4 Battlefield battlefield;
26, 9 100 4 4 Descent descent;
27, 11 155 4 4 Aftermath aftermath;
28, 11 110 4 4 Omakunde omakunde;
29, 1 100 4 4 Fireworks fireworks;
```

Upon opening, MAT looks for a file called 'songlist.txt'. MAT looks for this file in a folder called 'Support' which is located in the same folder as the MAT runtime file. MAT will also look for this file in any sub folders of the 'Support' folder so it is important to ensure that there are no duplicate files with the same name. This file provides information such as base midi channel, tempo, meter, and song title.

Figure 2.1

Each line in the songlist.txt file represents a song and has the following entries. (See figure 2.1)

The first line entry is a sequential index number starting with '0'. (Be careful to note the '0' offset. Song 1 is actually index 0, song 2 is index 1, etc. This can lead to confusion when counting songs)

The second line entry is the base midi channel for that song.

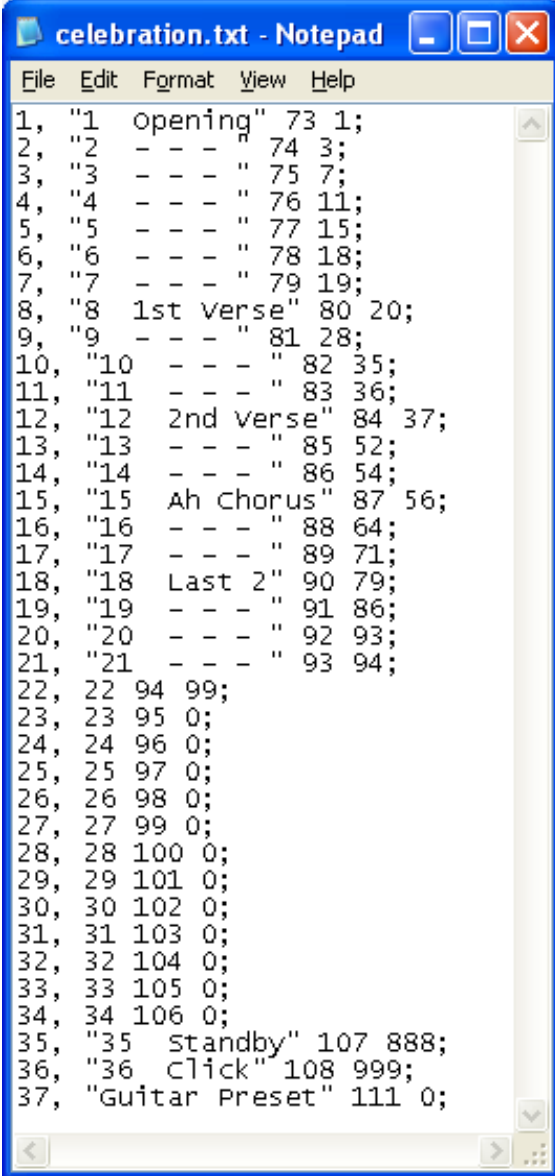
The third line entry represents the songs tempo. (Please note that this number is for display purposes only. This number will show in the GUI but if the audio clips or samples being played are of a different tempo, this displayed number will not change)

The fourth and fifth line entries show meter. (Once again, this is for display purposes only. Complex meter and meter changes can be programmed into 'Live' but they will not affect this number being displayed. This is just for general reference only. Please note that the numerator and denominator are separated by a space. This syntax is important.)

The sixth line entry represents the 'human readable' or 'friendly' song title that will be displayed in the title bar of MAT. (Please note the special syntax.. If there are spaces in the title, the whole entry must be encased in quotes. If there are no spaces in the title, no quotes are necessary.)

The seventh and final line entry is the file name of that song's 'Hot Key Labels' file. Please note that this file name cannot contain any spaces or special characters. (Standard Windows file naming conventions do apply.) Also note that each line must end with a semi-colon.

Hotkey Labels



```
1, "1 Opening" 73 1;  
2, "2 - - -" 74 3;  
3, "3 - - -" 75 7;  
4, "4 - - -" 76 11;  
5, "5 - - -" 77 15;  
6, "6 - - -" 78 18;  
7, "7 - - -" 79 19;  
8, "8 1st Verse" 80 20;  
9, "9 - - -" 81 28;  
10, "10 - - -" 82 35;  
11, "11 - - -" 83 36;  
12, "12 2nd Verse" 84 37;  
13, "13 - - -" 85 52;  
14, "14 - - -" 86 54;  
15, "15 Ah Chorus" 87 56;  
16, "16 - - -" 88 64;  
17, "17 - - -" 89 71;  
18, "18 Last 2" 90 79;  
19, "19 - - -" 91 86;  
20, "20 - - -" 92 93;  
21, "21 - - -" 93 94;  
22, 22 94 99;  
23, 23 95 0;  
24, 24 96 0;  
25, 25 97 0;  
26, 26 98 0;  
27, 27 99 0;  
28, 28 100 0;  
29, 29 101 0;  
30, 30 102 0;  
31, 31 103 0;  
32, 32 104 0;  
33, 33 105 0;  
34, 34 106 0;  
35, "35 standby" 107 888;  
36, "36 Click" 108 999;  
37, "Guitar Preset" 111 0;
```

Each song uses a file to define its hotkey parameters to include each hotkey's name, the midi note number that will be triggered by that hotkey, and its corresponding bar number. Figure 2.2 uses the song "Celebration" which you will notice, is the third song in the 'songlist.txt' file

Figure 2.2

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The first entry is a sequential index number starting with '1'. (Unlike the songlist.txt file, these files do not have the '0' offset)

The second entry is the name of the hotkey which will be displayed in the hotkey cells area of the MAT GUI.. Please note that each cell will display exactly what is entered, therefore, if you want the hotkey number to be displayed, it must be included. Once again, if spaces are used, the name must be encased in quotes.

The third entry represents the midi note number that will be triggered by that hotkey. Note that the base MIDI channel number is established in the songlist.txt file. For example, the base MIDI channel number for 'Celebration' in the songlist.txt file is '1'. Therefore, if 'Celebration' is the selected song, and hotkey #1 is played, it will send a MIDI channel 1/MIDI Note #73 combination. Most songs will probably not use all 36 hotkeys. It is a good idea to set unused hotkey entries to '0'. This way if an unused hotkey is accidentally hit it will not send erroneous MIDI data to 'Live'.

The fourth entry represents the bar number of the corresponding section.

There are some special situations that pertain to KA's customization of MAT that need to be addressed. In order to maintain some degree of familiarity with RMS Sinfonia, which was used previously to MAT, much of it's look, feel and functionality has been mimicked in MAT. Note in our example that hotkeys 35 and 36 are named 'Standby' and 'Click' respectively. KA's implementation of MAT has been customized so that hotkeys 35 and 36 copy the functionality of the dedicated 'Standby' and 'Click' keys.

Also, note that hotkey numbers 35 and 36 have bar numbers of '888' and '999.' This is also designed to mimick Sinfonia behavior.

Hotkey number 37 is also a special 'hotkey'. Even though there is no physical hotkey #37, this entry defines a note number that is automatically sent upon selection of a song. This can be used to trigger a 'Live' clip or scene that sends program change information to any MIDI devices, such as a keyboard or processor.

Understanding the MIDI Channel/Note Re-mapping Scheme

In general, MAT's main purpose is to automatically re-map a 49 key MIDI controller's notes to a different channel/note # combination based on the selected song. Then it must display this information to the user in a logical manner. This gives the user the ability to access 16 channels x 128 notes, or 2048 unique combinations from a single 49 key MIDI controller through the use of the keyboard only. (No buttons or knobs on the controller are used.)

At first glance, the logic behind this may be confusing but there is a method to this madness.

MAT takes the 128 notes per MIDI channel and divides them up across three songs in the following manner.

Song 1 – Controller MIDI Notes 1-36 are mapped to note #'s 1-36

Song 2 – Controller MIDI Notes 1-36 are mapped to note #'s 37-72

Song 3 – Controller MIDI Notes 1-36 are mapped to note #'s 73-108

Song 1 – MIDI Note # 109 is used to trigger a scene or clip upon song selection for the purpose of sending program changes or presets to external devices.

Song 2 – MIDI Note # 110 is used to trigger a scene or clip upon song selection for the purpose of sending program changes or presets to external devices.

Song 3 – MIDI Note # 111 is used to trigger a scene or clip upon song selection for the purpose of sending program changes or presets to external devices.

This pattern can be repeated across all 16 MIDI channels giving a theoretical limit of 48 possible songs.

3. Programming ‘Live’ for ‘MAT’

Setting MIDI Preferences in ‘Live’

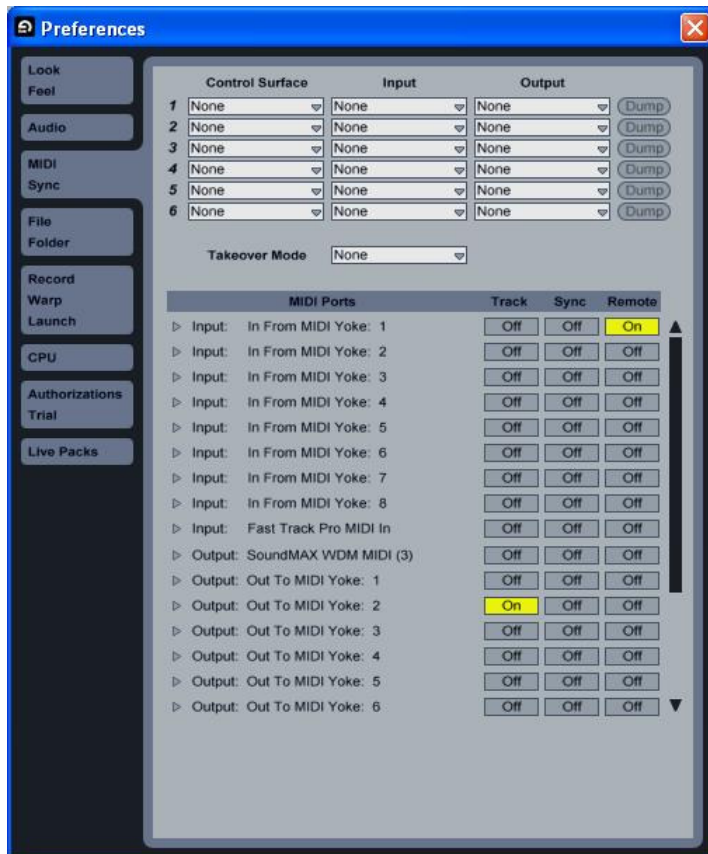


Figure 3.1

In the ‘Live’ MIDI Preferences panel, enable ‘In From MIDI Yoke 1’ (or the corresponding MAT MIDI Out port assigned to abbreviation ‘a’) to receive ‘Remote’ commands.

Enable ‘Out to MIDI Yoke 2’ (or the corresponding MAT MIDI In port assigned to abbreviation ‘b’) to send ‘Track’ commands.

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The 'Live' 'Beats+Bars' Track

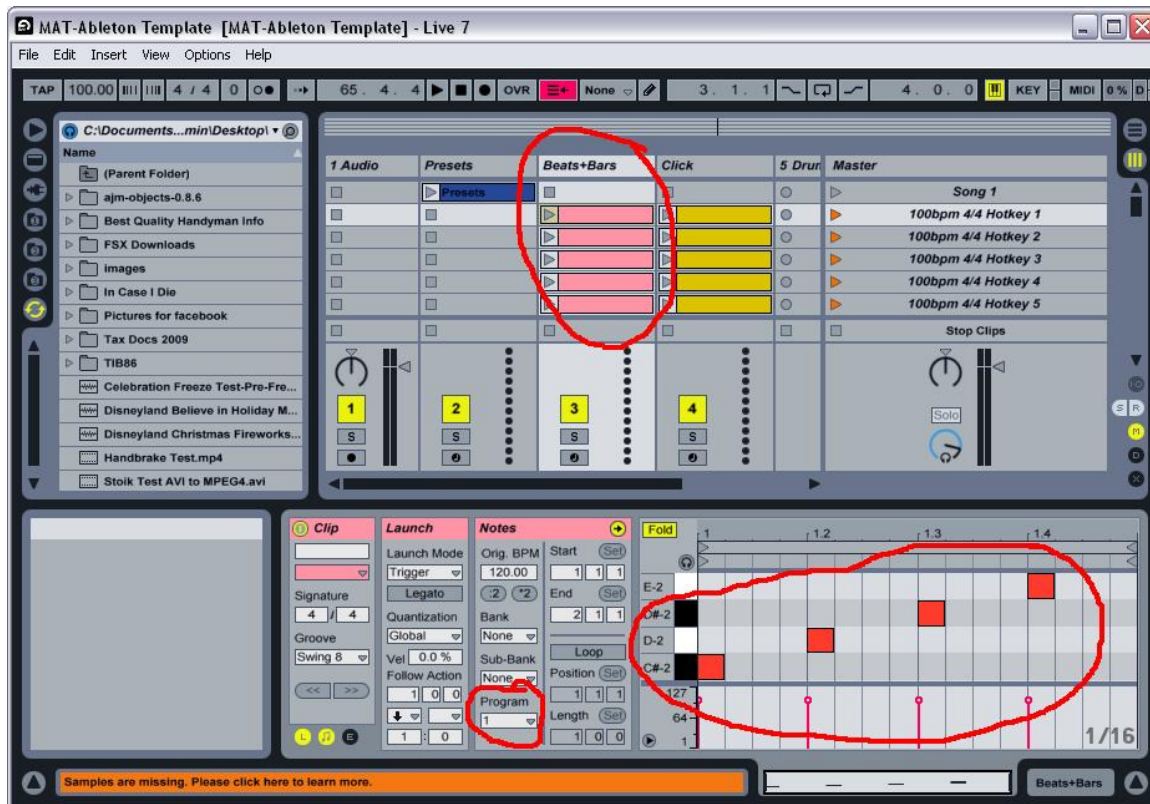


Figure 3.2

MAT depends on a track in 'Live' to send it song location information to display in the 'Measure' and 'Bar' windows. The Output of this track must be assigned to MIDI-Yoke 2 or the port which you assigned to the 'b' abbreviation in the MAT MIDI Setup page. MAT interprets MIDI Note #1 (C#-2) as 'Beat #1', MIDI Note#2 as 'Beat #2, etc.

When a hotkey is pressed, MAT will start playing and display the measure number assigned to that hotkey in the songs 'hotkey labels' text file. Each time MAT receives a MIDI note #1 on the 'Beats+Bars' track, it will increment the 'Measure' display by 1.

MAT also uses the value in the 'Program Change' window to know which Hotkey to highlight in the hotkey display area.

Measure Display Override for Loops

If 'Live' is programmed to loop a particular scene it needs a way to tell MAT to override the measure incrementing. You can use MIDI continuous controller #1 on the 'Beats+Bars' track to accomplish this. If you place a MIDI CC#1 in the track, MAT will use the value of the continuous controller to update the 'measure' display.

However there are some considerations that must be observed. Since we are dealing with a continuous controller which in 'Live', can only be drawn as a curve, we need to observe the following. In order to display correctly the value must immediately spike from '0' to the desired value, then drop immediately back to '0'. This is based on 'Live's' native MIDI resolution which is 96 PPQN (Pulses per quarter note). If your curve drops back to '0' over more than a 1/96th of a quarter note duration, 'Live' will send those trailing values also, resulting in strange numbers being displayed as the current measure.

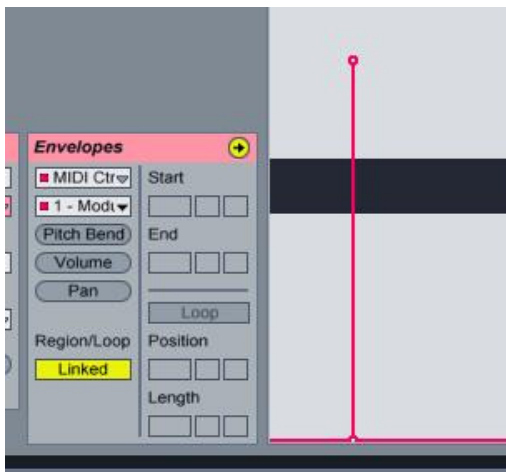


Figure 3.3 – "Correct"

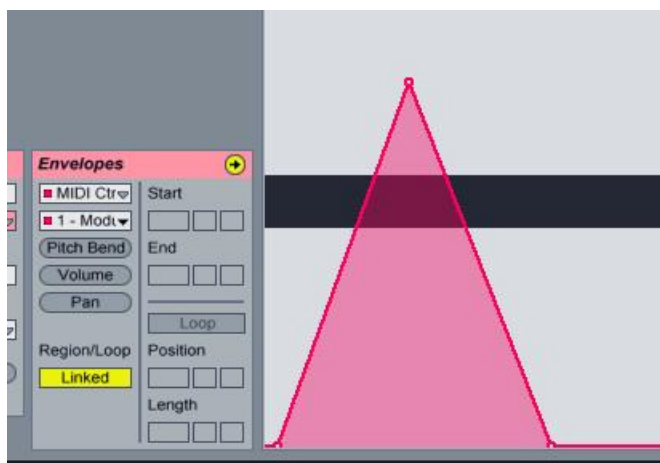


Figure 3.4 – “Incorrect”

Also due to the 127 value limitation of continuous controllers, there is a limit of 127 measure display override values. This will hopefully be resolved in a future release.

Mapping the 'STOP' command

Whenever the 'Stop' key is pressed, MAT will transmit a Channel 1 – MIDI Note #127 (G8) to the MIDI OUT port which is assigned to the 'a' abbreviation. Therefore, this particular channel/note combination must be mapped in 'Live' to the 'Stop' command. If everything is set up correctly, this can be achieved by putting 'Live' into MIDI Mapping Mode and pressing the 'Stop' key.

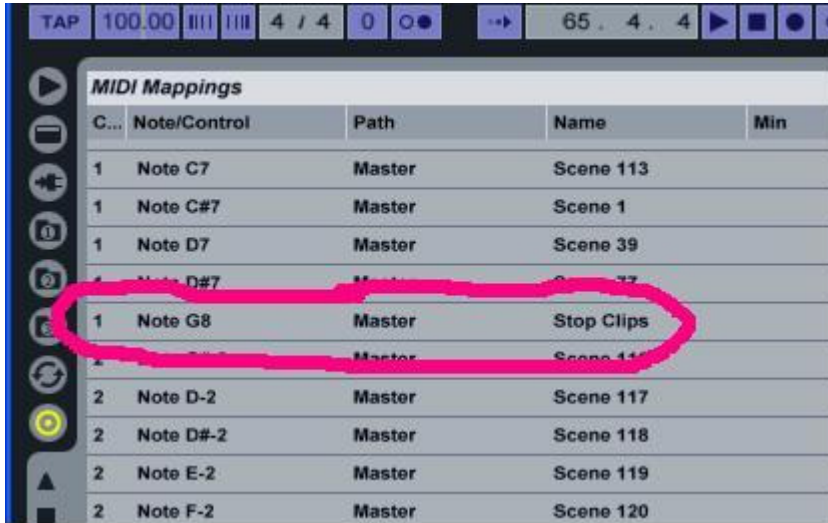


Figure 3.5

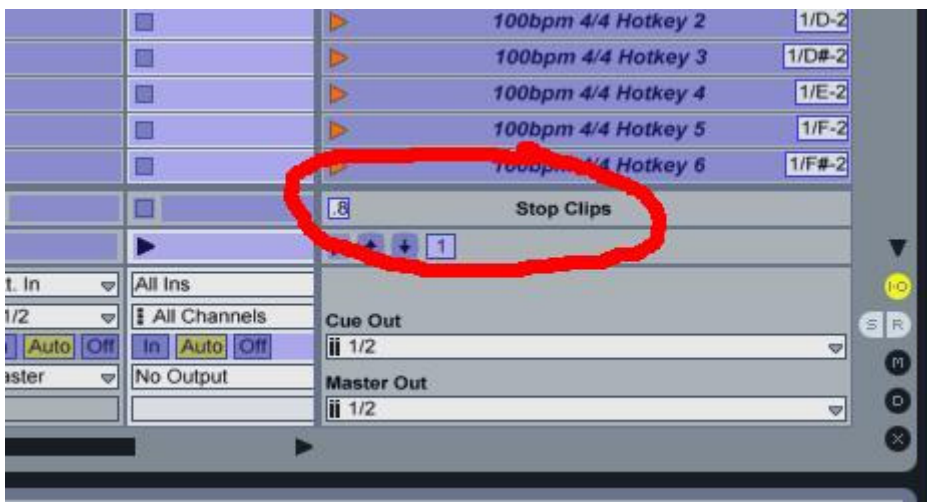


Figure 3.6

If using the provided 'Live' template, this mapping has already been done for you.

The 'Standby' and 'Click' key functions

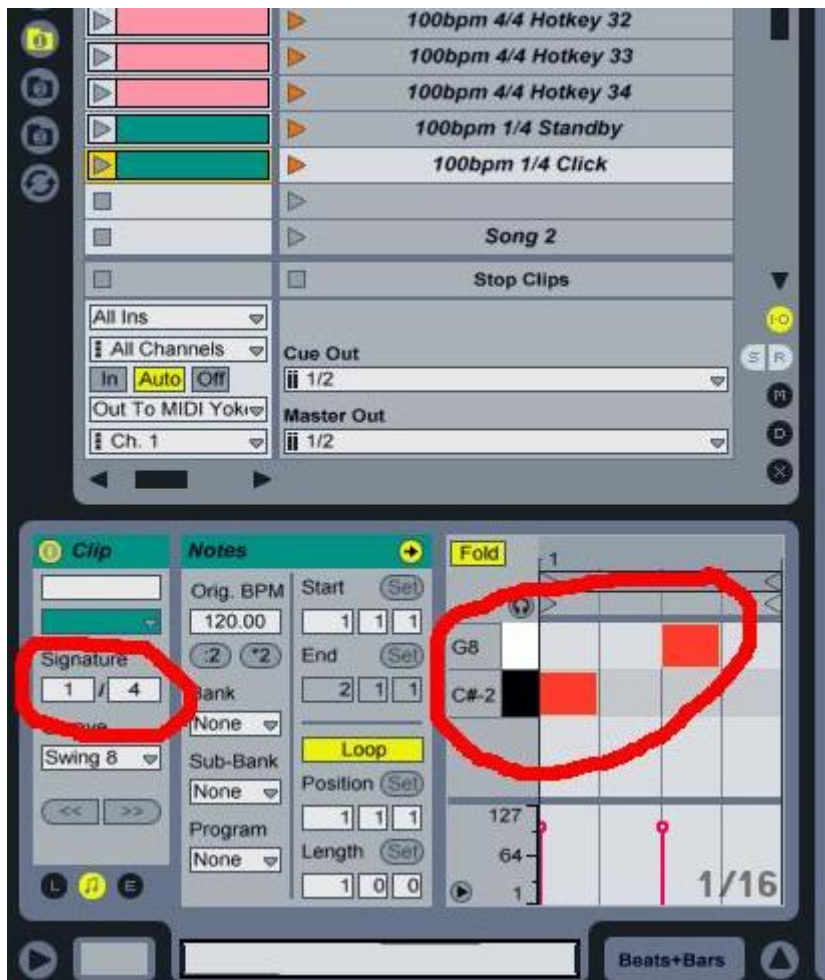


Figure 3.7

The purpose of the 'Standby' and 'Click' functions keys are to provide starting tempo reference to the musicians. When pressing the 'Standby' key, the 'Beat' window will flash a number '1' at the songs tempo, providing a visual reference only. When the 'Click' key is pressed, the 'Beat' window will flash a number '1' at tempo and a click will be generated, giving visual and an audio reference.

The 'Live' 'Standby' and 'Click' scenes provided in the included template are programmed as single quarter note loops instead of full 4 beat measures. This is intentional as it does not force the operator to wait till after the '4' count to go into any song. This is of course, a personal preference and can be programmed to fit your particular preferences.

The above clip from the 'Beats+Bars' track shows the information being fed back to MAT in a typical 'Standby' or 'Click' scene. Notice that the quarter note measure is sub-divided into two 1/8 notes. The first note is a MIDI Note #1 (C# -2). This is followed by a MIDI Note #127 (G8). The purpose of this second

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(very high) note is to give the 'Beat' window its flashing characteristic. Since the 'Beat' window can only display one digit, any two digit note number (or higher) will force it to display an ellipsis on the 'up' beat.

4. Using MAT

Assuming that 'Live' and MAT have been programmed, it's time to launch them.

Ensure that all of your MIDI port assignments are correct. (This was covered earlier) If you need to make MIDI port assignment changes, you must restart MAT in order for those changes to take affect.

The following diagram shows the function of each key on a typical 49 key controller.

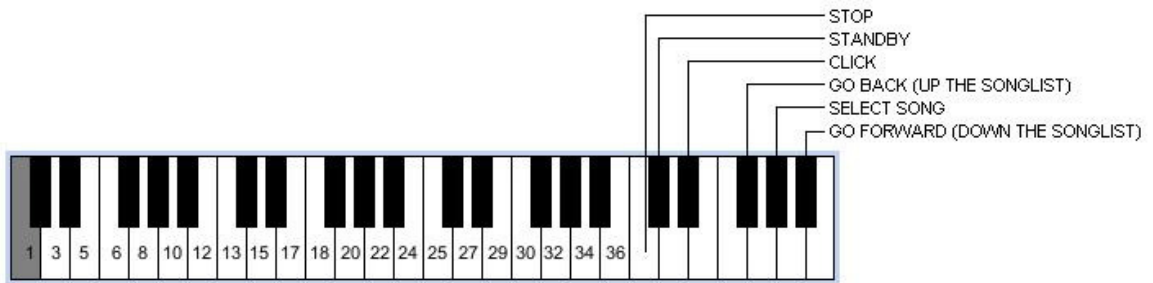


Figure 4.1

It might be helpful to label the key functions as in this picture.

(This photo shows the 'E' key labeled as 'GO' and the highest 'C' key labeled as 'Rewind'. These keys serve no function in MAT and can be ignored. This particular keyboard just happens to also be used with other software of which this labeling pertains to.)



Figure 4.2

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Figure 4.3

Or like this....

You can use the virtual keyboard located above the Hot Key Labels display area by clicking on the 'Virtual Keyboard' check box. This will allow you to use a mouse to control MAT. This can be useful for 'off-line' programming or testing when you are not connected to a physical keyboard controller.

5. Troubleshooting

MAT doesn't seem to be sending any data to 'Live'.

Check MIDI Port settings in the 'File' Menu/MIDI Setup. Ensure that the proper abbreviations have been used.

MAT isn't working and the 'Hotkey Labels Display' area is showing weird things.(Such as in this illustration)

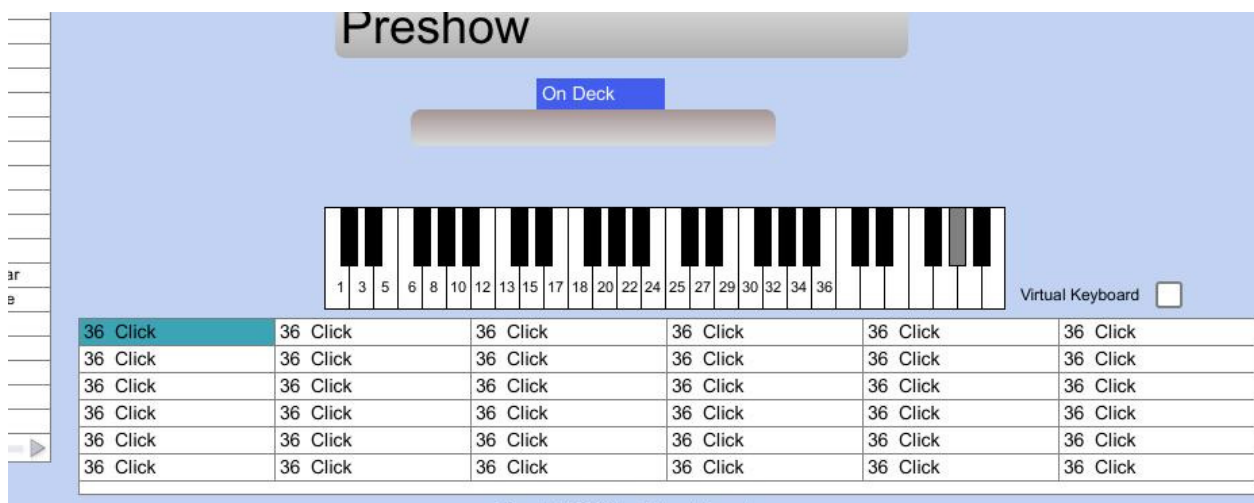


Figure 5.1

There is a problem with that song's text file. Check for things such as missing quotes or too many quotes. Check for syntax problems such as missing commas or semi-colon's. In the above example, the song's text file is missing a quotation mark. (I have spent hours looking at text files that I swore were syntactically correct. Then, looking again with a 'fresh' pair of eyes, found the problem immediately)