ChristmasExpo

The Instant Sequence

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- Isn't there anything faster than a microwave?

-Homer Simpson

Instant Sequence vs. Handcrafted Sequence

- Oven baked home cooked meals will always the beat a frozen dinner heated up in a microwave. But that microwave meatloaf can still be pretty tasty.

- So it is with light show sequences. Handcrafted sequences will always be the best. But Instant Sequences are cool too! And Instant Sequences will contain some effects that are near impossible to do by hand.

Some Background

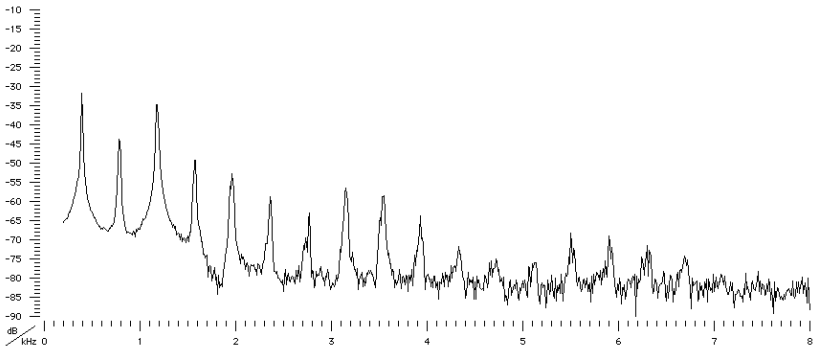
- Instant Sequences rely on timing marks

- Timing marks are created based on the frequency spectrum of the song.

- What is a frequency spectrum? Musical instruments create notes. Each note has a different frequency. The computer can analyze the sound and record how strong the sound is at different frequencies

- Let's take a look at what flute note looks like

A Flute Note



- The highest peak is the flute G4 note but as you can see there are many other peaks. These are the harmonics and what make the flute sound like a flute.

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The Amazing Human Ear

- The harmonics from a single note can cause a timing mark to be produced not only at the note, but at many of the stronger harmonics.
- Also, the human ear and human brain has an amazing ability to “pick out” sounds from a mix of many sounds. The computer does not have this ability, so many of the notes that stand out to a human get covered up by background sounds.
- Despite these limitations, Instant Sequences can be very cool, lets try one.

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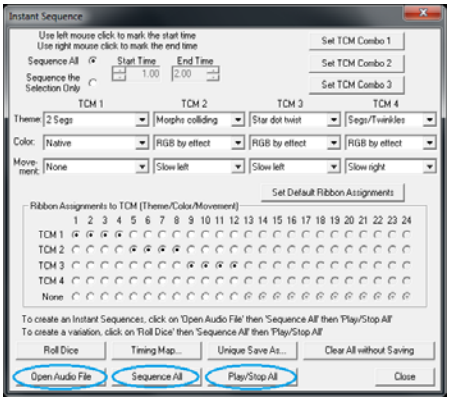
Create an Instant Sequence



- Tools / Instant Sequence…
- Click on Open Audio File and open the file JoyToTheWorld_45sec.wav
- Click on Sequence All
- Click on Play/Stop All
- That's it, you created and played an Instant Sequence!

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Create another Scene

- Erase the pixels in the pixel grid using the right mouse button
- Draw some new pixels in the pixel grid using the left mouse button
- Select at where the next note is on the time scale.
- Set the start color to green and leave the end color black
- Click on the Modify button in the Scene Setup box
- Another scene object appears in time layer 1
- The screen should look like the next slide

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Roll Dice

- Click on Roll Dice, Sequence All, Play/Stop All
- You can do this over and over and see different variations. But what did Roll Dice do?
- Roll Dice randomly selects combinations of Theme, Color, and Movement.

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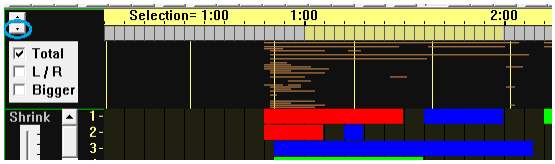
Themes

- There are 40 different themes.
- A theme is really a clipboard file that contains one or more scenes and/or morphs.
- Edit / Load/Save Clipboard.. will bring up the Clipboard dialog box and you can see the Theme files.
- The effects in the theme are placed at every timing mark
- Click on the down arrow in the upper left of the screen to see all the timing marks



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Color

- The Color can be Native, RGB by effect, RGB by group, Color Wheel by effect and Color Wheel by group
  - Native means display the theme in whatever color it was created with. Most of the themes were created red.
  - RGB means rotate through Red, Green, and Blue
  - Color Wheel means rotate through 12 different colors in the Color Wheel
  - By Effect means apply the color to each effect as it is encountered in the theme
  - By Group means apply the color to all effects in the theme

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Movement

- Movement can be None, Slow right, Slow left, Fast right, Fast left, Pass by, and Random.
  - None means the theme does not move
  - Slow right and Slow left will move the theme on the ribbon by one pixel each time the effect is applied.
  - Fast right and Fast left will move the theme on the ribbon by four pixels each time the effect is applied
  - For themes with morphs in them, the morph has a starting point and ending point. Pass by will move only the starting point and the starting point will pass by the ending point periodically.
  - Random moves the start point and end point to random locations.
- Special cases
  - Effects that go full length of the ribbon merely change direction when they are moved.

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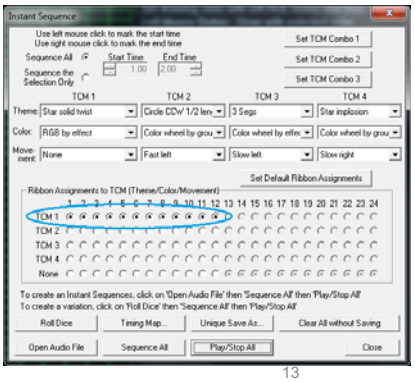
Where will a theme be applied?

- Ribbon Assignments to TCM (Theme/Color/Movement) shows where each TCM combination will be applied.
- The default is to apply TCM 1 to the left ribbons, TCM 2 to the middle ribbons, and TCM 3 to the right ribbons.
- Click on Sequence All and Play/Stop All and you will see that TCM 1 gets applied to all of the ribbons.



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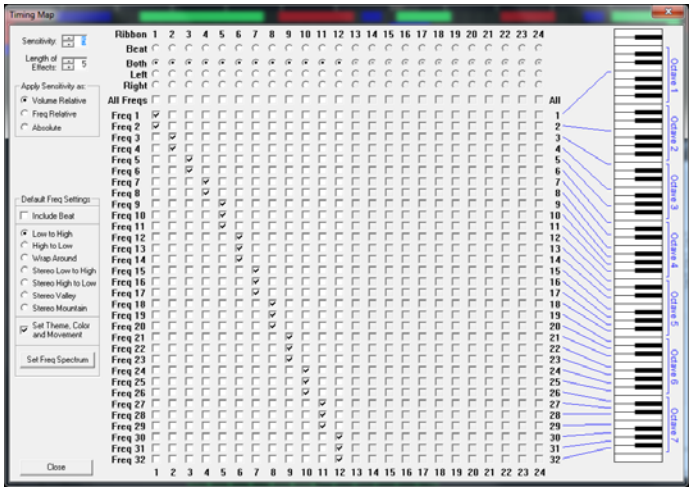
Timing Map

- Click on the Timing Map button



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Frequency Mapping

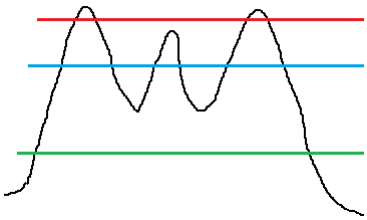
- As shown with the Piano keyboard in the dialog box, the first freq maps to several notes. This means that any of the low notes in that range will trigger freq1
- The second freq also maps to several notes, but as the freq's get higher, the range they map to get more narrow so that the higher freq's each map to just one note
- The default is to map the freq's from low to high across the ribbons

Sensitivity and Length of Effects

- Sensitivity defaults to 5. Set it to 8 and then click on Sequence All in the Instant Sequence dialog box.
- Play the sequence and you will see that many more effects got generated.
- Set Sensitivity to 2 and click on Sequence All. Play the sequence and very few effects are seen.
- Set Sensitivity back to 5 and set Length of Effects to 1. Play the sequence and each effect will be short. This gives a more active sequence.
- Set Length of Effects to 10. Play the sequence and each effect will be longer. This gives a slower looking, more "laid back" sequence.

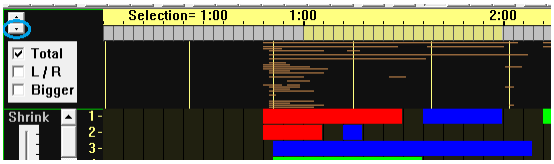
Frequency Sample

- Sensitivity and Length of Effects control how easily the start of the timing mark gets triggered
- The green line produces one long timing mark
- The blue line produces three short timing marks
- The red line produces two short timing marks



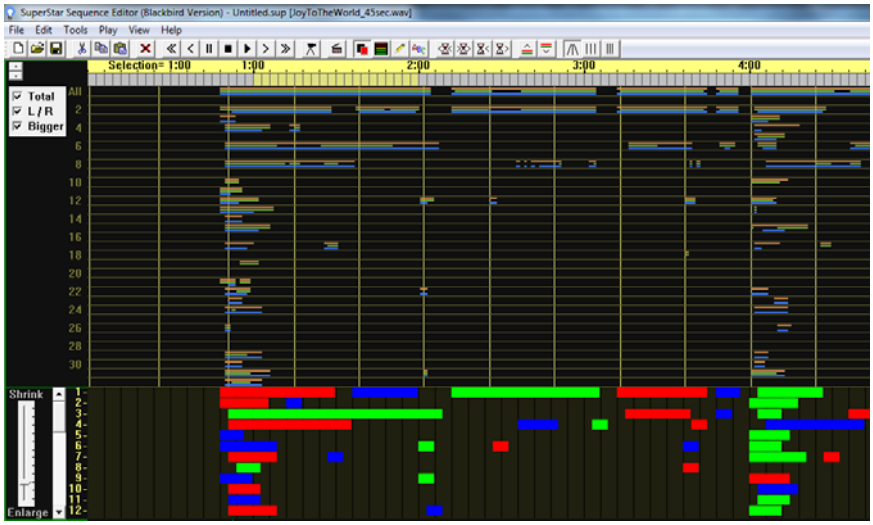
Total, Left and Right Timing Marks

- Click on the down in the upper left of the scre



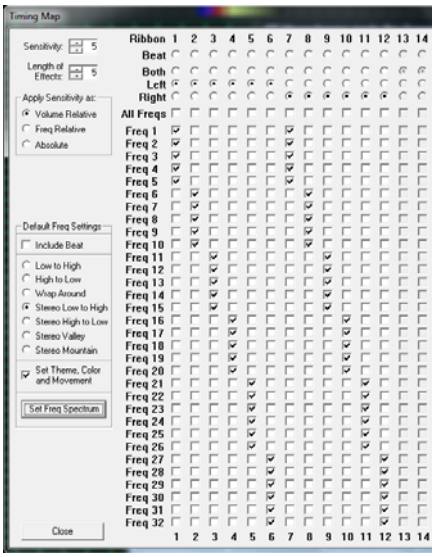
- You are currently seeing the Total timing marks which are a combination of both the left and right stereo channels. Click on the check box by L / R and Bigger and you will see all of the timing marks. The next slide shows what you should see. See how the effects get created wherever there are timing marks.

Timing Marks and Effects



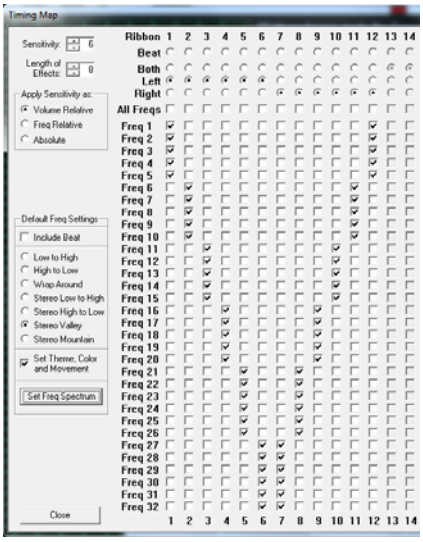
Stereo Low to High

- In the Default Freq Settings section click on Stereo Low to High then click on the Set Freq Spectrum button
- In the Instant Sequence dialog box click on Sequence All and play it



Stereo Valley

- Try selecting Stereo Valley then click on Set Freq Spectrum
- Click on Sequence All and play it.



Apply Sensitivity as:

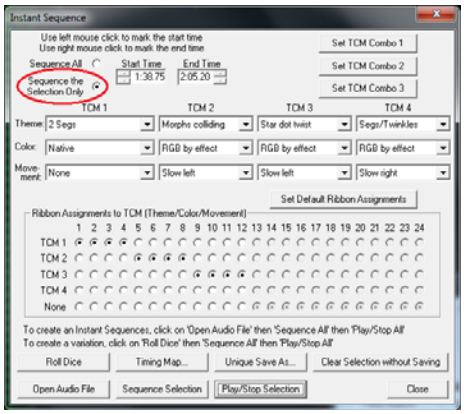
- Volume Relative is the default. This means use the sensitivity setting relative to the overall volume of the song. This makes it so that timing marks get generated even during the more quiet parts of the song.
- Freq Relative means use the sensitivity setting relative to the volume of each freq. This brings out the more quiet freqs and makes them nearly as active as the louder freqs.
- Absolute means use the sensitivity setting just as it is. This makes the louder parts of the song more active than the quiet parts of the song.

Tips

- Mannheim Steamroller's "Joy to the World" works well because the notes at the different frequencies are distinct and the volume of the song is consistent. Judy Pancoast's "The House On Christmas Street" works well for the same reasons.
- TSO's "Wizards in Winter" looks cool, but doesn't work as well during the active parts because there are so many notes going on it tends to look jumbled.
- Trying different sensitivity levels and experimenting with the "Apply Sensitivity as" settings can improve the sequence.

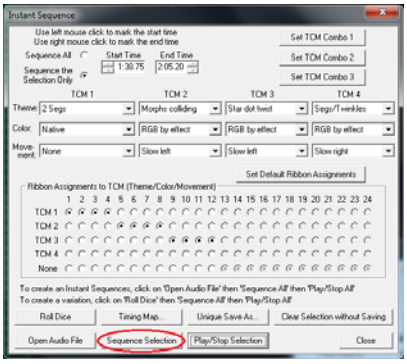
Sequencing the Selection Only

- You can give more variation to your Instant Sequence by applying different Theme, color and movement variations to different sections of the song.



Mark beginning, then the end

- After selecting Sequence the Selection Only, mark the beginning of your selection with a left mouse click. Scroll to the end of the selection with a right mouse click.
- Click on the Sequence Selection button



Sequence each section

- You can manually select different Theme, color and movement variations, or you can just click on Roll Dice to get random combinations. Then apply them one at a time to different sections of the song.

- Go to http://www.youtube.com/watch?v=3OnXVXNQV_Y and you can see a sequence to “The House on Christmas Street” using this technique.

Final Touchup

- The effects that are created by the Instant Sequence feature can be modified or copy – pasted.
- The last several seconds of “The House on Christmas Street” was created manually by copy – pasting some existing effect objects.

Let’s Have Some Fun

- Load in the audio file of your choice and try some Instant Sequences.
- Mannheim Steamroller’s “I Saw Three Ships” is a fun one to use. Stereo Valley is a good one to try. The different instruments can be seen in the left and right channels in this song.
- Manheim Steamroller’s “Deck the Halls” is another good one to use with the different Stereo freq settings.

What we Learned

- Instant Sequences will never replace handcrafted manual sequences, but they are really cool!
- Instant Sequences are created using timing marks. The timing marks are automatically created when you click on the Sequence All button. Or you can create the timing marks by selecting Create Timings… in the Tools menu.
- You can set Sensitivity to control how many effect objects get created
- The Timing Map is used to match freqs to ribbons
- Theme, color, and movement variations can be set manually are by clicking on Roll Dice