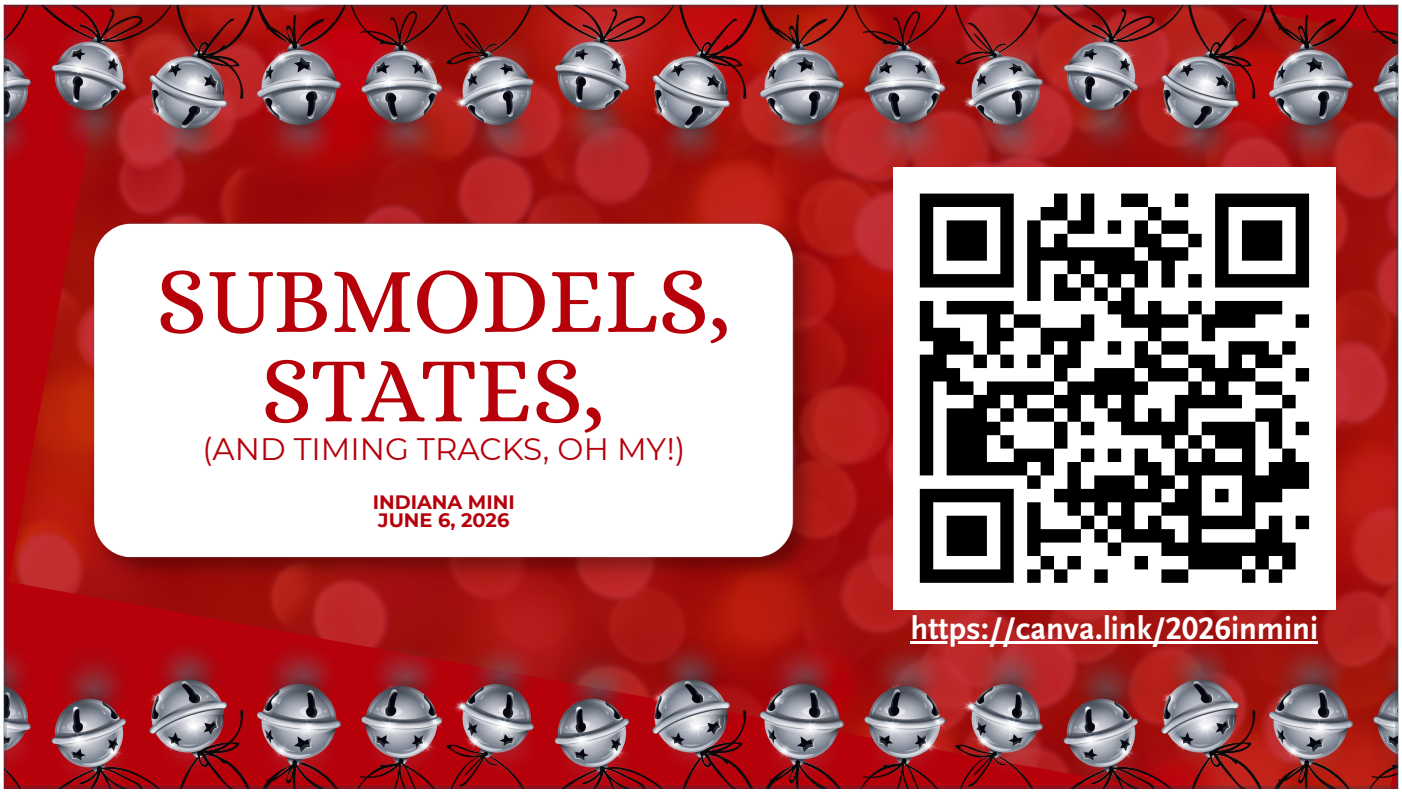

SUBMODELS,
STATES,
(AND TIMING TRACKS, OH MY!)
INDIANA MINI
JUNE 6, 2026
https://canva.link/2026inmini



Singer, Bachelors in Music and a MDIV in Worship, the Music Director at my church.

Also am a Training Coach in the early childhood space, so I teach people how to teach adults.

Was at one time a web developer. So, I understand how to change HTML pages for remote falcon and pulsemesh.

Alot of folks in the hobby either lean towards the software or the hardware, I am definitely the software person, someone once joked I eat software for breakfast. My dad, pictured top right with me, is the hardware guy.

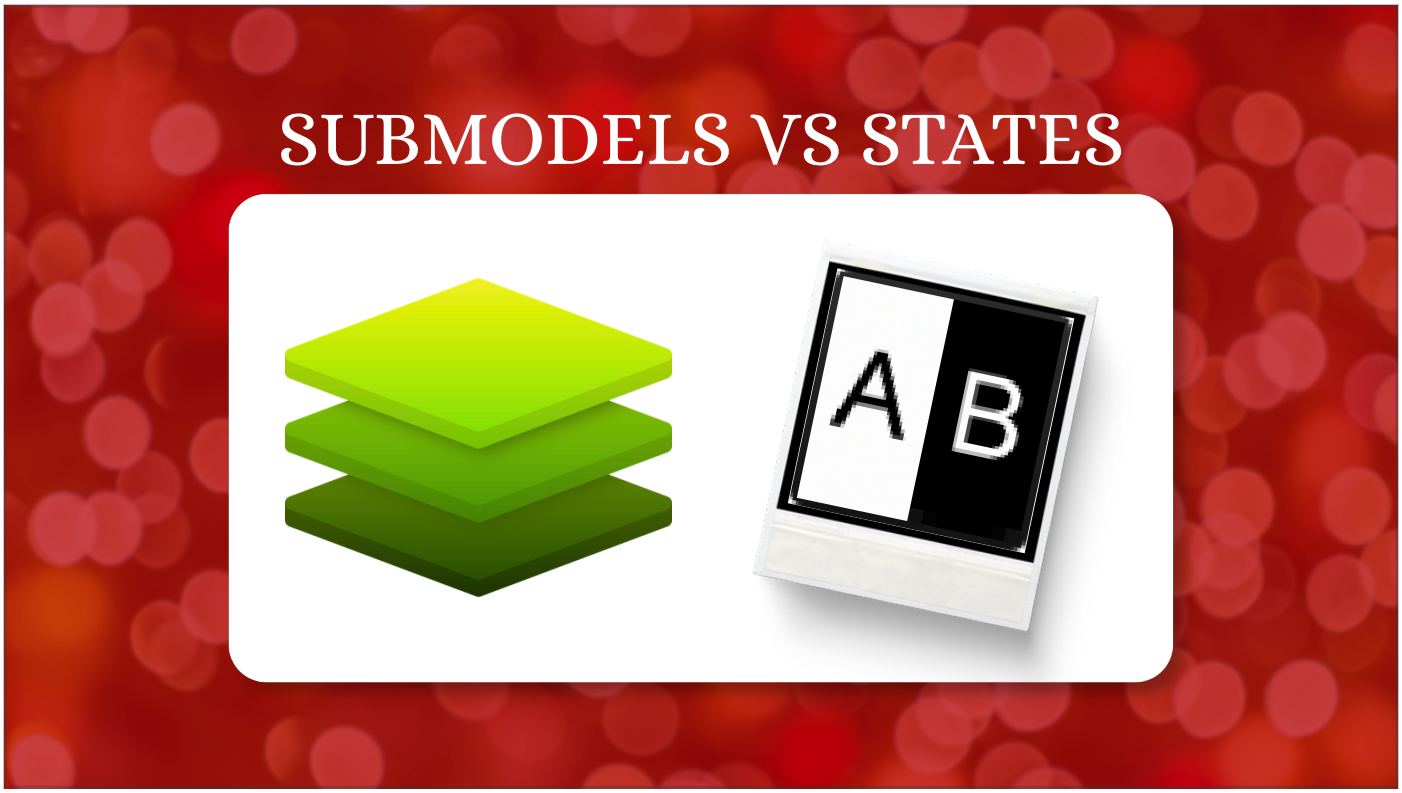
I started playing with xlights before Christmas 2022, sequencing for my Dad's show, and the first show at my house was in December 2023, after attending the Christmas Expo in Lexington that year.

My church added a light show in Christmas 2025.



Only 1/4 shows has anything attached to a house, which is my house. No house outlines, or window outlines. I'm in a shotgun, so my front yard is one room wide. My church show is on the playground fence.

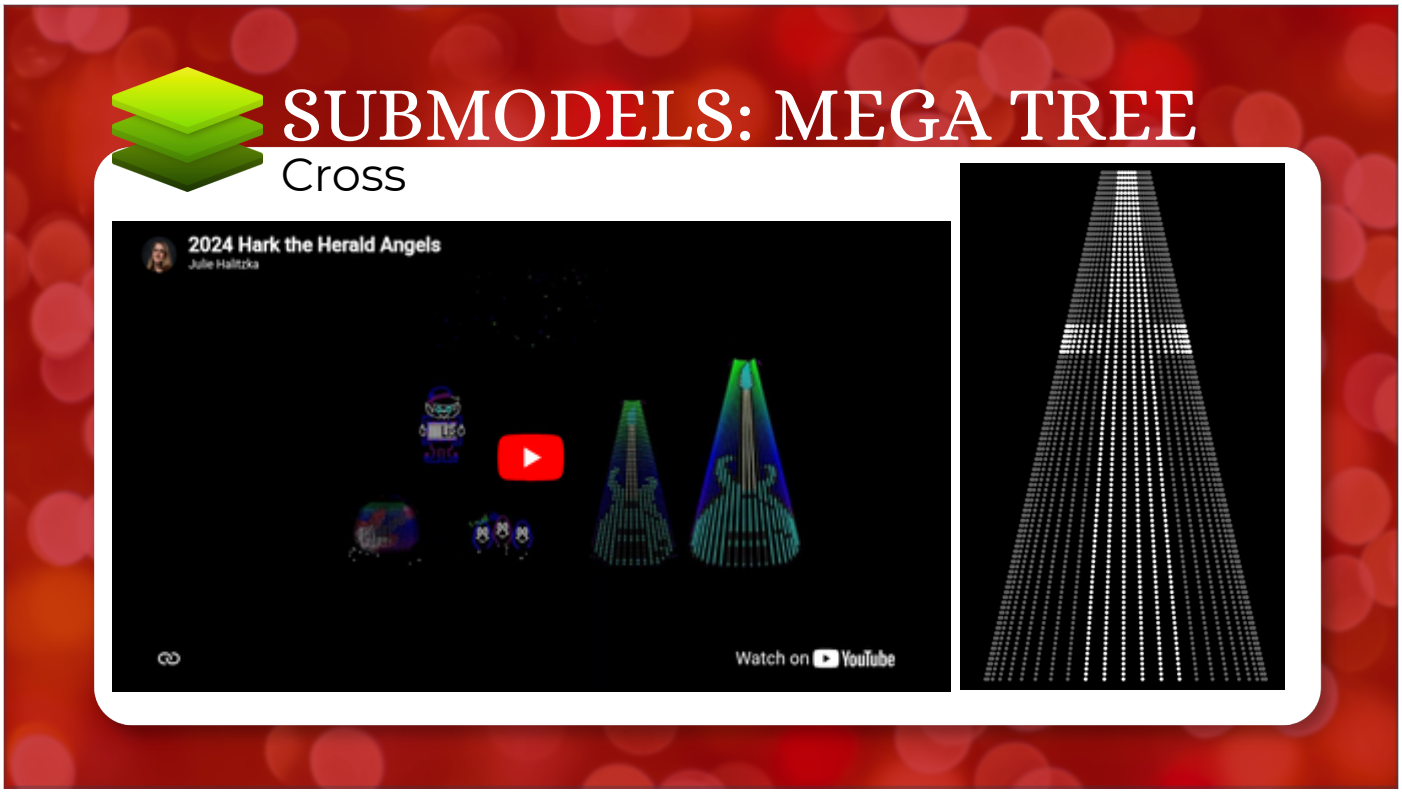
Dad's house in NJ is on a corner, the house is surrounded by trees. And at his girlfriends house, the props are in the yard.



Submodels are layers that you you can place effects on within a prop. Most props you download in xlights come with these defined, you can change what is there, or add your own.

States are like a picture - they are a defined look for a prop that you can apply on a model with the state effect.

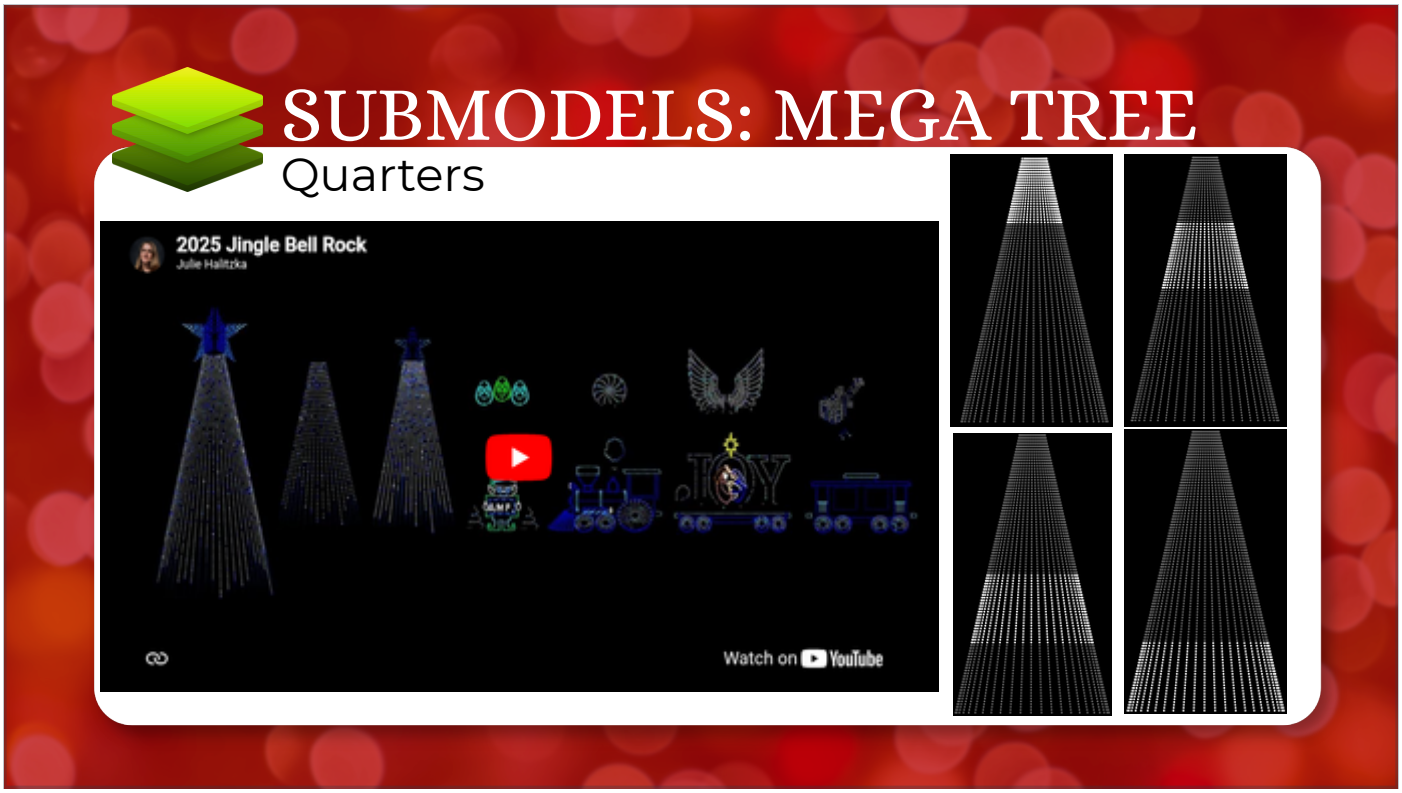
Let's start with talking about submodels.



I only do a christmas show, and I will do a lot of Christian rock music, alongside radio favorites.

So one of the first submodels I made was a cross for my Mega Tree.

Curtain Effect on the cross layer, with Twinkle on a Whole Tree

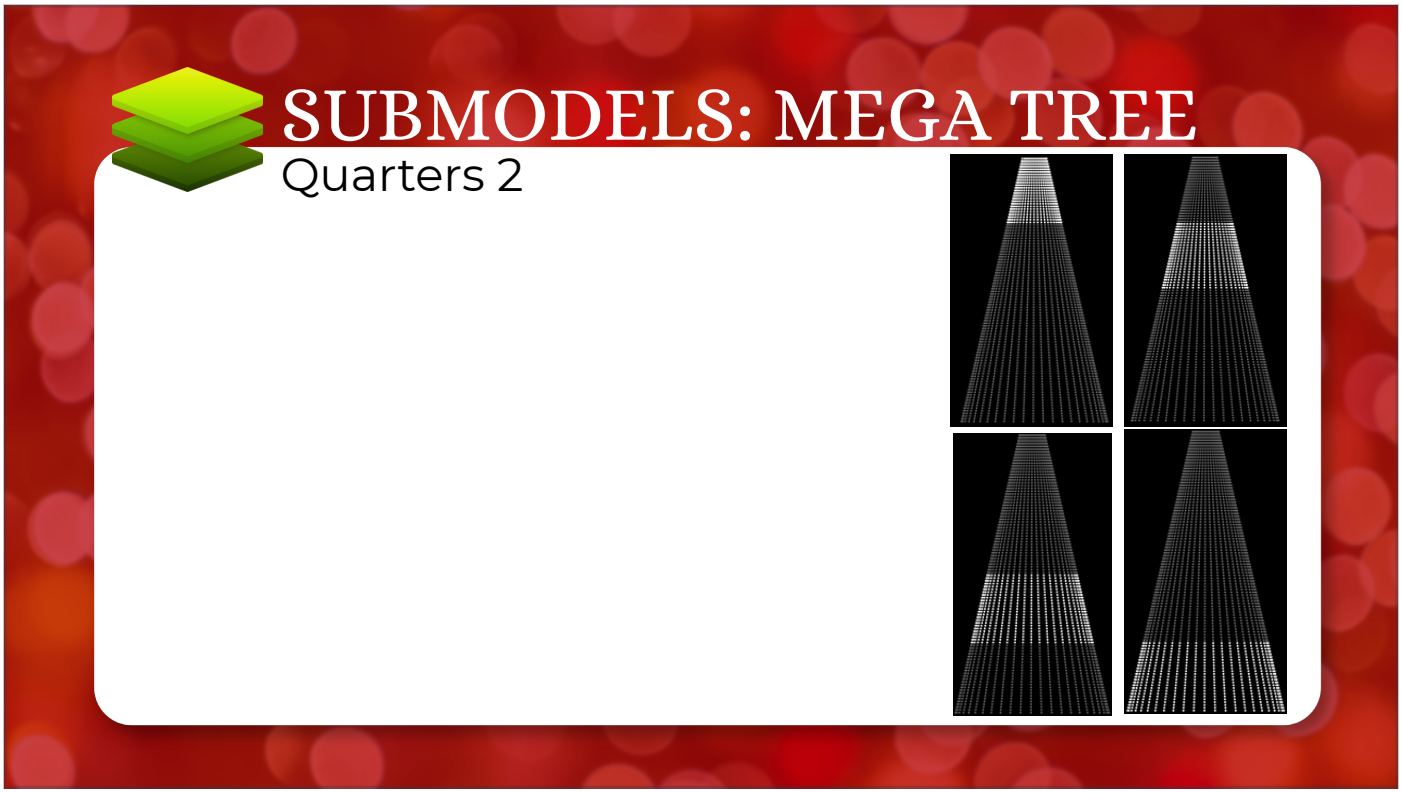


Tree Quarters

Video examples:
Intro, jingle jop/frosty air, break

Three examples are Sine Wave (Sine, and Triangle), Lightning on the quarters layers, with other effects on the whole tree.

(There is an alternative way to do this using Layer Settings on individual effects)

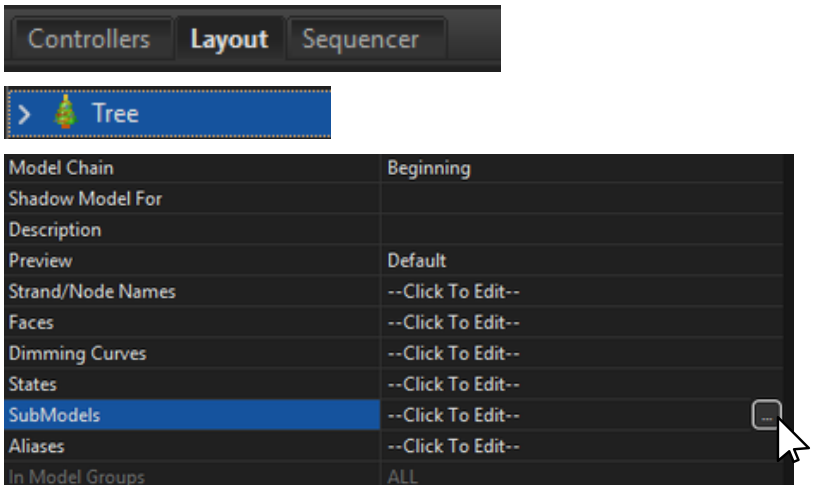


Tree Quarters

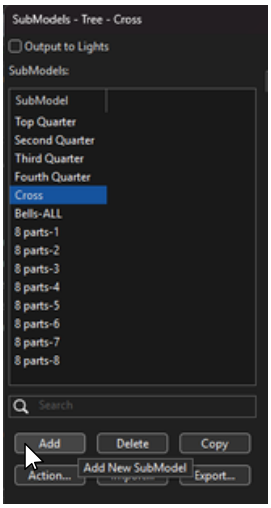
Lightning Bugs
Circle Effect: Bounce and Linear Fade, circle size and speed of 1

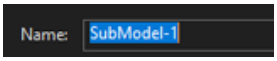
Single Strand Effect,
Single Line render style in Layer Settings

SUBMODELS: HOW TO EDIT



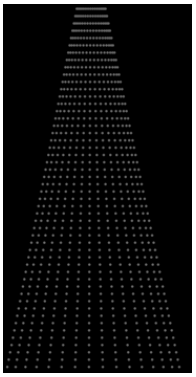
SUBMODELS: HOW TO EDIT



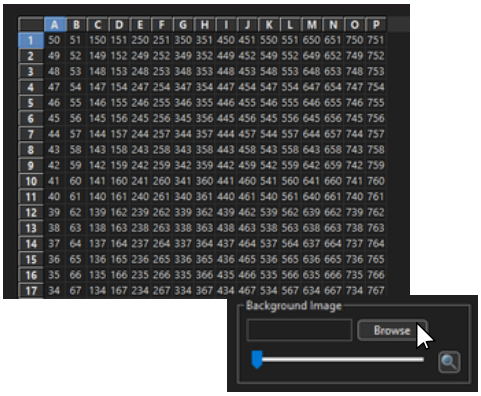


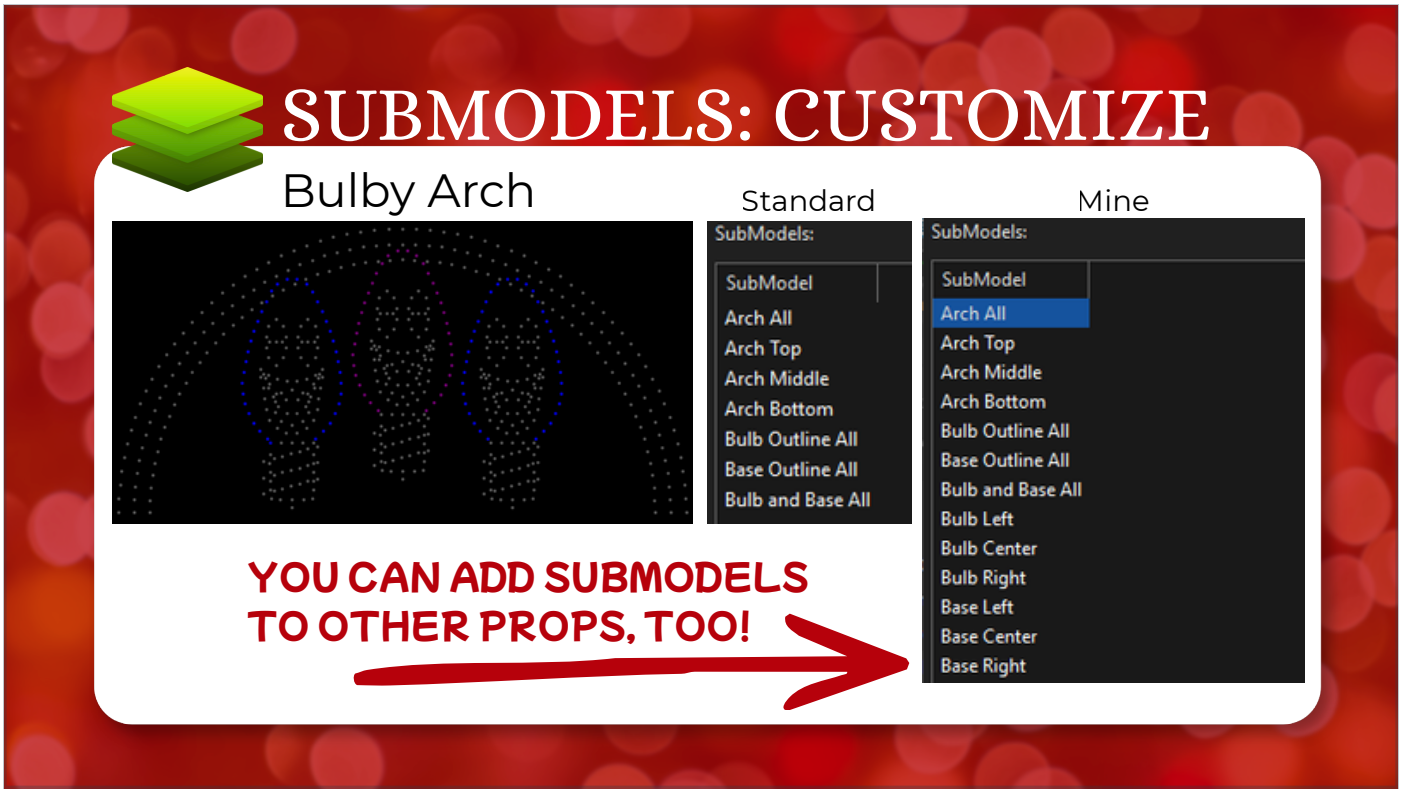
Click and Drag to Draw/Add

Shift and Drag to Erase/Subtract



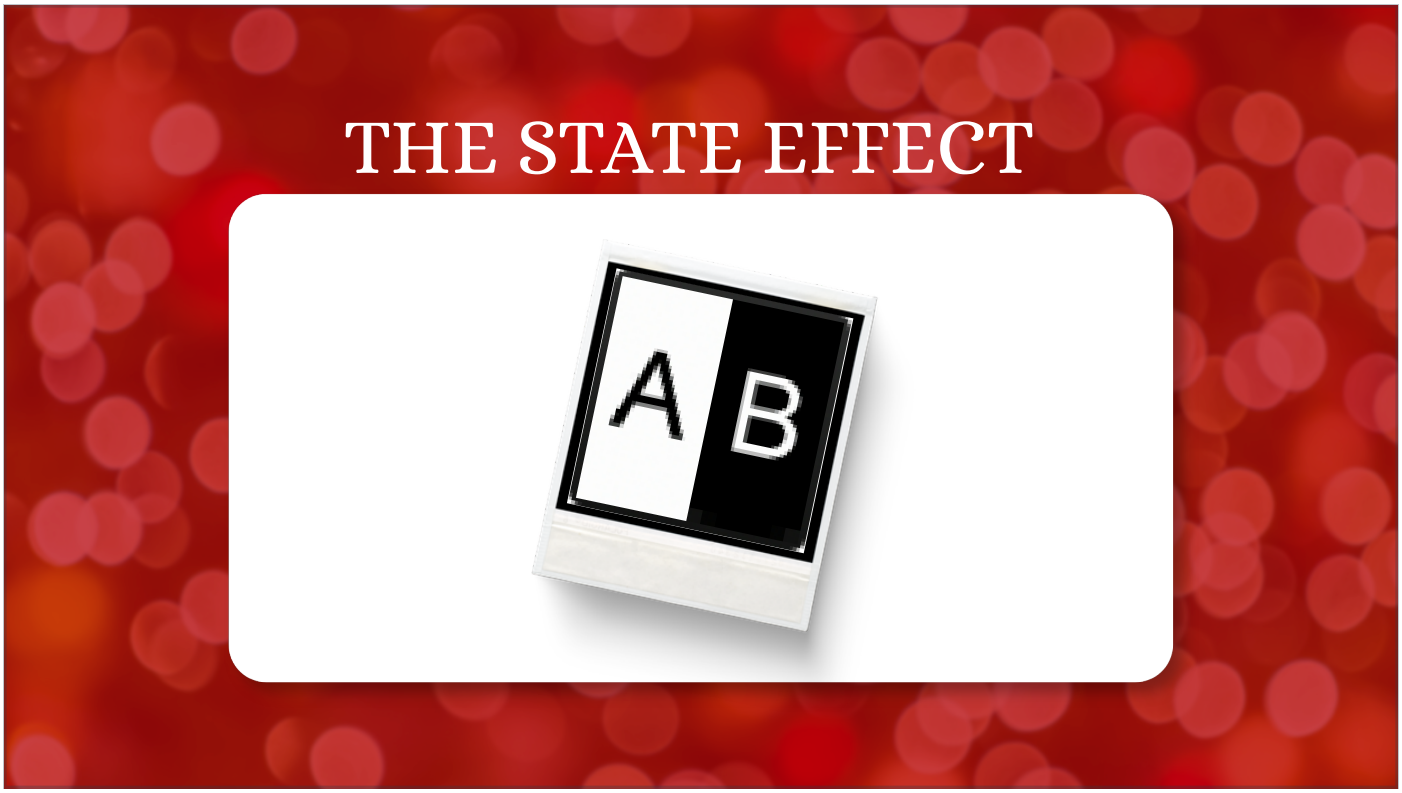






You can add your own submodels to any prop.

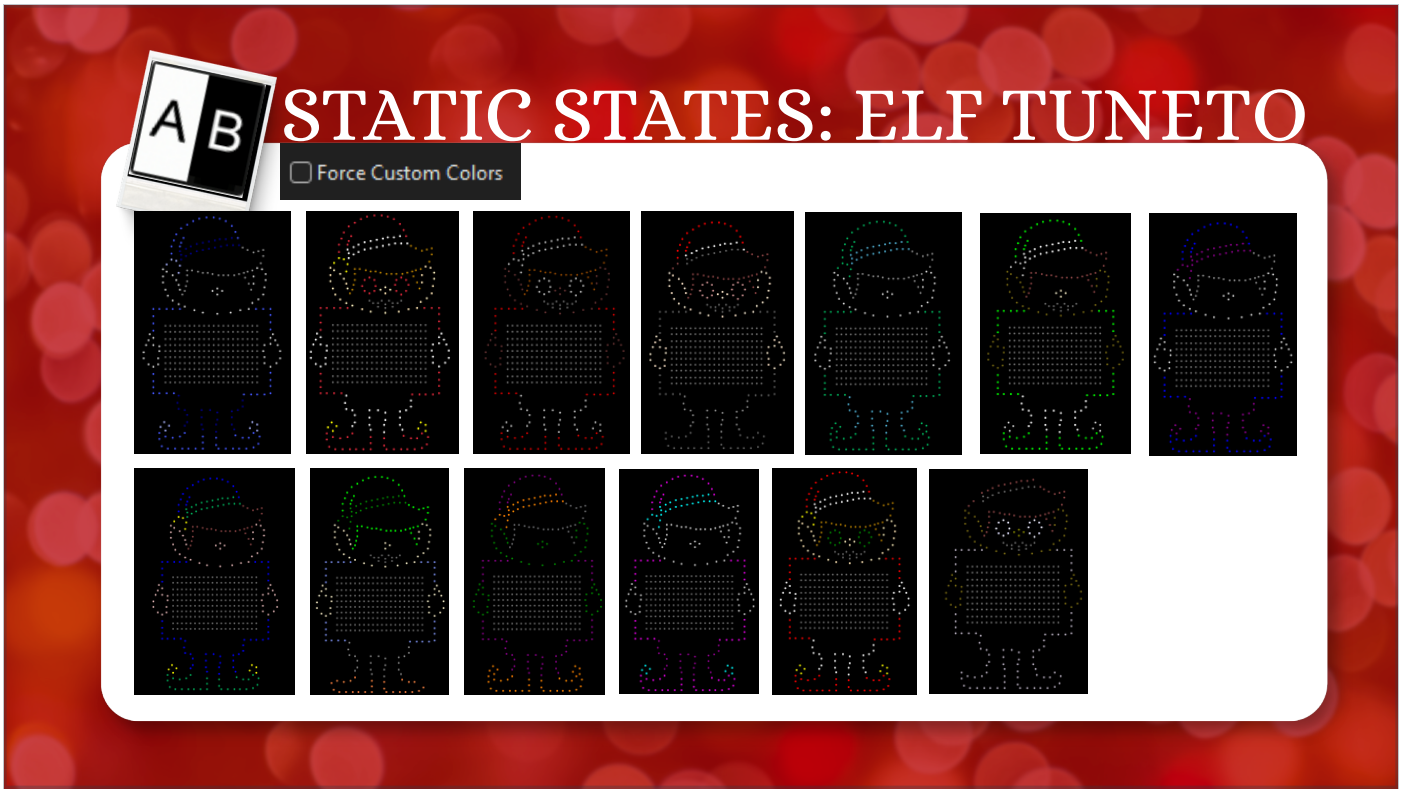
I added those submodels so that I could sequence them separately, they also let me do some cool things using states on those submodel layers.



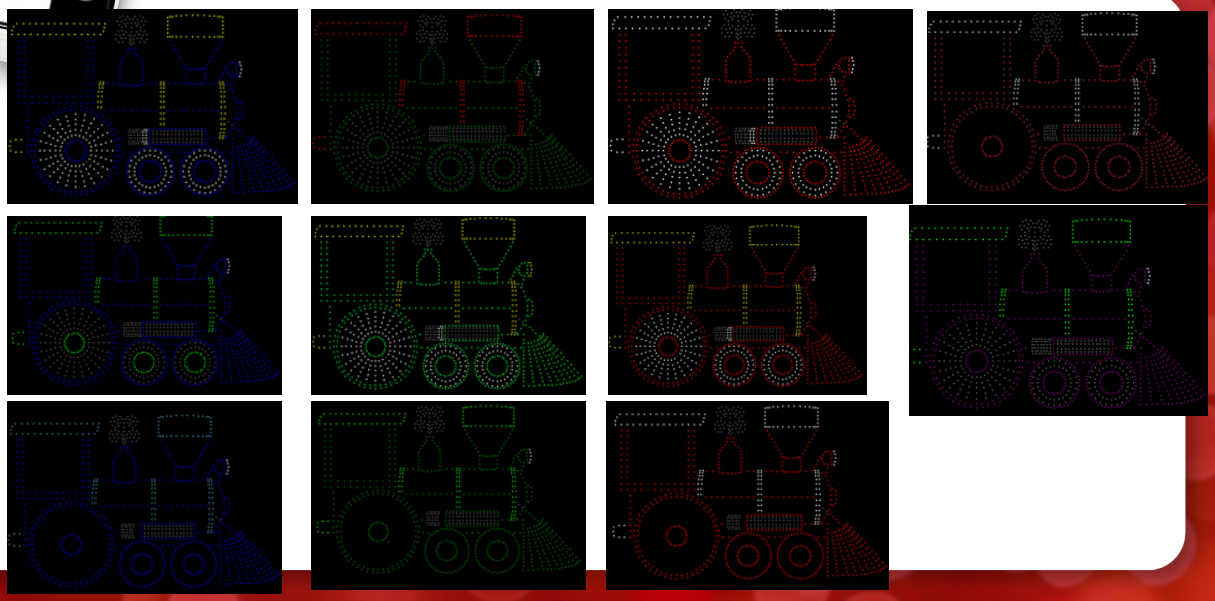
States are like a picture - they are a defined look for a prop that you can apply on a model with the state effect. And, you can color those pictures.

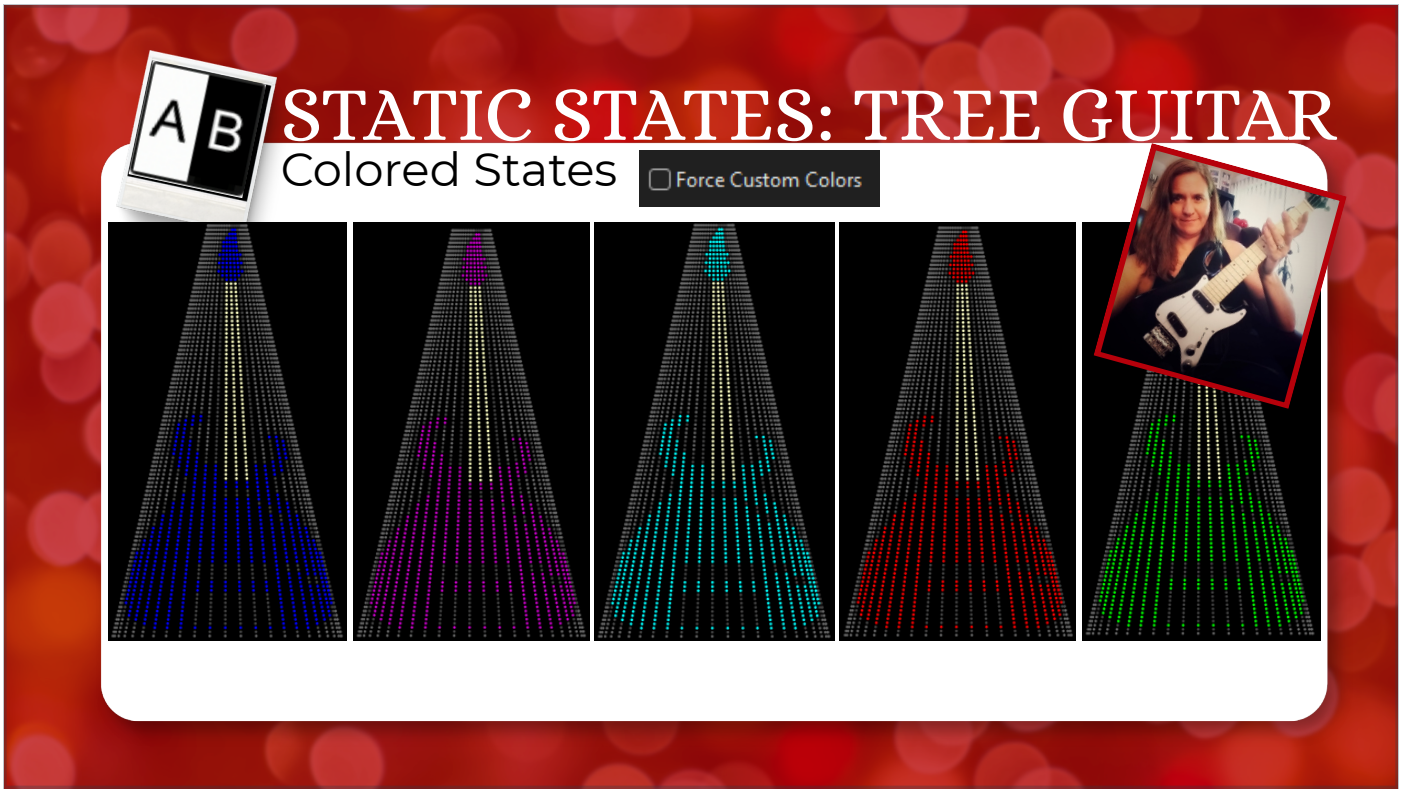
When I sequence, I pick a color story for the song, a set of color I use for EVERYTHING. For me, that's where states come in.

STATIC STATES: ELF TUNETO



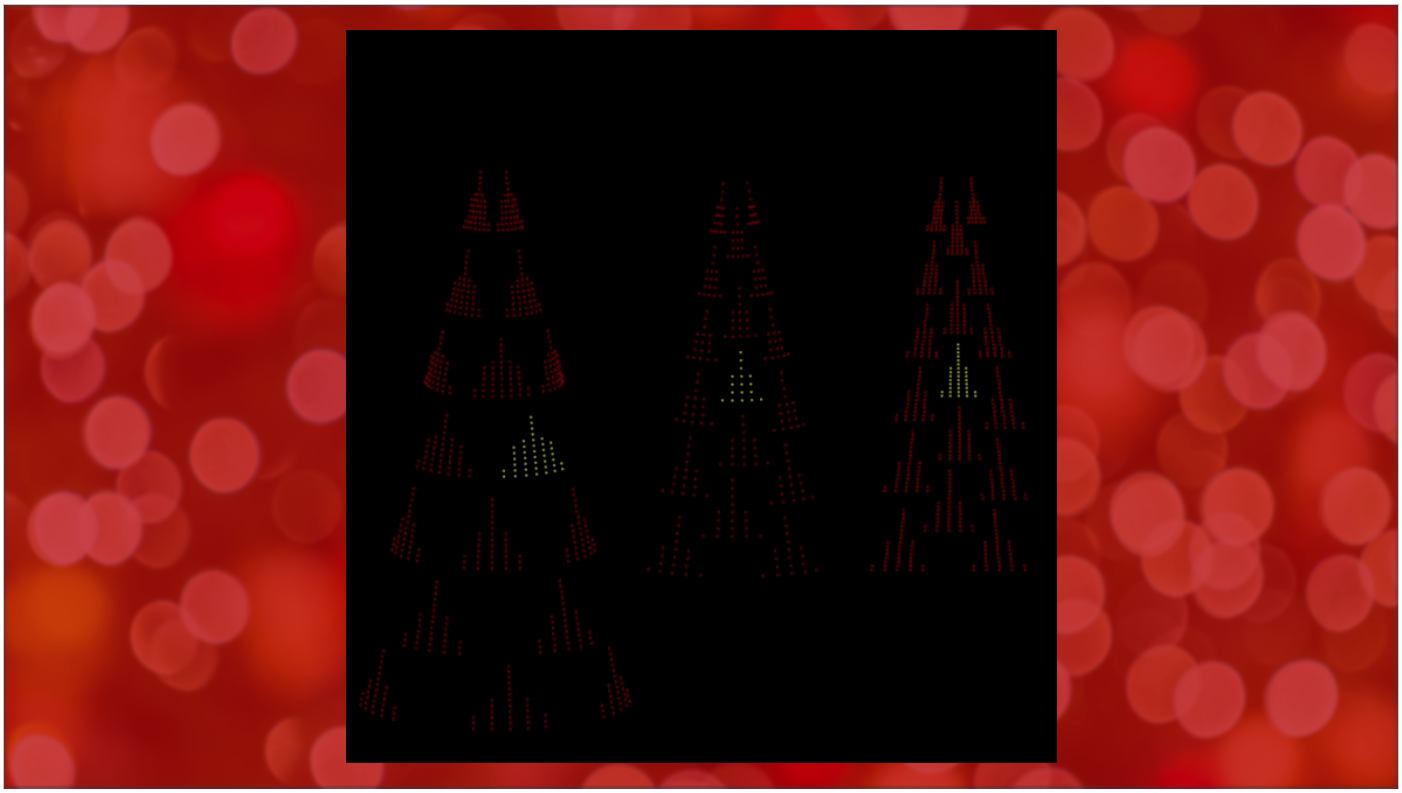
STATIC STATES: TRAIN





You can make your own states - see the guitar.

(I have 3 different size trees, and they have changed over time. I redid them by hand the first time, but then AI was able to resize these for me for my 3 different size trees. :P)



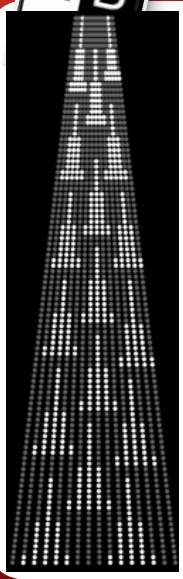
This is an example of my Tree Bells. I made a submodel with all of the bells on the tree, then thought, how can I make the individual bells ring? That is defined with the state effect.

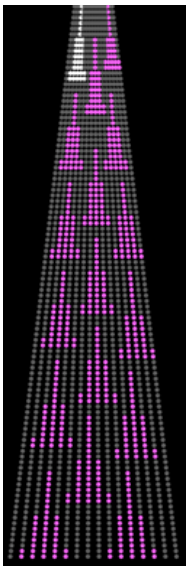
The first Video is the Hershey's Bells

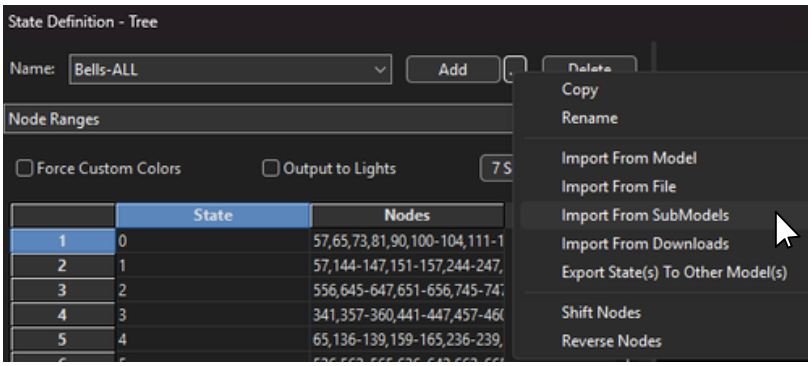


The Second video is how I modified the intro to Sounding Joy, from XLATW, 2024

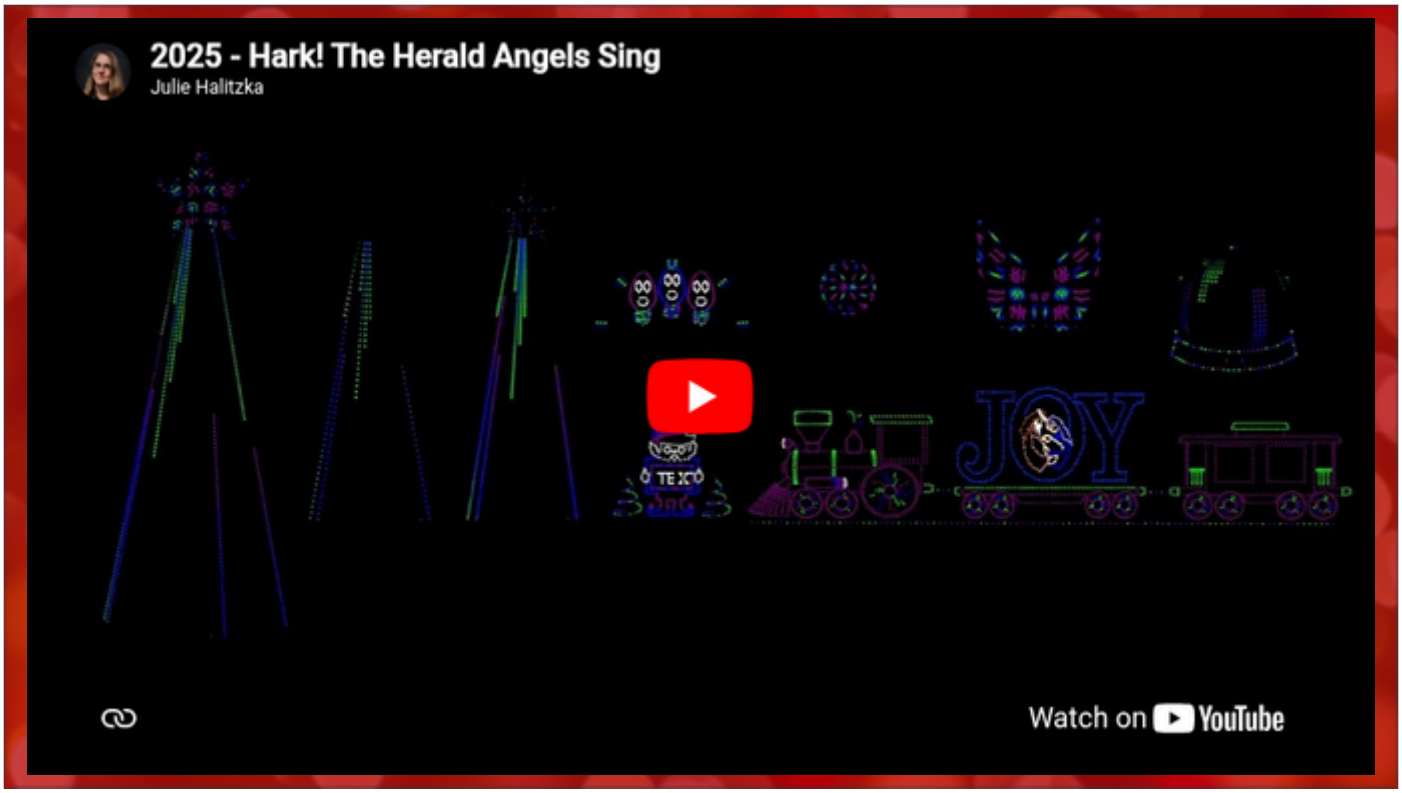
SUBMODELS + STATES







After I created ALL of the bells in a Submodel, I imported to states from my submodel as my ZERO label, then was able to use that to draw each individual bell, and gave each bell it's own number from 1-17.



The Power of the State Effect

Watching this sequence, where do you think the state effect has been used?

Guitar State in Use

On Whole Tree Layer
Spirals + Guitar State

Curtain+ Guitar State+ Twinkle

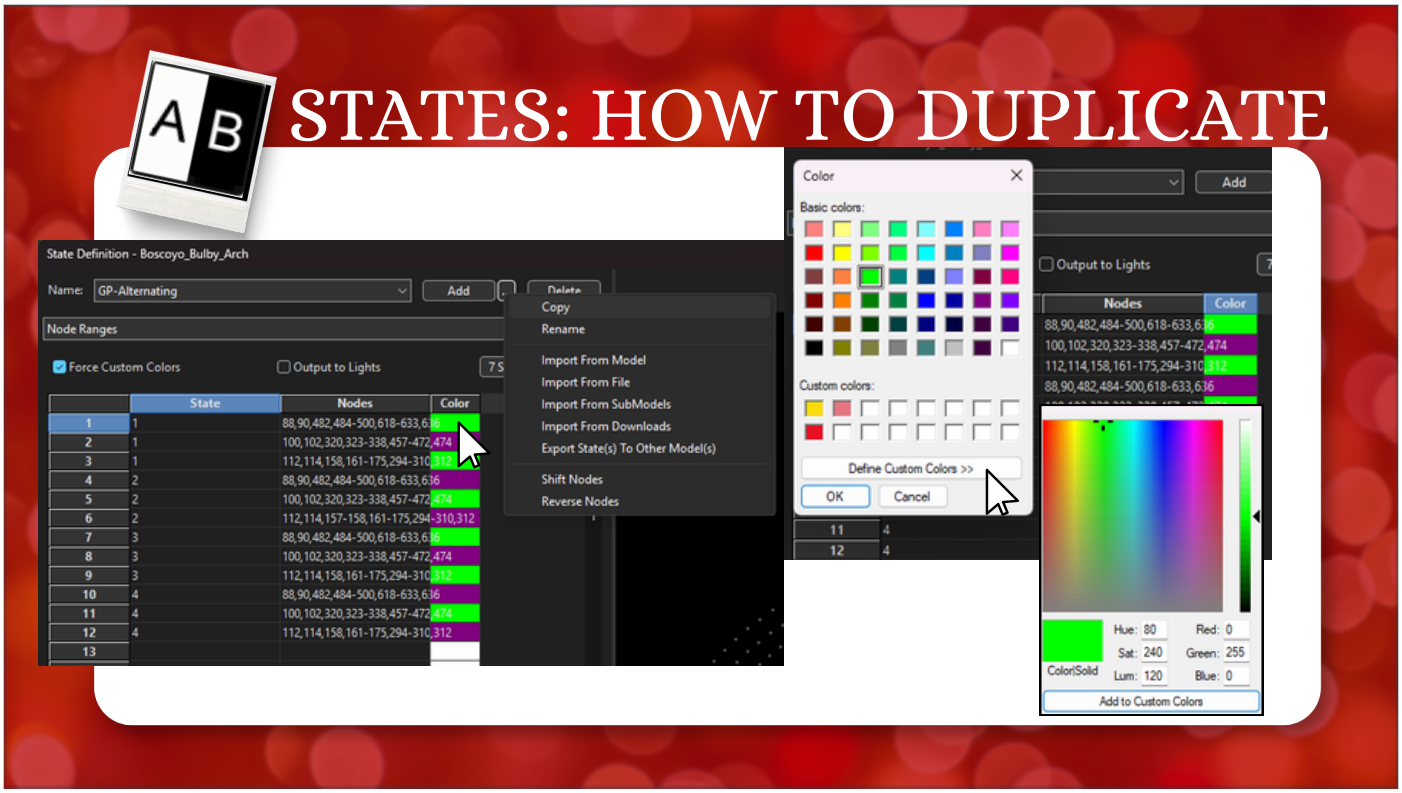
(You COULD make the state move with RotoZoom)

Train Engine, Flat Car, Caboose, Smoke, Joytivity, Elf TuneTo, Blinking Bulbs



To edit states, you want to go to your Layout Tab, the Prop you want to edit, and then states.

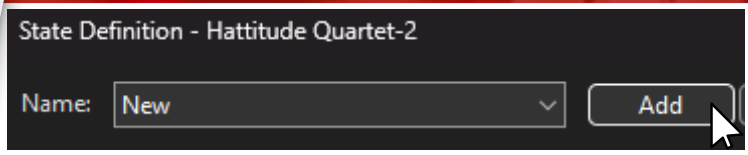
(This screen capture was taken before 2026.10 with the number of states/subs showing)



And this one was taken before I enabled the Better Color Picker.

Better Color Picker -
Preferences --> Other --> Use Custom Color Picker (Experimental)

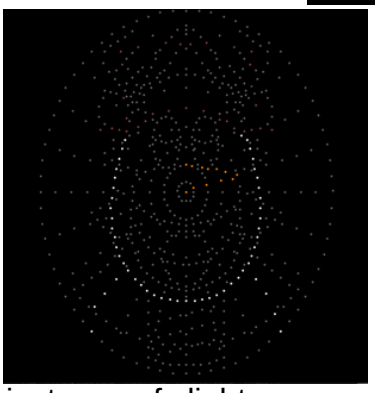
STATES: HOW TO ADD

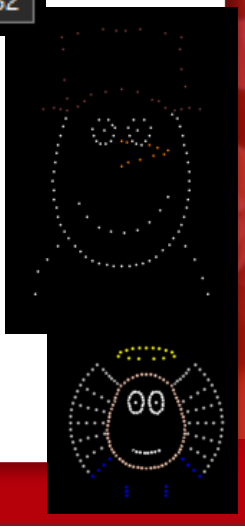


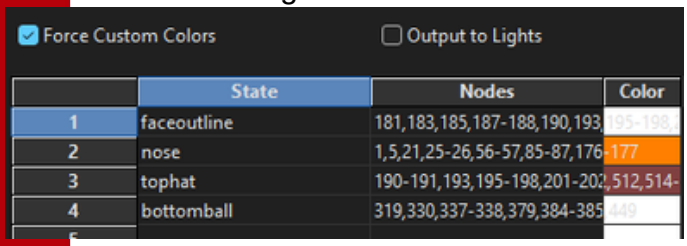


Click and Drag to Draw/Add

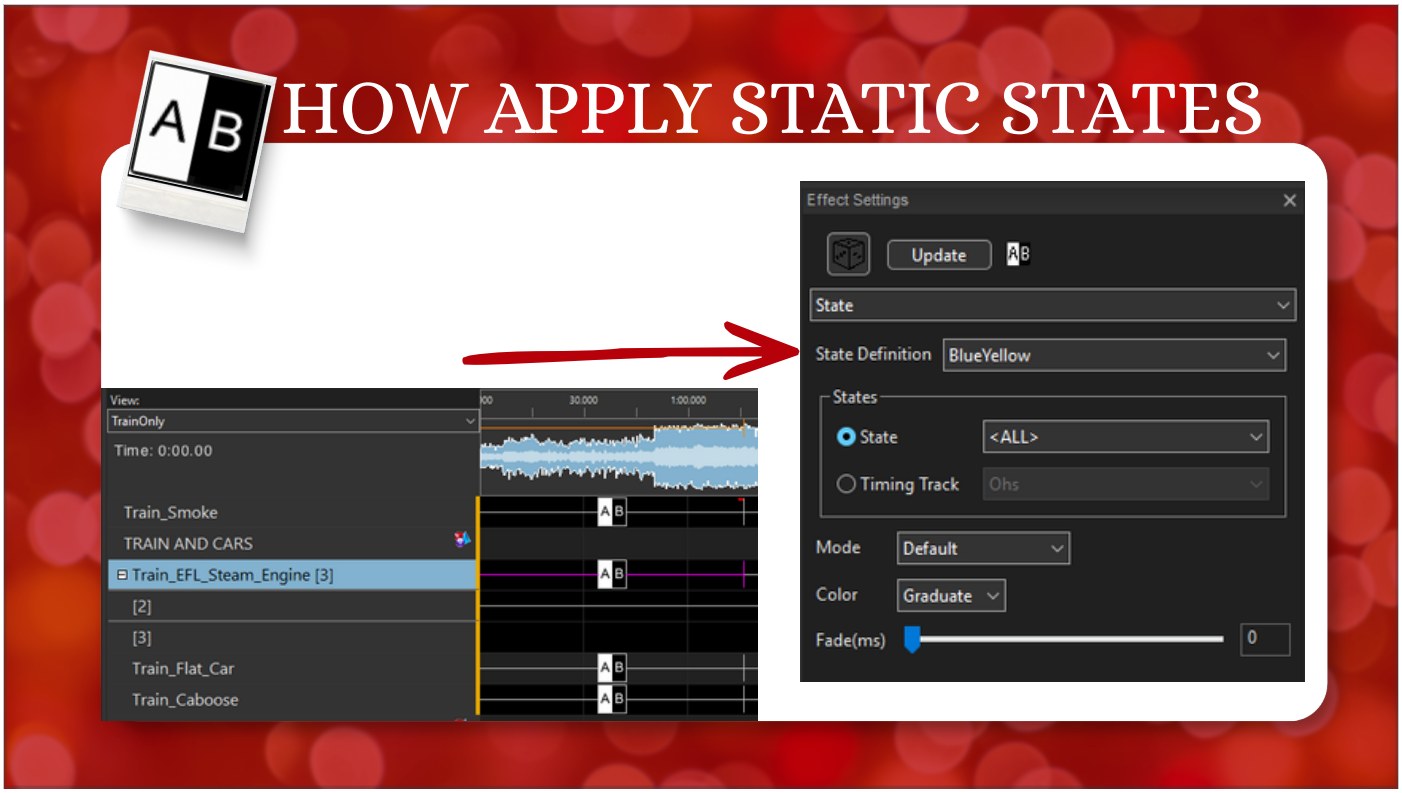
Shift and Drag to Erase/Subtract





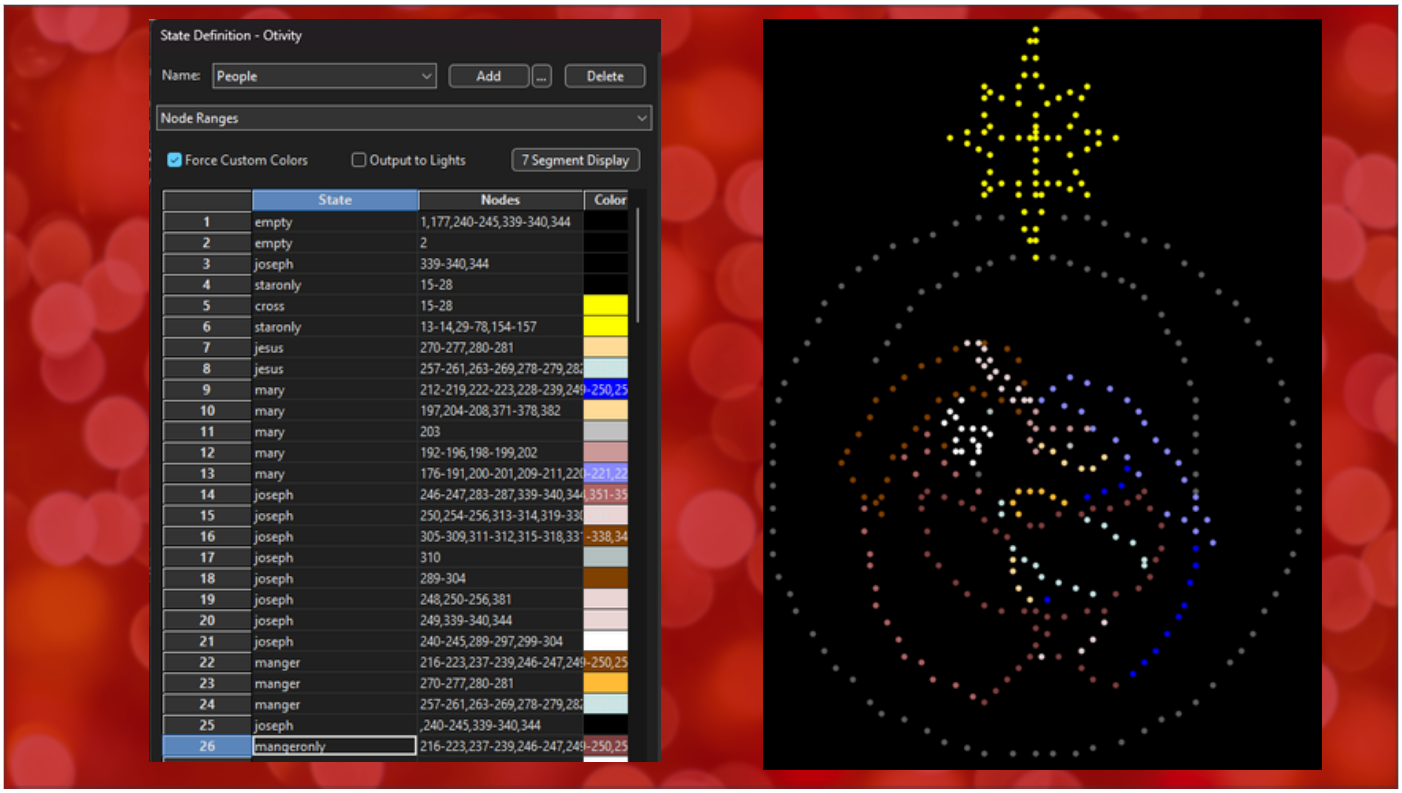


You can also copy and paste from existing states or submodels, by opening a second instance of xlights.

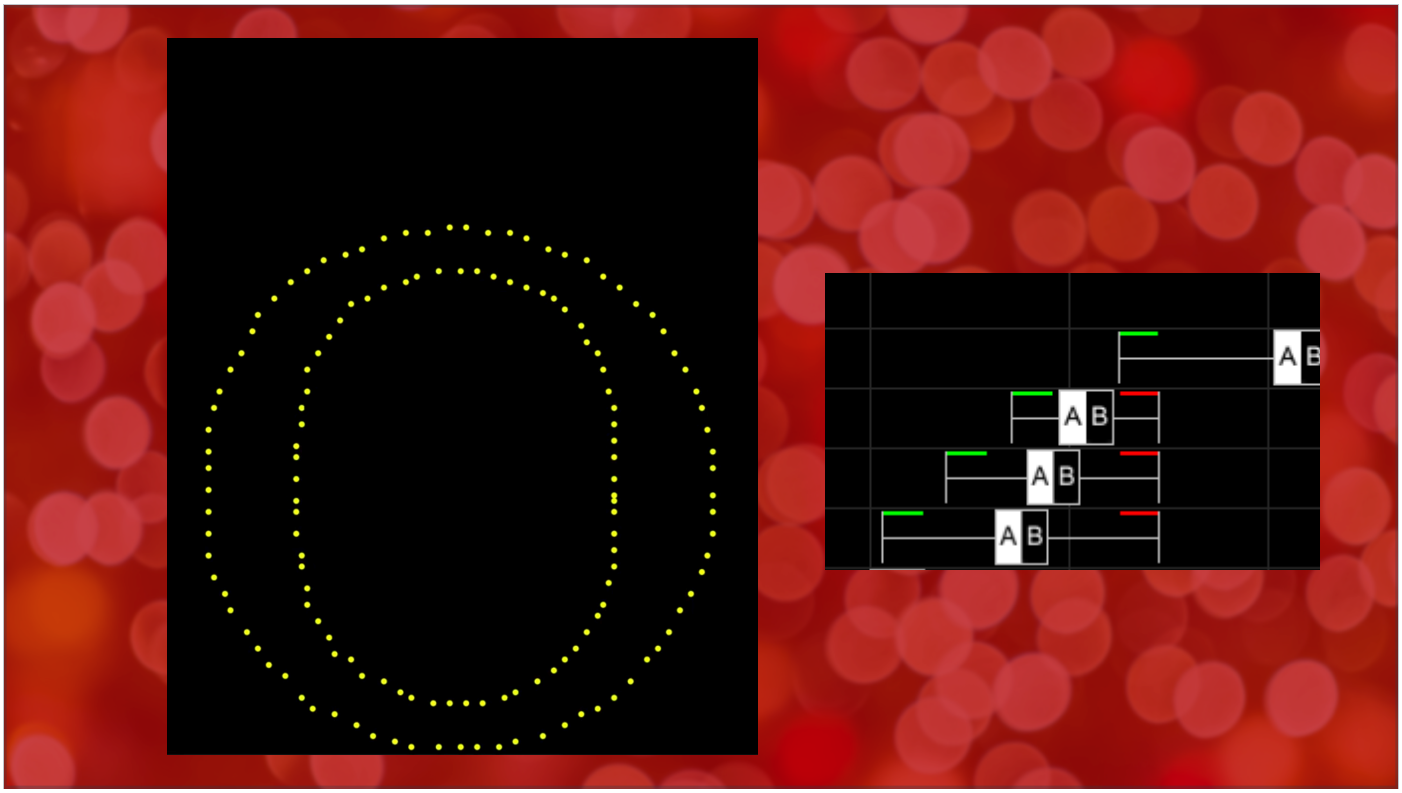


I am using the term Static States to refer to States that do NOT use a timing track.

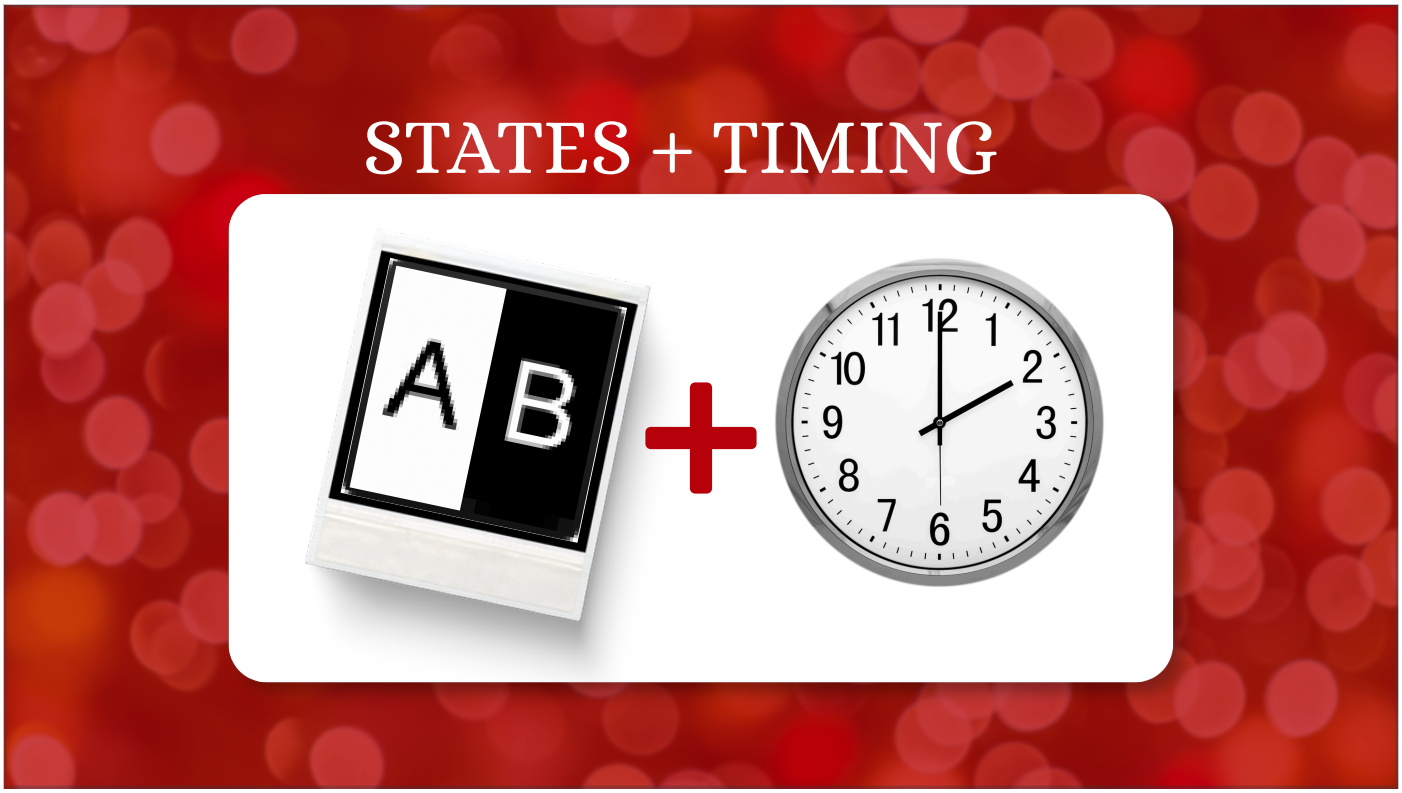
Many use all of the states, or a default state, but they don't have to. Using that state select box, you can independently control the named substates.



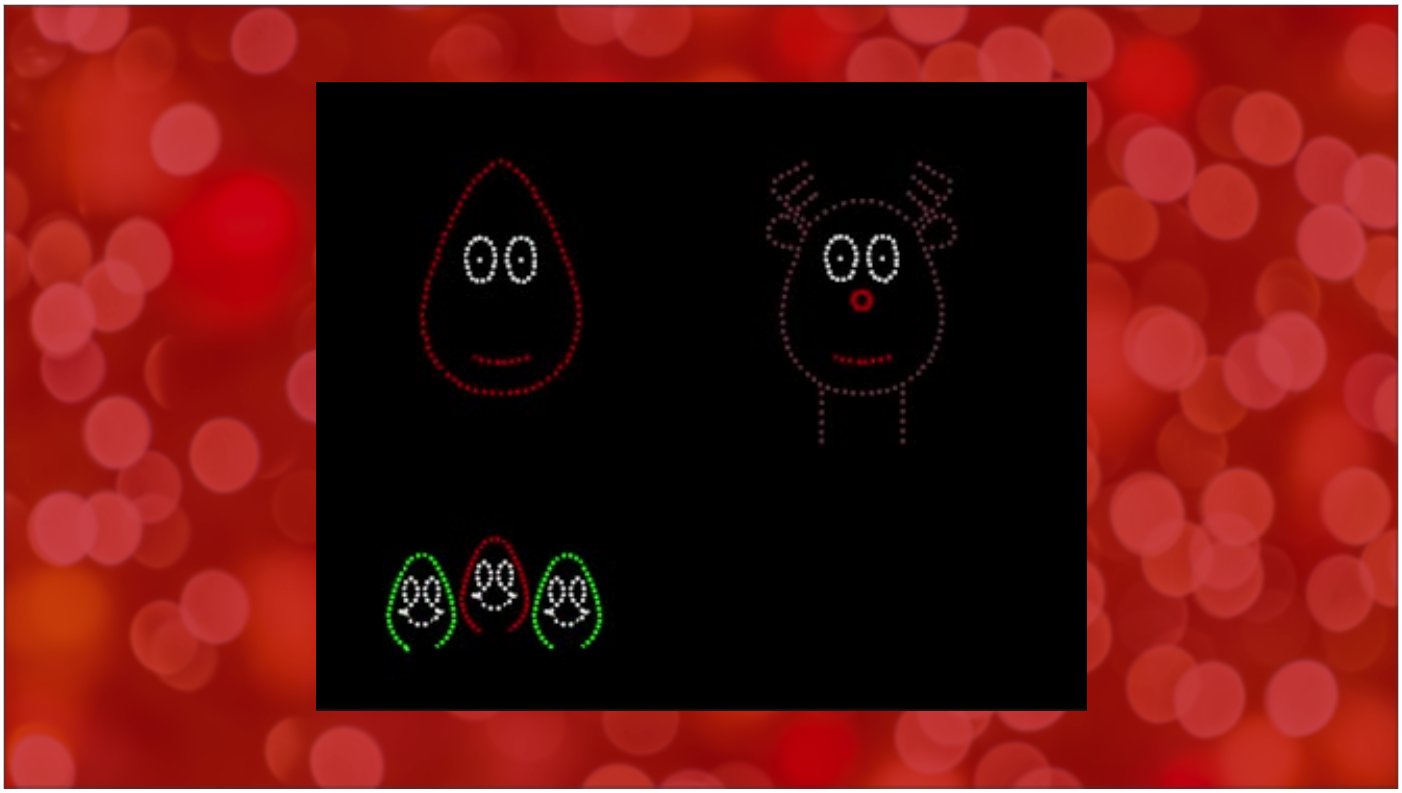
Joytivity, which has multiple states in one.



So how would that work? Here is a quick clip from one of my sequences.



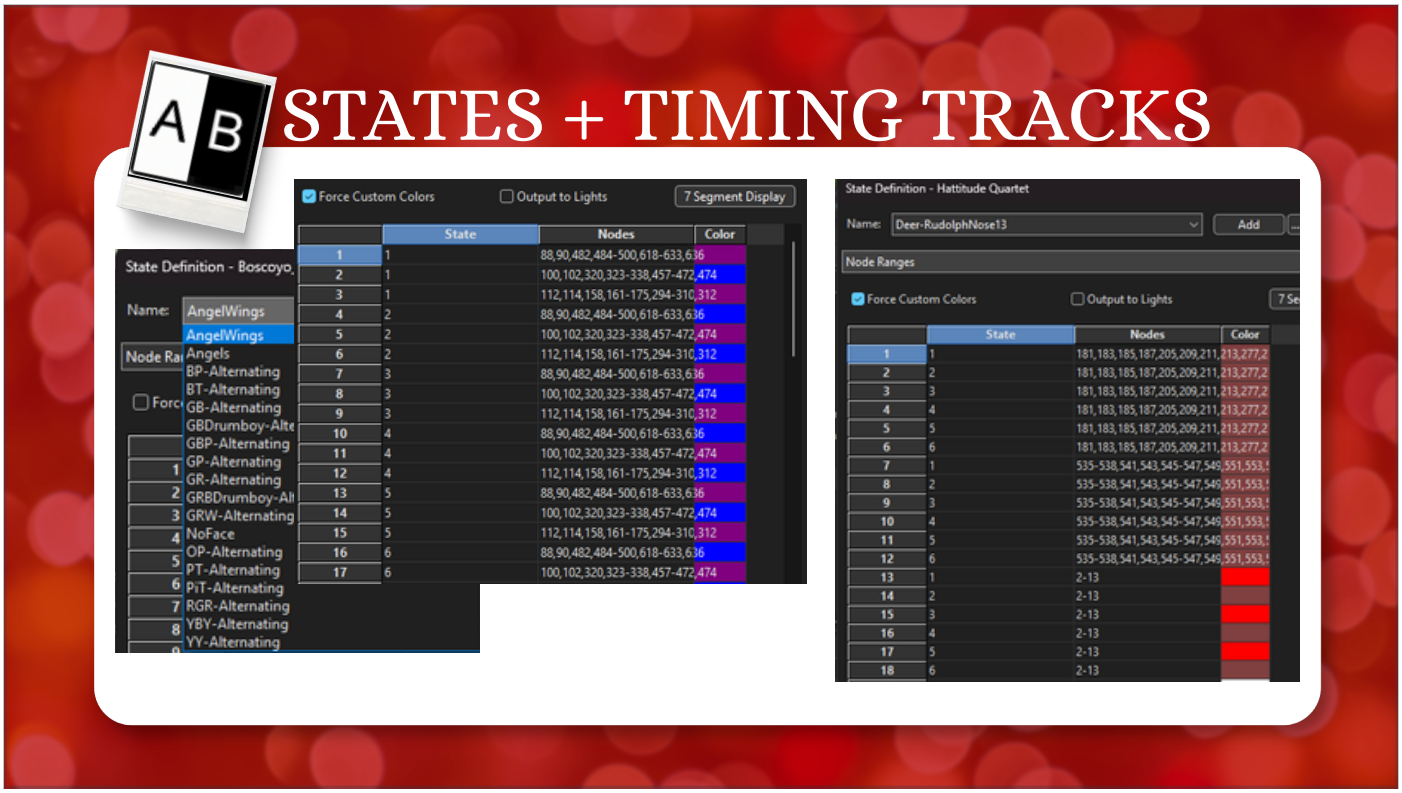
You can do some really powerful things when you combine states with Timing Tracks.



Instead of those substates being named, they can have beat numbers, that control animation of the state.

Combining those numbered states with the timing track can do some very cool things, see example.

You can make the lights alternate colors and the Rudolph nose blink.

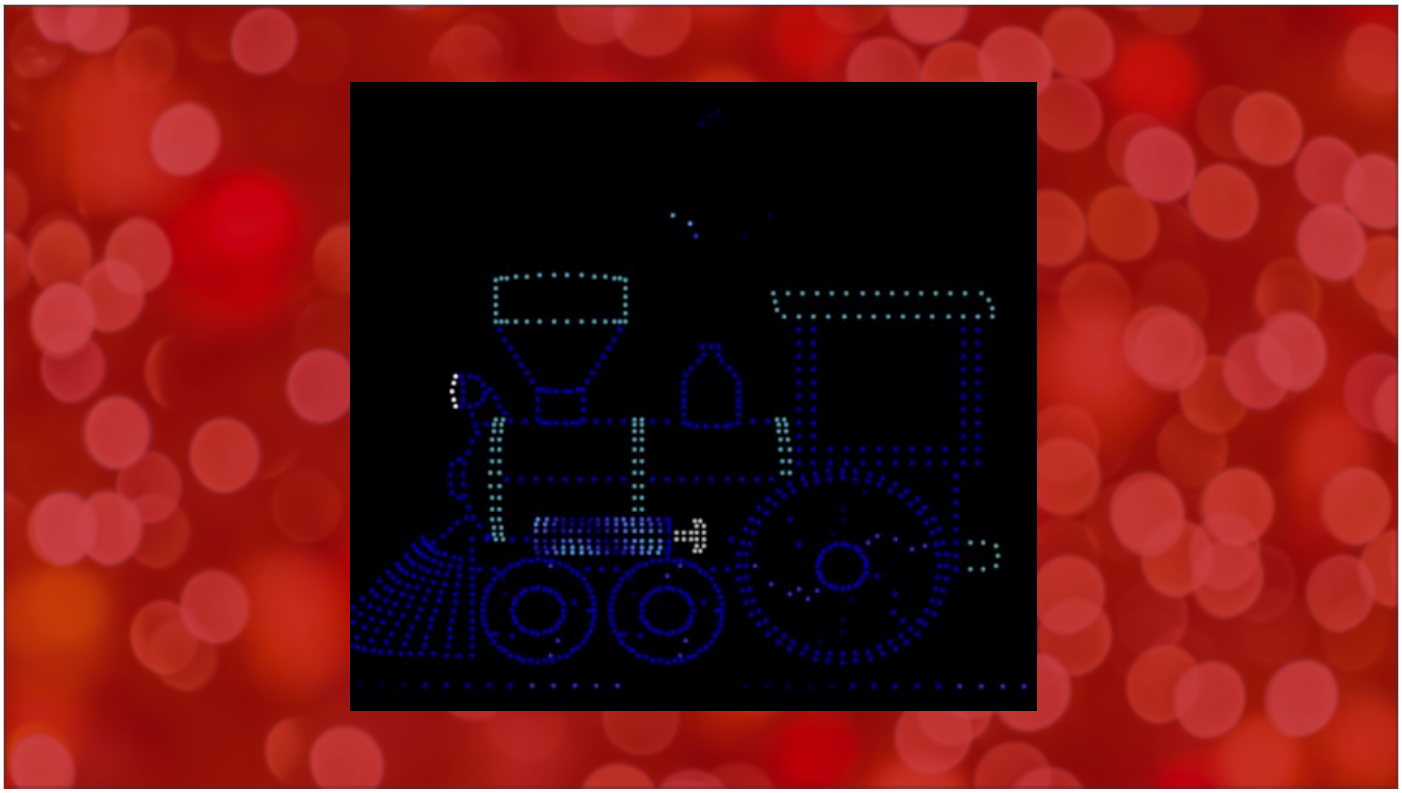


So I have lots of states with different color definitions within my props.

For each defined state, instead of names, there are numbers.

In the first example, each of the three lines that have the same state number is one of the bulb outlines.

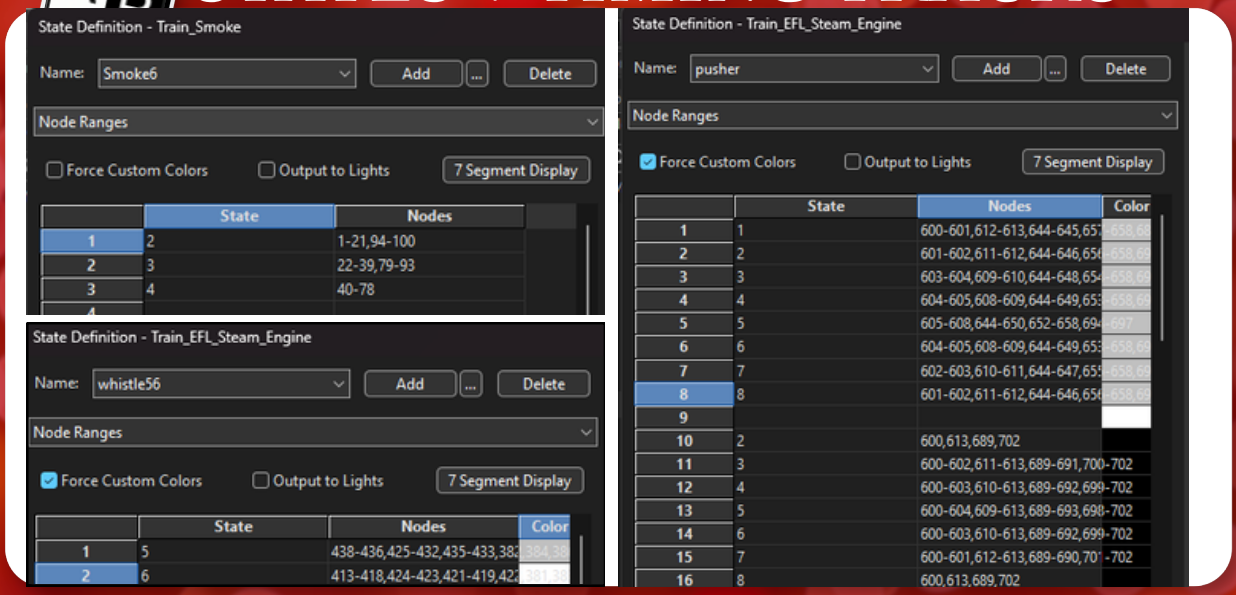
In the second example, I have Rudolph's nose set to blink.



Here's another example, the one that really pulled me into using states with timing.

This is the EFL Steam Engine.
States make the pusher move, the smoke fire on 234, the whistle fire on 56.

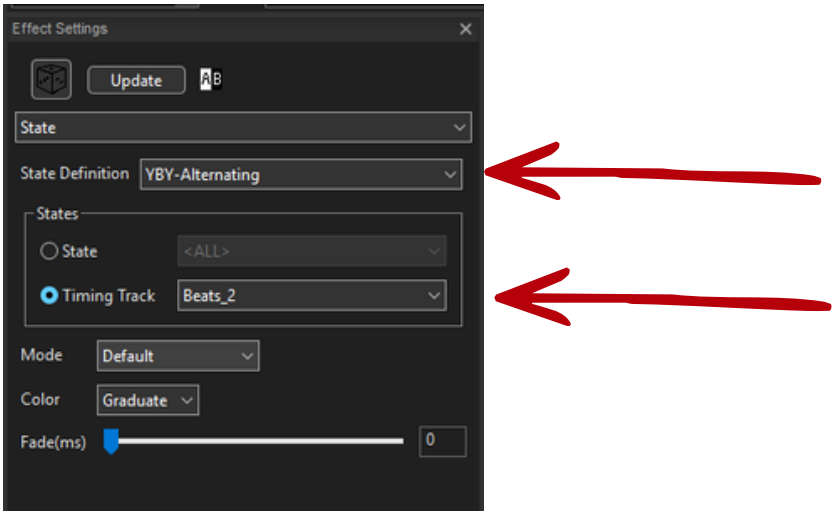
STATES + TIMING TRACKS



THE EFL TRAIN (W/JOYTIVITY)



USE TIMING WITH STATES





When I get started sequencing a song, I start with labelling sections, along with lyrics, and the timing track.

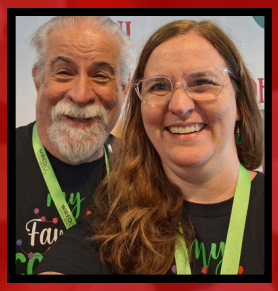
If the song has tempo changes/meter changes/stops/etc you may need to manually make your tempo track... create an EMPTY timing track, and use the letter t with the radio button on the track selected.

If you use a tool like moises for track separation, it gives you their suggested BPM, Beats Per Minute.

TRK:IQ is another tool I tested for timing/lyric tracks. It did OK, but nowhere near perfect.

SING, LIGHTS!

singlights.com



julie@singlights.com

https://xlightsseq.com/sequences/authors/singlights.5555/

2026 Planned Sequences:

- ~~Away in a Manger - Kim Walker-Smith~~ DONE
- Light of the World (Behold Version) - Lauren Daigle
- Jingle Bells - Natalie Grant
- Wonderful Christmastime - Blessing Offor
- It Came Upon a Midnight Clear - Hannah Kerr & Austin French
- World on Fire - For King & Country