Red Carpet

User Manual

https://github.com/tygunn/RedCarpet

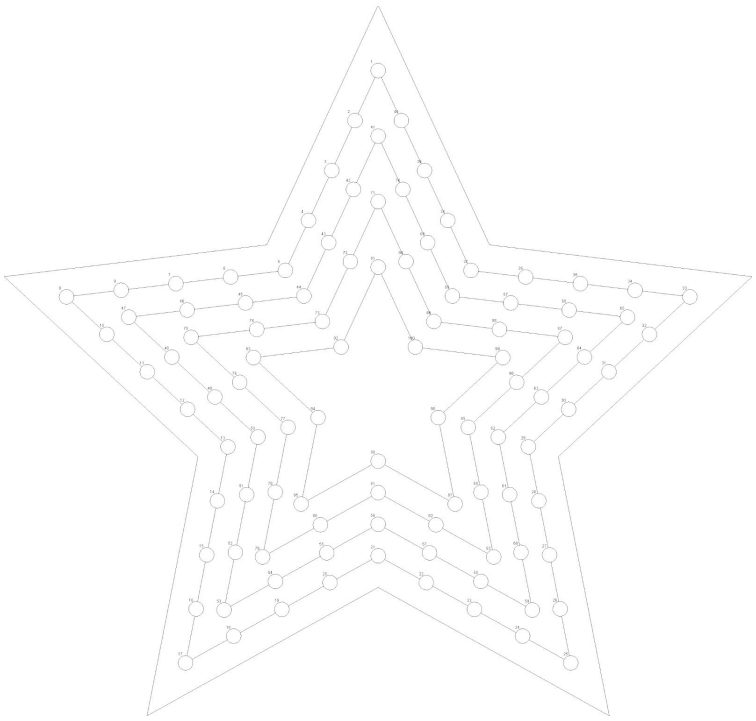
Introduction

Welcome to Red Carpet, where the stars go to shine…. Okay, that's lame; but I'm a software engineer, not a marketing person. :)

Okay, so what is Red Carpet? Red Carpet is a program I wrote to help generate the plans for creating Pixel LED stars. First, there are incredible premade products from companies such as Boscoyo Studios and Holiday Coro; this program is intended for use by pixel-nuts who wish to generate their own custom stars outside of what the commercial vendors sell.

Red Carpet generates plans for LED pixel stars, including the ability to generate outlines of the star models, hole drilling templates and diagrams with the pixels required labeled.

The following is an example plan for a 24" pixel star:



Some of the things Red Carpet supports:

- Exporting plans for the stars with a hole drilling template for manual drilling.

- Exporting plans for the stars in EPS and SVG vector format; this is useful for import into a cad program such as Fusion 360 or the software for a Shop Bot CNC cutter.
- Exporting a scale model of your star into your xLights show.

Installing Red Carpet

First of all, let me apologize for not making this a super easy to install program like xLights, or pretty much much anything else. I spend my days developing code for the Android mobile OS; I work on the framework so I'm not exactly a UI person. I'm also extremely familiar with Java so was able to whip up this program in a few evenings.

Okay, on to how to install this.

First of all, you need to ensure you have a Java runtime on your computer. Red Carpet is distributed as a Java JAR file, so a recent java runtime is required.

You can download the Java runtime here: https://java.com/en/

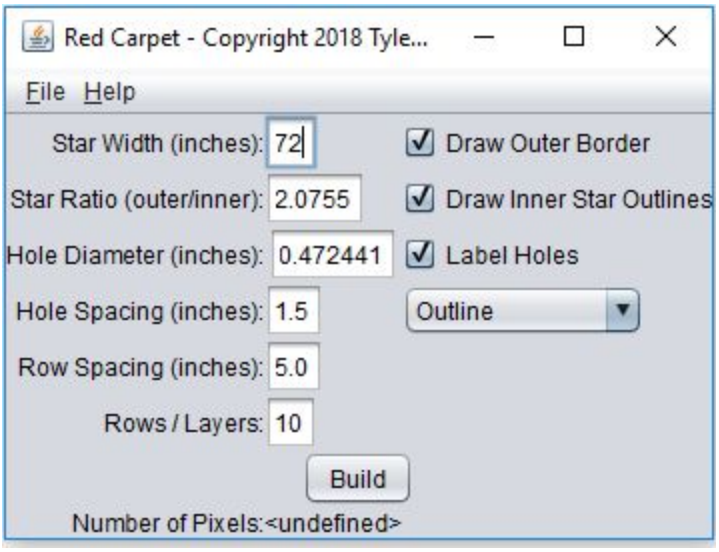
Once you've installed the java runtime, the easiest way to download RedCarpet is to just download the repository from GitHub.

Go to the Red Carpet GitHub repository here: https://github.com/tygunn/RedCarpet
Click the green "Clone or Download" drop down and choose "Download".
Extract the downloaded zip file and open the "dist" directory.
Inside, double click on RedCarpet.jar.

When Red Carpet first stars you'll see the amazing splash screen.

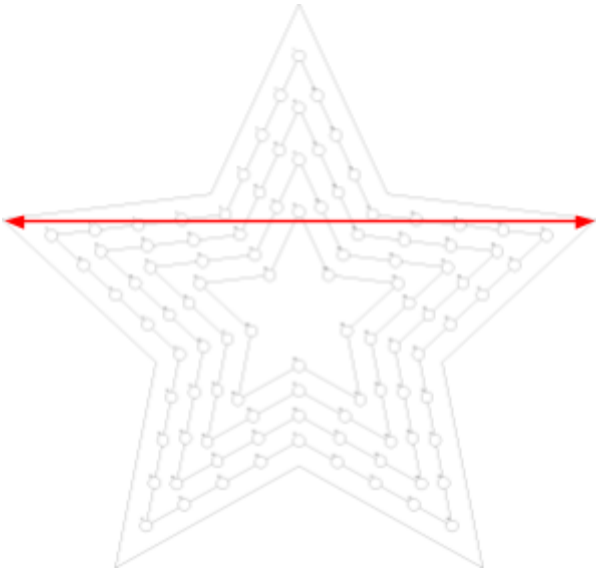
I told you I was a software engineer, not a marketing person right?
Click the splash screen to dismiss it.

The main Red Carpet UI opens:



Here is where you enter the parameters for your star:

- Star Width (inchdes) - Enter the desired width of your star, as illustrated below, in inches



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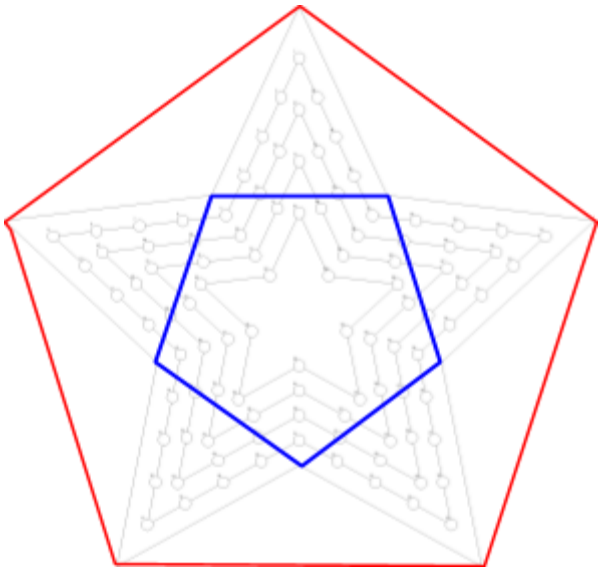
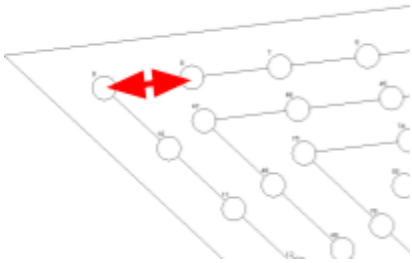
- Star Ratio (outer/inner) - This determines how “chunky” the star is.
  Basically, a star can be thought of a defined by two pentagons; the blue and red pentagons in the example below, for example. The default value of 2.0755 you see by default basically says, “The red pentagon is 2.0755 times the size of the blue pentagon.”. This is really a matter of preference. As you adjust the parameter it’ll be obvious how it works.

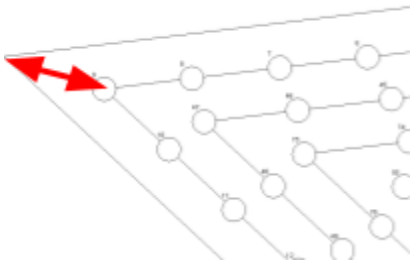


- Hole Diameter (inches) - This determines the size of the holes which are displayed on the star. This is set to the inch equivalent of 12mm by default. Those using a ShopBot to cut stars will want to experiment to see what works best for their particular pixels.
- Hole Spacing (inches) - Determines the desired spacing of the holes in the outer layer of the star, in inches.



This is just used as a starting point, however. The actual spacing between rows will likely be smaller, and will increase for each subsequent layers.
For example, with a 24” star with 1.5” hole spacing, the actual spacing between holes is going to be about 1.75” since a 24” wide star can’t fit pixels with a 1.5” spacing.
The number of pixels per edge is calculated for the outermost star layer. The pixels are spaced out along each edge of the star. Each nester layer uses 1 pixel less than the layer prior to it. This seemed to generate the nicest looking stars. I’m open to other techniques for spacing and laying out stars though.

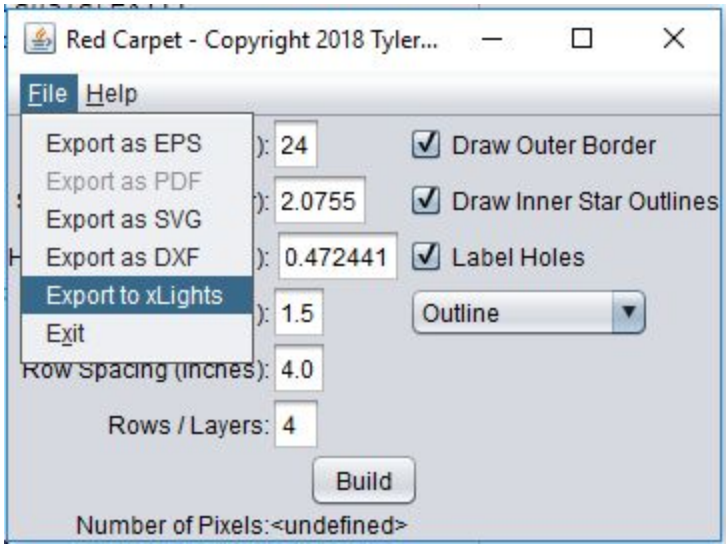
- Row Spacing (inches) - This determines how far apart the nested stars will be.



- Rows / Layers - How many layers of nested stars there will be.
- Draw outer border - when generating a star, determines whether an outer border line is drawn.
- Draw inner star outlines - when generating a star, determines whether the outlines of the inner layers are drawn.
- Label holes - when generating a star, determines whether the stars are numerically labelled.
- “Outline” dropdown - this is where you can pick how holes are rendered. Valid options are:
    - Outline - a simple hole outline
    - Outline w/ center - a hole outline with a crosshatch, suitable for drilling.
    - Solid - a solid hole, perhaps more useful for CNC operations.
- Build - click this button to generate the star and open the preview window. You can see the preview of the star generated. A Star.png file is created in the same folder as the RedCarpet.jar.
- File → Export as EPS, File → Export as SVG -- these options export the star (same directory as jar file)in the respective format.
- File → Export to xLights -- see the topic below. This exports your star as a scale model in xLights.

Exporting to xLights

Red Carpet supports exporting star models directly into your xLights show directory.

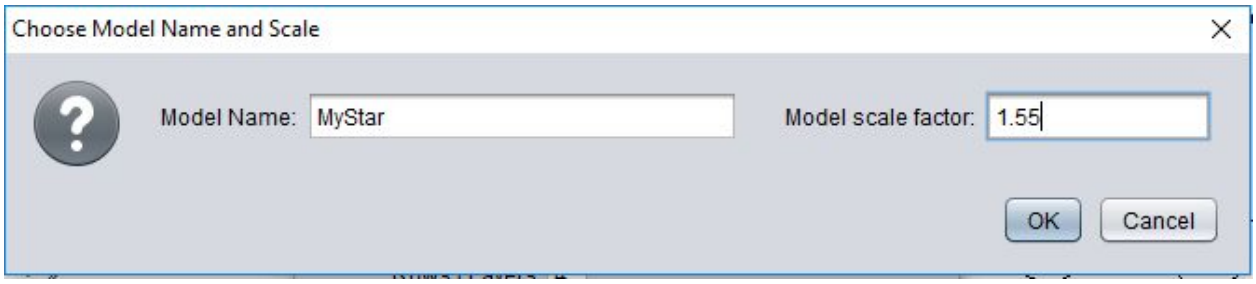


⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠

Make sure to back up your xlights show directory prior to exporting to Red Carpet. You don't want to lose any of your layout because something goes wrong.
You can backup your show directory by making a copy of it prior to using Red Carpet.
Make sure to CLOSE all copies of xLights prior to exporting.

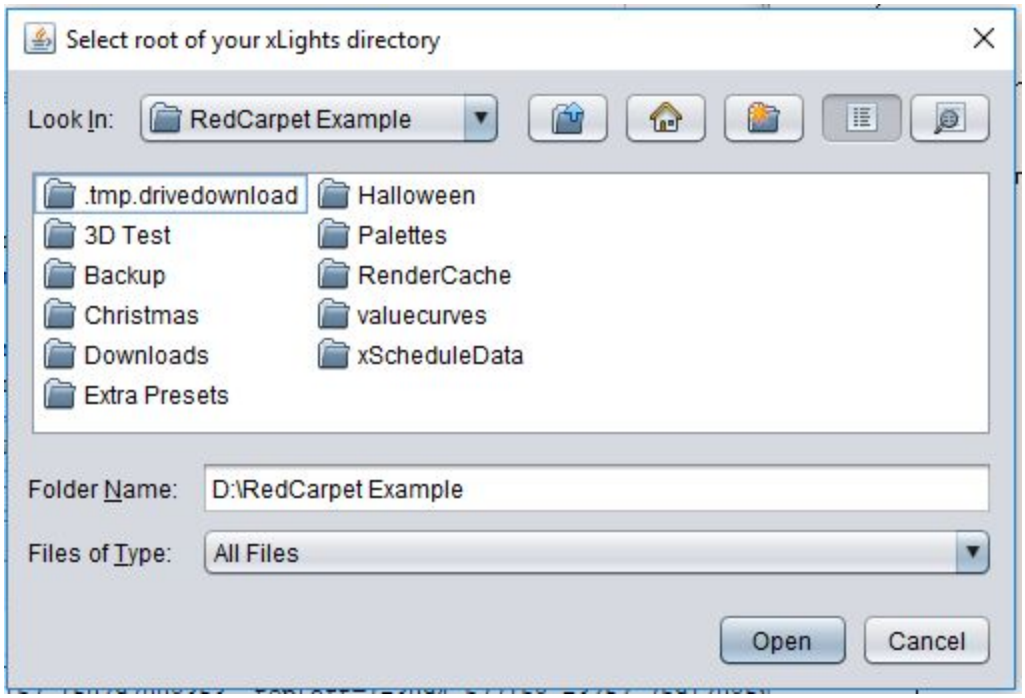
⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠ WARNING! ⚠

When you choose the export to xLights option you see the following dialog:



Enter a useful name for your star. This is how it'll be exported to xLights.
Enter the model scale factor (see section below for determining this).
Click OK.

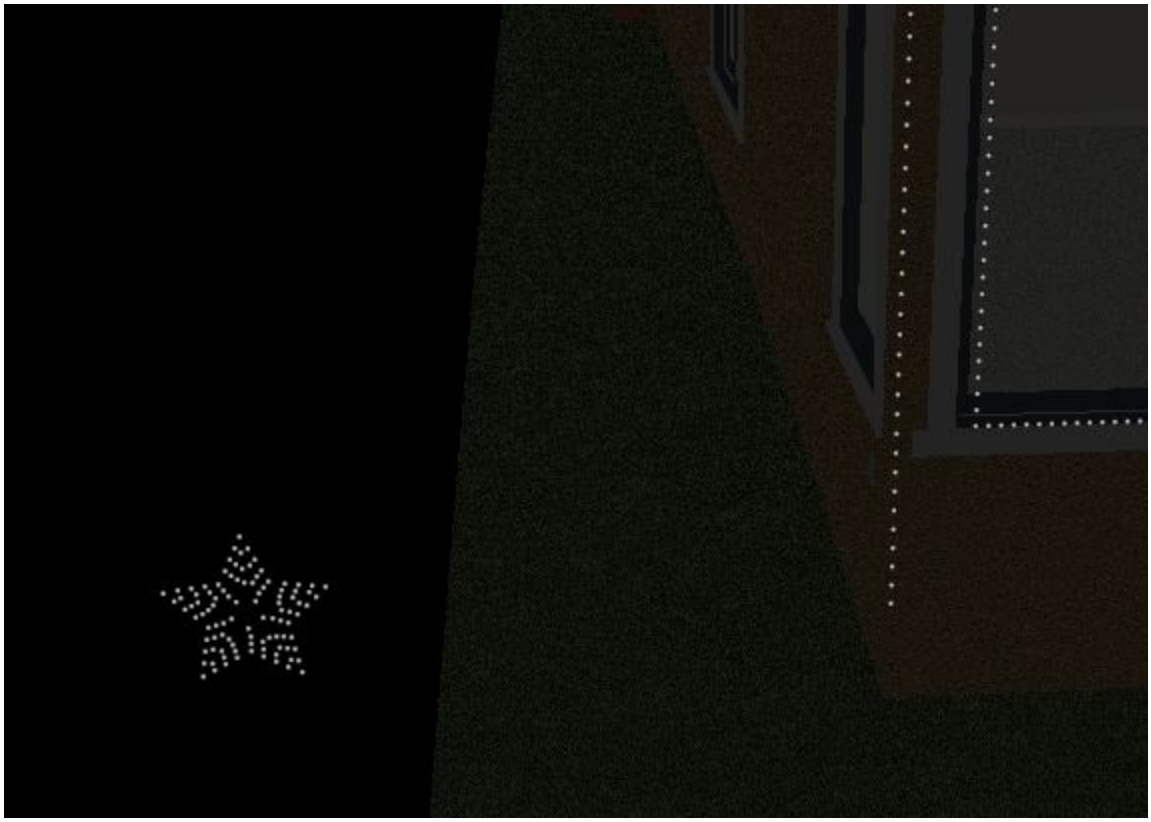
Next, choose the root of your xLights show folder:



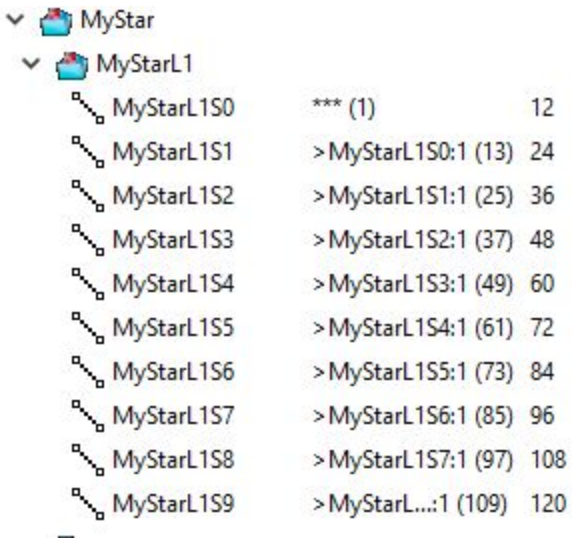
Click **Open** when you're in the root of your show.

Open xLights and view your layout.

Note your new star handily positioned as 0,0,0 in 3D view:



Look in your models view and see a model group with the model name you specified.
If you expand it, you'll see a sub-model group for each layer of the star.



Each of the sub-model groups includes a whole bunch of Single Lines which make up the sides of the stars.

You'll probably ask yourself, "Why didn't you just export as an xLights star model?". Because Red Carpet supports changing the star ratio, this was the best way to get something representative. I tried using Poly Lines but they didn't render the star correctly.

You should probably just add the main model group and layer subgroups to your sequences and just ignore the single lines.

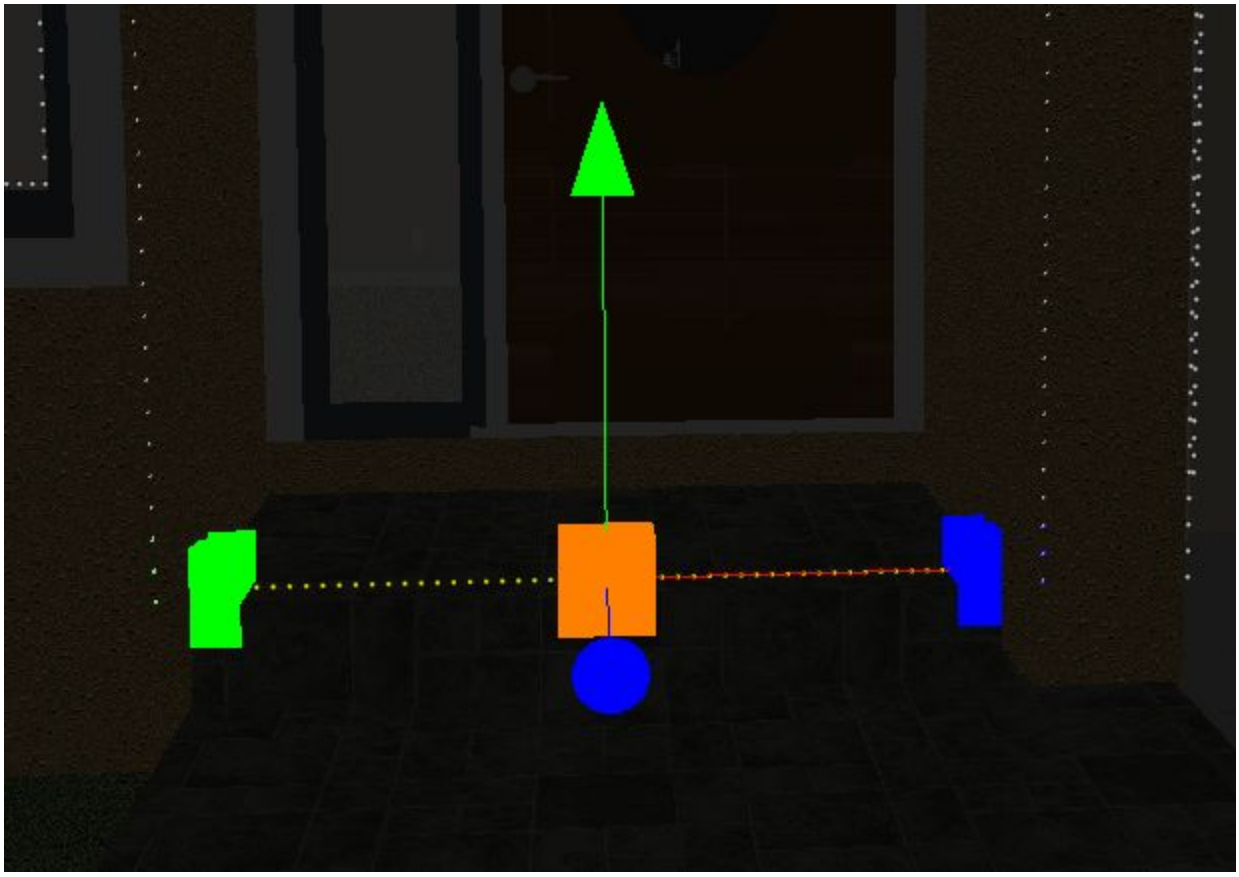
Determining Scale

How do you determine scale for your star? You can always try just 1.0. However, if you'd like to export to xLights using a more accurate real world measurement, use the following example.

In your xLights 3D layout, find a portion of your house model you know the dimensions of in "the real world".

For example, I know my front entry-way is 65 inches wide.

Draw a single-line to correspond to your known distance:



In the properties for your line, expand the “size/location” panel:

Size/Location	
Locked	☐
WorldX	376.88
WorldY	-10.87
WorldZ	-1.89
X1	376.88
Y1	-10.87
Z1	-1.89
X2	476.55
Y2	-10.87
Z2	-1.89
RotateX	0

In my case I was drawing along X, so I can find the length of my line by using X2 - X1 = 99.67 I know that line is 65” in the real world, so 99.67 / 65 = 1.53. Thus, the scale I would enter in Red Carpet is 1.53.