

**This link is a video of the software instructions:**

<https://www.youtube.com/watch?v=tGaJr17tRak>

## 2 iCubeSmart animation edit tool detail instruction

The main board you receive has been download the program, connect to a 5V power supply(Current 1A or above) will begin display the animation. You can build up a new 3D animation program or edit the program in the 3D program source file we offer.

With iCubeSmart 3D animation edit tool, you can edit the 3D animation without the program C source code. When finished edit the 3D animation, export a HEX file with the 3D edit tool, and download it to light cube, then it will run the 3D animation offline.

**The edit tool do not need to install, double click it can run it directly.**

**If the 3D edit tool can't run with your computer, please check if you install the DX9.0C(only 9.0C) and .net framework 2.0(2.0 or above),**

**If you read the tutorial below, and still won't use this software, you can contact us by email or via Skype and Facebook's live chat tool. We can also help you online (after 6pm New York time).**

Email: [icubesmart@gmail.com](mailto:icubesmart@gmail.com)

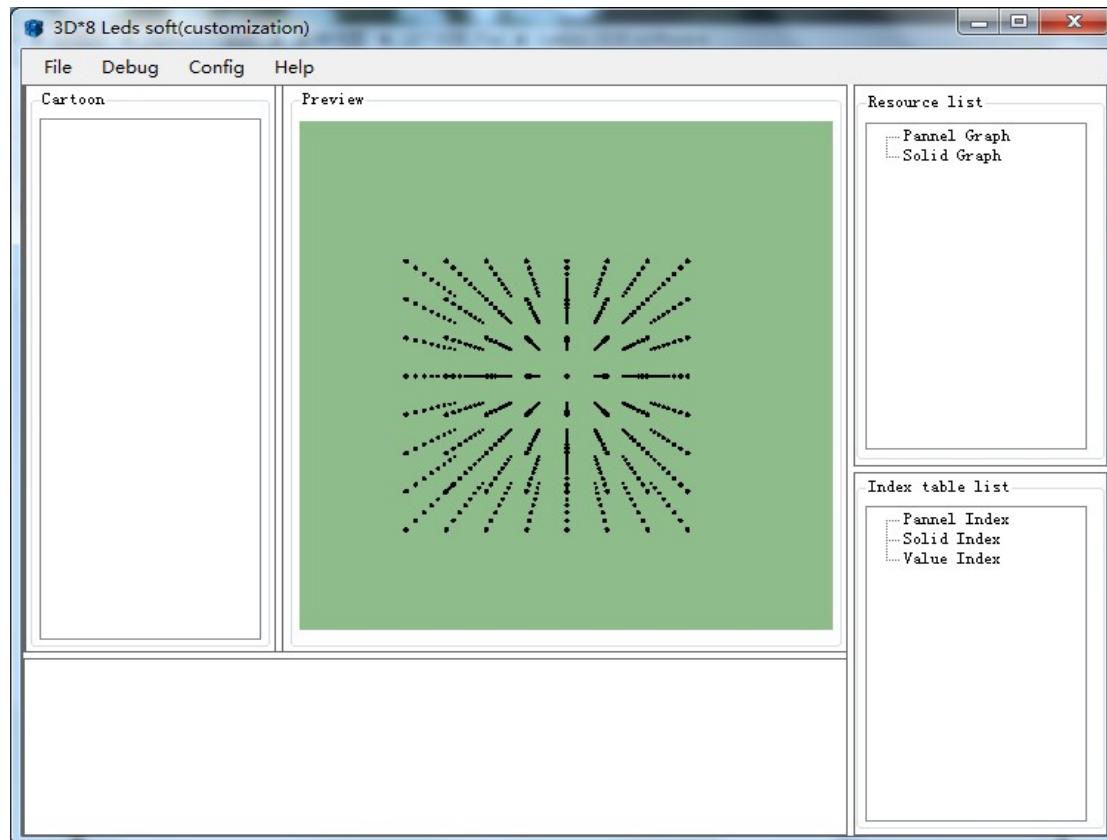
Facebook: Cube Rui <https://www.facebook.com/profile.php?id=100035051435048>

Skype: <https://join.skype.com/invite/CmERNASoXvtN>

Here is the detail about how to use this software.

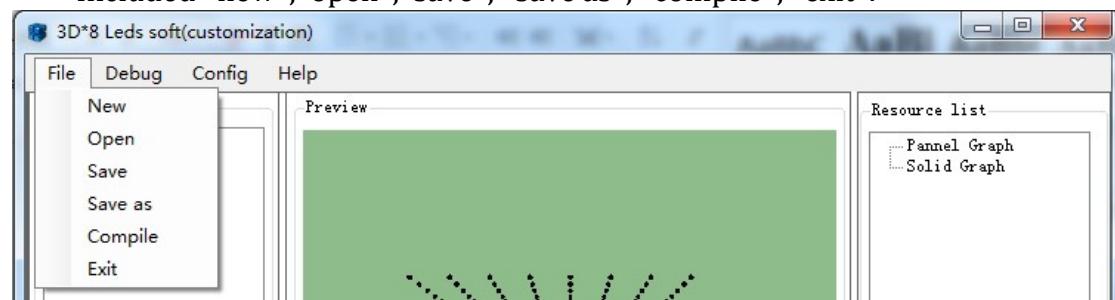
### 2.1 iCubeSmart 3D animation edit tool menu

Run the software, you can see the software display as below, the menu included “file”, “debug”, “config” and “help”.

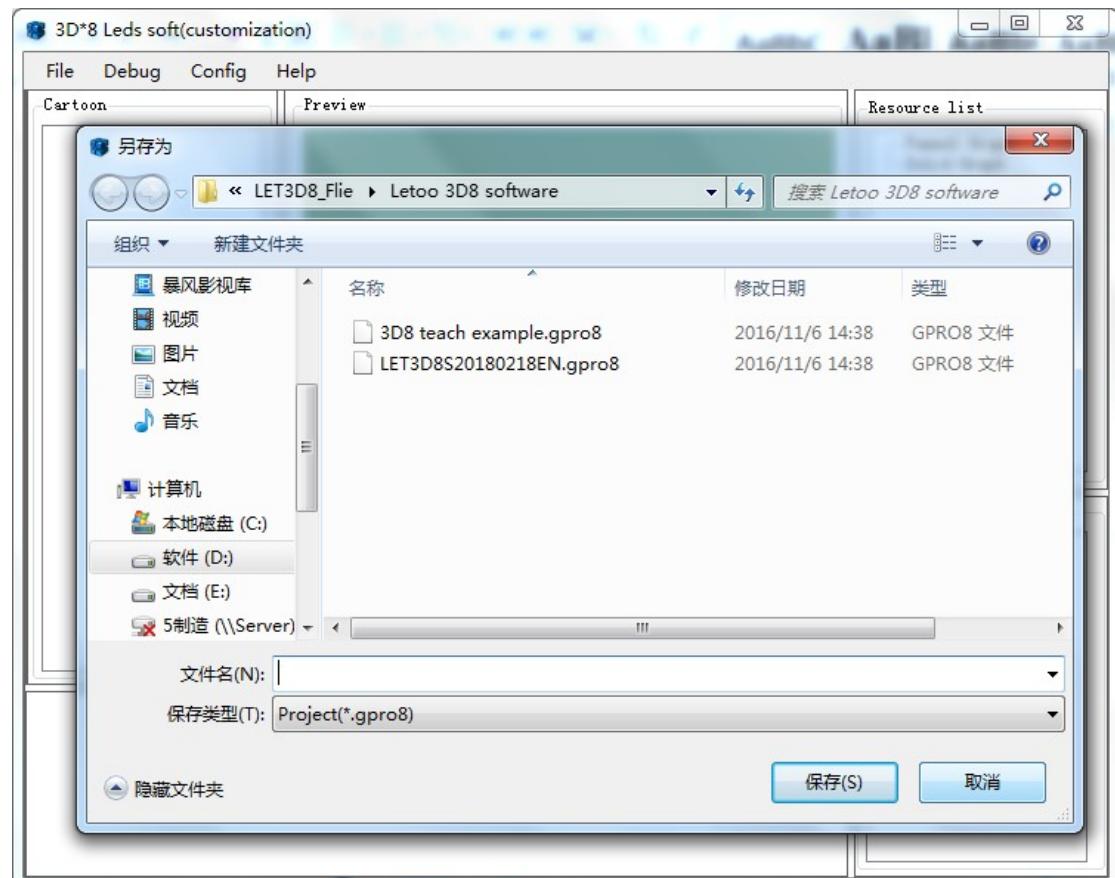


### 2.1.1 File menu

Included “new”,“open”,“save”,“save as”,“compile”,“exit”.

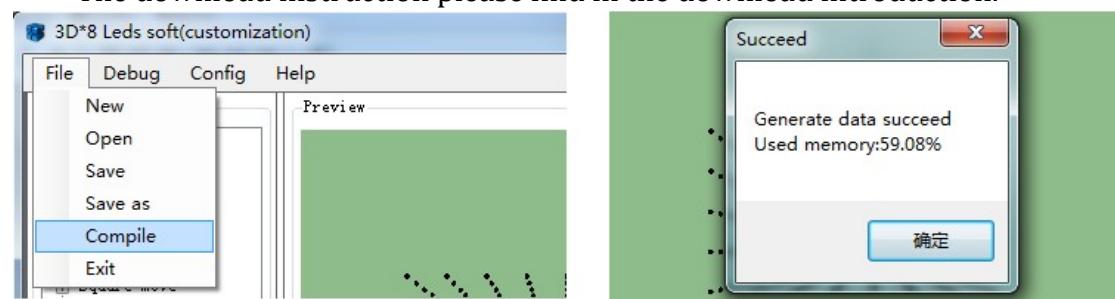


Choose “save”,and input the file name, the file defaults to a .gpro8 file.



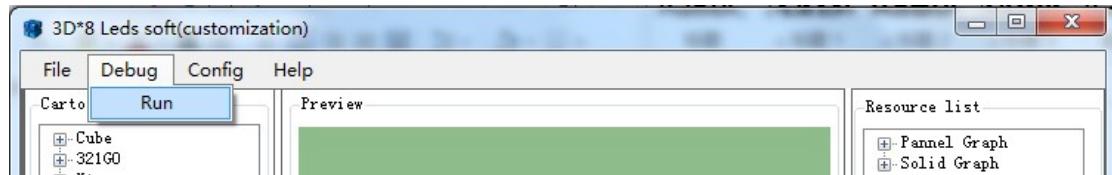
Click “compile”, it will produce a HEX file,it will display a window to show how much memory space has been use, and it will build up an “output.hex”file automatically(as below pic)Download this file to the main board, and it will run your edited animation.

The download instruction please find in the download introduction.

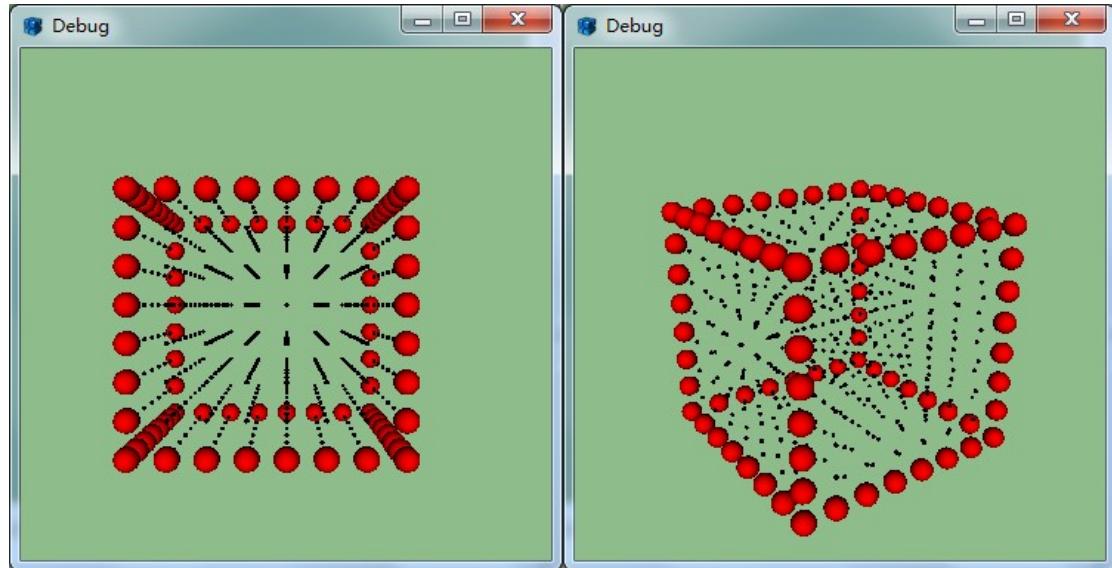


## 2.1.2 Debug Menu

The Debug menu mainly use to operate the finished animation.



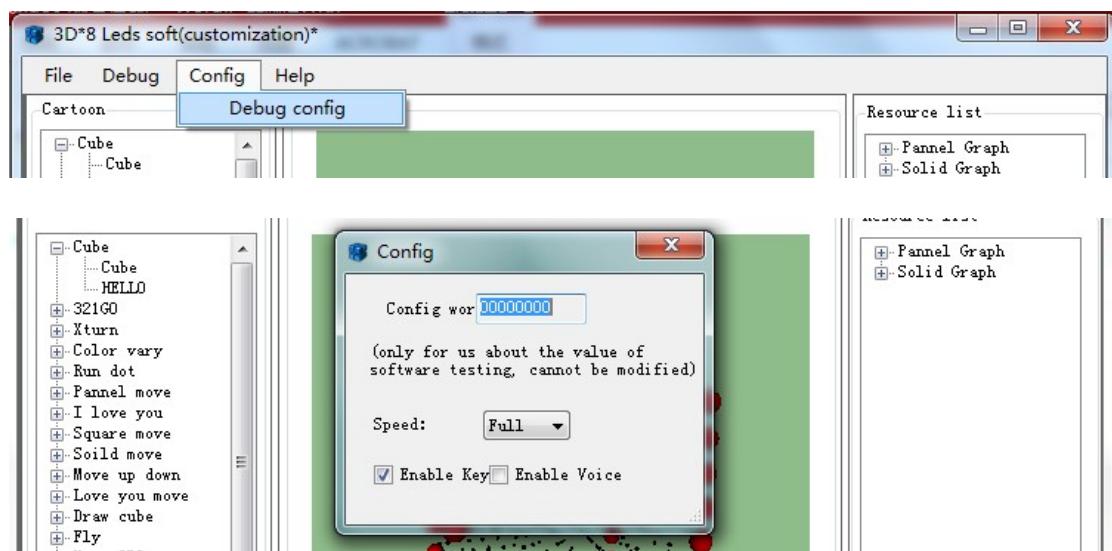
Click “Run”, it will show a simulation effect window, you can use the mouse to drag the animation to different angles.



## 2.1.3 Config Menu

The “Config menu”is mainly use to configure hardware device features,the hardware config included button and voice features, You can open these two functions by checking the corresponding choice.

The software interface as below, check the relevant functions,the button function is open in default, if you want to use the voice function,your main board must with a audio port.



Please pay attention when you config “open the voice test”, when you check “open the voice”, the light cube will totally be controlled by the audio, you must insert an audio wire and play music, then the animation will begin to run (Increase the volume if possible)

When the music pauses, the animation will pause as well, please notice that.

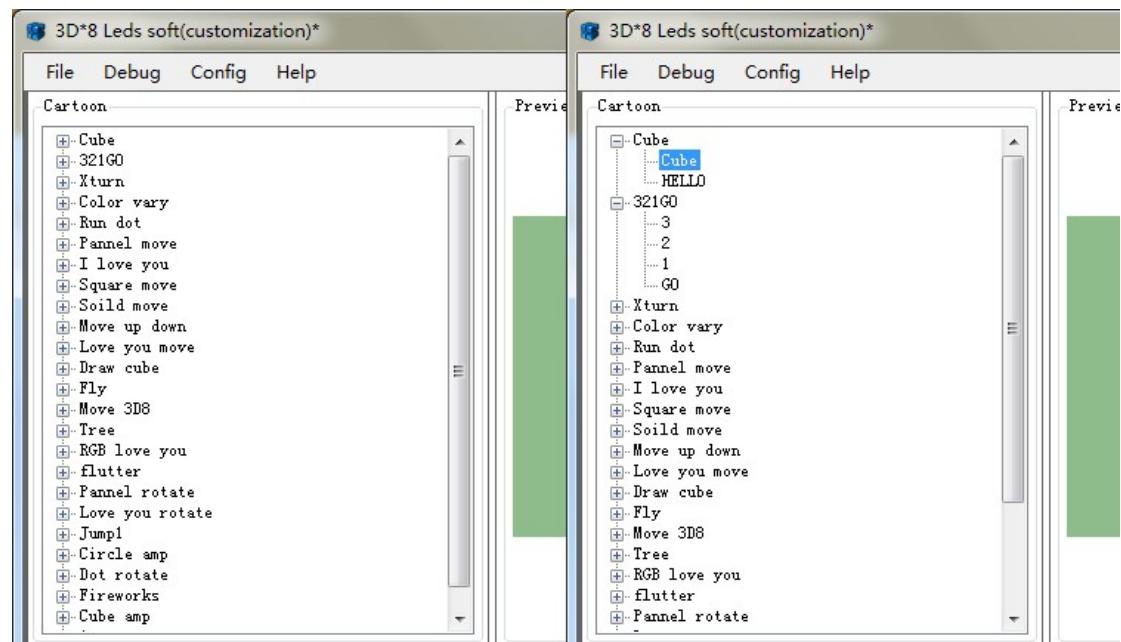
## 2.2 Menu area division introduction

The Menu is divided into 5 parts, it contains “cartoon group”, “preview effect”, “Resource list”, “operation area”, “index table list”

### 2.2.1 Cartoon group

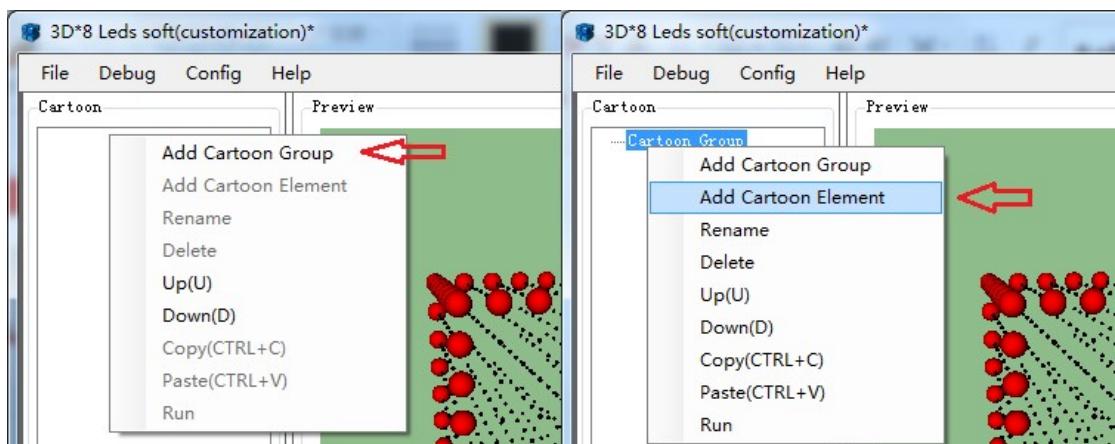
All animations of this software are made by flash, each text or picture animation effect is played in order.

Cartoon group definition: cartoon group is a collection of all animations, we saw different animations play in the demo, each different animation effect is a separate cartoon group. There can be many different cartoon elements under each cartoon group.

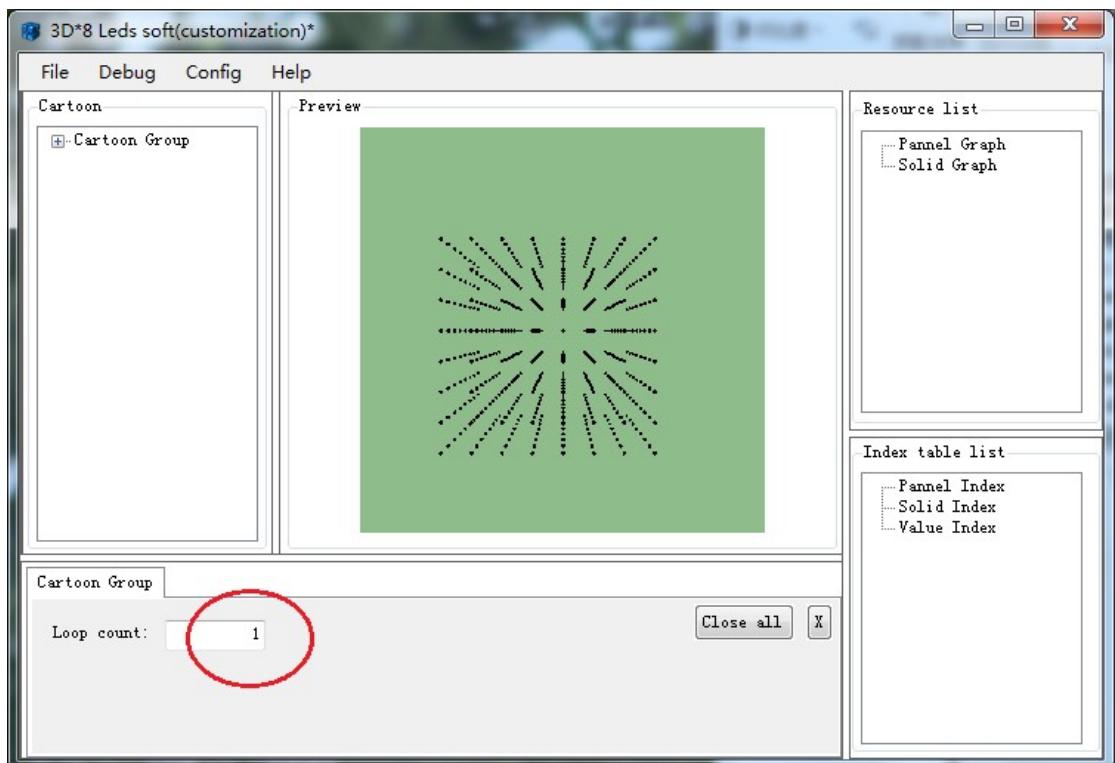


All animation effects are arranged in the cartoon group. The cartoon group supports adding various animations, copying or pasting animation effects, moving animation effects, etc., and previewing individual animation effects.

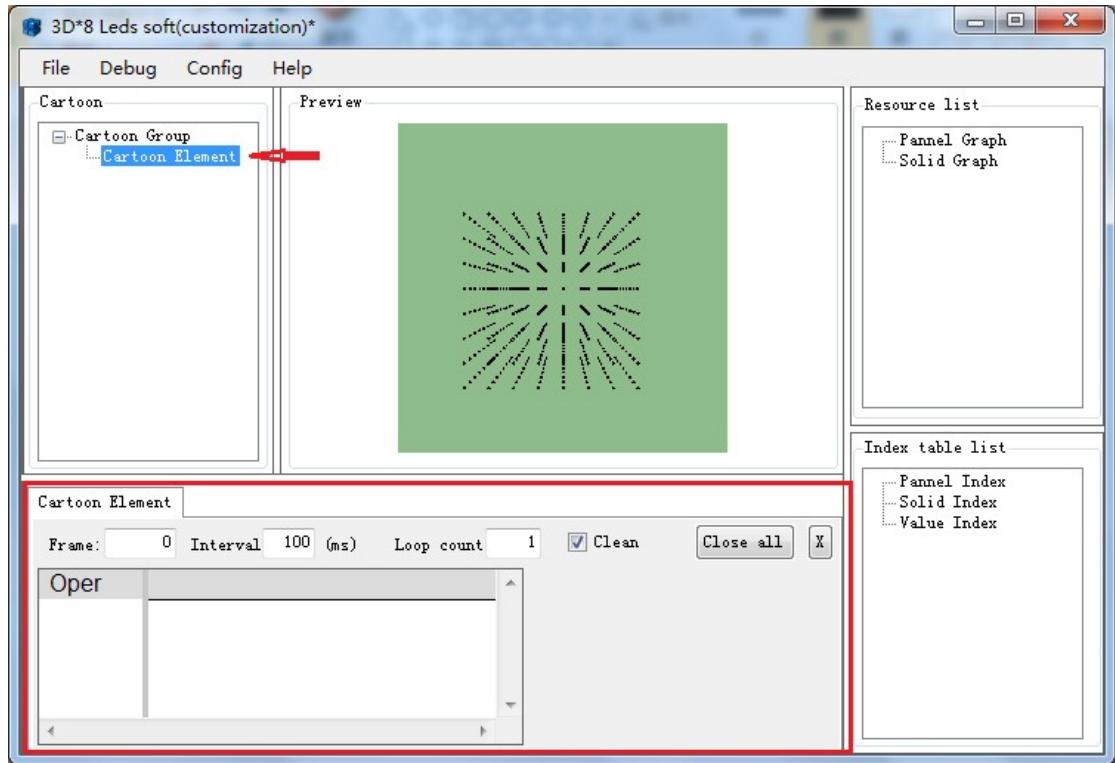
Right-click in the blank space of the cartoon group box to add a cartoon group, select the cartoon group, you can right-click to add a cartoon element, the cartoon element is an independent animation, you can set the cartoon element's running time and cycle times.



Double-click the cartoon group to set the cartoon group. The cartoon group can set the number of loops. When the loop number is set to 0, the cartoon group is closed. This group of animations will not be played during runtime. This setting is 0 to prevent some animations from being easily blocked, because sometimes you don't want to delete the cartoon group directly.

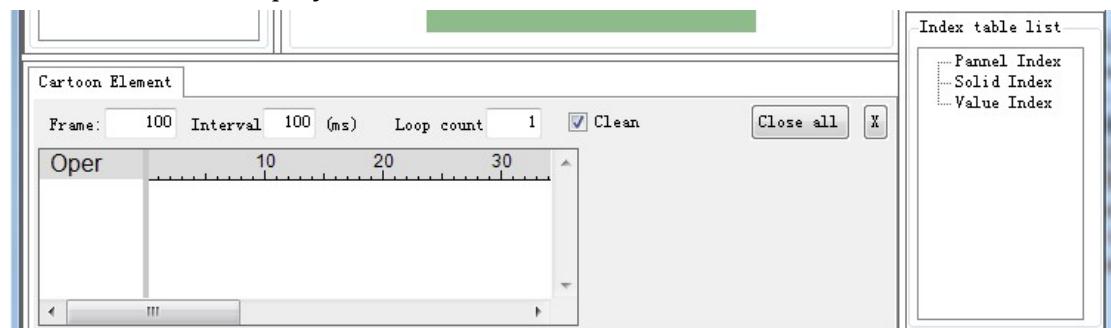


Double-click the cartoon element below the cartoon group, and each operation bit of the cartoon element will be displayed in the frame of the operation area as shown below:



After creating the cartoon element, you must first set the number of frames for the animation, which is the length of the animation, because the default is 0 frames, so other operations can not be done.

If you don't know how long the animation is, you can set the value higher first. Here, set 100 frames first. The effect is as follows. After setting, the frame number ruler is displayed.

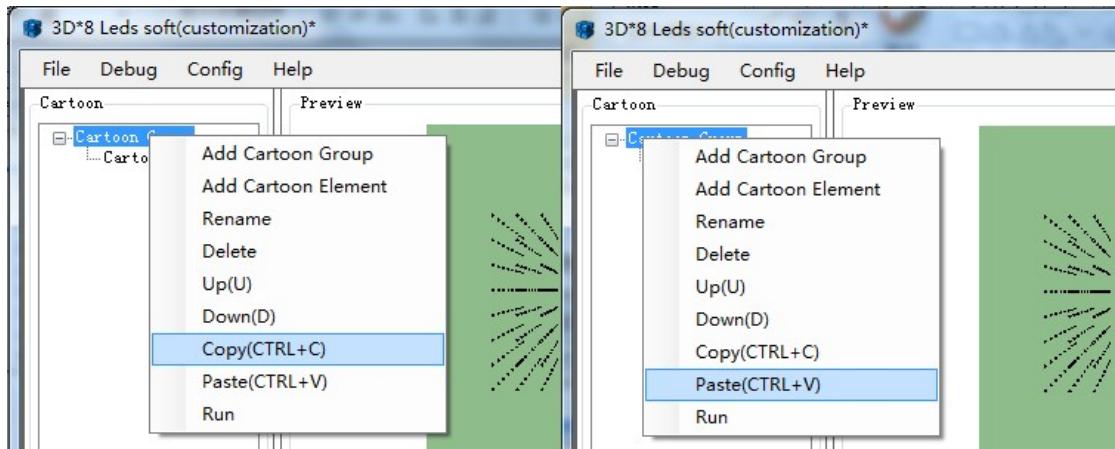


The frame interval is the time between each frame. The longer the time, the slower the animation runs.

**The number of loops is the number of times the entire frame is looped.** You can set the loop here, or you can set the loop inside the cartoon group. (Note: The loop set here is a loop of a single animation. The loop set in the cartoon group is the animation loop in all cartoon groups, pay attention to distinguish)

In order to achieve the effect of any interstitial animation, the cartoon group supports movement, copying, and other operations, as follows:

(Note: copy, paste operation please do not cross software, otherwise it will be error)



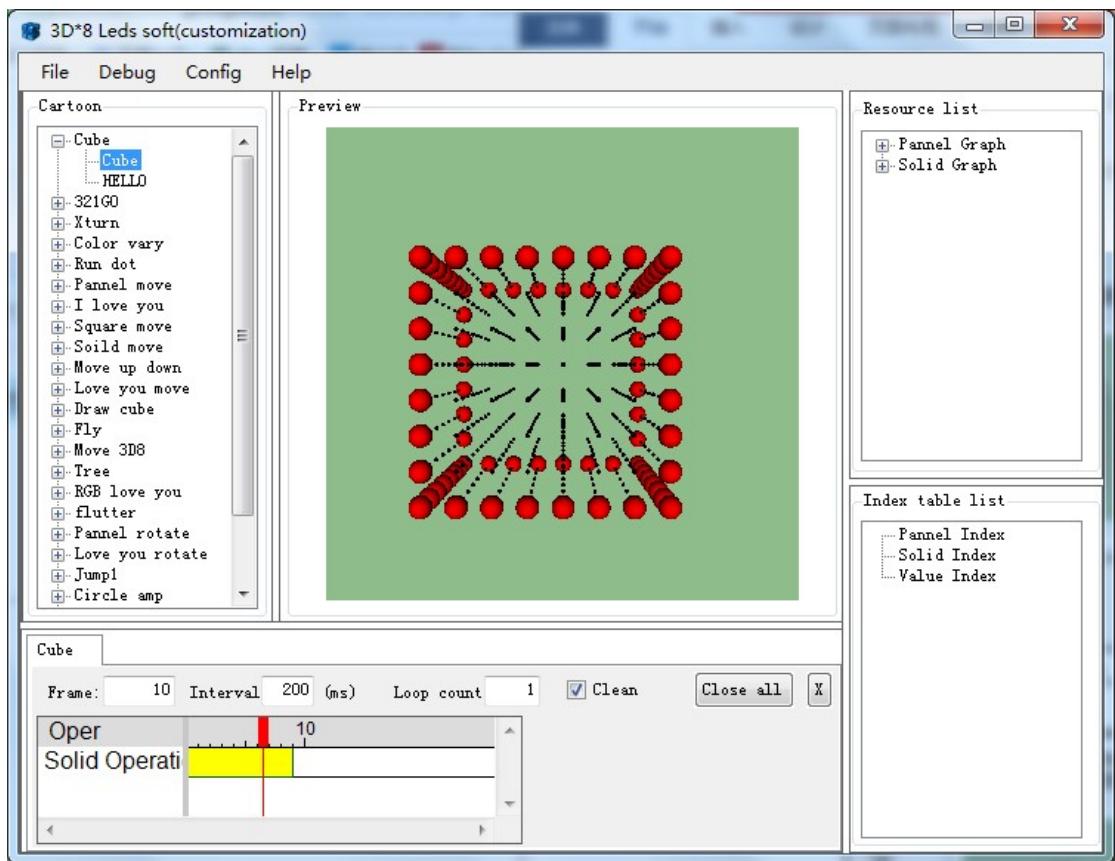
The [Preview Run Effect] in the cartoon group only previews the current animation, eliminating the need to wait for the previous animation to be played before the preview can be played in the debug.

### 2.2.2 Preview effect area

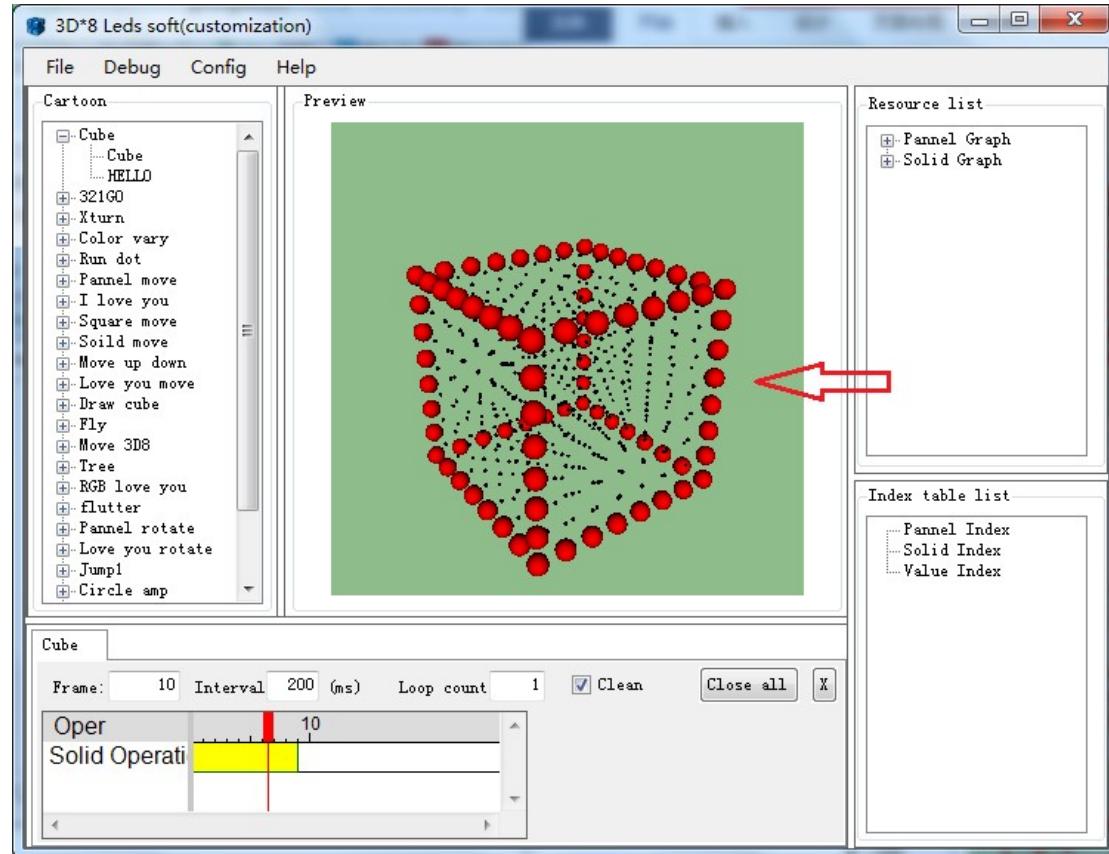
The preview effect area is mainly used to view the real-time effects of the produced animation.

**First open an animation file with a .gpro8 suffix.**

When you double-click the cartoon element in the cartoon group, each frame of the animation will be displayed in the operation area. At this time, click the frame of the frame with the mouse to see the effect of the frame in the preview box, as follows:

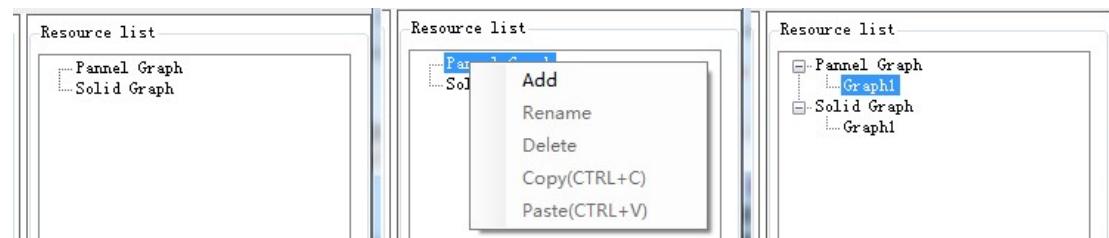


You can use the mouse to pull the position of the [Preview Effect] box to view the preview effect from different angles, as follows:

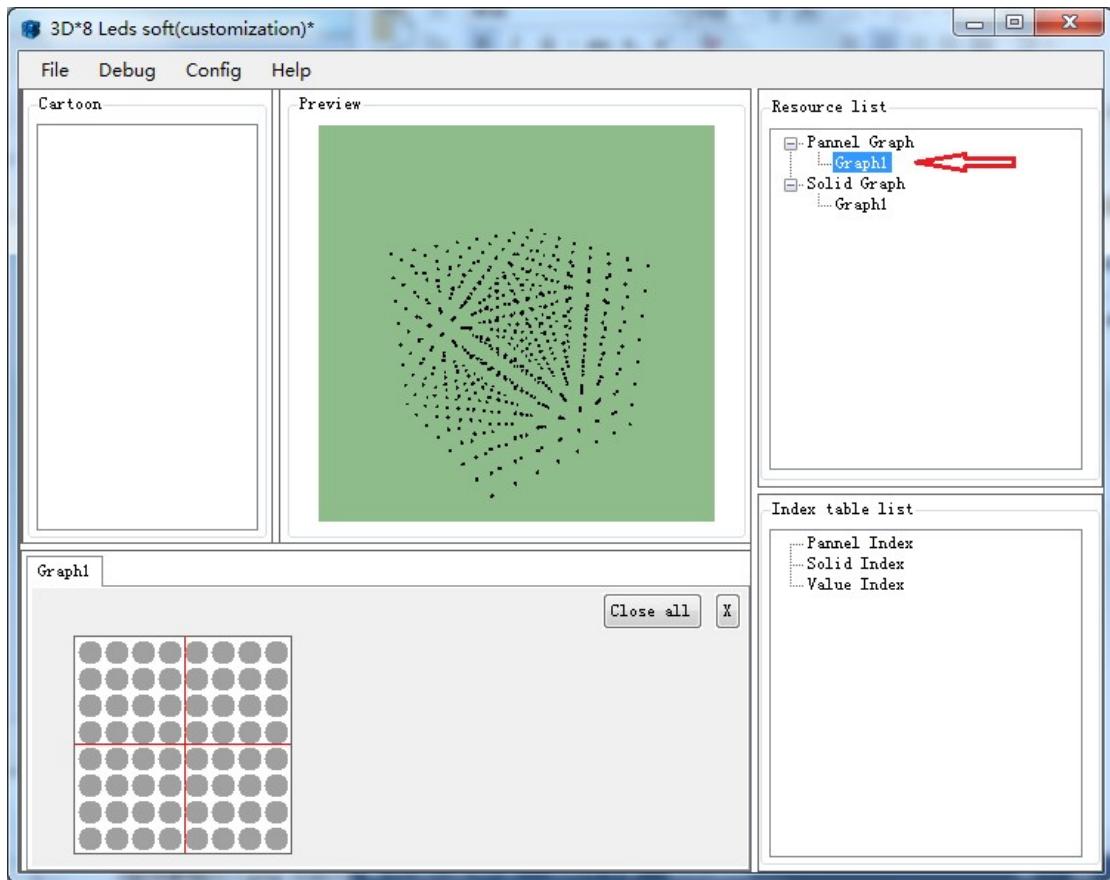


### 2.2.3 List of graphic resources

The graphic resource list contains all the animation resources, mainly including flat graphics and solid graphics. The graphics resource supports the copy function, and the graphics with smaller changes can be copied and modified slightly to improve the efficiency of the animation.

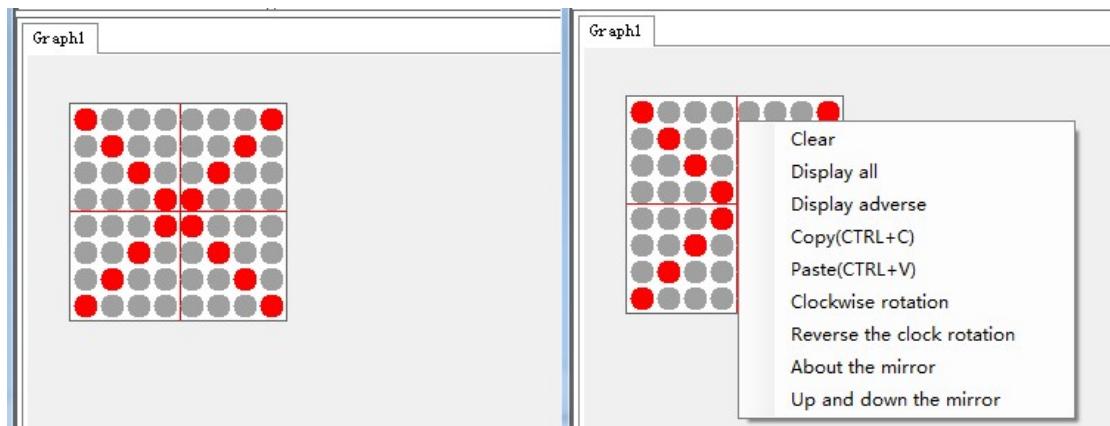


Right click on the add graphic, the default is to sort by number, double click to create the flat graphic [flat graphic 1], the operation interface of the graphic 1 will pop up in the operation area. There is only one layer of flat graphics.

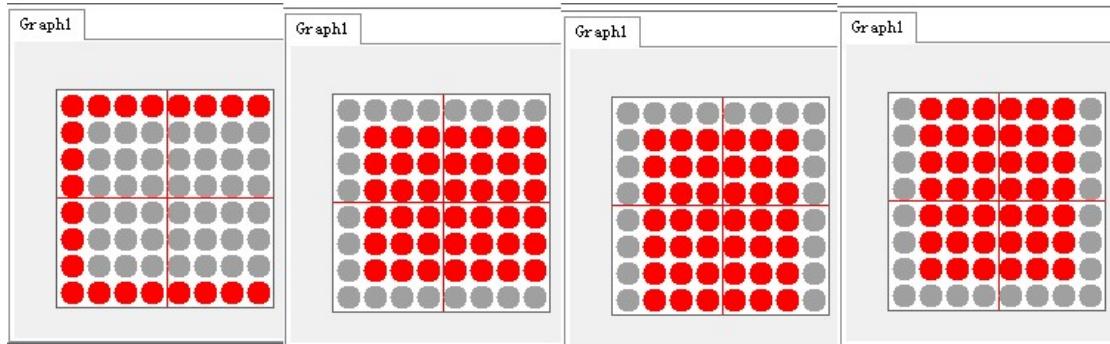


Because the plane graphic has only one layer, you can see the effect directly, so there is no preview effect.

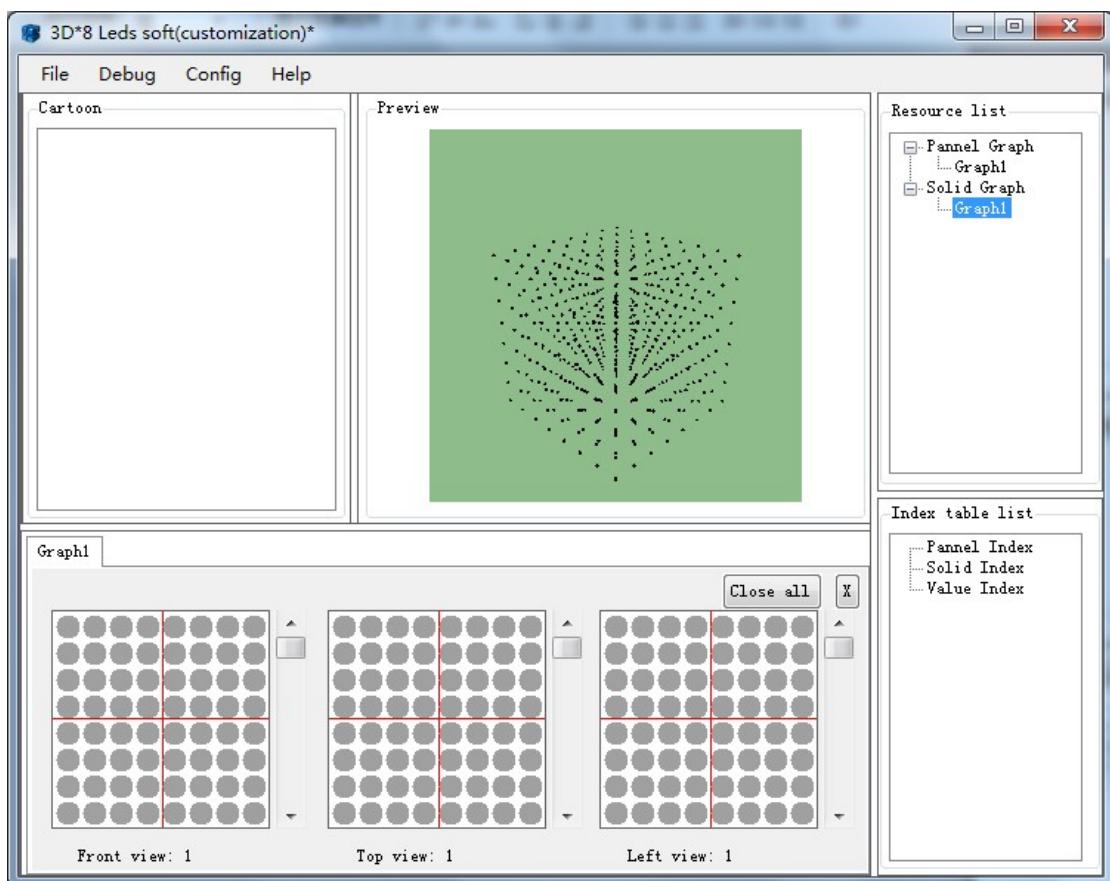
The flat graphic can draw the graphic directly in the operation interface. When drawing, the left mouse button is the drawing point. If you need to delete the point, hold down ctrl and click with the mouse.



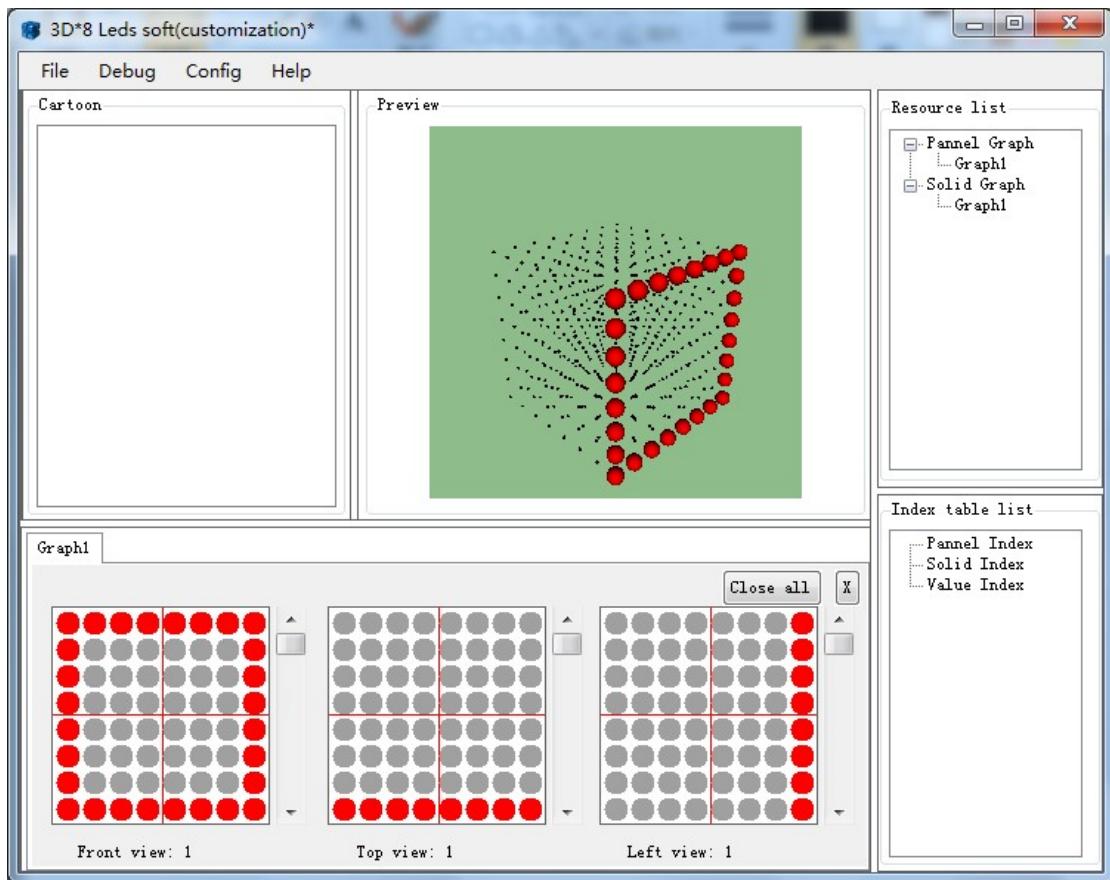
The right button of the flat graphic operation interface will come out with many options, including clearing all, display all, copy, past, clockwise rotation, reverse the clock rotation, about mirror, up and down the mirror.



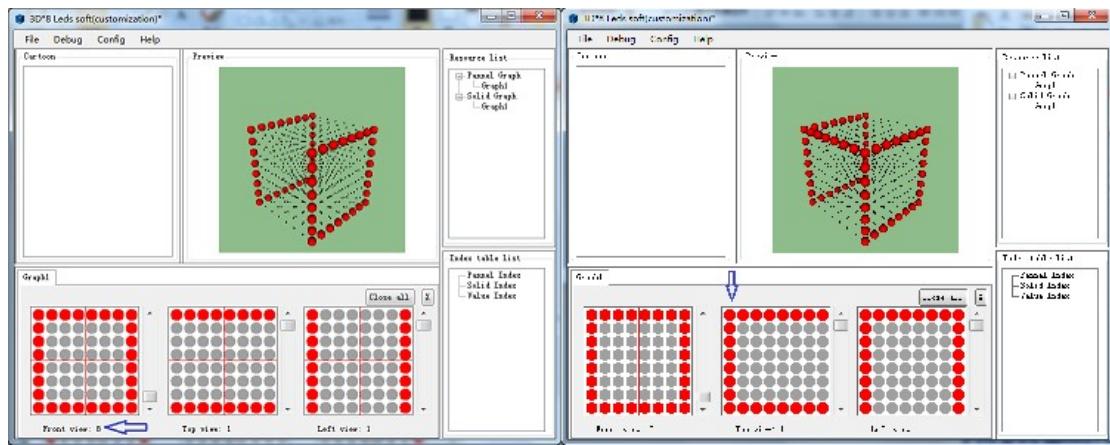
Double-click [3D Graphics 1] in the graphic resource to pop up the 3D graphics editing box. The 3D graphics are a three-dimensional, divided into 8 layers, each layer can display different content has achieved the stereo effect.

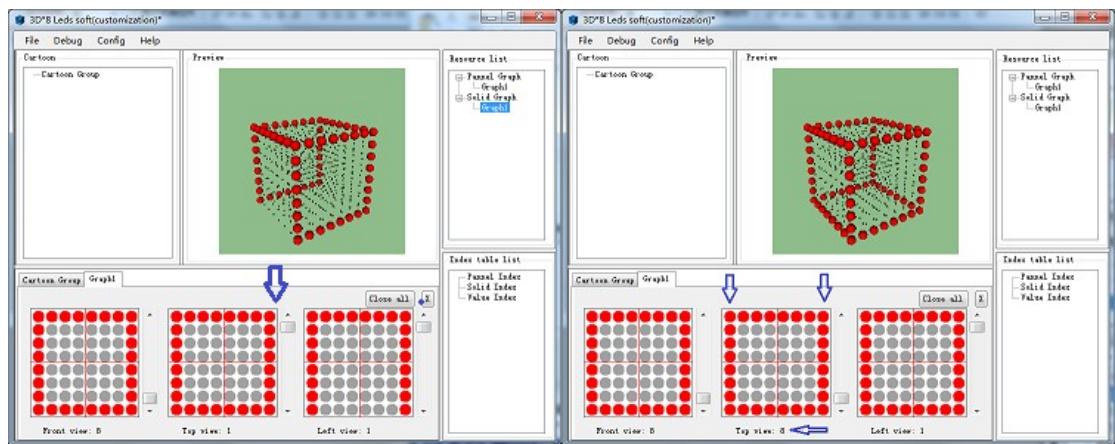


Draw a box on the first layer and you can see the preview directly in the preview area. You can also see the corresponding top and left view renderings in the box next to it, as follows:



To play your 3D imagination, if you need to draw a vertical block diagram, you only need to draw a frame on the first layer, a frame on the 8th floor, and four points on the other 2-7 layers with only four corners, as follows:



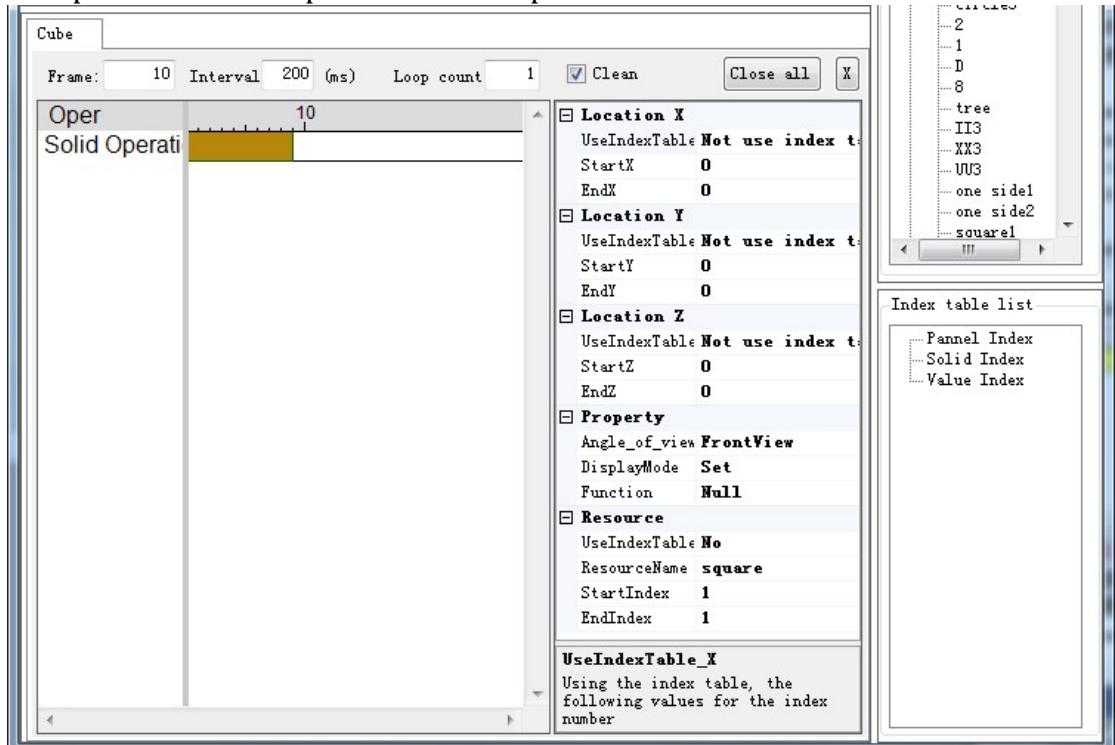


The other 3D graphics are the same as this, and you need to draw the graphics directly.

#### 2.2.4 Operating area

The operation area is where all animations are made, and each animation is made in this area. On the right side of the operating area are the position values and parameter settings for all animations.

The following will teach a few different animation production methods to explain the entire operation of the operation area.



#### 2.2.5 Resource Index Table

The resource index table allows animation resources to perform various animation operations based on an index function.

In the current basic animation production, the index table will not be used basically, and will not be explained here.

## 2.3 Introduction to animation production operations

### 2.3.1 Introduction to animation operations

Animation operations include point operations, line operations, screen operations, stereo operations, etc., as follows:

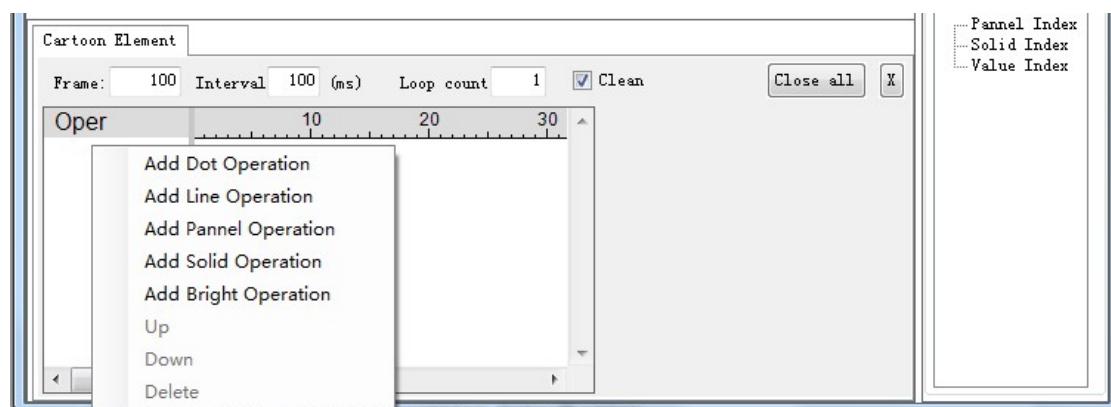
Point operation: Set an action track for a point in the animation detection.

Line operation: Set an action track for a certain line in the animation detection.

Plane operation: Set an action track for the selected plane resource in the animation.

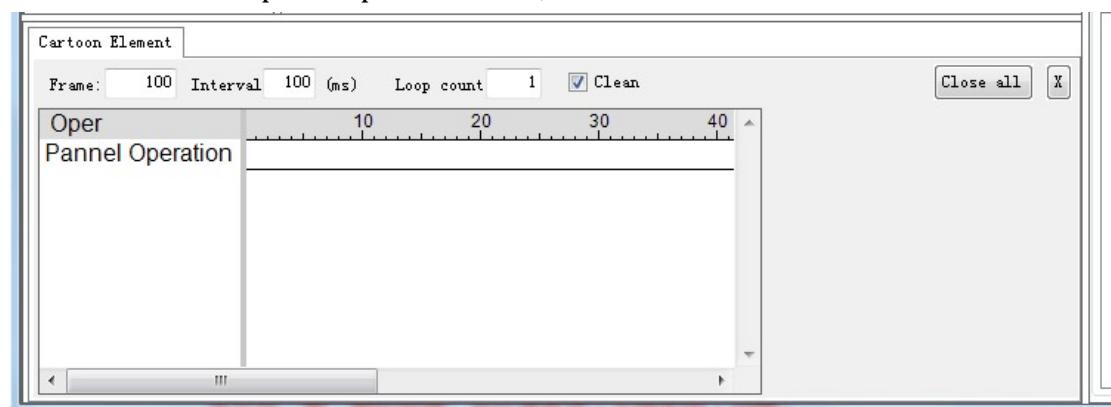
Plane operation: Set an action track for the selected stereo resource in the animation.

First create an cartoon group, then create an cartoon element below the cartoon group, double-click the cartoon element, you can see the detailed interface of the cartoon element in the operation area, first set a frame number, and then you can add various operations, as shown below, Right click to add each action.

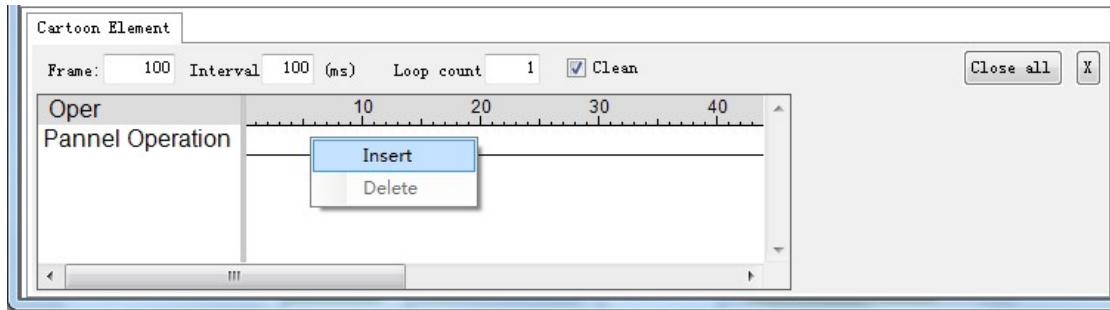


### 2.3.2 Animation parameter setting introduction

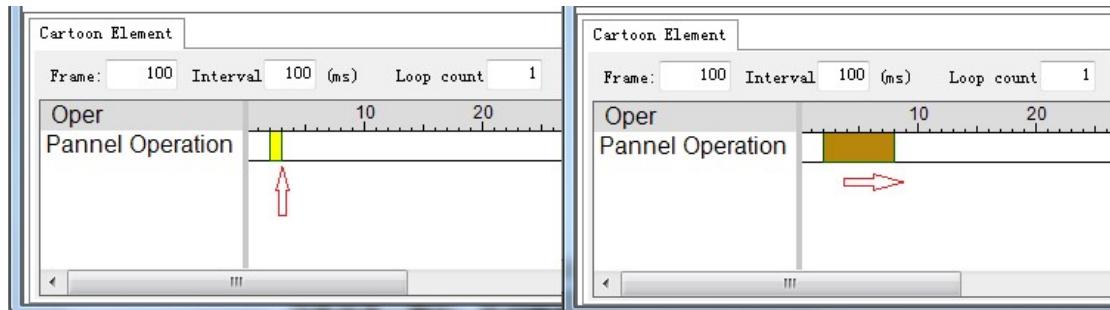
Let's add a plane operation first, as follows:



Then right click on the corresponding time bar to insert the animation, as follows:

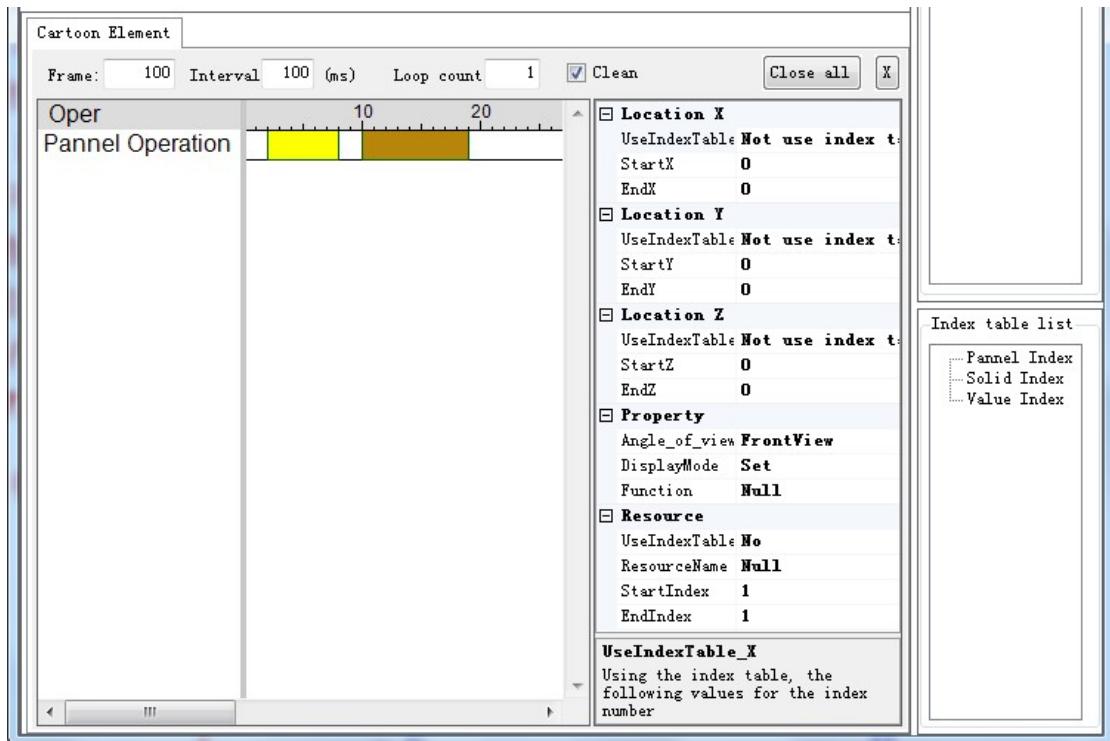


After inserting a frame, the mouse can be pointed to the edge of the frame and can be dragged to many frames. Finally, the system runs such an image of one frame and one frame, and the animation is formed after running fast.



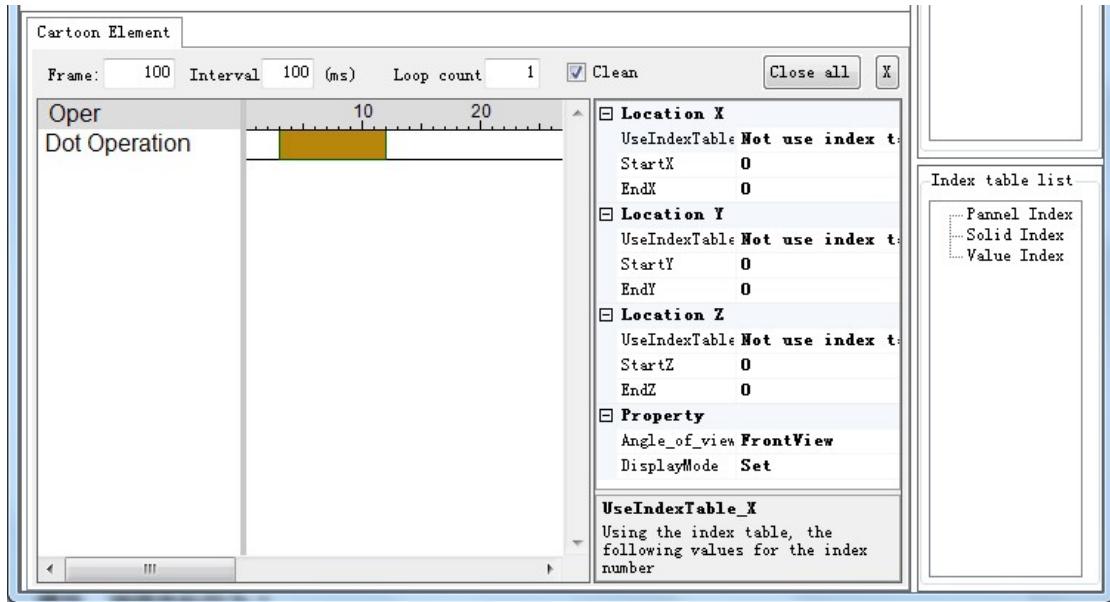
Right-click to insert a lot of different animation frames, you can select a frame directly by clicking the middle frame with the mouse, and the selected detection color will turn brown.

When a certain frame is selected, the animation parameter setting box will pop up on the right side of the animation detection, and the animation effects can be completed by setting various animation effects of the animation.

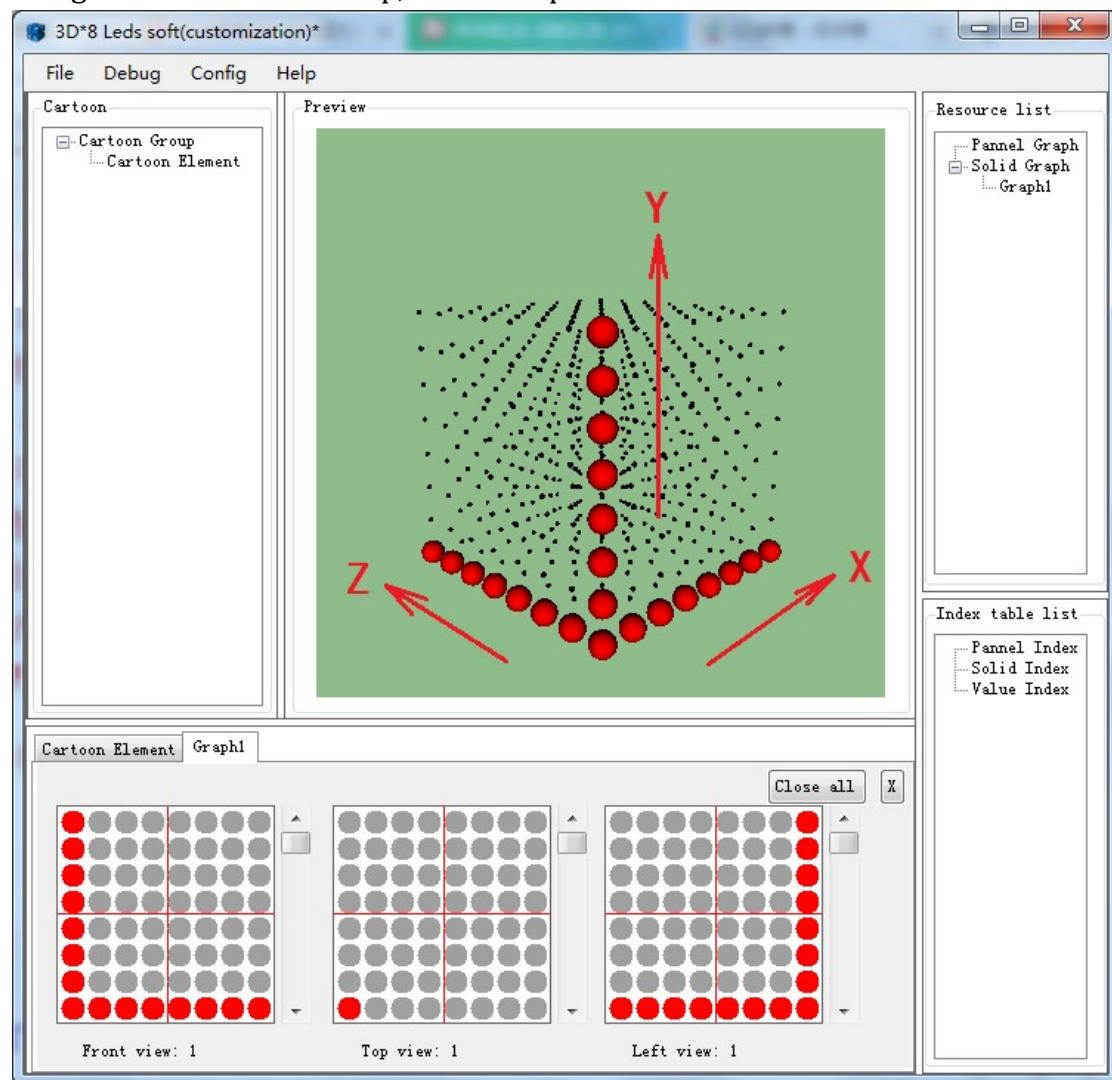


### A: Point operation

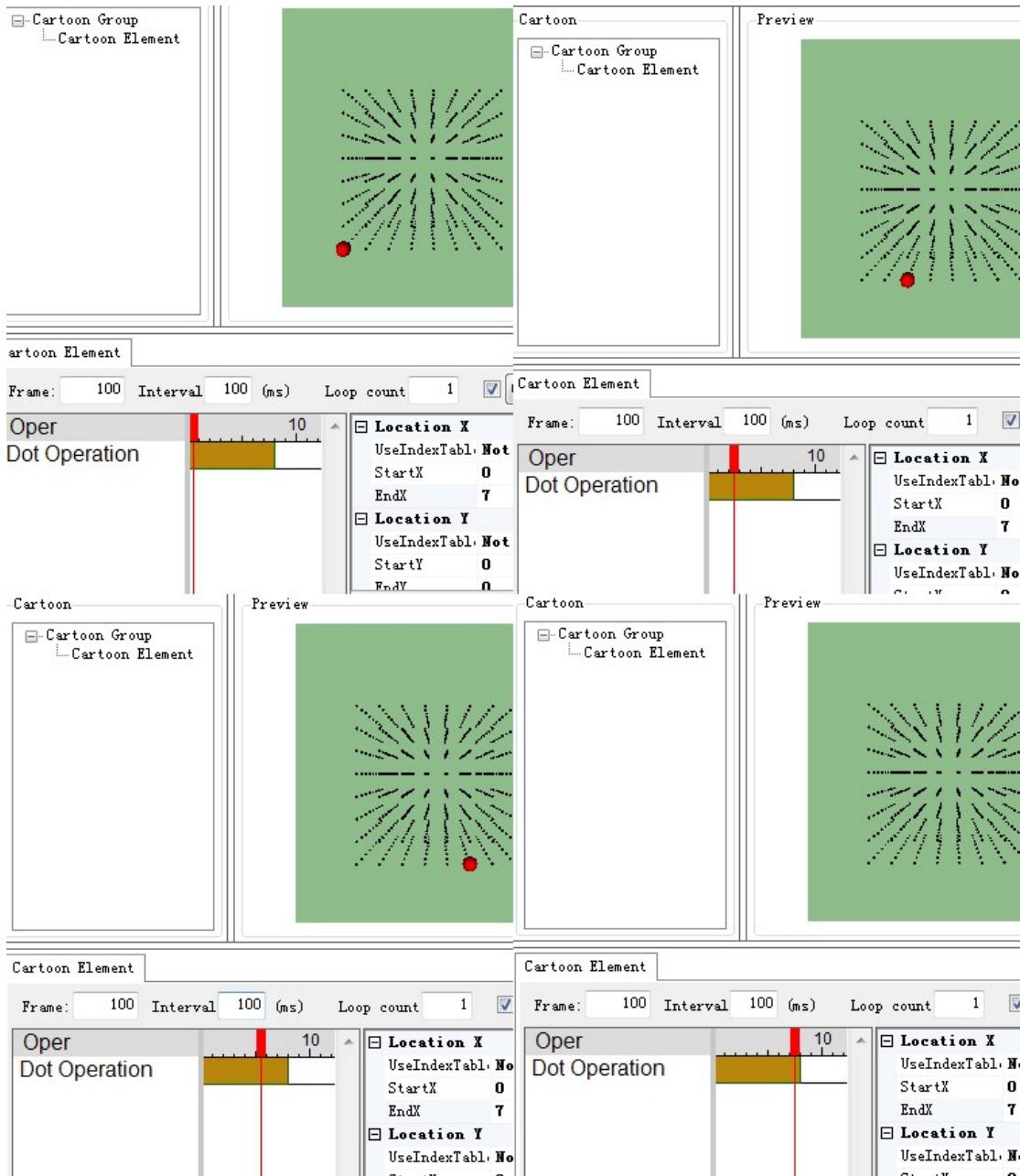
Point operation is to use a certain point to complete the animation effect, first add a point operation, create a new 16-frame length animation detection, select the animation detection, it will come out the setting box, the box has the coordinates of the XYZ of this point, and the point The starting position, which is the running track. By changing the value of this coordinate, you can display the animation of the trajectory of different points.



The direction of the XYZ coordinates of the point is as shown in the figure below. The XYZ coordinates of the intersection point are all 0, 0-7 is arranged along the direction of the tip, and the top coordinates are 7.



As follows, set the frame length of the X point to 8, the starting value is 0, and the ending value is 7, then the motion track of the x point is from 0 to 7 along the X axis, and the step is 1 (one cell per step), the animation effect is as follows: a certain frame in the point, a red vertical bar will appear on the frame, and the preview frame will have a corresponding preview effect of the animation of the frame.

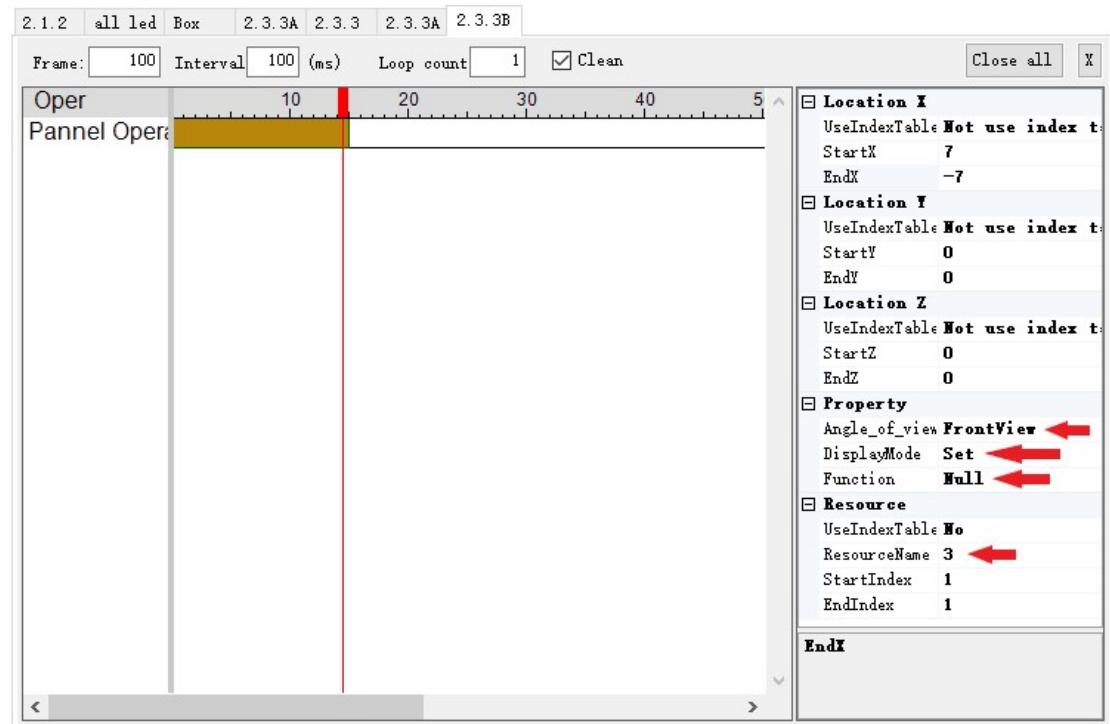


If the frame length is set to 4, then the length of the step track of the point corresponding to x point 0-7 is 2.

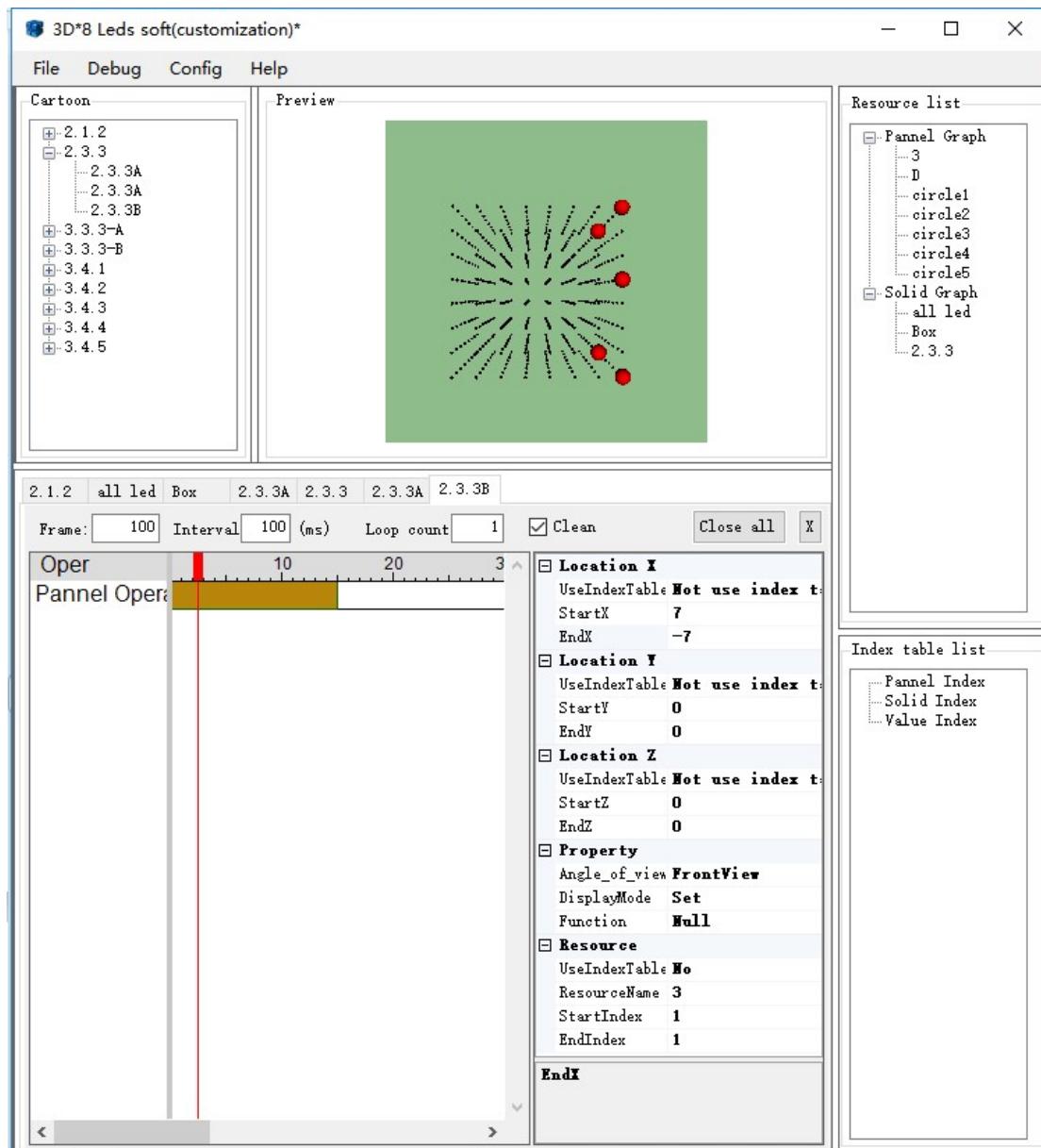
The same is true for the Y and Z axes. Different values can be used to get different animation effects.

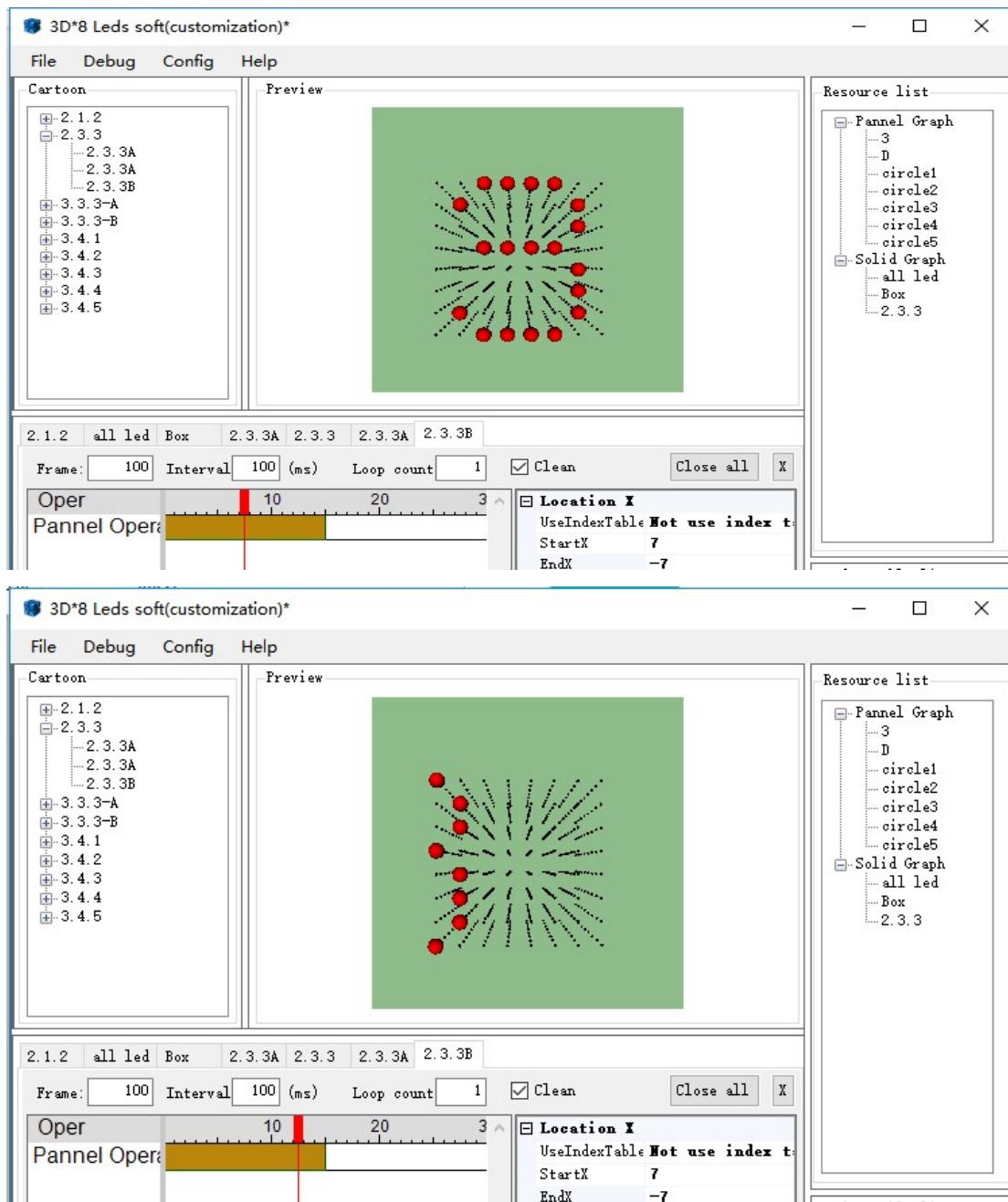
#### B: Plane operation

The operation of the plane is similar to the point operation. It also sets different coordinate values, and the plane moves with the XYZ coordinates corresponding to the set value. The difference is that the plane operation can select different plane resources, and support different perspectives, and operations such as rotation and mirroring.



As follows, set the plane graphic character [3] to move through the front. First, we can imagine that when the plane graphic [3] appears on the far left, his first point is the leftmost coordinate of the X family, and when the graphic is [3] After leaving this face, the coordinates of his first point have left the 0:7 grid of X, so his coordinates should be -7, and the track he walked through is 15 frames. The actual effect is as follows:





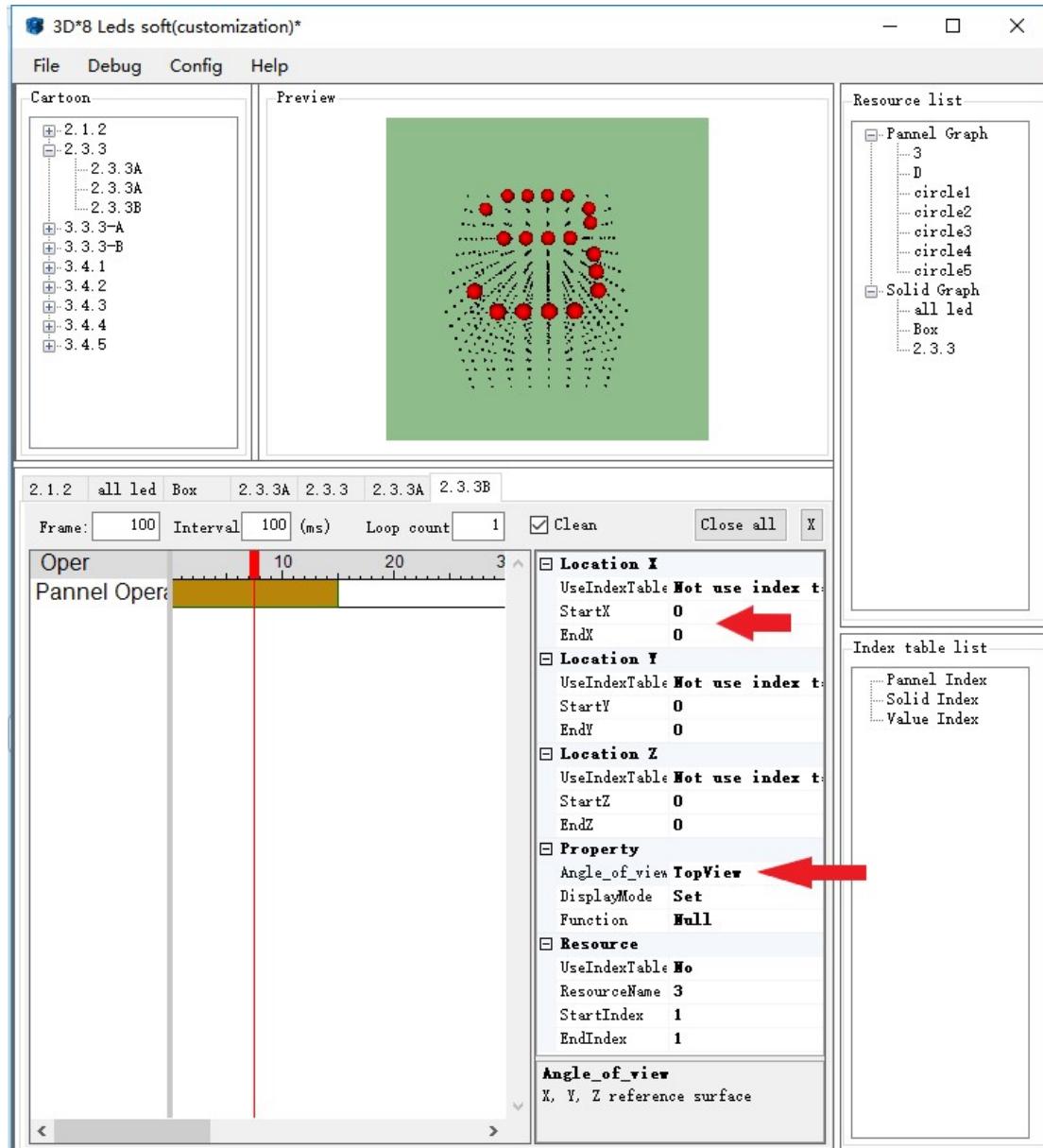
By selecting different graphics, you can get different moving animation effects.

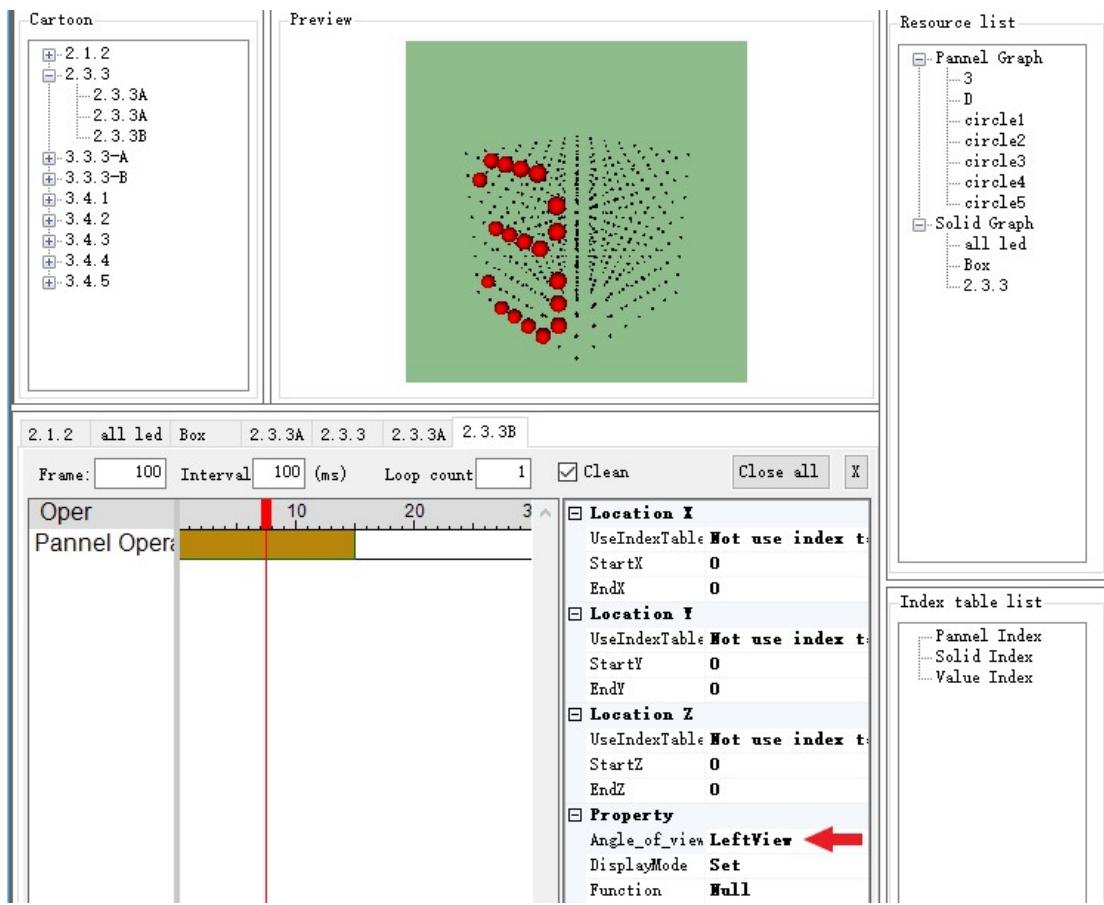
Let's take a look at the different perspectives and rotating mirrors.

The screenshot shows the software's property editor interface with three main sections:

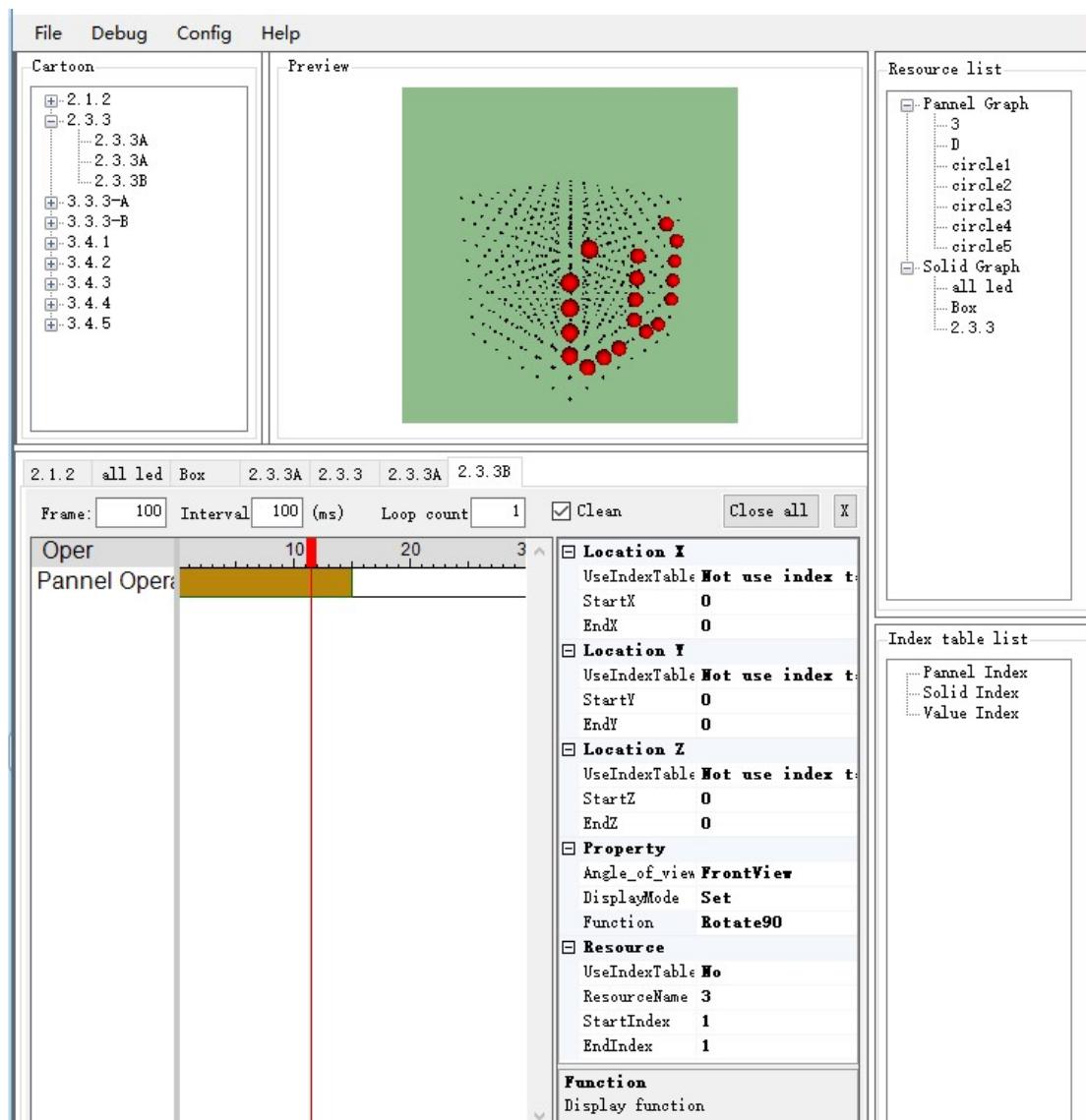
- Property Section:** Shows "Angle\_of\_view" set to "FrontView", "DisplayMode" set to "FrontView", and "Function" set to "TopView".
- Resource Section:** Shows "Resource" set to "LeftView".
- Advanced Properties Section:** Shows "Property" set to "Angle\_of\_view FrontView", "DisplayMode" set to "Set", "Function" set to "Null", "Resource" set to "Null", and "Function" set to "Null".

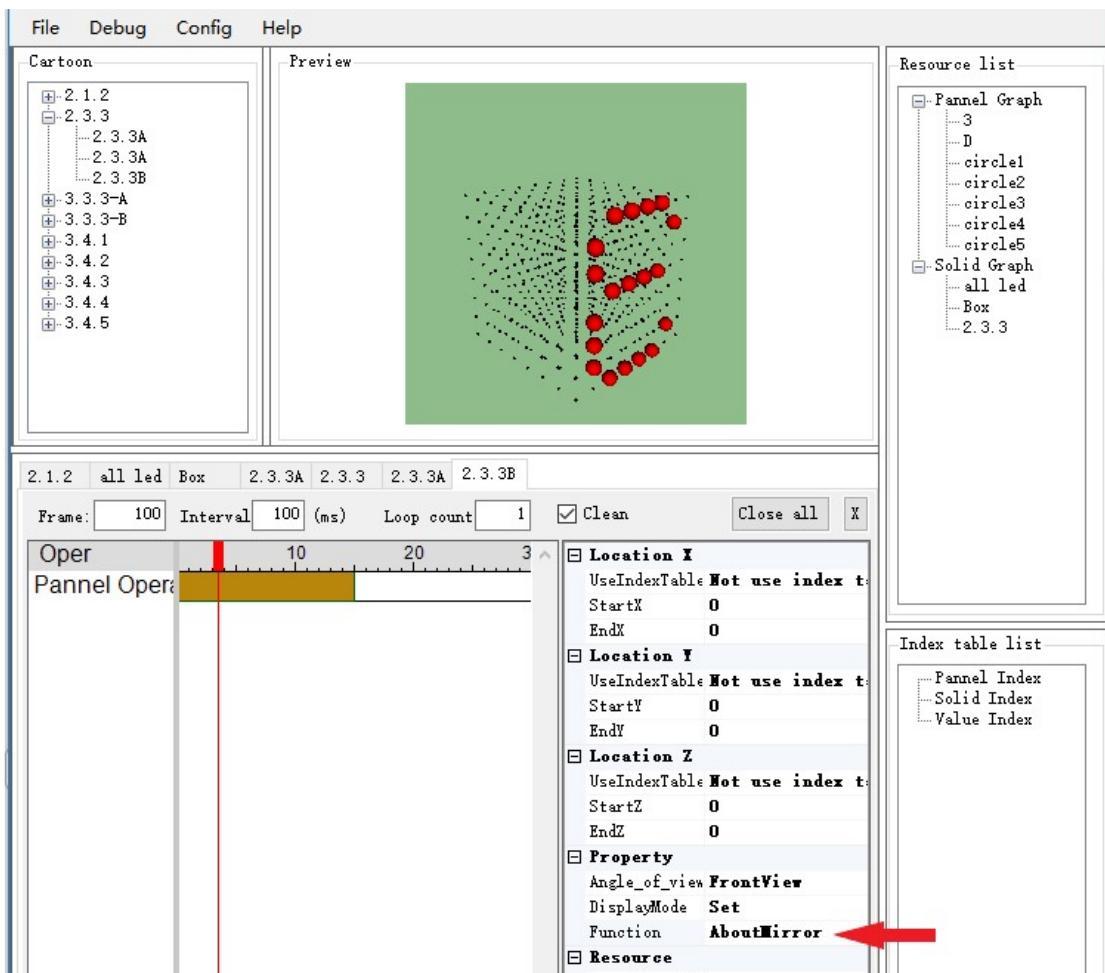
The following are the different effects of the same graph in different perspectives. It should be noted that after setting the angle of view, the corresponding XYZ coordinates will also change correspondingly with the angle of view.





Choose different rotation or mirroring methods to get different angles, as follows:





### C: Stereo operation

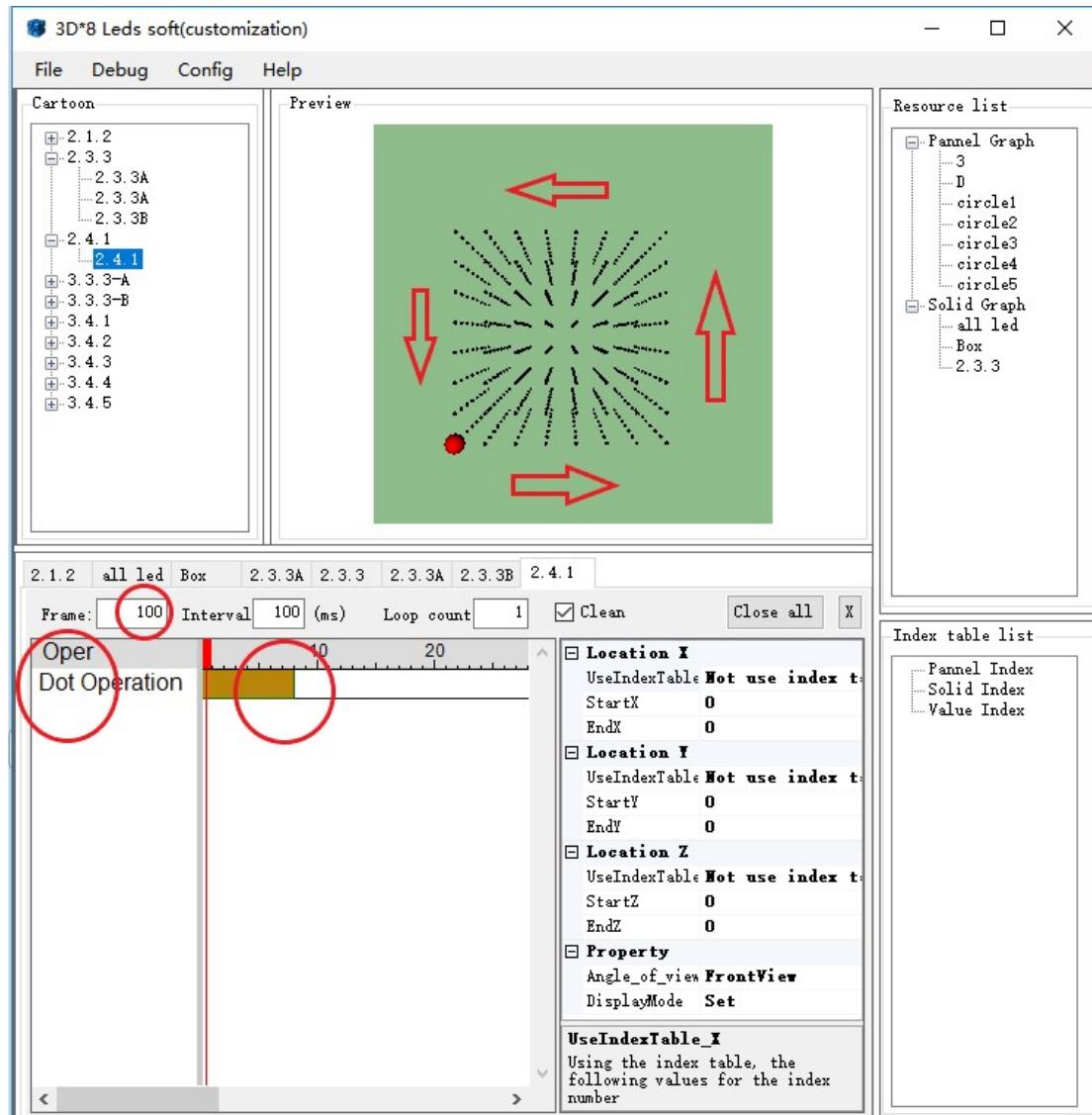
The stereo operation is basically the same as the plane operation, and will not be explained here. See the animation page for details.

## 2.4 Animation example

### 2.4.1 One-point drawing line (point operation)

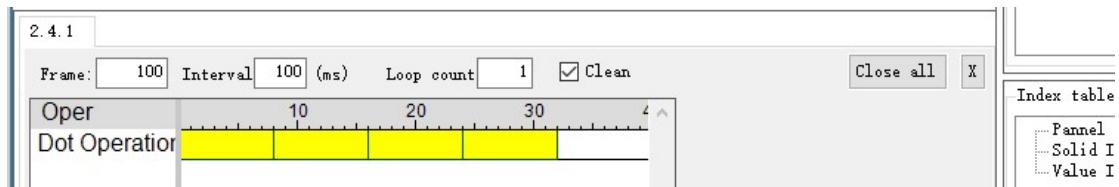
The example implements drawing different graphics by point operations.

First of all, you can't do less work. First create an cartoon group, then create an cartoon element, double-click the cartoon element, pop up the operation window, set the number of frames, right click on the add point operation, right click on the time axis of the detection, insert the frame, and pull the frame number. It grows to a width of 8 screens.

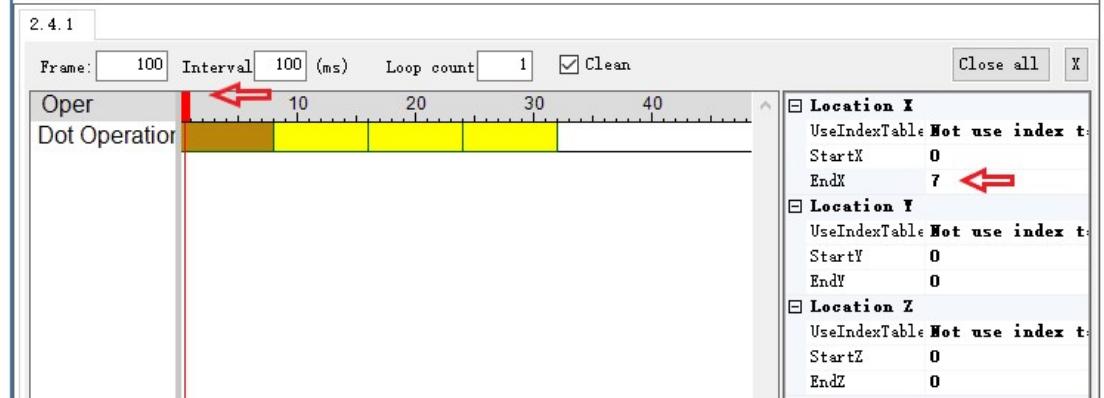
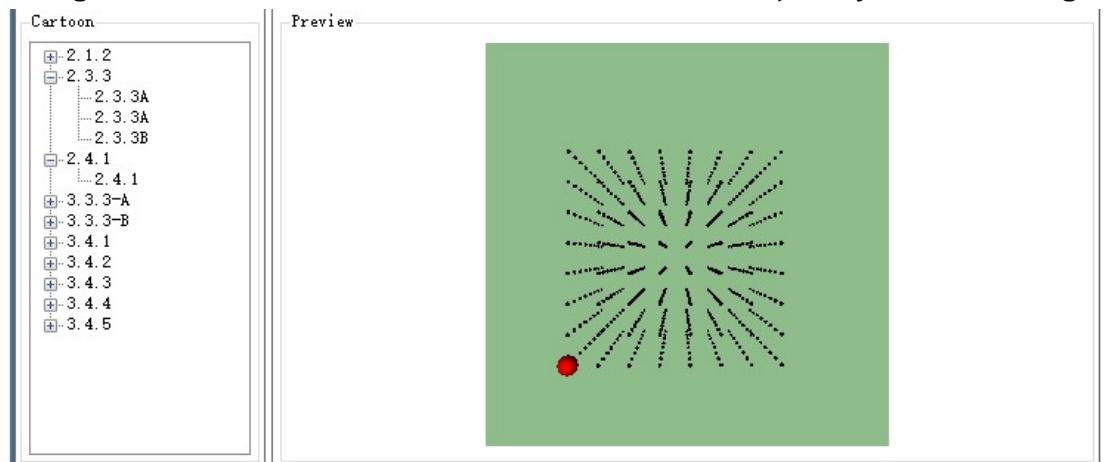


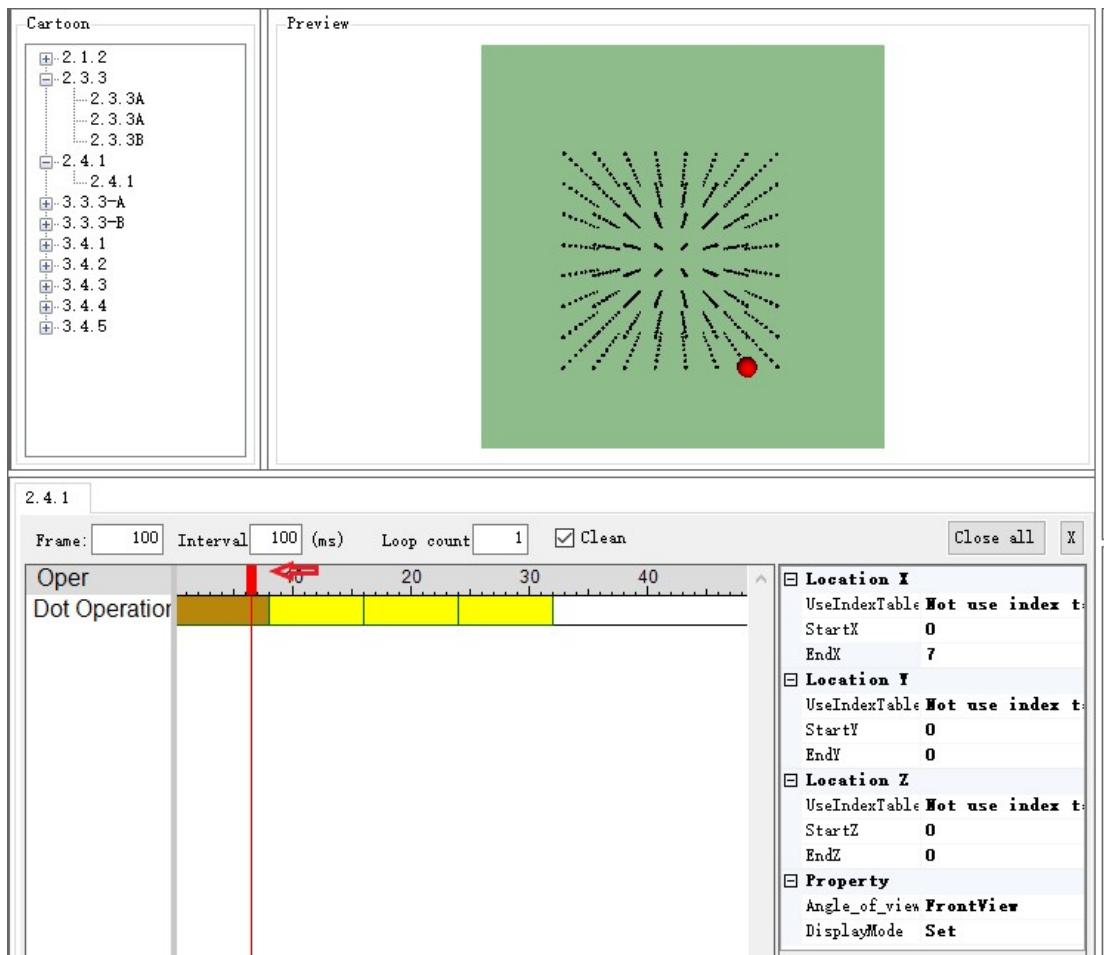
Next, set the value of the XYZ coordinates so that the point runs a circle along the direction of the arrow in the figure above.

A circle will include 4 sides, you need to create 4 independent detectors, so that each detector can set different values, you can perform different operations to achieve the purpose of circle.

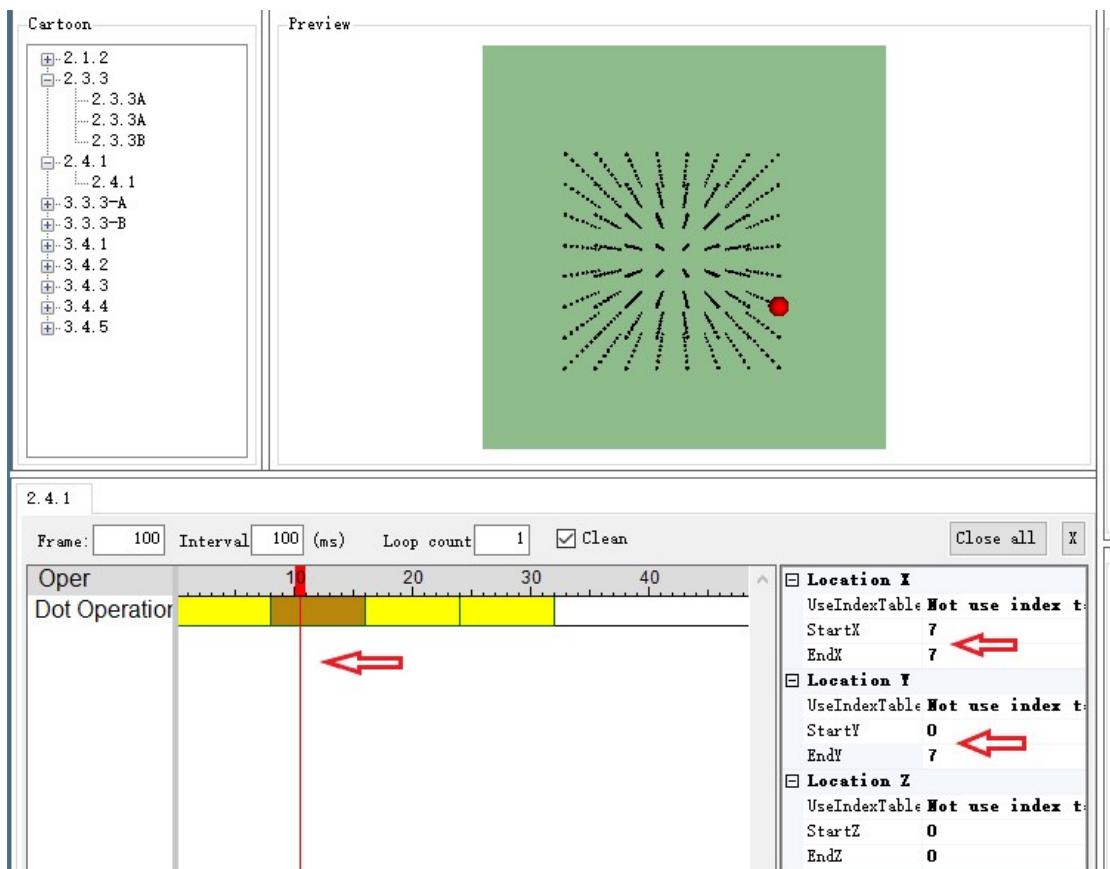


First, the first bar is from left to right. The coordinates of the dot in this bar are the X family moving from 0 to 7, and the values of Y and Z are unchanged. Just change the end value of X to 7, and realize the motion trajectory from left to right.

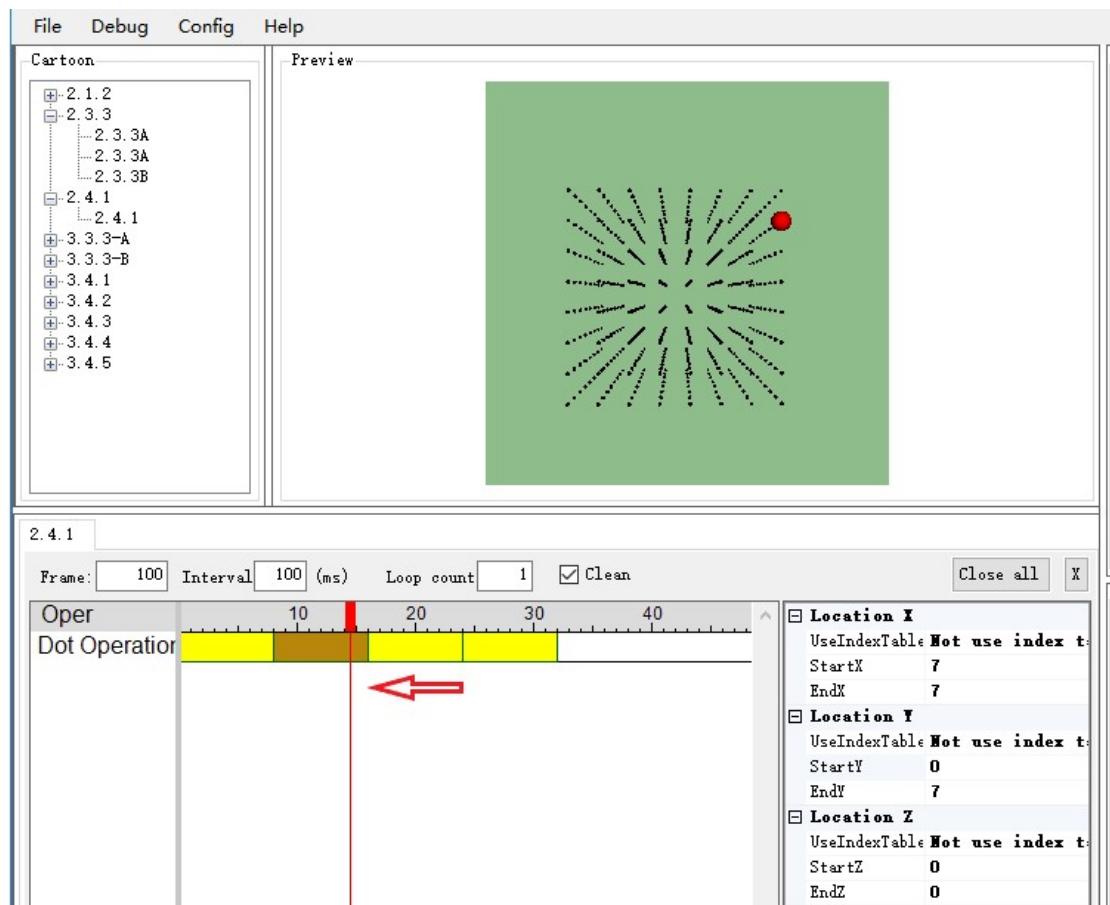




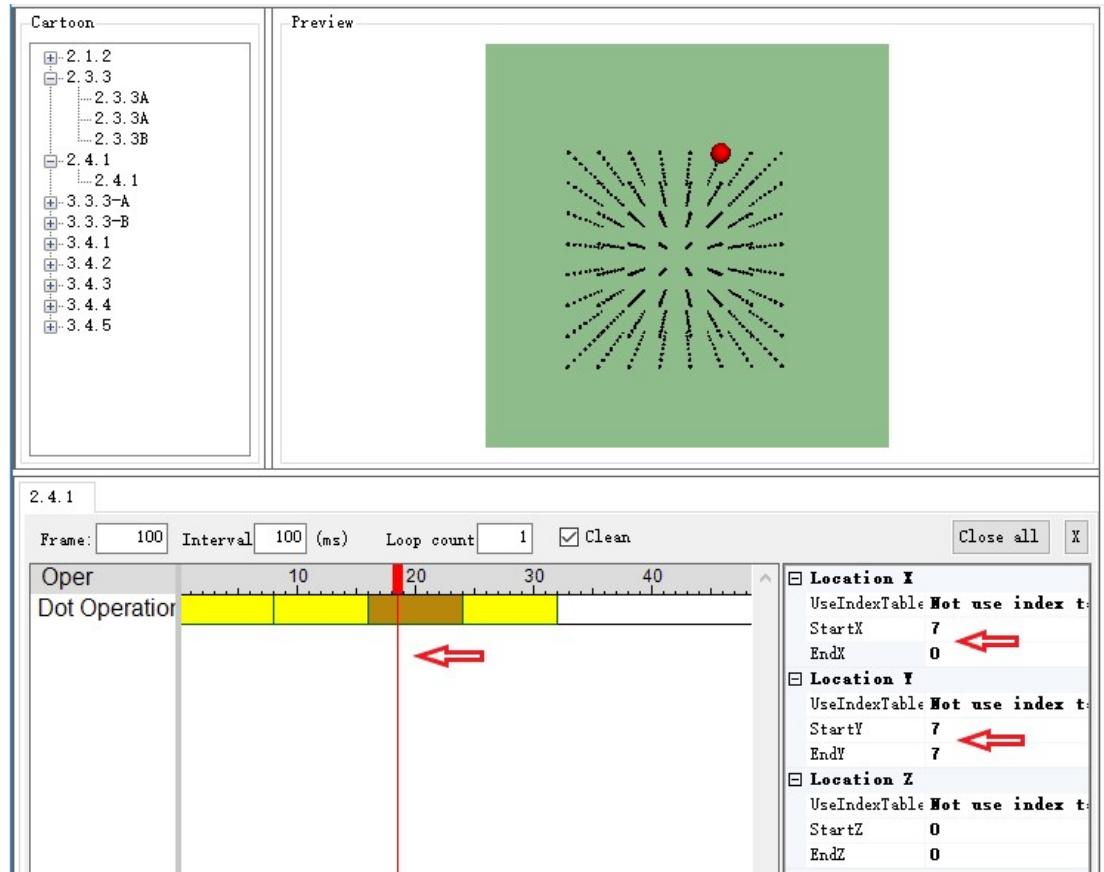
Next is the second one. The second one is selected for the corresponding strip. This is from bottom to top. The coordinates of the dot at this position are X is 7, and the trajectory of Y is from 0 to 7 (top). So just do these two settings, as follows:



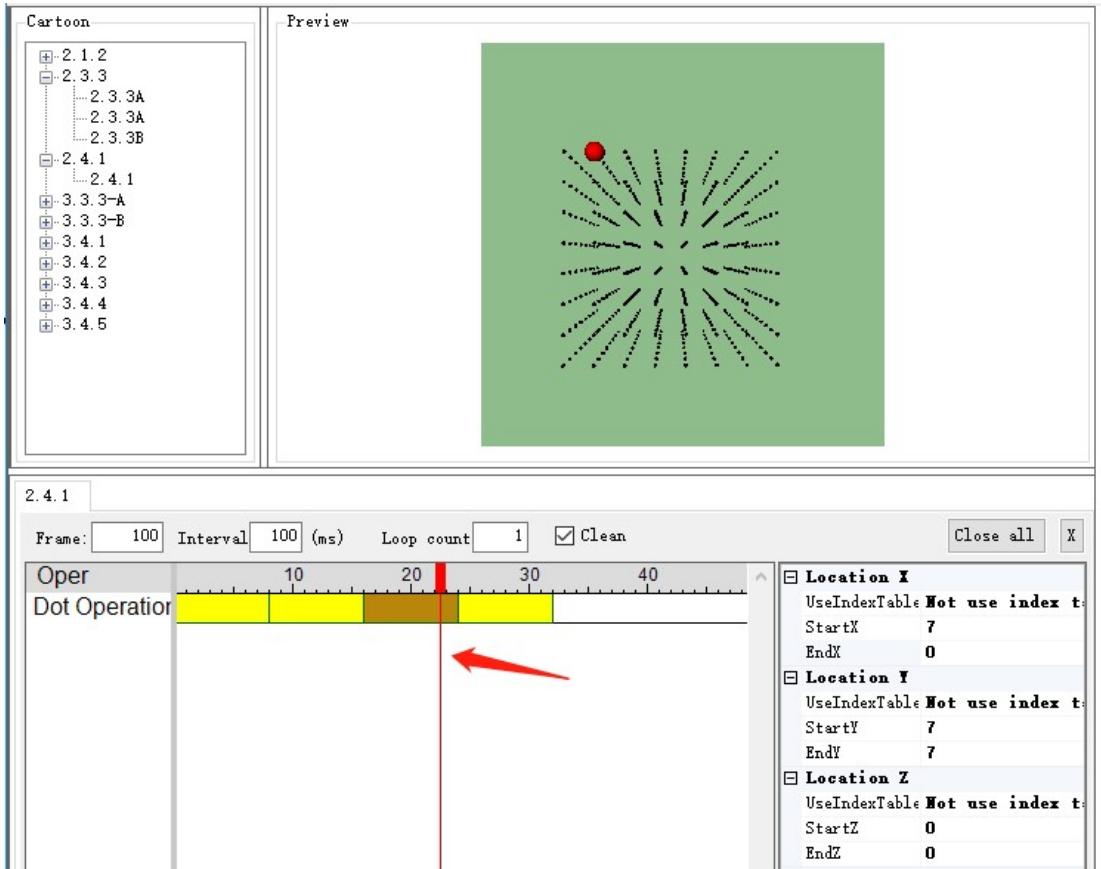
The preview effect of the corresponding point is as follows:



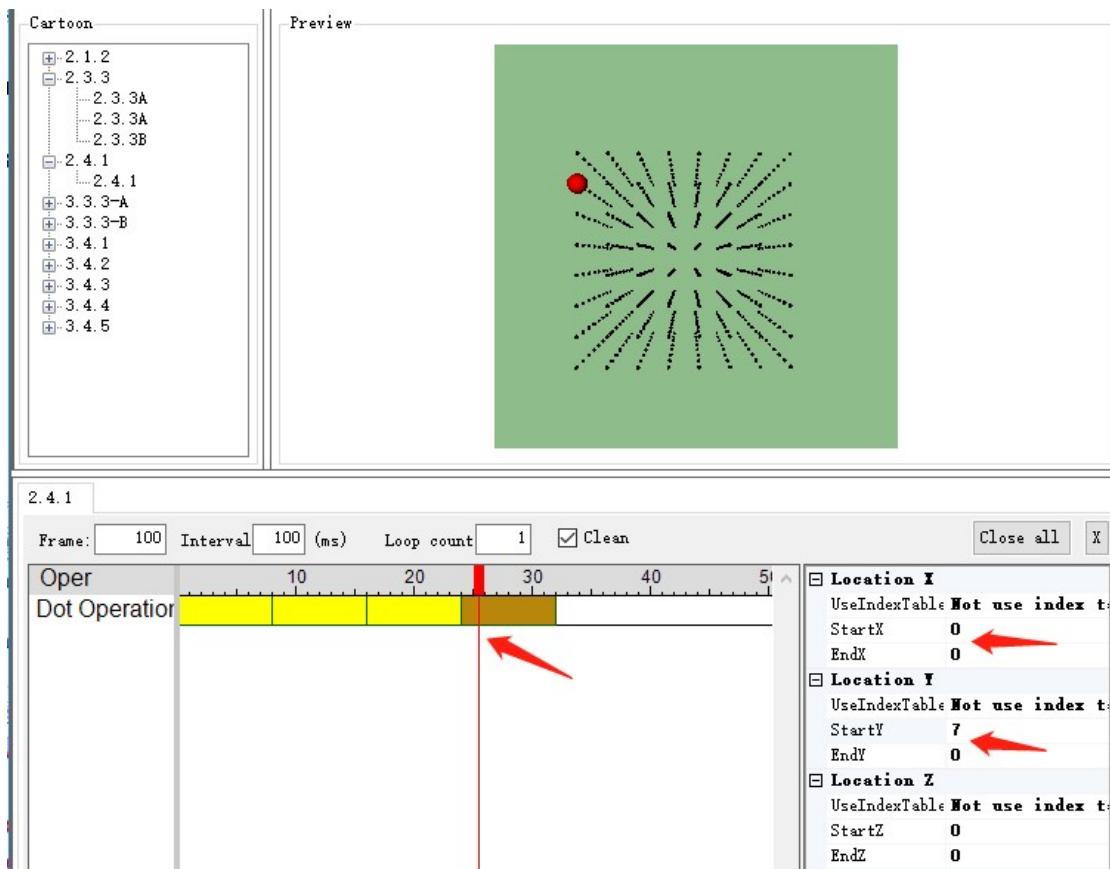
Next is the third, the third is selected for the corresponding strip, this is from right to left, the coordinates of this position dot is Y is 7, and the trajectory of X is from 7 to 0. So just do these two settings, as follows:



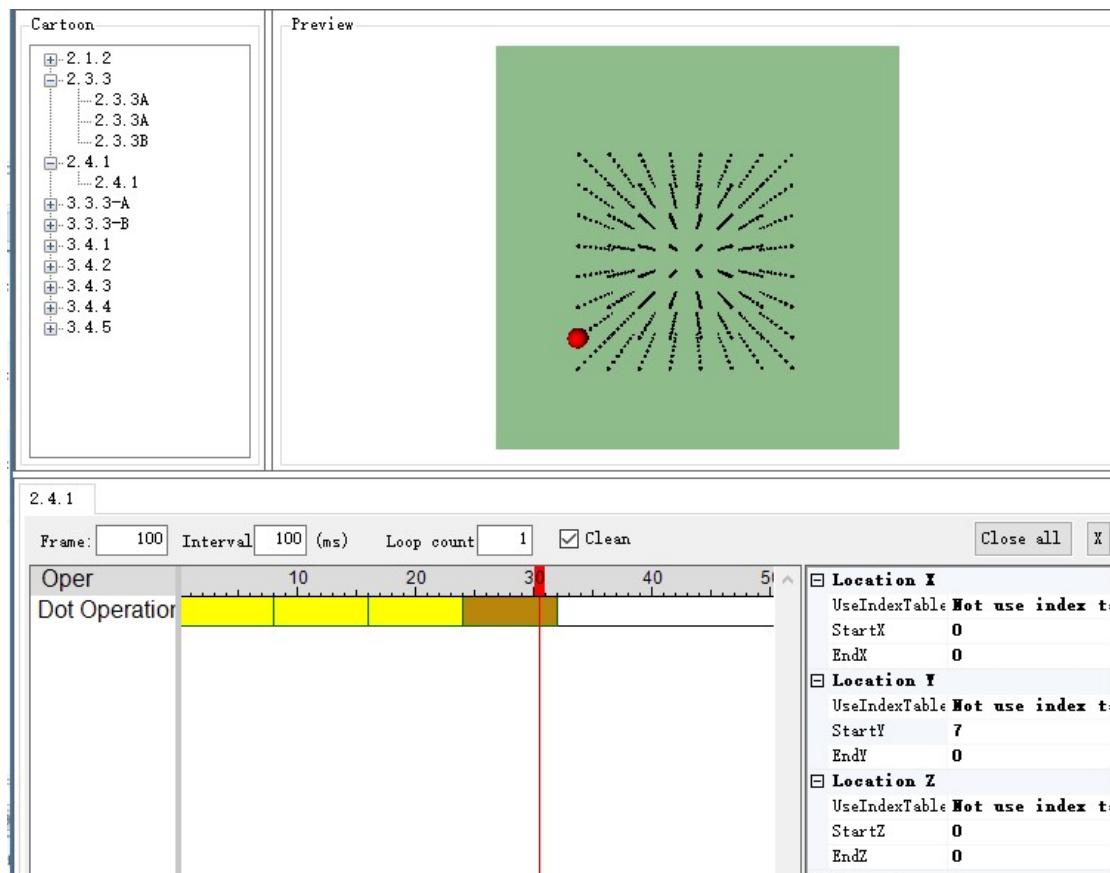
The preview effect of the corresponding point is as follows:



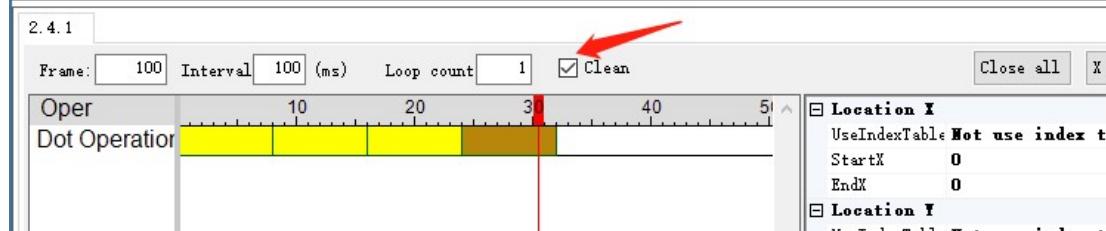
Next is the fourth, the fourth is selected for the corresponding frame, this is from top to top, the coordinates of this position dot is X is 0, and the trajectory of Y is from 7 to 0. So just do these two settings, as follows:



The preview effect of the corresponding point is as follows:



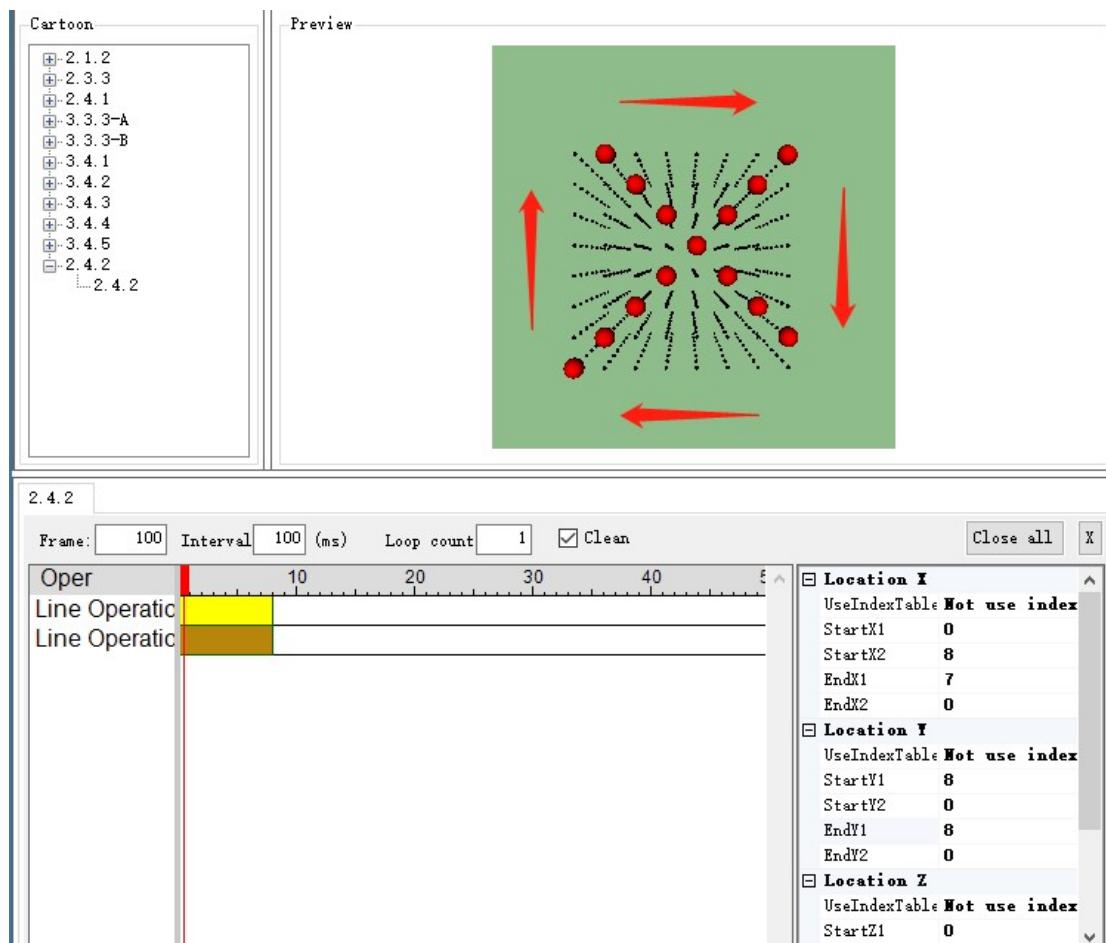
In this way, the action of the frame is completed. When the operation clears the cache clearing, the track generated by each movement will not be cleared. The track that the point runs is a solid line, which can be realized. Point operation to draw the functions of various graphics.



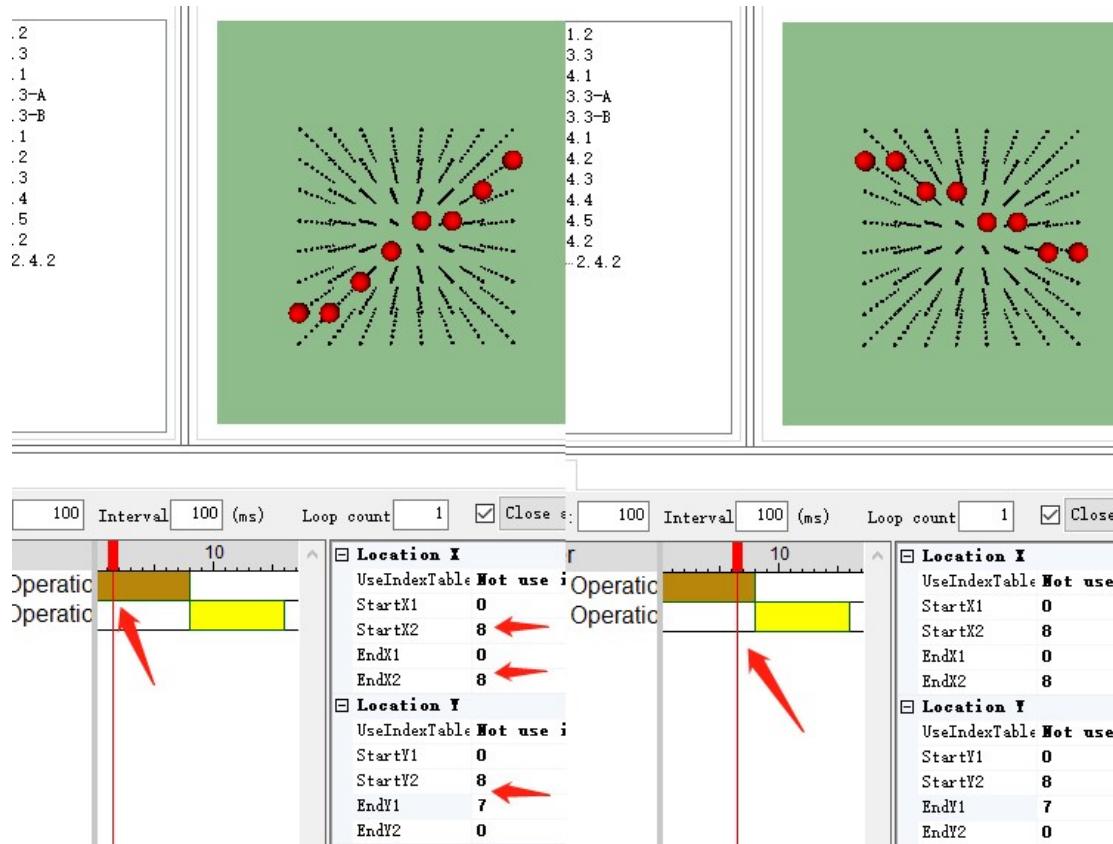
## 2.4.2 X rotation animation (line operation)

The example implements drawing a different graphic animation effect through line operations.

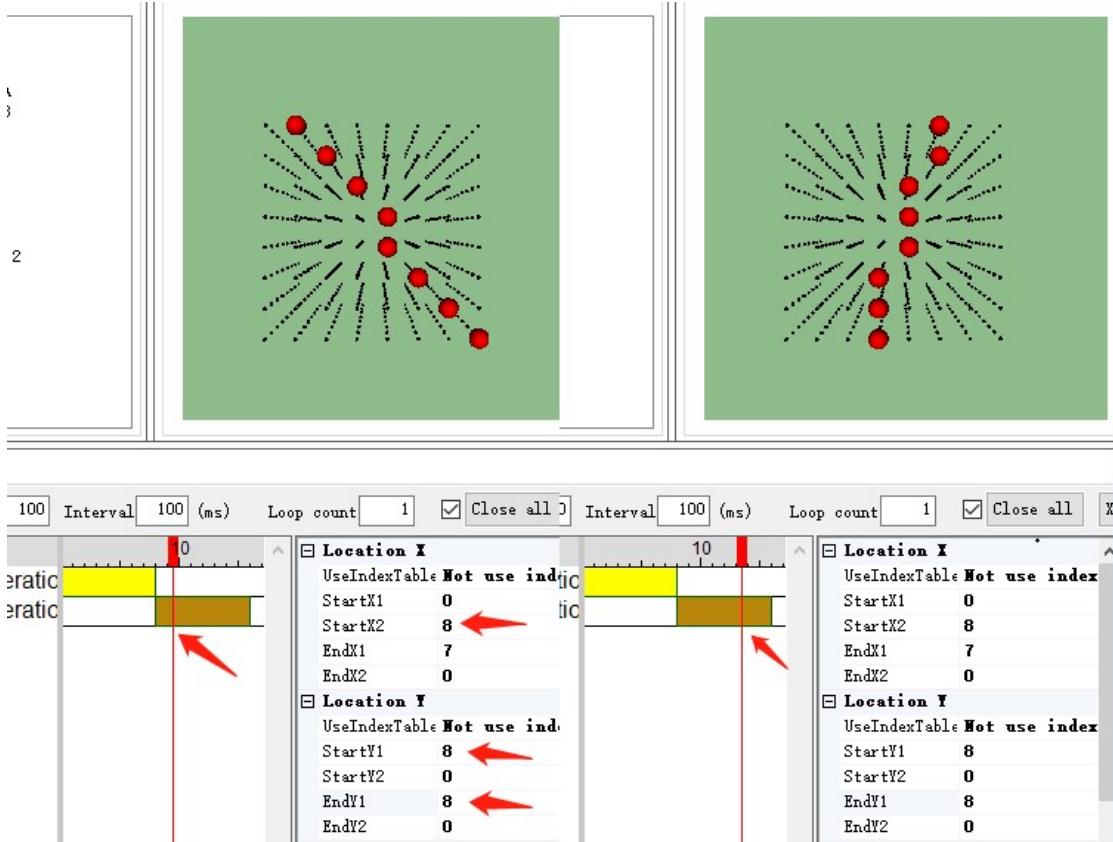
First, create an cartoon group, then create an cartoon element, double-click the cartoon element, pop up the operation window, set the number of frames, right click to add 2 lines of operation (this animation is actually two lines rotating along the diagonal), in the frame The timeline right clicks on the inserted frame, and the frame number is stretched to the width of one screen.



The action of the first line is upward movement at the lower left end and downward movement at the upper right end. In this action, the value of the X coordinate corresponding to the upward movement of the lower left end point is 0, but the coordinate of Y is from 0-7, and the upper right The value of the corresponding X coordinate of the downward movement of the endpoint is 7 and only the coordinates of Y are from 7-0.



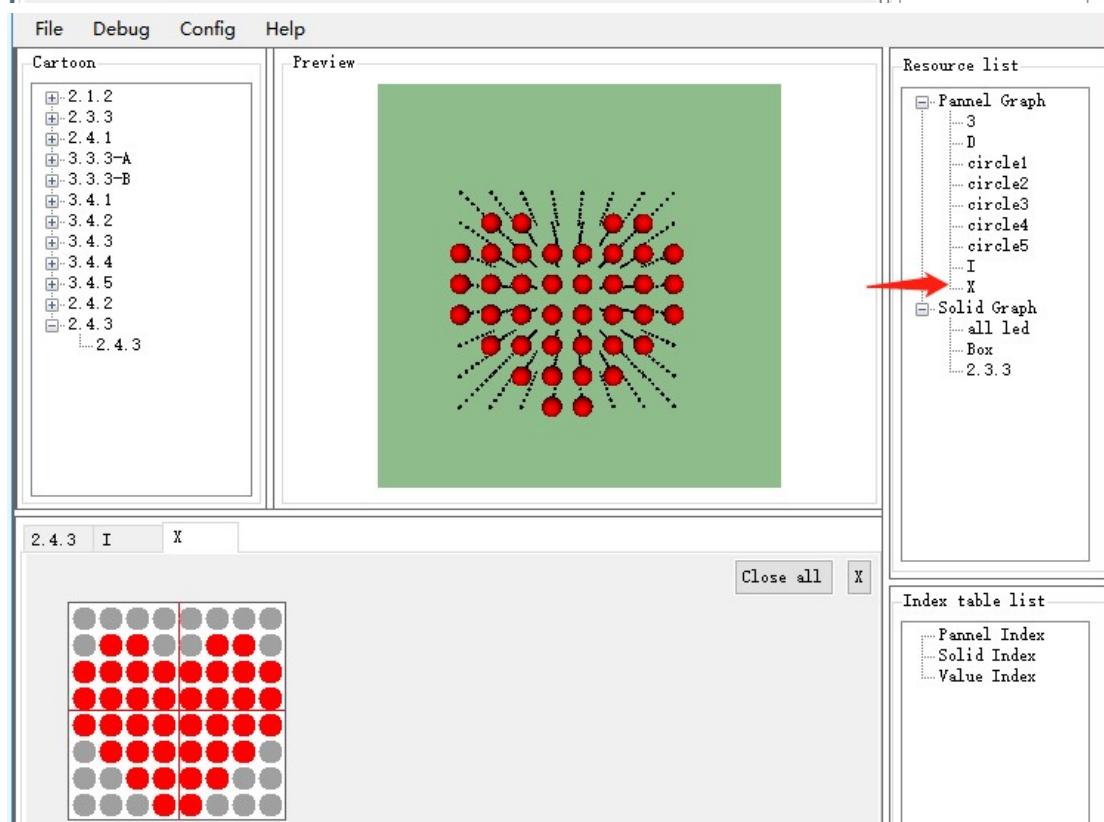
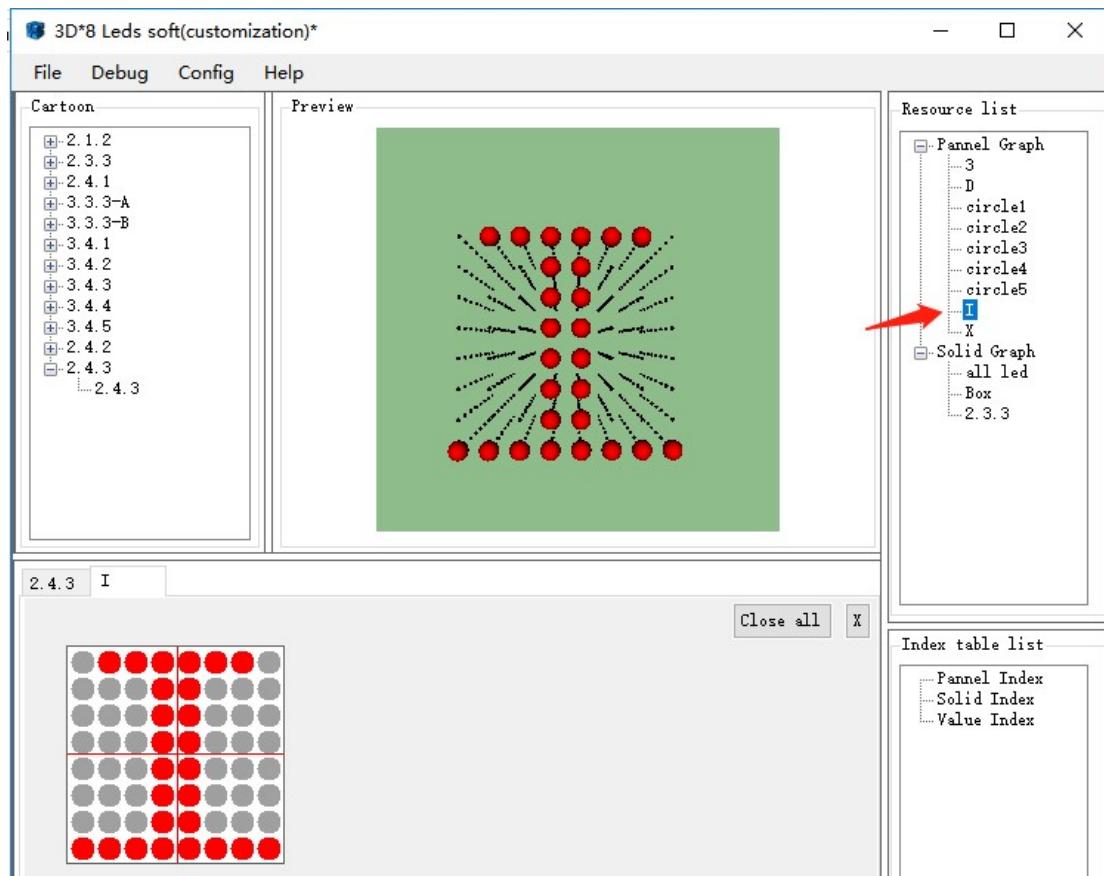
The action of the second line is the left upper end moving to the right, and the lower right end moving to the left. In this motion, the upper left end point moves to the right corresponding to the value of the X coordinate of 0-7, and the coordinate of Y is always 7, and the lower right end point The X coordinate corresponding to the left motion is 7-0, and the coordinate of Y is always 0.



After the two lines are rotated once, the first line returns to the initial position of the second line, and the second line returns to the initial position of the first line, so that the loop is rotated.

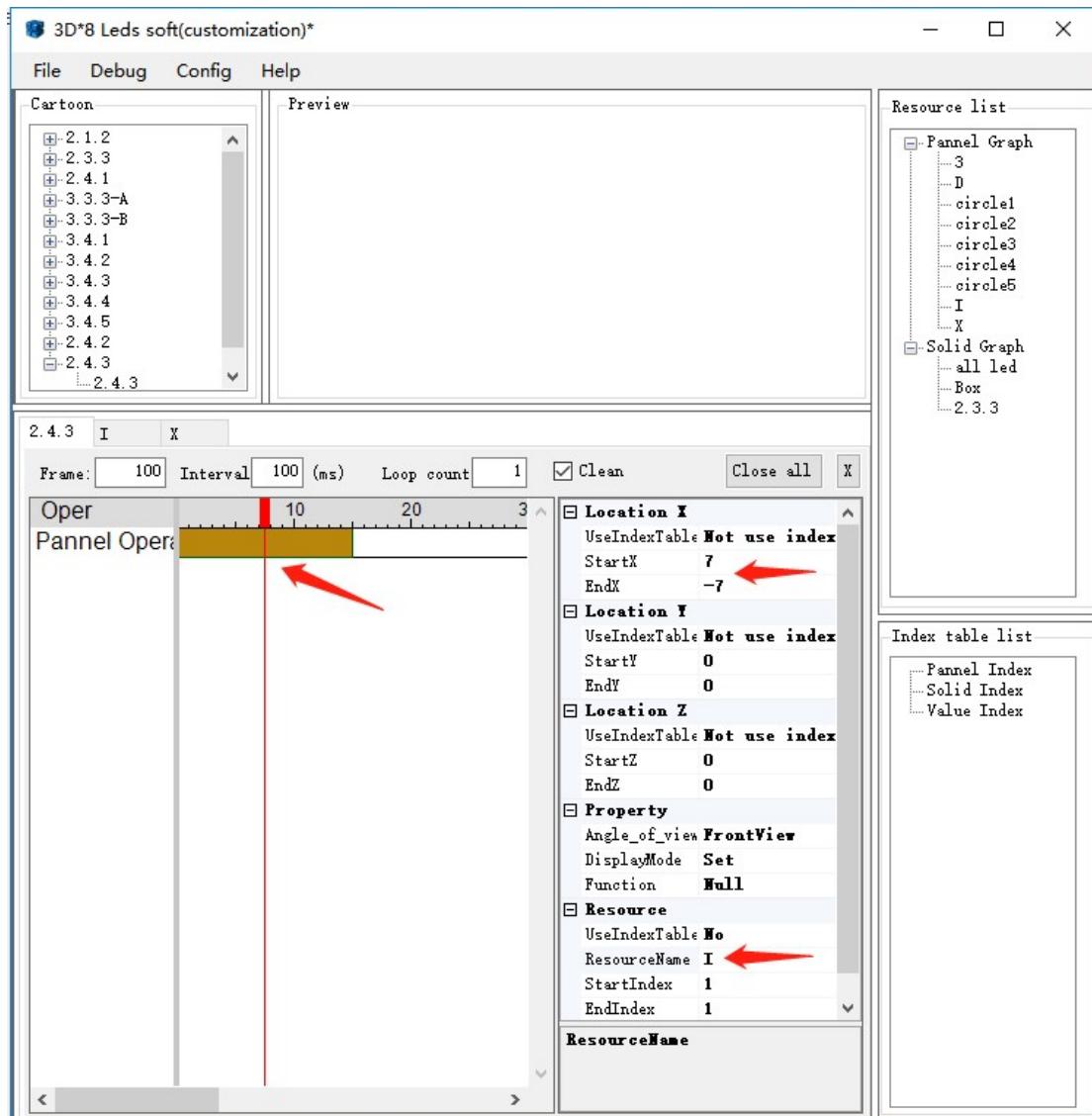
#### 2.4.3 3D8S movement (plane operation)

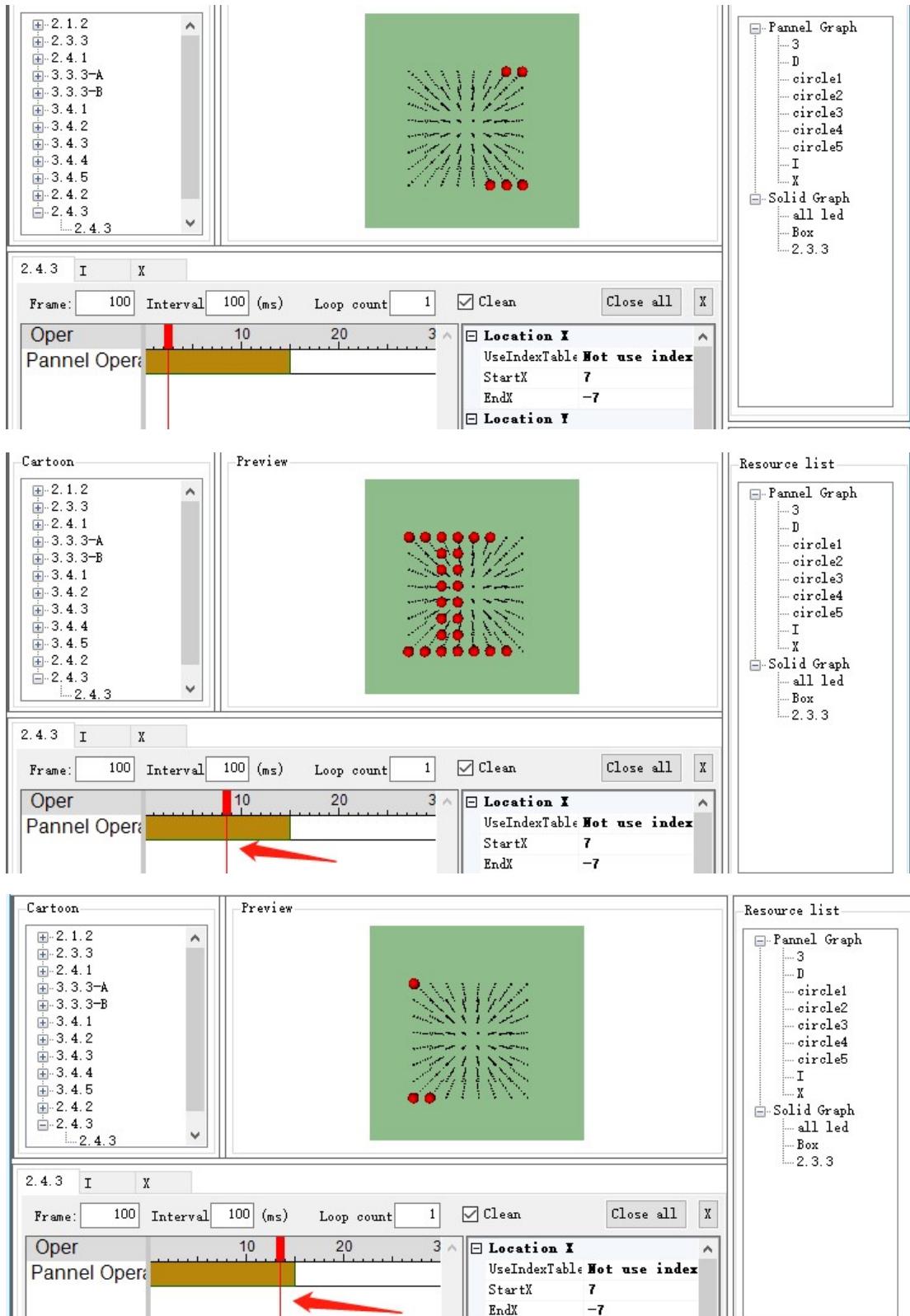
The 3D moving animation is mainly for the plane operation of the graphic. In this operation, [I] moves from the right front side to the left side, and then moves from the right side to the left side. This operation only needs to move the graph [I] to the right to the left (plane operation), and the left to the left (plane operation), and the graph [♥] to the front view. Move (plane operation) so that you can work with 3 planes together.



First, look at the movement operation of [I]. The 0 point of [I] is moved from the X coordinate 7 to the X coordinate 0 (ie, [I] moves into the screen), and then moves from the X coordinate 0 to the X coordinate -7 ( That is, [I] moves out of the screen). This operation performs 15 frames of animation together. If 15 frames are inserted during insertion, then one frame moves 1 frame. If 32 is detected, one frame moves 2 frames, here 15 frames.

Insert 15 frames, select the frame, set the resource name to select [I], front view, and then set the coordinate value of the graphic movement, that is, press the X coordinate, move from 7 to -7, and complete [I] move into the screen and then move out of the screen. action.

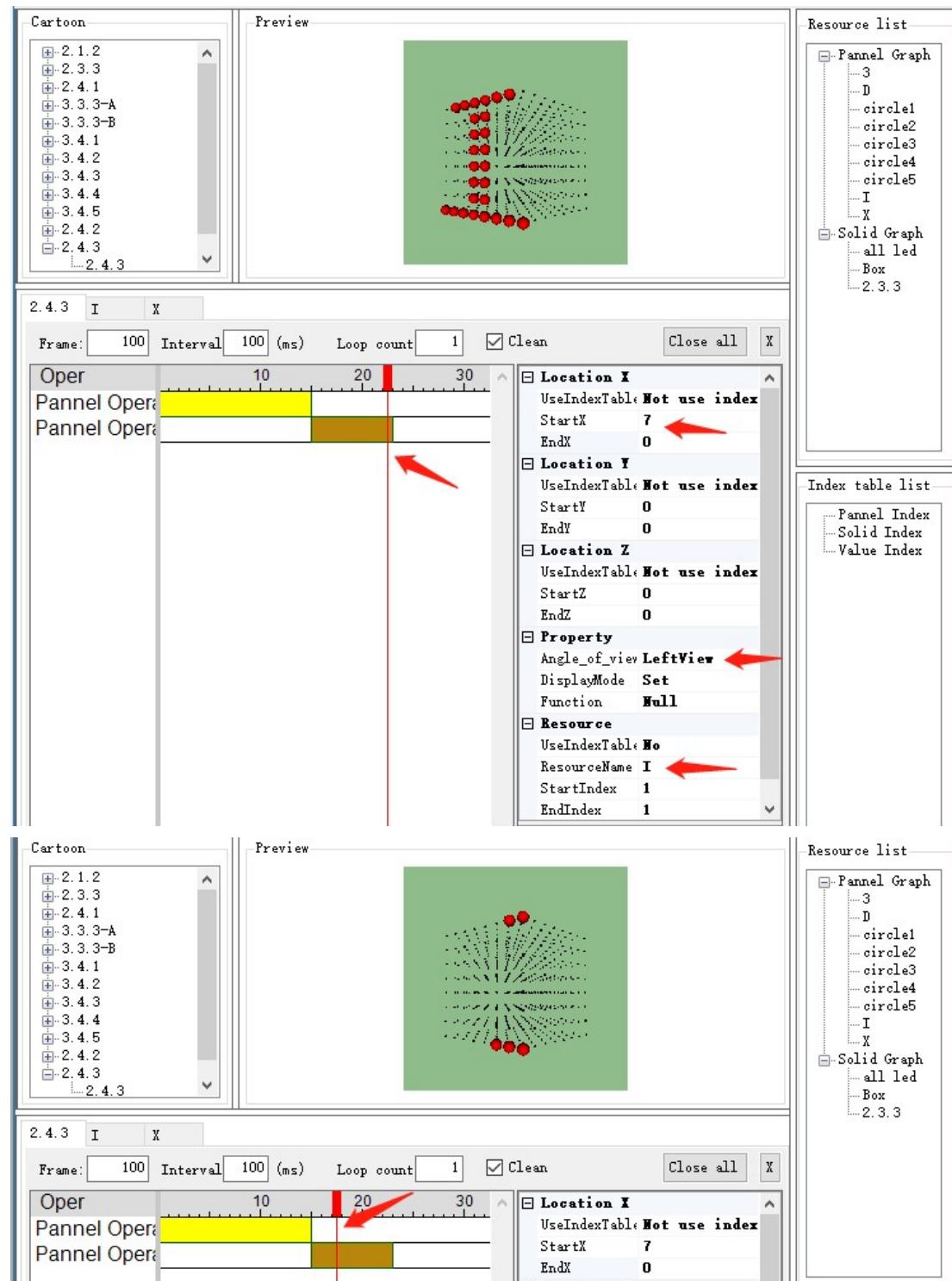


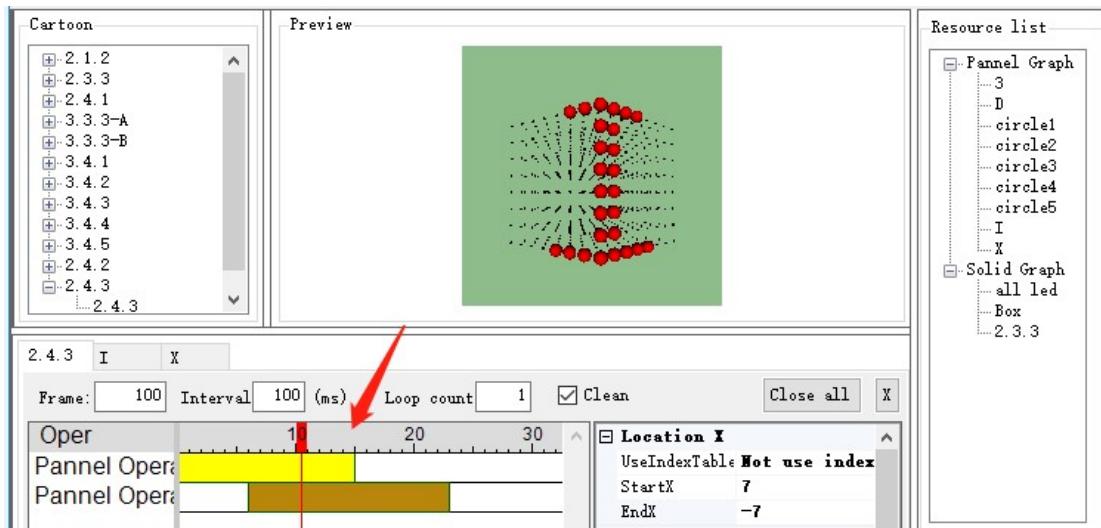


Next is [I] moving from the left to the left, this operation moves from the left to the left of the left view. In this animation, [I] just moves into the screen (moving from coordinate 7 to 0), and then Stopped, did not move out of the screen, so only need 8 frames long.

Here, the left view is used. In the left view, the [3] graphic moves from 7 to 0

along the X coordinate, and only needs to set the X coordinate value to complete the action.

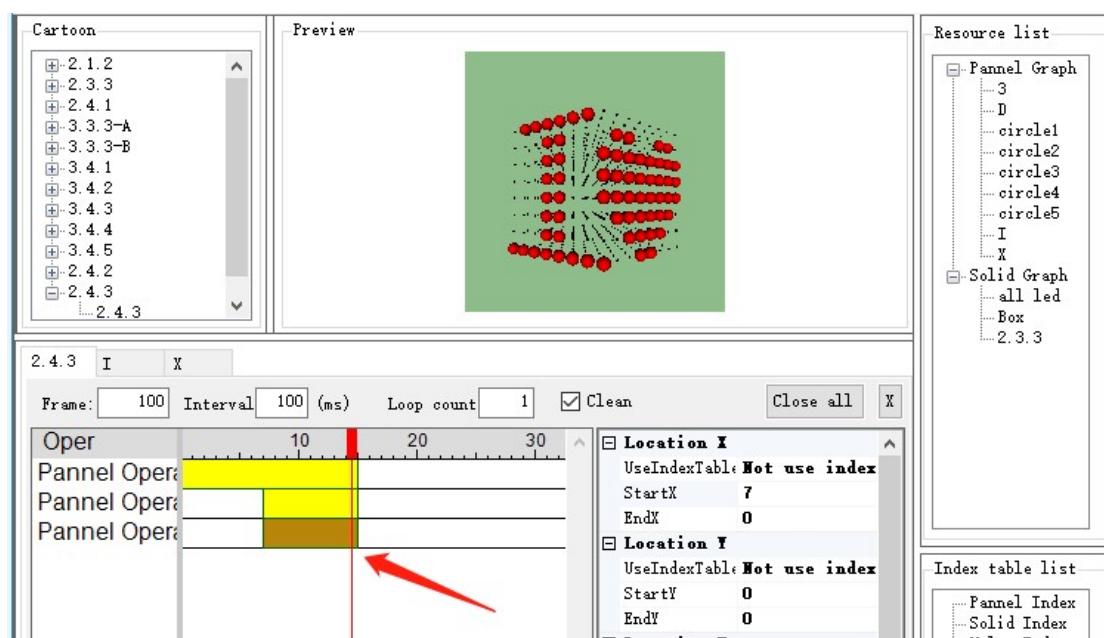
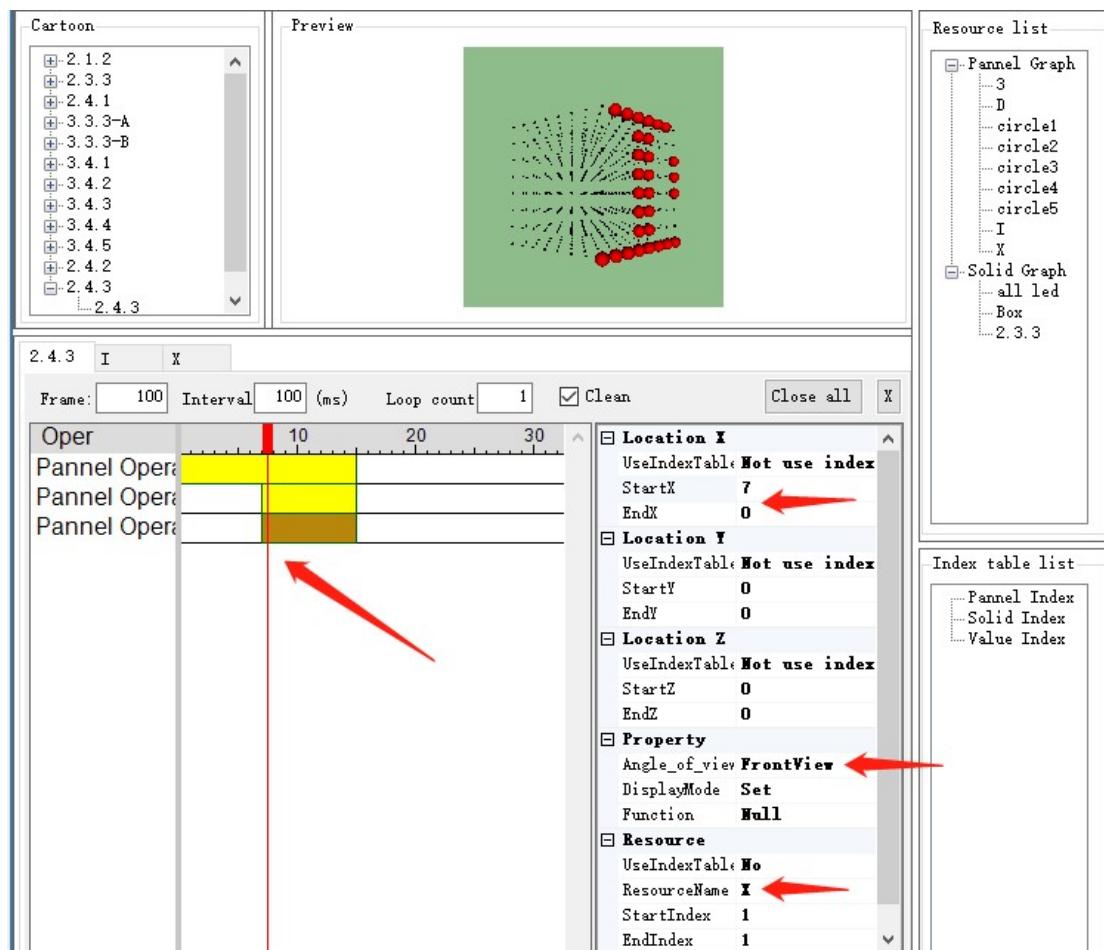




Then the graphic [ ] performs the same action.

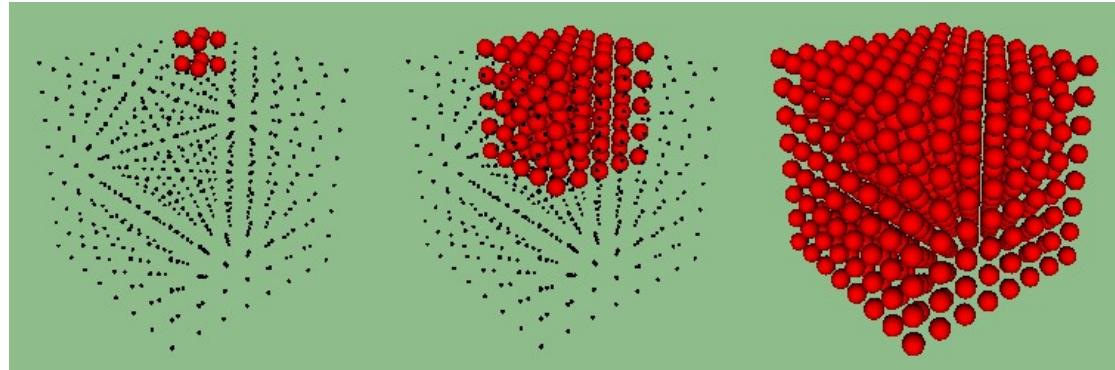
Finally, the two animations are combined and placed on a certain time axis to complete the animation effect.

The order of the animation frames on the timeline is completely arranged in the order of the animation. For example, when the front view [I] is moved to the front center to move out of the screen, the left view [I] needs to be kept up. This forms the effect of [I] moving from one surface to the other. Similarly, [ ] is also moved into the screen when [I] moves out of the front view. The time axis is as follows:

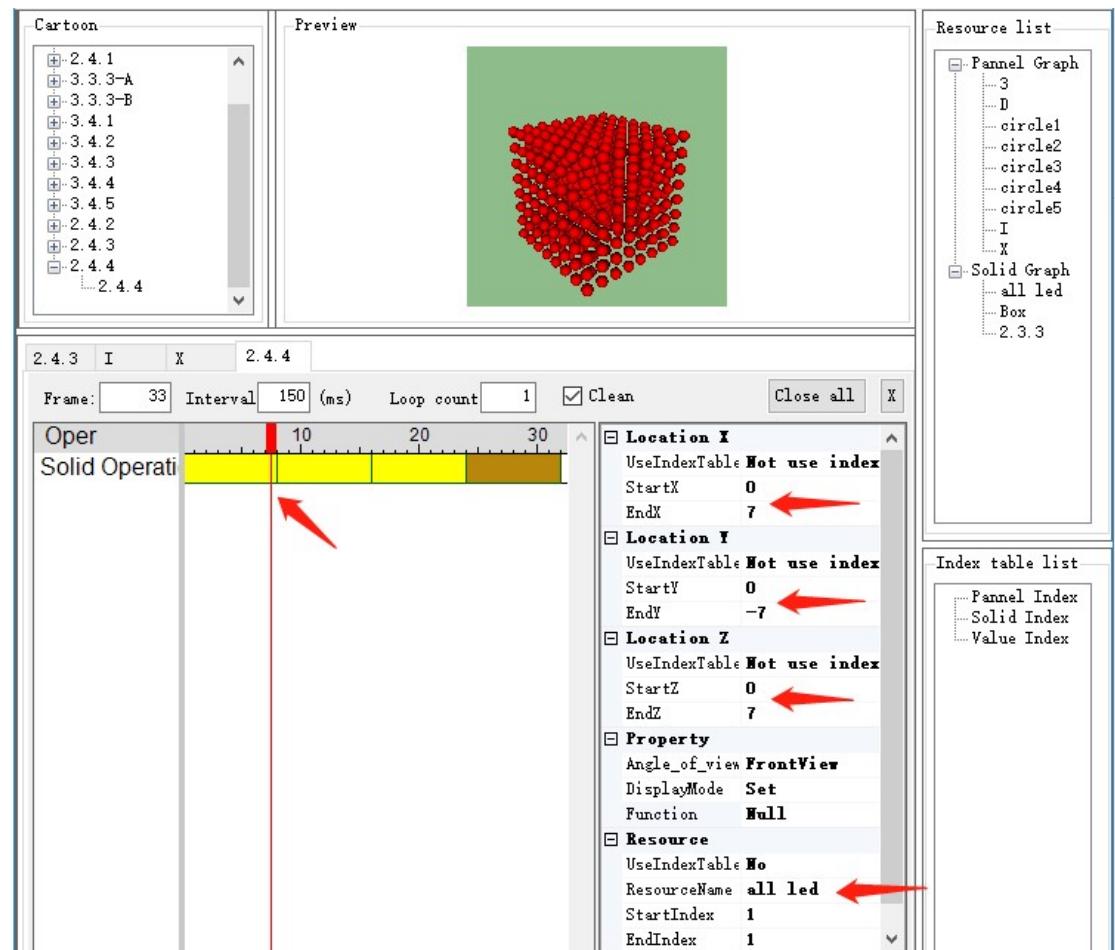


#### 2.4.4 Cubic moving animation (stereo operation)

The effect of animal flying or running is currently using stereo operation. The stereo operation is simpler than other operations, that is, the playback of one frame and one frame is ok.



As follows, the animation is to move a full-bright 3D graphics.



Then change the resource of each frame to stereo, pay attention to the order of stereo playback. If you need to adjust the speed of motion, you can directly shorten the frame interval.