Graphical Interfaces Individual Project — AR display

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Fall Semester 2017-2018
Chalmers University of Technology

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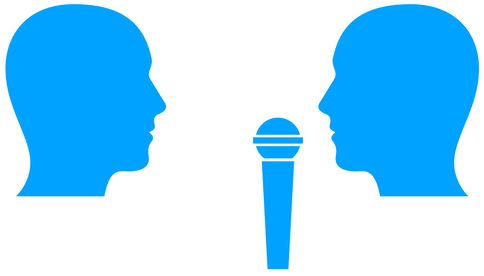
Process

User research



Interview with a VJ

Abstract episode 3– Es Devlin: Stage Design.

Porter Robinson on designing his own shows.

(Competitive) Product Audit

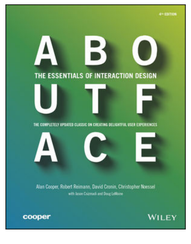
zappar

ZapWorks' Zappar: authoring tool for AR content

Resolume: VJ software

GarageBand for iOS

Goal-Directed Design



Alan Cooper — About Face

Tablet form factor and posture

+ **Directness of interaction**
  Interact with controls by manipulating them with your fingers (not quite as good, but similar to dedicated hardware).

+ **Multi-Touch**
  Trigger several buttons simultaneously.

+ **Gestures**
  Rich gestures for direct manipulation or acceleration/shortcuts.

+ **Portable**
  Take it to meetings, your desk, the venue.

+ **Gyroscope**
  Used to preview AR shows.

+ **Camera**
  Used to capture reference material.

- **Drag and Drop**
  Cooper (2014, p.516) discourages drag and drop use on touchscreens. However, iOS 11's focus on drag and drop shows it can be done.

  Imprecision is addressed by smart snapping and large drag candidates and drop targets. Obscuring is addressed by not placing it directly underneath finger—but rather to the side.

- **Limited screen space**
  Addressed by supporting workflow, therefore minimizing navigation. Also by picking large device: iPad Pro 12.9″.

- **No keyboard shortcuts**
  Addressed by gestural shortcuts and dedicated buttons.

- **No keyboard to type**
  Addressed by reducing need to type.

Scenario’s

Designing a new show

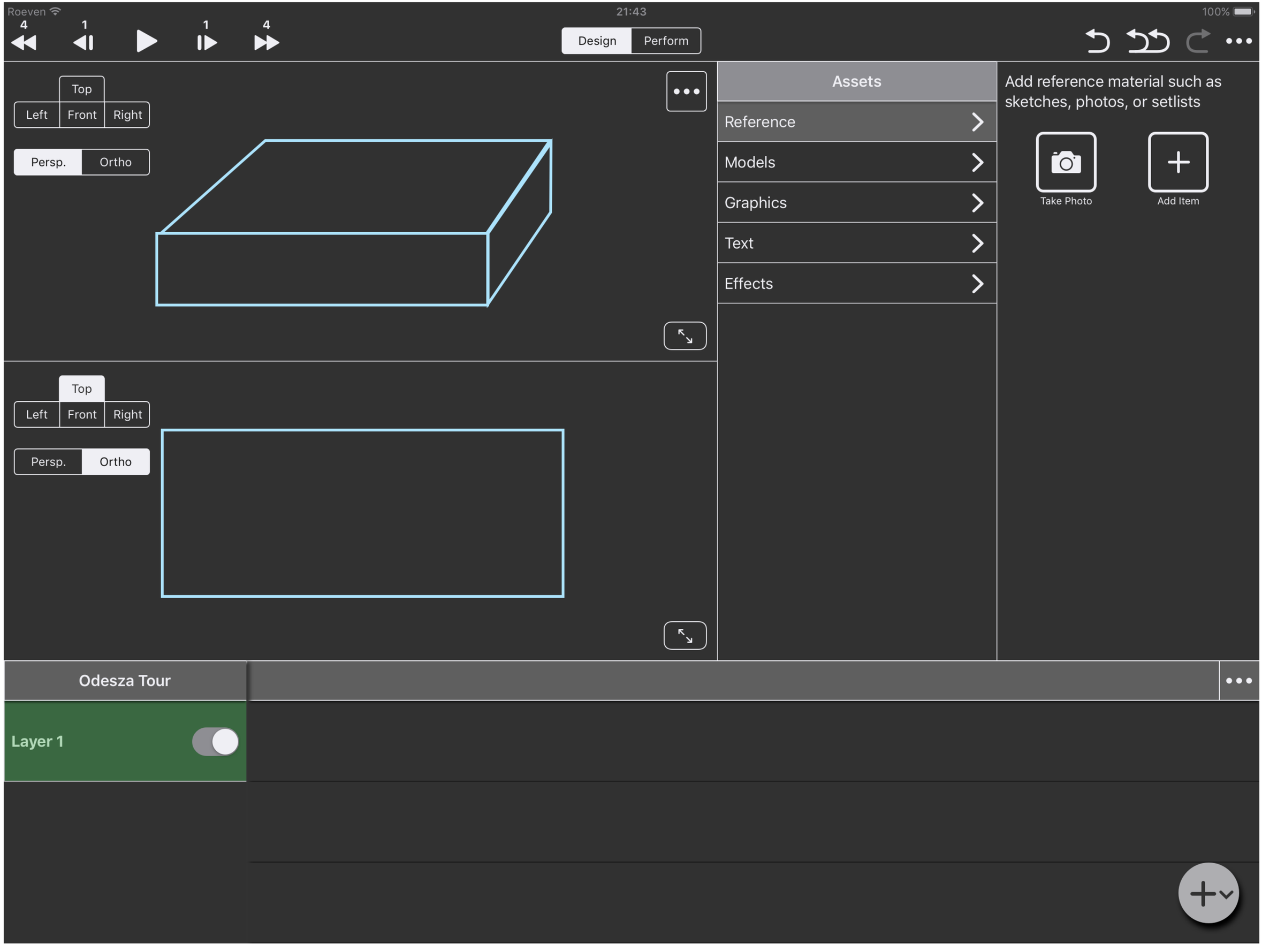
In this first scenario, you—the AR designer—start designing an AR show for a concert tour by the band Odesza. Odesza makes songs featuring different singers, but these singers don't join the tour.

You begin the process with a meeting with the stage designer, who has a vision for the show. One of her ideas is to have Zyra, the singer of the song "Say My Name" to appear on stage during that song. She has prepared some sketches and cardboard models to convey her vision. You capture this reference material in the AR design software and quickly recreate a low-fidelity mockup together with the stage designer.

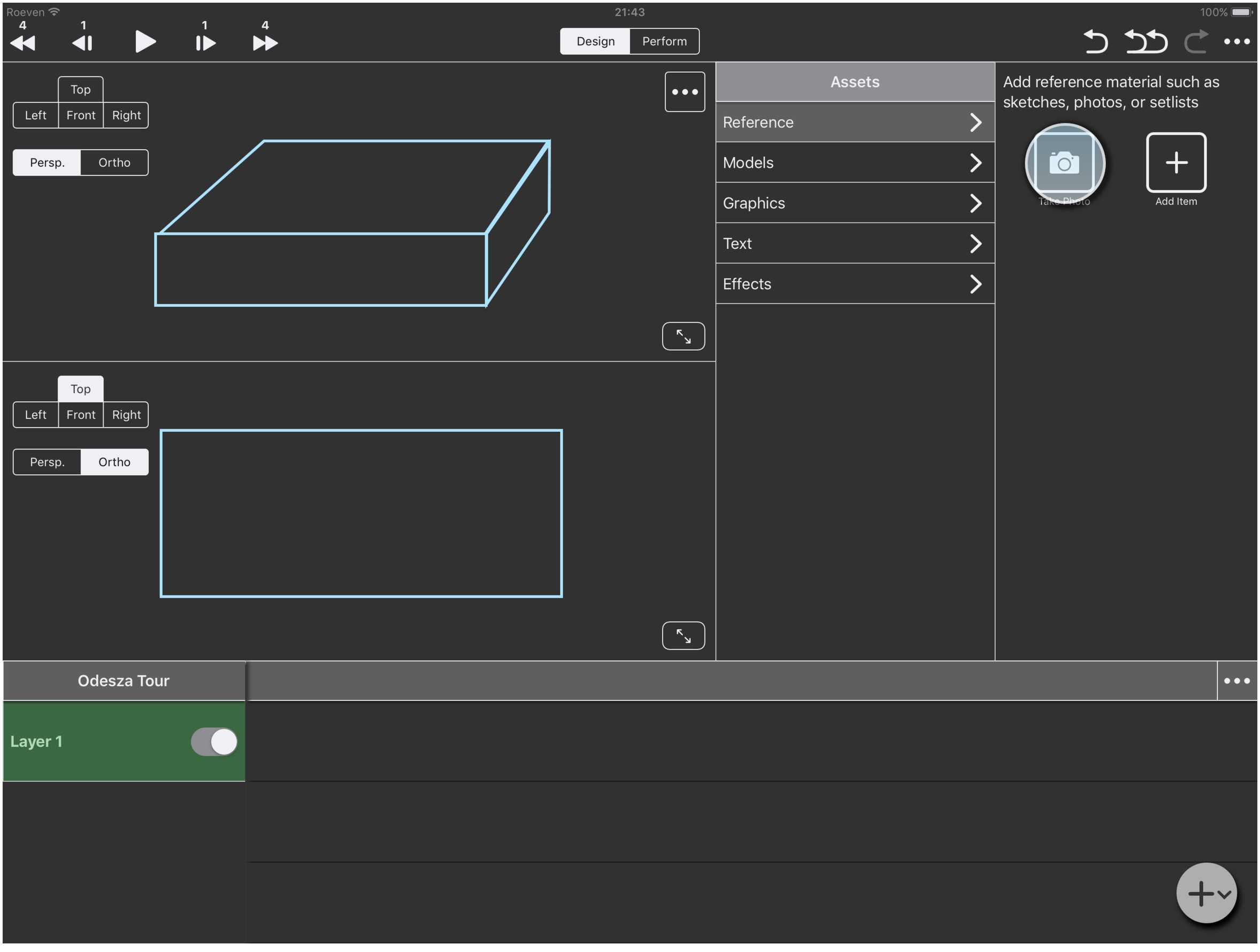
The stage designer is happy with how that looks. She says she would also like a scarf floating around Zyra (the song mentions a scarf) and some other decoration. She tasks you to work out the show further.

You create a new document in the meeting with the stage designer.

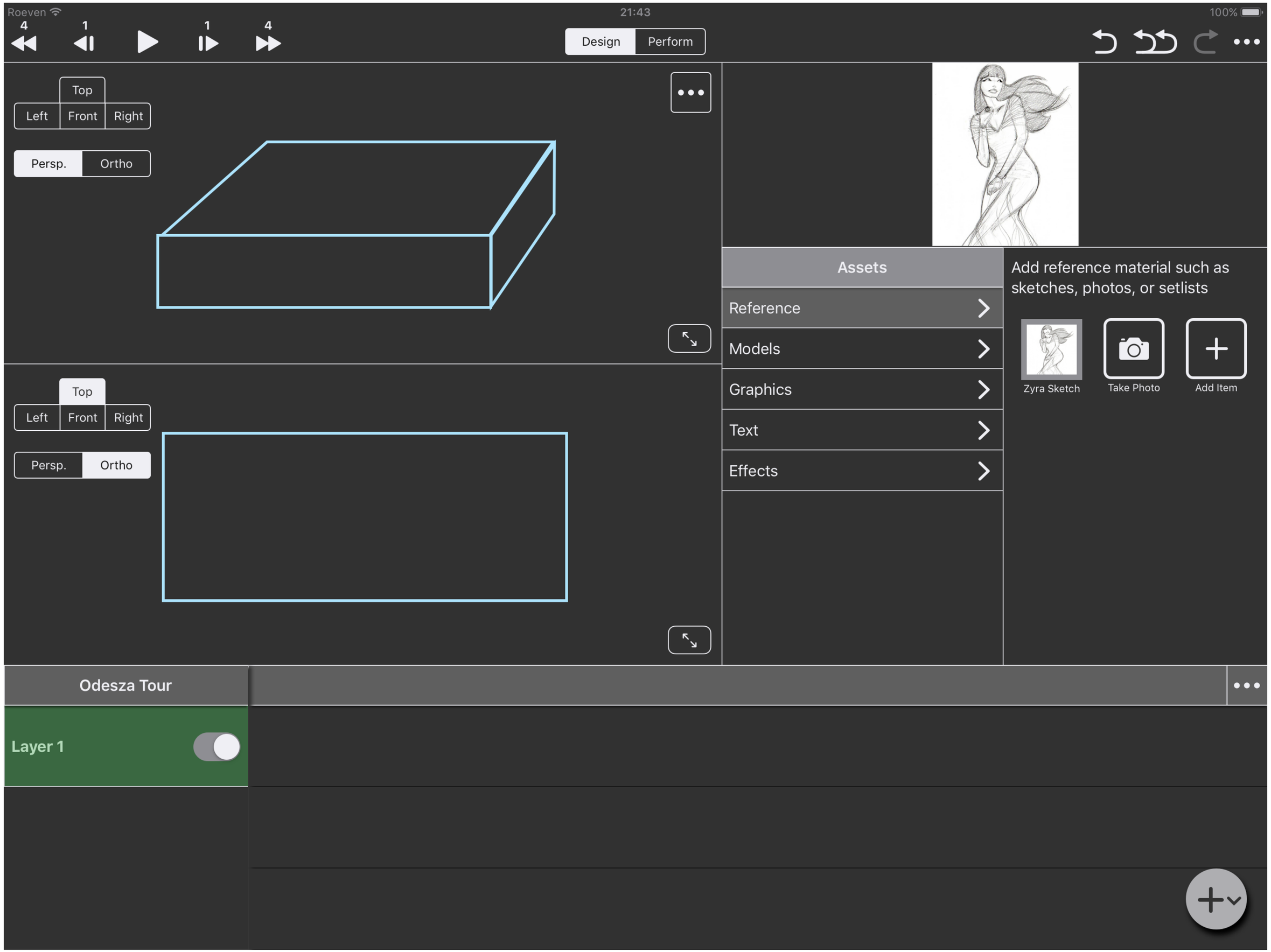
It is not completely a blank slate—a basic stage setup is shown quickly get going.



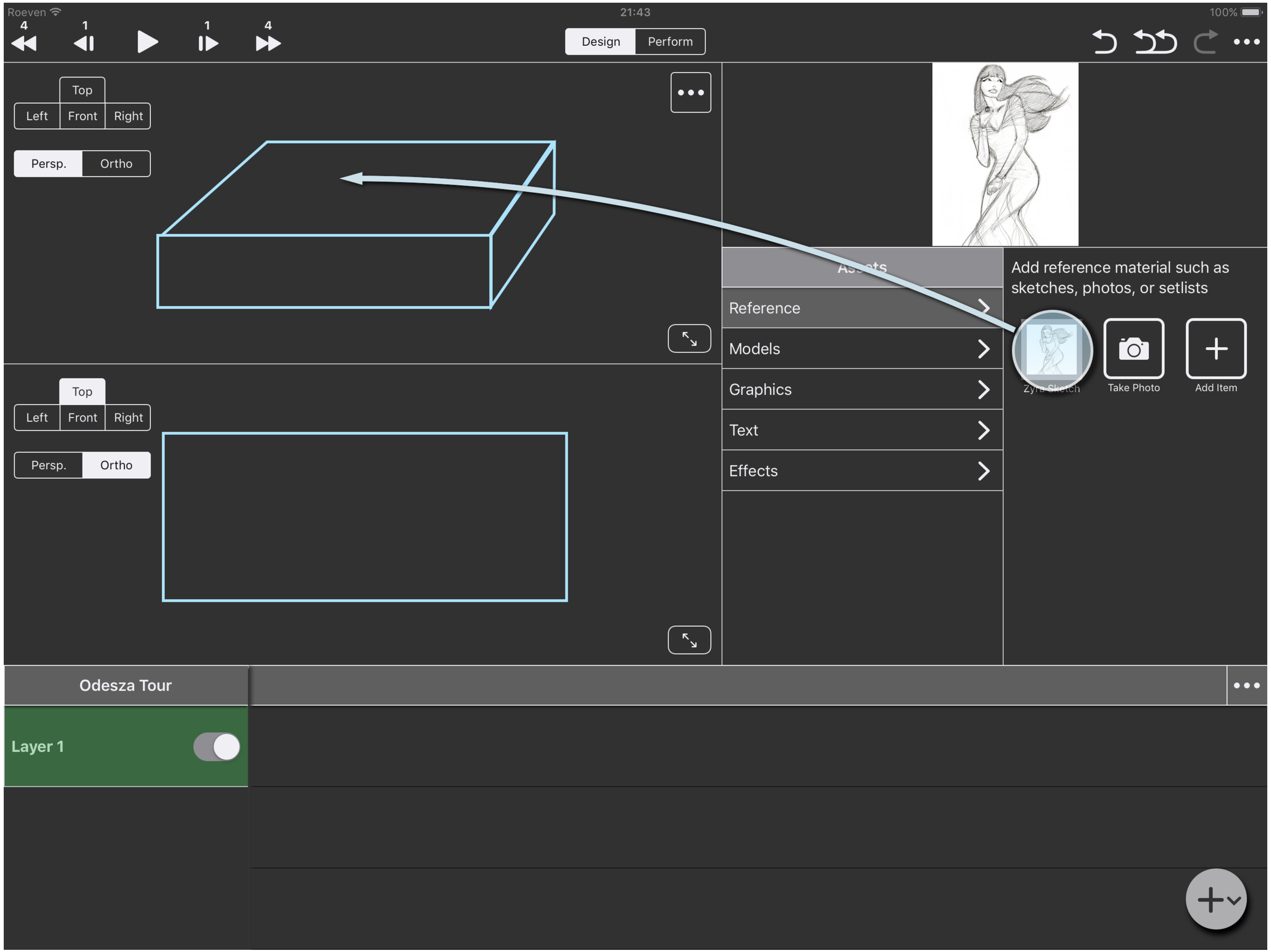
You take a photo of a sketch of Zyra made by the stage designer.



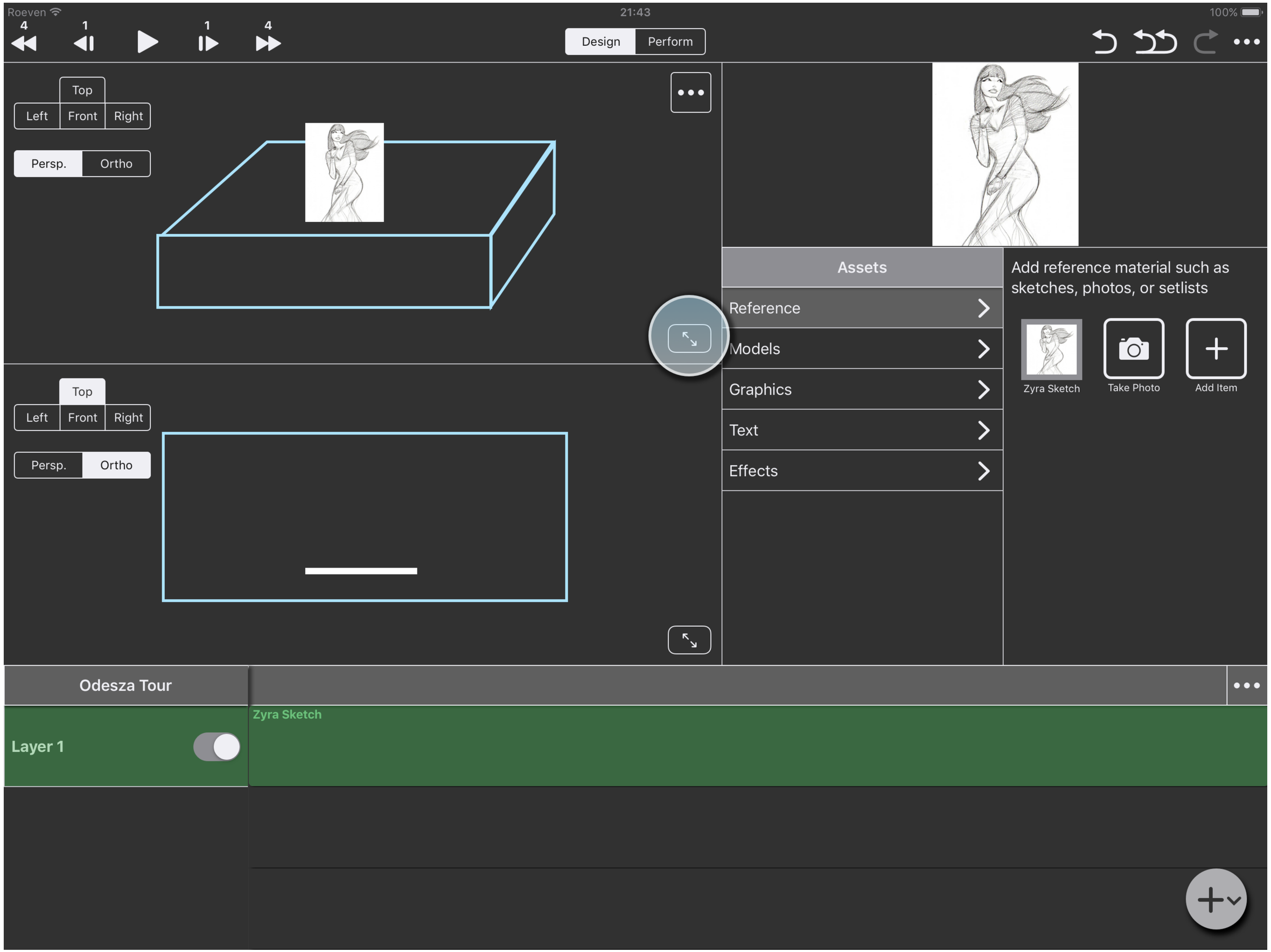
The photo is added to the asset library.



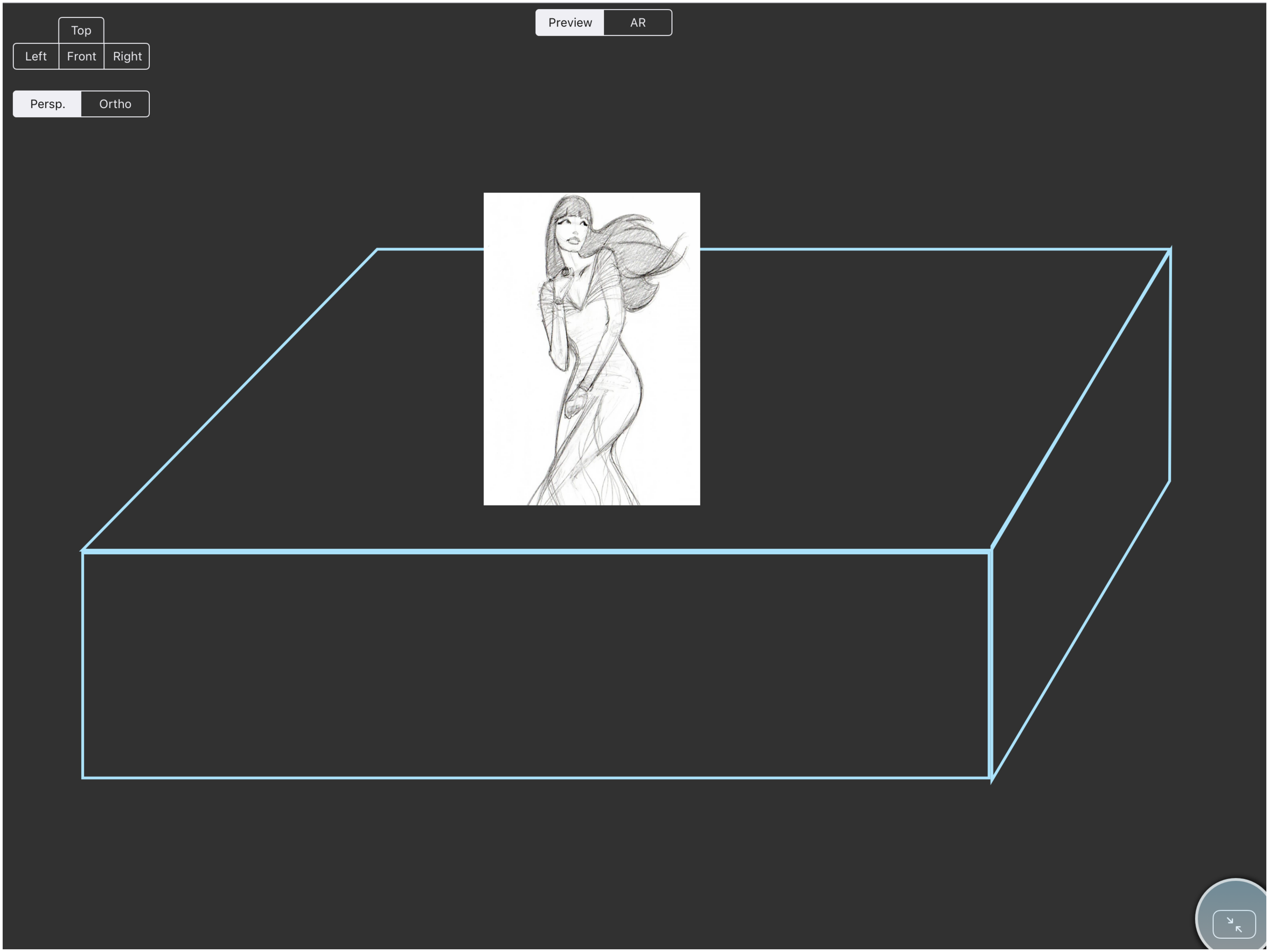
You place the sketch on the stage by dragging and dropping.



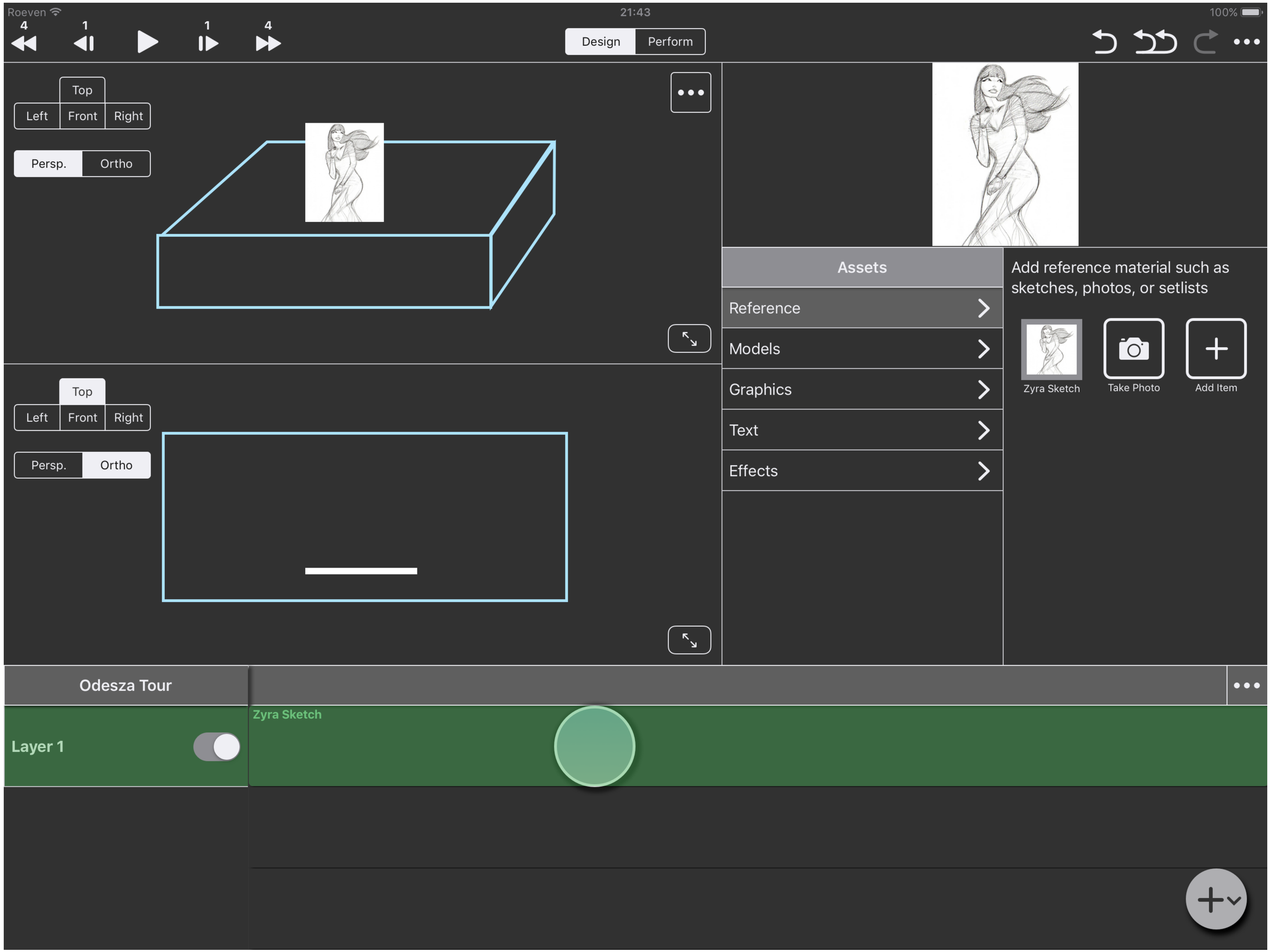
You see how this looks in full screen view.



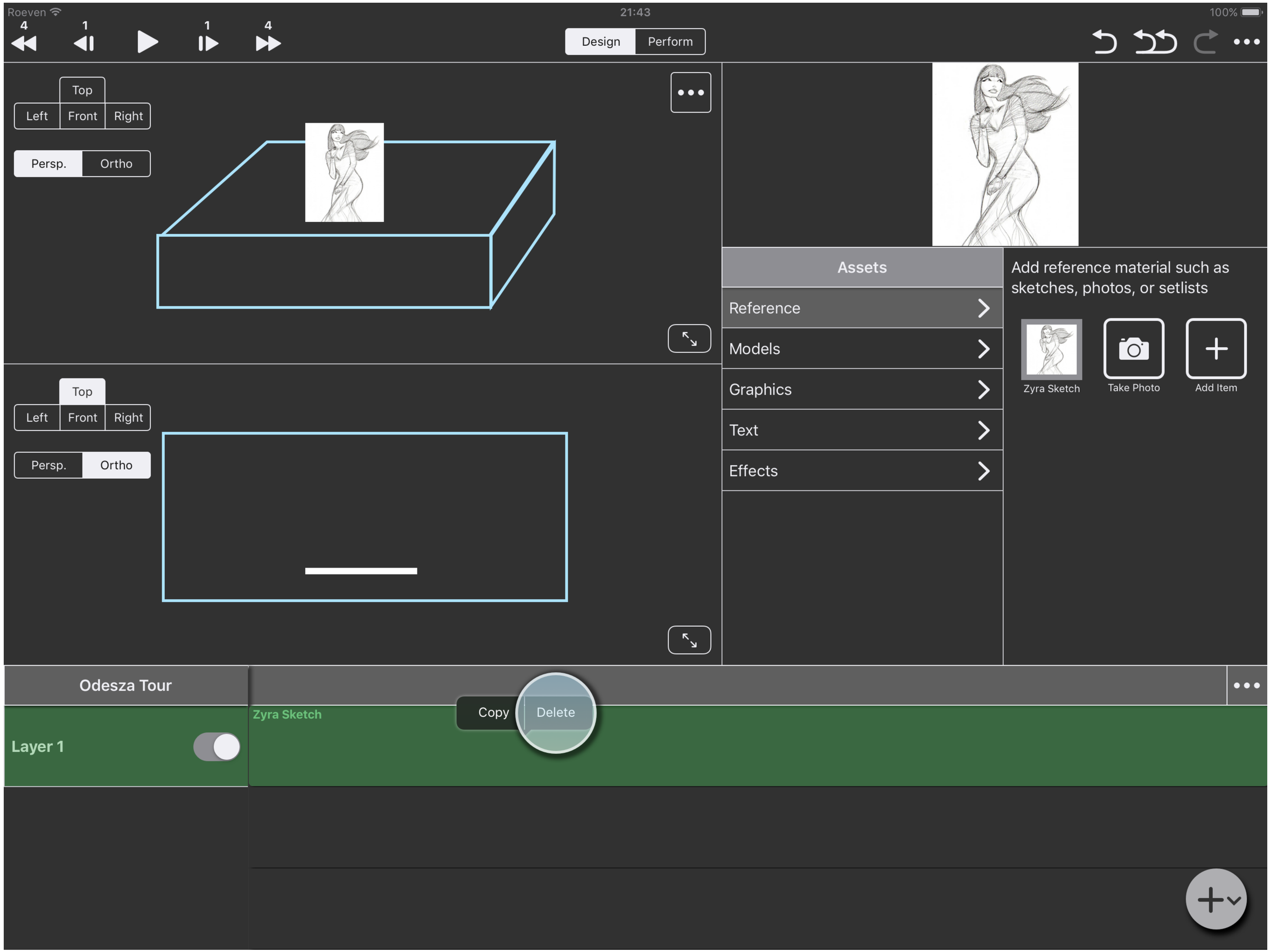
You and the stage designer “bodystorm” being at a concert with an AR singer. You can also toggle to the AR preview, which mimics a stage with an AR show, right there in the meeting room on the iPad.



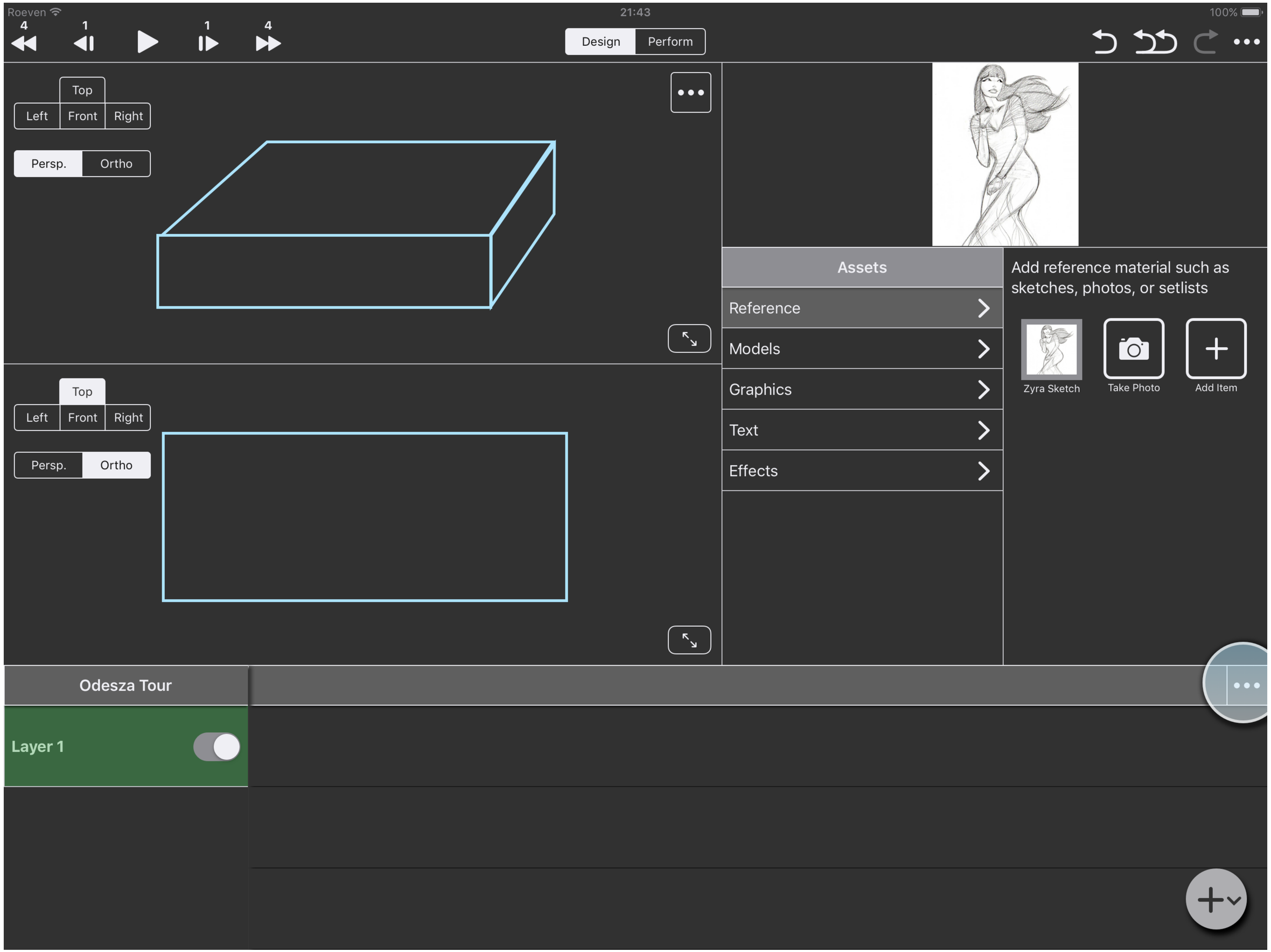
The stage designer is happy. You relay the idea to a modeller and animator, who will create a model of Zyra. Then you press and hold the sketch to remove it from the stage.



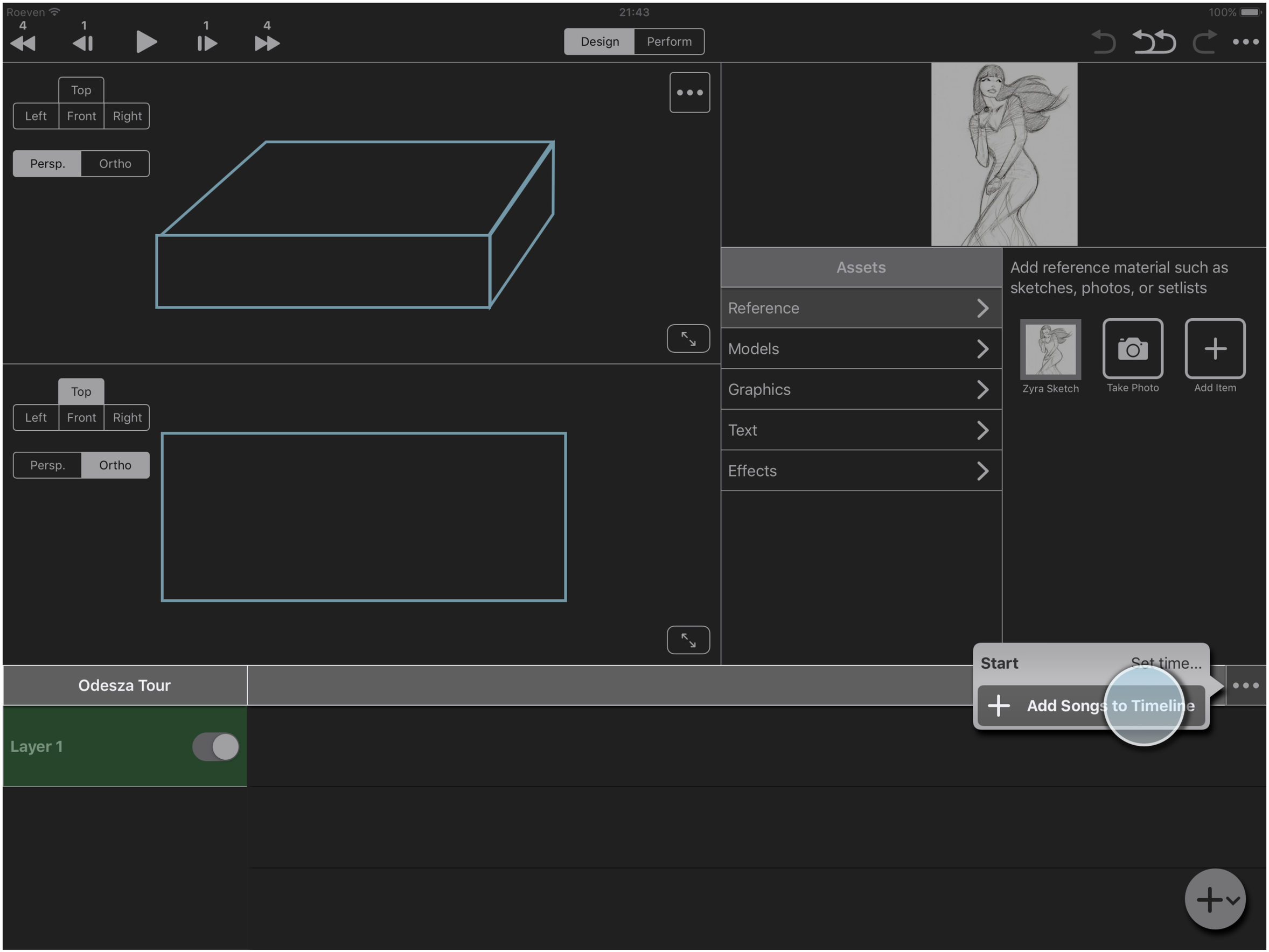
You remove the sketch from the stage and timeline.



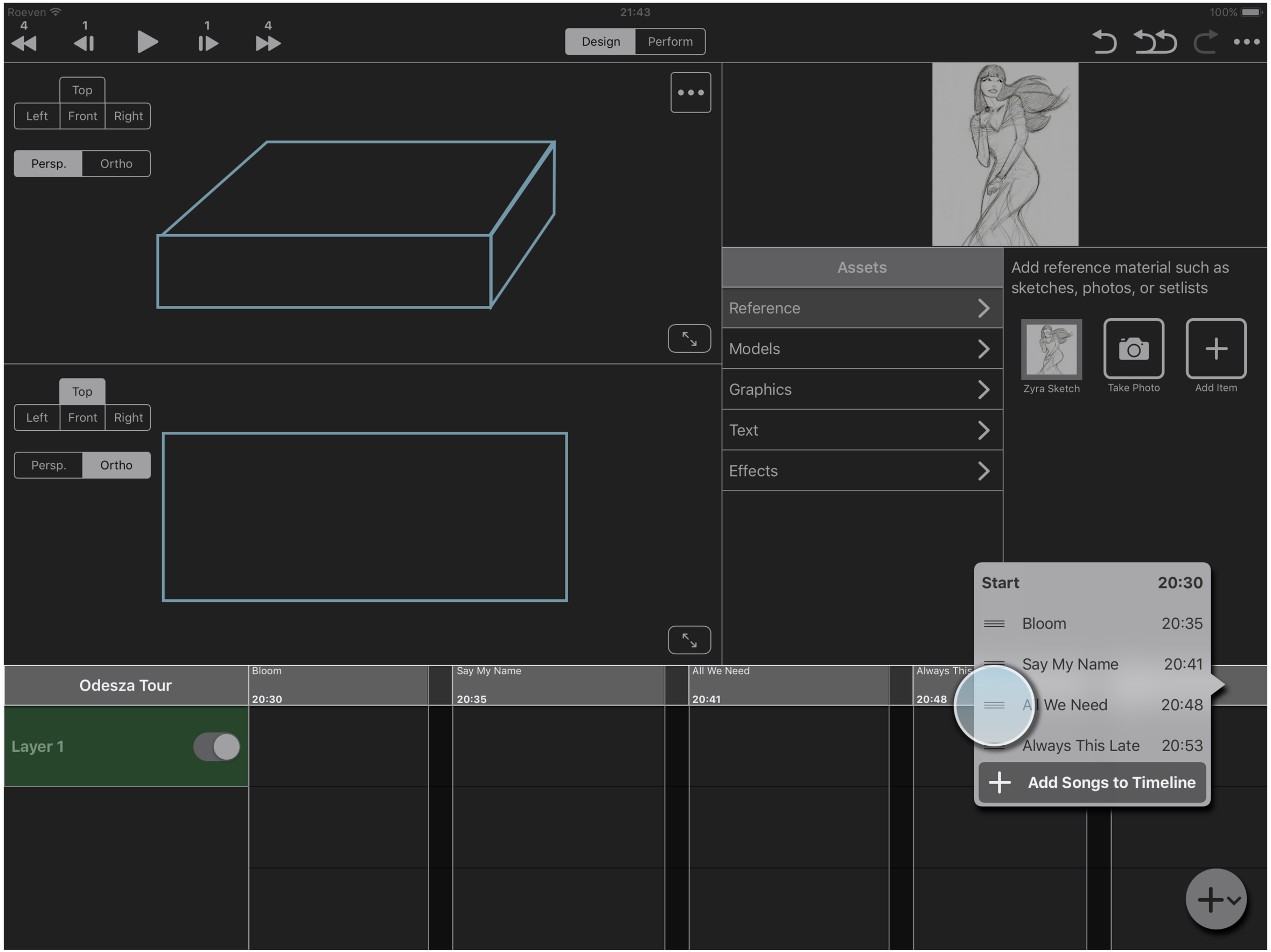
You add Odesza's concert setlist to start laying out the show.



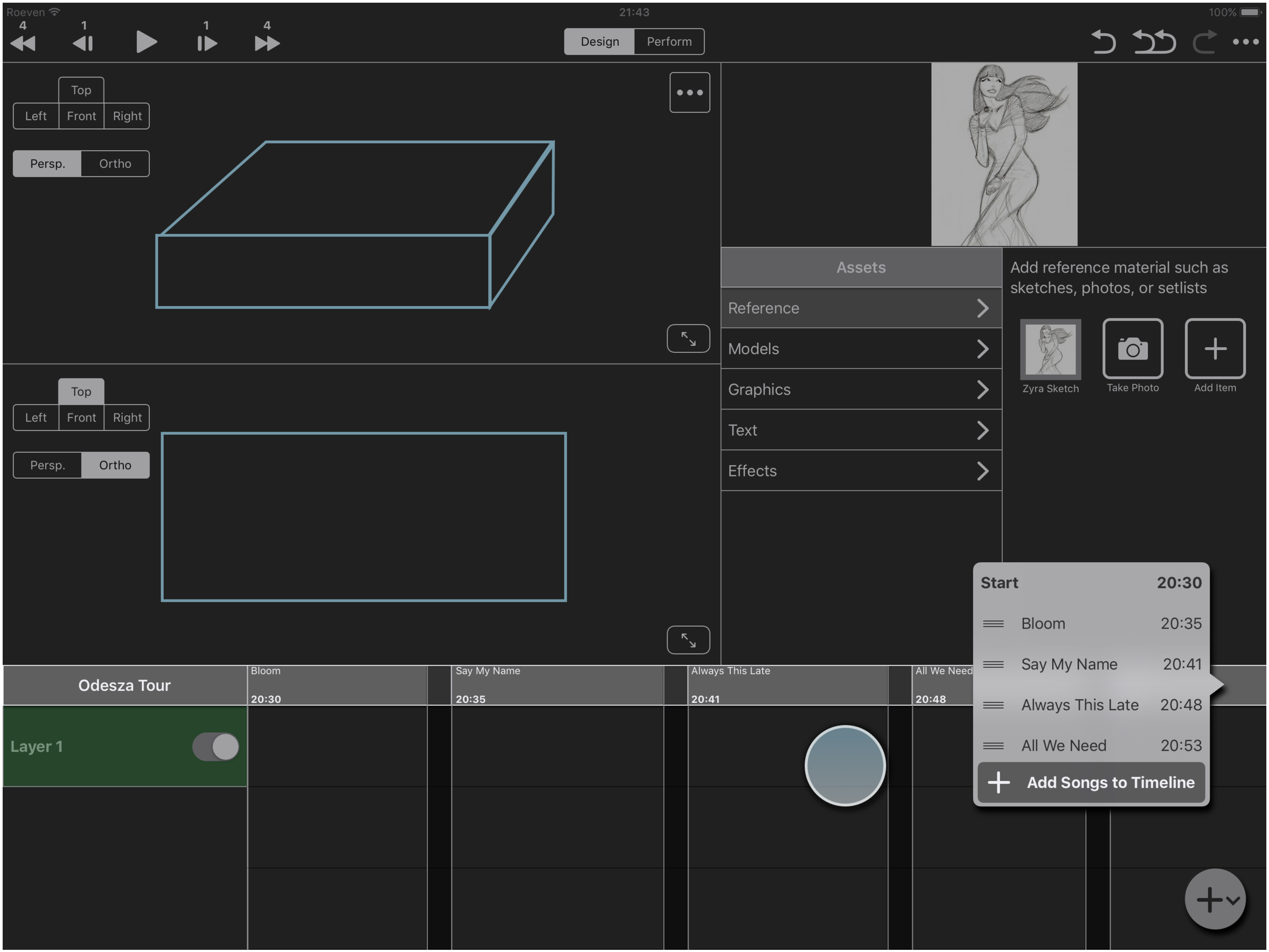
You add songs from iTunes or the filesystem.



You imported the songs—but in the wrong order. You drag to reorder the songs.

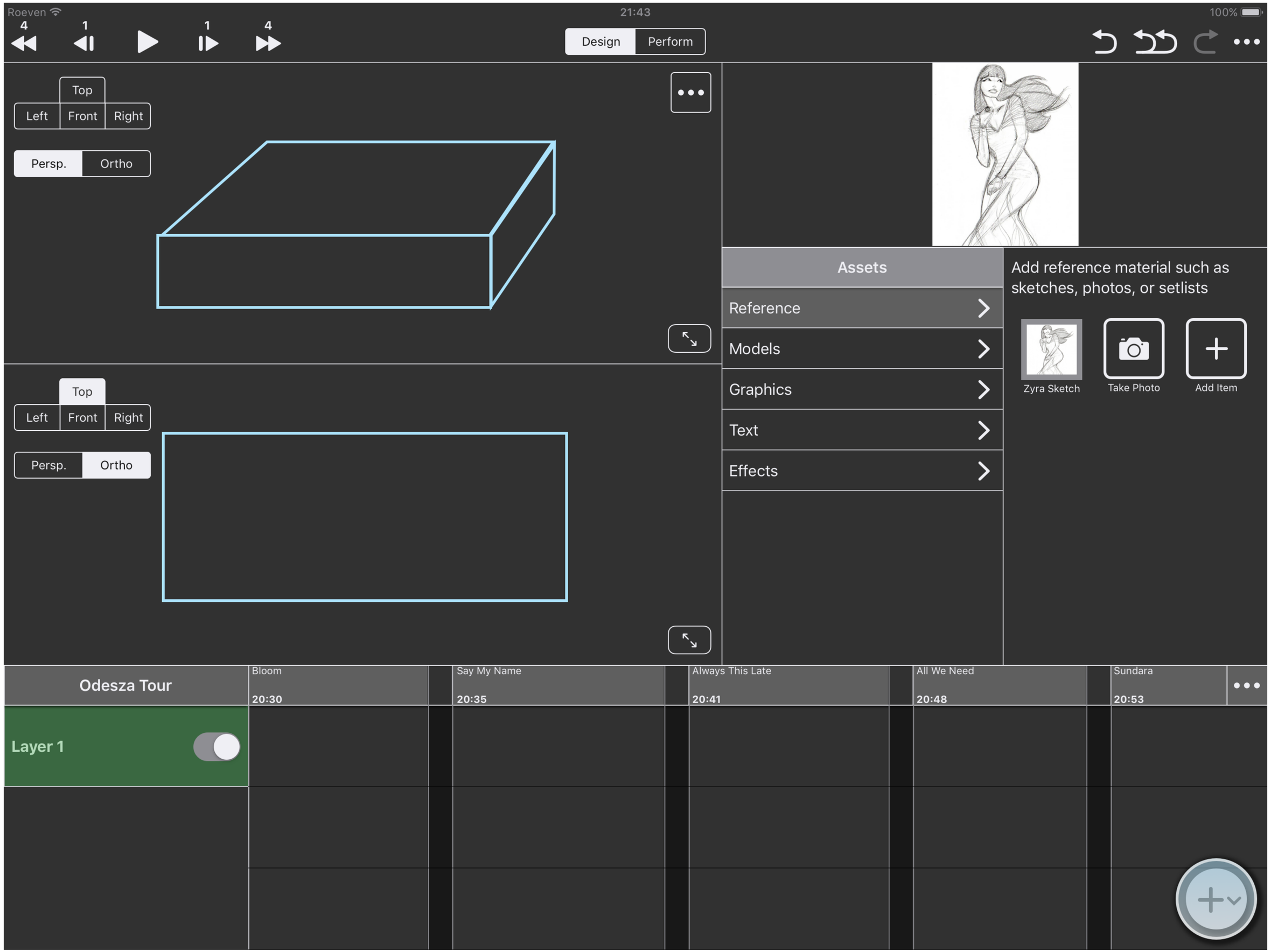


The setlist is correct, you tap anywhere to dismiss the pop-up panel.

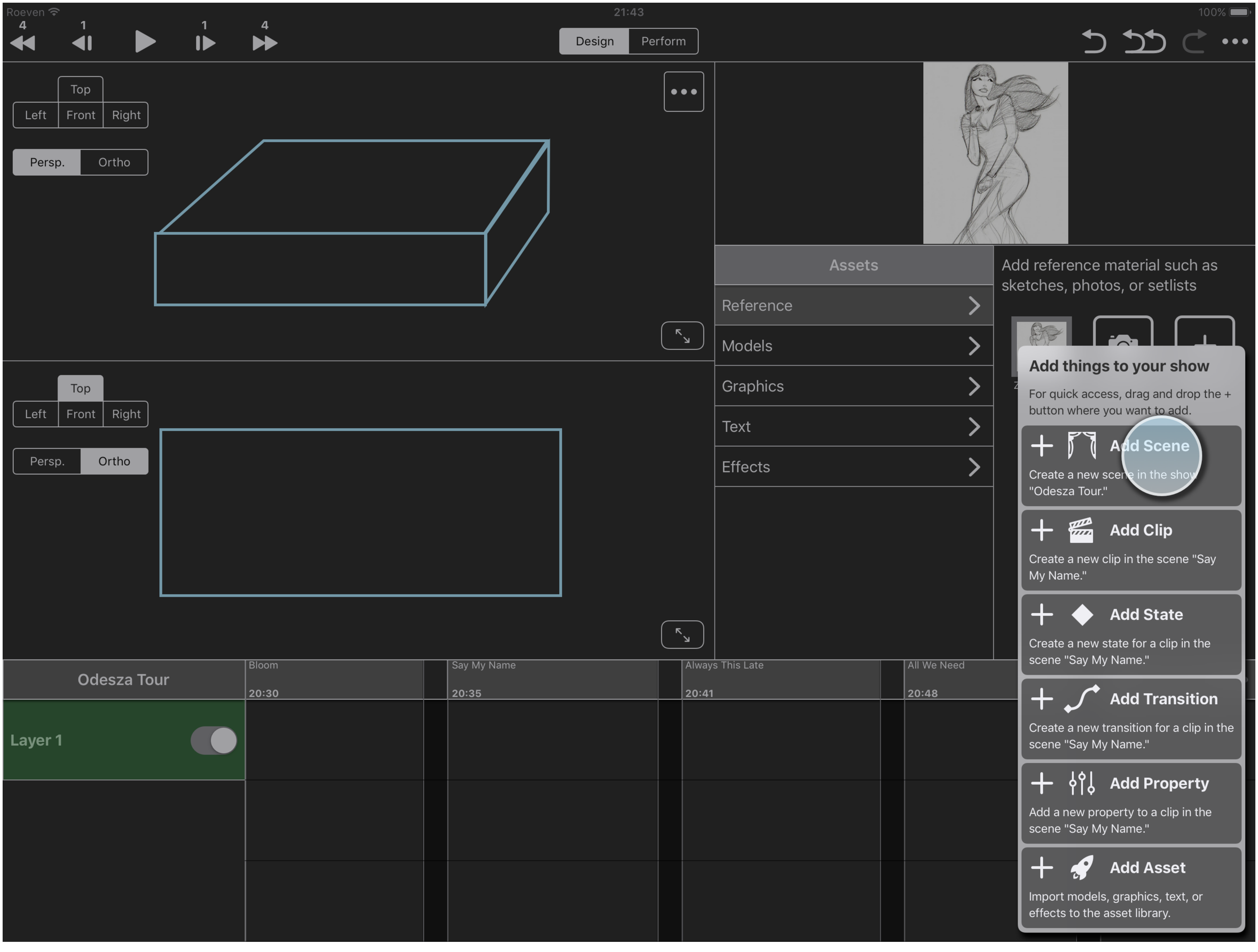


The setlist is displayed on the show timeline, including lengths and approximate start times.

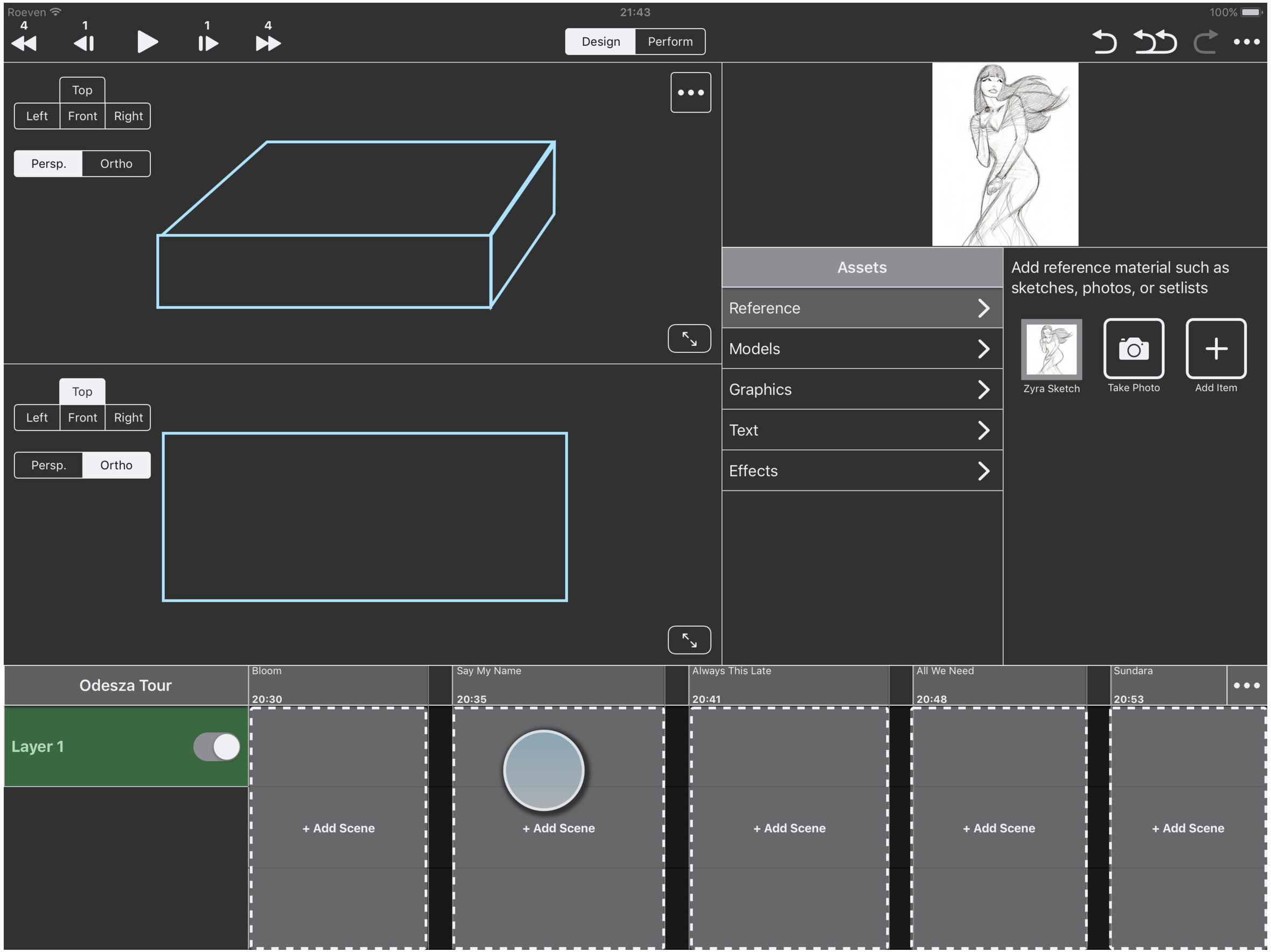
You tap the + button to begin creating the scene.



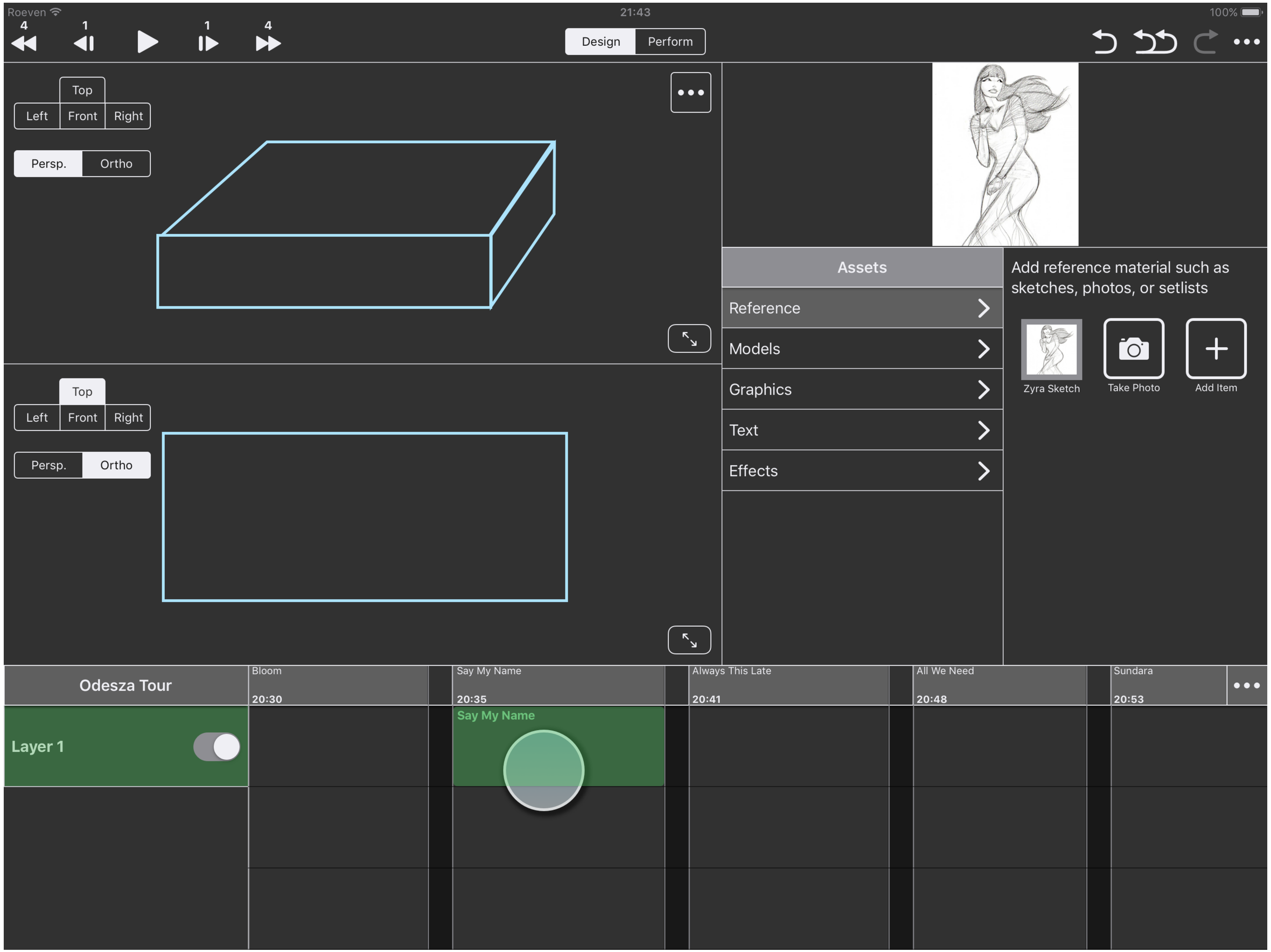
You select the add scene option from the menu.



Possible targets to add a new scene are shown. You create a scene for the song “Say My Name”.

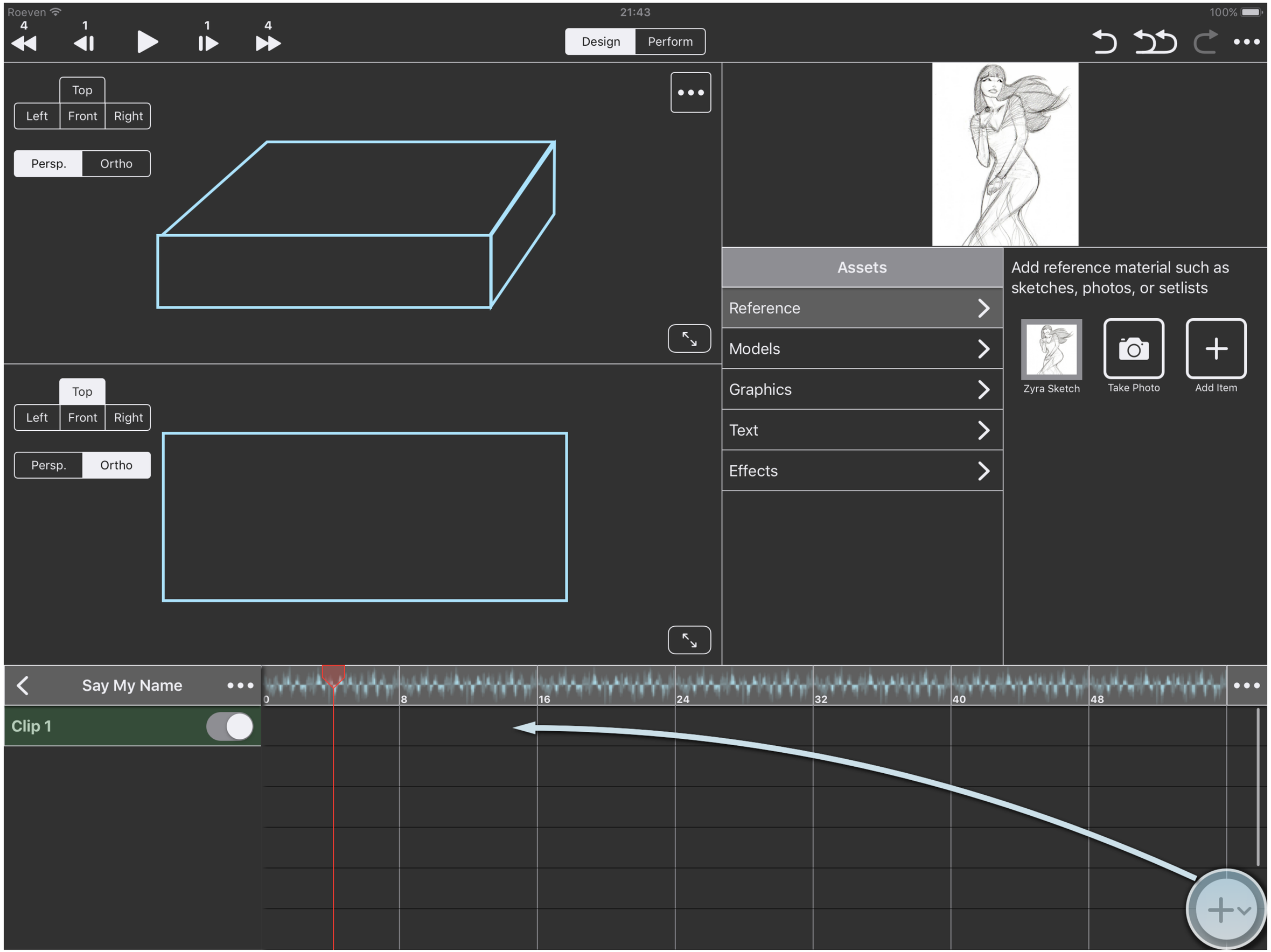


You expand the scene “Say My Name”.

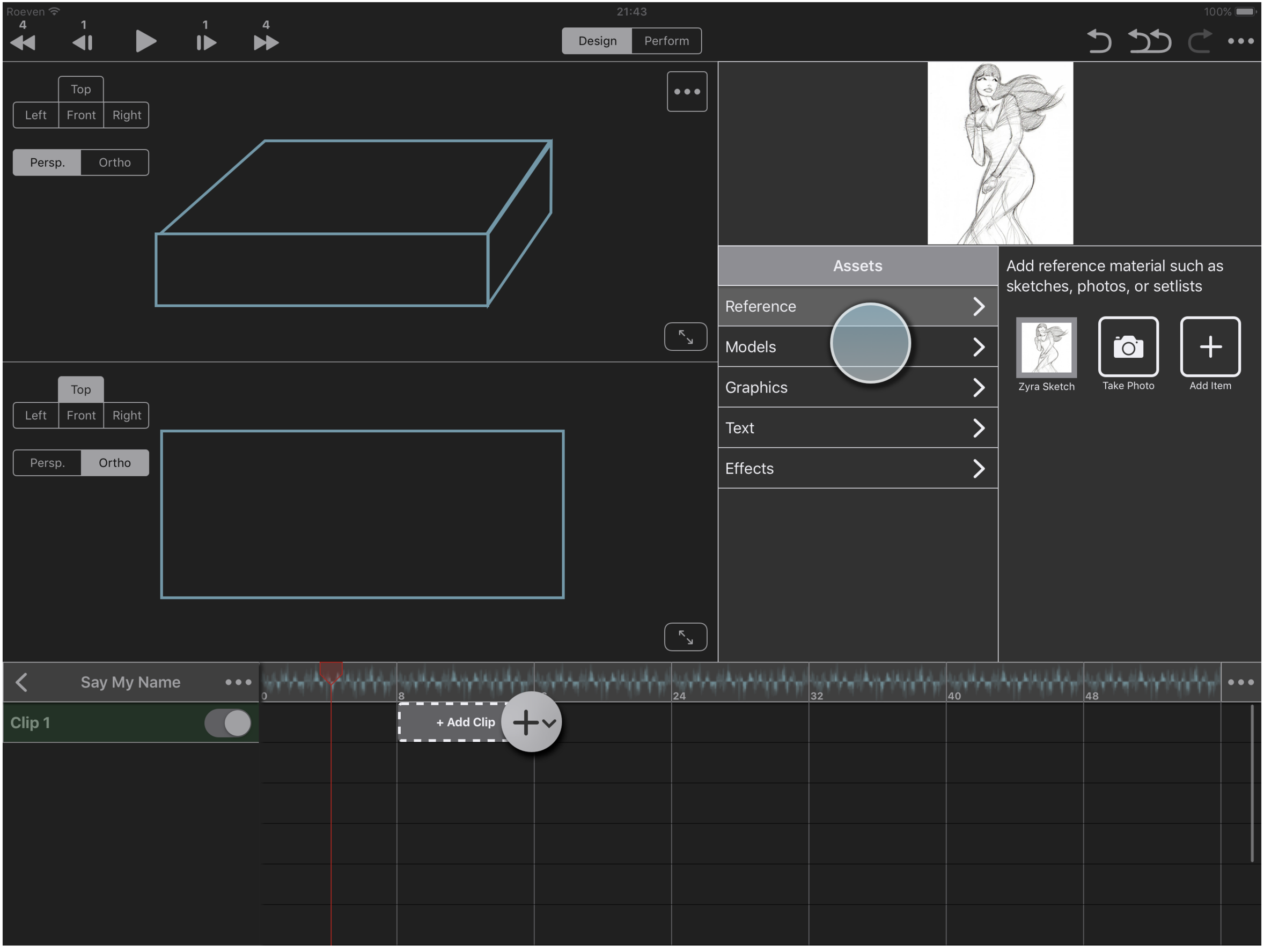


The scene timeline displays the song “Say My Name”—along with detected beats and bars.

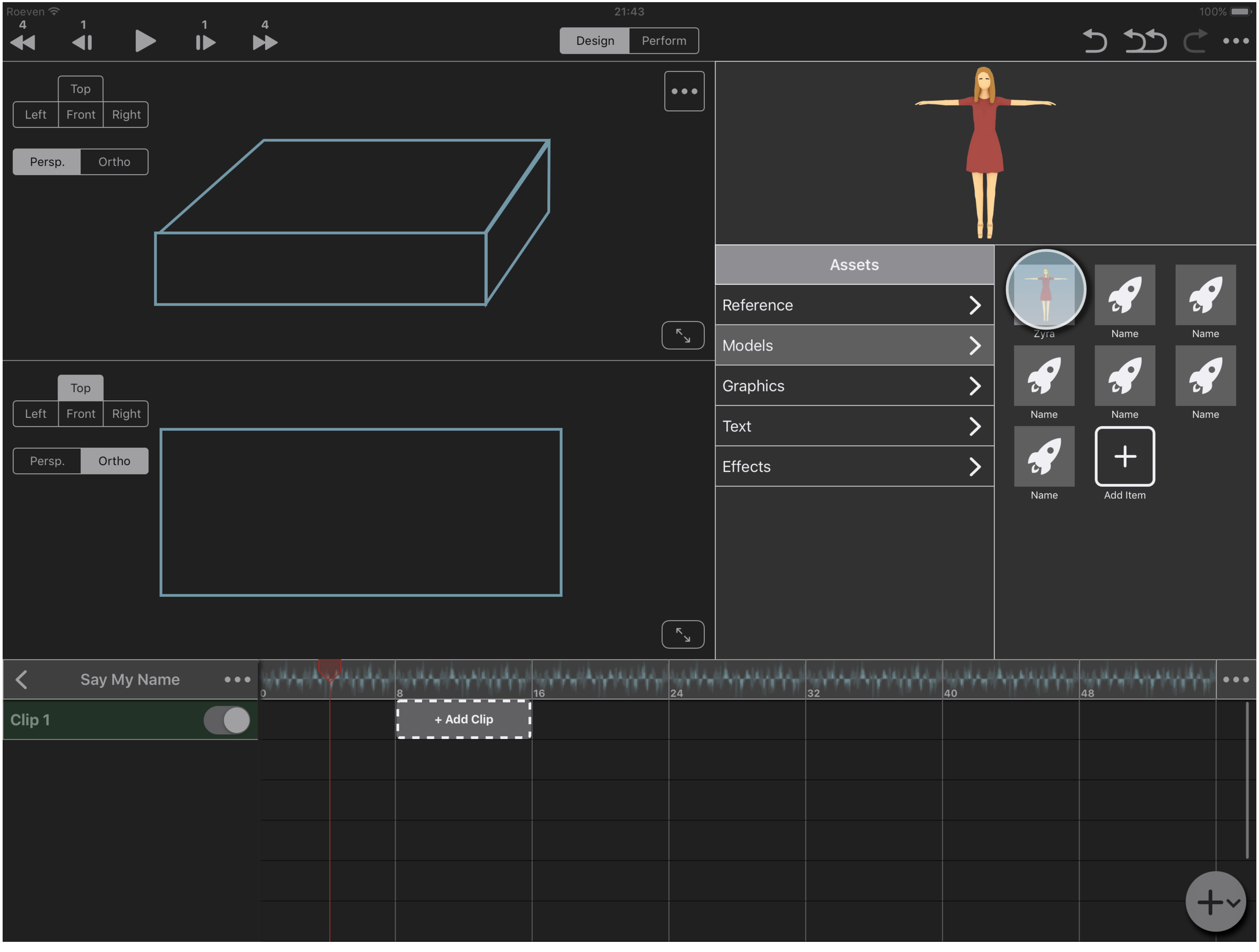
You drag and drop the + button to create a new clip in this scene.



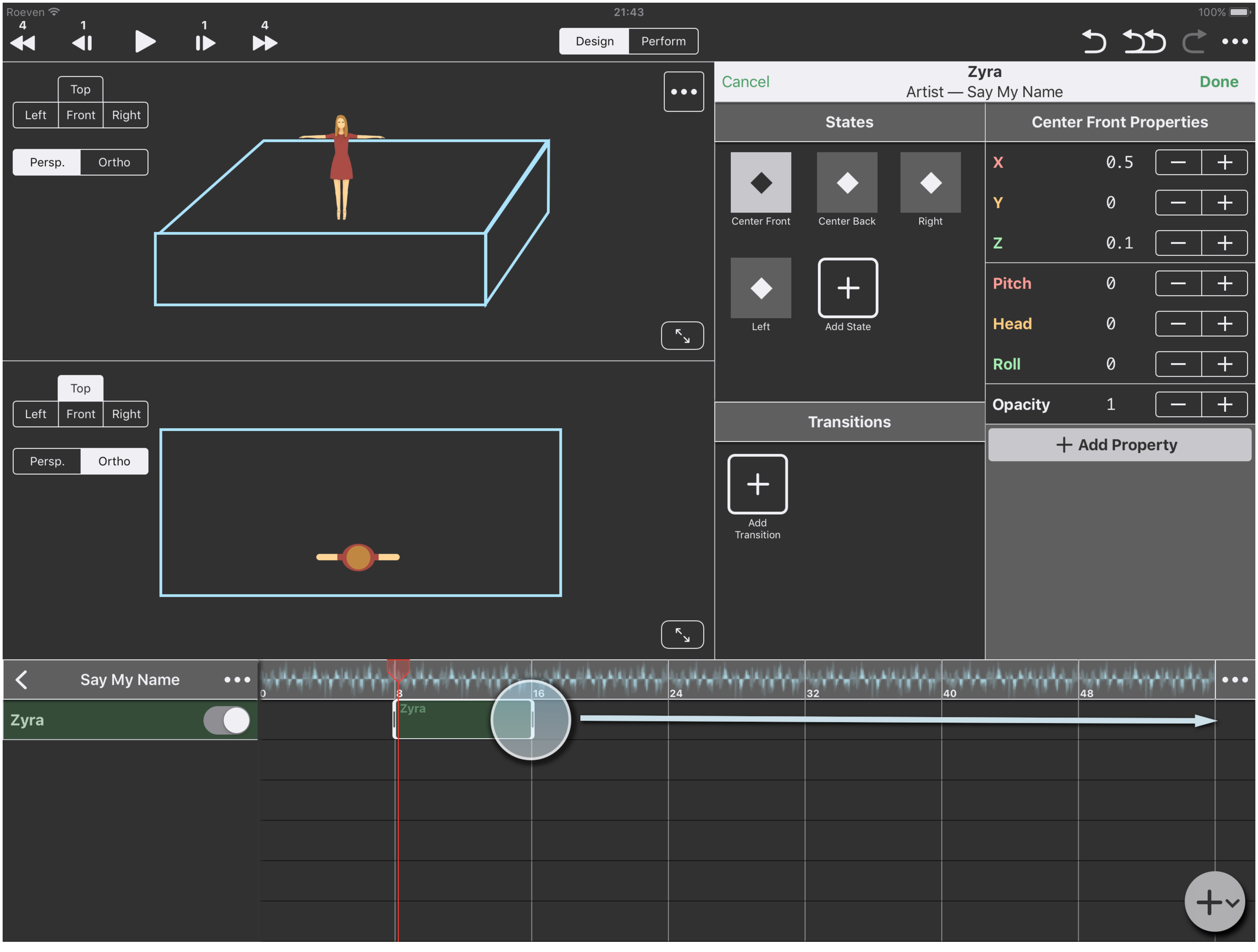
A clip is created at the drop target. The modeller has created a model for Zyra and added it to your shared asset library under “models”.



You find Zyra and tap it to create a clip.



Zyra has been placed on stage. Several sensible default positions are offered—center front is used. You expand the clips length.



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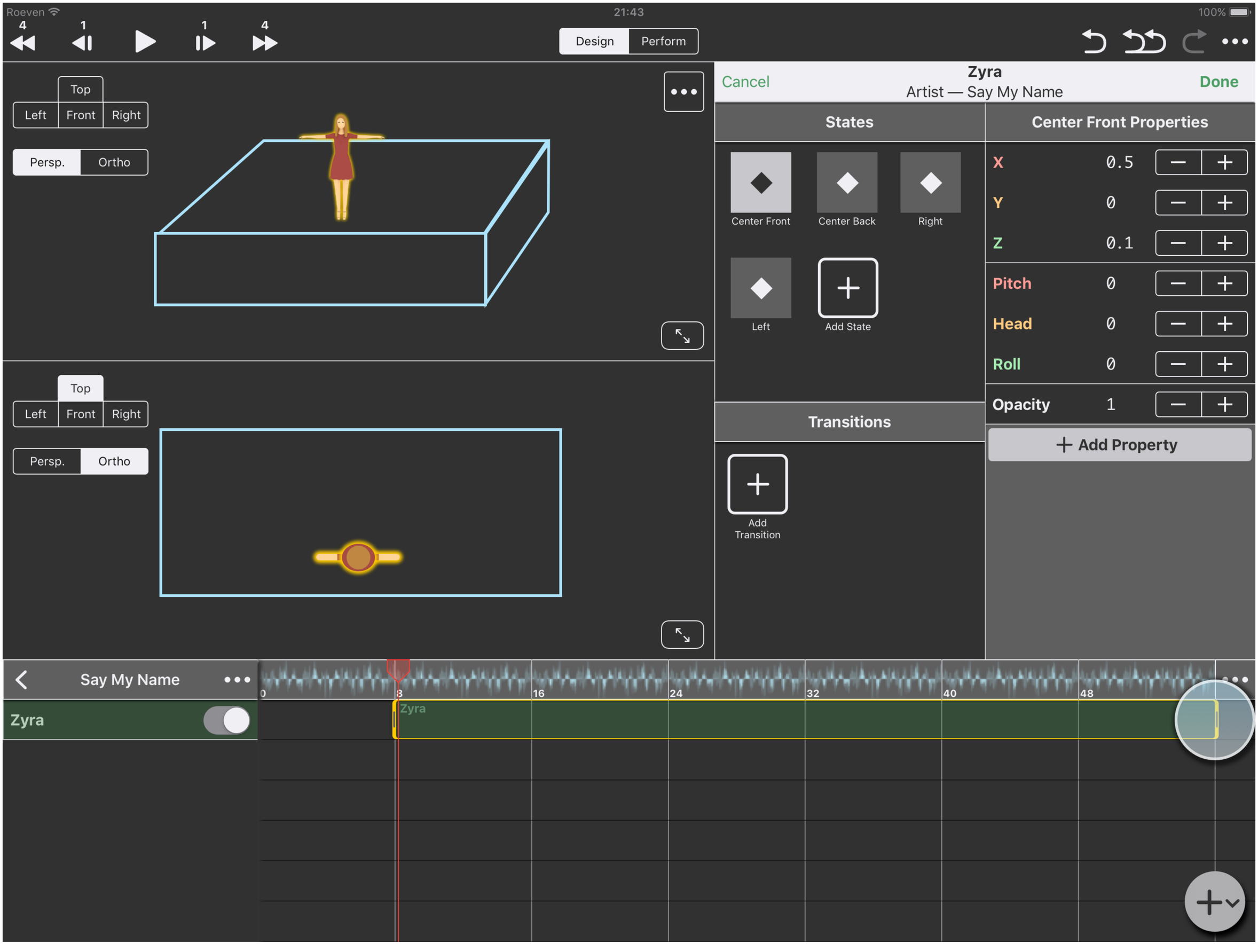

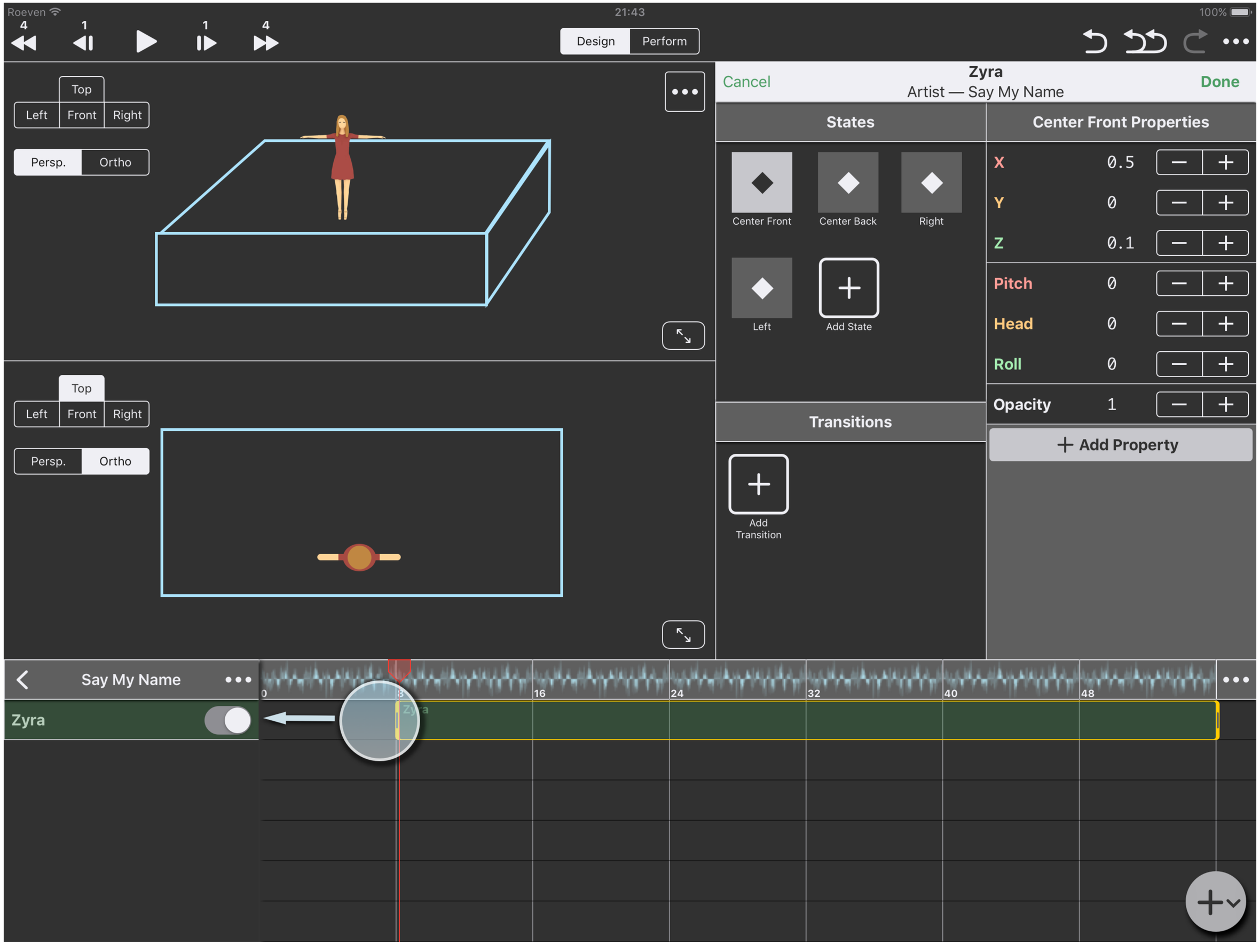
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Add Transition
Center Front Properties
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Z 0.1
Pitch 0
Head 0
Roll 0
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Zyra
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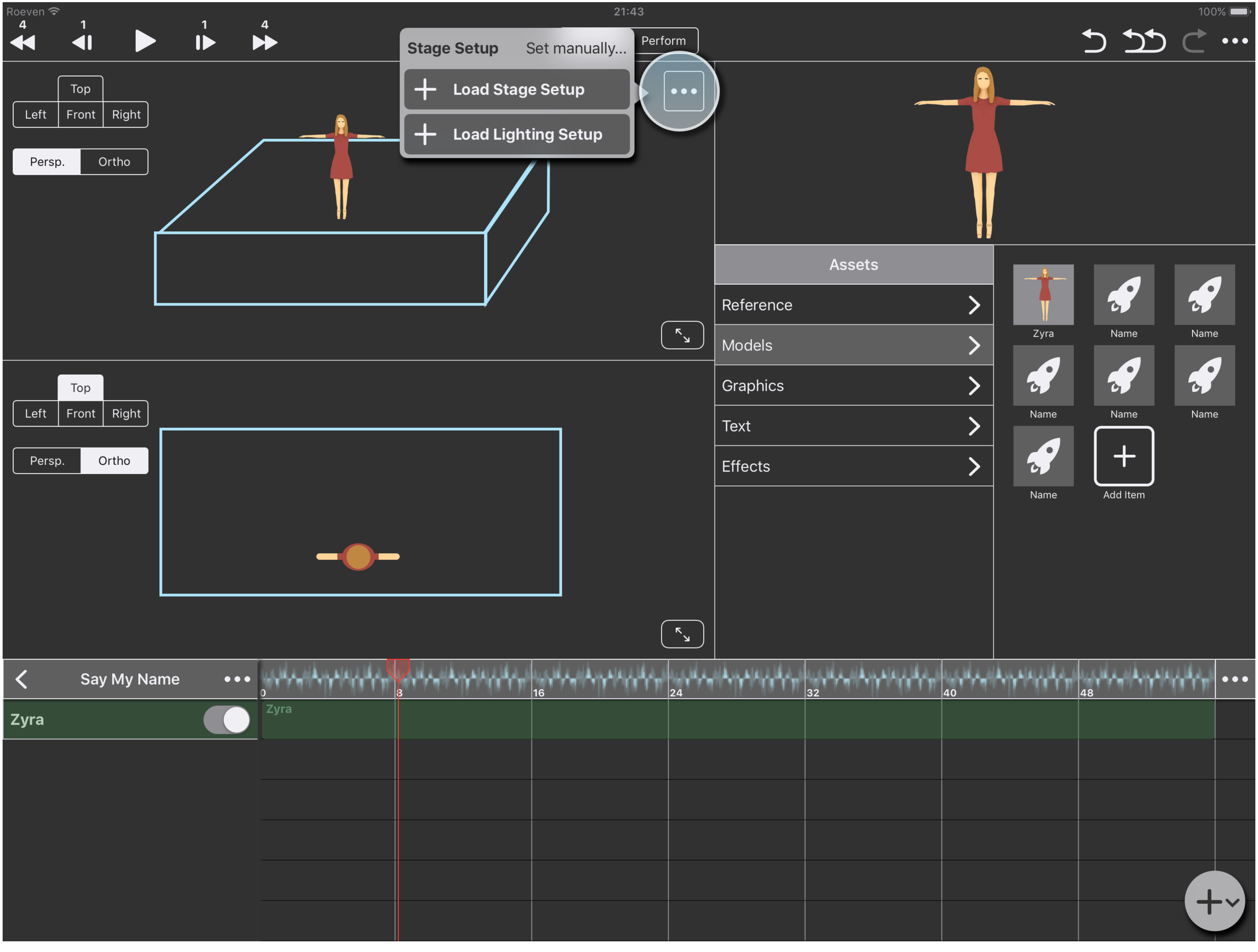
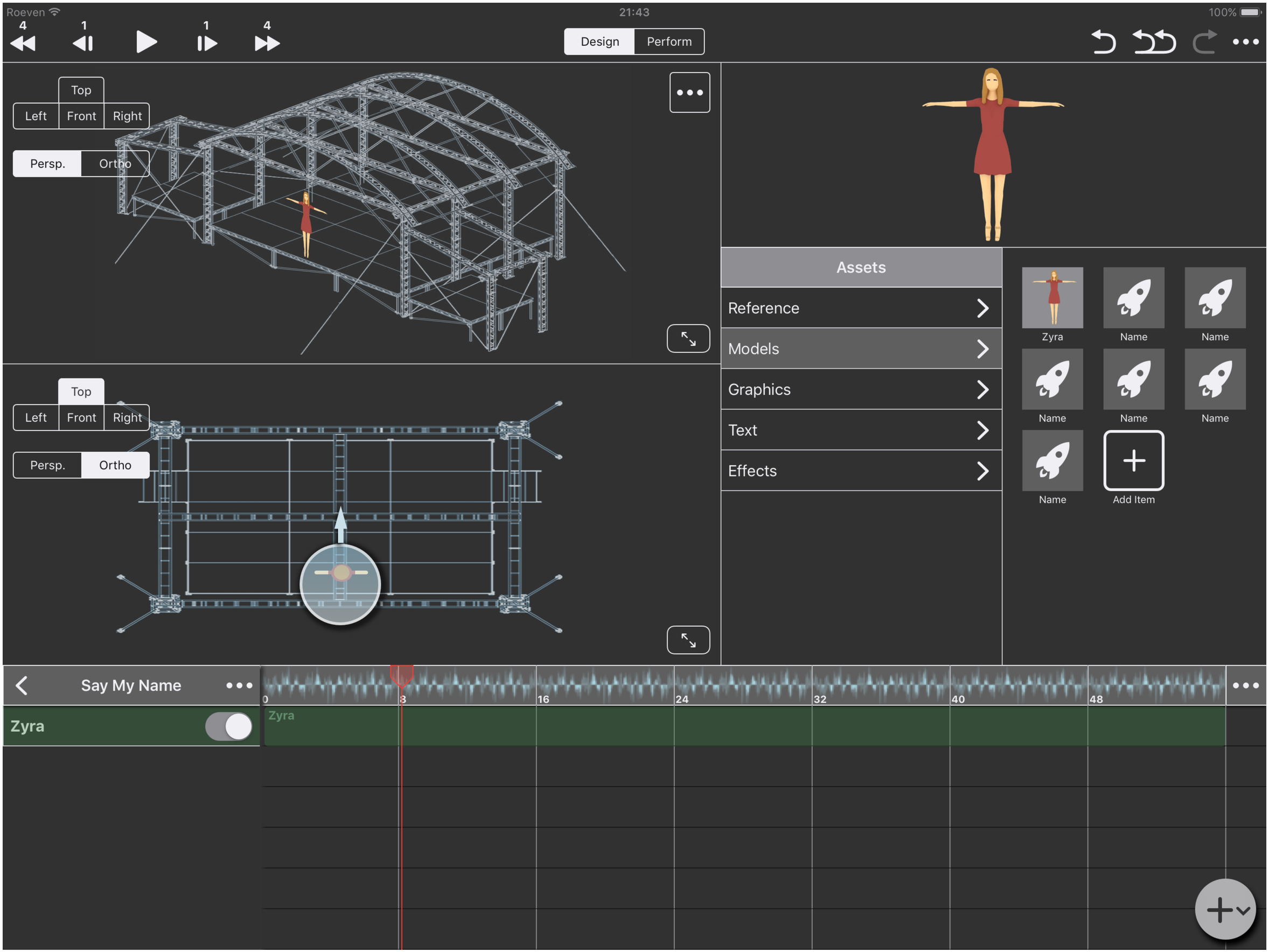
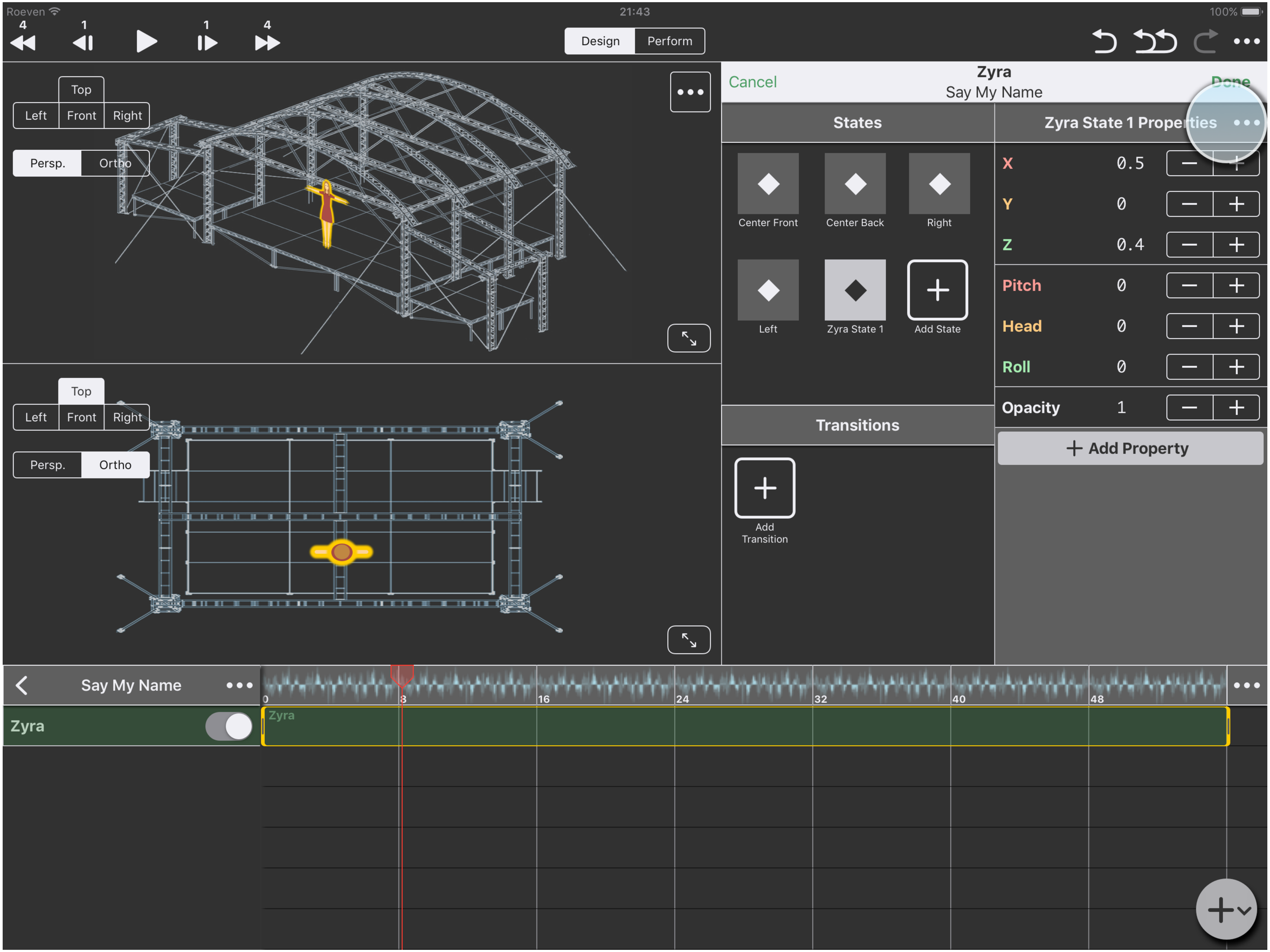
You load a stage setup created by one of the stage technicians.



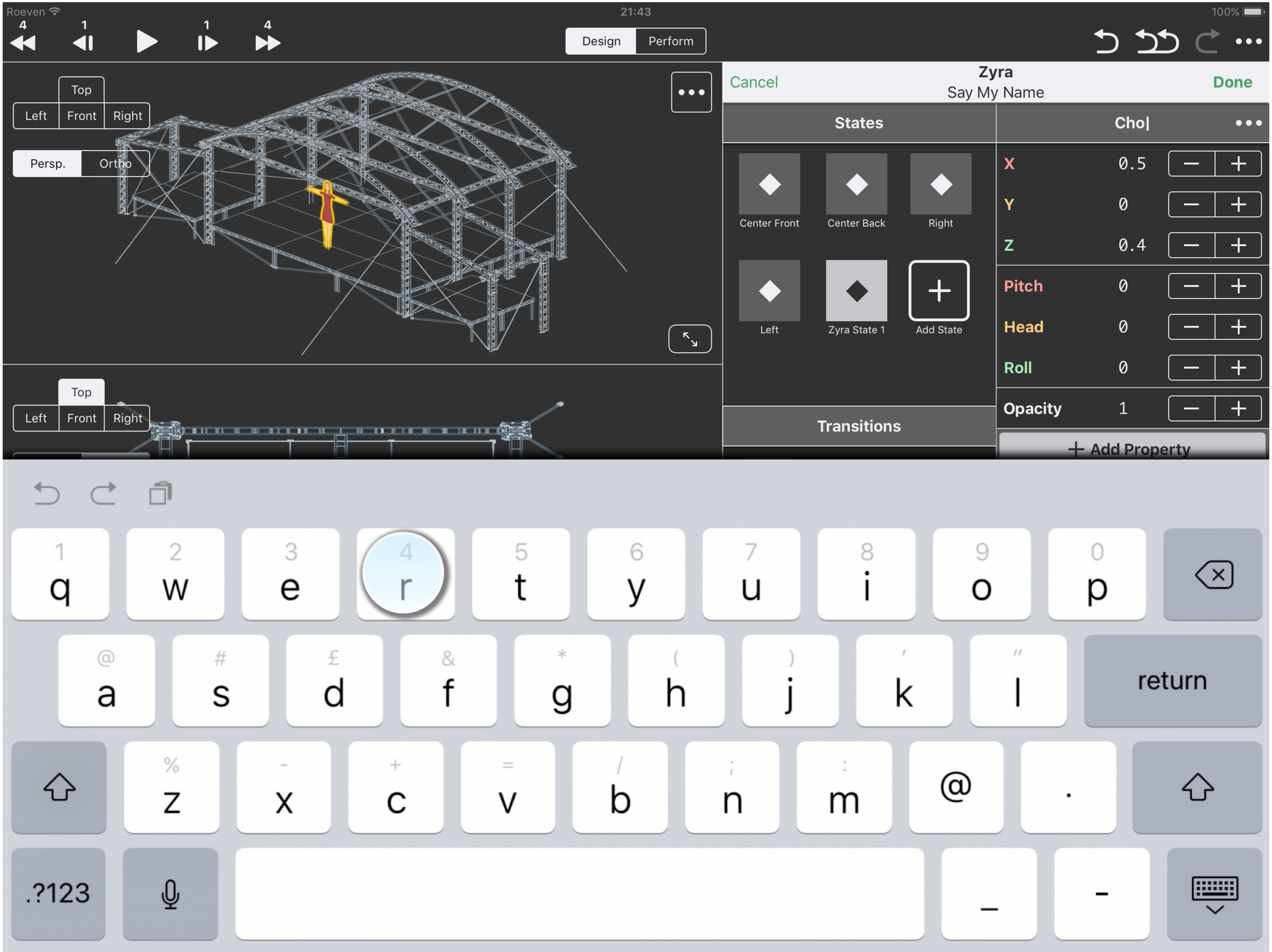
Zyra's position on this stage is not quite right—you drag to reposition.



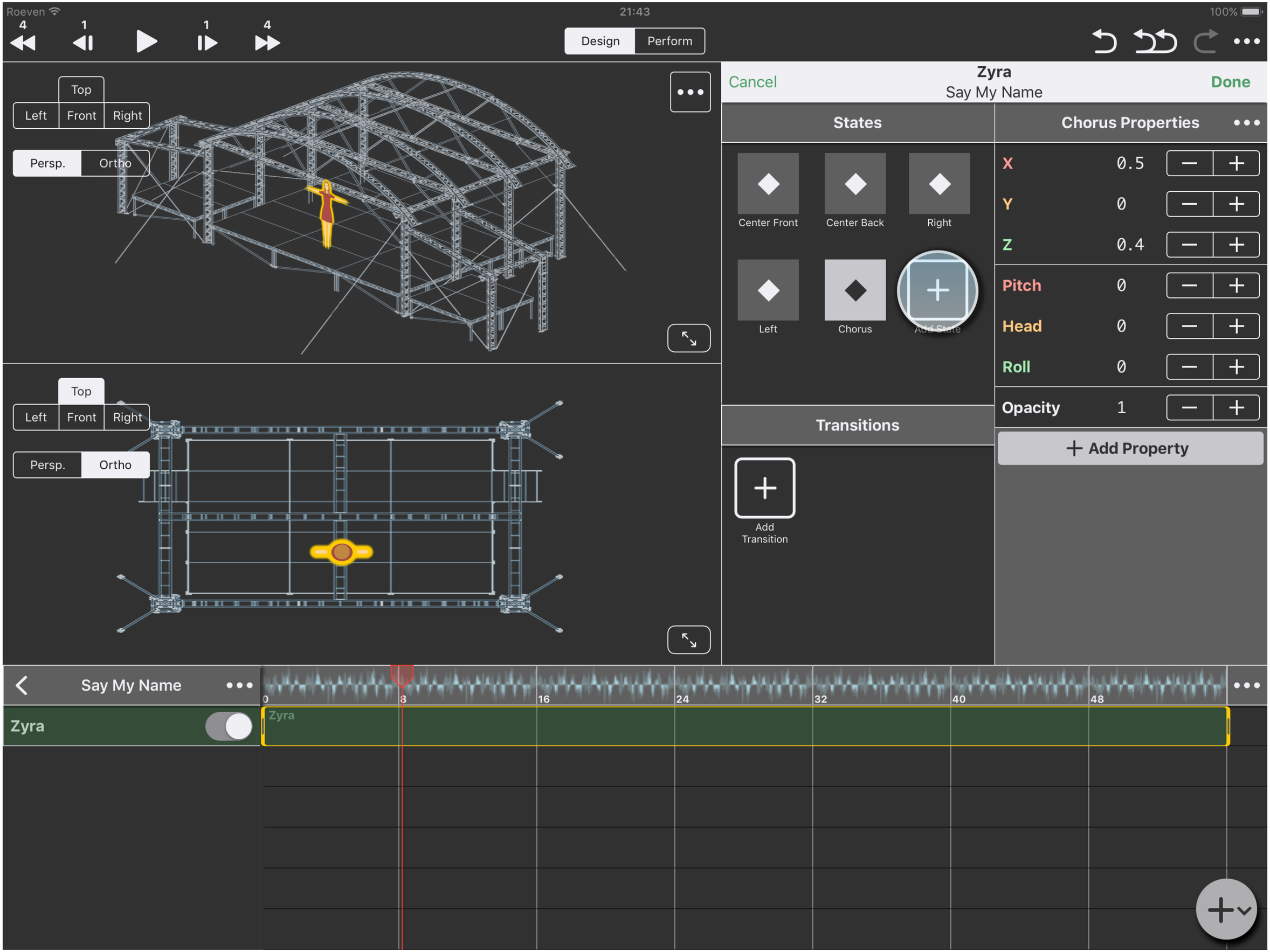
This creates a new state for her. This position is where she will sing the chorus.



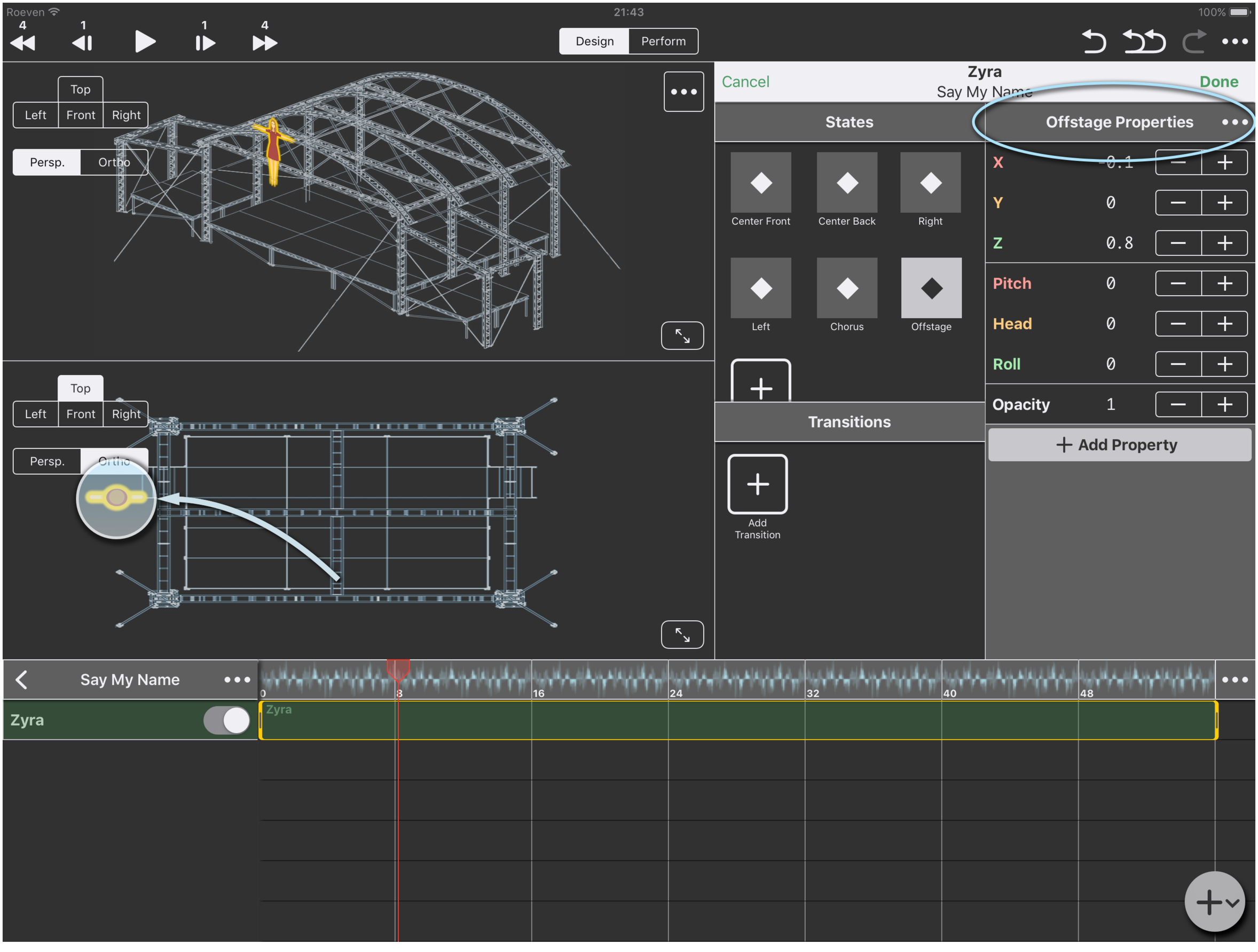
You rename the state “chorus”.



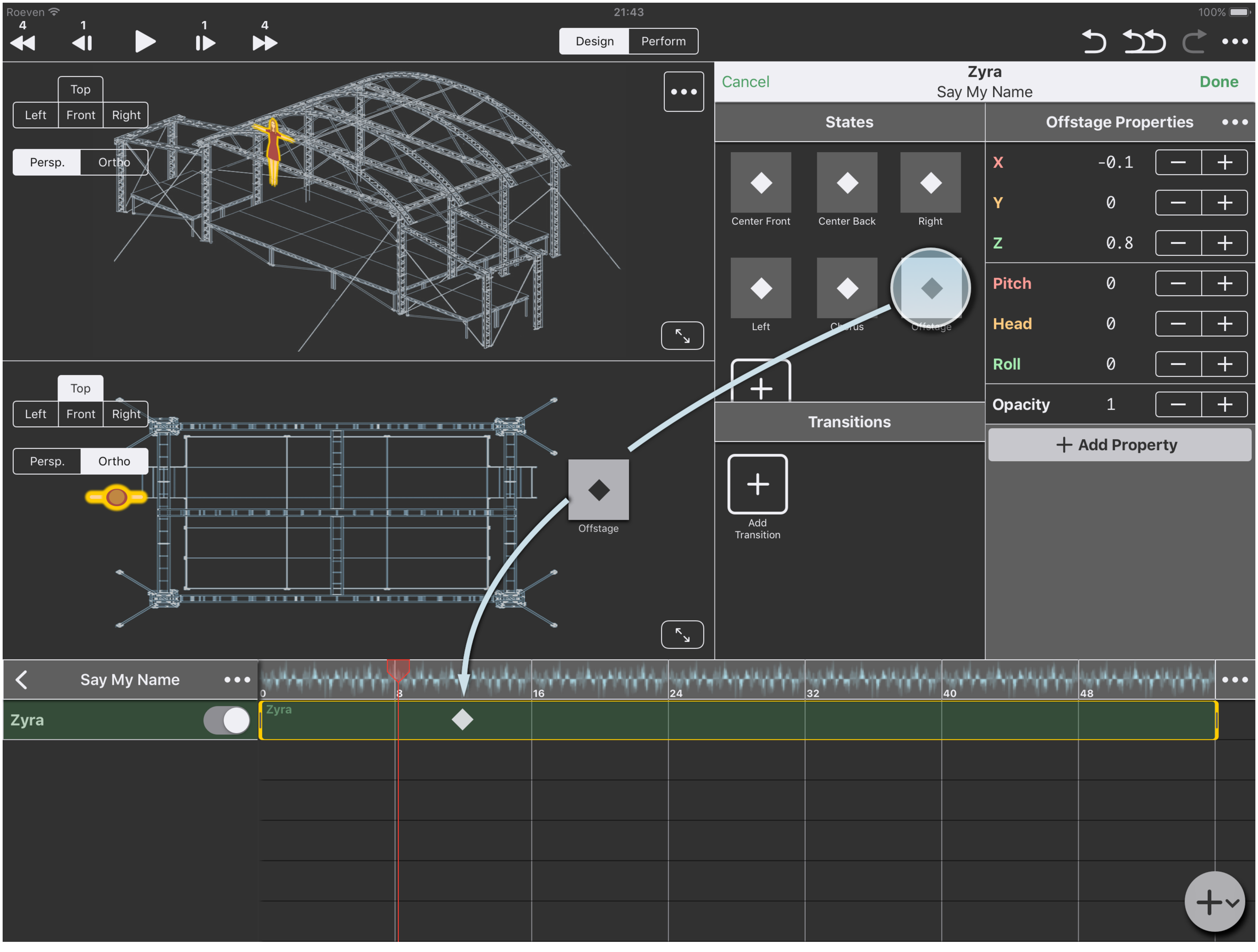
You add another state, for Zyra's offstage position.



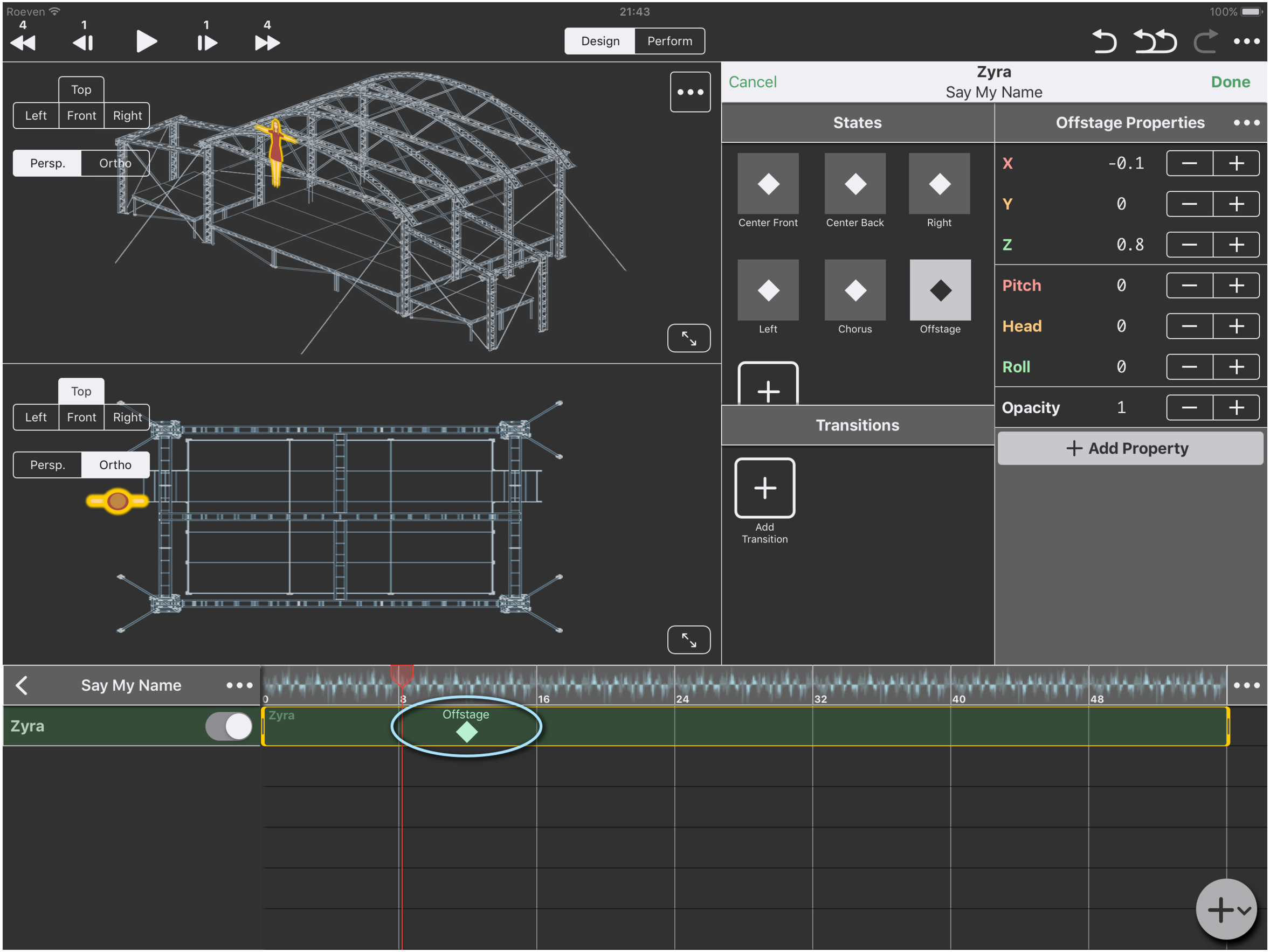
With this state active, you drag to reposition offstage.



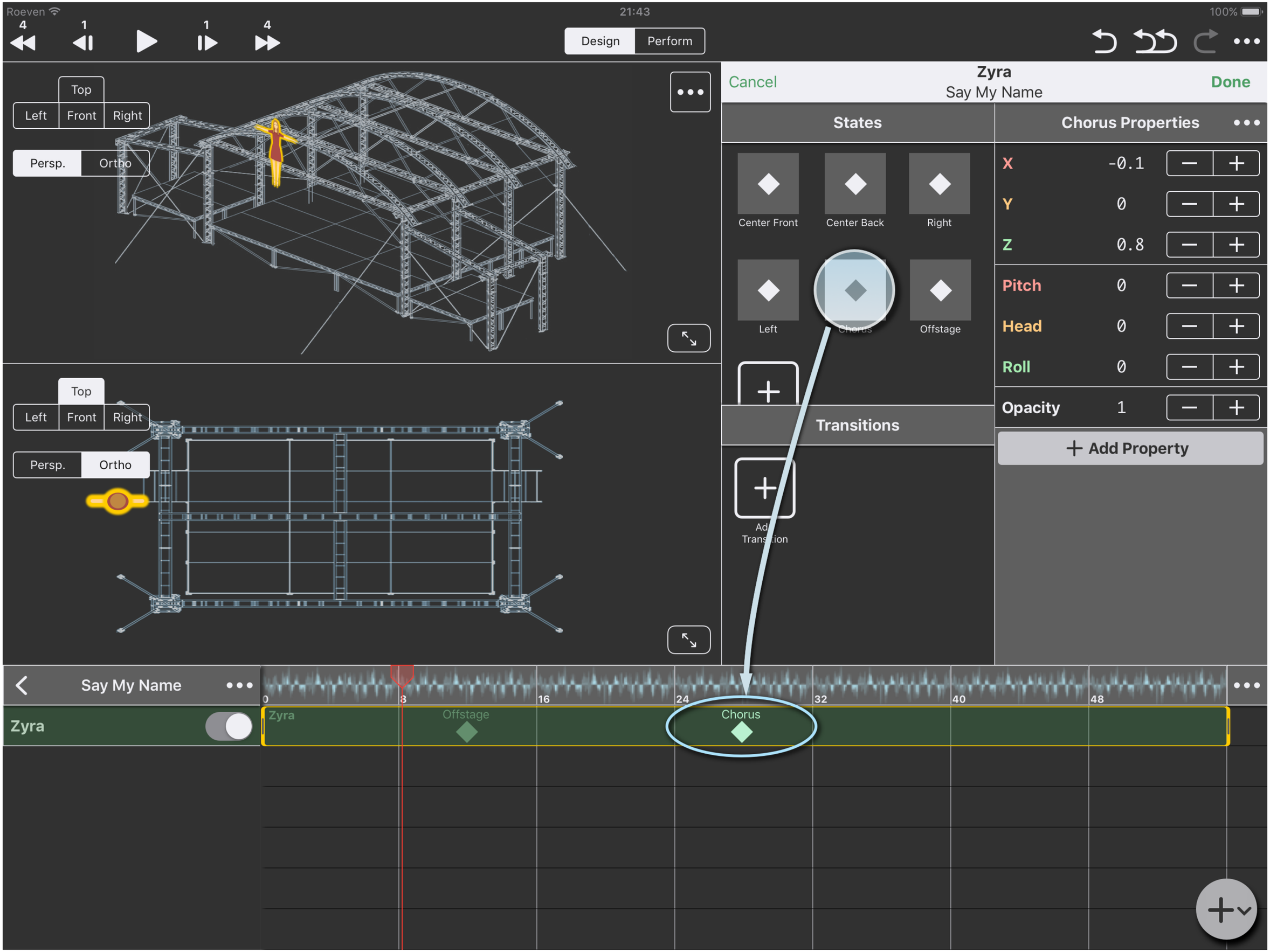
You place these states on the timeline by dragging and dropping the thumbnail. It snaps to place on beat 12.



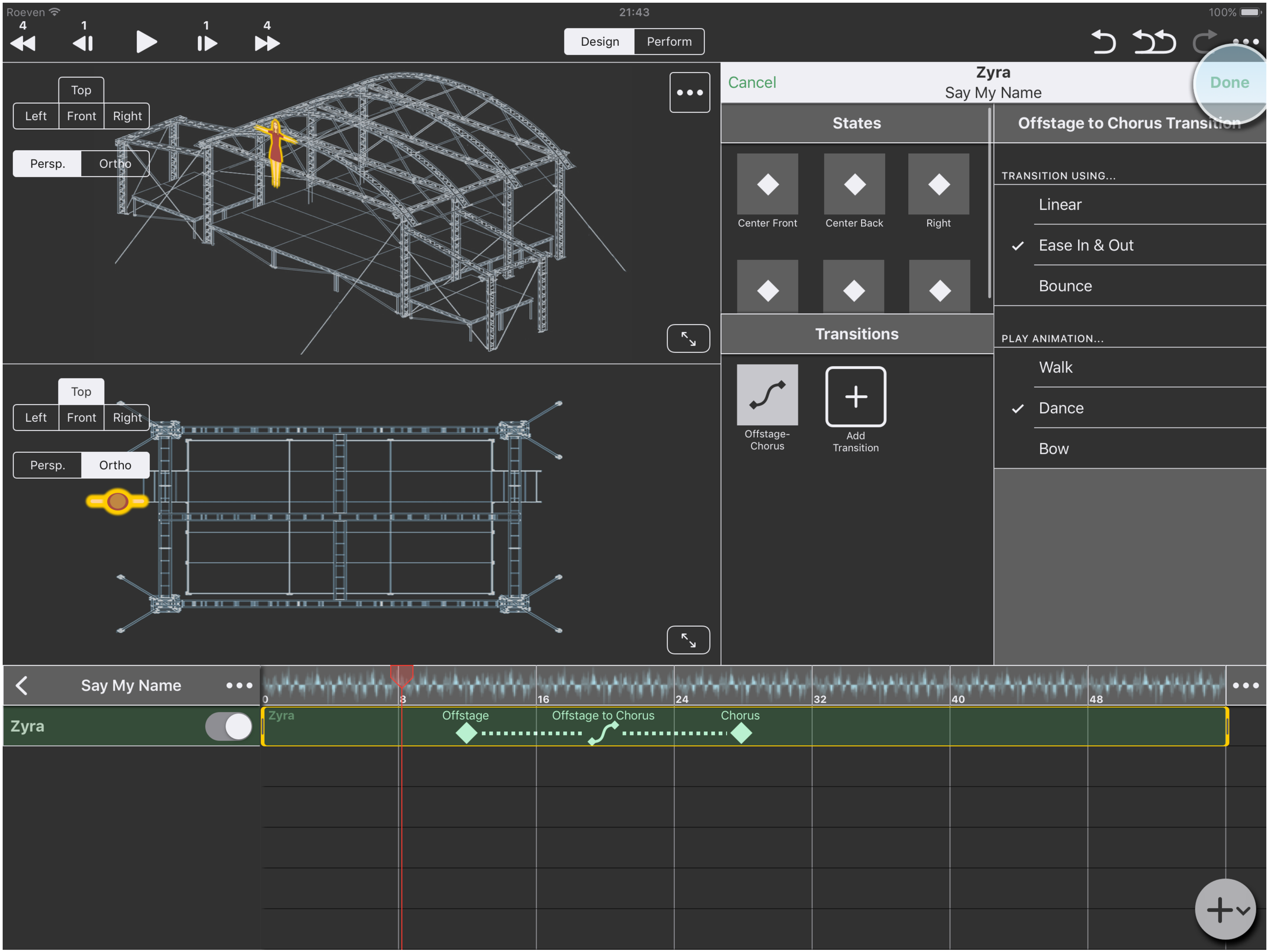
The offstage state has been placed on beat 12.



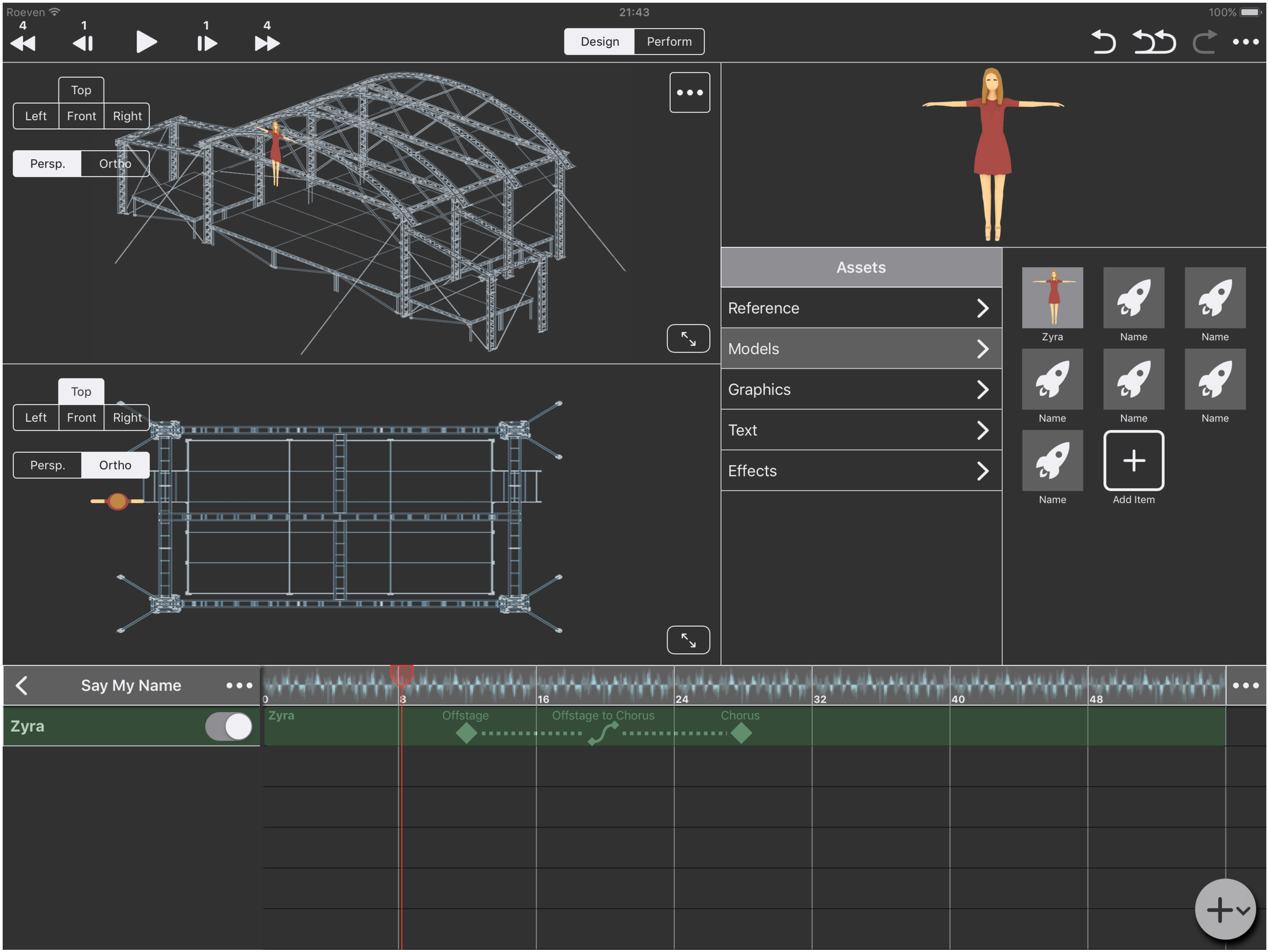
You place the chorus state, it snaps to place on beat 28.



A transition between these two states is created. You select the right animation and tap done.



You have the beginning of an AR show, where Zyra dances onto the stage during the song “Say My Name.”

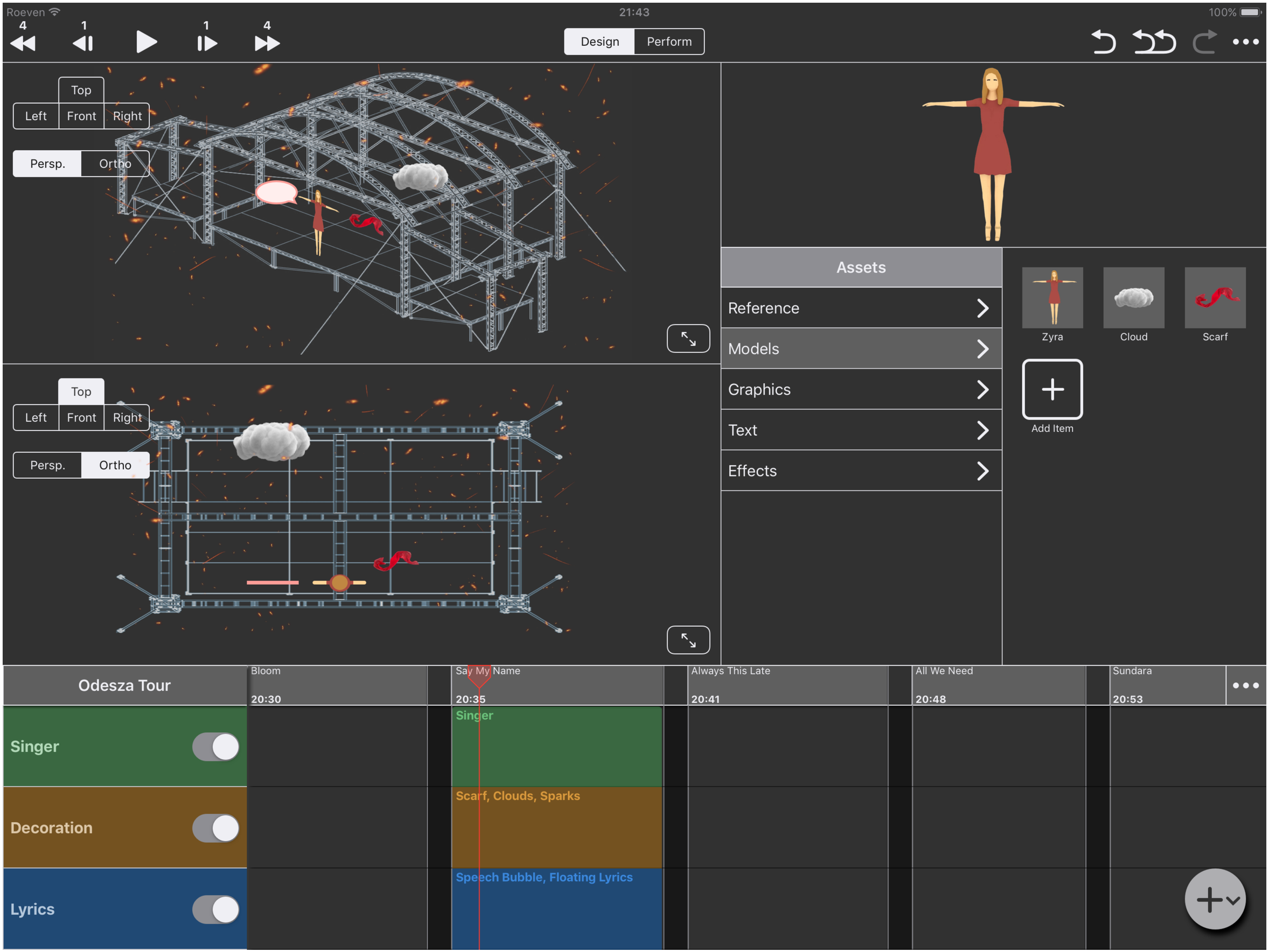


Editing a show

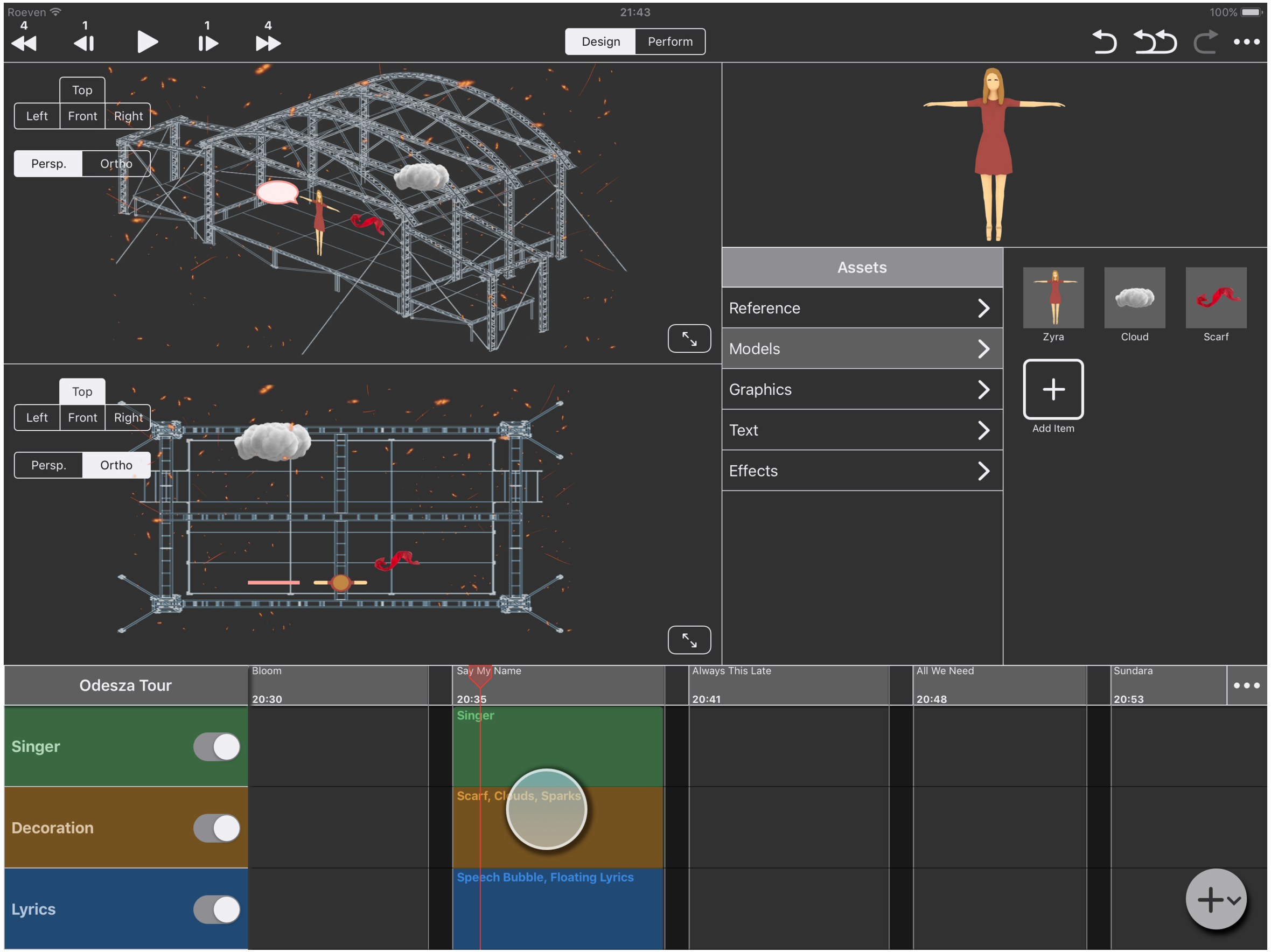
This second scenario is the same show, at a later point. The "Say My Name" is almost done. During a preview with the stage designer, you spot some errors and fix these.

Then you get started on the next song "Always This Late". This is a song that Odesza often changes during live performances, with solos and other freestyles. As such, you cannot create a strict time-based scene.

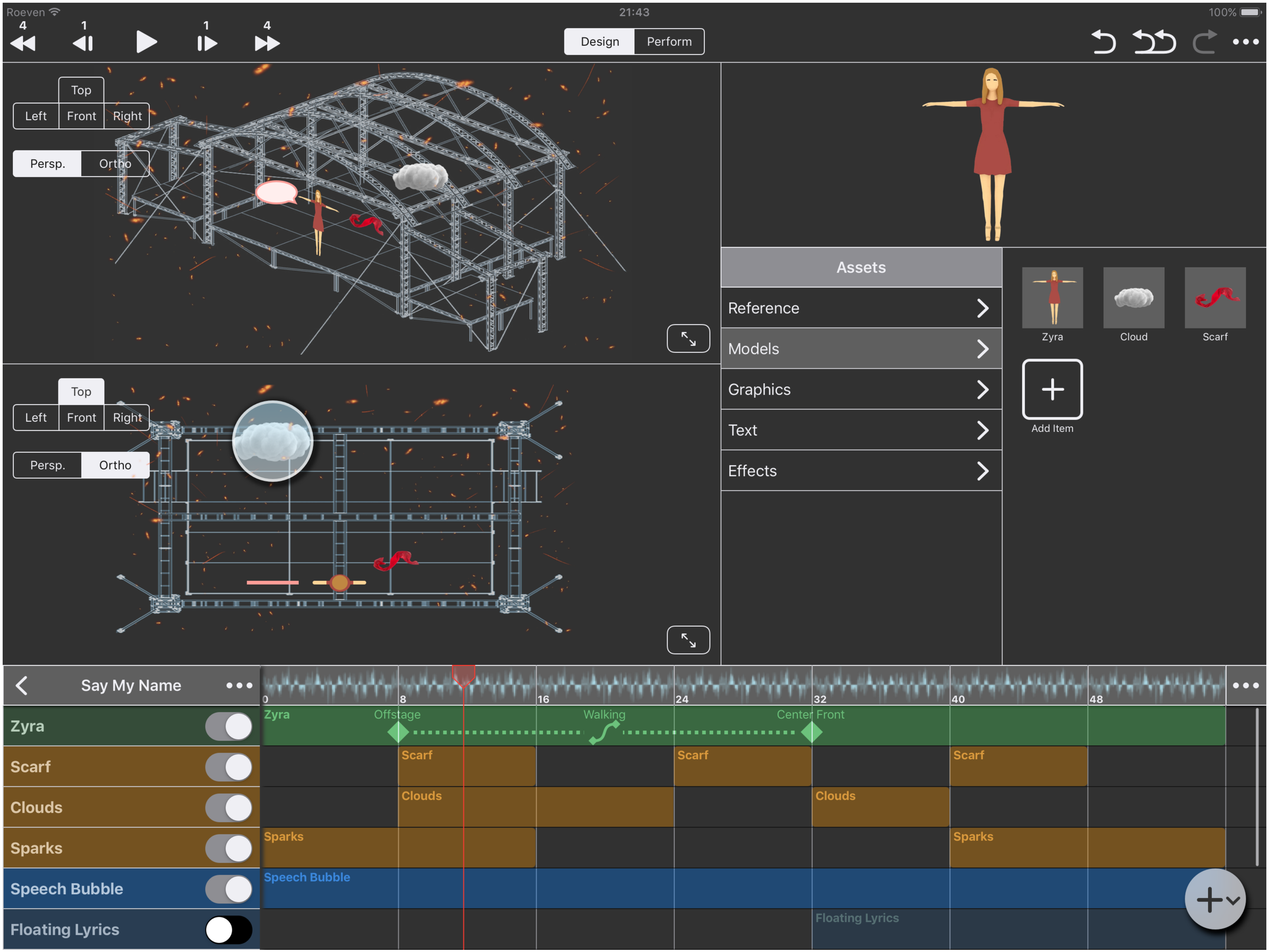
The scene “Say My Name” features Zyra, her scarf, clouds, sparks, and a speech bubble with lyrics.



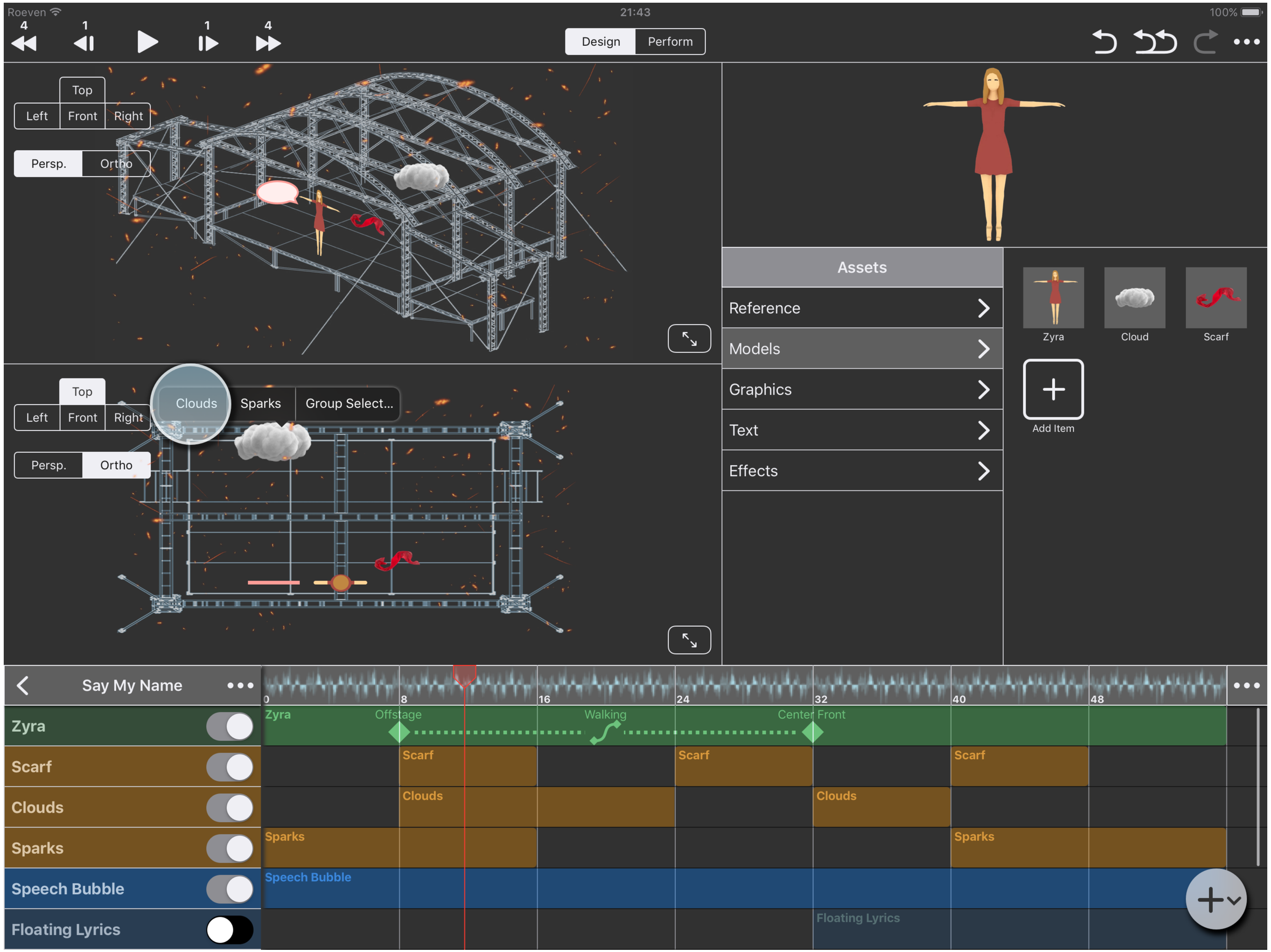
The cloud is not centered on stage—you will fix this.



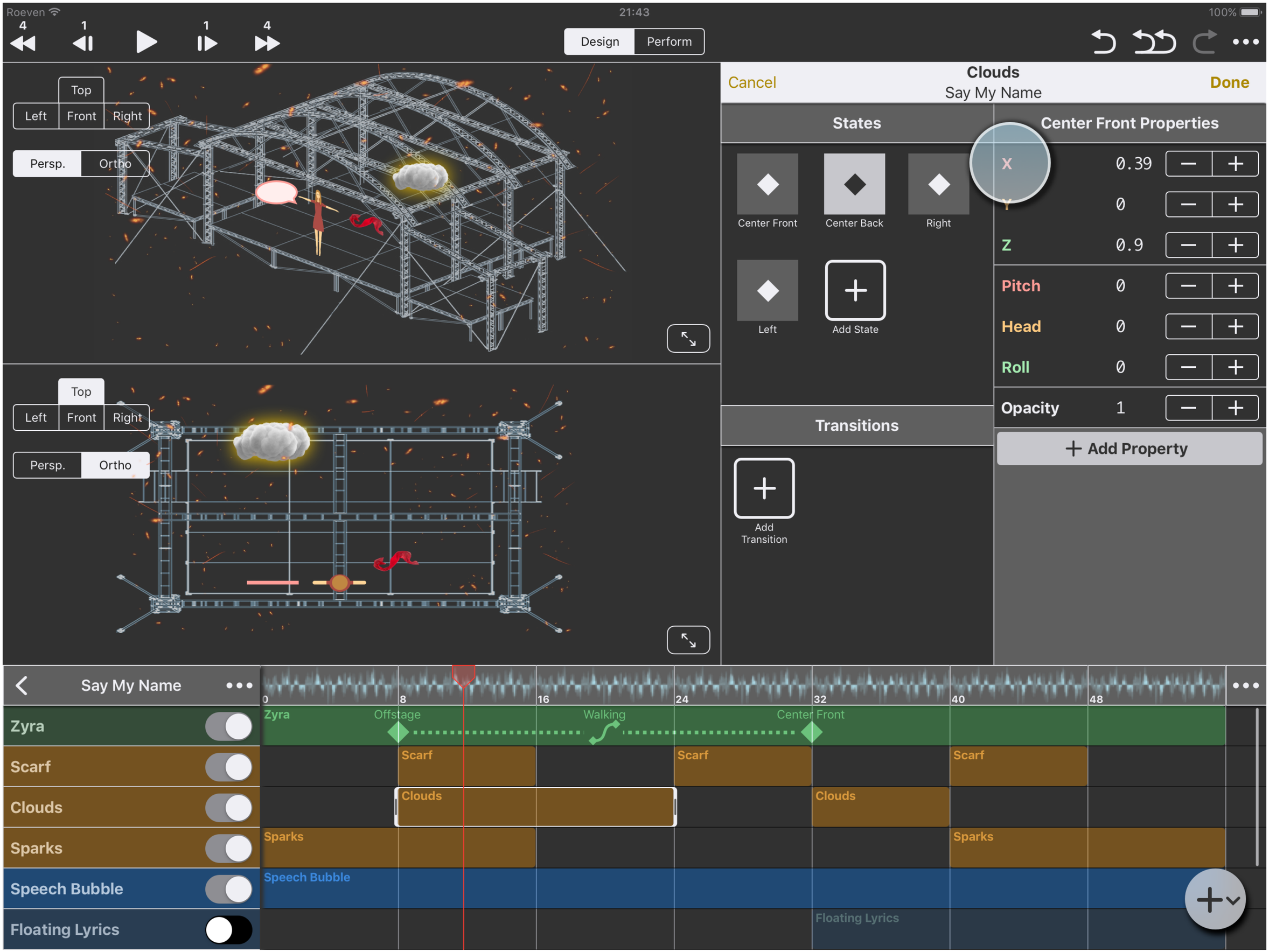
Because there are several items on stage, you long press on the cloud.



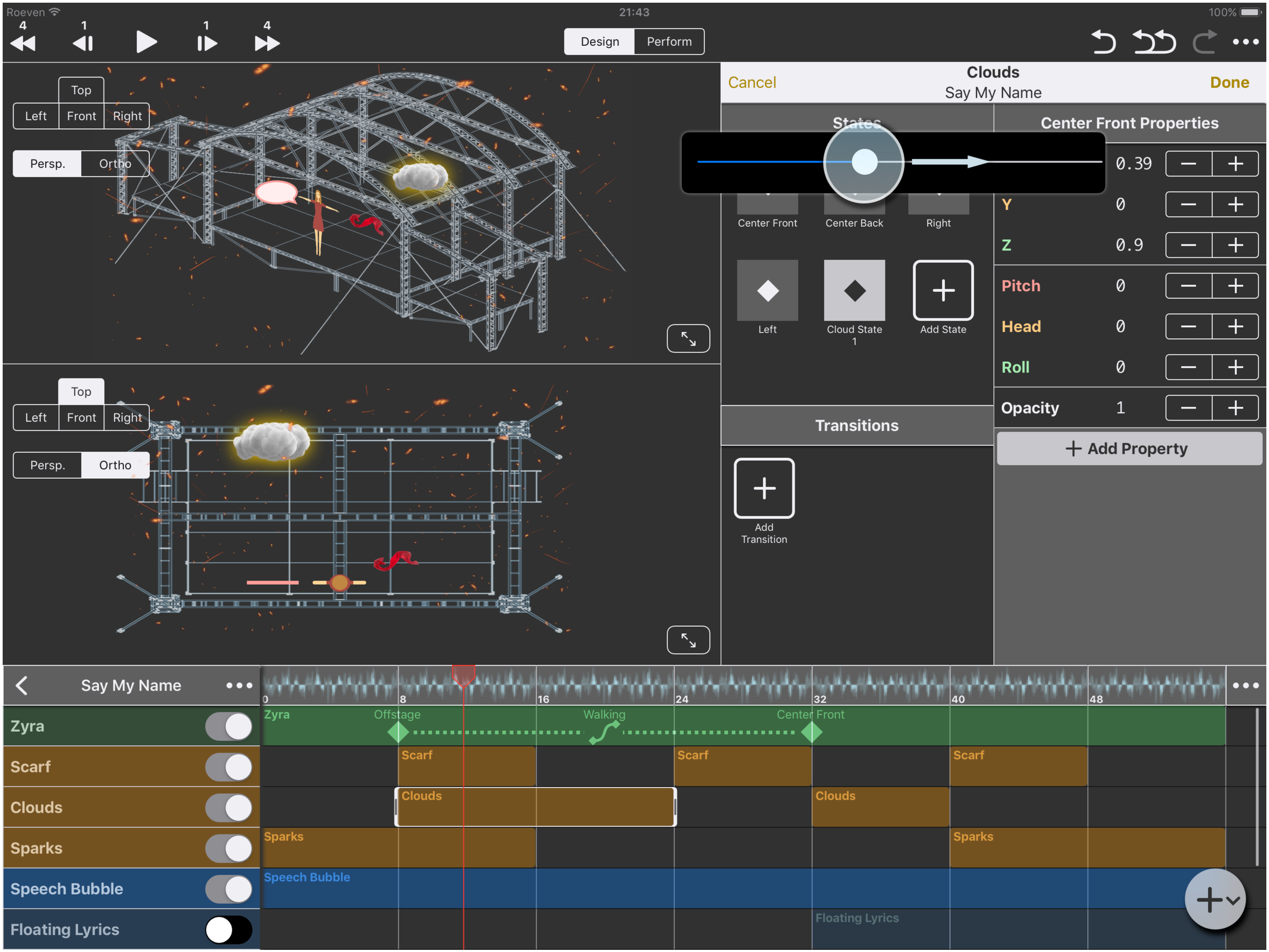
This shows a tooltip with options to select anything under your tap area. From here, you can create a group selection. But in this case, you just want the cloud.



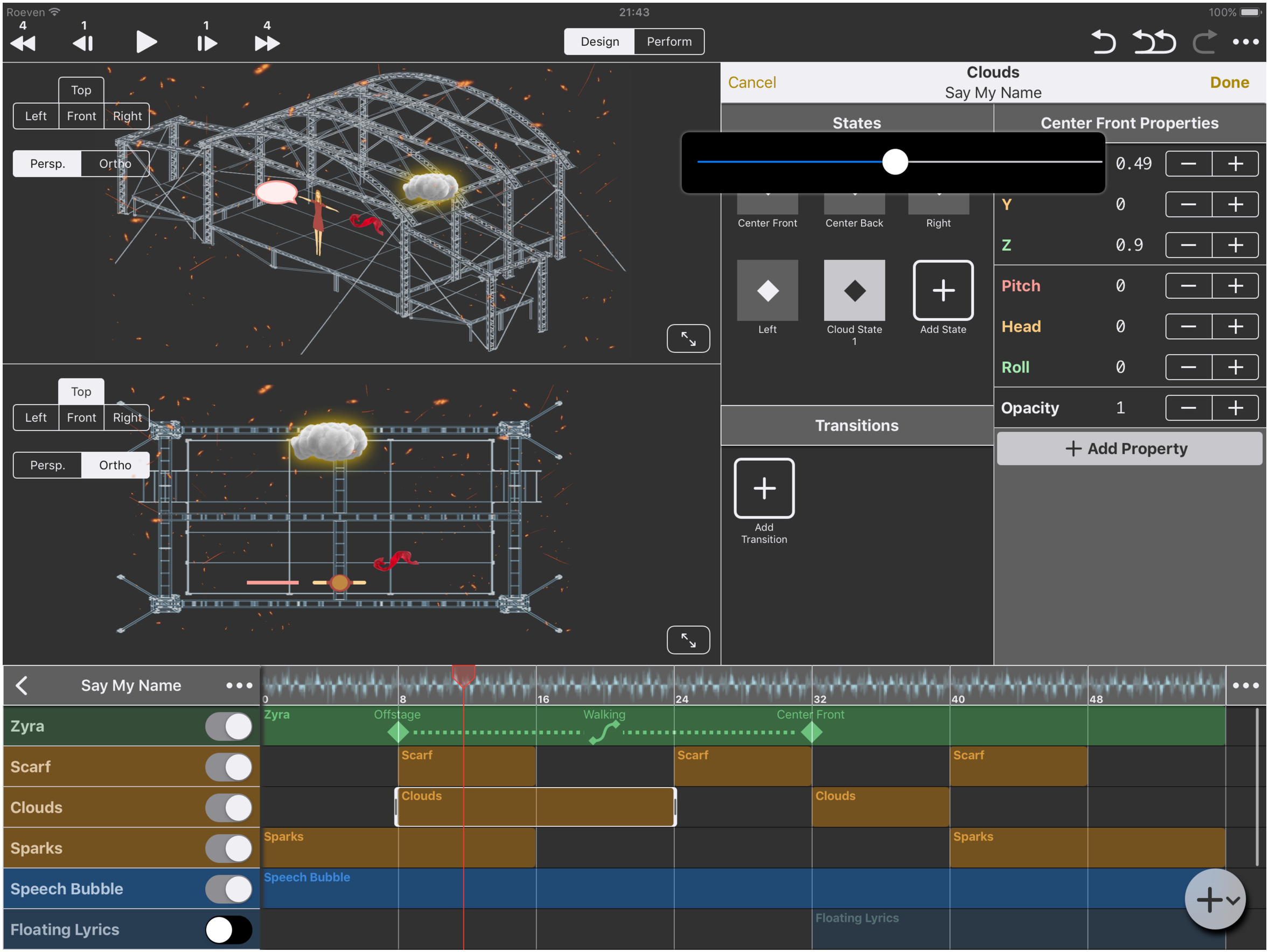
On selecting the cloud, its properties come up. You swipe the X property to move it.



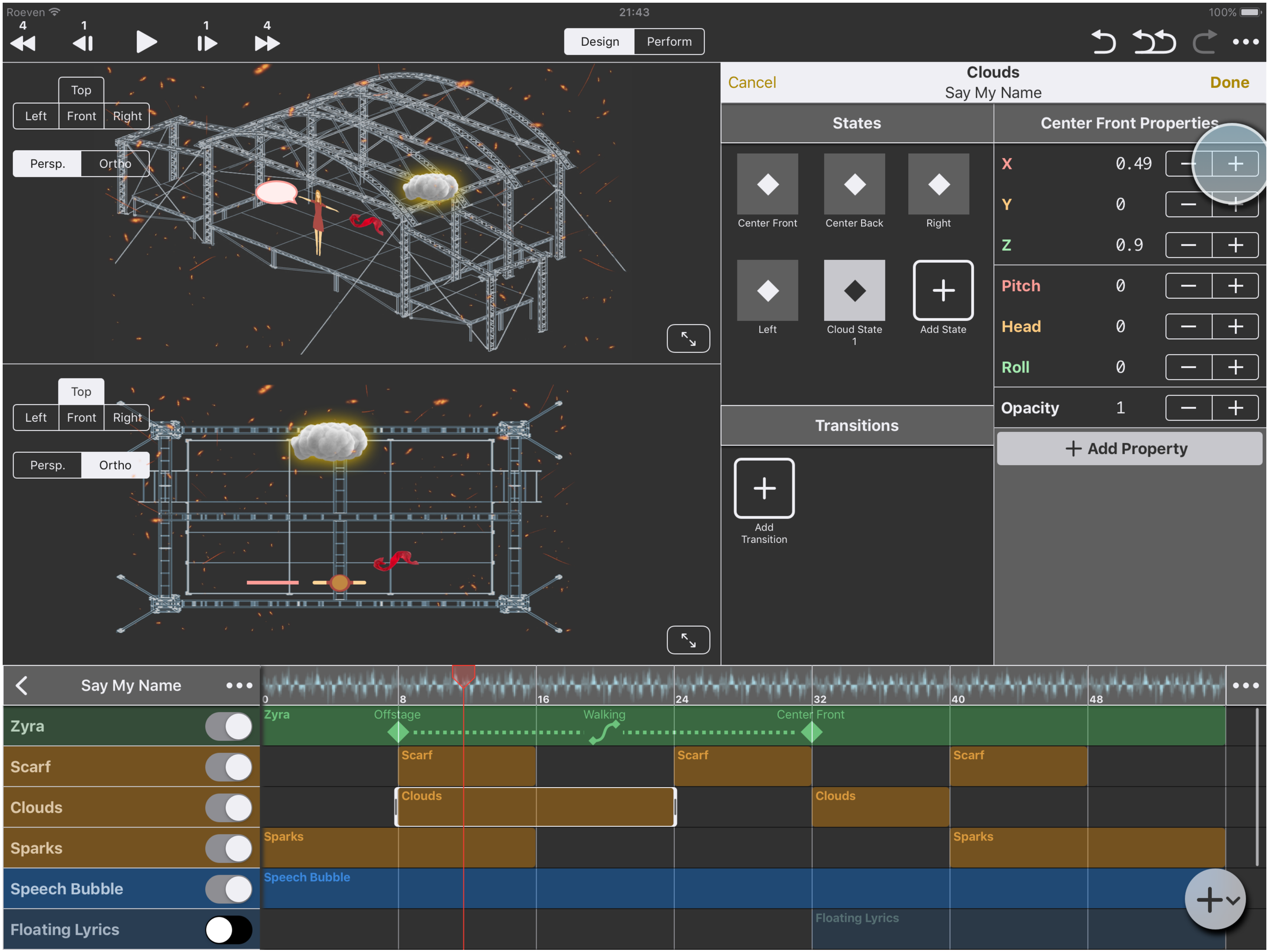
A slider pop-up panel appears. You move it.



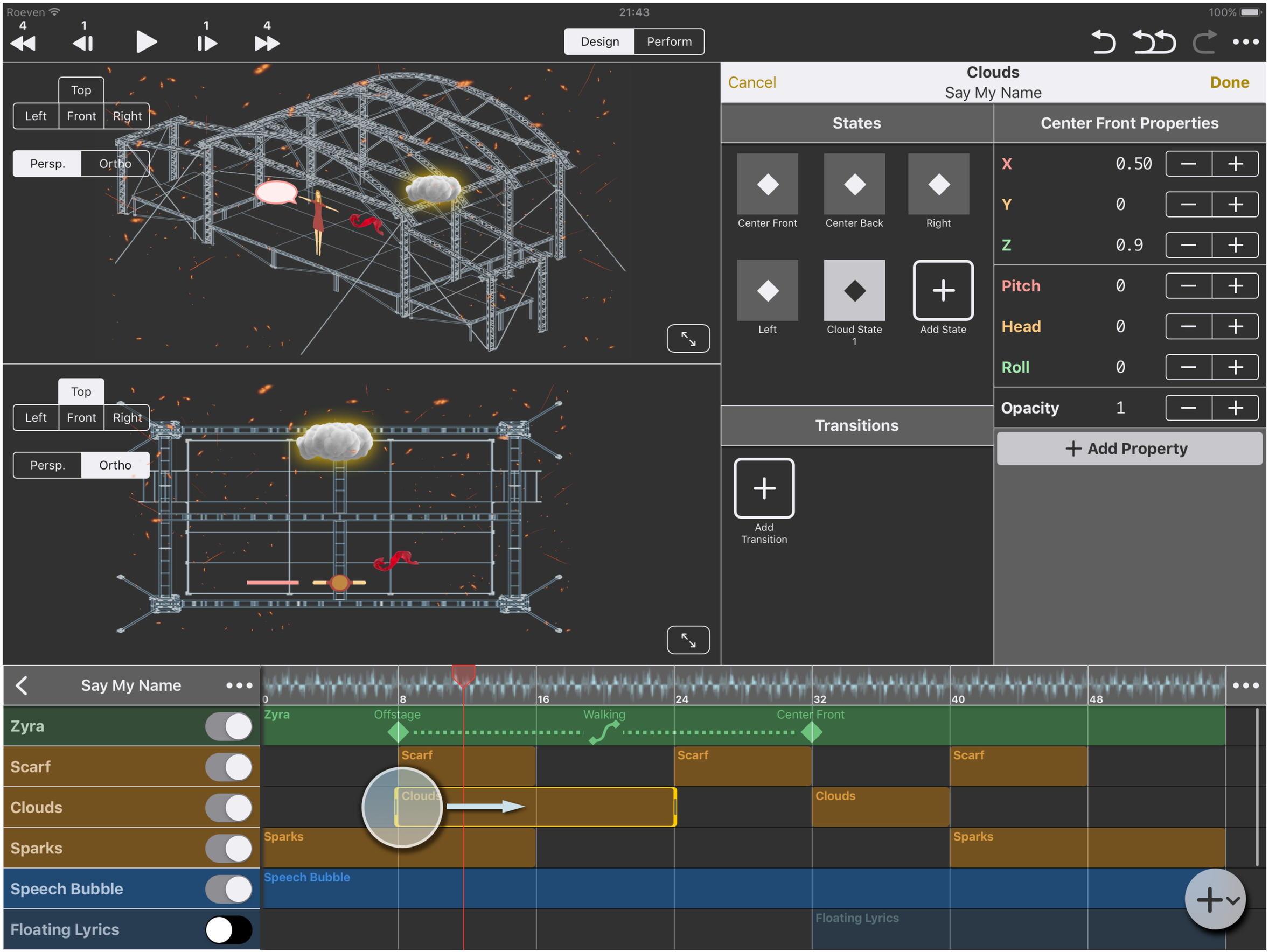
The cloud moves with it—to almost the right position.



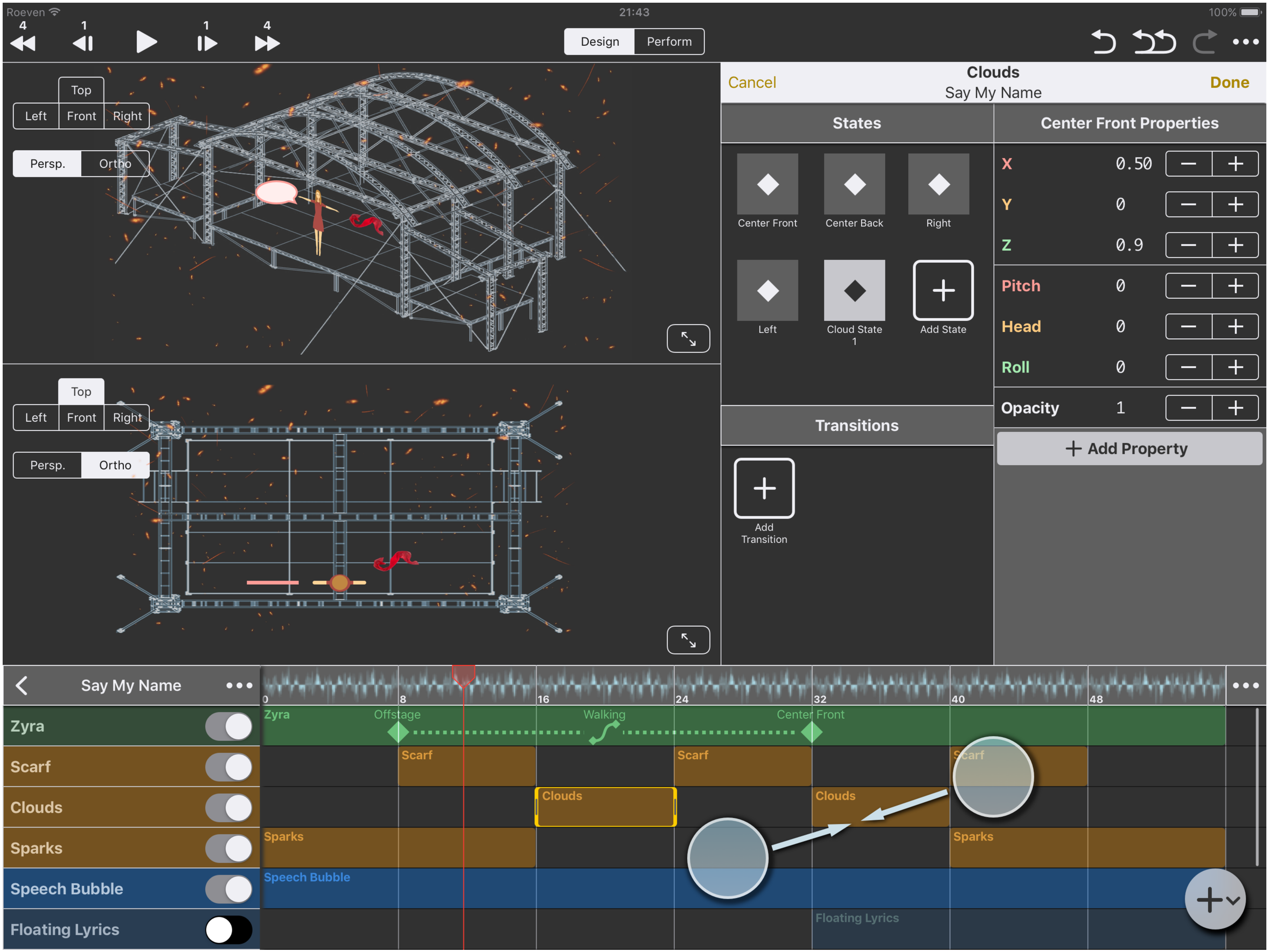
You finetune the position in small increments with the + and - buttons.



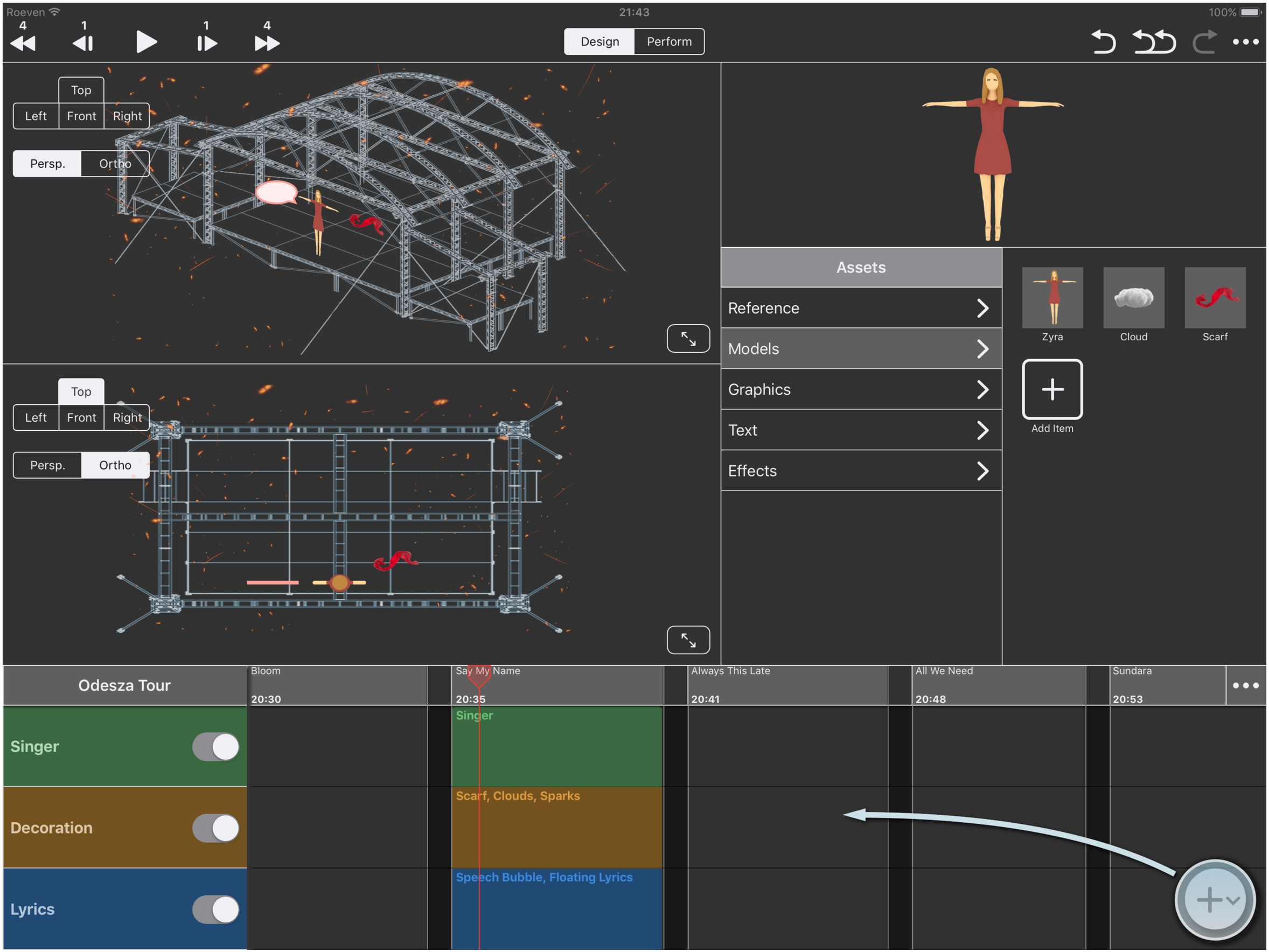
You also notice that the cloud is on stage for too long. You fix this.



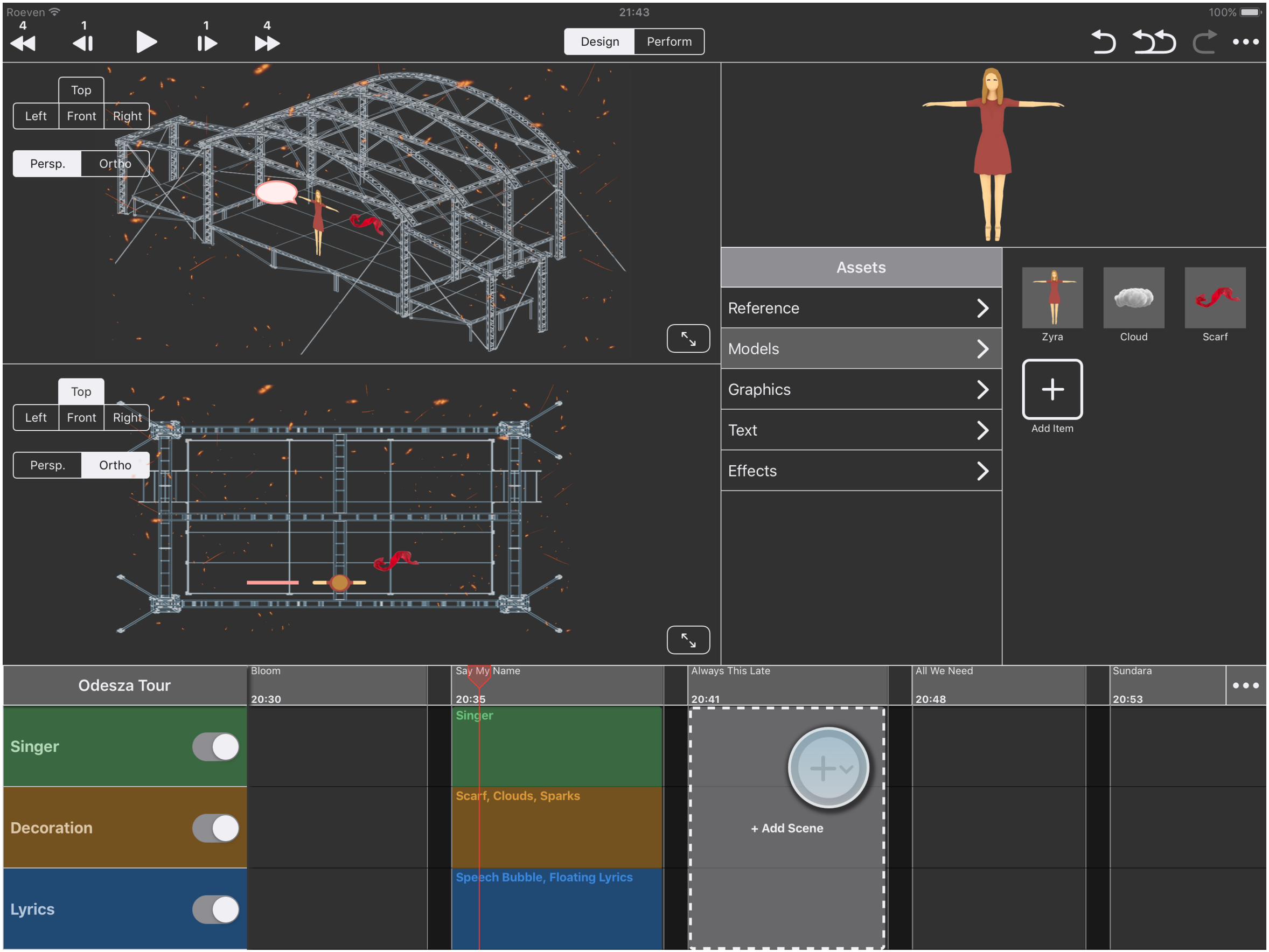
You zoom out quite far—this triggers a semantic zoom out, closing this scene and returning to the show overview.



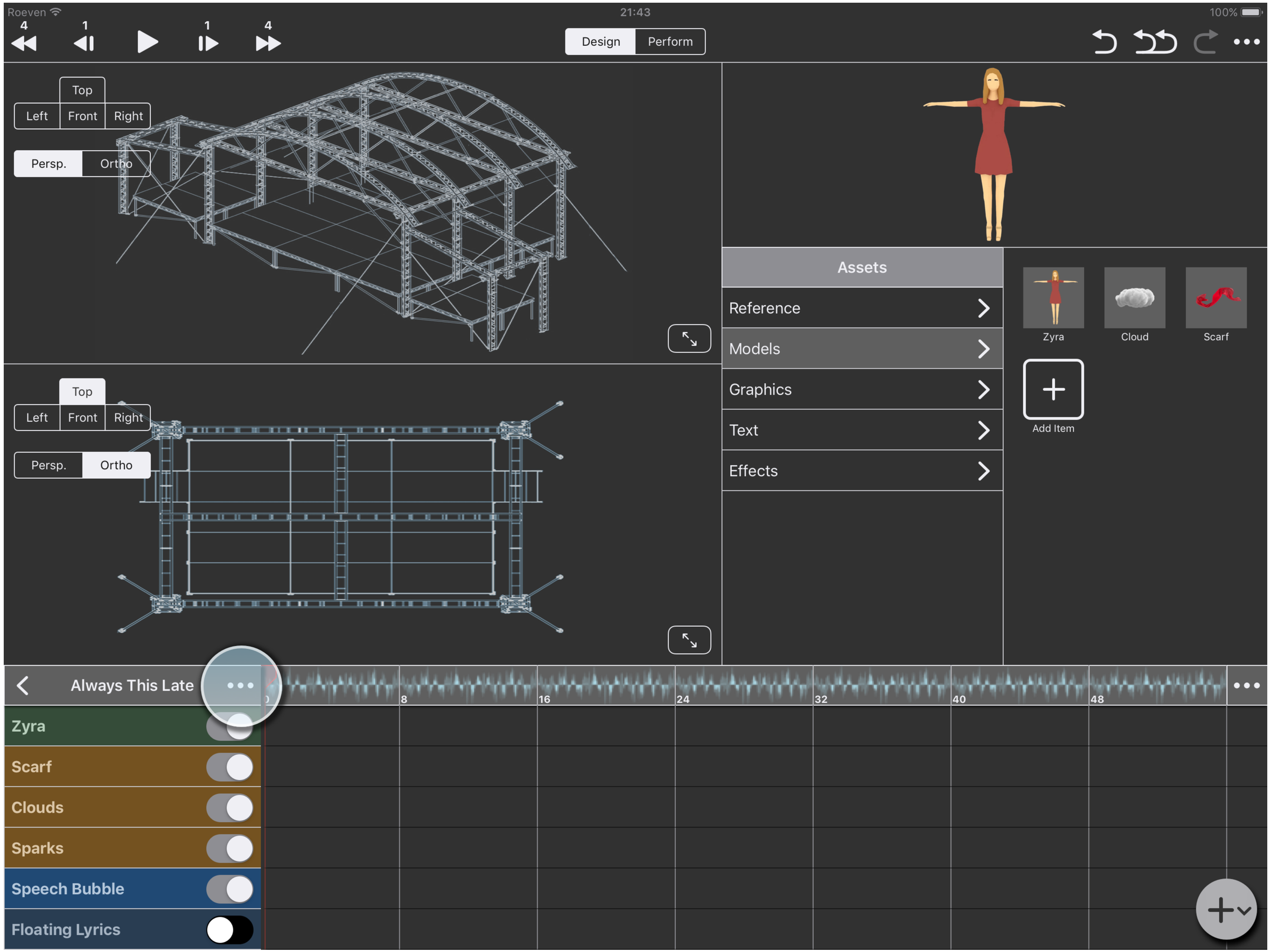
You create a new scene for “Always This Late” by dragging the + button.



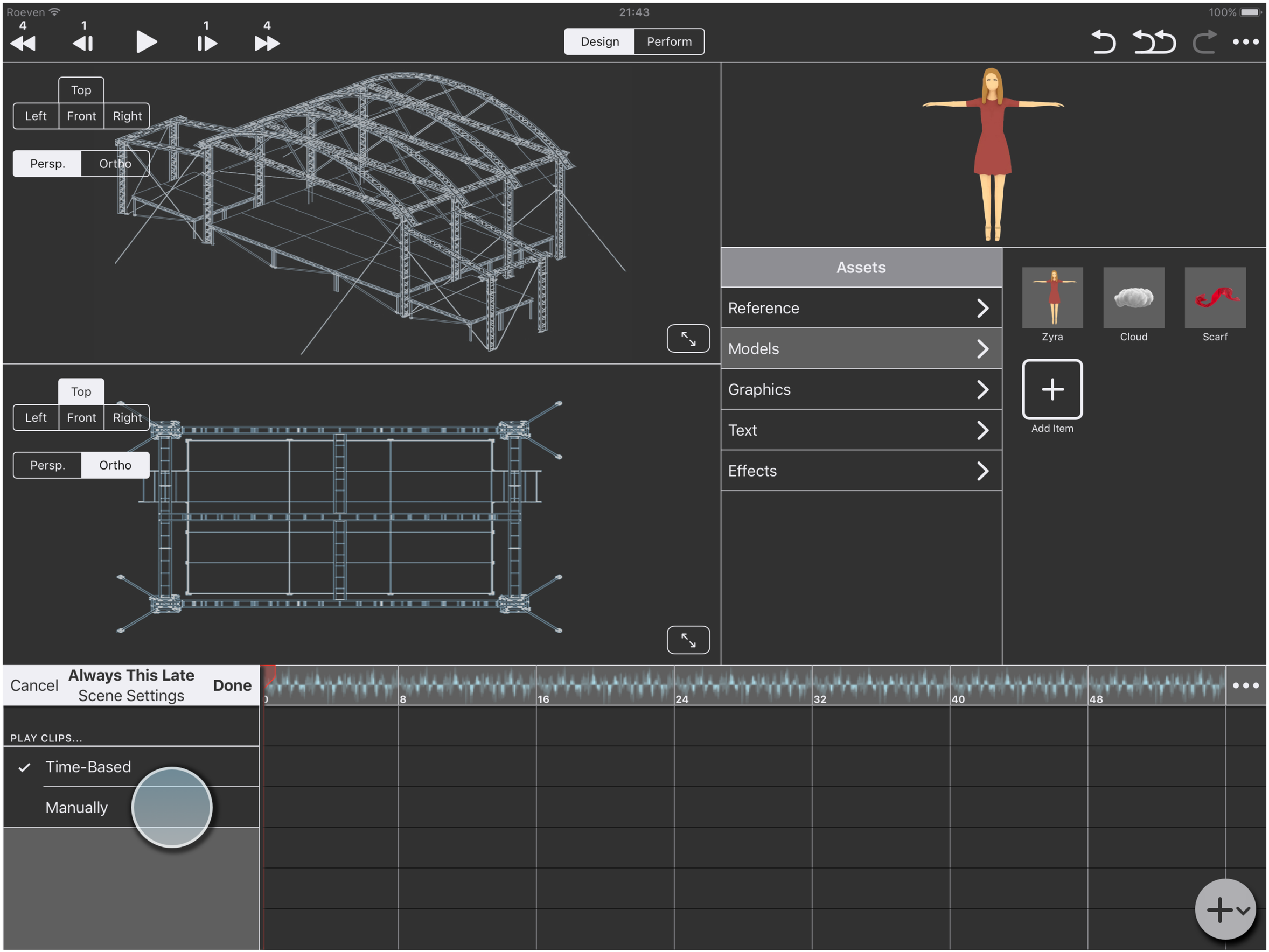
You drop the button on the target.

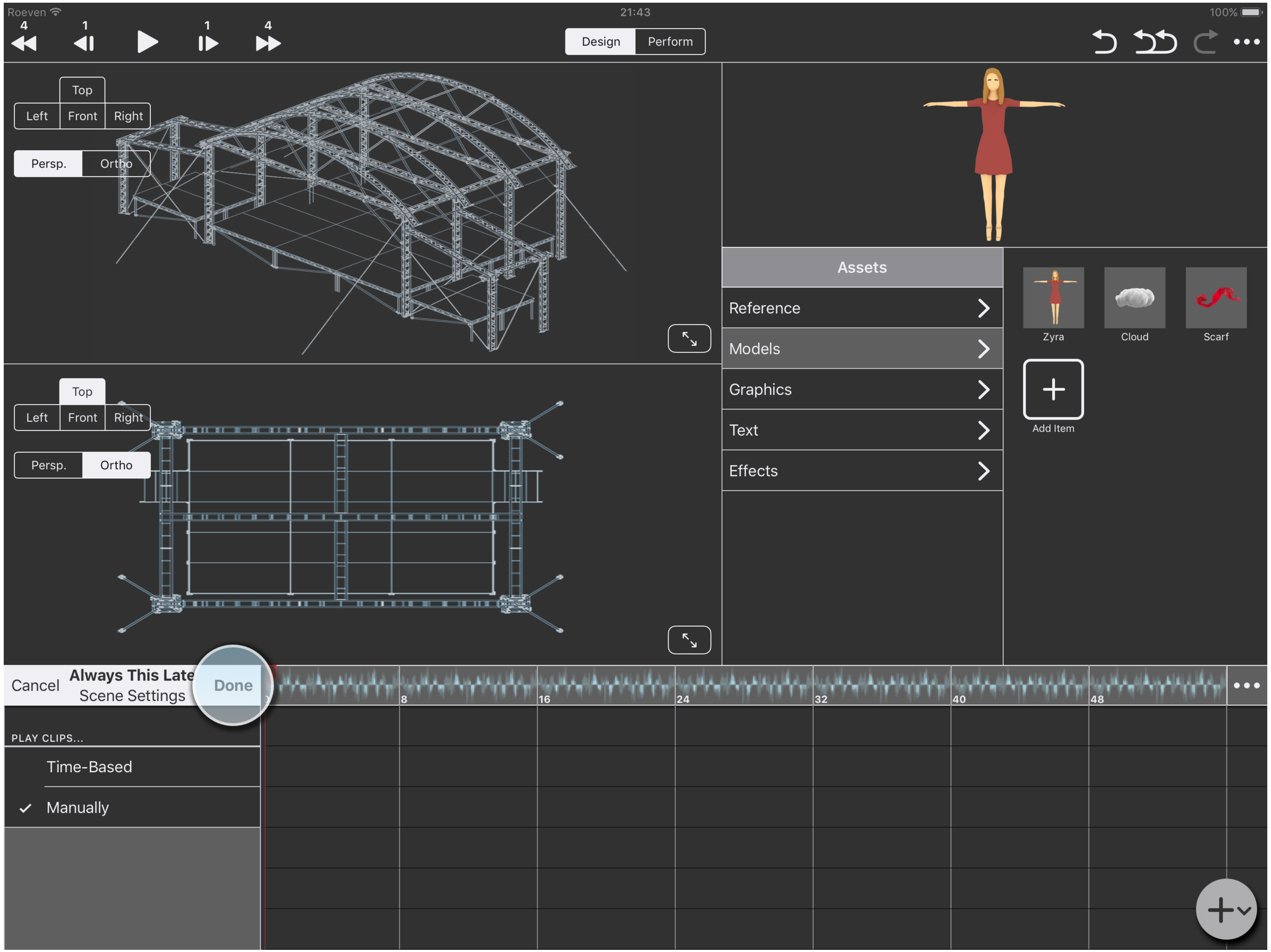


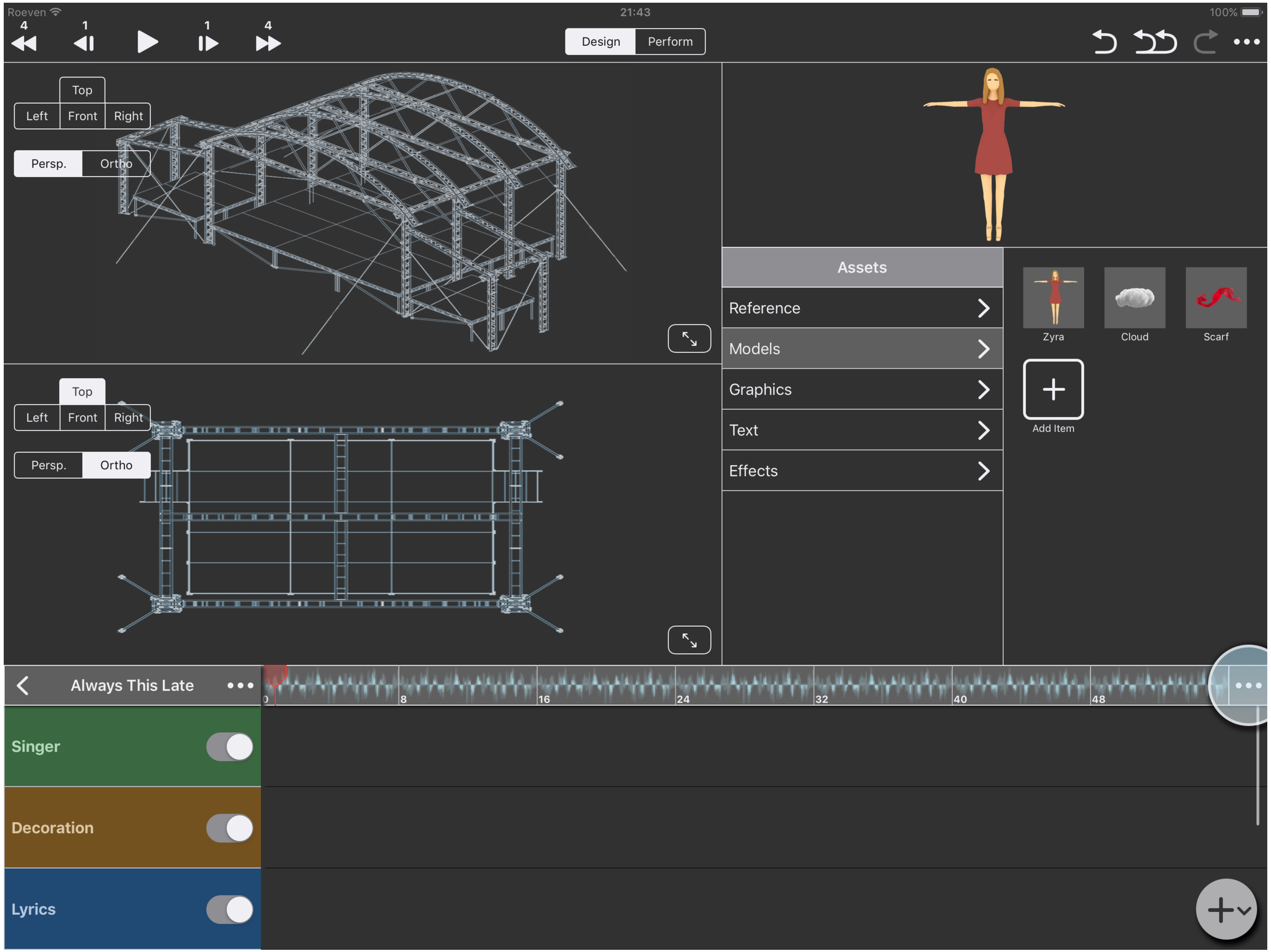
Because Odesza often changes this song in a live performance, you change the scene to use “manual triggers”. You tap scene settings.



You change the scene to play clips manually.




Roeven
21:43
100%
4
1
1
4
Design
Perform
Top
Left
Front
Right
Persp.
Ortho
Top
Left
Front
Right
Persp.
Ortho
Assets
Reference
Models
Graphics
Text
Effects
Zyra
Cloud
Scarf
Add Item
Cancel
Always This Late
Scene Settings
Done
8
16
24
32
40
48
PLAY CLIPS...
Time-Based
Manually


Roeven
21:43
100%
4
1
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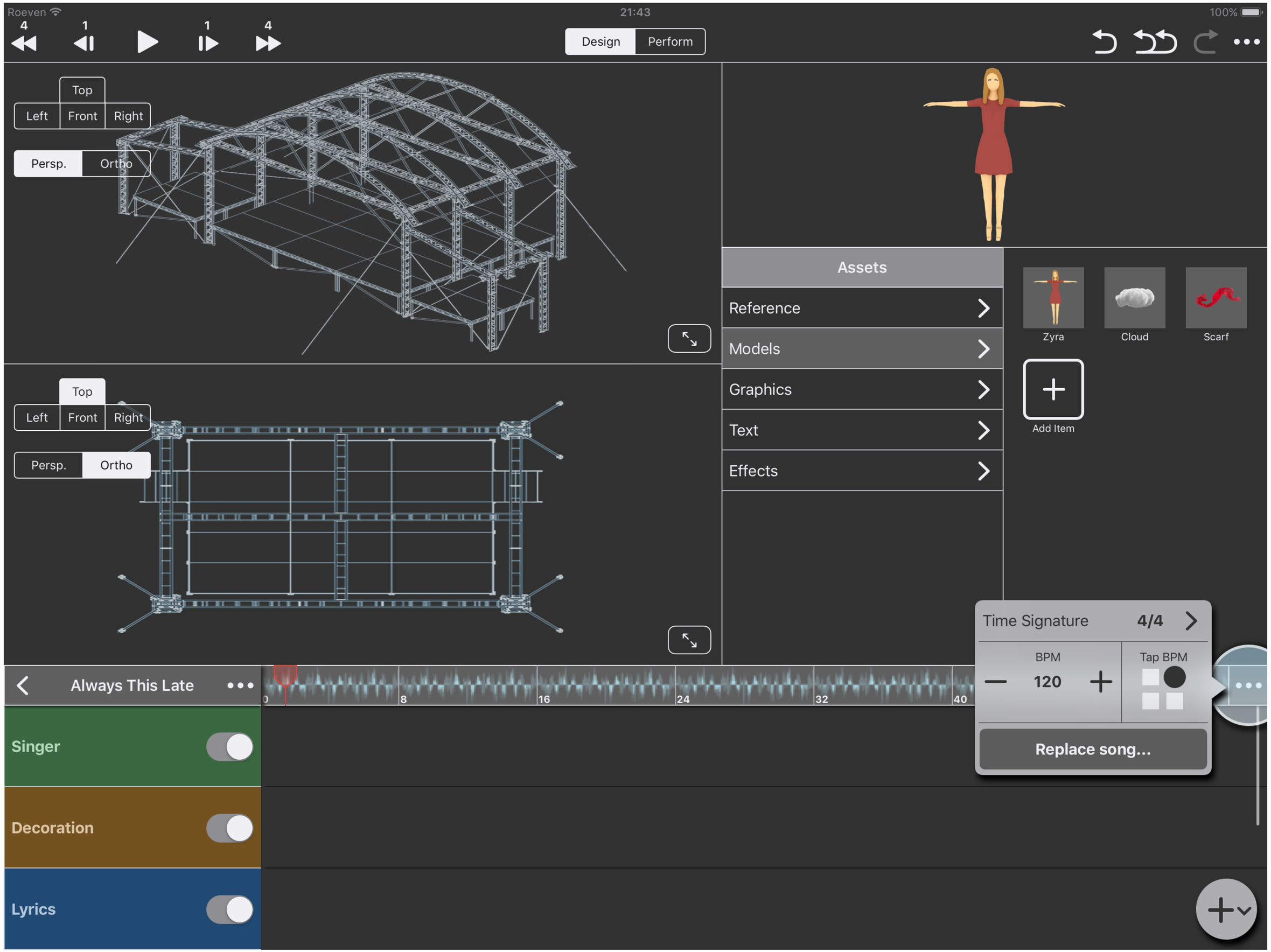
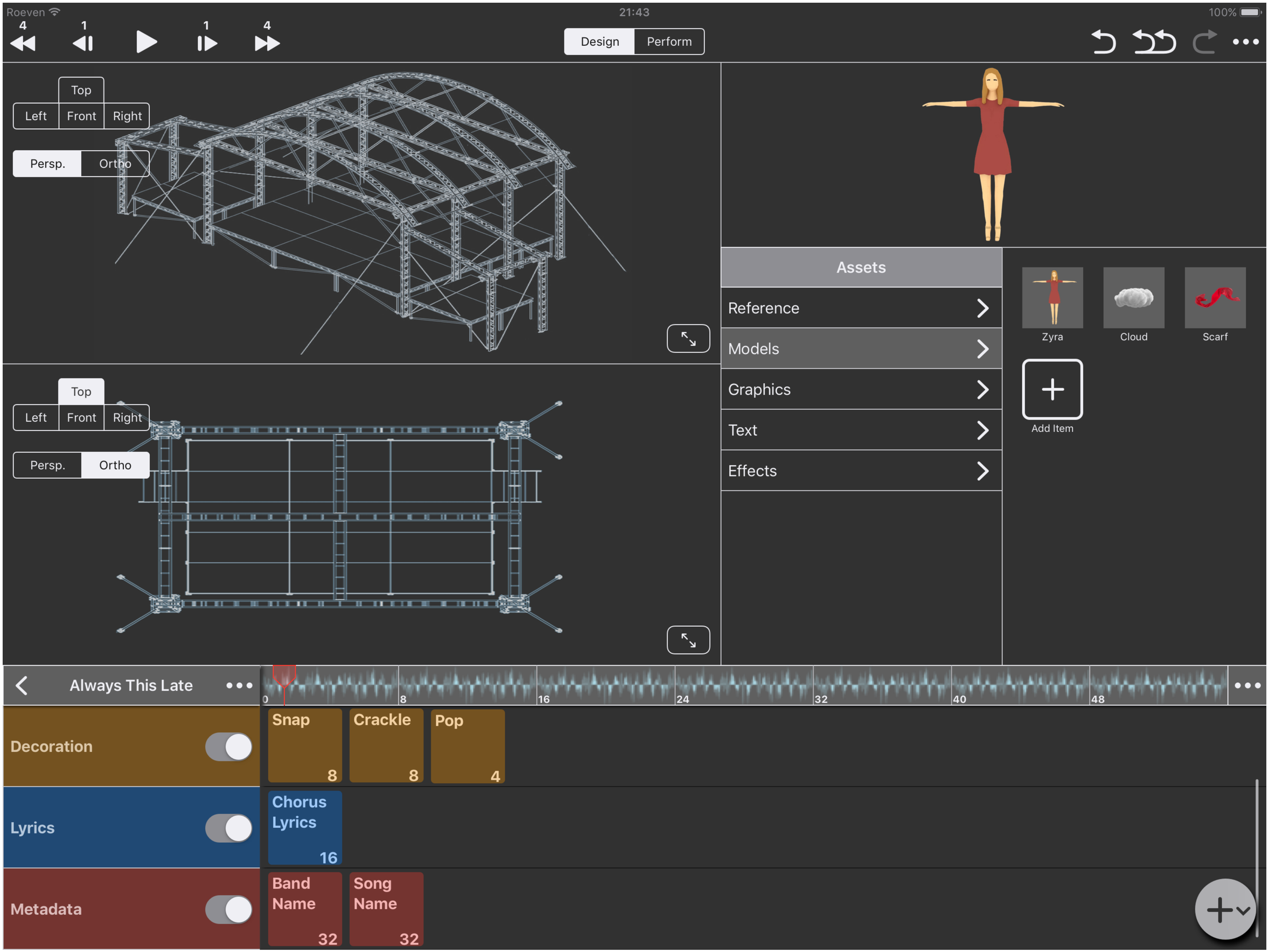
Design
Perform
Top
Left
Front
Right
Persp.
Ortho
Top
Left
Front
Right
Persp.
Ortho
Assets
Reference
Models
Graphics
Text
Effects
Zyra
Cloud
Scarf
Add Item
Always This Late
0
8
16
24
32
40
48
Singer
Decoration
Lyrics

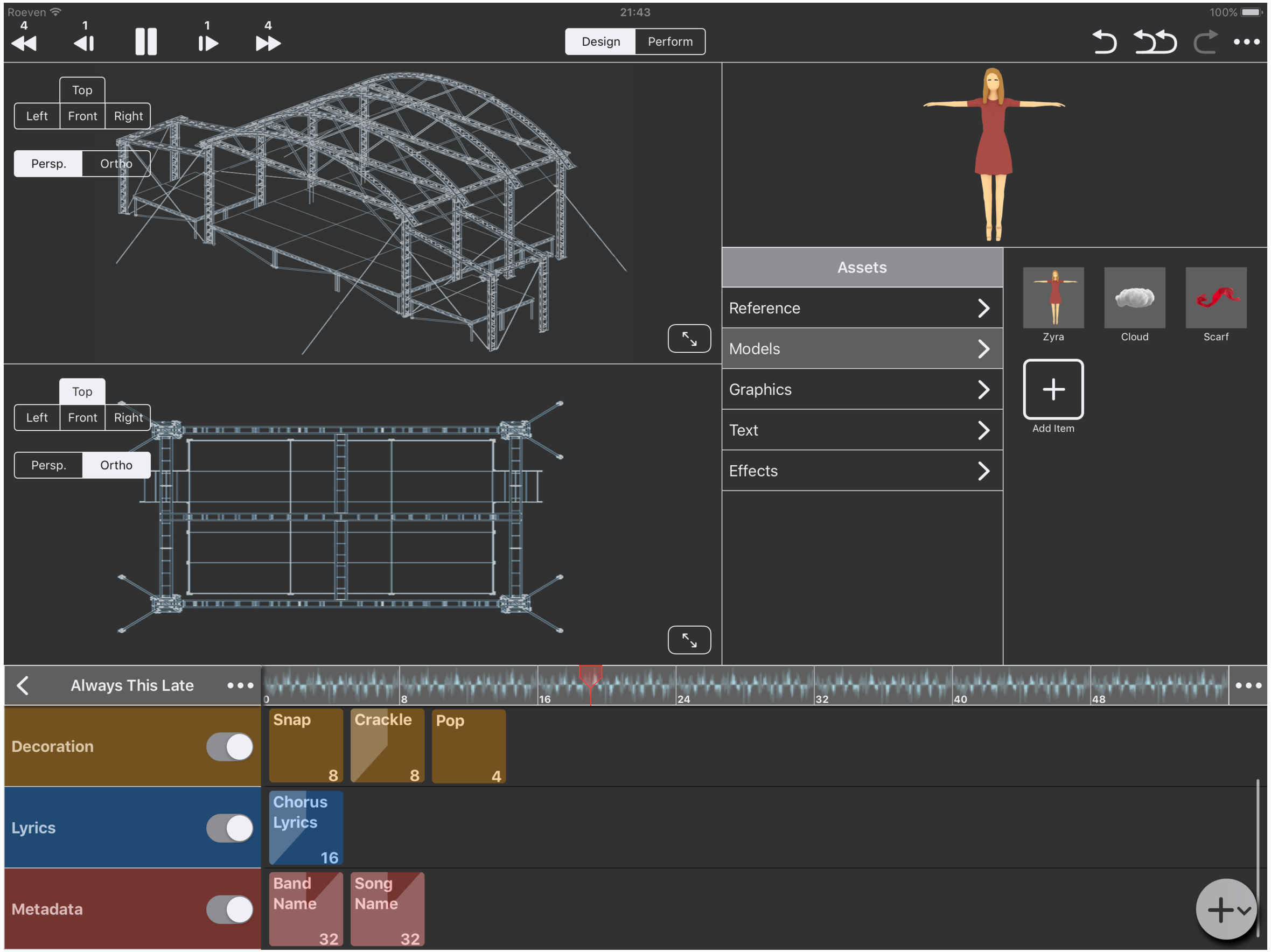
You check whether the software has indeed detected the BPM and time signature correctly—this is important for the length of clips. It has.



You have created some clips with effects from the asset library.



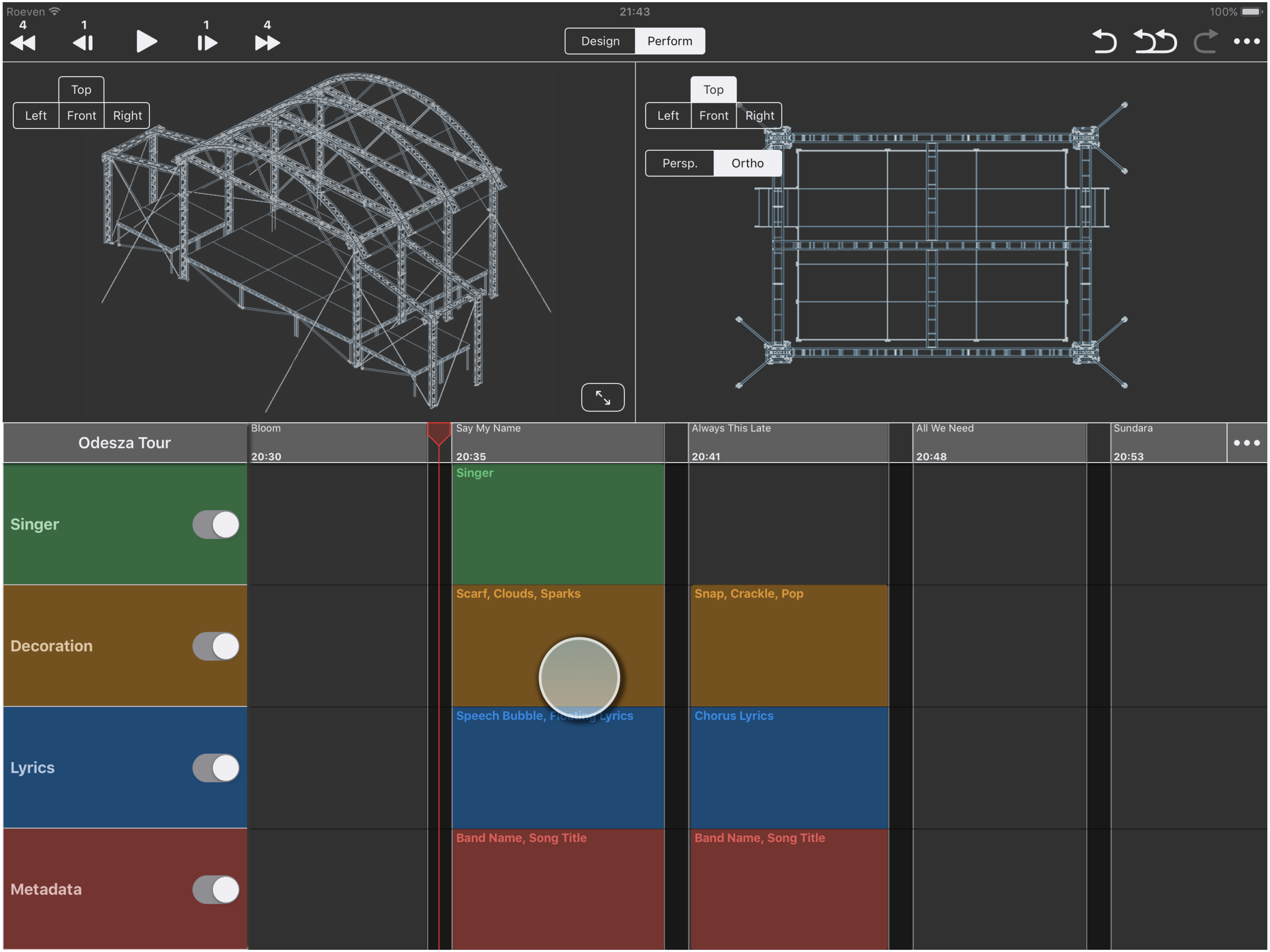
You test out some of these clips by playing the song and triggering clips by tapping.



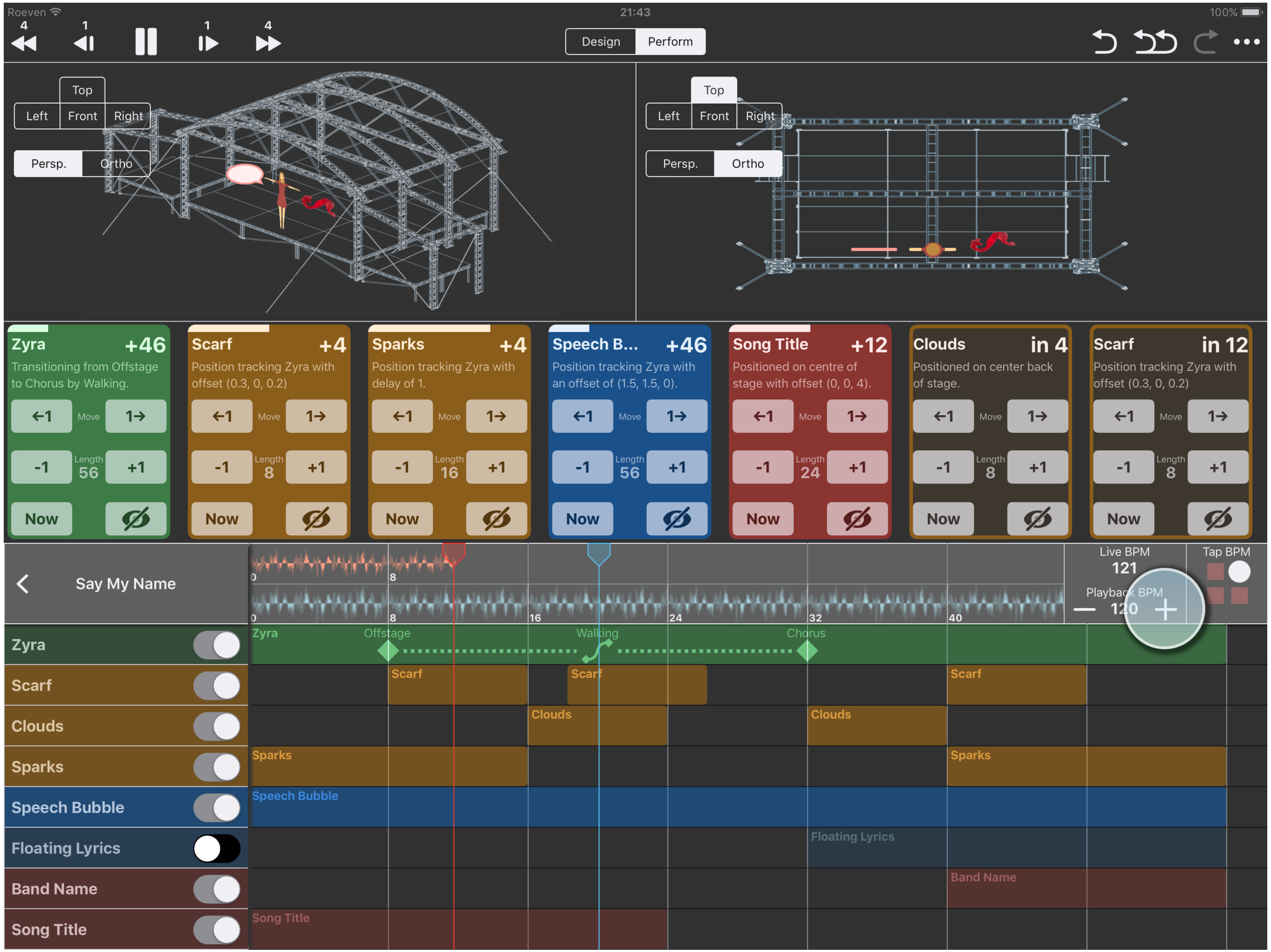
Performing a show

This third and final scenario shows performing the AR show during the concert.

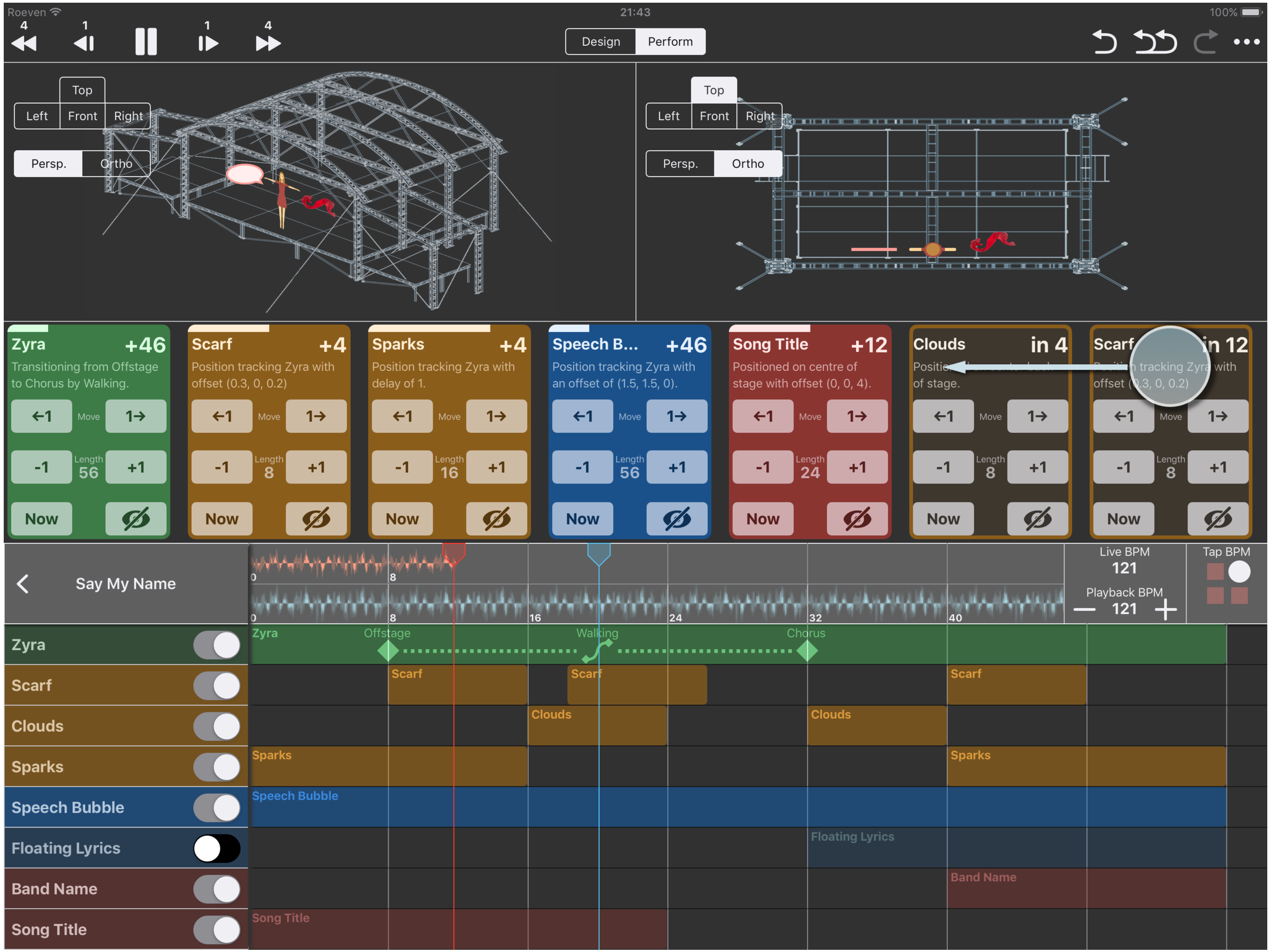
The song “Say My Name” is about to start, so you open the scene.



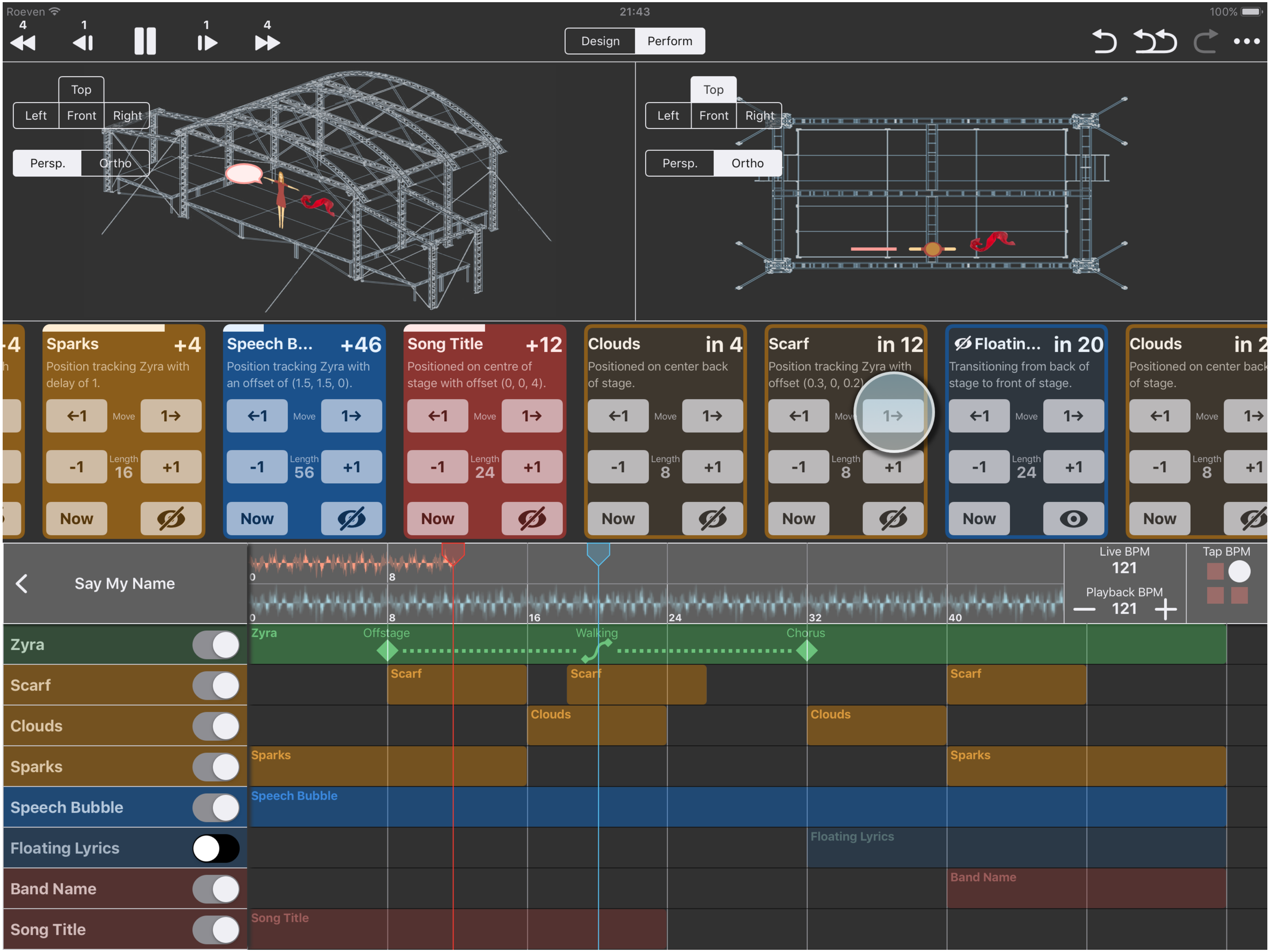
The scene plays—but a bit too slowly. This is because Odesza is playing it a bit faster than normally. You adjust the playback BPM.



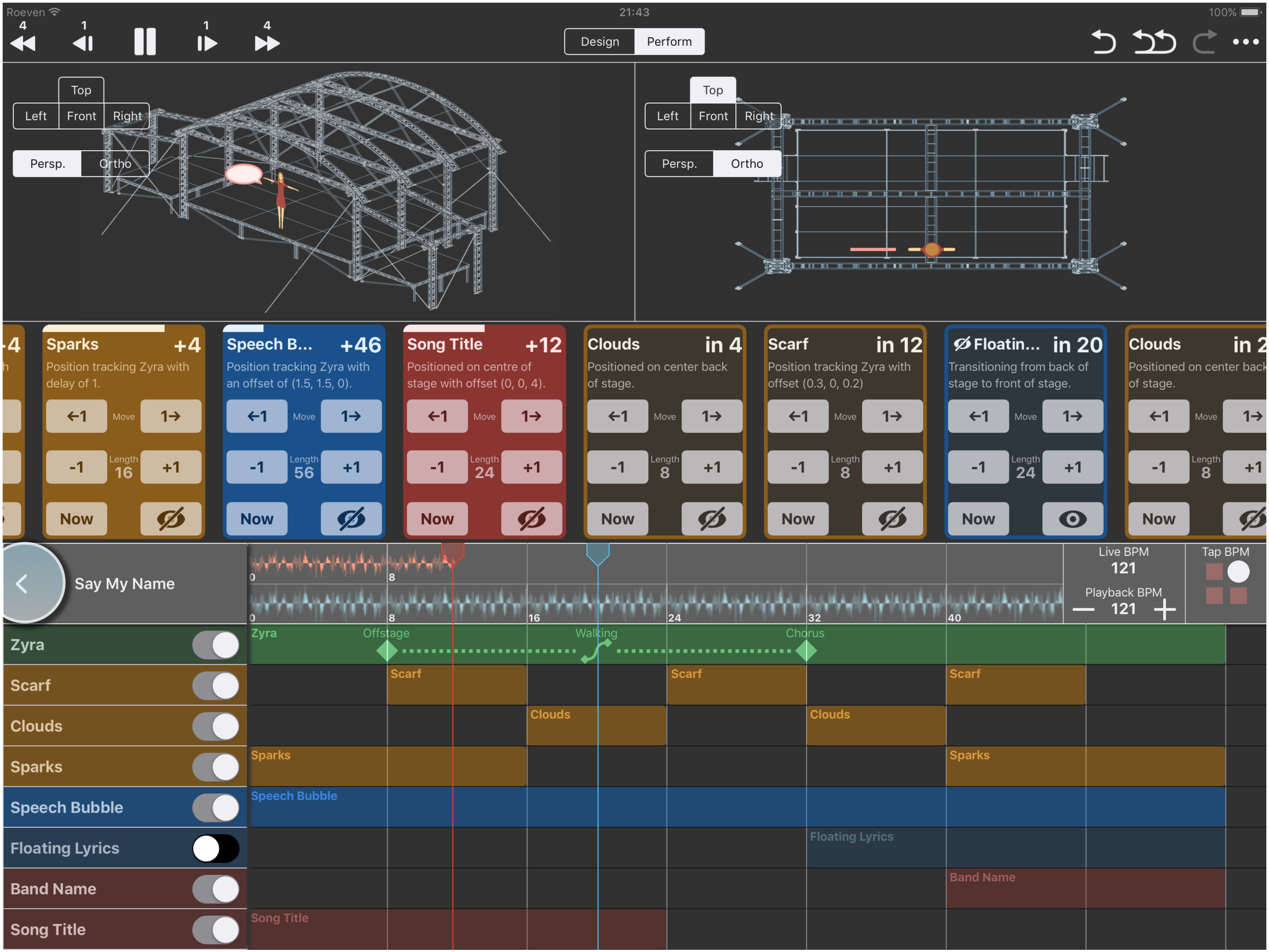
With the look-ahead (blue), you see that the scarf is misplaced on the timeline. You quickly adjust this by looking for the control card for the scarf.



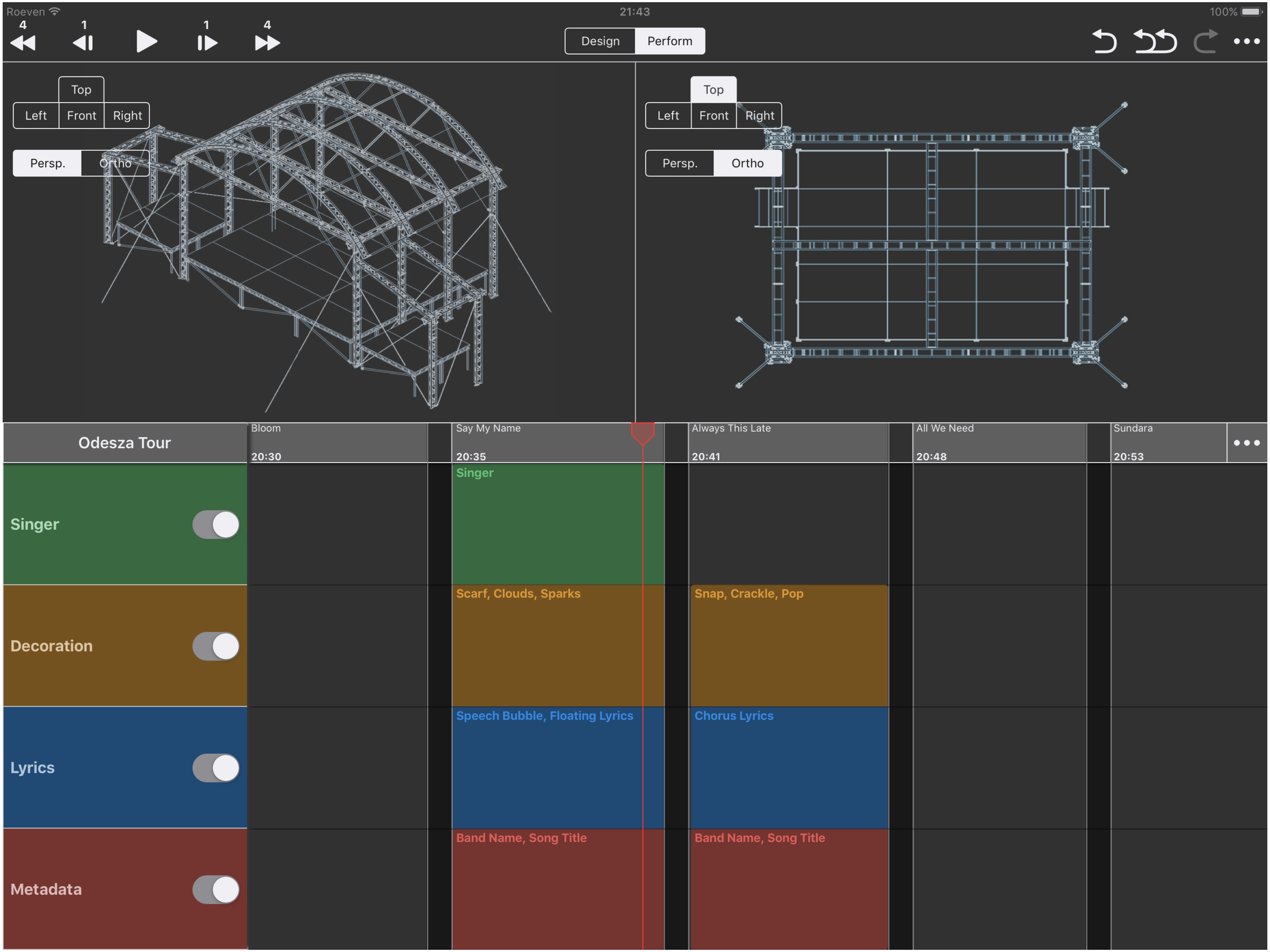
You find it, and tap the move button three times to move that clip back three beats.



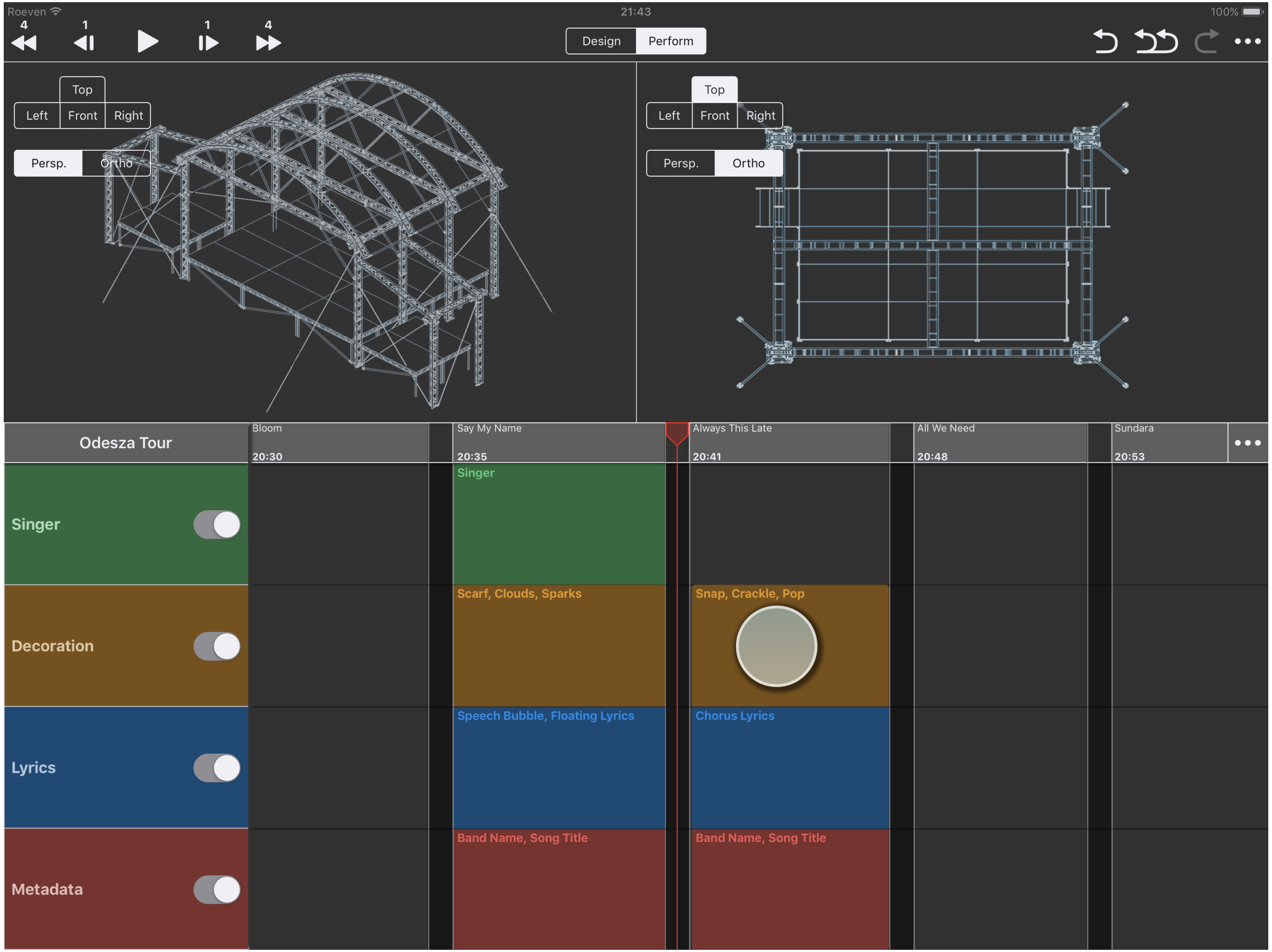
The scarf has been moved back into the correct position. After the song is almost done, you go back to the show overview—this would also happen automatically after the scene finishes playing.



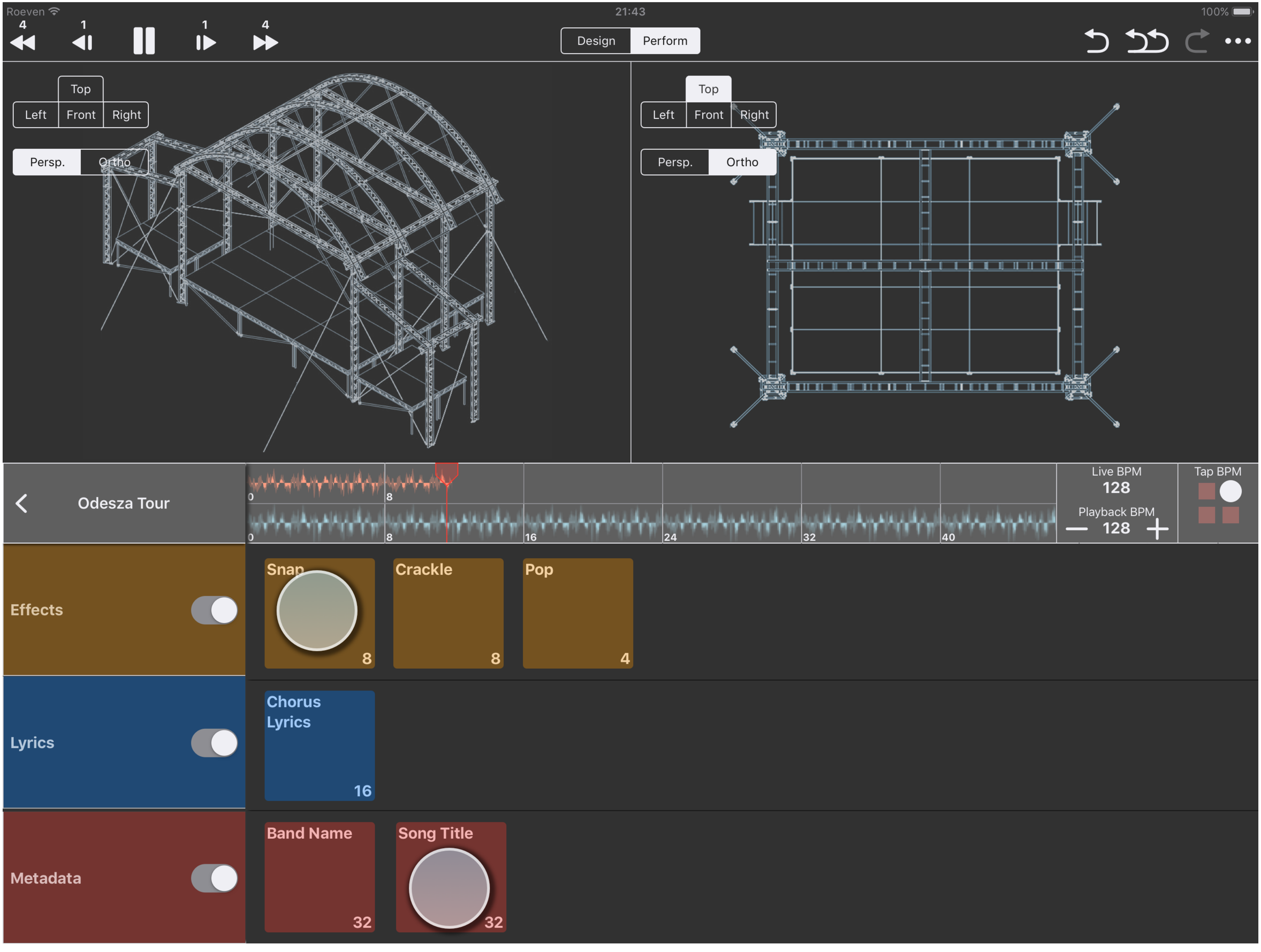
The song is almost done...



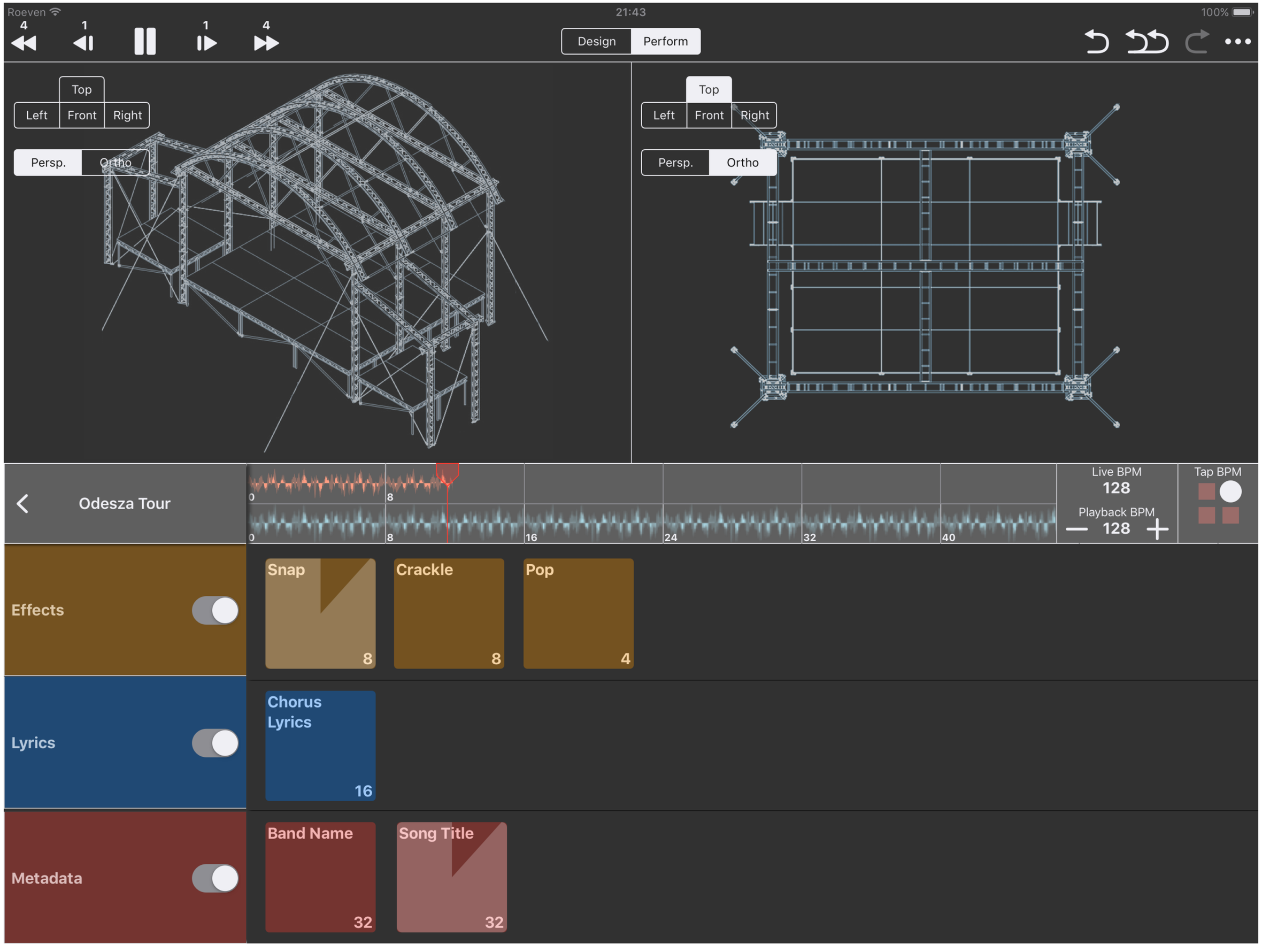
And the playhead pauses and rests in the gutter between scenes. You open the next scene.



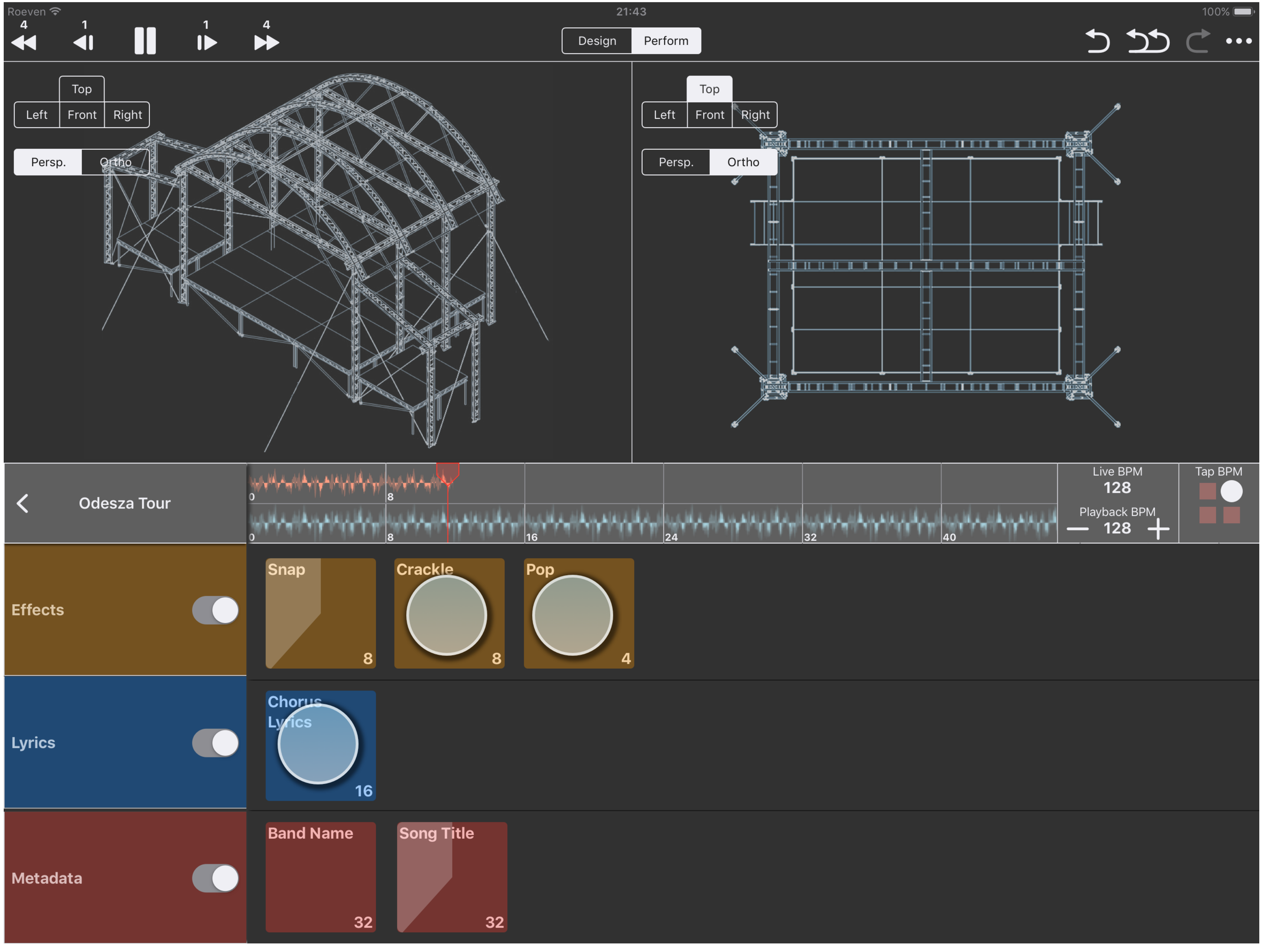
You watch the BPM indicator (animating three squares + circle) which indicates the downbeat, and trigger several clips. The clip triggers are very large, so it is easy to aim.



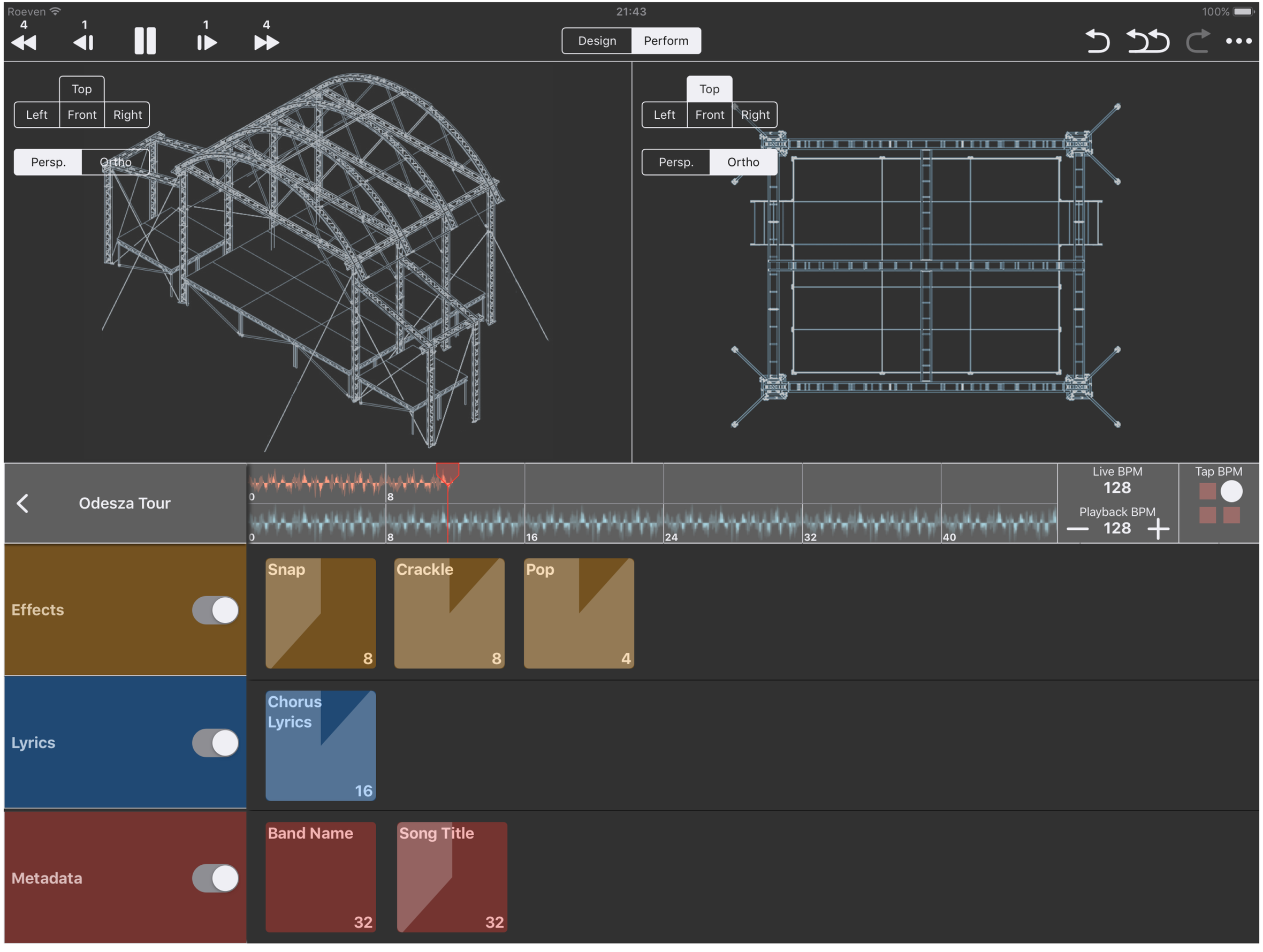
These clips play—their progress is marked by the highlight.



To the next downbeat, you trigger more clips.



Several clips are now playing simultaneously—visually indicating their progress.



Further work

- Usability testing new idioms such as floating add button.
- Usability testing interface in context: on 12.9” iPad Pro in sound booth in dark venue.
- Testing drag-and-drop precision.
- Allowing for minute & second based time, rather than beats and bars.
- More validation scenario’s.