

Sumerian

סדנת הכרות לקראת האקתון

נמרוד הוברמן

cconnect@netvision.net.il

הכרות

- כמה מכם ראו תוצר במשקפי VR
- כמה מכם בנו תוצר VR (– באיזו סביבה)
- כמה מכירים AWS
- כמה מכירים Sumerian
- כמה מכם מתכנתים
- כמה מתכנתים ב JS

מטרות

- קיצור ושפור עקומת הלמידה של Sumerian סביבת
- הבנה של מיקום והקשרים של Sumerian עם שאר AWS (AI ,DF ,BOT ,DB)
- הכרת מקורות (סרטונים, מאמרים ומערכים) להמשך הלימוד של הסביבה
- הכרת פורמט ומקורות ליבוא רכיבים.
- ידע להציג ולערוך רכיבים ואת כלל הסצנה + הכנת סצנה לתצוגת VR.
- הבנת מכונת מצבים (state machine) ויכולת לבנות אותה
- ידע לבחור ולהפעיל Host (אווטר) כולל דיבור ומחוות
- שיטה להציג טקסט (שימוש ברכב קוד מוכן).

על מה לא נדבר (או נדבר פחות)

- **Physics ,rigid body ,colliders**
- **animations**
- **timeline**
- Script & code
- Materials
- Camera, skyBox ,lights
- models
- Particles

Sumerian & AWS


- webXR ,AR ,VR ,3D
- אפשרות לפיתוח ללא קוד
- אפשרות לפתוח ב JS עם API (ישן וחדש)
- פיתוח בסביבת ענן (בחירת שרת)
- יבוא מודלים
- קישור לכלים נוספים ב AWS
 - BOT (גם ללא קוד)
 - DB
 - Functions

Sumerian & AWS

כל הזכויות שמורות - הוברמן
ר.ג. יעוץ ופיתוח בע"מ
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▼ All services

Compute

EC2
Lightsail 
ECR
ECS
EKS
Lambda
Batch
Elastic Beanstalk
Serverless Application Repository
AWS Outposts
EC2 Image Builder

Storage

S3
EFS
FSx
S3 Glacier
Storage Gateway
AWS Backup

Database

RDS
DynamoDB
ElastiCache
Neptune
Amazon Redshift
Amazon QLDB
Amazon DocumentDB
Managed Cassandra Service


Migration & Transfer

AWS Migration Hub
Application Discovery Service
Database Migration Service
Server Migration Service

Developer Tools

CodeStar
CodeCommit
CodeBuild
CodeDeploy
CodePipeline
Cloud9
X-Ray

Customer Enablement

AWS IQ 
Support
Managed Services

Robotics

AWS RoboMaker


Blockchain

Amazon Managed Blockchain

Satellite

Ground Station

Quantum Technologies

Amazon Braket 


Management & Governance

AWS Organizations
CloudWatch
AWS Auto Scaling
CloudFormation
CloudTrail
Config
OpsWorks

Machine Learning

Amazon SageMaker
Amazon CodeGuru
Amazon Comprehend
Amazon Forecast
Amazon Fraud Detector
Amazon Kendra
Amazon Lex
Amazon Machine Learning
Amazon Personalize
Amazon Polly
Amazon Rekognition
Amazon Textract
Amazon Transcribe
Amazon Translate
AWS DeepLens
AWS DeepRacer
Amazon Augmented AI

Analytics

Athena
EMR
CloudSearch
Elasticsearch Service
Kinesis
QuickSight 
Data Pipeline
AWS Data Exchange
AWS Glue
AWS Lake Formation
MSK

Security, Identity, & Compliance

IAM
Resource Access Manager
Cognito

Mobile

AWS Amplify
Mobile Hub
AWS AppSync
Device Farm

AR & VR

Amazon Sumerian


Application Integration

Step Functions
Amazon EventBridge
Amazon MQ
Simple Notification Service
Simple Queue Service
SWF

Customer Engagement

Amazon Connect
Pinpoint
Simple Email Service

Business Applications

Alexa for Business
Amazon Chime 
WorkMail

End User Computing

WorkSpaces
AppStream 2.0
WorkDocs
WorkLink

Internet of Things

Sumerian & AWS



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Products Solutions Pricing Documentation Learn Partner Network AWS Marketplace > 🔍

Amazon Sumerian

Overview

Features

Pricing

Getting Started



FAQs

Amazon Sumerian

Easily create and run browser-based 3D, augmented reality (AR), and virtual reality (VR) applications.

Get started with Amazon
Sumerian






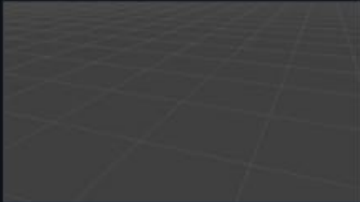

Scene

aws Services ▾ Resource Groups ▾   nimrod ▾ N. Virginia ▾ Support ▾

Today 19 February 2020 17 February 2020 26 January 2020

- Home
- Drafts
- Trash
- Projects

Create scene from template

 Default Lighting Template			
Default Lighting 09 August 2019	Virtual Concierge 25 November 2019	Product Configurator 17 August 2019	Speech & Gestures 17 August 2019
 AR TEMPLATE			
Augmented Reality 08 June 2018	Empty 23 November 2017	Default Template 23 November 2017	

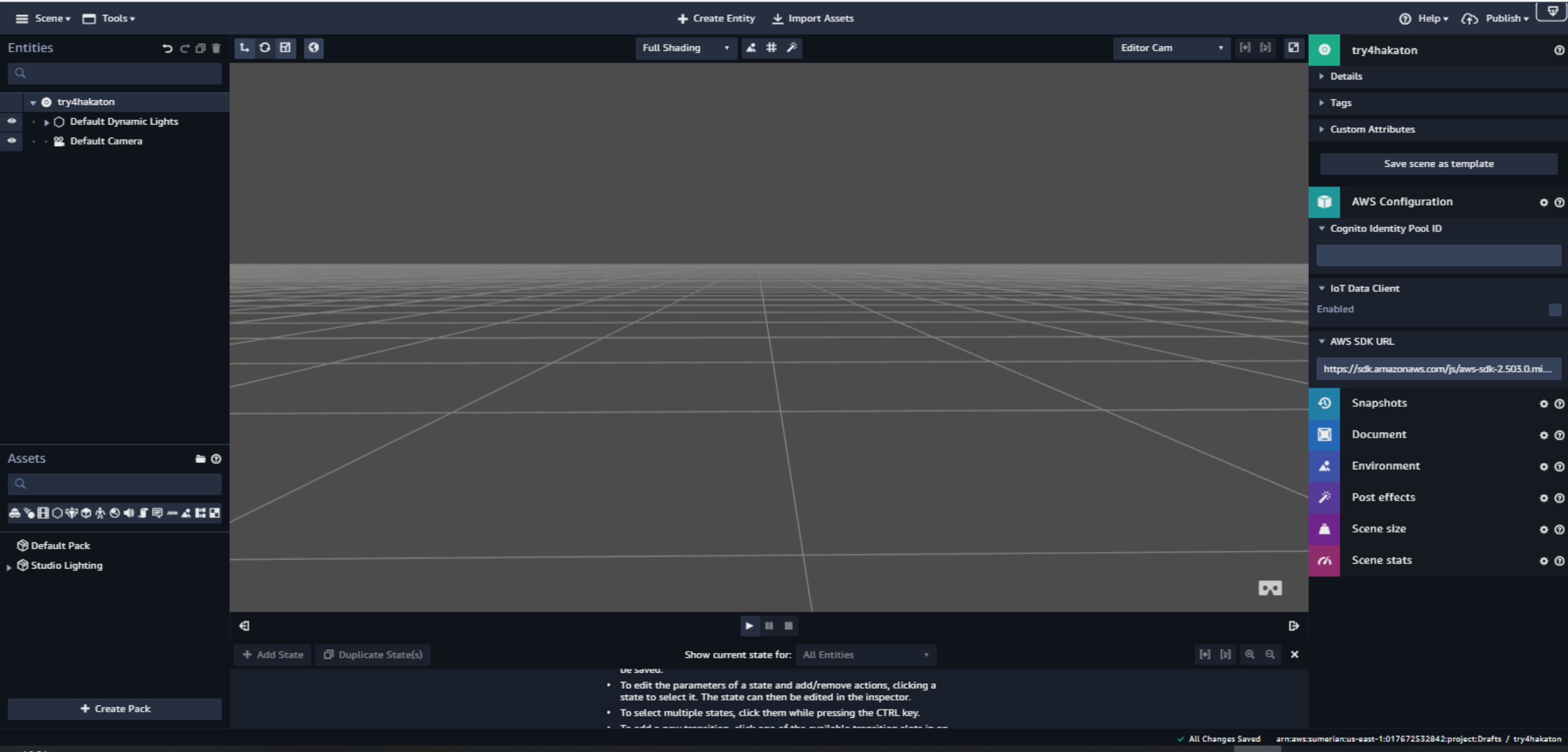
Welcome to Amazon Sumerian

Create a new scene or choose a Sumerian Template to get started.

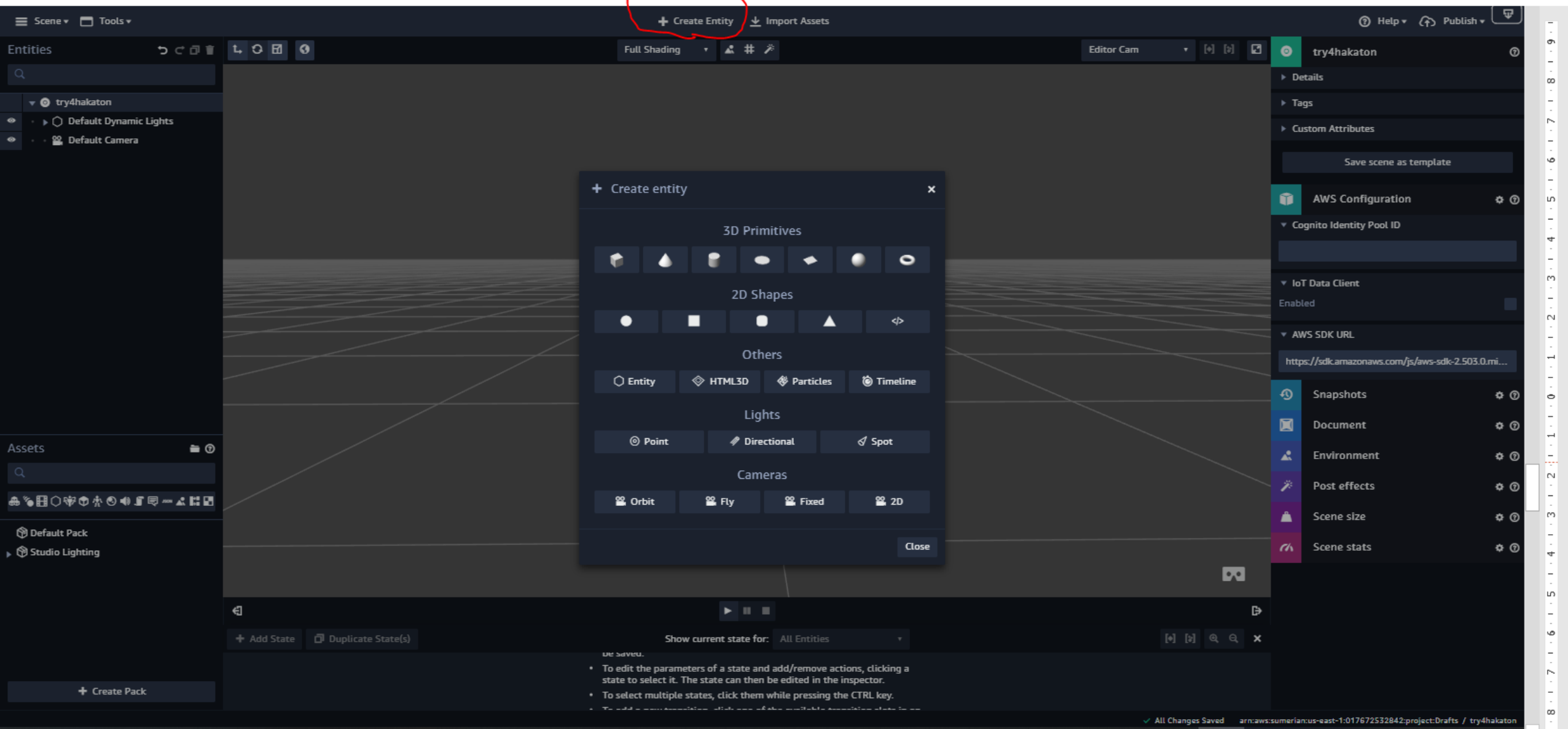
For the best experience, use the latest version of Firefox.

If you would like hands-on tutorials, references, and manuals, learn more with [Amazon Sumerian Tutorials](#).

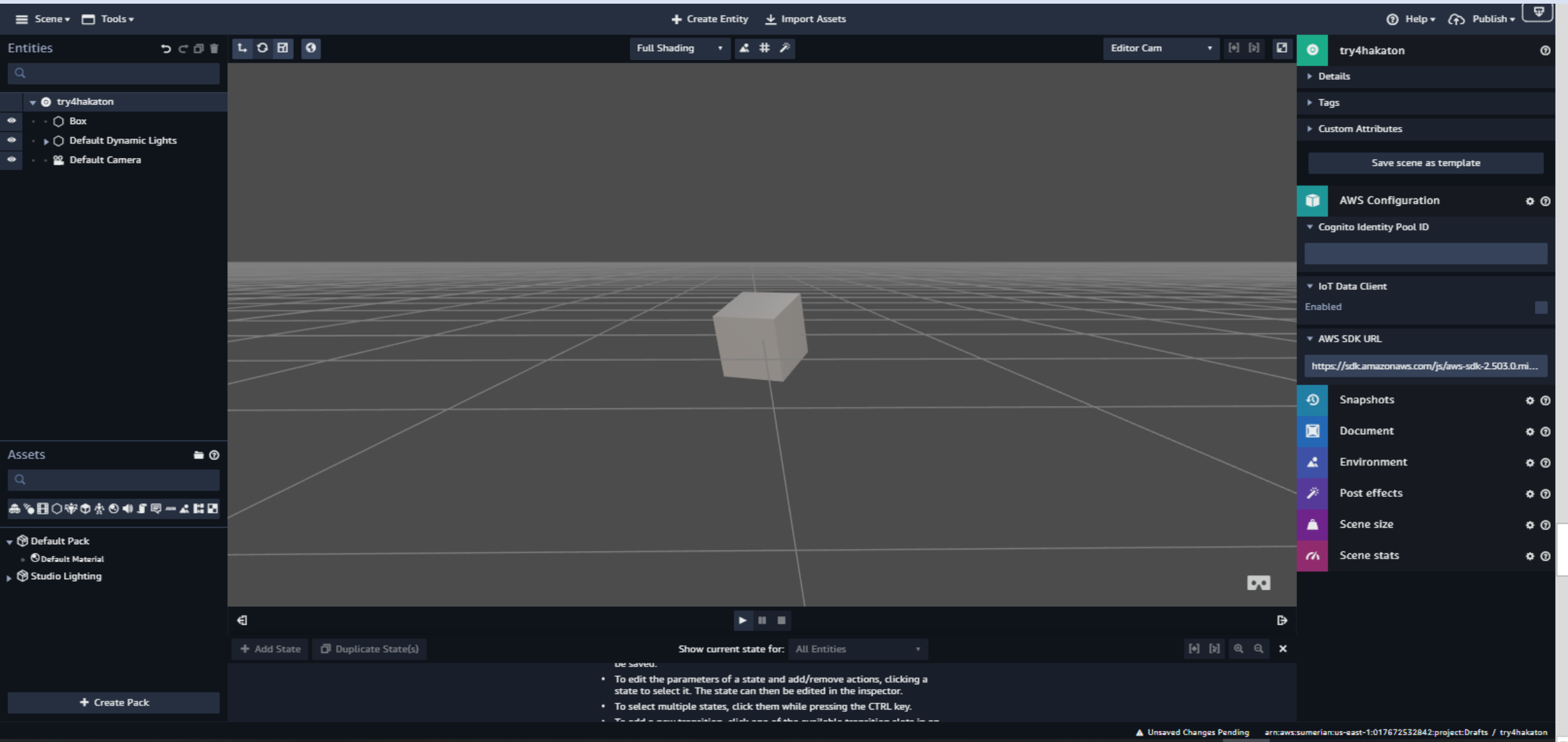
Entities – Assets – Components (& properties)



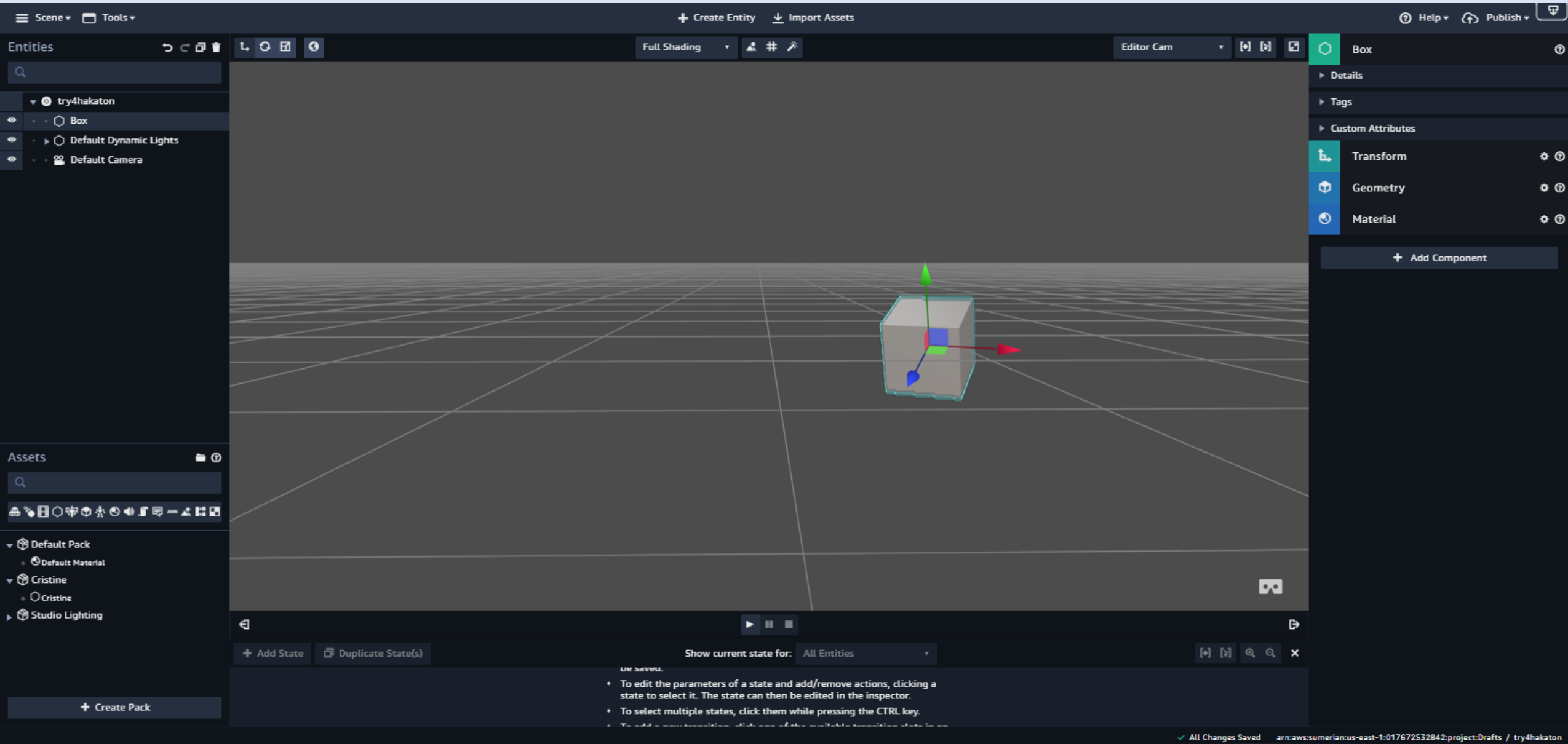
Create Entity



Create Entity



Components (& properties) of entity



Import Assets (from your AWS library)

The screenshot displays the Sumerian software interface. At the top, the 'Import Assets' menu item is circled in red. Below the menu, a grid of asset thumbnails is shown, each with a name and a small Sumerian logo icon. The assets include:

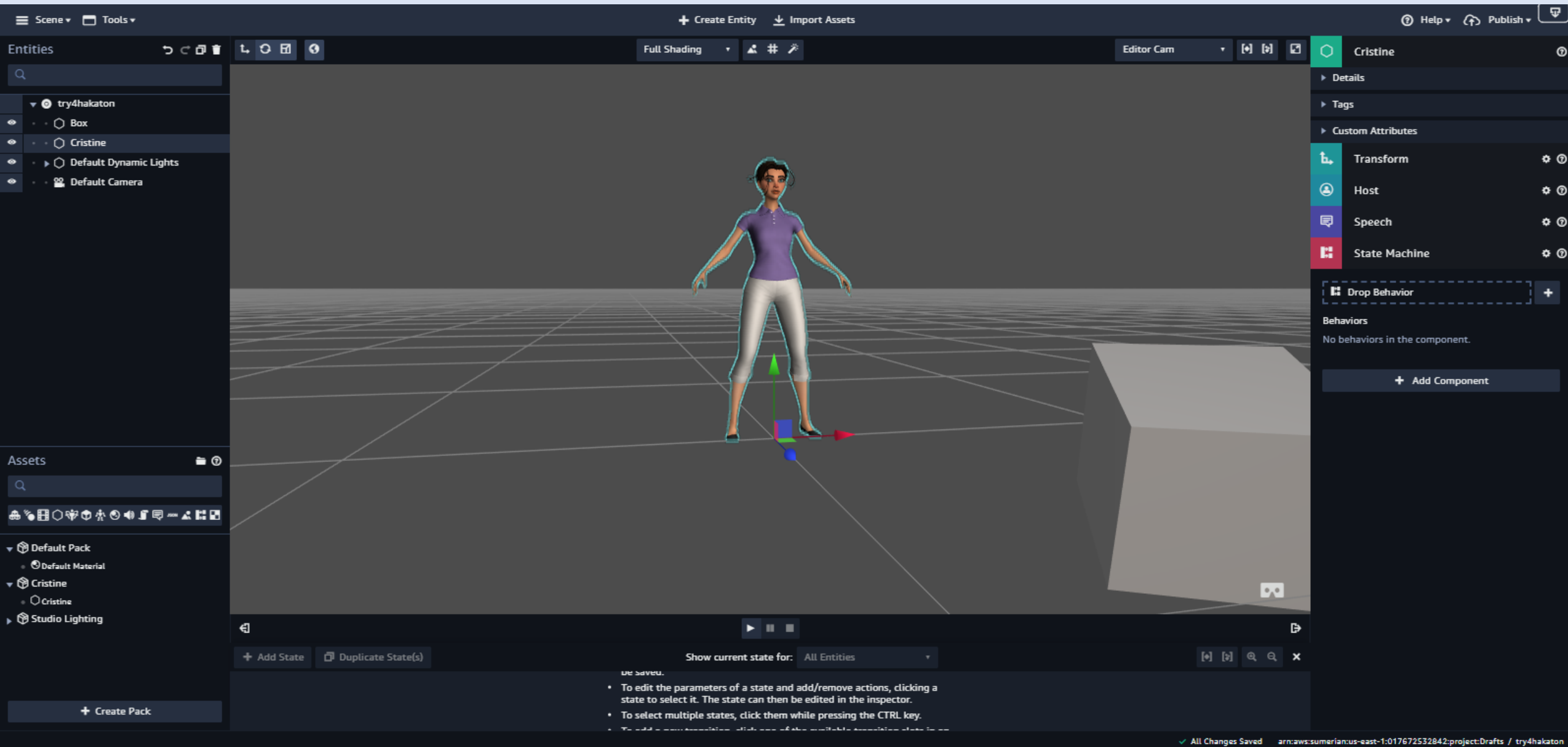
- Skybox_Nature_ArtistPond
- Grace Hoodie
- Grace Polo
- Grace
- Virtual Concierge Starter P...
- Preston
- Cristine
- Kyro Toaster
- Blue Skysphere
- Sumerian Flag
- Jukedeck: Vibrant Atoms
- Jukedeck: Wakeful View
- Jukedeck: Ethereal Thunder
- Jukedeck: Panoramic Worlds
- Jukedeck: Miniature Spaces
- Jukedeck: Earthly Impulse
- Jukedeck: Lyrical Twilight
- Jukedeck: Miniscule Chance
- (Unlabeled asset: A white mesh sphere)
- (Unlabeled asset: A white mesh cylinder)
- (Unlabeled asset: A human figure)
- (Unlabeled asset: A table with chairs)
- (Unlabeled asset: A campfire in a forest)
- (Unlabeled asset: A grey sofa)

On the right side, the 'Import From Disk' panel is visible, featuring a 'Drop your file here...' area, a 'Browse' button, and an 'Asset Details' section. The 'Asset Details' section shows the following information:

- Name: Centrifugal Pump PBR
- Description: Replicated model of an industrial centrifugal pump. Model is built to scale.
- Created: 12/19/2019
- Edited: 12/19/2019
- Owner: Sumerian

At the bottom right, there is a 'Delete' button and a 'Versions' section showing 'Published 12/19/2019'. At the very bottom of the interface, there are 'Add' and 'Cancel' buttons.

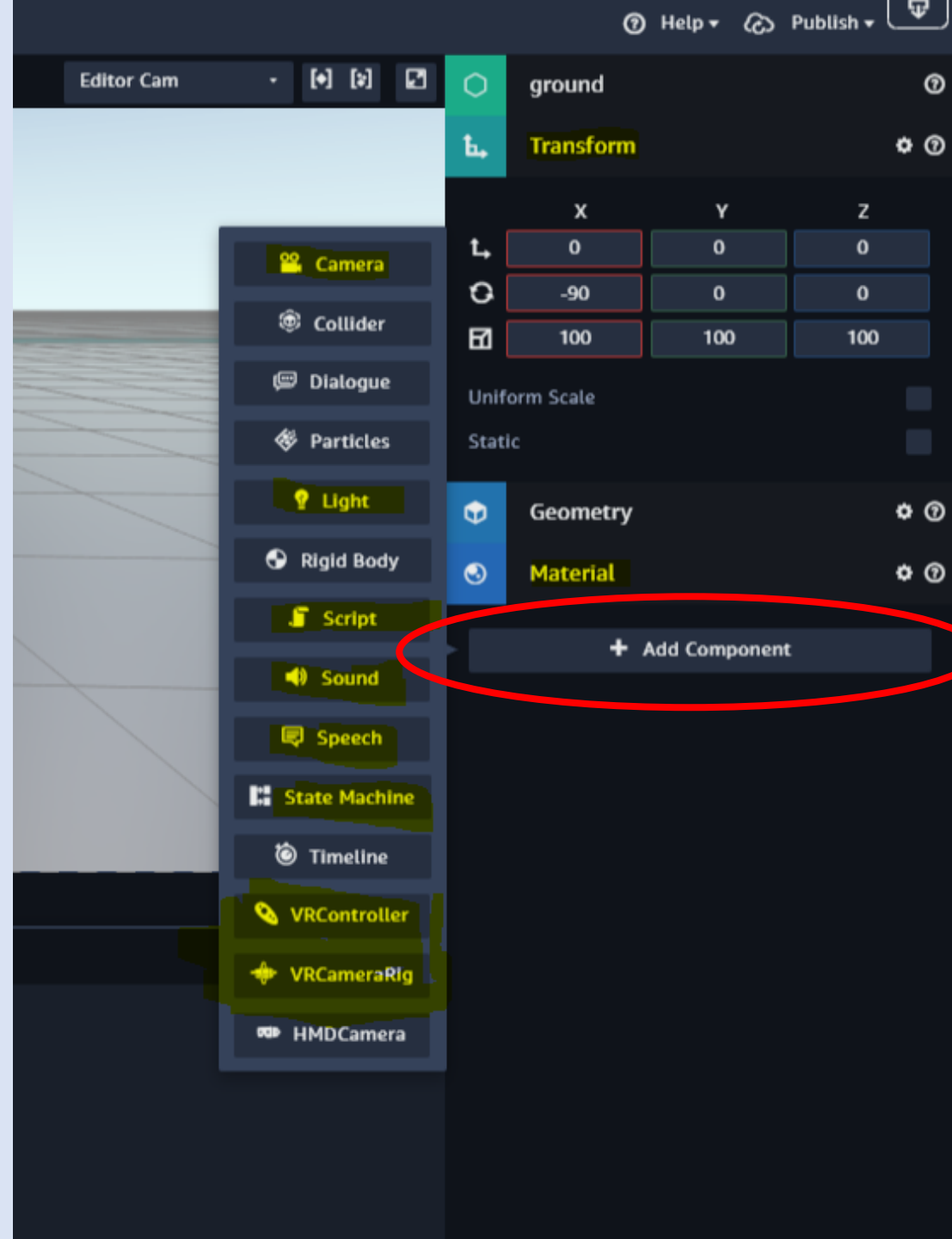
Drag to create Entity from the assets -> add components



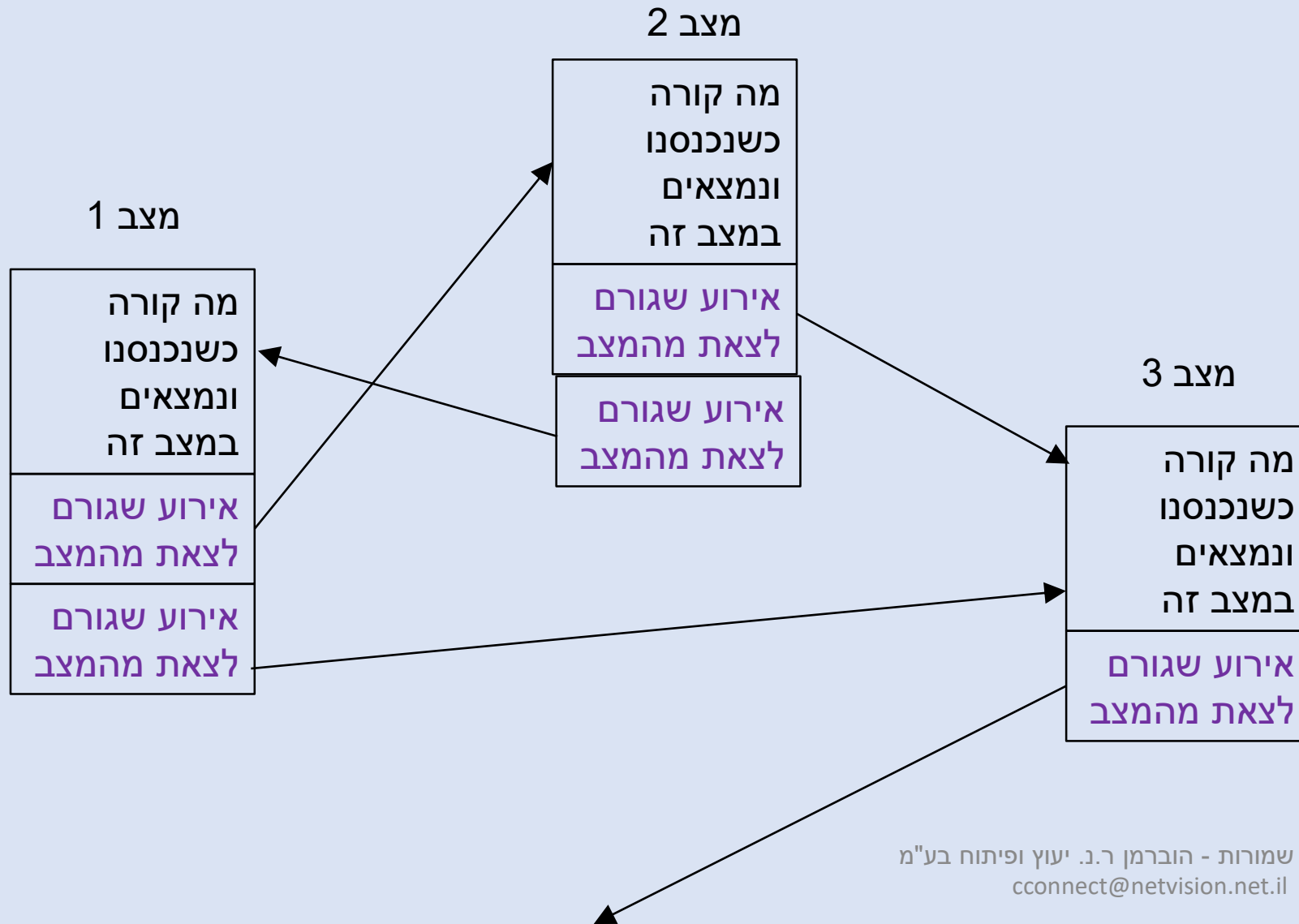
Components & Properties

- Transform (graphic and numeric)
- **State Machine**
- Script (we will use for **text**)
- Speech

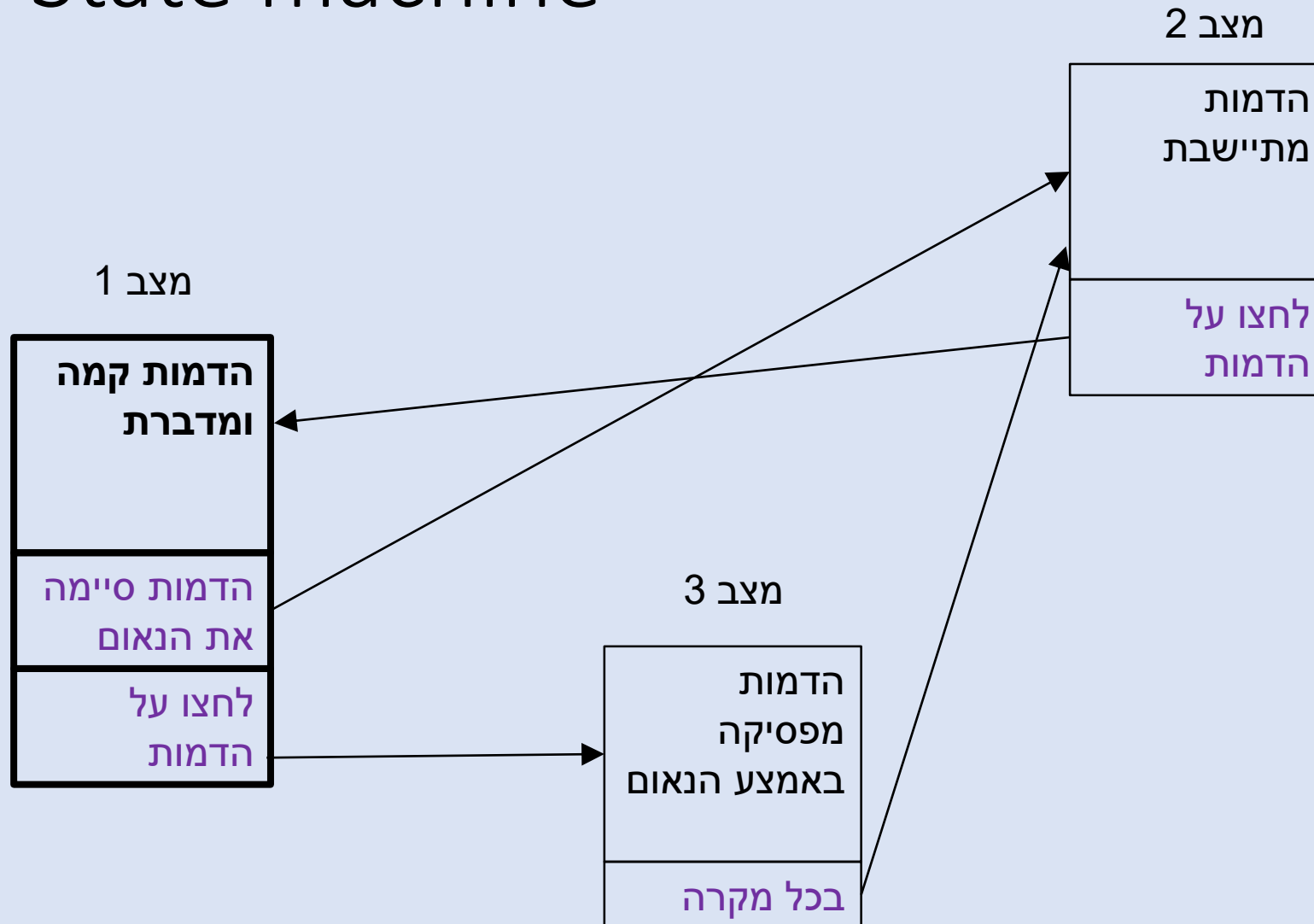
- (Collider)
- (Rigid body)
- (TimeLine)
- (Dialog → BOT)



State machine

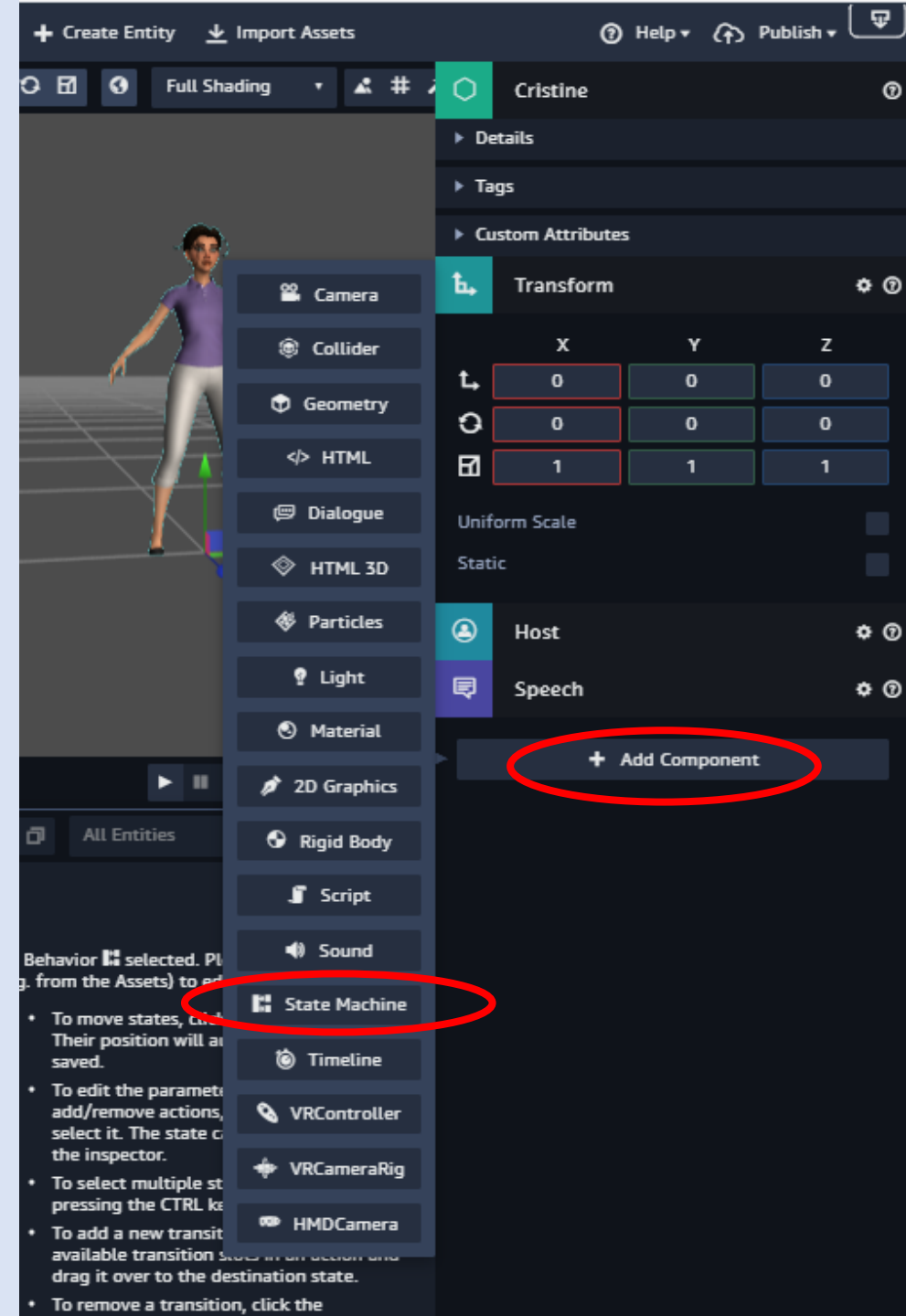


State machine



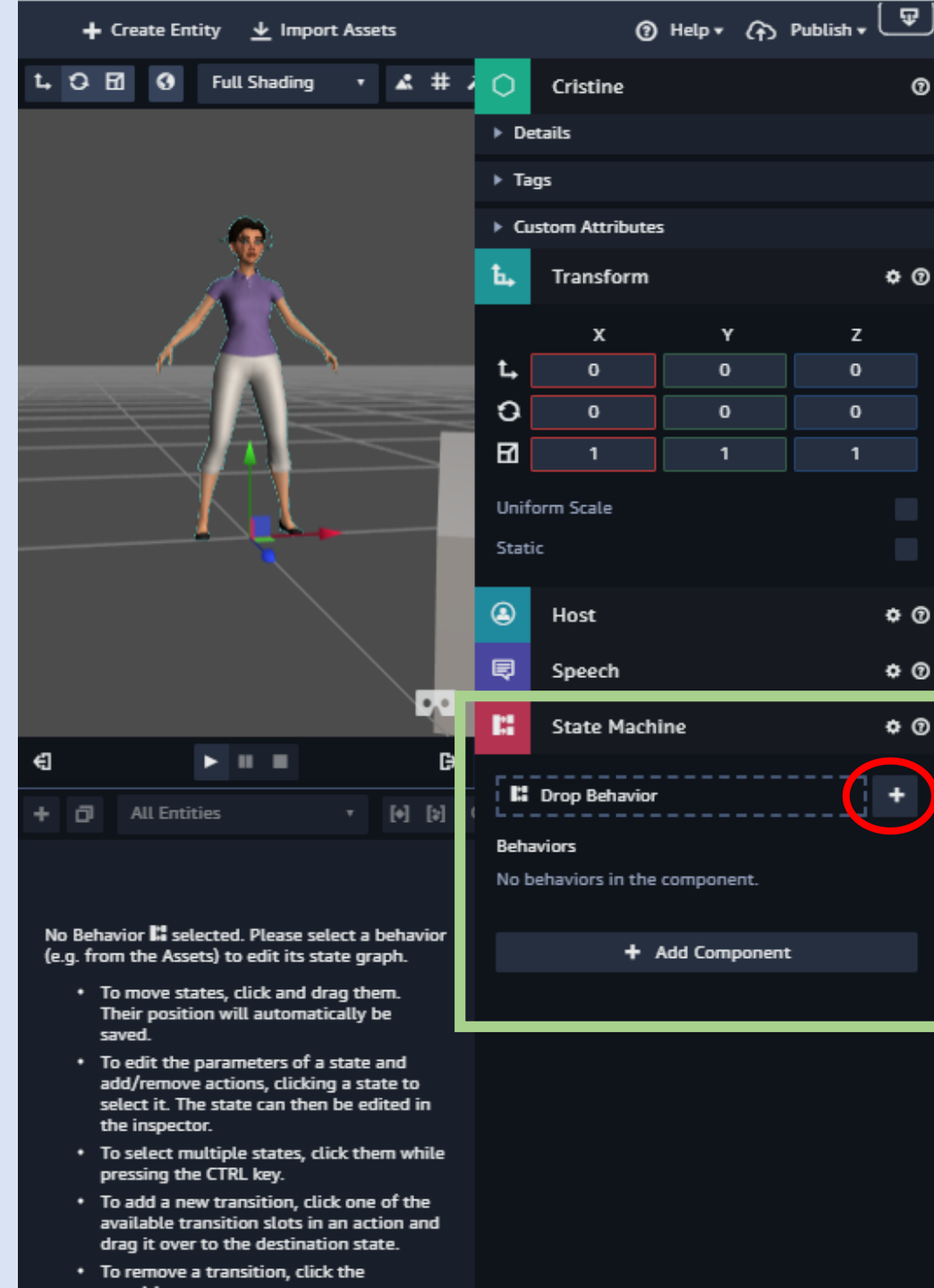
שלב בניית state machine

- Add **state machine component**



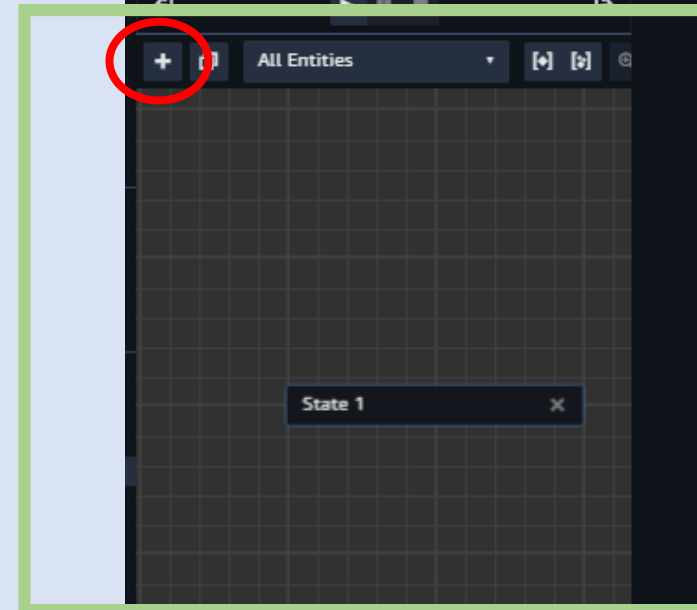
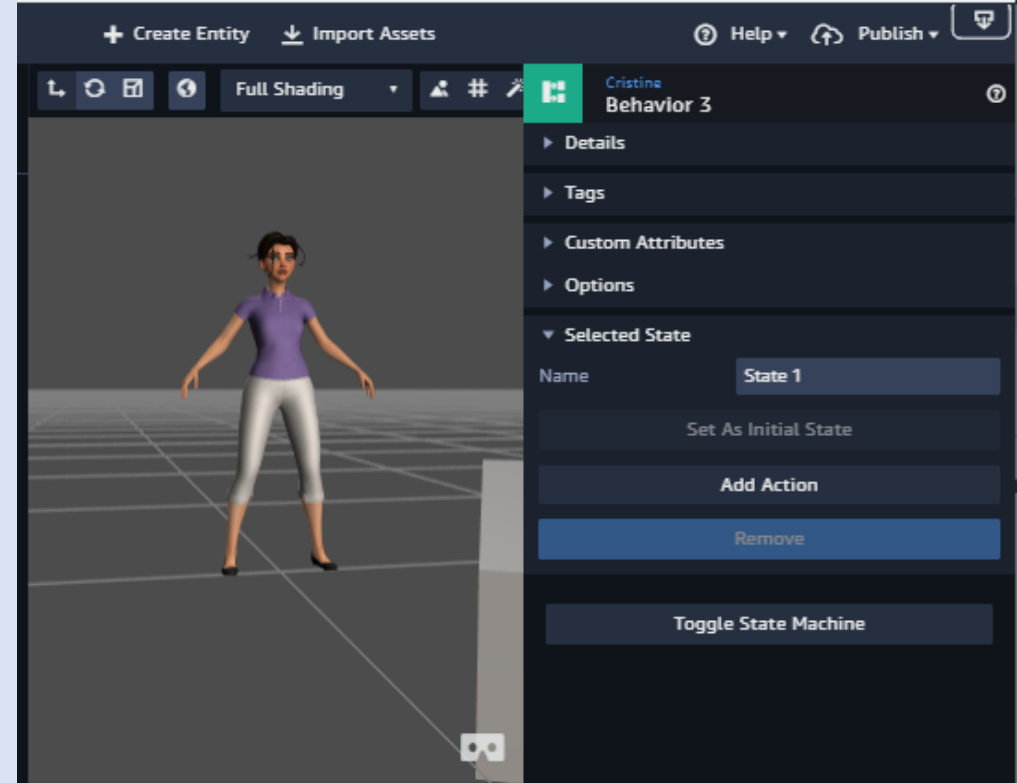
שלב בניית state machine

- Add **state machine component**
- Create **Behavior**



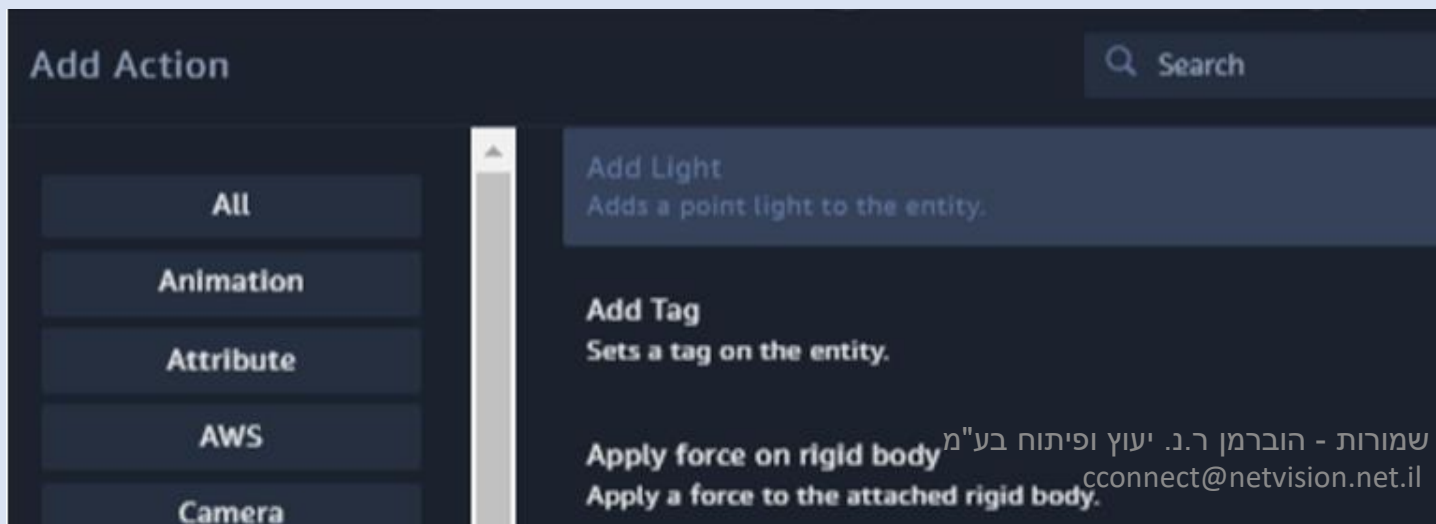
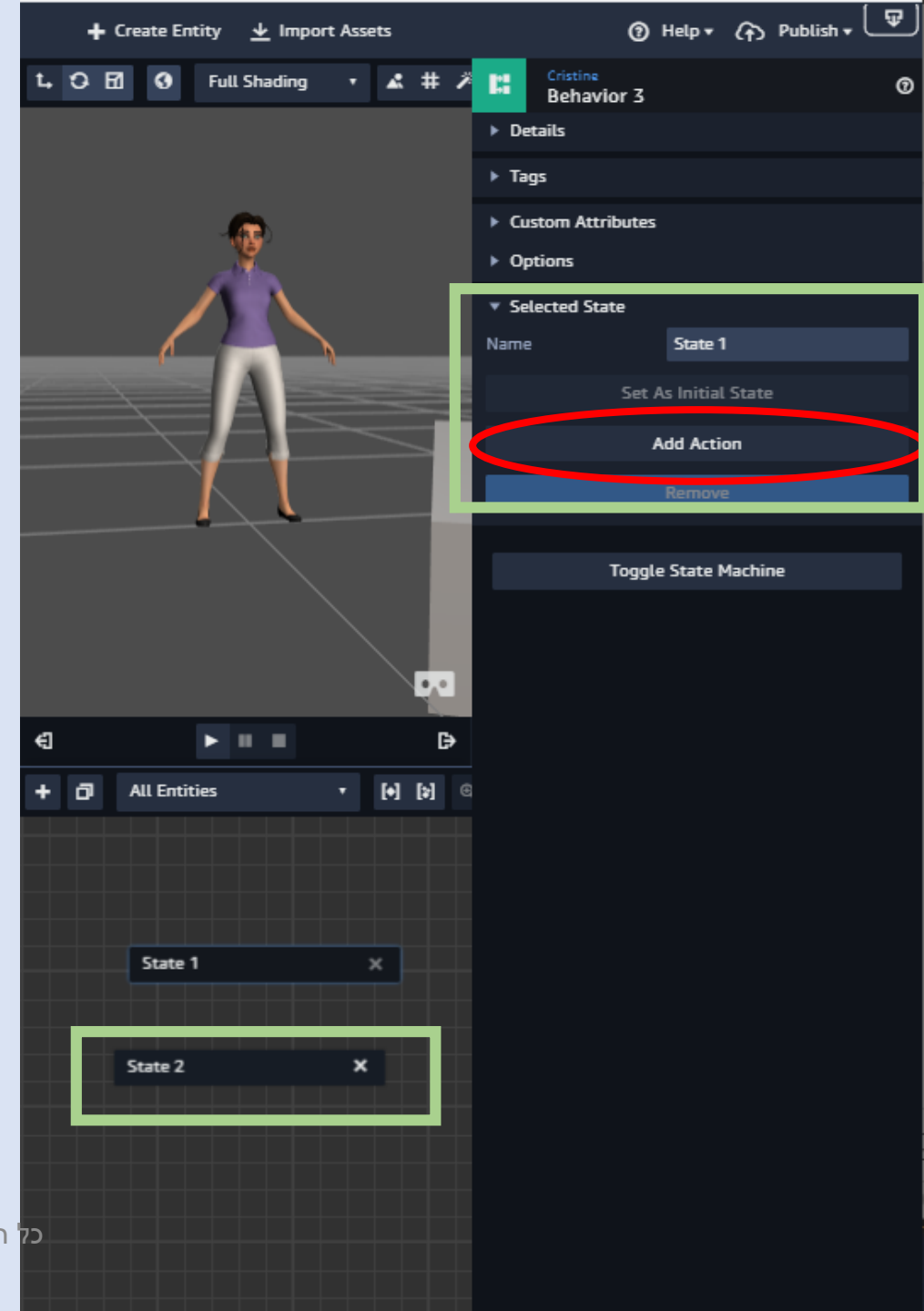
שלב בניית state machine

- Add **state machine component**
- Create **Behavior**
- Add **states**



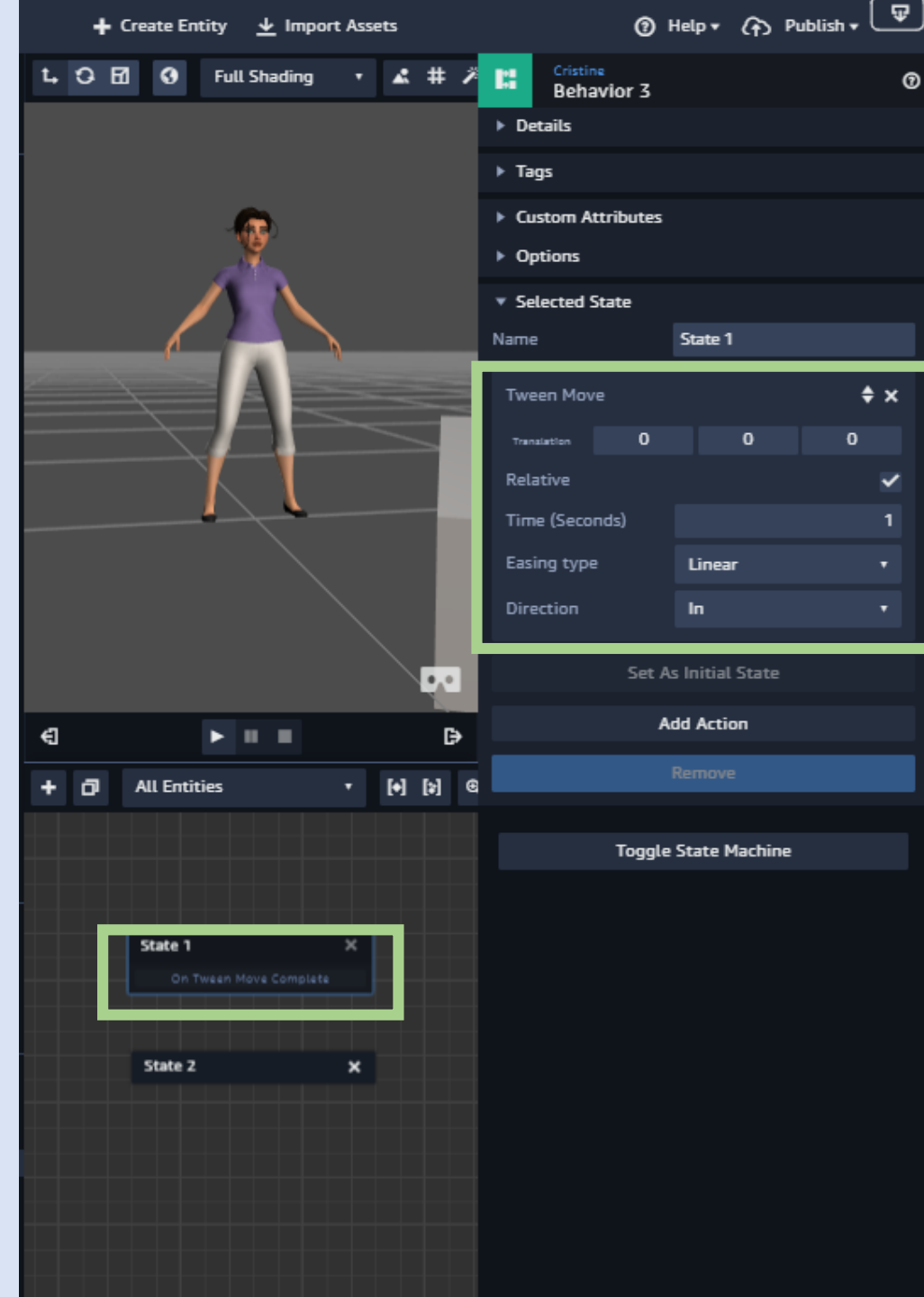
שלב בניית state machine

- Add **state machine component**
- Create **Behavior**
- Add **states**
- Add **Action/s**
 - Will add event (if any)



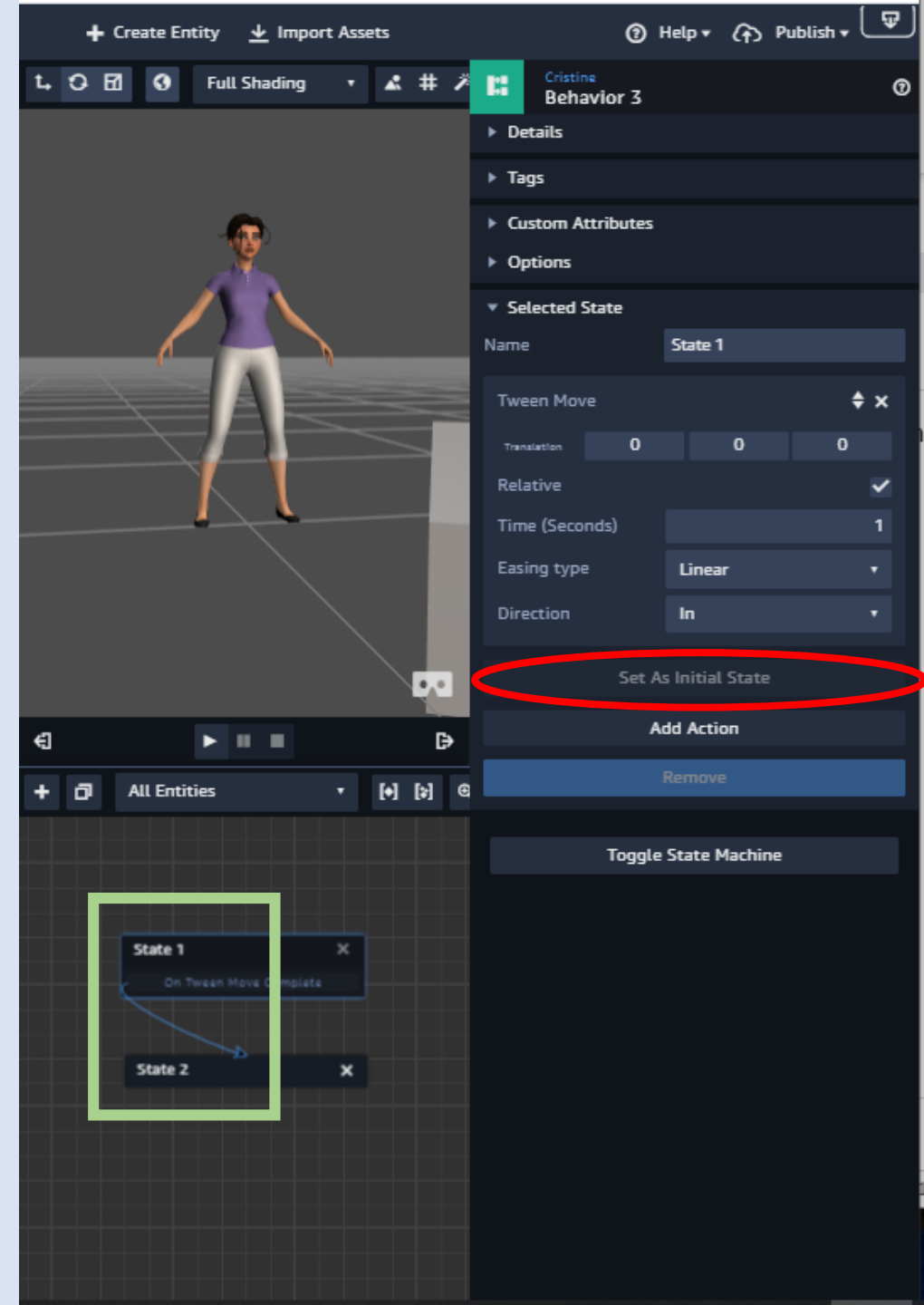
שלב בניית state machine

- Add **state machine component**
- Create **Behavior**
- Add **states**
- Add **Action/s**
 - Will add event (if any)



שלב בניית state machine

- Add **state machine component**
- Create **Behavior**
- Add **states**
- Add **Action/s**
 - Will add event (if any!)
- Drag **arrows** from **events** to other **State**
- Verify / set the **Initial state**



+ Create Entity ↓ Import Assets

? Help ↑ Publish

↶ ↷ ⌂ 🌐 Full Shading 📍

↶ ⏪ ⏸ ⏩ ↷

+ 📄 All Entities [⌂]

Selected State

Name State 1

Tween Move

Translation 0 0 0

Relative

Time (Seconds) 1

Easing type Linear

Direction In

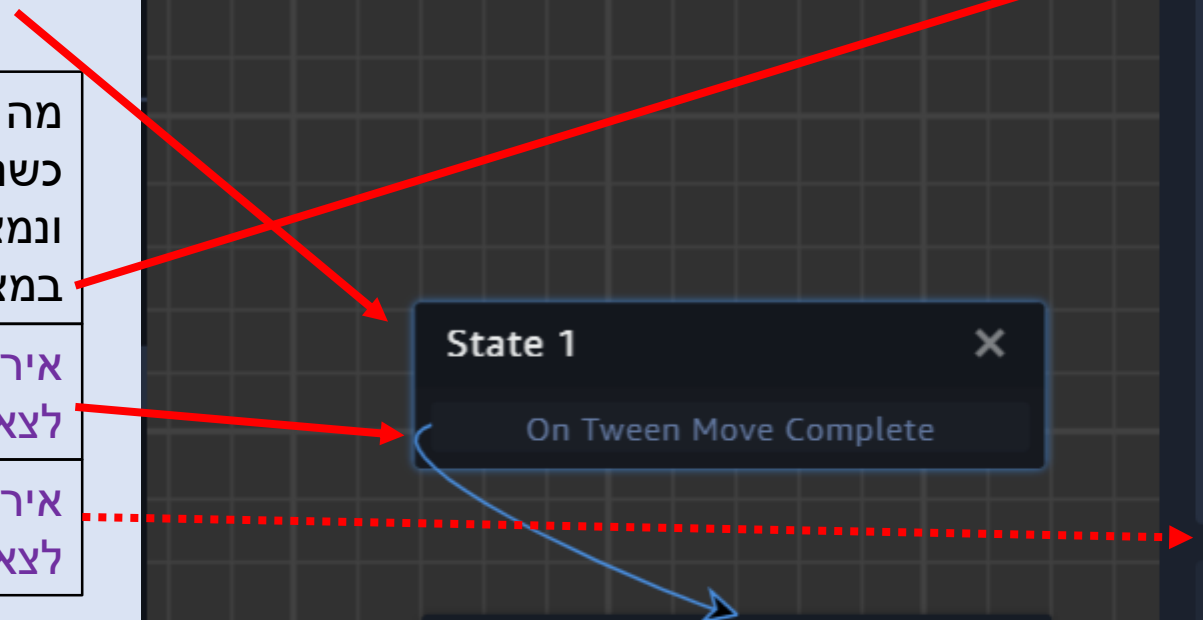
מצב 1

- מה קורה כשנכנסו ונמצאים במצב זה
- אירוע שגורם לצאת מהמצב
- אירוע שגורם לצאת מהמצב

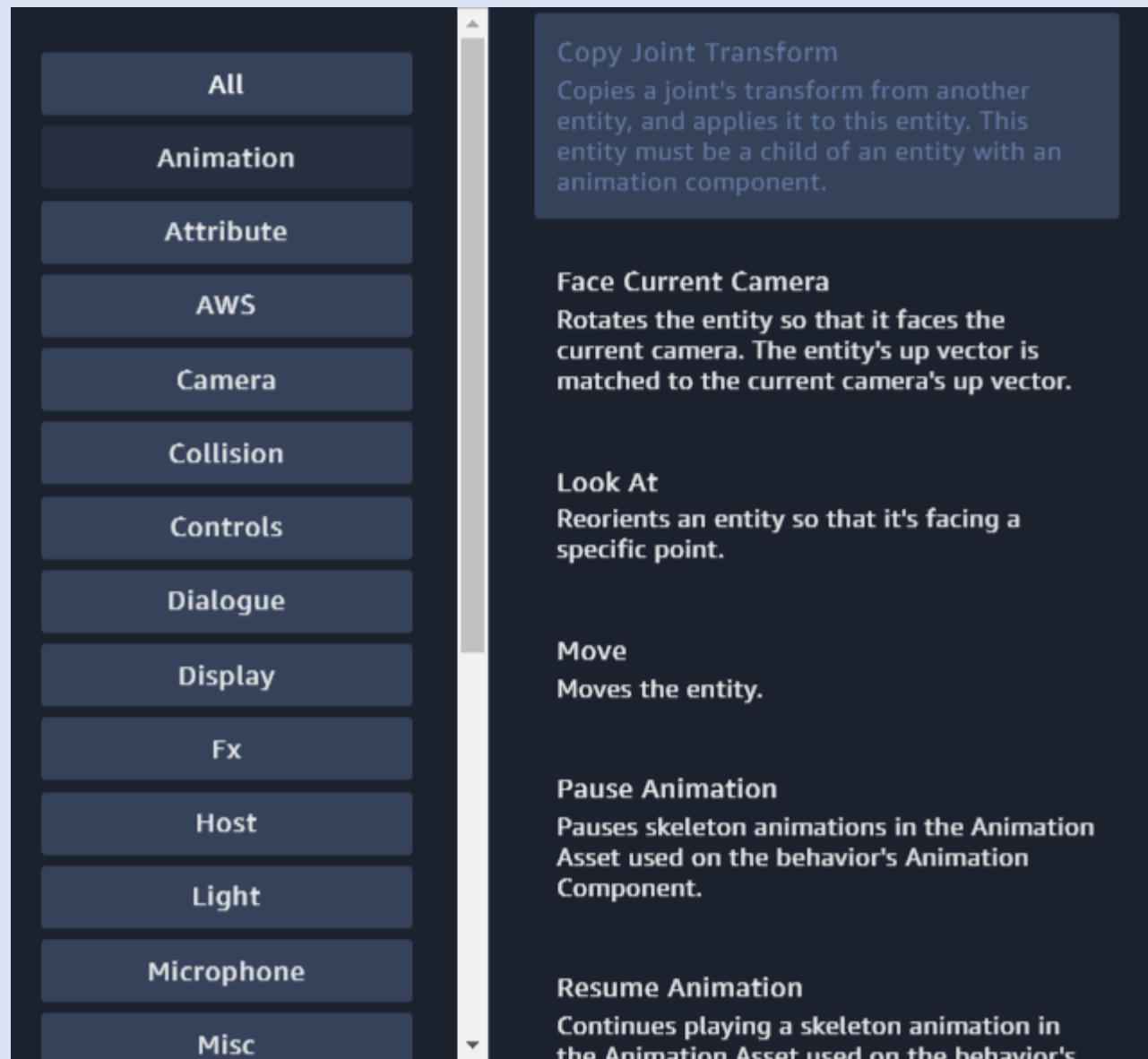
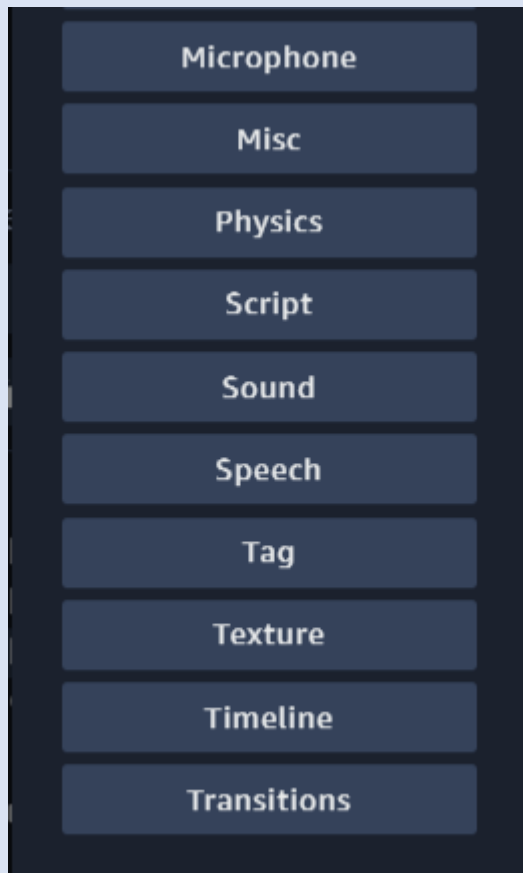
State 1

On Tween Move Complete

State 2



Actions



Actions

Animation •

- קביעת Transition (מיקום, כיוון גודל)
- tween ...
- ניהול Clip מיובא

Attributes •

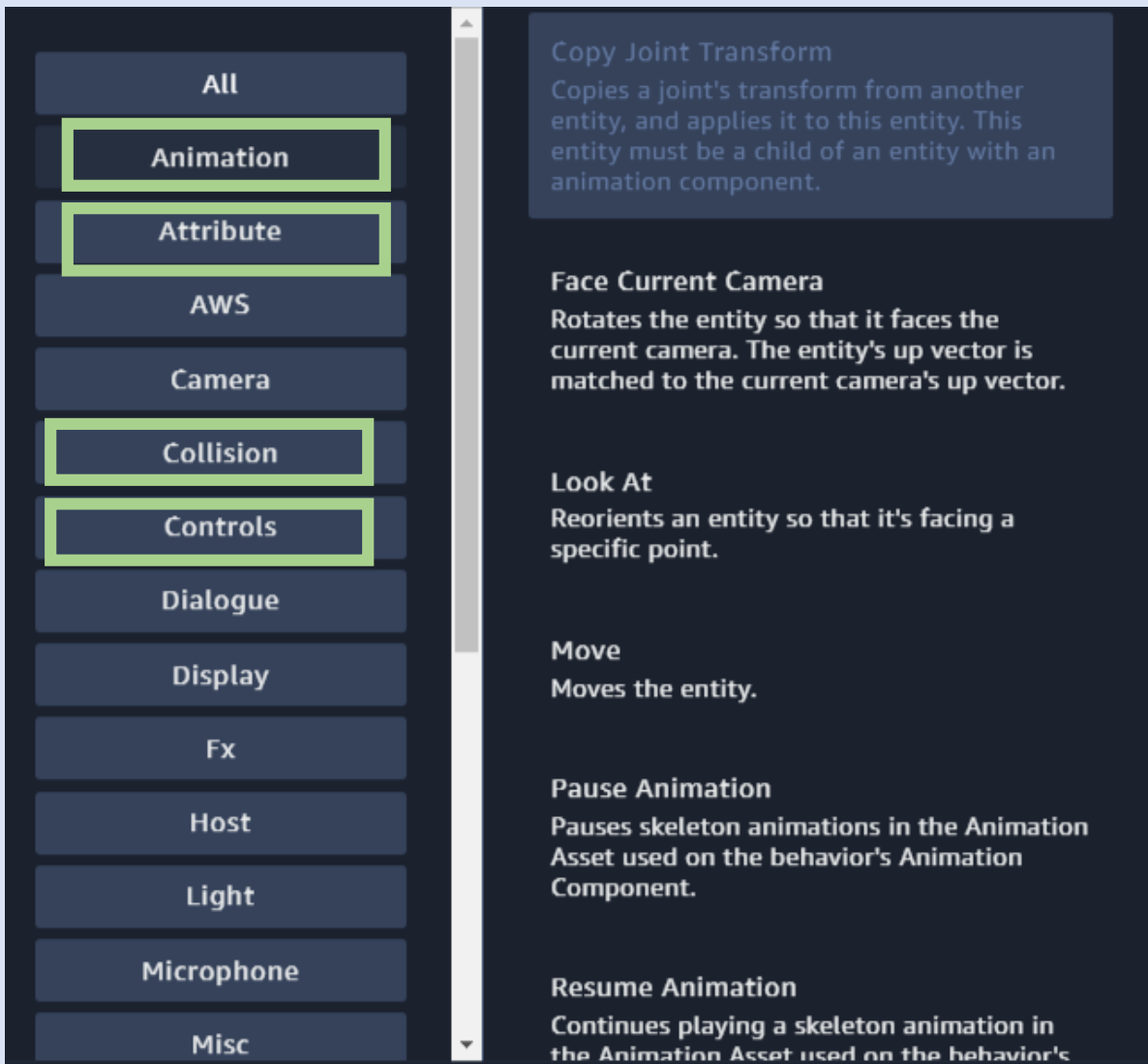
- מונה בלולאה
- If

• Collisions – תגובה לחפיפה בין גופים

• Controls - (פעולות עכבר ומקלדת)

• Transitions •

- Transitions - "בכל מקרה"
- Emit → listen



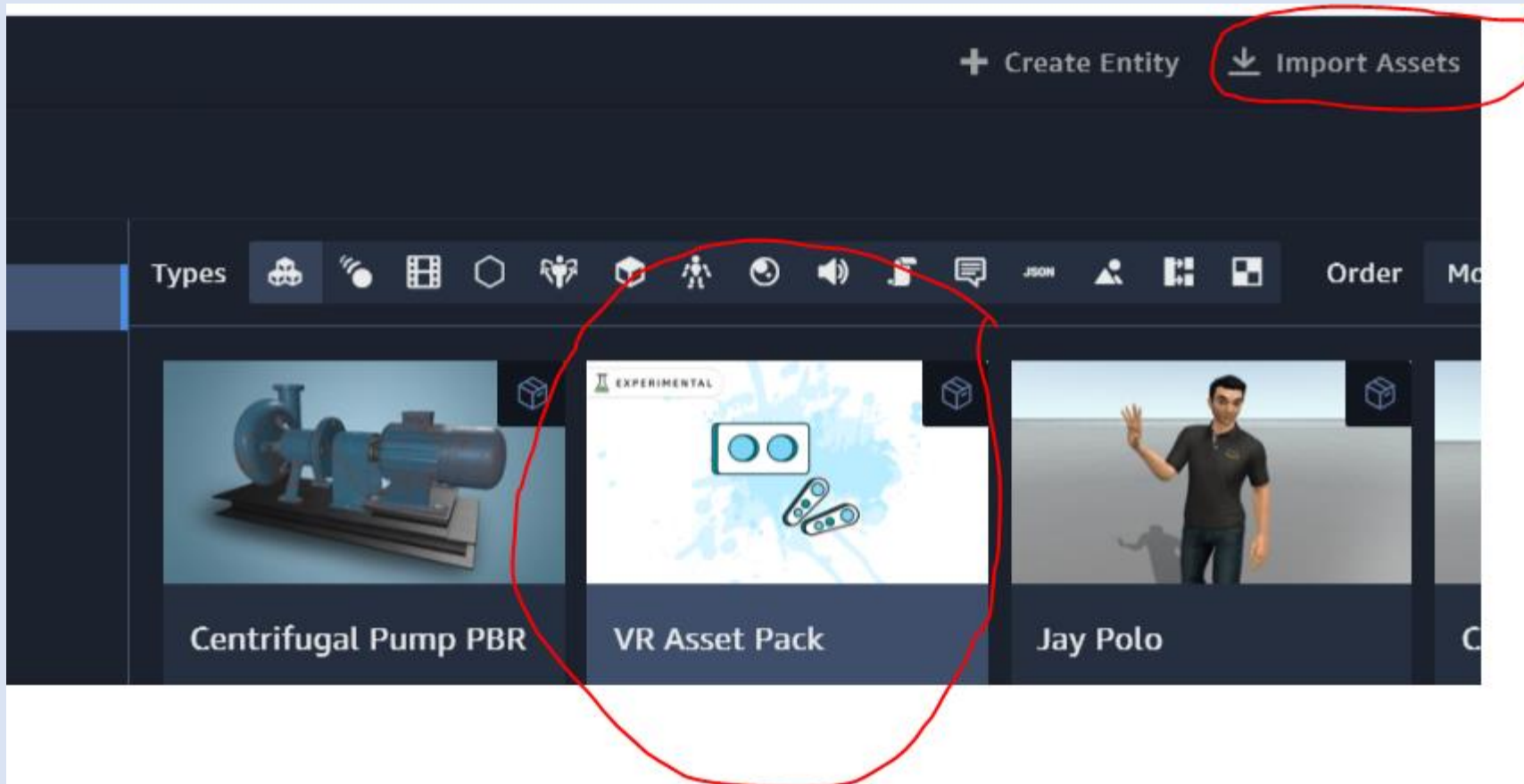
תרגול

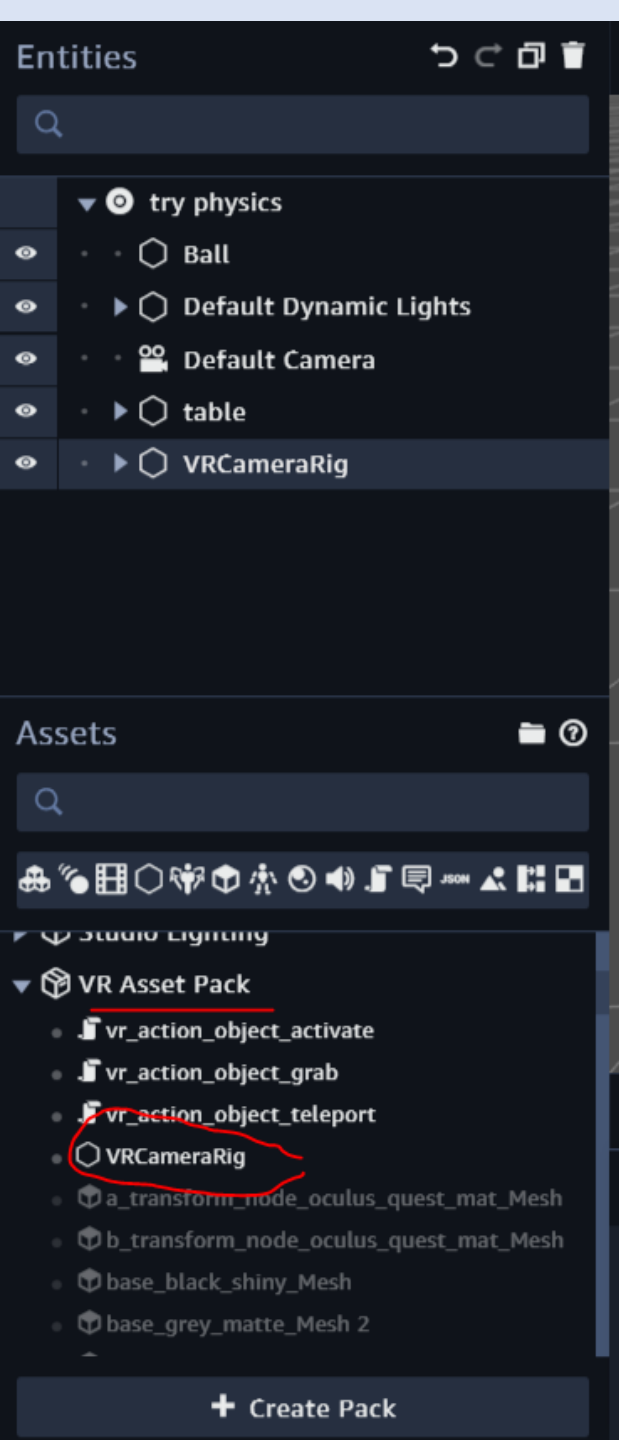
בניית סצנת VR

- Virtual reality sickness
- תאימות למשקפיים
- הוספת רכיבי משקפיים וקונטרולר
- הפעלת תגובות לקונטרולר (וגם לעכבר)
- קוד מובנה
- האזנה ישירה לאירועים

הוספת רכיבי משקפיים וקונטרולר

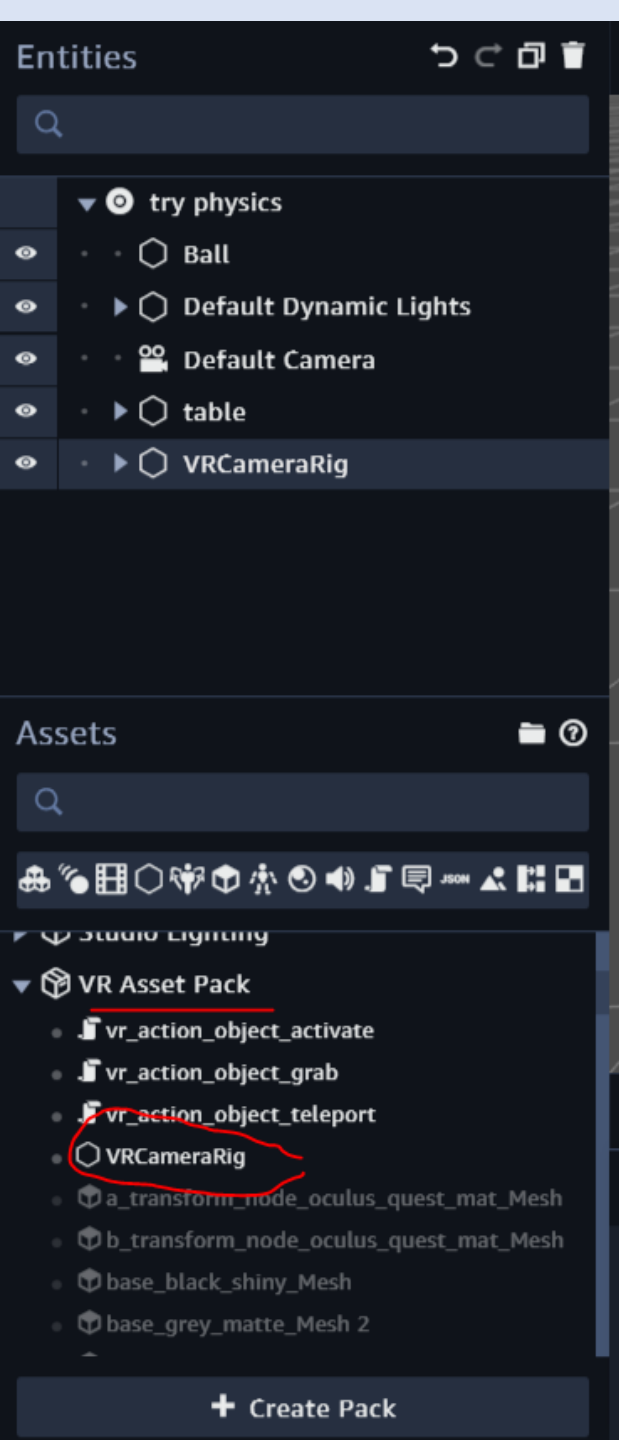
• הוספת VR Asset Pack





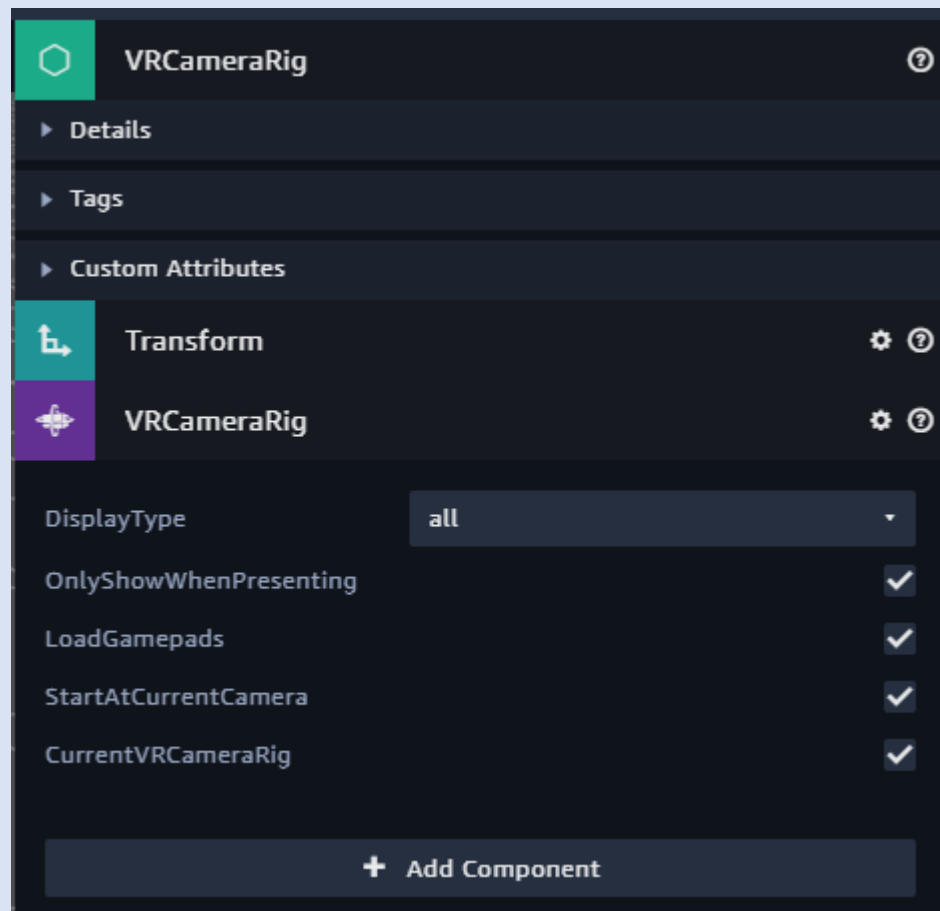
הוספת רכיבי משקפיים וקונטרולר

- הוספת VR Asset Pack
- גרירת VRCameraRig לבמה



הוספת רכיבי משקפיים וקונטרולר

- הוספת VR Asset Pack
- גרירת VRCameraRig לבמה
- הגדרת תכונות של ה Component





קישורים

- Avoid Virtual reality sickness
- <https://designguidelines.withgoogle.com/cardboard/designing-for-google-cardboard/physiological-considerations.html#physiological-considerations-head-tracking>
- דף הבית לתיעוד והדרכה מאמזון
- <https://docs.sumerian.amazonaws.com/>
- **Create Free-Floating Text**
- <https://docs.sumerian.amazonaws.com/articles/surface-text/>
- Amazon Sumerian Permissions
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/aws-setup/>
- <https://docs.aws.amazon.com/sumerian/latest/userguide/sumerian-permissions.html>
- Text to Speech & Host (http://bit.ly/aws_host)
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/speech-component/index.html>
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/host-speech-component/>

קישורים - המשך

- Physics (<http://bit.ly/awsphysics>) •
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/physics-part-1/index.html>
- VR asset Pack (http://bit.ly/aws_vr) •
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/vr-asset-pack/>
- Remote Debugging Session with Chrome Developer Tools - oculus •
- <https://developer.oculus.com/documentation/oculus-browser/browser-remote-debugging/>
- State machine •
- <https://docs.sumerian.amazonaws.com/tutorials/create/beginner/state-machine-basics/>

מודלים

• פורמט נתמך FBX

• Low-poly

• יבורא מודלים: פורמט, גודל, רישיון שימוש, מחיר, אנימציות, materials

• תוכנות לייצור מודלים: Blander, solidWorks ?

• מקורות:

• mixamo

• <https://www.mixamo.com/#/?page=1&query=&type=Character>

• Turbosquid

• <https://www.turbosquid.com/Search/3D-Models/free>

• Cgtrader

• <https://www.cgtrader.com/3d-models>

VR controllers events

Here are the events that come from the VR controllers. Each event handler will receive an object that describes what button was - "buttonDown"

- "buttonUp"
- "buttonValueChanged"
- "axisMove"
- "buttonTouchStart" - Specific to touch-sensing buttons (like those on the Oculus Touch controllers)
- "buttonTouchEnd" - Specific to touch-sensing buttons (like those on the Oculus Touch controllers) (edited)

Properties

```
{controllerId: "Oculus Quest (Right)", id: 1, value: 0}
```

```
controllerId: "Oculus Quest (Right)"
```

```
id: 1
```

```
value: 0
```

תרגול