**JSON Save Data Documentation**

The save data is generated using the Scene.toJSON() method from Three.js. More info: [https://threejs.org/docs/#api/en/scenes/Scene.toJSON](https://threejs.org/docs/%23api/en/scenes/Scene.toJSON)

The base class of most objects in Three.js is Object3D. The “name” property is optional. User-defined properties can be added in the userData property of objects. When saving/downloading a scene, the scene data is saved into a JSON object. More details about specific classes and methods can be found here: <https://threejs.org/docs/>

**JSON basic types:**

* string
* number
* object
* array
* boolean
* null

**Objects in a default scene’s save file (.json):**

JSON object  
-> Scene  
 -> DirectionalLight  
 -> Default plane  
 -> AddLight indicator (“ghost” sphere)  
 -> Colours  
 -> Light(s)

The default scene consists of the necessary objects required to view and manipulate the floor plan. The display plane is blank and there are no lights in the scene unless added.

**JSON object**

This is the top-level JSON object containing the scene as its child.

**Properties:**

geometries (array of objects): Holds the data for the geometry objects used to render the objects in   
 the scene. Consists of “SphereBufferGeometry” and   
 “PlaneBufferGeometry” by default.

materials (array of objects): Holds material data.

textures (array of objects): Holds texture data.

images (array of objects): Holds the data for images.

object (object): Contains the Scene object.

**Scene**

This is the object containing the other objects in the scene as its children.

**Properties:**

type (string): “Scene”

layers (number): Render layer.

matrix (array of numbers): Transformation matrix of the object.

children (array of objects): Objects in the scene.

background (number): The background colour for the scene.

**DirectionalLight**

This is the object containing the light source for the Three.js scene.

**Properties:**

type (string): “DirectionalLight”

layers (number): Render layer.

matrix (array of numbers): Transformation matrix (4x4) of the object.

color (number): Light colour.

intensity (number): Strength of the light.

shadow (object): A camera object used in creating depth maps to render shadows.

**Default plane**

This is the plane on which the floor plan will be rendered as a texture. In the default scene, it is a plain white plane.

**Properties:**

type (string): “Mesh”

receiveShadow (bool): true

layers (number): Render layer.

matrix (array of numbers): Transformation matrix (4x4) of the object.

geometry (string): Identifier for the type of geometry this object uses.

material (string): Identifier for the material used by this object.

**AddLight indicator**

This is the sphere that provides an indicator for the placement of lights. It is hidden by default and only visible when in “add” mode.

**Properties:**

type (string): “DirectionalLight”

receiveShadow (bool): true

layers (number): Render layer.

matrix (array of numbers): Transformation matrix (4x4) of the object.

geometry (string): Identifier for the type of geometry this object uses.

material (string): Identifier for the material used by this object.

**Colours**

This object is used to store the colour information for groups, zones, and triggers in each scene.

**Properties:**

type (string): “Object3D”

name (string): “colours”

userData (object): Consists of the following 3 properties:

groupArray (array of numbers): An array of length 256 which stores the colours to be used   
 for each group (0-255).

zoneArray (array of numbers): An array of length 256 which stores the colours to be used for   
 each zone (0-255).

triggerColour (number): The colour to be used for the trigger line indicators.

layers (number): Render layer.

matrix (array of numbers): Transformation matrix (4x4) of the object.

**Light**

Light (smart light) object that can be added/removed from the scene.

**Properties:**

type (string): “Mesh”

userData (object): Consists of the following 19 properties:

name (string): Identifier of the light for front-end use.

key (string): Identifier of the light for back-end use.

FWVersion (string): Firmware version.

selected (bool): For internal use (selection and outlining objects).

updateProgress (bool): For internal use.

provisionProgress (bool): For internal use.

lastHeard (string): Date/time of last update.

status (string): Status of the light. (“Auto”, “Force\_On”, “Force\_Off”)

pwm (number): PWM level.

MotionSensing (string): Enable/Disable.

MotionSensitivity (number): Motion sensor sensitivity. (1-5)

ClockSync (string): Synchronise clock to PC clock. (Enable/Disable)

Scheduling (string): Enable/Disable.

LightIntensity (number): 1

BrightLevel (number): 0-100 value of the light’s brightness.

DimLevel (number): 0-100 value of the light’s brightness when dimmed.

MotionLevel (number): 0-100 value of the light’s brightness when activated by the motion   
 sensor.

HoldTime (number): The amount of time to remain in triggered brightness.

PhotosensorGroup (string): Start and end time of photosensing grouping. (HHmm, HHmm)

BrightGroup (string): Start and end time of bright grouping. (HHmm, HHmm)

GroupId (number): Identifier for the group the light belongs to. (0-255)

ZoneId (number): Identifier for the zone the light belongs to. (0-255)

Triggerers (array of strings): Keys of lights that can trigger this light.

Triggerees (array of strings): Keys of lights that this light can trigger.

layers (number): Render layer.

matrix (array of numbers): Transformation matrix (4x4) of the object.

geometry (string): Identifier for the type of geometry this object uses.

material (string): Identifier for the material used by this object.

**JSON Example**

**Example of a Light object**

{

"uuid": "339A9F4C-A982-4996-90BB-73325B103689",

"type": "Mesh",

"userData": {

"name": "1.3.156",

"key": "1.3.156",

"FWVersion": "1.0",

"selected": false,

"updateProgress": false,

"provisionProgress": false,

"lastHeard": "test",

"status": "Force\_On",

"pwm": 0,

"MotionSensing": "Enable",

"MotionSensitivity": 3,

"ClockSync": "Enable",

"Scheduling": "Enable",

"LightIntensity": 1,

"BrightLevel": 100,

"DimLevel": 100,

"MotionLevel": 100,

"HoldTime": 0,

"PhotosensorGroup": "0",

"BrightGroup": "0",

"GroupId": 255,

"ZoneId": 255,

"Triggerers": [],

"Triggerees": []

},

"layers": 1,

"matrix": [

0.35,

0,

0,

0,

0,

0.35,

0,

0,

0,

0,

0.35,

0,

6.05268,

0,

6.319984,

1

],

"geometry": "E331F73F-CEC2-436E-9A90-935C297A7E26",

"material": "98E9E560-C701-45B9-8358-86DBD77BE68E"

}