



A-FRAME

WebVR Workshop

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WHAT IS A-FRAME?

A-Frame is a web framework for building virtual reality (VR) experiences

GETTING STARTED

A-Frame can be developed from a plain HTML file without having to install anything

<https://bit.ly/2C0aUQi>

Visual Inspector

A-Frame provides a handy built-in visual 3d inspector. Open it up by pressing:

<ctrl>

+

<alt>

+

i

Or the <option> key on Macs

INSTALLATION

Installing the JS Build

To include A-Frame in an HTML file, we drop a **<script>** tag pointing to the CDN build

```
<head>  
<script src="https://aframe.io/releases/0.8.0/aframe.min.js"></script>  
</head>
```

HTML

```
<a-scene>  
<a-box position="1 0 1" rotation="90 0 45" color="#ff00ff"></a-box>  
</a-scene>
```

Opening Tag

HTML Attribute Name

HTML Attribute Value

Closing Tag

PRIMITIVES

A-Frame provides a handful of elements such as **<a-box>** or **<a-sky>** called ***primitives*** that wrap the entity component pattern to make it appealing for beginners.

<a-box>
<a-camera>
<a-circle>
<a-cone>
<a-cursor>
<a-curvedimage>
<a-cylinder>
<a-dodecahedron>
<a-gltf-model>

<a-icosahedron>
<a-image>
<a-light>
<a-link>
<a-obj-model>
<a-octahedron>
<a-plane>
<a-ring>
<a-sky>

<a-sound>
<a-sphere>
<a-tetrahedron>
<a-text>
<a-torus-knot>
<a-torus>
<a-triangle>
<a-video>
<a-videosphere>

ATTRIBUTES

Every component will have base properties. You can edit these properties using attributes.

Examples

position
rotation
color
width
height

CREATING YOUR OWN SCENE

The primitives we'll be using:

<a-scene>

<a-camera>

<a-cursor>

<a-box>

<a-cylinder>

<a-torus>

<a-plane>

<a-sky>

SET UP

```
<html>
<head>
  <title></title>
  <script src="https://aframe.io/releases/0.8.0/aframe.min.js"></script>
</head>

<body>
  <a-scene>
  </a-scene>
</body>

</html>
```

A-BOX

The box primitive creates shapes such as boxes, cubes, or walls.

Example

```
<a-box position="0 -2 -2" color="red"></a-box>
```

Attributes

```
color="#ff0000"  
depth="5"  
height="5"  
width="5"  
position="0 0 0"  
rotation="0 0 0"
```

A-SKY

The sky primitive adds a background colour to a scene. A sky is a large sphere with a colour mapped to the inside.

Example

```
<a-sky color="blue"></a-box>
```

Attributes

```
color="#0000ff"  
opacity="0.5"
```

A-CAMERA

The camera primitive determines what the user sees. We can change the viewport by modifying the camera entity's position and rotation.

Example

```
<a-camera position="0 0 0"></a-camera>
```

A-CURSOR

The cursor primitive is a reticle that allows for clicking and basic interactivity with a scene on devices that do not have a hand controller.

Example

```
<a-camera>  
  <a-cursor></a-cursor>  
</a-camera>
```

Attributes

ADDING INTERACTIVITY/ANIMATIONS

A-ANIMATION

```
<a-cursor cursor="fuse: true" raycaster="objects: .clickable"
position="0 0 -1" geometry="primitive: ring; radiusInner: 0.05;
radiusOuter: 0.06" material="color: #ffffff; shader: flat">
  <a-animation begin="click" easing="ease-in" attribute="scale"
fill="forwards" from="0.2 0.2 0.2" to="1 1 1" dur="150"></a-
animation>
  <a-animation begin="fusing" easing="ease-in" attribute="scale"
fill="backwards" from="1 1 1" to="0.2 0.2 0.2" dur="1500"></a-
animation>
</a-cursor>

<a-box class="clickable" color="red" position="0 0 -2">
  <a-animation begin="click" attribute="position" from="" to="0 0 -10"
dur="200" fill="both"></a-animation>
</a-box>
```


RAYCASTER

```
<a-cursor cursor="fuse: true" raycaster="objects: .clickable"  
position="0 0 -1" geometry="primitive: ring; radiusInner: 0.05;  
radiusOuter: 0.06" material="color: #ffffff; shader: flat">
```

Explanation

`raycaster="objects: .clickable"`

The animations and clicking will happen on objects with the class **clickable**.

LOADING YOUR OWN MODELS

A-ASSETS

```
<a-assets>
  <a-asset-item id="model" src="models/boxmodel.dae"></a-asset-item>
</a-assets>

<a-collada-model src="#model" position="0 0 -5" scale="0.5 0.5 0.5"></a-collada-model>
```

You can also load obj or gltf models by using:

```
<a-gltf-model>
<a-obj-model>
```

JAVASCRIPT

EVENT LISTENER

```
<script>

var myModelBox = document.querySelector("#modelBox");
var mySphere = document.querySelector("#mySphere");

myModelBox.addEventListener("click",
    function() {
        mySphere.setAttribute('visible', false);
    });

</script>
```

TIMEOUT

```
<script>

var myModelBox = document.querySelector("#modelBox");
var mySphere = document.querySelector("#mySphere");

myModelBox.addEventListener("click",
  function() {
    mySphere.setAttribute('visible', false);

    setTimeout(function() {
      mySphere.setAttribute('visible', true);

    }, 2000);
  });

</script>
```

EMIT ANIMATION

```
<a-collada-model src="#boxModel" position="-2 1 -3" id="modelBox"  
class="clickable"></a-collada-model>
```

```
<a-collada-model src="#sphereModel" position="1 1 -3" id="mySphere"  
id="mySphere">  
  <a-animation begin="move" easing="ease-in" attribute="position"  
    fill="forwards" from="" to="1 1 -5" dur="200"></a-animation>  
</a-collada-model>
```

EMIT ANIMATION

```
<script>

var myModelBox = document.querySelector("#modelBox");
var mySphere = document.querySelector("#mySphere");

myModelBox.addEventListener("click",
  function() {
    mySphere.emit('move');
  });

</script>
```


LINK TRAVERSAL

A-LINK

```
<a-link href="start.html" class="clickable" title="Next Page"  
position="-1.5 0 -5"></a-link>
```

FOR MORE INFORMATION

<https://aframe.io/>