Using the Engine Standalone

It is possible to build applications on the PlayCanvas Engine without using the Editor. Some examples of applications built directly against the Engine are:

- glTF Viewer [GitHub]
- SuperSplat [GitHub]
- ...and, of course, the PlayCanvas Editor itself!

This page guides you in how to get started.

> **NOTE**
>
> Before you begin, ensure you have Node.js installed.

When setting up your project, there are two main options to consider.

Option 1: Build Tool and NPM

This is the recommended set up that should suit most developers.

A build tool can bundle your application into an optimized package that can run on a wide range of browsers. There are many build tools such as webpack, Rollup and esbuild, and PlayCanvas will work with all of them. Here, we will use Vite, a popular build tool that aims to provide a faster and leaner development experience for modern web projects.

First, select whether you prefer to develop in JavaScript or TypeScript:

JavaScript TypeScript

1. Open a Terminal/Command Prompt, create a folder for your app and `cd` inside it.
2. Install `playcanvas` and `vite`:

```
npm install playcanvas vite --save-dev
```

3. Create an `index.html` and paste this:

index.html

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <style>
            body { margin: 0; overflow: hidden; }
        </style>
    </head>
    <body>
        <script type="module" src="main.js"></script>
        <canvas id='application'></canvas>
    </body>
</html>
```

4. Create a `main.js` and paste this:

main.js

```
import * as pc from 'playcanvas';

// create an application
const canvas = document.getElementById('application');
const app = new pc.Application(canvas);
app.setCanvasResolution(pc.RESOLUTION_AUTO);
app.setCanvasFillMode(pc.FILLMODE_FILL_WINDOW);
app.start();

// create a camera
const camera = new pc.Entity();
camera.addComponent('camera', {
    clearColor: new pc.Color(0.3, 0.3, 0.7)
});
camera.setPosition(0, 0, 3);
app.root.addChild(camera);

// create a light
const light = new pc.Entity();
```

```
light.addComponent('light');
light.setEulerAngles(45, 45, 0);
app.root.addChild(light);

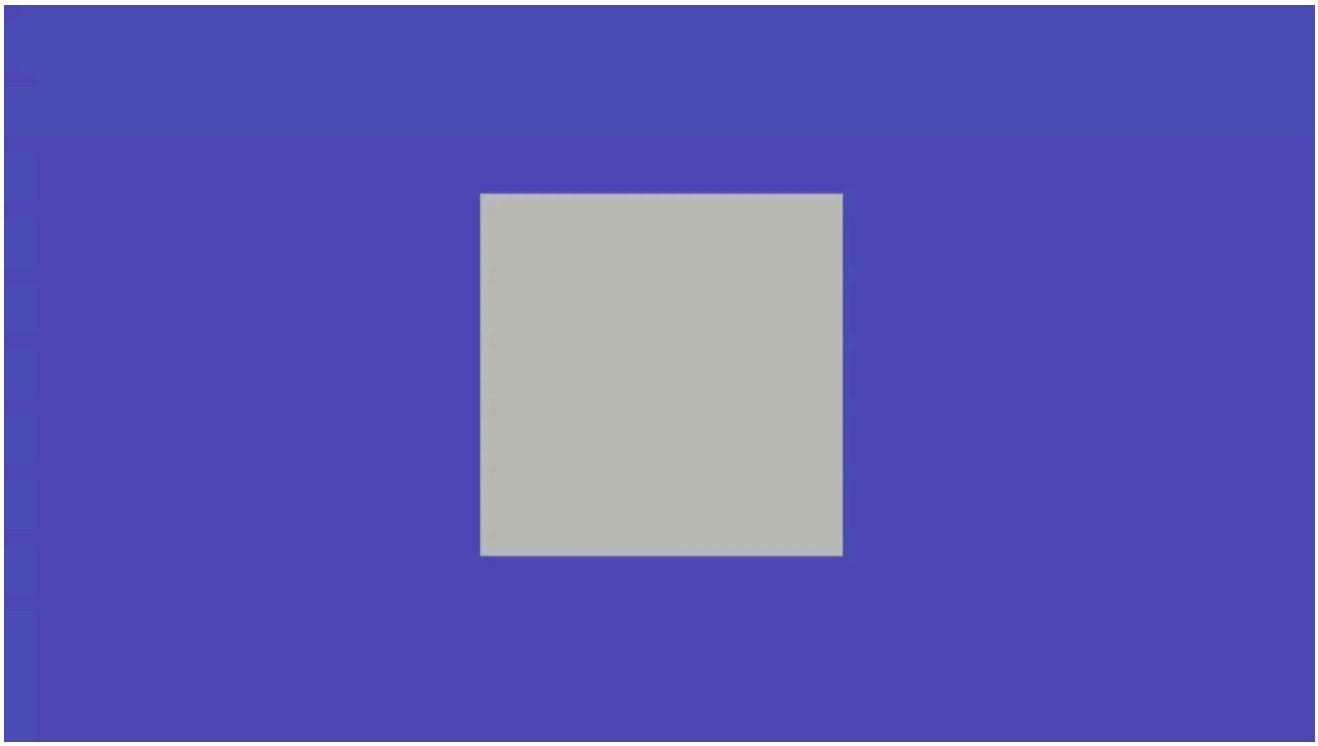
// create a box
const box = new pc.Entity();
box.addComponent('model', {
    type: 'box'
});
app.root.addChild(box);

// rotate the box
app.on('update', (dt) => box.rotate(10 * dt, 20 * dt, 30 * dt));
```

5. Run the Vite development server:

```
npx vite
```

This starts a server at `http://localhost:5173`. Visit this URL in your browser and you will see the following:



> **TIP**
>
> Every time you save your source files, the tab will reload automatically.

Option 2: Import Map and CDN

An import map can resolve module specifiers in JavaScript modules. Consider this import statement:

```
import * as pc from 'playcanvas';
```

An import map can resolve `playcanvas` to a CDN-hosted build of the engine that can be dynamically loaded by the browser. This means that we can skip the build step described in Option 1.

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JavaScript **TypeScript**

1. Open a Terminal/Command Prompt, create a folder for your app and `cd` inside it.
2. Create an `index.html` and paste this:

index.html

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <style>
            body { margin: 0; overflow: hidden; }
        </style>
        <script type="importmap">
        {
            "imports": {
                "playcanvas":
"https://cdn.jsdelivr.net/npm/playcanvas"
            }
        }
        </script>
    </head>
    <body>
        <script type="module" src="main.js"></script>
        <canvas id='application'></canvas>
```

```
    </body>
</html>
```

3. Create a `main.js` and paste this:

main.js

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app.root.addChild(light);

// create a box
const box = new pc.Entity();
box.addComponent('model', {
    type: 'box'
});
app.root.addChild(box);

// rotate the box
app.on('update', (dt) => box.rotate(10 * dt, 20 * dt, 30 * dt));
```

4. Run `serve`:

```
npx serve
```

This starts a server at `http://localhost:3000`. Visit this URL in your browser and you will see the following:

Edit this page