Implementing Dark Mode in a React App with CSS Properties

August 05, 2020

react typescript

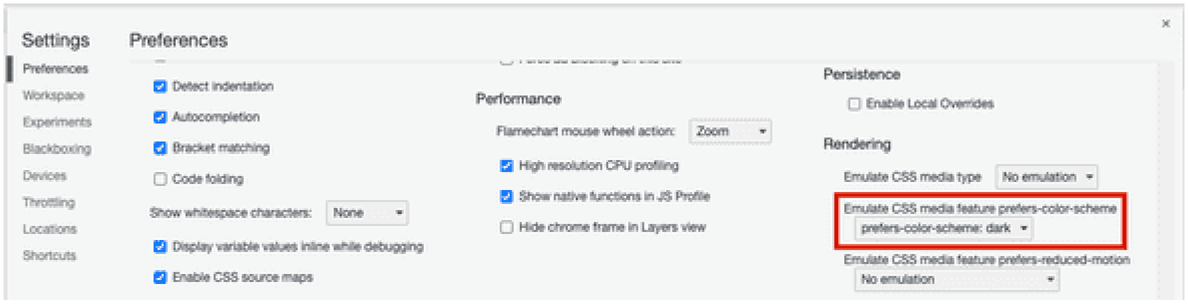
Dark mode is a feature that allows users to choose a dark color scheme and is supported in macOS, iOS, Android, and Windows 10. In this post, we will cover how dark mode support can be added to a React app with the help of CSS properties.

Getting the preferred color scheme from the OS

The users preferred colour scheme from the OS is held within the `prefers-color-scheme` CSS media feature. We can get the value of this using a `matchMedia` method on the `Window` object in JavaScript:

```
const darkOS = window.matchMedia(
  "(prefers-color-scheme: dark)"
  ).matches;
```

To test this in Chrome, we can set `prefers-color-scheme` in DevTools. We find this in the **Settings > Preferences** section.



- ✓ Detect indentation
- ✓ Autocompletion
- ✓ Bracket matching
- ☐ Code folding
- Show whitespace characters: None
- ✓ Display variable values inline while debugging
- ✓ Enable CSS source maps

Performance

- Flamechart mouse wheel action: Zoom
- ✓ High resolution CPU profiling
- ✓ Show native functions in JS Profile
- ☐ Hide chrome frame in Layers view

Persistence

- ☐ Enable Local Overrides

Rendering

- Emulate CSS media type: No emulation
- Emulate CSS media feature prefers-color-scheme: prefers-color-scheme: dark
- Emulate CSS media feature prefers-reduced-motion: No emulation

Holding the theme in React context

We will use React context to hold the current theme (light or dark) and allow any component to consume this. The theme context will also enable the theme to be set to a different value than the OS color scheme.

Let's start by creating the context:

```
type ThemeName = "light" | "dark";
type ThemeContextType = {
  theme: ThemeName;
  setTheme: (name: ThemeName) => void;
};
const ThemeContext = React.createContext<
  ThemeContextType
>(undefined!);
```

We are using a TypeScript union type to enforce that the theme name can be only `"light"` or `"dark"`.

We can then create a provider component for this context that components can consume:

```
type Props = {
  children: React.ReactNode,
};
export const ThemeProvider = ({
  children,
}: Props) => {
  const [themeName, setThemeName] =
    React.useState<ThemeName>("light");

  React.useEffect(() => {
    const darkOS = window.matchMedia(
      "(prefers-color-scheme: dark)"
    ).matches;
    setTheme(darkOS ? "dark" : "light");
  }, []);

  const setTheme = (name: ThemeName) => {
    setThemeName(name);
  };
  return (
    <ThemeContext.Provider
      value={{ theme: themeName, setTheme }}
    >
      {children}
    </ThemeContext.Provider>
  );
};
```

We store the theme name in state. We use a `useEffect` hook after the initial render, to set the initial theme to the color scheme from the OS.

We can also create a custom hook to get and set the theme name:

```
export const useTheme = () =>
  React.useContext(ThemeContext);
```

`ThemeProvider` can then be wrapped around components that need to access the theme:

```
export default function App() {
  return (
    <ThemeProvider>
      <Page />
    </ThemeProvider>
  );
}
```

The `useTheme` hook can be used within a component to access and set the theme name:

```
const Page = () => {
  const { theme, setTheme } = useTheme();
  return (
    <div>
      <h1>{theme}</h1>
      <button
        onClick={() =>
          setTheme(
            theme === "dark" ? "light" : "dark"
          )
        }
      >
        {theme === "dark"
          ? "Switch to light mode"
          : "switch to dark mode"}
      </button>
    </div>
  );
};
```

Using CSS properties for colors

CSS Properties allow CSS to be based on dynamic variables that can be changed at runtime. They are sometimes called CSS variables.

We define the CSS properties in the `:root` pseudo-class. This is the root element of a tree representing the document.

```
:root {
  --background-color: #fefefe;
  --color: #343434;
}
```

We have initialized these values to light mode colors.

We can then reference these CSS properties in other CSS class definitions using the `var` function:

```
body {
  background-color: var(--background-color);
  color: var(--color);
}
```

Setting a CSS property in a React component

We can hold the colours for the themes in an object literal:

```
const themeColours = {
  light: {
    color: "#343434",
    backgroundColor: "#fefefe",
  },
  dark: {
    color: "#fff",
    backgroundColor: "#3f3f3f",
  },
};
```

In the theme context provider we can set the CSS property values using the `setProperty` method on the style as follows:

```
const setTheme = (name: ThemeName) => {
  document.body.style.setProperty(
    "--color",
    themeColours[name].color
  );
  document.body.style.setProperty(
    "--background-color",
    themeColours[name].backgroundColor
  );
  setThemeName(name);
};
```

That completes all the key parts of implementing dark mode in a React app.

A working example of the code in this post is available in CodeSandbox at https://codesandbox.io/s/dark-mode-on6gi.

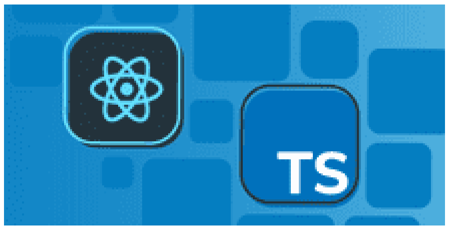
Did you find this post useful?

Let me know by sharing it on Twitter.

Click here to share this post on Twitter

If you to learn more about using TypeScript with React, you may find my course useful:

Using TypeScript with React



Find out more

You might find some of my other posts interesting:
A look at React Router 6
Typed useState with TypeScript

- Formatting dates and numbers in React
- Dropdown data binding with React hooks
- Managing app state with Redux and TypeScript
- Why TypeScript with React?

← When to use Type Aliases or Interfaces in TypeScript

Repeating an element n times in React →

Want more content like this?

Subscribe to receive notifications on new blog posts and courses

Email Required

First Name

Subscribe