

# Declarative Shadow DOM

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# Motivation

1. Allow Shadow DOM in “No-JS” environments:
  - a. Server Side Rendering (for page load speed)
  - b. Search Engine Optimization (Indexable content without JS)
  - c. CSS development environments or design systems that prohibit JS
2. Ergonomics:
  - a. Allow direct/easy style scoping without resorting to JS
  - b. Allow developers to build HTML markup that properly represents the final structure
3. Serialization:
  - a. Currently `myComponent.innerHTML` does not return the contents of shadow roots

# Basic Proposal

`<template shadowroot="open">` forms a declarative Shadow Root:

HTML	DOM
<pre>&lt;host-element&gt;   &lt;template shadowroot="open"&gt;     &lt;style&gt;&lt;/style&gt;     &lt;h2&gt;Shadow Content&lt;/h2&gt;     &lt;slot&gt;&lt;/slot&gt;   &lt;/template&gt;    &lt;h2&gt;Light content&lt;/h2&gt; &lt;/host-element&gt;</pre>	<pre>&lt;host-element&gt;   #shadow-root (open)   &lt;style&gt;&lt;/style&gt;   &lt;h2&gt;Shadow Content&lt;/h2&gt;   &lt;slot&gt;     ↳ &lt;h2&gt; reveal   &lt;/slot&gt;   &lt;h2&gt;Light content&lt;/h2&gt; &lt;/host-element&gt;</pre>

And for serialization:

```
const html = element.getInnerHTML({ includeShadowRoots: true });
```

# Contentious points

- **Do we need to solve this problem at all?** Maybe we should do declarative Custom Elements first/instead. Maybe nobody wants this feature.
- **What to do about styles / adoptedStyleSheets?**
- **<template shadowroot> vs <shadowroot> vs. <my-comp shadow=#idref>.**
- **How should component authors implement hydration?** How to figure out whether declarative content is present and matches component expectations?
- **So this is parser-only?** I.e. shouldn't a shadow root be created if I add a 'shadowroot' attribute to a <template> node?

# Contentious points

- **Do we need to solve this problem at all?** Maybe we should do declarative Custom Elements first/instead. Maybe nobody wants this feature. **My opinion:** this is a worthwhile problem to solve, now. People want it. [[explainer](#)]
- **What to do about styles / adoptedStyleSheets?** **My opinion:** for now, use inline `<style>` elements, which will be serialized. Separately, we can figure out an incremental adoptedStyleSheets solution. [see point #3 [here](#), and [this comment](#)]
- **`<template shadowroot>` vs `<shadowroot>` vs. `<my-comp shadow=#idref>`.** **My opinion:** the `<template shadowroot>` solution is the most practical. [[explainer](#)]
- **How should component authors implement hydration?** How to figure out whether declarative content is present and matches component expectations? **My opinion:** this is outside the scope of this proposal. That's best left to component authors to figure out. [see [this comment](#)]
- **So this is parser-only?** I.e. shouldn't a shadow root be created if I add a 'shadowroot' attribute to a `<template>` node? **My opinion:** no. That will complicate the implementation, and for no benefit. There is already an imperative `attachShadow()` method - use that.

# Links

Explainer is [here](#).

WhatWG issue #831 discussion is [here](#).

Simple example code is [here](#).

Non-simple example code is [here](#).

This feature is available to test in Chromium 82+ with the <chrome://flags/#enable-experimental-web-platform-features> flag enabled.