stencil

The magical, reusable web component compiler

Web Component ?

Plaît-il ?

Web Component

```
A set of web platform APIs that allow you to create new custom, reusable,
encapsulated HTML tags to use in web pages and web apps...

...will work across modern browsers, and can be used with
any JavaScript library or framework that works with HTML.
```

1ère notion de Web Component en 2011

```
<whoop-whoop></whoop-whoop>
```

Concepts

- Custom Element API
- Shadow DOM
- HTML imports
- HTML Template

```
<template>
  <p>Hello <strong></strong></p>
</template>

<script>
(function(window, document, undefined) {

    var thatDoc = document;
    var thisDoc =  (thatDoc._currentScript || thatDoc.currentScript).ownerDocument;

    var template = thisDoc.querySelector('template').content;

    var MyElementProto = Object.create(HTMLElement.prototype); // Custom Element API
    MyElementProto.who = 'World';

    MyElementProto.createdCallback = function() { // Custom Element API
        var shadowRoot = this.createShadowRoot();
        var clone = thatDoc.importNode(template, true);
        shadowRoot.appendChild(clone);
        this.strong = shadowRoot.querySelector('strong');
        if (this.hasAttribute('who')) {
            var who = this.getAttribute('who');
            this.setWho(who);
        }
        else {
            this.setWho(this.who);
        }
    };
    MyElementProto.attributeChangedCallback = function(attr, oldVal, newVal) { // Custom Element API
        if (attr === 'who') {
            this.setWho(newVal);
        }
    };
    MyElementProto.setWho = function(val) {
        this.who = val;
        this.strong.textContent = this.who;
    };

    window.MyElement = thatDoc.registerElement('hello-world', { // Custom Element API
        prototype: MyElementProto
    });
})(window, document);
</script>
```

```
<template>
  <p>Hello <strong></strong></p>
</template>

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(function(window, document, undefined) {

    var thatDoc = document;
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        var shadowRoot = this.createShadowRoot(); // Shadow DOM
        var clone = thatDoc.importNode(template, true);
        shadowRoot.appendChild(clone);
        this.strong = shadowRoot.querySelector('strong');
        if (this.hasAttribute('who')) {
            var who = this.getAttribute('who');
            this.setWho(who);
        }
        else {
            this.setWho(this.who);
        }
    };
    MyElementProto.attributeChangedCallback = function(attr, oldVal, newVal) {
        if (attr === 'who') {
            this.setWho(newVal);
        }
    };
    MyElementProto.setWho = function(val) {
        this.who = val;
        this.strong.textContent = this.who;
    };

    window.MyElement = thatDoc.registerElement('hello-world', {
        prototype: MyElementProto
    });
})(window, document);
</script>
```

```
<template> <!-- HTML Template -->
  <p>Hello <strong></strong></p>
</template>

<script>
(function(window, document, undefined) {

    var thatDoc = document;
    var thisDoc =  (thatDoc._currentScript || thatDoc.currentScript).ownerDocument;

    var template = thisDoc.querySelector('template').content; // HTML Template

    var MyElementProto = Object.create(HTMLElement.prototype);
    MyElementProto.who = 'World';

    MyElementProto.createdCallback = function() {
        var shadowRoot = this.createShadowRoot();
        var clone = thatDoc.importNode(template, true); // HTML Template
        shadowRoot.appendChild(clone); // HTML Template
        this.strong = shadowRoot.querySelector('strong'); // HTML Template
        if (this.hasAttribute('who')) {
            var who = this.getAttribute('who');
            this.setWho(who);
        }
        else {
            this.setWho(this.who);
        }
    };
    MyElementProto.attributeChangedCallback = function(attr, oldVal, newVal) {
        if (attr === 'who') {
            this.setWho(newVal);
        }
    };
    MyElementProto.setWho = function(val) {
        this.who = val;
        this.strong.textContent = this.who; // HTML Template
    };

    window.MyElement = thatDoc.registerElement('hello-world', {
        prototype: MyElementProto
    });
})(window, document);
</script>
```

et stencil ?

The magical, reusable web component *compiler*

https://stenciljs.com

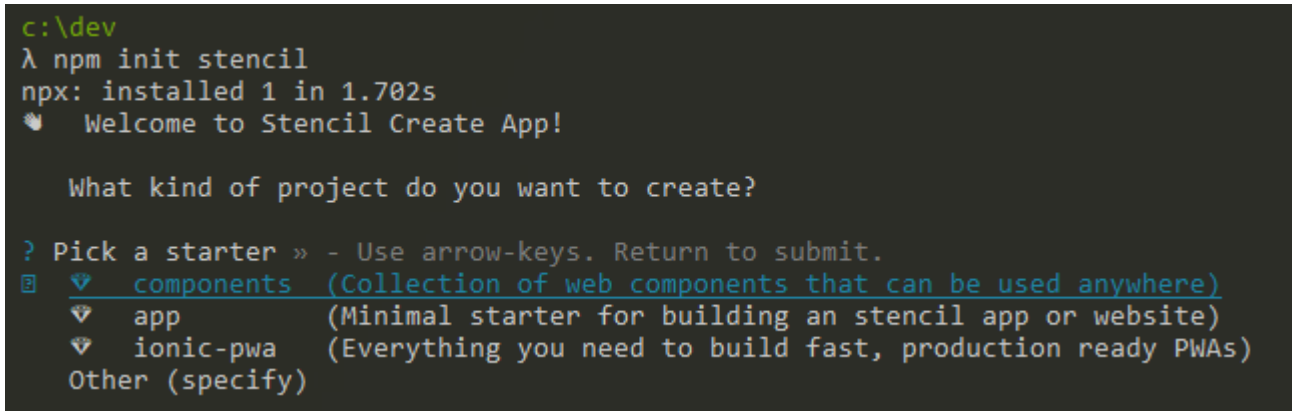
```
import { Component, Prop } from '@stencil/core';

@Component({
  tag: 'hello-world',
  styleUrl: 'hello-world.scss'
})
export class HelloWorldComponent {

  @Prop() who: string;

  render() {
    return (
      <p>
        Hello {this.who}
      </p>
    );
  }
}
```

Quels intérêts ?

Quels intérêts ?

- Syntaxe légère
- Polyfills chargés dynamiquement
- Prerendering
- Server Side Rendering
- Service Workers (Progressive Web App)
- Facilités de dévelopement (livereload, test unitaire, distribution ...)

Getting started



Grrr

Waouf

Questions ?

Web component

```
class TodoItem extends HTMLElement {
    constructor() {
        super();
        this._root = this.attachShadow({ 'mode': 'open' });
        this._checked = false;
        this._text = '';
    }
    connectedCallback() {
        this._root.innerHTML = `
            <style>…
            </style>
            <li class="item">
                <input type="checkbox">
                <label></label>
                <button class="destroy">x</button>
            </li>
        `
        this.$item = this._root.querySelector('.item');
        this.$removeButton = this._root.querySelector('.destroy');
        this.$text = this._root.querySelector('label');
        this.$checkbox = this._root.querySelector('input');
        this.$removeButton.addEventListener('click', (e) => {
            e.preventDefault();
            this.dispatchEvent(new CustomEvent('onRemove', { detail:
            this.index }));
        });
        this.$checkbox.addEventListener('click', (e) => {
            e.preventDefault();
            this.dispatchEvent(new CustomEvent('onToggle', { detail:
            this.index }));
        });
        this._render();
    }
    disconnectedCallback() {}
    static get observedAttributes() {
        return ['text'];
    }
    attributeChangedCallback(name, oldValue, newValue) {
        this._text = newValue;
    }
    set index(value) {
        this._index = value;
    }
    get index() {
        return this._index;
    }
    set checked(value) {
        this._checked = Boolean(value);
    }
    get checked() {
        return this.hasAttribute('checked');
    }
    _render() {
        if (!this.$item) return;
        this.$text.textContent = this._text;
        if (this._checked) {
            this.$item.classList.add('completed');
            this.$checkbox.setAttribute('checked', '');
        } else {
            this.$item.classList.remove('completed');
            this.$checkbox.removeAttribute('checked');
        }

    }
}

window.customElements.define('todo-item', TodoItem);
```

Polymer 2

```
<link rel="import"
href="../../bower_components/polymer/polymer-element.html">

<dom-module id="todo-item">
  <template>
    <style>…
    </style>
    <li class$="item [[isCompleted(checked)]]">
      <input type="checkbox" value="{{checked}}" checked="{
      {checked::change}}">
      <label>{{text}}</label>
      <button class="destroy" on-click="handleOnRemove">x</button>
    </li>
  </template>

  <script>
    class TodoItem extends Polymer.Element {
      static get is() { return 'todo-item'; }
      static get properties() {
        return {
          checked: {
            type: Boolean,
            value: false
          },
          index: {
            type: Number,
          },
          text: {
            type: String,
            value: ''
          }
        };
      }
      handleOnRemove(e) {
        this.dispatchEvent(new CustomEvent('remove', { detail: this.index }
        ));
      }
      handleOnChecked(e) {
        this.dispatchEvent(new CustomEvent('toggle', { detail: this.index }
        ));
      }
      isCompleted(completed) {
        return completed ? 'completed' : '';
      }
    }

    window.customElements.define(TodoItem.is, TodoItem);
  </script>
</dom-module>
```

Angular Elements

```
import { Component, EventEmitter, Input, Output, ViewEncapsulation }
from '@angular/core';

@Component({
    selector: 'todo-item',
    template: `
    <li class="item" [class.completed]="checked">
        <input type="checkbox" [checked]="checked" (change)
        ="handleOnChecked()">
        <label>{{text}}</label>
        <button class="destroy" (click)="handleOnRemove()">x</button>
    </li>
    `,
    styles: [`…
    `],
    encapsulation: ViewEncapsulation.Native
})
export class TodoItem {
    @Input() checked: boolean;
    @Input() text: string;
    @Input() index: number;
    @Output() onTodoItemChecked = new EventEmitter<number>();
    @Output() onTodoItemRemove = new EventEmitter<number>();

    handleOnRemove = () => this.onTodoItemRemove.emit(this.index);
    handleOnChecked = () => this.onTodoItemChecked.emit(this.index);
}
```

Vue-wrapper

```
<template>
  <li :class="['item', {'completed':checked}]">
    <input type="checkbox" :checked="checked" @click="handleOnToggle" />
    <label>{{text}}</label>
    <button class="destroy" @click="handleOnRemove">x</button>
  </li>
</template>

<script>
module.exports = {
  name: 'TodoItem',
  props: ['index', 'text', 'checked'],
  methods: {
    handleOnRemove() {
      this.$emit('onremove', this.index);
    },
    handleOnToggle() {
      this.$emit('ontoggle', this.index);
    },
  },
};
</script>
```

StencilJS

```
import { Component, Prop, Event, EventEmitter } from
'@stencil/core';

@Component({
  tag: 'todo-item',
  styleUrl: 'todo-item.scss',
  shadow: true,
})
export class TodoItem {
  @Prop() checked: boolean;
  @Prop() text: string;
  @Prop() index: number;
  @Event() onTodoItemChecked: EventEmitter;
  @Event() onTodoItemRemove: EventEmitter;

  handleOnRemove = () => this.onTodoItemRemove.emit(this.index);
  handleOnChecked = () => this.onTodoItemChecked.emit(this.index);

  render() {
    return (
      <li class={this.checked ? 'completed' : ''}>
        <input type="checkbox" checked={this.checked} onChange=
        {this.handleOnChecked} />
        <label>{this.text}</label>
        <button onClick={this.handleOnRemove}>x</button>
      </li>
    );
  }
}
```

SkateJS + Preact

```
// @jsx h
import { props } from "skatejs/dist/esnext";
import { h } from "preact";
import { Component } from "./util";

export default class extends Component {
  static events = ["check", "remove"];
  static props = {
    checked: props.boolean,
    index: props.number
  };

  handleCheck = e => {
    this.onCheck({ index: this.index, value: e.target.checked });
  };
  handleRemove = () => {
    this.onRemove({ index: this.index });
  };

  render({ checked, handleCheck, handleRemove }) {
    return (
      <div>
        <style>{`…
        `}</style>
        <li class={checked ? "completed" : ""}>
          <input type="checkbox" checked={checked} onChange={handleCheck} />
          <label>
            <slot />
          </label>
          <button onClick={handleRemove}>x</button>
        </li>
      </div>
    );
  }
}
```

SkateJS + lit-html

```
import { props } from "skatejs/dist/esnext";
import { html } from "lit-html/lib/lit-extended";
import { Component } from "./util";

export default class extends Component {
  static events = ["check", "remove"];
  static props = {
    checked: props.boolean,
    index: props.number
  };

  handleCheck = e => {
    this.onCheck({ index: this.index, value: e.target.checked });
  };
  handleRemove = () => {
    this.onRemove({ index: this.index });
  };

  render({ checked, handleCheck, handleRemove }) {
    return html`
      <style>…
      </style>
      <li class="${checked ? "completed" : ""}">
        <input type="checkbox" checked="${checked}" on-change="${handleCh
        <label>
          <slot></slot>
        </label>
        <button on-click="${handleRemove}">x</button>
      </li>
    `;
  }
}
```