



Custom Elements

Cory House
bitnative.com
Twitter: @housecor



pluralsight 
hardcore developer training

Our Markup Isn't Descriptive

Google

Gmail

COMPOSE

Inbox (7)

Important

More labels

Primary Social Promotions Updates

me, Steve (4) SDEC14 - No problem - you can look for Doc's keynote on InfoQ.com/sdec in late December or early in the Aug 15

td.apU.xY 24px x 39px Latest Fiddler ebook draft - Thanks Eric! I just watched the first half of your talk at the Austin User Group. Super! Alr Aug 15

Matthew, me (2) Follow-up from That Conference - This is fascinating reading. Thanks so much Matt. I really appreciate you taking the Aug 14

Elements Network Sources Timeline Profiles Resources Audits Console

```
<div class="aKh aPb">...</div>
<div></div>
<div class="aKB afn"></div>
<div class="UI" gh="tl">
  <div class="aDP">
    <div class="ae4 aDM" id=":2n" role="tabpanel" aria-labelledby=":3c">
      <div class="Cp">
        <div>
          <table cellpadding="0" id=":3x" class="F cf zt">
            <colgroup>...</colgroup>
            <tbody>
              <tr class="ZA yO x7" id=":3y" tabindex="0" aria-labelledby=":3z">
                <td class="PF xY PE"></td>
                <td id=":40" class="oZ-x3 xY" style=...</td>
                <td class="apU xY">...</td>
                <td class="WA xY">...</td>
                <td class="yX xY">...</td>
                <td id=":45" tabindex="-1" class="xY a4W">
                  <div class="xS" role="link">
                    <div class="xT">
                      <div class="y6">
                        <span id=":47">SDEC14</span>
                        <span class="y2">...</span>
                      </div>

```

html body div div div div div div div div div div #4 #2 div div div div #2r div div #3x tbody #3y #45 div.xS div.xT div.y6 span.y2

Styles Computed Event Listeners

element.style {

.x7 .y2 {

.y2 {

Inherited from div.y6

.yW, .y6, .xS, .as {

Inherited from div.xI

.xT {

Inherited from div.xS

.yW, .y6, .xS, .as {

Find in Styles

Home

Notifications

Discover

Me

Search Twitter

Notifications

Mentions

Trends

Notifications

All / People you follow

CoriDrew

CoriDrew favorited your Tweets

13m: Who knew there were so many great alternatives to jsFiddle? Here's some handy alternatives for UI hacking: buff.ly/1mURPxP

5 other favorites

Who to follow

Refresh · View all

Michael Dudley

@MichaelPD...

Followed by John MacIntyre ...

Follow

Patrick Stewart

@SirPatS...

Follow

Tim Barcz

@TimBarcz

Followed by CoriDrew and 41 others

Follow

Elements

Network

Sources

Timeline

Profiles

Resources

Audits

Console

```
<script id="swift_loading_indicator">...</script>
<div id="doc" class="route-connect">
  <div class="topbar js-topbar">...</div>
  <div id="page-outer">
    <div id="page-container" class="AppContent wrapper wrapper-connect white">
      ::before
      <div class="dashboard dashboard-left">...</div>
      <div id="trends_dialog" class="trends-dialog modal-container">...</div>
      <div role="main" aria-labelledby="content-main-heading" class="content-main light-inline-actions" id="timeline">
        <div class="content-header">...</div>
        <div class="stream-container" data-max-id="1408201106001" data-since-id="1408217458986">
          <div class="stream-item js-new-items-bar-container">...</div>
          <div class="stream connect-stream">
            <ol class="stream-items js-navigable-stream" id="stream-items-id">
              <li class="js-stream-item stream-item stream-item js-activity js-activity-favorite" data-item-id="500726211954618368" id="stream-item-activity-500726211954618368" data-item-type="activity" data-component-context="favorite_activity">
                ::before
                <div class="stream-item-content clearfix stream-item-activity stream-item-favorite stream-item-activity-me" data-activity-type="favorite" data-activity-min-position="1408206154935" data-activity-max-position="1408217458986" data-component-context="favorite_activity">
                  ::before
                  <div class="stream-item-activity-header">
                    <div class="activity-additional-info">...</div>
                    <div class="stream-item-activity-line js-actionable-user stream-item-activity-line-me">
                      <a class="pretty-link js-user-profile-link js-action-profile-name" href="/coridrew" data-user-id="17105277">...</a>
                        " favorited your Tweets
                    </div>
                  </div>
                </li>
              </ol>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
```

Styles

Computed

Event Listeners

```
element.style {
}

a, .btn-link, .btn-link:focus, .icon-btn,
.pretty-link b, .pretty-link:hover s,
.pretty-link:hover b, .pretty-link:focus s,
.pretty-link:focus b, .metadata a:hover,
.metadata a:focus, .account-group:hover,
.fullname, .account-group:focus .fullname,
.account-summary:focus .fullname, .message
.message-text a, .stats a strong, .plain-
btn:hover, .plain-btn:focus, .dropdown.open
.user-dropdown.plain-btn, .open > .plain-btn,
#global-actions.new:before, .module .list-
link:hover, .module .list-link:focus,
.UserCompletion-step:hover, .stats a:hover,
.stats a:hover strong, .stats a:focus, .stats
a:focus strong, .profile-modal-header
.fullname a:hover, .profile-modal-header
.username a:hover, .profile-modal-header
.fullname a:focus, .profile-modal-header
.username a:focus, .story-article:hover
.metadata, .story-article .metadata a:focus,
.find-friends-sources li:hover .source,
.stream-item a:hover .fullname, .stream-item
a:focus .fullname, .stream-item .view-all-
supplements:hover, .stream-item .view-all-
supplements:focus, .tweet .time a:hover,
```

... #page-container

#timeline

div

div

#stream-items-id

#stream-item-activity-500726211954618368

div

div

div

a.pretty-link.js-user-profile-link.js-action-profile-name

Find in Styles



Questions

Tags

Users

Badges

Unanswered

Ask Question

All Questions

newest

381

featured

frequent

votes

active

unanswered

7,833,061
questions

0

votes

Prestashop Module admin tab controller template

I'm creating module and have problems. How to add template to a module tab. Tab class is in

Elements Network Sources Timeline Profiles Resources Audits Console

```
<body class="questions-page new-topbar">
<noscript><div id="noscript-padding"></div></noscript>
<div id="notify-container"></div>
<div id="overlay-header"></div>
<div id="custom-header"></div>
<div class="topbar">...</div>
<script>
  StackExchange.ready(function () { StackExchange.topbar.init(); });
</script>
<div class="container">
  <div id="header">...</div>
  <div id="content">
    <div id="mainbar">
      <div class="subheader">...</div>
      <div id="questions">
        <div class="question-summary tagged-interesting" id="question-summary-25343359">
          <div class="statscontainer">...</div>
          <div class="summary">
            <h3>...</h3>
            <div class="excerpt">...</div>
            <div class="tags t-php t-templates t-module t-tabs t-prestashop">...</div>
            <div class="started fr">
              <div class="user-info">
                <div class="user-action-time">
                  asked "
                    <span title="2014-08-16 19:49:11Z" class="relativetime">2 mins ago</span>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
```

html body div #content #mainbar #questions #question-summary-25343359 div.summary div.started.fr div.user-info div.user-action-time span relativetime

≡ ⚙ 🖨 ✕

Styles Computed Event Listeners »

```
element.style {
}

.relativetime {
  all.css?v=102237e0a596:1
  font-weight: normal;
  text-decoration: none;
}
```

```
html, body, div,
span, applet, object, iframe, h1, h2, h3, h4,
h5, h6, p, blockquote, pre, a, abbr, acronym,
address, big, cite, code, del, dfn, em, font,
img, ins, kbd, q, s, samp, small, strike,
strong, sub, sup, tt, var, b, u, i, center,
dl, dt, dd, ol, ul, li, fieldset, form,
label, legend, table, caption, tbody, tfoot,
thead, tr, th, td {
  margin: 0;
  padding: 0;
  border: 0;
  font-size: 100%;
  vertical-align: baseline;
  background: transparent;
}
```

Inherited from div.user-action-time

```
html, body, div,
span, applet, object, iframe, h1, h2, h3, h4,
h5, h6, p, blockquote, pre, a, abbr, acronym,
address, big, cite, code, del, dfn, em, font,
```

Find in Styles

Problem: Undescriptive Markup

```
<div>
  My do list<br/>
  1. Take out trash<br/>
  2. Walk the dog<br/>
  3. Brush my teeth<br/>
</div>
```

Generic



```
<h1>My do list</h1>
<ol>
  <li>Take out trash</li>
  <li>Walk the dog</li>
  <li>Brush my teeth</li>
</ol>
```

Descriptive markup:

Conveys additional information

Improves SEO

Enhances accessibility

Speeds development

Aids Maintenance



ge·ner·ic

/jəˈnerik/ 

adjective

1. characteristic of or relating to a class or group of things; not specific.
"chèvre is a generic term for all goat's milk cheese"
synonyms: general, common, collective, nonspecific, inclusive, all-encompassing, broad, comprehensive, blanket, umbrella
"a generic classification for similar offenses"
2. BIOLOGY
of or relating to a genus.

noun

1. a consumer product having no brand name or registered trademark.
"substituting generics for brand-name drugs"



“ The HTML <div> element is the **generic** container for flow content, which **does not inherently represent anything**. It can be used to group elements for styling purposes...or because they share attribute values...It should be **used only when no other semantic element is appropriate**.

[Mozilla Developer Network](#)



“ The DIV and SPAN elements offer a **generic mechanism for adding structure to documents**. These elements define content to be inline (SPAN) or block-level (DIV) but impose no other presentational idioms on the content. Thus, authors may use these elements...to **tailor HTML to their own needs and tastes**.

W3C HTML 4.01 Specification



Which Would You Rather Read?

```
<div>
  <div>
    <div>
    </div>
    <div>
    </div>
  </div>
</div>
```

```
<forum-thread>
  <forum-comment>
    <user-avatar>
    </user-avatar>
    <user-comment>
    </user-comment>
  </forum-comment>
</forum-thread>
```



Which Would You Rather Read?

```
<div class="forum-thread">
  <div class="forum-comment">
    <div class="user-avatar">
    </div>
    <div class="user-comment">
    </div>
  </div>
</div>
```

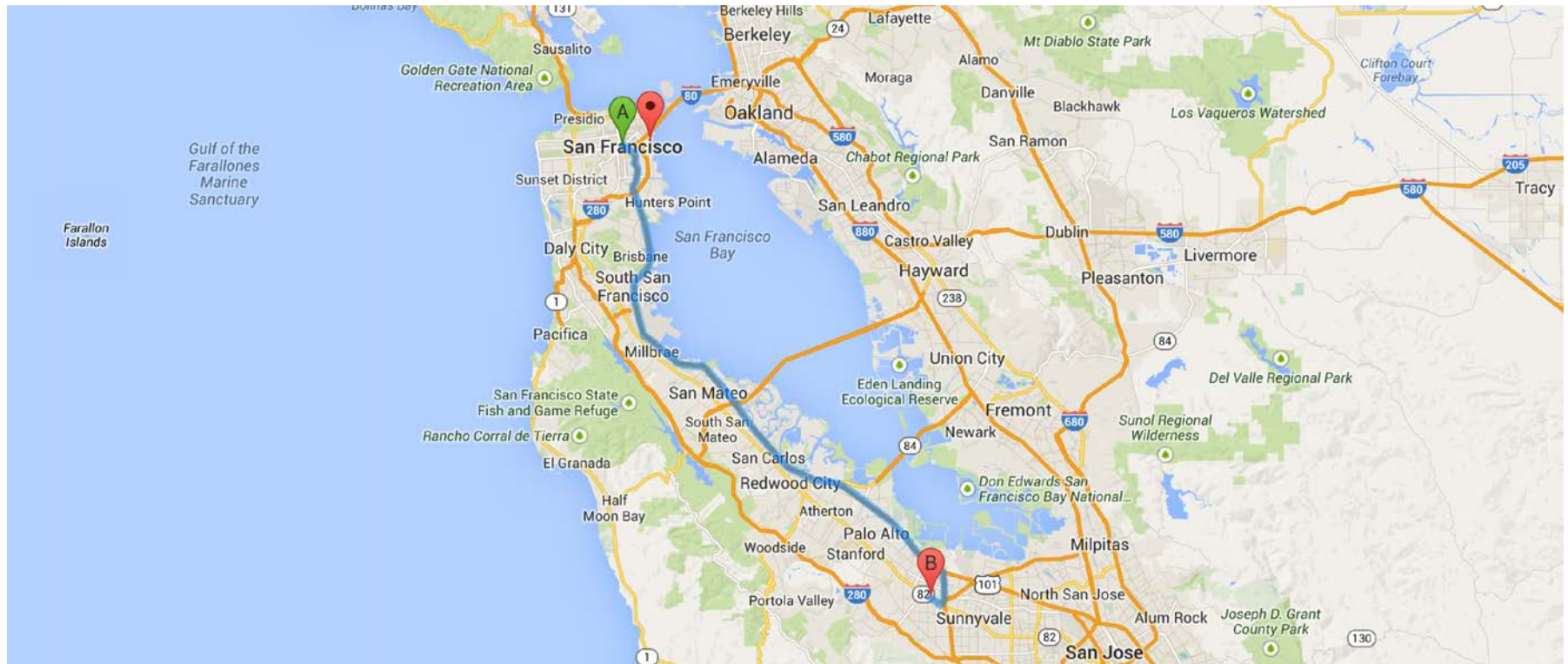
```
<forum-thread>
  <forum-comment>
    <user-avatar>
    </user-avatar>
    <user-comment>
    </user-comment>
  </forum-comment>
</forum-thread>
```

```
<div class="forum-thread">
  <div class="forum-comment">...</div>
</div>
```

```
<forum-thread>
  <forum-comment>...</forum-comment>
</forum-thread>
```



```
<google-map-directions startaddress="San Francisco" endaddress="Mountain View"></google-map-directions>
```





Custom Elements

1. Define your own HTML elements. Name must have a dash (-).

Valid	Invalid
<code><my-component></code>	<code><mycomponent></code>
<code><pluralsight-tab></code>	<code><tab_bar></code>
<code><billing-form></code>	<code><billingForm></code>

2. Extend existing elements

`<input type="text">`

`<input type="text" is="search">`



Registering Elements

1. Create a prototype

```
var SlickTabs = Object.create(HTMLElement.prototype);  
// Add properties and functions to prototype here.
```

2. Register the new element via registerElement

```
document.registerElement('slick-tabs');
```

3. Use it! (Add to DOM or place tag on page)

```
document.body.appendChild(new SlickTabs());
```



You Can Extend Custom Elements Too!

```
var XFooProto = Object.create(HTMLElement.prototype);
```

```
...
```

```
var XFooExtended = document.registerElement('x-foo-extended', {  
  prototype: XFooProto,  
  extends: 'x-foo'  
});
```



Four Ways To Instantiate

1. Markup

```
<pluralsight-comment />
```

2. new Operator

```
var comment = new PluralsightComment();
```

3. createElement

```
var comment = document.createElement('pluralsight-comment');
```

4. innerHTML

```
el.innerHTML = '<pluralsight-comment />';
```




Instantiating Custom Elements

Demonstration



Three Ways To Instantiate Extended

1. Declare in markup

```
<button is="super-button">
```

2. JavaScript

```
var button = document.createElement('button', 'super-button');
```

3. New Operator

```
document.body.appendChild(new SuperButton());
```



Instantiating Extended Custom Elements

Demonstration



Lifecycle Callback Methods

Method	Called when
createdCallback	Instance is created
attachedCallback	Instance inserted into DOM
detachedCallback	Instance removed from DOM
attributeChangedCallback	Attributes are added, removed, or updated.



Lifecycle Callback Methods

Demonstration



Namespacing Approaches

Prefix tag names with a unique namespace to avoid naming conflicts

<ps-contact-form>

<pluralsight-contact-form>

Namespace
Approaches

Company
Name

Brand
Name

Application
Name

GitHub
Username



Namespacing Approaches

1. Company Name

<twitter-tweet-button>

- + Popular
- + Supports cross-team reuse
- May get long
- May not be sufficiently unique – especially if abbreviated



Namespacing Approaches

3. Brand Name

`<kendoui-grid>`

- + Emphasizes Branding
- + Supports wide reuse
- May be too long or not be sufficiently unique



Namespacing Approaches

3. Application Name

<billme-grid>

- + Clarifies the scope
- + Encourage reuse within the application
- Discourages cross-company reuse if internal product name
- May be too long or not be sufficiently unique



Namespacing Approaches

4. GitHub Username

<mastercoder49-widget>

- + Easily searchable for support
- + Helps promote your role as author
- May be too short, too generic, or ugly to read
- Limited to single developer
- Tied to GitHub



Namespacing Approaches

Approach	Audience	Dev Team	Inferred Reusability
Company Name	Public or private	Company devs	Within company
Brand Name	Public	Product dev team	Everywhere
Application Name	Private	App dev team	Within app
GitHub username	Public	GitHub user	Everywhere



Other Approaches

1. X as a prefix

<x-gravatar>

2. Polyfill name

<polymer-gravatar>



Reserved Names

annotation-xml

color-profile

font-face

font-face-src

font-face-uri

font-face-format

font-face-name

missing-glyph

Source: <http://webcomponents.org/articles/how-should-i-name-my-element/>



Watch Out for Dated Specs

The `<element>` tag was removed from the spec.



Summary

Today's markup is highly generic

Custom Elements let us create our own HTML elements!

Use the Lifecycle callback methods

Namespace your elements