

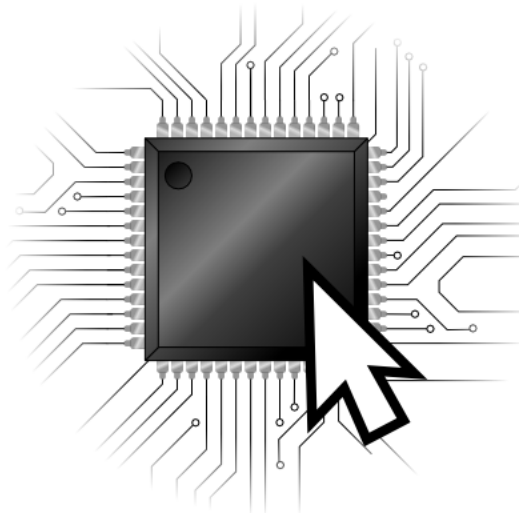
1clickBOM

A browser extension to fill your electronic component shopping carts.

better slides available at: 1clickBOM.com/fosdem15
notes available at: 1clickBOM.com/fosdem15/notes.html

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- Electronic design engineer and software developer
- C, C++, Python, Javascript, Haskell
- PCB Layout using KiCad
- Work as consultant



1clickBOM

A browser extension to fill your electronic component shopping carts.

1. What does it do?
2. How does it do it?
3. What might it do in the future?

What does it do?

video available [here](#)



Search by keyword, manufacturer part no. or RS part no.

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Newark 1 line 1 item


Add View Empty

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We offer 500,000 electronics, automation & maintenance products Free delivery on orders over £20 (Business account holders only)

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Place your order



Our chat representatives can help you with

- Product search
- Locating alternatives
- Your RS Orders
- Our services

RS Stock I

McAfee SECURE

No Thanks

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Checkout securely

Copy and paste stock numbers in bulk

Add

Description	Qty	Units	Cost
-------------	-----	-------	------

You do not have any products in your basket



Could not add 1 out of 1 line to Newark cart:
item: IC3 | 1 | 74C8103 7 / 30

Please select delivery or branch collection



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monostable / 1clickBOM

Star 7 Fork 0

branch: master 1clickBOM / chrome / data / example.tsv

kasbah on 8 Sep 2014 updating examples 1 contributor

16 lines (15 sloc) | 0.437 kb Raw Blame History

Search this file...

1	C1-C6	6	Mouser	80-C0603C104K5R
2	C7,C8,C9	3	Mouser	80-C0603C105Z8V
3	C10,C11	2	Mouser	74-293D106X0010A2TE3
4	I/O	1	Farnell	8395918
5	IC1	1	Farnell	2315916
6	IC2	1	Farnell	1146032
7	IC3	1	Newark	74C8103
8	J1	1	Newark	99W2918
9	L1	1	Newark	73M9169
10	LED1-LED2,LED2A-LED2,LED3A-LED2,LED4A,LED4A	8	Digikey	350-2038-1-ND
11	R1,R5	2	Digikey	541-2-00K5CT-ND

Features

- Chrome extension (Firefox is coming)
- Supports
 - Digikey
 - Mouser
 - Farnell/Element14
 - Newark
 - RS
- Over 100 locations
- CPAL license

How does it do it?

- Parsing tab-separated-values
- Mimicking http requests
- Parsing the HTML responses and using quick and dirty indicators to determine success or failure

A little note on HTTP

- GET or POST (or others)
- parameters are sent along with the request
- returns status code (404, 403, 302) and response (usually HTML)
- cookies to persist data

uk.mouser.com/Cart/Cart.aspx

Mouser Part #	OR	Mfr.'s Part No.	Your Part Number *	Quantity	
<input type="text"/>		<input type="text"/>	<input type="text"/>	1	<input type="button" value="Add to My Order"/>

* Your Part Number is an optional field.

All Products(4)

To save this order as a project,
[Log In or create a My Mouser Account](#)

Select All [Save this cart](#) [Share this cart with a colleague](#)

Remove	Product Detail	Customer Part No.	Order Qty.	Price (GBP)	Ext. (GBP)
<input type="checkbox"/>	Mouser No: 941-CGHV96100F2 <input type="button" value="QuickView"/> <input type="button" value="EAP"/>	<input type="text"/>	<input type="text" value="1"/>	£504.56	£504.56

Elements Network Sources Timeline Profiles Resources Audits Console

Preserve log Disable cache

Name Path

- ?Cree-Inc%2FCGHV96100F2%2f&q=sGAEpi... /ProductDetail/Cree-Inc/CGHV96100F2
- Cart.aspx /Cart
- dc.js stats.g.doubleclick.net
- analytics.js www.google-analytics.com
- style.axd?v=3.0.20141219.1&type=css&fileSe... /css
- style.axd?v=3.0.20141219.1&fileSet=Css_Car... /css
- jquery-1.11.1.min.js /Flash/js
- jquery-ui-1.11.1.min.js

89 requests | 72.9 KB transferred | 3.00 s (load: 2...

Headers Preview Response Cookies Timing

Remote Address: 23.77.119.242:80
 Request URL: http://uk.mouser.com/ProductDetail/Cree-Inc/CGHV96100F2/?Cree-Inc%2fCGHV96100F2%2f&q=sGAEpiMZZMvplms98TLKY6zbNRoARClUg8gg333A167kStE%252bn8N0%2fKg%3d%3d
 Request Method: POST
 Status Code: 302 Moved Temporarily
 Request Headers
 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
 Accept-Encoding: gzip, deflate
 Accept-Language: en-GB,en-US;q=0.8,en;q=0.6
 Cache-Control: max-age=0
 Connection: keep-alive
 Content-Length: 24699
 Content-Type: application/x-www-form-urlencoded
 Cookie: g11n=Up9NRXFGLVs=; ME_Main=6ME_DSN=kJ0slznDU5NJMyNjQRiw8Q==6ME_DSU=YyaQEoCnLc=; ASP.NET_SessionId=zxtlgy45oobekaaphyv5n0z1; op_aixPageId=a2_60d31424-8123-4e84-b3f9-a18a6f8bfc3d-3648-87767; CARTCOOKIEUID=c46df9ef-39bb-4ada-bfcd-2452ed49bc8a; gat=1; ar_v4=SUM3NRP3LFFG5JUPQ2VEXA%3A20150203%3A12%7CVP073PSPSLBEPXM70J2MJRL%3A20150203%3A12%7CA46300QT6VD37AVLWC4RZU%3A20150203%3A12; SDG1=12; SDG2=40; SDG3=0; preferences=ps=gb&pl=en-GB&pc_gb=GBP; _ga=GA1.2.91020740.1409853093; __utma=261309969.91020740.1409853093.1417720020.1422769855.8; __utmb=261309969.15.10.1422769855; __utmc=261309969; __utmz=261309969.1409853093.1.1.utmcsrc=(direct)|utmccn=(direct)|utmcmd=(none); __utmv=261309969. |14=MYM=1638924=1^16=UV=5423887=1^18=Sub=1795089=1^19=PCAT=536788=1; __atuvc=1%7C5; __atuv=54cdc5eabb3480fd000; __utmli=atl00; ContentMain; btnBuy2
 Host: uk.mouser.com

12 / 30

```
curl
'http://uk.mouser.com/ProductDetail/Cree-Inc/CGHV96100F2/?Cree-Inc
%2fCGHV96100F2%2f&q=sGAepiMZZMvplms98TLKY6zbNRoARc
Ug8gg333Al67kStE%252bN8N0%2fKg%3d%3d'
-H 'Cookie: g11n=Up9NRXFGLVs=;
ME_Main=&ME_DSN=kJ0slznDUsNJMyNjQRiw8Q==&ME_DSU=YyaQEoCnLc=;
ASP.NET_SessionId=zxtlgy45oobekaaphyv5n0z1;
_op_aixPageId=a2_60d31424-8123-4e84-b3f9-a18a6f8bfc3d-3648-87767;
CARTCOOKIEUID=c46df9ef-39bb-4ada-bfcd-2452ed49bc8a; _gat=1;
__ar_v4=5UM3NRP3LFFG5JUPQ2VEXA%3A20150203%3A12%7CVPQ73SPSLBEPXM7QJ2MJRL%3A20150203%3A12%
SDG1=12; SDG2=40; SDG3=0; preferences=ps=gb&pl=en-GB&pc_gb=GBP;
__ga=GA1.2.91020740.1409853093;
__utma=261309969.91020740.1409853093.1417720020.1422769855.8;
__utmb=261309969.15.10.1422769855; __utmc=261309969;
__utmz=261309969.1409853093.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none);
__utmv=261309969.|14=MYM=1638924=1^16=UV=5423887=1^18=Sub=1795089=1^19=PCAT=5367B8=1;
__atuvc=1%7C5; __atuvs=54cdc5eabb3480fd000; __utmli=ctl00_ContentMain_btnBuy2'
-H 'Origin: http://uk.mouser.com' -H 'Accept-Encoding: gzip, deflate' -H
'Accept-Language: en-GB,en-US;q=0.8,en;q=0.6' -H 'User-Agent: Mozilla/5.0 (X11;
Linux i686) AppleWebKit/537.36 (KHTML, like Gecko) Ubuntu Chromium/39.0.2171.65
Chrome/39.0.2171.65 Safari/537.36' -H 'Content-Type:
application/x-www-form-urlencoded' -H 'Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8' -H
'Cache-Control: max-age=0' -H 'Referer:
http://uk.mouser.com/ProductDetail/Cree-Inc/CGHV96100F2/?qs=sGAepiMZZMvplms98TLKY6zbNRoA
-H 'Connection: keep-alive' --data
'__EVENTTARGET=&__EVENTARGUMENT=&__VIEWSTATE=skTHKc%2BTu8q1ptksBWazoqW1jH%2F9s
30wKeqLaG6vPB092Ae4BJFGniINMJ0drxMC0BKNq00gMPn9jzXyEnh%2BhZELrKrDDEwTj6wDz%2BB
5Mc8596z13lM4bwTtSkhsckjY87ZWffCEhuwhyb5YcmSMivmI453lwnERDa8eObcoNnPPaM0TNaNoo
X6eY%2FQ0eiyT%2FJsDR6vWe4u1sV0sPkLebGRRwFI4chXx3bL9X0CXP LXzEjYBjSMVFvahuPicHdx
N4QG31f8teVRA4a6JqwXeveNQi8J4yp2Euq3lgQnEjPAWpjeUEq5tXJbII8qczxQBrYBFu7ebLbyl
PNsPfr0eY6REXHuIEV1...
```

Architecture

- Coffeescript
- Object Oriented
- Automated Functional Tests
- Simple GUI

Coffeescript

Pros

- Terse but clear syntax

Coffeescript:

```
add component for component in ['resistor', 'capacitor', 'diode']
```

Javascript:

```
var components = ['resistor', 'capacitor', 'diode'];  
for (var i = 0, len = components.length; i < len; i++) {  
  component = components[i];  
  add(component);  
}
```


- Classes

```
class Animal
  constructor: (@name) ->

  move: (meters) ->
    console.log @name + " moved #{meters}m."

class Snake extends Animal
  move: ->
    console.log "Slithering..."
    super 5
```

Cons

- It's not Javascript
 - Another level of abstraction
 - Need to compile
 - Can be partially solved with continuous compilation
 - Errors in browser report JS line number
 - Can be solved with source-maps

Object Oriented

```
class RetailerInterface  
  constructor: (name, @country, data_path) ->  
    data = get_local(data_path)  
    @site = data.sites[@country]  
  ...  
  refreshCartTabs: () ->  
  ...  
  refreshSiteTabs: () ->  
  ...  
  openCartTab: () ->  
  ...
```

```
class Farnell extends RetailerInterface  
  constructor: (country) ->  
    super("Farnell", country, "/data/farnell.json")  
  ...  
  clearCart: () ->  
  ...  
  addItem: (items) ->  
  ...
```

Works well in some ways

```
class Farnell extends RetailerInterface
  constructor: (country) ->
    ...
    #if there is a "pf_custom_js" element then this site is like
    #Newark's and we get all our methods from Newark
    if dom.getElementById("pf_custom_js"?
      for name, method of Newark::
        this[name] = method
    ...
```

Not in others

```
class BomManager
  constructor: () ->
    for retailer in [Digikey, Farnell, Mouser, RS, Newark]
      @interfaces[retailer.name] = new retailer country
    ...

bom_manager = new BomManager
```

```
a = new Digikey "UK"
b = new Digikey "US"
```

Automated Functional Tests

Uses QUnit framework

The screenshot shows a web browser with several tabs: 'Extensions', '1clickBOM QUnit Tests', 'Online Ordering | Di...', and 'Farnell elem...'. The address bar shows the URL 'chrome-extension://mflpmlmediakefinapghmabapjeippfdi/html/tes...'. The main content area displays the test results for '1clickBOM QUnit Tests'. At the top, there are three checkboxes: 'Hide passed tests', 'Check for Globals', and 'No try-catch'. Below this, the browser environment is listed as 'Mozilla/5.0 (X11; Linux i686) AppleWebKit/537.36 (KHTML, like Gecko) Ubuntu Chromium/39.0.2...'. The test results are as follows:

Test Name	Passed	Failed	Skipped	Actions
1. unit: Diglkey: Constructs for all countries	0	109	109	Rerun
2. unit: Farnell: Constructs for all countries	0	109	109	Rerun
3. unit: Mouser: Constructs for all countries	0	109	109	Rerun
4. unit: RS: Constructs for all countries	0	109	109	Rerun
5. unit: Newark: Constructs for all countries	0	109	109	Rerun
6. unit: InvalidCountryError Exists	0	1	1	Rerun
7. unit: Diglkey: InvalidCountryError Thrown	0	1	1	Rerun
8. unit: Farnell: InvalidCountryError Thrown	0	1	1	Rerun
9. unit: Mouser: InvalidCountryError Thrown	0	1	1	Rerun
10. unit: RS: InvalidCountryError Thrown	0	1	1	Rerun
11. unit: Newark: InvalidCountryError Thrown	0	1	1	Rerun
12. unit: Parser: Catches negative quantities	0	2	2	Rerun

Tests are heavily dependent on network

class **RetailerInterface**

```
constructor: (name, @country, data_path) ->  
  data = get_local(data_path)  
  @site = data.sites[@country]
```

...

```
refreshCartTabs: () ->
```

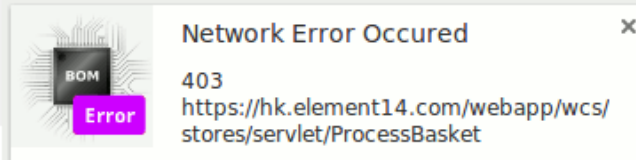
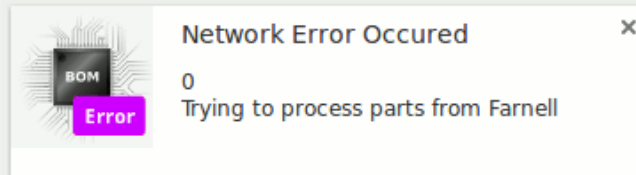
...

```
refreshSiteTabs: () ->
```

...

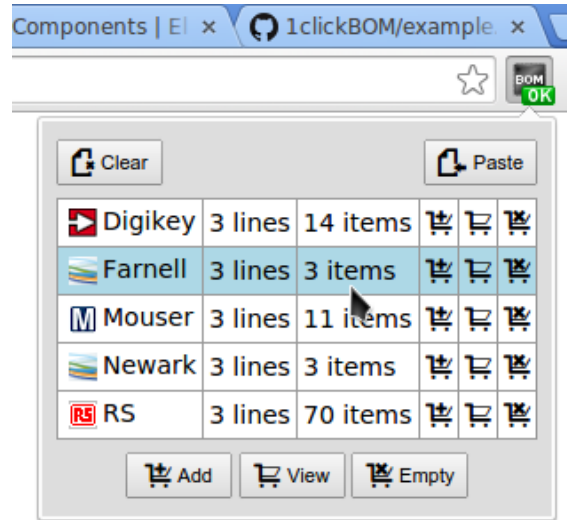
```
openCartTab: () ->
```

...



Simple GUI

- Just a webpage
- No UI libraries
- Chrome features



What might it do in the
future?

Status-Quo

- Chrome only
- About 200 weekly users

Upcoming Features

- Firefox support
- Allow multiple retailers per item & set preferred retailers in extension
 - Essentially allows for order-a-kit button on your site
- Find the same components from different retailer
- Minimize order cost

Questions?

- 1clickBOM.com
- monostable.co.uk
- [@kaspar_e](https://twitter.com/kaspar_e) on Twitter