

An introduction to

Multitouch Javascript

By Amy Ciavolino

Hi, I'm Amy

Developer at Etsy.com

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Formally on the Mobile Web team

Multitouch Javascript

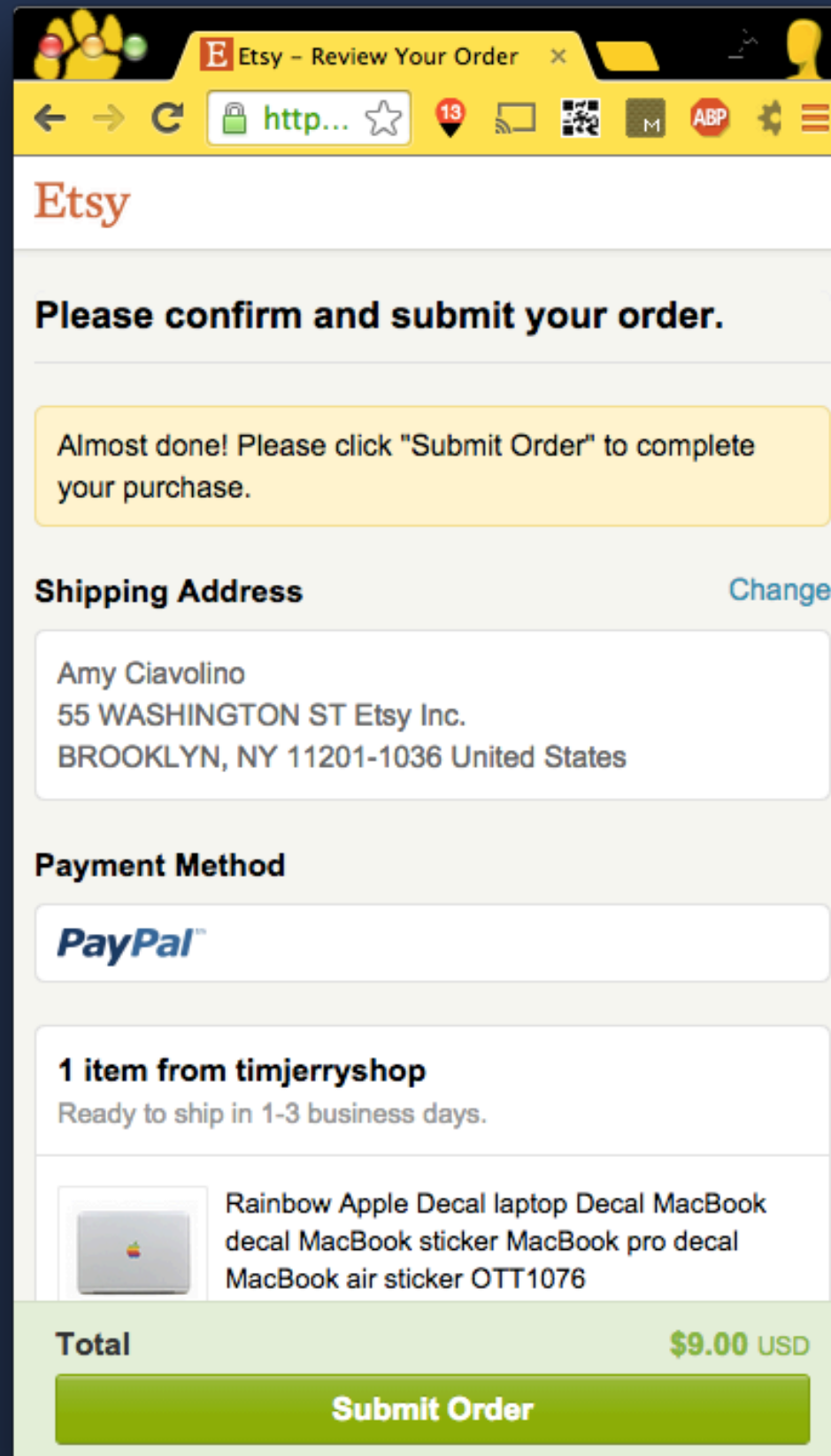
- How to test quickly
- What multitouch events are available
- How to use those events (with examples)

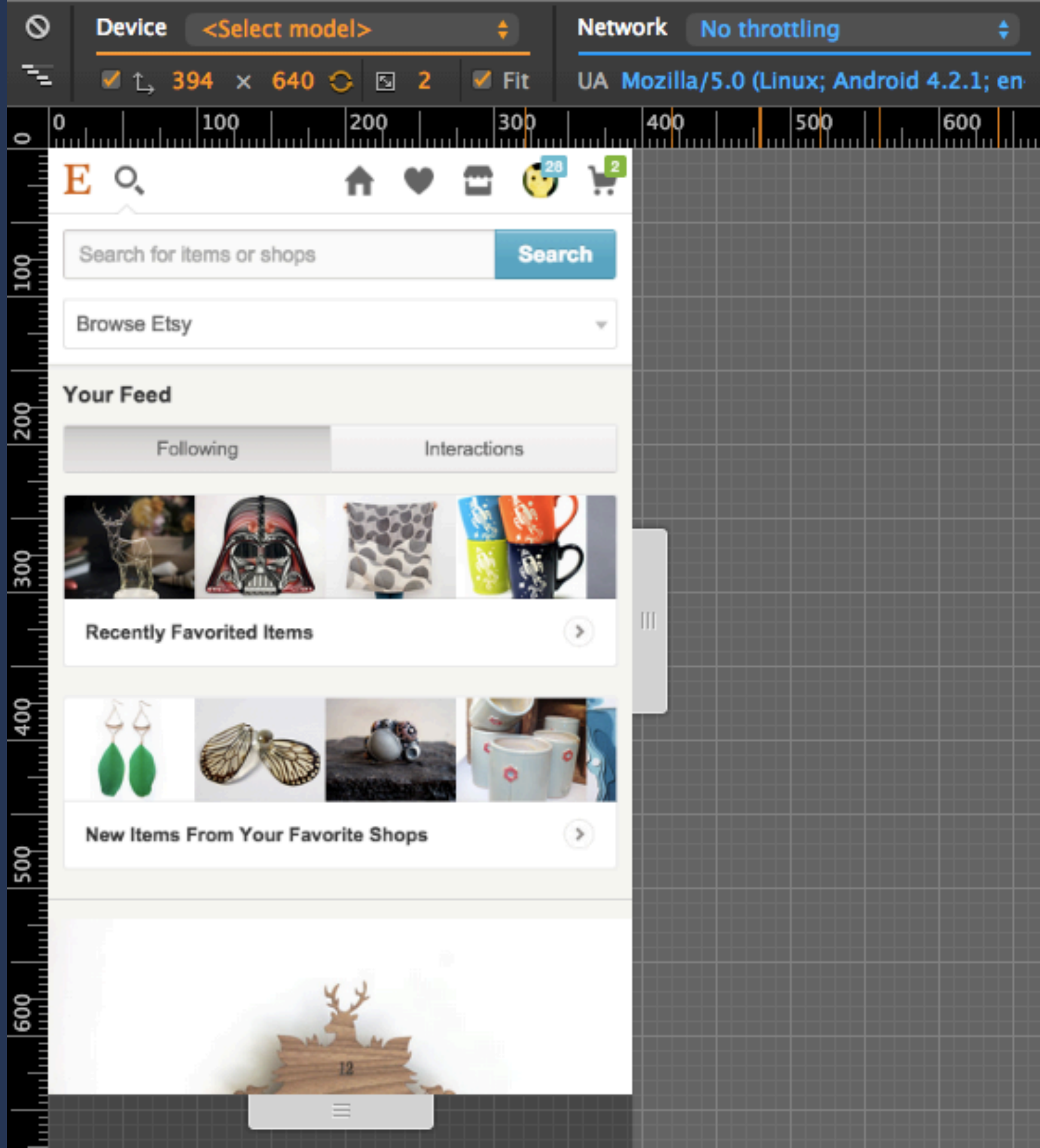
Multitouch Javascript

- *How to test quickly*
- What multitouch events are available
- How to use those events (with examples)

Testing!

Get on a device ASAP





**You need to load your
page on a multitouch
device to *start*
testing.**

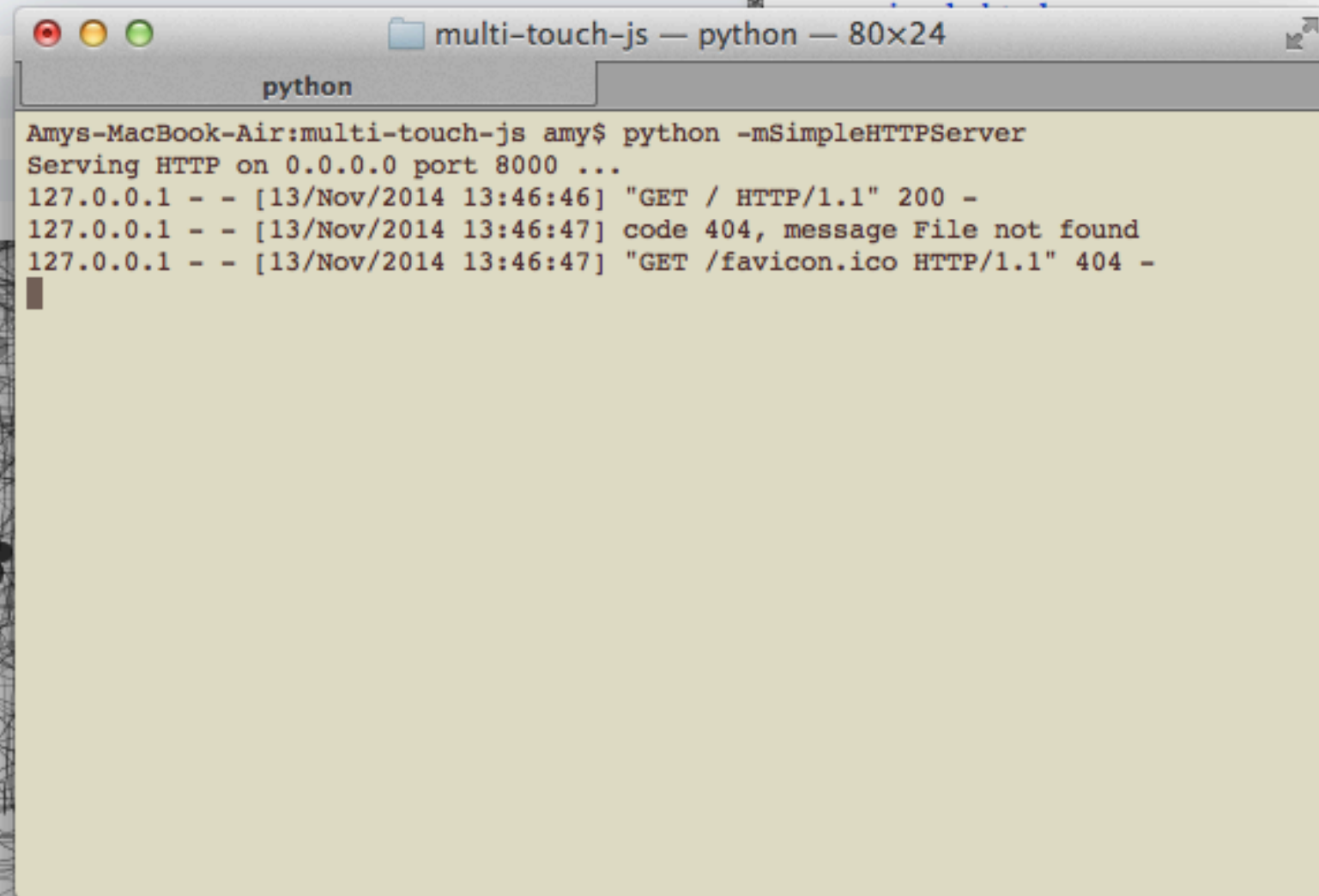
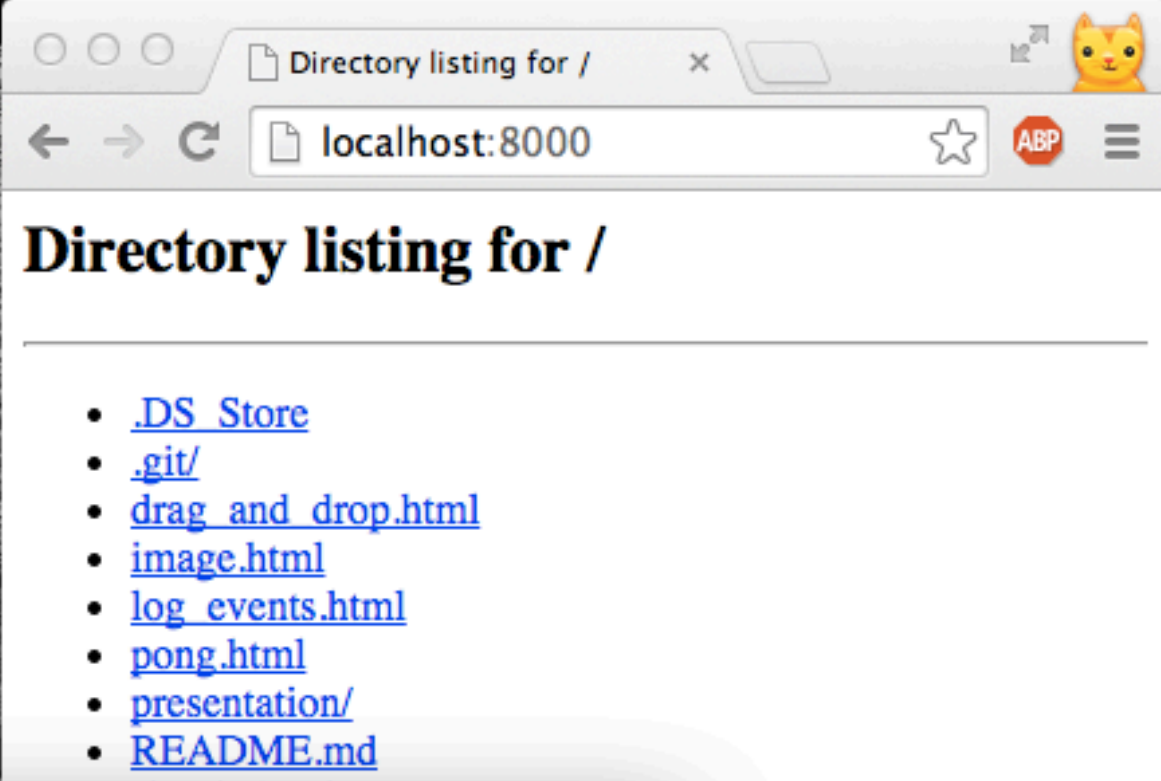
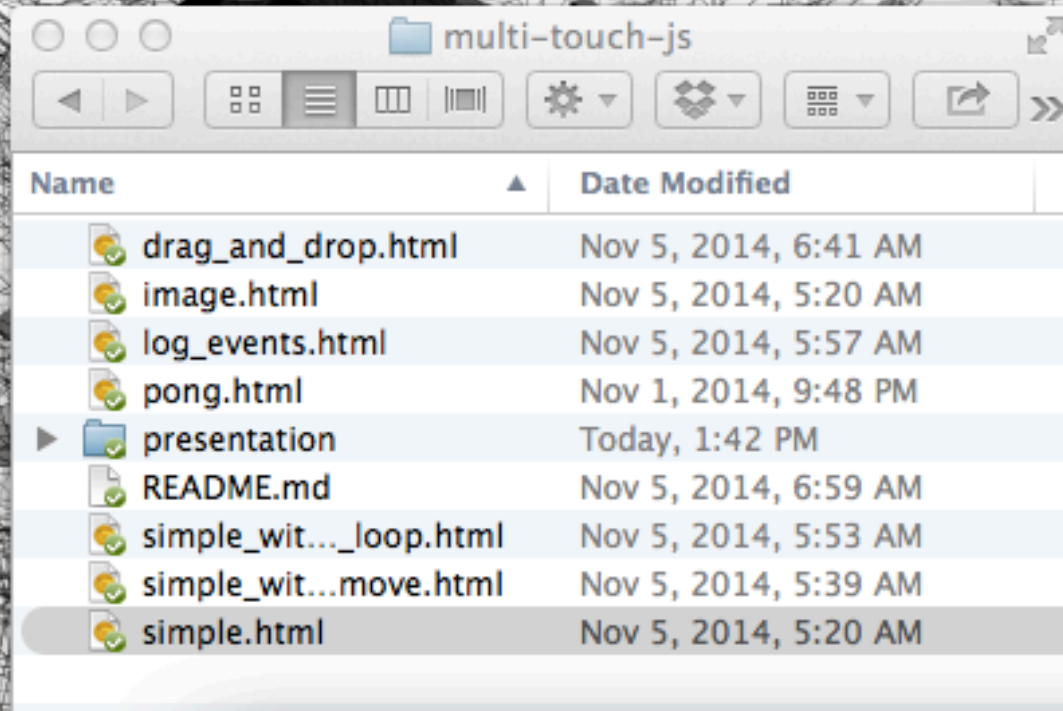
Use Chrome remote debugging!

```
olino$ python -mSimpleHTTPServer
Port 8000 ...
4 11:37:21] "GET / HTTP/1.1"
4 11:37:21] code 404, mess
4 11:37:21] "GET /favicon.
4 11:37:53] "GET /tracker.
4 11:37:53] code 404, mess
4 11:37:53] "GET /magictou
4 11:39:25] "GET / HTTP/1.1"
4 11:39:25] code 404, mess
4 11:39:25] "GET /favicon.
4 11:39:29] "GET /touchtes
```

First run a server on your local machine

1. Put an html file in a test folder
2. cd to that folder
3. Run...

```
python -mSimpleHTTPServer
```

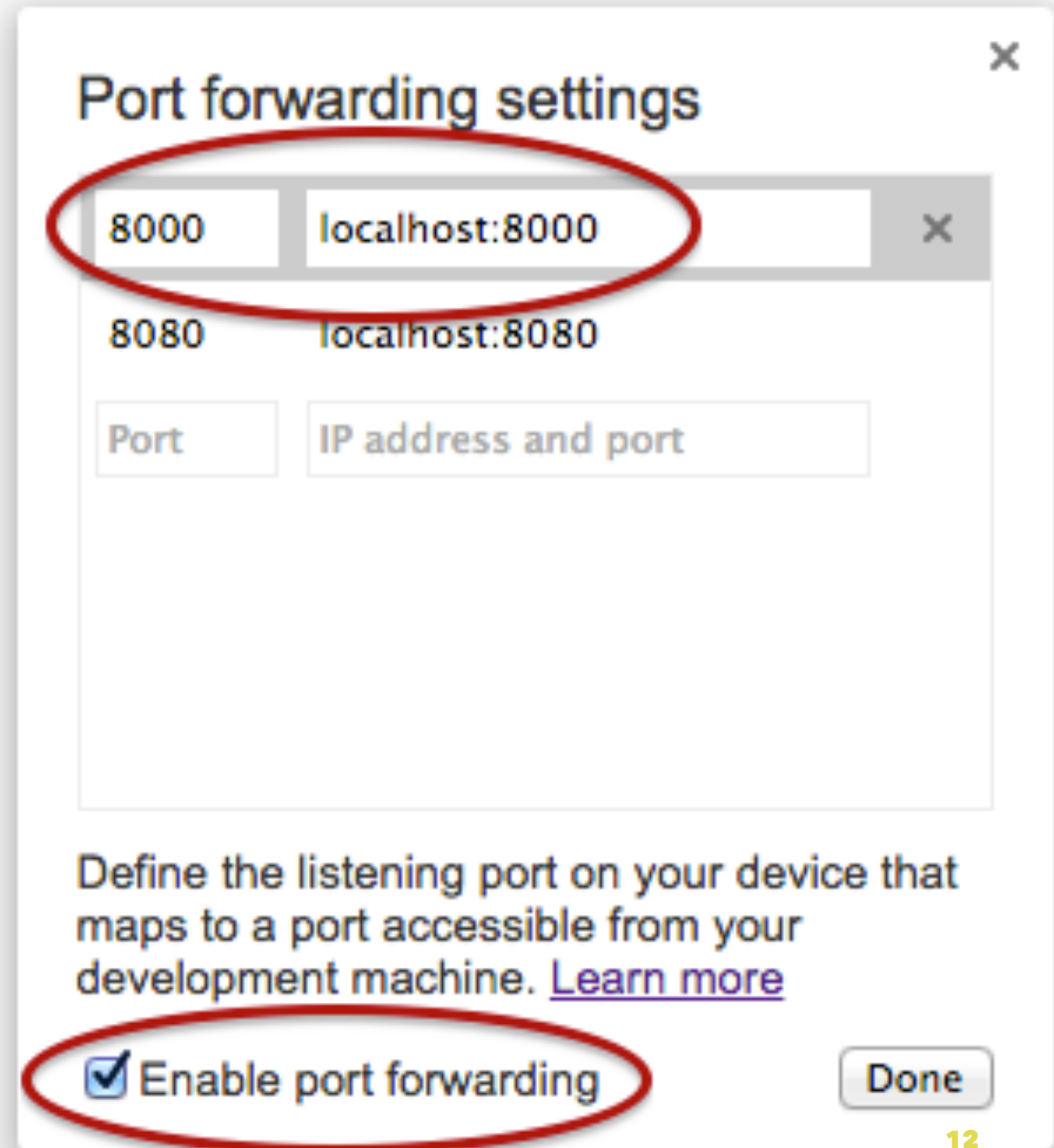


Now to hook up the device

- 1 - Go to
`chrome://inspect/#devices`
- 2 - Click "Port forwarding..."

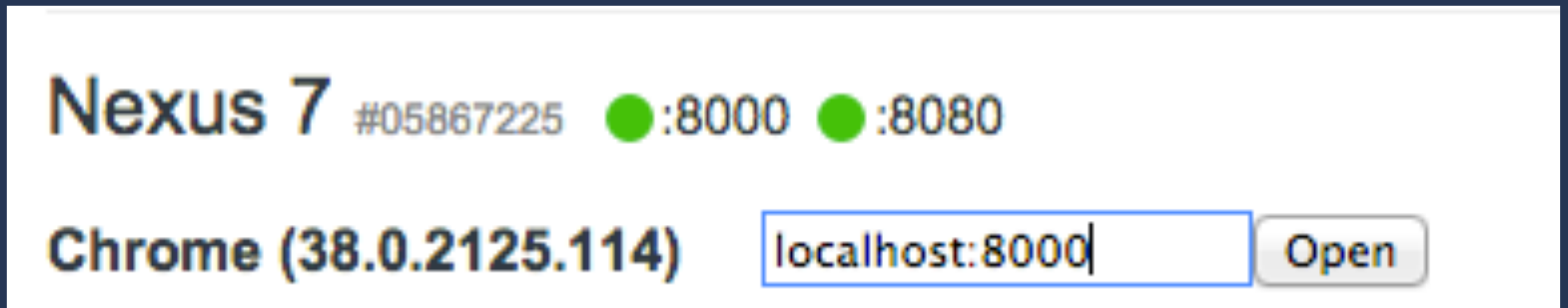


- 3 - Add a line for
`localhost:8000`
- 4 - Check
Enable port forwarding



Plug in your device!

Open localhost:8000 on your device!

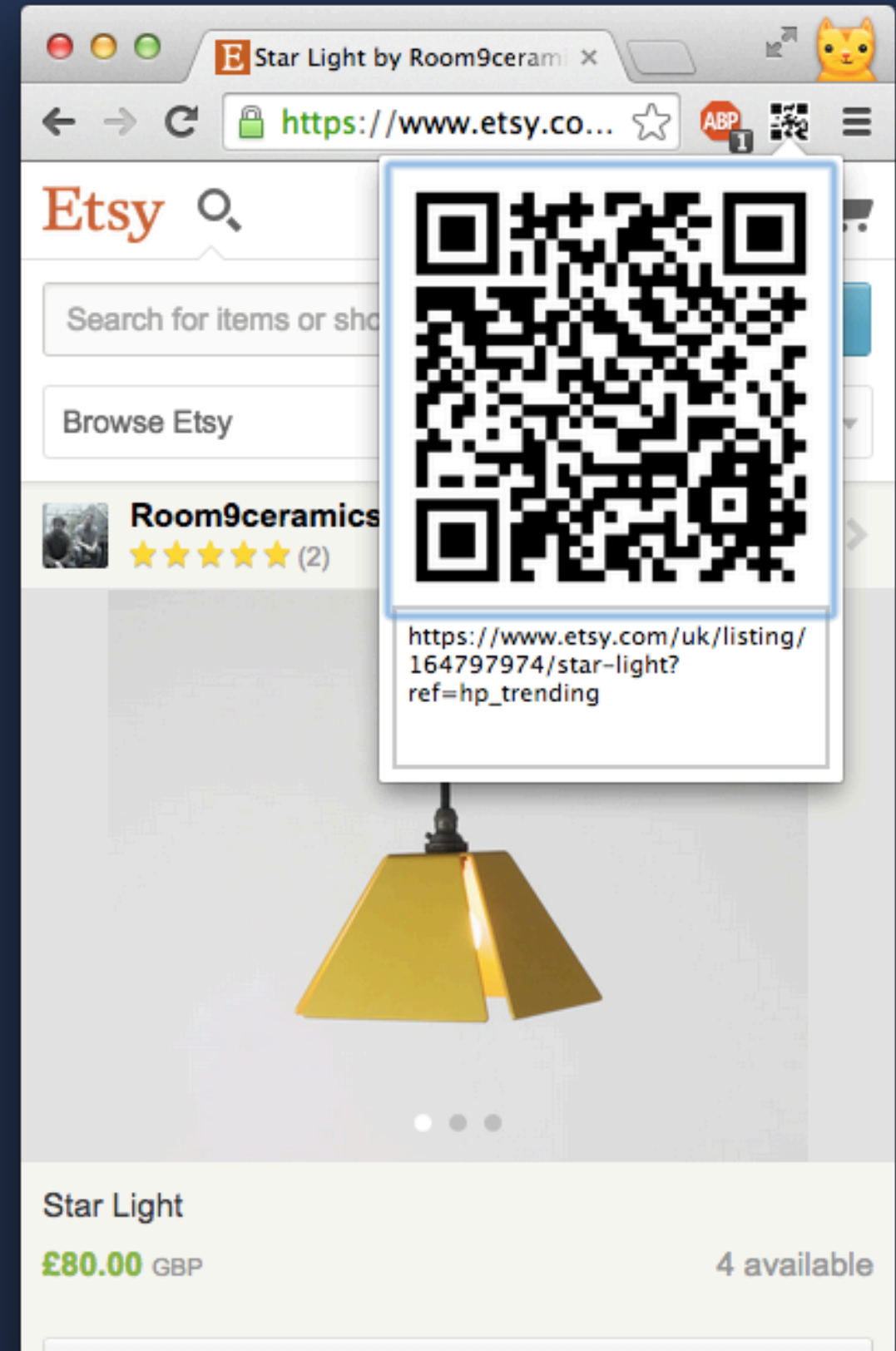


You should see the test file, open it and you're rolling.

**Now you can edit,
save, refresh just like
you normally would!**

Tip

"Simple QR Code Generator"



Multitouch Javascript

- ✓ How to test quickly
 - *What multitouch events are available*
 - How to use those events (with examples)

Events

touchstart, touchmove, touchend

All three events come with:

- touches
- targetTouches
- changedTouches

Also the normal event stuff...

- target, currentTarget, preventDefault(), ect.

touches, targetTouches, and changedTouches
are lists of *Touch* objects.

What's in a Touch object?

- identifier
- clientX/Y, pageX/Y, screenX/Y
- radiusX/Y, force
- target

touchstart

touchmove

touchmove has the messiest default behavior so always
`preventDefault()`!

touchend

changedTouches tells you which targets were removed.

Other Events

- touchcancel
- ~~touchleave~~ (Gone in the latest spec draft)
- ~~touchenter~~ (Gone in the latest spec draft)

Multitouch Javascript

- ✓ How to test quickly
- ✓ What multitouch events are available
 - *How to use those events*

Examples!

Play with the demos at

<https://github.com/imightbeamy/multi-touch-js>

```
addEventListener('touchmove', function(event) {  
    event.preventDefault();  
  
    for (i = 0; i < event.touches.length; i++) {  
        touch = event.touches[i],  
        touch_id = touch.identifier;  
  
        dots[touch_id] = document.createElement("div");  
        document.body.appendChild(dots[touch_id]);  
    }  
});
```

Viewport

```
<meta name="viewport"
      content="width=device-width,
              initial-scale=1.0,
              user-scalable=no">
```

```
var dots = {};  
  
document.addEventListener('touchmove', function(event) {  
    event.preventDefault(); // Always have this for touchmove  
  
    for (var i = 0; i < event.touches.length; i++) {  
        var touch = event.touches[i],  
            touch_id = touch.identifier;  
  
        if (!dots[touch_id]) {  
            dots[touch_id] = document.createElement("div");  
            document.body.appendChild(dots[touch_id]);  
        }  
  
        dots[touch_id].style.top = (touch.clientY) + "px";  
        dots[touch_id].style.left = (touch.clientX)+ "px";  
    };  
});
```

CSS

```
div {  
  width: 50px;  
  height: 50px;  
  background: red;  
  border-radius: 50%;  
  position: absolute;  
  -webkit-transform: translateZ(0);  
}
```

(Hack alert)

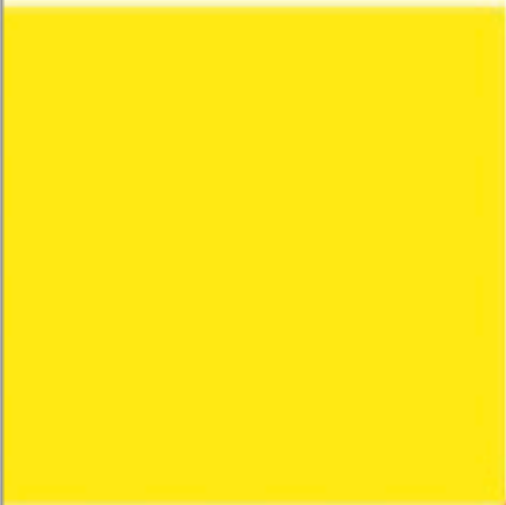
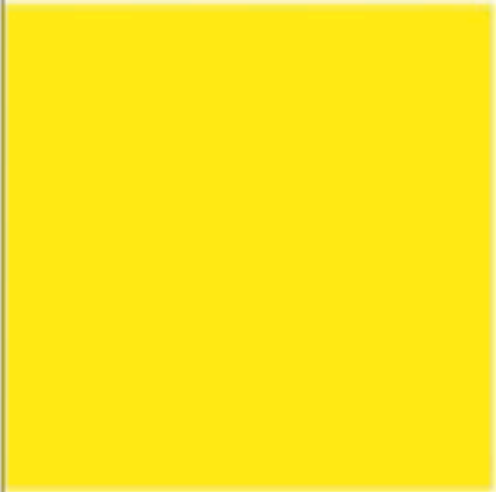
The Hack

Adding...

```
-webkit-transform: translateZ(0);
```

puts an element in it's own render layer.

This means a lot less painting.



**You have to move your figures
before the points will register.**

Let's fix that.

```
var touches = [], dots = {};  
  
function drawDots() {  
    for (var i = 0; i < touches.length; i++) {  
        var touch = touches[i];  
        //... Same as before  
    };  
}  
  
document.addEventListener('touchmove', function(event) {  
    event.preventDefault();  
    touches = event.touches;  
});  
  
document.addEventListener('touchstart', function(event) {  
    touches = event.touches;  
});  
  
(function loop(){  
    drawDots();  
    window.requestAnimationFrame(loop);  
})();
```

**Can also use `changedTouches` to
remove the dots when you lift
your figure.**

```
- var touches = [], dots = {};  
+ var touches = [], removedTouches = [], dots = {};  
  
function drawDots() {  
    for (var i = 0; touches && i < touches.length; i++) {  
        // ... Same as before  
    };  
+  
+     for (var i = 0 ; removedTouches && i < removedTouches.length; i++) {  
+         var touch = removedTouches[i],  
+             touch_id = touch.identifier;  
+  
+         if(dots[touch_id]) {  
+             dots[touch_id].remove();  
+             dots[touch_id] = null;  
+         }  
+     };  
+     removedTouches = null; // Reset them  
+ }  
  
+ document.addEventListener('touchend', function(event) {  
+     removedTouches = event.changedTouches;  
+ });
```

Drag and drop

A use for targetTouches

```
var divs = document.querySelectorAll('div');

for (var i = divs.length - 1; i >= 0; i--) {
    divs[i].addEventListener('touchmove', function(event) {
        event.preventDefault();
        var touch = event.targetTouches[0];
        this.style.top = (touch.clientY) + "px";
        this.style.left = (touch.clientX) + "px";
    });
}
```

Support

IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33						
8		35	5.1				4.1	
9	¹ 31	36	7		7.1		4.3	
10	¹ 32	37	7.1		8		4.4	
11	¹ 33	38	8	25	8.1	8	4.4.4	38
	¹ 34	39		26			37	
	¹ 35	40		27				
	¹ 36	41						

<http://caniuse.com/#feat=touch>

Find this code at
github.com/imightbeamy/multi-touch-js

`log_events.html`

`simple.html`

`simple_with_animation_loop.html`

`simple_with_remove.html`

`drag_and_drop.html`

`pong.html`

**Build awesome
multitouch things,
and let me know
about them**

@imightbeAmy

**or find me otherways at
amyciavolino.com**

