Security: Cross-domain leaks of site logins

Security: Cross-domain leaks of site logins - Chris Evans, scarybeastsecurity.blogspot.com.

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Content

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Browsers suck. We're building our fortified web apps on foundations of sand. A little while back, I was talking with Jeremiah about an interesting attack he had to determine whether a user is logged into a given site or not. The attack relies on the target site hosting an image at a known URL for authenticated users only. It proceeds by abusing a generic browser cross-domain leak of whether an image exists or not -- via the `onload` vs. `onerror` javascript events. Browsers generally closed that leak for local filesystem URLs (thus preventing accurate profiling of a victim's machine) but neglected to close it generally.

My version of this "login determination" attack is to abuse another leaky area of browser cross-domain handling: CSS. The `<link>` tag permits us to load CSS resource from arbitrary domains. The two interesting observations here are that we can read arbitrary CSS property values if we know the name of the style plus the property name we are interesting in. Secondly, most websites serve different CSS depending on whether the user is logged in or not. In addition, remember that browsers will happily pluck inline style definitions out of HTML. Put these things together, and here's a FF3.0.1 snippet that will tell if you are logged into MySpace or not:

```
<html>
<head>
<link rel="stylesheet"
href="http://home.myspace.com/index.cfm?fuseaction=user"/>
<script>
function func() {
var ele = document.getElementById('blah');
alert(window.getComputedStyle(ele, null).getPropertyValue('margin-bottom'));
}
</script>
</head>
<body onload="func()">
<div id="blah" class="show">
</body>
</html>
```

If you are logged in, you'll see "3px" vs. "0px" otherwise.

You'll also appreciate from this that any CSS property value is stealable cross-domain, assuming the style names aren't randomized (which I've never seen). The natural follow-up question is, are sensitive values stored in CSS properties? Currently, generally not, although I have seen `background-url` storing look & feel customization which could assist fingerprinting a user. In a couple of extreme cases, I've seen `background-url` used with a `data:` URI such as ``. Might be worth stealing.

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