Revisiting BatLoader C2 structure

By Jason Reaves

Published: 2022-04-15 · Archived: 2026-05-05 02:32:45 UTC

2 min read

Apr 15, 2022

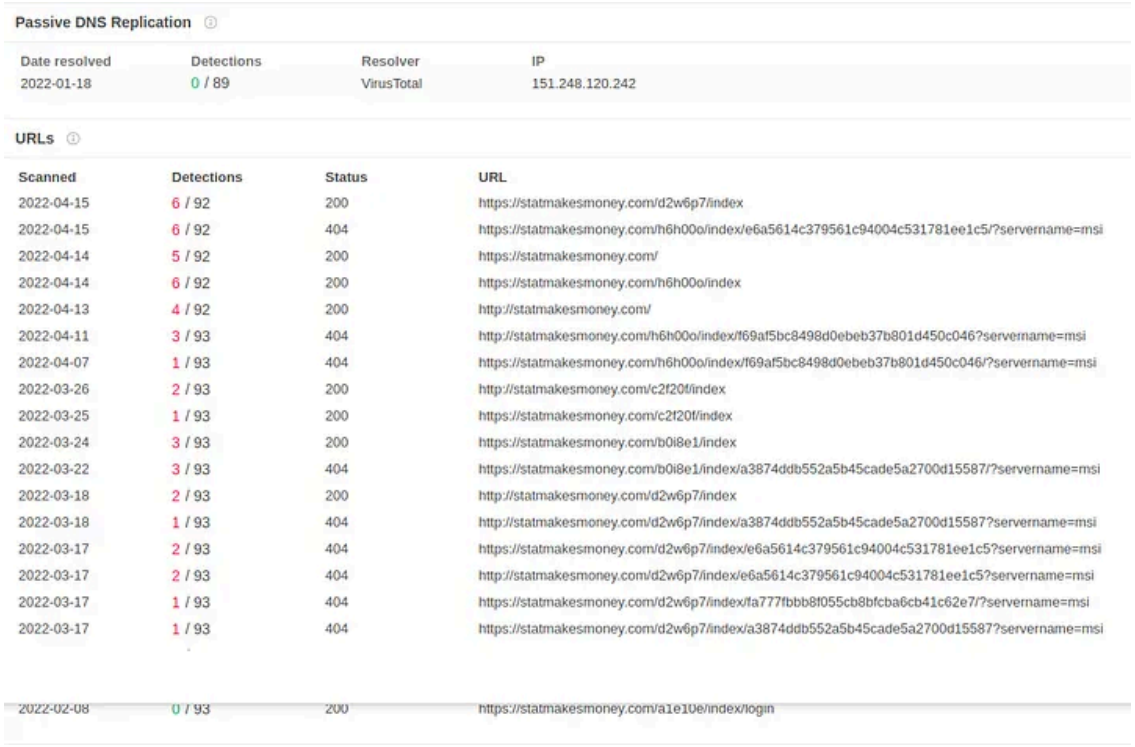
By: Jason Reaves and Joshua Platt

Press enter or click to view image in full size

BatLoader, named by Mandiant[7], is an interesting distribution/loading system that has been discussed previously[1,2] and leveraged by various actors. Recent media headlines show the connection to Zloader[3] after a disruption was done by multiple organizations[4] but this is not a Zloader exclusive service.

Reports of the disruption included brief mentions of BatLoader in their reporting. We assume that was not the target of their recent disruption campaign because the service is still functioning. While looking into new BatLoader campaigns, we noticed they changed the C2 structure of the loading process since our last blog[1]:

Press enter or click to view image in full size



Passive DNS Replication

Date resolved	Detections	Resolver	IP
2022-01-18	0 / 89	VirusTotal	151.248.120.242

URLs

Scanned	Detections	Status	URL
2022-04-15	6 / 92	200	https://statmakesmoney.com/d2w6p7/index
2022-04-15	6 / 92	404	https://statmakesmoney.com/h6h00o/index/e6a5614c379561c94004c531781ee1c5/?servername=msi
2022-04-14	5 / 92	200	https://statmakesmoney.com/
2022-04-14	6 / 92	200	https://statmakesmoney.com/h6h00o/index
2022-04-13	4 / 92	200	http://statmakesmoney.com/
2022-04-11	3 / 93	404	http://statmakesmoney.com/h6h00o/index/f69af5bc8498d0ebeb37b801d450c046?servername=msi
2022-04-07	1 / 93	404	https://statmakesmoney.com/h6h00o/index/f69af5bc8498d0ebeb37b801d450c046/?servername=msi
2022-03-26	2 / 93	200	http://statmakesmoney.com/c2f20f/index
2022-03-25	1 / 93	200	https://statmakesmoney.com/c2f20f/index
2022-03-24	3 / 93	200	https://statmakesmoney.com/b0i8e1/index
2022-03-22	3 / 93	404	https://statmakesmoney.com/b0i8e1/index/a3874ddb552a5b45cade5a2700d15587/?servername=msi
2022-03-18	2 / 93	200	http://statmakesmoney.com/d2w6p7/index
2022-03-18	1 / 93	404	http://statmakesmoney.com/d2w6p7/index/a3874ddb552a5b45cade5a2700d15587?servername=msi
2022-03-17	2 / 93	404	https://statmakesmoney.com/d2w6p7/index/e6a5614c379561c94004c531781ee1c5?servername=msi
2022-03-17	2 / 93	404	http://statmakesmoney.com/d2w6p7/index/e6a5614c379561c94004c531781ee1c5?servername=msi
2022-03-17	1 / 93	404	https://statmakesmoney.com/d2w6p7/index/fa777fbbb8f055cb8bfcba6cb41c62e7/?servername=msi
2022-03-17	1 / 93	404	https://statmakesmoney.com/d2w6p7/index/a3874ddb552a5b45cade5a2700d15587?servername=msi
2022-02-08	0 / 93	200	https://statmakesmoney.com/a1e10e/index/login

Ref: Virustotal.com

The structure looks similar to what we reported previously, but some of the data now looks like a hash value.

Get Jason Reaves's stories in your inbox

Join Medium for free to get updates from this writer.

Remember me for faster sign in

Previously:

```
/processingSetRequestBat1/?servername=
/processingSetRequestBat2/?servername=
/processingSetRequestBat3/?servername=
/processingSetRequestBat4/?servername=
/processingSetRequestBat5/?servername=
/processingSetRequestBat6/?servername=
/processingSetRequestBot/?servername=
/processingSetRequestCoba/?servername=
/processingSetRequestDownload/?servername=
/processingSetRequestAtera/?servername=
```

So these hash values aren't just the hash of the processing strings right?

```
>>> hashlib.md5('processingSetRequestBat1').hexdigest()
'e6a5614c379561c94004c531781ee1c5'
```

Ah, so they are. Then we can create new suricata rules based on the new patterns. However, I noticed if the hash starts with a number then the developer changes it to a character, for example:

```
>>> hashlib.md5('processingSetRequestBat3').hexdigest()
'73874ddb552a5b45cade5a2700d15587'
```

The hash used in traffic patterns however is:

```
a3874ddb552a5b45cade5a2700d15587
```

Going by the other Bat requests it appears they are going in order; a,b,c,d… So we can continue mapping hash values to new request structure:

```
/e6a5614c379561c94004c531781ee1c5/?servername=
/f69af5bc8498d0ebeb37b801d450c046/?servername=
/a3874ddb552a5b45cade5a2700d15587/?servername=
/fa777fbbb8f055cb8bfcba6cb41c62e7/?servername=
/b1eeec75ef1488e2484b14c8fd46ddce/?servername=
/c003996958c731652178c7113ad768b7/?servername=
/d2ef590c0310838490561a205469713d/?servername=
/fa0a24aafe050500595b1df4153a17fb/?servername=
/i850c923db452d4556a2c46125e7b6f2/?servername=
/b5e6ec2584da24e2401f9bc14a08dedf/?servername=
/e747834ae24a1a43e044ea7b070048f0/?servername=
```

With the addition of deploying a stealer this maps like:

Press enter or click to view image in full size

Old	New
/processingSetRequestBat1/?servername=	/e6a5614c379561c94004c531781ee1c5/?servername=
/processingSetRequestBat2/?servername=	/f69af5bc8498d0ebeb37b801d450c046/?servername=
/processingSetRequestBat3/?servername=	/a3874ddb552a5b45cade5a2700d15587/?servername=
/processingSetRequestBat4/?servername=	/fa777fbbb8f055cb8bfcba6cb41c62e7/?servername=
/processingSetRequestBat5/?servername=	/b1eeec75ef1488e2484b14c8fd46ddce/?servername=
/processingSetRequestBat6/?servername=	/c003996958c731652178c7113ad768b7/?servername=
/processingSetRequestBot/?servername=	/d2ef590c0310838490561a205469713d/?servername=
/processingSetRequestCoba/?servername=	/i850c923db452d4556a2c46125e7b6f2/?servername=
/processingSetRequestDownload/?servername=	/e747834ae24a1a43e044ea7b070048f0/?servername=
/processingSetRequestAtera/?servername=	/b5e6ec2584da24e2401f9bc14a08dedf/?servername=
/processingSetRequestStealer/?servername=	/fa0a24aafe050500595b1df4153a17fb/?servername=

Most of the reporting has also shown that the templating for the msi installers has been Zoom and Teamviewer based fake installers, however as we have previously mentioned there are many affiliates involved in this service. A more exhaustive list of fake software templates for the initial MSI files can be found below:

```
zoom
teamviewer
AnyDesk
Telegram
youtube
cheats
ccleaner
discord
thunderbird
luminar
adobe reader
chrome
firefox
brave
gemini
grammarly
quicken
robinhood
amazon
smbc
fidelity
logmein
```

References:

1: https://medium.com/walmartglobaltech/signed-dll-campaigns-as-a-service-7760ac676489

2: https://news.sophos.com/en-us/2022/01/19/zloader-installs-remote-access-backdoors-and-delivers-cobalt-strike/

3: https://www.microsoft.com/security/blog/2022/04/13/dismantling-zloader-how-malicious-ads-led-to-disabled-security-tools-and-ransomware/

4: https://blogs.microsoft.com/on-the-issues/2022/04/13/zloader-botnet-disrupted-malware-ukraine/

5: https://www.welivesecurity.com/2022/04/13/eset-takes-part-global-operation-disrupt-zloader-botnets/

6: https://decoded.avast.io/vladimirmartyanov/zloader-the-silent-night/

7: https://www.mandiant.com/resources/seo-poisoning-batloader-atera

---