#ShortAndMalicious — PikaBot and the Matanbuchus connection

By DCSO CyTec Blog

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Photo by Timothy Dykes on Unsplash

Continuing our #ShortAndMalicious series, where we aim to briefly highlight new or otherwise noteworthy malware, a tweet by Unit 42 Intel caught our attention early February 2023:

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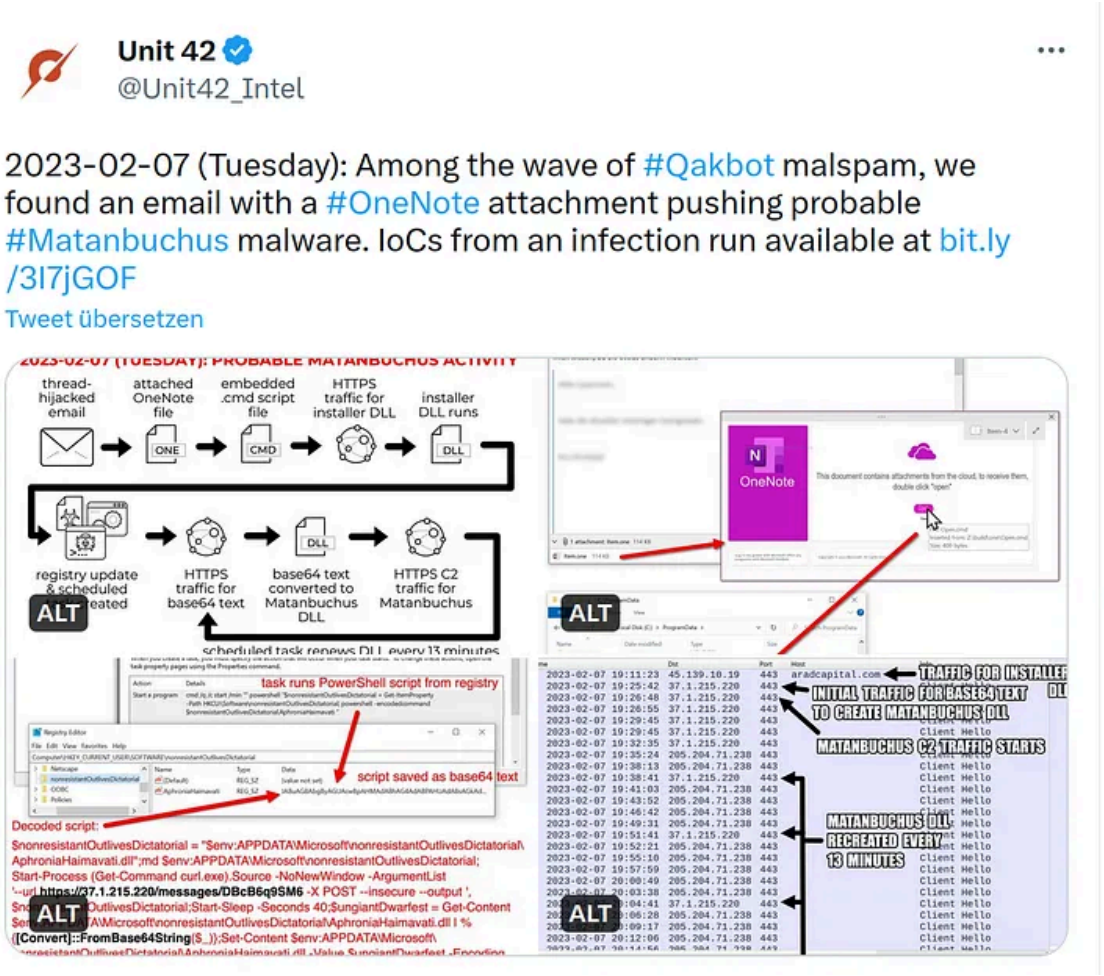

Thank you Unit 42 for sharing!

Having covered Matanbuchus before, DCSO CyTec jumped in to investigate this new sample, which quickly turned out to be a new malware family instead.

Twitter user Germán Fernández then identified it as “PikaBot/iPikaBot” so we set out to see what’s under the hood.

Blog post authored by Johann Aydinbas and Axel Wauer.

What we know

In short, here’s what we know after analyzing the new PikaBot sample:

- It is ~~**distributed by Qakbot**~~ **(correction:** it was distributed similarly to Qakbot — thank you @malware_traffic for pointing out the misunderstanding!)
- It’s a **loader type malware**, so the purpose is mainly fetching additional malware (for now)
- It’s split into a loader and a core component
- It features a heavy amount of anti-debug functions… we stopped naming them after identifying the 20th anti-debug function, and it contains some anti-VM functionality in addition
- Traffic consists of exchanging **JSON blobs over HTTPS**, with the payload encrypted using Base64+AES-CBC

- A lot of configuration is hardcoded (C2 servers, request paths)
- It excludes CIS countries based on the configured language ID of the infected system

Initial POSTs to the hardcoded C2 feature the following decrypted payload:

```
{
    "uuid": "542F70A6000008AC43698032133",
    "stream": "bb_d2@T@dd48940b389148069ffc1db3f2f38c0e",
    "os_version": "Win 10.0 19045",
    "product_number": 48,
    "username": "batman",
    "pc_name": "DESKTOP-BATCAVE",
    "cpu_name": "Intel(R) Xeon(R) CPU E3-1505M v6 @ 3.00GHz",
    "arch": "x86",
    "pc_uptime": 1994593,
    "gpu_name": "VMware SVGA 3D",
    "ram_amount": 4095,
    "screen_resolution": "1567x904",
    "version": "0.1.7",
    "av_software": "unknown",
    "domain_name": "",
    "domain_controller_name": "unknown",
    "domain_controller_address": "unknown"
}
```

Noteworthy is the version number reported as **0.1.7** so the malware appears to be in the very early stages of development.

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Analysis is still ongoing but commands we have identified so far are as follows:

```
cmd               Run shell command
exe               Fetch and run EXE
dll               Fetch and run DLL
shellcode         Run shellcode
additional        Send additional system info (?)
knock_timeout     Change C2 check-in interval
destroy           Not implemented yet
```

New devil or new clothes?

Regarding the Matanbuchus connection — without further hard evidence we can't assess a possible relationship between both malware families.

PikaBot is definitely a new malware family in the early stages of development. Based on previous research of Matanbuchus we've noticed some similiarities however:

- Both malware families are written in C/C++
- Both malware families utilize a clear loader/core component split
- Both malware families utilize JSON+Base64+crypto (Matanbuchus: RC4, PikaBot: AES-CBC) for traffic
- Both malware families extensively use hardcoded strings instead of some sort of configuration blob

which might hint towards a possible connection of both malware families.

IoCs

```
SHA256
c666aeb7ed75e58b645a2a4d1bc8c9d0a0a076a8a459e33c6dc60d12f4fa0c01    Loader
59f42ecde152f78731e54ea27e761bba748c9309a6ad1c2fd17f0e8b90f8aed1    Core
```
