SentinelLABS

Overview

Egregor ransomware is an offshoot of the Sekhmet malware family that has been active since mid-September 2020. The ransomware operates by compromising

the cyberattacks against GEFCO and Barnes & Noble, Ubisoft, and numerous others.

Multiple intelligence and security companies believe that there are ties between past, now defunct, Maze affiliates and Egregor. There have been reports of ties to Sekhmet, ProLock, and LockBit as well (both of which have also been tied to Maze). With regard to Sekhmet, there are deep similarities in the configuration format and obfuscation style. SentinelOne-affiliated security researcher Vitali Kremez noted these similarities in an early November tweet.

As with other modern ransomware groups, the actors behind Egregor exfiltrate victim data and theaten to expose it publically should the victim fail to comply with the ransom demands.

Egregor Distribution Methods

The primary distribution method for Egregor is Cobalt Strike. Targeted environments are previously compromised through various means (RDP exploit, Phishing) and once the Cobalt Strike beacon payload is established and persistent, it is then utilized to deliver and launch the Egregor payloads.

That being said, since Egregor is a RaaS with multiple affiliates, delivery and weaponization tactics can therefore vary. There have been limited and uncorroborated reports of Egregor utilizing CVE-2020-0688 (a remote code execution flaw in Microsoft Exchange). Some sources also report the possible

LOTL (Living off the Land) tools such as bitsadmin to download or update DLL components. In addition, some larger malware families and frameworks such as QBot have been observed distributing Egregor in recent campaigns.

Egregor Payload Analysis

Egregor payloads (DLLs) are highly obfuscated, including Salsa20 encrypted configuration data. File encryption is achieved via a combination of the ChaCha stream cipher and RSA. Each payload contains a RSA-2048 public key.

DLL-based payloads require a key/password upon launch, with that key being specific to each sample. The `-p` parameter is passed to the payload concatenated with said key. For example, if the key is *123EVILBADGUYS* the parameter `-p123EVILBADGUYS` is required to successfully launch the payload.

This methodology also adds to the malware's ability to evade analysis by way of humans and dynamic systems. Without the valid key passed, the payload will decrypt incorrectly and fail to launch or terminate. This is a critical point to consider in the context of static and dynamic analysis of Egregor payloads. With no key, voluntary detonation and dynamic analysis become far more complex if not infeasible.

Additional parameters appear to be present in memory when the payloads are launched. Some of these are borderline self-explanatory, while others are still undergoing analysis. We have summarized the parameter usage below where possible.

```
--full ; encryption of entire system (local & network-accessible), no
--multiproc
--killrdp
--nonet ; exclude encryption of network drives
--path ; encrypt only specific path in this parameter
--target
--append ; customize the file extension to be used for encrypted file
--norename ; skip the process of renaming encrypted files
--greetings ; directly address target (by victim company name, typica
--samba
```

Initial analysis of Egregor payloads indicates that the ransomware will avoid encrypting systems where the primary device language is one of the following:

- Armenian
- Azerbaijani
- Belarusian
- Georgian
- Kazakh
- Kyrgyz
- Romanian
- Russian
- Tajik
- Tatar
- Turkmen
- Ukrainian

source utility that can be used to manage remote storage. Egregor payloads depost their own copy of Rclone along with unique configuration data, controlling the exfiltration process.

Post-Compromise Behavior

Egregor maintains a victim blog, which they use to threaten victims and post exfiltrated data in the event that victims fail to comply with their ransom demands. As of November 24th, 2020 there were 152 companies listed on the Egregor blog, spanning numerous industries across the globe. They do not appear to discriminate when it comes to industry or geography. The most frequently represented industries are:

- Information Technology and Services
- Construction
- Retail
- Consumer Goods
- Automotive

The Egregor ransom notes follow a familiar template as other ransomware families. Victims are instructed to visit their TOR-based payment portal for further

Example:

```
---EGREGOR---

pWEzuKkw9nY82VRKYfrw4f4wvrnfnKEApQ5JTkf/YQPzxJtJmwKUjXV759aYQnPIZdGN1

---EGREGOR---
```

This 'blob' includes data pertaining to the victim's available local drives, the space and total size of those drives, the hostname, the names of any AV or Security products discovered, and the user/domain context. The 'blob' is primarily base64-encoded. When decoded the pertinent data is visible at the end of the plaintext.

Conclusion

Egregor is one of the more aggressive and complex ransomware families to hit in the last 6 to 8 months. As with other contemporary threats, the damage being done extends well beyond the cost of the ransom (which you should avoid), and now also includes any penalties associated with data breaches, public posting of private data, GDPR / compliance fallout, and beyond.

The SentinelOne Singularity Platform fully protects our customers from this ransomware and related families.

Indicators of Compromise

3fd510a3b2e0b0802d57cd5b1cac1e61797d50a08b87d9b5243becd9e2f7073f

2b3518937fd231560c7dc4f5af672a033b1c810d7f2f82c8151c025ce75775bf

444a6897058fd4965770167b15a2ab13e6fd559a3e6f6cf5565d4d3282587459

c3c50adcc0a5cd2b39677f17fb5f2efca52cc4e47ccd2cdbbf38815d426be9e1

004a2dc3ec7b98fa7fe6ae9c23a8b051ec30bcfcd2bc387c440c07ff5180fe9a

608b5bf065f25cd1c6ac145e3bcdf0b1b6dc742a08e59ec0ce136fe5142774e9

3e5a6834cf6192a987ca9b0b4c8cb9202660e399ebe387af8c7407b12ae2da63

4ea8b8c37cfb02ccdba95fe91c12fb68a2b7174fdcbee7ddaadded8ceb0fdf97

9017c070ad6ac9ac52e361286b3ff24a315f721f488b53b7aaf6ac35de477f44

ee06c557f1acd5c4948b1df0413e49f3885f8ac96185a9d986b91a1231444541

765327e1dc0888c69c92203d90037c5154db9787f54d3fc8f1097830be8c76ab

14e547bebaa738b8605ba4182c4379317d121e268f846c0ed3da171375e65fe4

3fc382ae51ceca3ad6ef5880cdd2d89ef508f368911d3cd41c71a54453004c55

f0adfd3f89c9268953f93bfdfefb84432532a1e30542fee7bddda14dcb69a76c

a9d483c0f021b72a94324562068d8164f8cce0aa8f779faea304669390775436

3aad14d200887119f316be71d71aec11735dd3698a4fcaa50902fce71bdccb07

6ad7b3e0873c9ff122c32006fdc3675706a03c4778287085a020d839b74cd780

932778732711cd18d5c4aabc507a65180bf1d4bd2b7d2d4e5506be4b8193596e

SHA1 Hashes

3c03a1c61932bec2b276600ea52bd2803285ec62

f0215aac7be36a5fedeea51d34d8f8da2e98bf1b

948ef8caef5c1254be551cab8a64c687ea0faf84

50c3b800294f7ee4bde577d99f2118fc1c4ba3b9

3cc616d959eb2fe59642102f0565c0e55ee67dbc

5c99dc80ca69ce0f2d9b4f790ec1b57dba7153c9

beb48c2a7ff957d467d9199c954b89f8411d3ca8

03cdec4a0a63a016d0767650cdaf1d4d24669795

c9da06e3dbf406aec50bc145cba1a50b26db853a

ceca1a691c736632b3e98f2ed5b028d33c0f3c64

f6ad7b0a1d93b7a70e286b87f423119daa4ea4df

56eed20ea731d28d621723130518ac00bf50170d

fa33fd577f5eb4813bc69dce891361871cda860c

f7bf7cea89c6205d78fa42d735d81c1e5c183041

f1603f1ddf52391b16ee9e73e68f5dd405ab06b0

8768cf56e12a81d838e270dca9b82d30c35d026e

ac6d919b313bbb18624d26745121fca3e4ae0fd3

IP Addresses

45[.]153.242.129

217[.]8.117.148

45[.]153.242.129

45[.]11.19.70

49[.]12.104.241:81

185[.]238.0.233

Full URL Examples

h t t p://185.238.0[.]233/p.dll

h t t p://185.238.0[.]233/hnt.dll

h t t p://185.238.0[.]233/88/k057.exe

h t t p://185.238.0[.]233/newsvc.zip

Victim Blog / Archive

h t t p://egregoranrmzapcv[.]onion

h t t p s://egregornews[.]com/

Payment Portal

h t t p://egregor4u5ipdzhv[.]onion/

MITRE ATT&CK

Indicator Removal on Host: File Deletion T1070.004

Modify Registry T1112

Query Registry T1012

System Information Discovery T1082

Native API T1106

Hijack Execution Flow: DLL Side-Loading T1574.002

Process Injection T1055

Masquerading T1036

System Time Discovery T1124

Archive Collected Data T1560

Virtualization/Sandbox Evasion T1497

Software Discovery: Security Software Discovery T1518.001

Peripheral Device Discovery T1120

Exfiltration TA0010

Miscellaneous

Ransom Note example (RECOVER-FILES.txt)

RAAS RANSOMWARE

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JIM WALTER

Jim Walter is a Senior Threat Researcher at SentinelOne focusing on evolving trends, actors, and tactics within the thriving ecosystem of cybercrime and crimeware. He specializes in the discovery and analysis of emerging cybercrime "services" and evolving communication channels leveraged by mid-level criminal organizations. Jim joined SentinelOne following ~4 years at a security start-up, also focused on malware research and organized crime. Previously, he spent over 17 years at McAfee/Intel running their Threat Intelligence and Advanced Threat Research teams.

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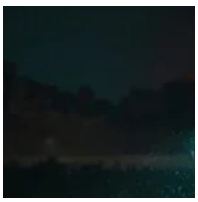

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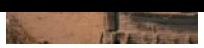

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In the era of interconnectivity, when markets, geographies, and jurisdictions merge in the melting pot of the digital domain, the perils of the threat ecosystem become unparalleled. Crimeware families achieve an unparalleled level of technical sophistication, APT groups are competing in fully-fledged cyber warfare, while once decentralized and scattered threat actors are forming adamant alliances of operating as elite corporate espionage teams.

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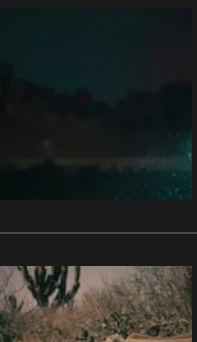

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