



# HC3: Analyst Note

January 04, 2023 TLP:CLEAR Report: 202301041300

## Clop Ransomware

### Executive Summary

Clop operates under the Ransomware-as-service (RaaS) model, and it was first observed in 2019. Clop was a highly used ransomware in the market and typically targeted organizations with a revenue of \$5 million U.S. Dollars (USD) or higher. Since its appearance, HC3 is aware of attacks on the Health and Public Health (HPH) sector. The HPH sector has been recognized as being a highly targeted industry for the Clop ransomware.

### Report

Clop ransomware, also written as ClOp, was first observed in February 2019 and the operators have seen very large payouts of up to \$500 million USD. Clop is the successor of the [CryptoMix](#) ransomware, which is believed to have been developed in Russia and is a popular payload for groups such as FIN11 and other Russian affiliates. Like most ransomware groups, financial gain appears to be their primary goal, which they leverage through the use of the double extortion model. Through this technique the threat actor will encrypt and exfiltrate sensitive information. Sensitive data will be released on their dark web leak site if payment is not made. This model is used so the actor can have additional leverage to help collect a ransom payment.

The appearance of Clop ransomware was expected to decline in 2021 after the [arrest of six ransomware operators](#). However, the malware continued to have non-stop activity through 2022. Additionally, it has been observed to be a potential payload from the downloader malware, [TrueBot](#). Clop is designed to have not only have anti-analysis capabilities but also anti-virtual machine analysis to help prevent further investigations in an emulated environment.

Clop was written to target Windows systems, and some reporting samples showcase that it is a Win32 executable written in C++. The executable packet is compressed, which helps hide its functionality. The ransomware encrypts files with an RSA 1024-bit public key with RC4 that uses 117 bytes of the public key. Phishing emails have been a primary initial access vector for Clop, but reports have shown that it also exploits the following Common Vulnerabilities and Exposures (CVE): [CVE-2021-27101](#), [CVE-2021-27102](#), [CVE-2021-27103](#), [CVE-2021-27104](#), and [CVE-2021-35211](#).

Once a network has been compromised, they have been observed to use remote desktop protocols and deploying Cobalt Strike to aid in lateral movement. Finally, after encryption is complete, the victim will be able to access a dropped **README.TXT**, and the encrypted file's extension will be changed to 'Clop'. In the ransom note, it states that the Shadow Volume Copies have been deleted and the decryption key is only available from the group, along with claiming that all the files will be deleted after two weeks have passed.



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```
ClopReadMe.txt - Notepad
File Edit Format View Help
Your network has been penetrated.
All files on each host in the network have been encrypted with a strong algorithm.
Backups were either encrypted or deleted or backup disks were formatted.
Shadow copies also removed, so F8 or any other methods may damage encrypted data but not recover
We exclusively have decryption software for your situation
No decryption software is available in the public.
DO NOT RESET OR SHUTDOWN - files may be damaged.
DO NOT RENAME OR MOVE the encrypted and readme files.
DO NOT DELETE readme files.
This may lead to the impossibility of recovery of the certain files.
Photorec, RannohDecryptor etc. repair tools are useless and can destroy your files irreversibly.
If you want to restore your files write to emails (contacts are at the bottom of the sheet) and
(Less than 5 Mb each, non-archived and your files should not contain valuable information
(Databases, backups, large excel sheets, etc.)).
You will receive decrypted samples and our conditions how to get the decoder.

Attention!!!
Your warranty - decrypted samples.
Do not rename encrypted files.
Do not try to decrypt your data using third party software.
We don't need your files and your information.

But after 2 weeks all your files and keys will be deleted automatically.
Contact emails:
servicedigilogos@protonmail.com
or
managersmaers@tutanota.com

The final price depends on how fast you write to us.
Clop
```

Source: pcrisk

## Analyst Comment

The Clop ransomware has been around since 2019, and even though the organization had several members arrested, its activity appeared to be uninterrupted. However, the gang has had difficulties getting victims to payout on a ransom which has reportedly lead to a change in their tactics that directly impacts the HPH sector. The group has been infecting files that are disguised to look like medical documents, submitting them to facilities, and then requesting a medical appointment in hopes of those malicious documents being opened and reviewed beforehand. These attacks have a higher chance of working due to conditions from COVID-19 expansion in the telehealth environment.

Outside of the techniques addressed in this report, HC3 continues to see the following attack vectors frequently associated with ransomware:

- Phishing
- Remote Desktop Protocol Compromises and credential abuse



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- Compromises of exploited vulnerabilities, such as VPN servers
- Compromises in other known vulnerabilities

The following sources contain indicators of compromise:

- [Ransomware Spotlight: Clop - Security News \(trendmicro.com\)](#)
- [Clop Ransomware - AlienVault - Open Threat Exchange](#)
- [https://secoretek.com/wp-content/uploads/2018/10/Secoretek-Advisory-Clop-Ransomware\\_.pdf](https://secoretek.com/wp-content/uploads/2018/10/Secoretek-Advisory-Clop-Ransomware_.pdf)

## References

Davis, Jessica. "Clop ransomware group targeting provider-patient trust by infecting medical images". SCMagazine. Dec 20, 2022. <https://www.scmagazine.com/analysis/ransomware/clop-ransomware-group-targeting-provider-patient-trust-by-infecting-medical-images>

"CLOP Poses Ongoing Risk to HPH Organizations". HC3. March 23, 2021. [202103231400 Analyst Note CLOP TLP WHITE \(hhs.gov\)](#)

"Threat Thursday: CryptoMix Clop Ransomware". Blackberry. July 15, 2021. <https://blogs.blackberry.com/en/2021/07/threat-thursday-cryptomix-clop-ransomware>

"New Ransom Payment Schemes Targets Executives, Telemedicine". Krebsonsecurity. Dec 08, 2022. [New Ransom Payment Schemes Target Executives, Telemedicine - Krebs on Security](#)

Paganini, PierLuigi. "TrueBot Infections were Observed in Clop Ransomware Attacks". Securityaffairs. Dec 12, 2022. [TrueBot infections were observed in Clop ransomware attacks Security Affairs](#)

Toulas, Bill. "Clop Ransomware uses TrueBot malware for access to networks". Bleepingcomputer. Dec 11, 2022. [Clop ransomware uses TrueBot malware for access to networks \(bleepingcomputer.com\)](#)

"Ransom.CryptoMix". Malwarebytes. [Ransom.Cryptomix \(malwarebytes.com\)](#)

## Contact Information

If you have any additional questions, we encourage you to contact us at [HC3@hhs.gov](mailto:HC3@hhs.gov).

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