



# America's Cyber Defense Agency

NATIONAL COORDINATOR FOR CRITICAL INFRASTRUCTURE SECURITY AND RESILIENCE

## CYBERSECURITY ADVISORY

# #StopRansomware: Interlock

**Release Date:** July 22, 2025

**Alert Code:** aa25-203a

CISA PRODUCT FEEDBACK SURVEY



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## ACTIONS FOR ORGANIZATIONS TO TAKE TODAY TO MITIGATE CYBER THREATS RELATED TO INTERLOCK RANSOMWARE ACTIVITY

- 1.** Prevent initial access by implementing domain name system (DNS) filtering and web access firewalls, and training users to spot social engineering attempts.
- 2.** Mitigate known vulnerabilities by ensuring operating systems, software, and firmware are patched and up to date.

- 3. Segment networks to restrict lateral movement from initial infected devices and other devices in the same organization.**
  
- 4. Implement identity, credential, and access management (ICAM) policies across the organization and then require multifactor authentication (MFA) for all services to the extent possible.**

## Summary

**Note:** This joint Cybersecurity Advisory is part of an ongoing #StopRansomware effort to publish advisories for network defenders that detail various ransomware variants and ransomware threat actors. These #StopRansomware advisories include recently and historically observed tactics, techniques, and procedures (TTPs) and indicators of compromise (IOCs) to help organizations protect against ransomware. Visit [stopransomware.gov](https://stopransomware.gov) to see all #StopRansomware advisories and to learn more about other ransomware threats and no-cost resources.

The Federal Bureau of Investigation (FBI), Cybersecurity and Infrastructure Security Agency (CISA), Department of Health and Human Services (HHS), and Multi-State Information Sharing and Analysis Center (MS-ISAC)—hereafter referred to as “the authoring organizations”—are releasing this joint advisory to disseminate known Interlock ransomware IOCs and TTPs identified through FBI investigations (as recently as June 2025) and trusted third-party reporting.

The Interlock ransomware variant was first observed in late September 2024, targeting various business, critical infrastructure, and other organizations in North America and Europe. FBI maintains these actors target their victims based on opportunity, and their activity is financially motivated. FBI is aware of Interlock ransomware encryptors designed for both Windows and Linux operating systems; these encryptors have been observed encrypting virtual machines (VMs) across both operating systems. FBI observed actors obtaining initial access via drive-by download from compromised legitimate websites,

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which is an uncommon method among ransomware groups. Actors were also observed using the ClickFix social engineering technique for initial access, in which victims are tricked into executing a malicious payload under the guise of fixing an issue on the victim's system. Actors then use various methods for discovery, credential access, and lateral movement to spread to other systems on the network.

Interlock actors employ a double extortion model in which actors encrypt systems after exfiltrating data, which increases pressure on victims to pay the ransom to both get their data decrypted and prevent it from being leaked.

FBI, CISA, HHS, and MS-ISAC encourage organizations to implement the recommendations in the **Mitigations** section of this advisory to reduce the likelihood and impact of Interlock ransomware incidents.

Download the PDF version of this report:

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 [AA25 203A StopRansomware Interlock](#) </sites/default/files/2025-07/aa25-203a-stopransomware-interlock-072225.pdf>  
(PDF, 727.00 KB)

For a downloadable copy of IOCs, see:

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 [AA25-203A Interlock STIX XML](#) </sites/default/files/2025-07/aa25-203a-interlock-stix.xml>  
(XML, 63.69 KB )

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 [AA25 203A Interlock STIX JSON](#) </sites/default/files/2025-07/aa25-203a-interlock-stix.json>  
(JSON, 57.47 KB )

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# Technical Details

**Note:** This advisory uses the [MITRE ATT&CK® Matrix for Enterprise](#)

<<https://attack.mitre.org/versions/v17/matrices/enterprise/>> framework, version 17. See the **MITRE ATT&CK Tactics and Techniques** section of this advisory for tables mapped to the threat actors' activity.

## Overview

Since September 2024, Interlock ransomware actors have impacted a wide range of businesses and critical infrastructure sectors in North America and Europe. These actors are opportunistic and financially motivated in nature and employ tactics to infiltrate and disrupt the victim's ability to provide their essential services.

Interlock actors leverage a double extortion model, in which they both encrypt and exfiltrate victim data. Ransom notes do not include an initial ransom demand or payment instructions; instead, victims are provided with a unique code and are instructed to contact the ransomware group via a [.onion](#) URL through the Tor browser. To date, Interlock actors have been observed encrypting VMs, leaving hosts, workstations, and physical servers unaffected; however, this does not mean they will not expand to these systems in the future. To counter Interlock actors' threat to VMs, enterprise defenders should implement robust endpoint detection and response (EDR) tooling and capabilities.

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The authoring agencies are aware of emerging open-source reporting detailing similarities between the Rhysida and Interlock ransomware variants.<sup>1</sup> <[/news-events/cybersecurity-advisories/aa25-203a#note1](#)> For additional information on Rhysida ransomware, see the joint advisory, #StopRansomware: Rhy <[/news-events/cybersecurity-advisories/aa23-319a](#)>sida Ransomware <[/news-events/cybersecurity-advisories/aa23-319a#stopransomware](#)>.

## Initial Access

FBI has observed Interlock actors obtaining initial access [TA0001 <<https://attack.mitre.org/versions/v17/tactics/ta0001/>>] via drive-by download [T1189 <<https://attack.mitre.org/versions/v17/techniques/t1189/>>] from compromised legitimate websites, an atypical method for ransomware actors. Interlock ransomware methods for initial access have previously disguised malicious payloads as fake Google Chrome or Microsoft Edge browser updates, though a cybersecurity company recently reported a shift to payload filenames masquerading as updates for common security software (see Table 5 for a list of filenames).<sup>2</sup> <[/news-events/cybersecurity-advisories/aa25-203a#note2](#)>

In some instances, FBI has observed Interlock actors using the ClickFix social engineering technique, in which unsuspecting users are prompted to execute a malicious payload by clicking a fake Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) [T1189 <<https://attack.mitre.org/versions/v17/techniques/t1189/>>]. The CAPTCHA contains instructions for users to open the Windows Run window, paste the clipboard contents, and then execute a malicious Base64-encoded PowerShell process [T1204.004 <<https://attack.mitre.org/versions/v17/techniques/t1204/004/>>].<sup>3</sup> <[/news-events/cybersecurity-advisories/aa25-203a#note3](#)>

**Note:** This ClickFix technique has been used in several other malware campaigns, including Lumma Stealer and DarkGate.<sup>4</sup> <[/news-events/cybersecurity-advisories/aa25-203a#note4](#)>

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## Execution and Persistence

Based on FBI investigations, the fake Google Chrome browser executable functions as a remote access trojan (RAT) [T1105 <<https://attack.mitre.org/versions/v17/techniques/t1105/>>] designed to execute a PowerShell script [T1059.001 <<https://attack.mitre.org/versions/v17/techniques/t1059/001/>>] that drops a file into the Windows Startup folder. From there, the file is designed to run the RAT every time the victim logs in [T1547.001 <<https://attack.mitre.org/versions/v17/techniques/t1547/001/>>], establishing persistence [TA0003 <<https://attack.mitre.org/versions/v17/tactics/ta0003/>>].

FBI also observed instances in which Interlock actors executed a PowerShell command designed to establish persistence via a Windows Registry key modification [T1547.001 <<https://attack.mitre.org/versions/v17/techniques/t1547/001/>>]. To do so, Interlock actors used a PowerShell command [T1059.001 <<https://attack.mitre.org/versions/v17/techniques/t1059/001/>>] designed to add a run key value named “Chrome Updater” [T1036.005 <<https://attack.mitre.org/versions/v17/techniques/t1036/005/>>] that uses a specific log file as an argument upon user login.

## Reconnaissance

To facilitate reconnaissance, a PowerShell script executes a series of commands [T1059.001 <<https://attack.mitre.org/versions/v17/techniques/t1059/001/>>] designed to gather information on victim machines (see **Table 1**).

**Table 1. PowerShell Commands for Reconnaissance**

PowerShell Command	Description
WindowsIdentity.GetCurrent()	Returns a WindowsIdentity object that represents the current Windows user [T1033 < <a href="https://attack.mitre.org/versions/v17/techniques/t1033/">https://attack.mitre.org/versions/v17/techniques/t1033/</a> >].
systeminfo	Displays detailed configuration information [T1082 < <a href="https://attack.mitre.org/versions/v17/techniques/t1082/">https://attack.mitre.org/versions/v17/techniques/t1082/</a> >] about a computer and its operating system, including operating system configuration, security information, product ID, and hardware properties.

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PowerShell Command	Description
tasklist/svc	<p>Lists unabridged service information [T1007 &lt;<a href="https://attack.mitre.org/versions/v17/techniques/t1007/">https://attack.mitre.org/versions/v17/techniques/t1007/</a>&gt;] for each process currently running on the local computer.</p>
Get-Service	<p>Gets objects that represent the services [T1007 &lt;<a href="https://attack.mitre.org/versions/v17/techniques/t1007/">https://attack.mitre.org/versions/v17/techniques/t1007/</a>&gt;] on a computer, including running and stopped services.</p>
Get-PSDrive	<p>Gets the drives [T1082 &lt;<a href="https://attack.mitre.org/versions/v17/techniques/t1082/">https://attack.mitre.org/versions/v17/techniques/t1082/</a>&gt;] in the current session, such as:</p> <ul style="list-style-type: none"><li data-bbox="894 1136 1383 1262">■ Windows logical drives on the computer, including drives mapped to network shares.</li><li data-bbox="894 1284 1383 1368">■ Drives exposed by PowerShell providers.</li><li data-bbox="894 1389 1383 1537">■ Session-specified temporary drives and persistent mapped network drives.</li></ul>

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PowerShell Command	Description
arp-a	<p>Displays and modifies entries in the Address Resolution Protocol (ARP) cache table [T1016 &lt;<a href="https://attack.mitre.org/versions/v17/techniques/t1016/">https://attack.mitre.org/versions/v17/techniques/t1016/</a>&gt;], which contains entries on the IPv4 and IPv6 addresses on host endpoints.</p>

## Command and Control

FBI observed Interlock actors using command and control (C2) [TA0011 <<https://attack.mitre.org/versions/v17/tactics/ta0011/>>] applications like Cobalt Strike <<https://attack.mitre.org/versions/v17/software/s0154/>> and SystemBC. Interlock actors also used Interlock RAT<sup>5</sup> <[news-events/cybersecurity-advisories/aa25-203a#note5](https://news-events/cybersecurity-advisories/aa25-203a#note5)> and NodeSnake RAT (as of March 2025)<sup>6</sup> <[news-events/cybersecurity-advisories/aa25-203a#note6](https://news-events/cybersecurity-advisories/aa25-203a#note6)> for C2 and executing commands.

## Credential Access, Lateral Movement, and Privilege Escalation

FBI observed that once Interlock actors establish remote control of a compromised system they use a series of PowerShell commands to download a credential stealer (`cht.exe`) [TA0006 <<https://attack.mitre.org/versions/v17/tactics/ta0006/>>] and keylogger binary (`k1g.dll`) [T1056.001 <<https://attack.mitre.org/versions/v17/techniques/t1056/001/>>],[T1105 <<https://attack.mitre.org/versions/v17/techniques/t1105/>>]. According to open source reporting, the credential stealer collects login information and associated URLs for victims' online accounts [T1555.003 <<https://attack.mitre.org/versions/v17/techniques/t1555/003/>>], while the keylogger dynamic link library (DLL) logs users' keystrokes in a file named `conhost.txt` [T1036.005 <<https://attack.mitre.org/versions/v17/techniques/t1036/005/>>].<sup>7</sup> <[news-events/cybersecurity-advisories/aa25-203a#note7](https://news-events/cybersecurity-advisories/aa25-203a#note7)> As of February 2025, private cybersecurity analysts also observed Interlock ransomware infections executing different versions of information stealers [TA0006 <<https://attack.mitre.org/versions/v17/tactics/ta0006/>>], including Lumma Stealer<sup>8</sup> <[news-events/cybersecurity-advisories/aa25-203a#note8](https://news-events/cybersecurity-advisories/aa25-203a#note8)>

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events/cybersecurity-advisories/aa25-203a#note8> and Berserk Stealer, to harvest credentials for lateral movement and privilege escalation [T1078 <<https://attack.mitre.org/versions/v17/techniques/t1078/>>].<sup>9</sup> </news-events/cybersecurity-advisories/aa25-203a#note9>

Interlock actors leverage compromised credentials and Remote Desktop Protocol (RDP)<sup>10</sup> </news-events/cybersecurity-advisories/aa25-203a#note10> [T1021.001 <<https://attack.mitre.org/versions/v17/techniques/t1021/001/>>] to move between systems. They also use tools like AnyDesk to enable remote connectivity and PuTTY to assist with lateral movement [T1219 <<https://attack.mitre.org/versions/v17/techniques/t1219/>>].<sup>11</sup> </news-events/cybersecurity-advisories/aa25-203a#note11> In addition to stealing users' online credentials, Interlock actors have compromised domain administrator accounts (possibly by using a Kerberoasting attack [T1558.003 <<https://attack.mitre.org/versions/v17/techniques/t1558/003/>>])<sup>12</sup> </news-events/cybersecurity-advisories/aa25-203a#note12> to gain additional privileges [T1078.002 <<https://attack.mitre.org/versions/v17/techniques/t1078/002/>>].

## Collection and Exfiltration

Interlock actors leverage Azure Storage Explorer (`StorageExplorer.exe`) to navigate victims' Microsoft Azure Storage accounts [T1530 <<https://attack.mitre.org/versions/v17/techniques/t1530/>>] prior to exfiltrating data. According to open source reporting, Interlock actors execute AzCopy to exfiltrate data by uploading it to the Azure storage blob [T1567.002 <<https://attack.mitre.org/versions/v17/techniques/t1567/002/>>].<sup>13</sup> </news-events/cybersecurity-advisories/aa25-203a#note13> Interlock actors also exfiltrate data over file transfer tools, including WinSCP [T1048 <<https://attack.mitre.org/versions/v17/techniques/t1048/>>].

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## Impact

Following data exfiltration, Interlock actors deploy the encryption binary as a 64-bit executable named `conhost.exe` [T1486 <<https://attack.mitre.org/versions/v17/techniques/t1486/>>],[T1036.005 <<https://attack.mitre.org/versions/v17/techniques/t1036/005/>>]

<<https://attack.mitre.org/versions/v17/techniques/t1036/005/>>]. FBI has observed Interlock ransomware encryptors for both Windows and Linux operating systems. Encryptors are designed to encrypt files using a combined Advanced Encryption Standard (AES) and Rivest-Shamir-Adleman (RSA) algorithm. In addition, cybersecurity researchers have identified Interlock ransomware samples using a FreeBSD ELF encryptor [T1486 <<https://attack.mitre.org/versions/v17/techniques/t1486/>>], a departure from usual Linux encryptors designed for VMware ESXi servers and VMs.<sup>14</sup> </news-events/cybersecurity-advisories/aa25-203a#note14>

A cybersecurity company identified a DLL binary named `tmp41.wasd`—executed after encryption using `rundll32.exe` [T1218.011

<<https://attack.mitre.org/versions/v17/techniques/t1218/011/>>]—which uses the `remove()` function to delete the encryption binary [T1070.004

<<https://attack.mitre.org/versions/v17/techniques/t1070/004/>>];<sup>15</sup> </news-events/cybersecurity-advisories/aa25-203a#note15> on Linux machines, the encryptor uses a similar technique to execute the `removeme` function.

Encrypted files are appended with either a `.interlock` or `.1nt3rlock` file extension, alongside a ransom note titled `!__README__!.txt` delivered via group policy object (GPO). Interlock actors use a double-extortion model [T1657

<<https://attack.mitre.org/versions/v17/techniques/t1657/>>], encrypting systems after exfiltrating data. The ransom note provides each victim with a unique code and instructions to contact the ransomware actors via a `.onion` URL.

Interlock actors do not leave an initial ransom demand or payment instructions on compromised networks, and do not relay this information until contacted by the victim. The actors instruct victims to make ransom payments in Bitcoin to cryptocurrency wallet addresses provided by the actors. The actors threaten to publish the victim's exfiltrated data to their leak site on the Tor network unless the victim pays the ransom demand; the actors have previously followed through on this threat.<sup>16</sup> </news-events/cybersecurity-advisories/aa25-203a#note16>

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# Leveraged Tools

See **Table 2** for publicly available tools and applications used by Interlock ransomware actors. This includes legitimate tools repurposed for their operations.

**Disclaimer:** Use of these tools and applications should not be attributed as malicious without analytical evidence to support threat actor use and/or control.

**Table 2. Tools Used by Interlock Ransomware Actors**

Tool Name	Description
AnyDesk	A common legitimate remote monitoring and management (RMM) tool maliciously used by Interlock actors to obtain remote access and maintain persistence. AnyDesk also supports remote file transfer.
Cobalt Strike	A penetration testing tool used by security professionals to test the security of networks and systems.
PowerShell	A cross-platform task automation solution made up of a command-line shell, a scripting language, and a configuration management framework, which runs on Windows, Linux, and macOS.
PSExec	A tool designed to run programs and execute commands on remote systems.

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Tool Name	Description
PuTTY.exe	<p>An open source file transfer application commonly used to remotely connect to systems via Secure Shell (SSH). PuTTY also supports file transfer protocols like Secure File Transfer Protocol (SFTP) and Secure Copy Protocol (SCP).</p>
ScreenConnect	<p>A remote support, access, and meeting software that allows users to control devices remotely over the internet. CISA observed Interlock actors using a cracked version of this software in at least one incident. These versions may be standalone versions not connecting to ScreenConnect's official cloud domains (domains available upon request from ConnectWise).</p>
SystemBC	<p>Enables Interlock actors to compromise systems, run commands, download malicious payloads, and act as a proxy tool to the actors' C2 servers.</p>
Windows Console Host	<p>Windows Console Host (<code>conhost.exe</code>) manages the user interface for command-line applications in Windows, including Command Prompt and PowerShell.</p>

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Tool Name	Description
WinSCP	A free and open source SSH File Transfer Protocol (FTP), WebDAV, Amazon S3, and secure copy protocol client.

## Leveraged Files

See **Table 3** and **Table 4** for files used by Interlock ransomware actors. These were obtained from FBI investigations as recently as June 2025.

**Disclaimer:** Some of the hashes are for legitimate tools and applications and should not be attributed as malicious without analytical evidence to support threat actor use and/or control. The authoring agencies recommend organizations investigate or vet these hashes prior to taking action, such as blocking.

**Table 3. Files Used by Interlock Ransomware Actors (SHA-256)**

File Name	Hash	Give Feedback
1.ps1	fba4883bf4f73aa48a957d894051d 78e0085ecc3170b1ff50e61cc6aee e2cd	
advanced_port_scanner.exe	4b036cc9930bb42454172f888b8fd e1087797fc0c9d31ab546748bd249 6bd3e5	
Aisa.exe	18a507bf1c533aad8e6f2a2b023fbb cac02a477e8f05b095ee29b52b90d 47421	

File Name	Hash
AnyDesk.exe	1a70f4eef11fbecb721b9bab1c9ff43a 8c4cd7b2cafef08c033c77070c6fe0 69
autoservice.dll	a4069aa29628e64ea63b4fb3e29d1 6dcc368c5add304358a47097eedaf bbb565
Autostart.exe	d535bdc9970a3c6f7ebf0b229c695 082a73eaeaf35a63cd8a0e7e6e3ce b22795
cht	FAFCD5404A992850FFCFFEE46221 F9B2FF716006AEBCB637B80E5CD5 AA112D79C
cht.exe	C20BABA26EBB596DE14B403B9F7 8DDC3C13CE9870EEA332476AC2C 1DD582AA07
cleanup.dll (SystemBC)	1845a910dcde8c6e45ad2e0c48439 e5ab8bbbeb731f2af11a1b7bbab3bfe 0127
conhost	44887125aa2df864226421ee694d5 1e5535d8c6f70e327e9bcb366e43f d892c1
conhost.dll	a70af759e38219ca3a7f7645f3e103 b13c9fb1db6d13b68f3d468b798754 0ddf

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File Name	Hash
conhost.dll	96babe53d6569ee3b4d8fc09c2a65 57e49ebc2ed1b965abda0f7f513785 57eb1
difxepi.dll (SystemBC)	1845a910dcde8c6e45ad2e0c48439 e5ab8bbbeb731f2af11a1b7bab3bfe 0127
iexplore.exe	d0c1662ce239e4d288048c0e3324e c52962f6ddda77da0cb7af9c1d9c2f 1e2eb
klg.dll	A4F0B68052E8DA9A80B70407A92 400C6A5DEF19717E0240AC608612 476E1137E
!!!OPEN_ME!!!.txt	68A49D5A097E3850F3BB572BAF2 B75A8E158DADB70BADDCC205C262 8A9B660E7A
processhacker-2.39-bin.zip	88f26f3721076f74996f8518469d98 bf9be0eaee5b9eccc72867ebfc25ea 4e83
PsExec.exe	078163d5c16f64caa5a14784323fd5 1451b8c831c73396b967b4e35e687 9937b
putty.exe	7a43789216ce242524e321d2222fa 50820a532e29175e0a2e685459a19 e09069

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File Name	Hash
puttyportable.exe	97931d2e2e449ac3691eb526f6f60e 2f828de89074bdac07bd7dbdfd51af 9fa0
PuTTYPortable.zip	ff7ad2376ae01e4b3f1e1d7ae630f87 b8262b5c11bc5d953e1ac34ffe81401 b5
qrpce91.exe.asd	64a0ab00d90682b1807c5d7da1a4a e67cde4c5757fc7d995d8f126f0ec8 ae983
ScreenConnect.ClientService.exe	2814b33ce81d2d2e528bb1ed4290d 665569f112c9be54e65abca50c4131 4d462
SophosendpointAgent.exe	f51b3d054995803d04a754ea3ff7d 31823fab654393e8054b22709258 0be43db
SophosScaner.exe	dfb5ba578b81f05593c047f2c822ee b03785aecffb1504dcbb7f8357e898b 5024
Starship.exe	94bf0aba5f9f32b9c35e8dfc70afd8 a35621ed6ef084453dc1b10719ae72 f8e2
start	28c3c50d115d2b8ffc7ba0a8de9572 fbe307907aaae3a486aab8c0266e 9426f

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File Name	Hash
start.exe	70bb799557da5ac4f18093decc60c 96c13359e30f246683815a512d7f9 824c8f
StorageExplorer.exe	73a9a1e38ff40908bcc15df2954246 883dadfb991f3c74f6c514b4cffdabd e66
Sysmon.sys	1d04e33009bcd017898b9e1387e40 b5c04279c02ebc110f12e4a724ccdb 9e4fb
upd_2327991.exe	7b9e12e3561285181634ab32015eb6 53ab5e5cfa157dd16cdd327104b258 c332
webujgd.lnk	70EE22D394E107FBB807D86D187C 216AD66B8537EDC67931559A8AE F18F6B5B3
WinSCP-6.3.5-Setup.exe	8eb7e3e8f3ee31d382359a8a232c9 84bdaa130584cad11683749026e5d f1fdc3
Proxy Tool	e4d6fe517cdf3790dfa51c62457f5ac d8cb961ab1f083de37b15fd2fddeb9 b8f
Encryptor	e86bb8361c436be94b0901e5b39db 9b6666134f23cce1e5581421c29814 05cb1

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File Name	Hash
Encryptor	c733d85f445004c9d6918f7c09a1e0 d38a8f3b37ad825cd544b865dba3 6a1ba6
Encryptor	28c3c50d115d2b8ffc7ba0a8de9572 fbe307907aaae3a486aab8c0266e 9426f

**Table 4. Files Used by Interlock Ransomware Actors (SHA-1)**

File Name	Hash
autorun.log	514946a8fc248de1ccf0dbeee2108a 3b4d75b5f6
jar.jar	b625cc9e4024d09084e80a4a42ab 7ccaa6afb61d
pack.jar	3703374c9622f74edc9c8e3a47a5d 53007f7721e

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## MITRE ATT&CK Tactics and Techniques

See **Table 5** through **Table 16** for all referenced threat actor tactics and techniques in this advisory. For assistance with mapping malicious cyber activity to the MITRE ATT&CK framework, see CISA and MITRE ATT&CK's [Best Practices for MITRE ATT&CK Mapping](#) and CISA's [Decider Tool](#) (<https://github.com/cisagov/decider/>).

**Table 5. Initial Access**

Technique Title	ID	Use
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Technique Title	ID	Use
Drive-By Compromise	<p>T1189</p> <p>&lt;<a href="https://attack.mitre.org/versions/v17/techniques/t1189/">https://attack.mitre.org/versions/v17/techniques/t1189/</a>&gt;</p>	<p>Interlock actors obtain initial access by compromising a legitimate website that network users visit, or by disguising malicious payloads as fake browser updates or common security software, including the following:<sup>17</sup></p> <p>&lt;/news-events/cybersecurity-advisories/aa25-203a#note17&gt;</p> <ul style="list-style-type: none"> <li>■ FortiClient.exe</li> <li>■ Ivanti-Secure-Access-Client.exe</li> <li>■ GlobalProtect.exe</li> <li>■ Webex.exe</li> <li>■ AnyConnectVPN.exe</li> <li>■ Cisco-Secure-Client.exe</li> <li>■ zyzoom_antimalware.exe</li> </ul> <p>Interlock actors also gain access via the ClickFix social engineering</p>

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Technique Title	ID	Use
		technique, in which users are tricked into executing a malicious payload by clicking on a fake CAPTCHA that prompts users to execute a malicious PowerShell script.

**Table 6. Execution**

Technique Title	ID	Use
Command and Scripting Interpreter: PowerShell	T1059.001 <a href="https://attack.mitre.org/versions/v17/techniques/t1059/001/">https://attack.mitre.org/versions/v17/techniques/t1059/001/</a>	Interlock actors implement PowerShell scripts to drop a malicious file into the Windows Startup folder.
		Interlock actors execute a PowerShell command for registry key modification.
		Interlock actors use a PowerShell script to execute a series of commands to facilitate reconnaissance.

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Technique Title	ID	Use
User Execution: Malicious Copy and Paste	T1204.004 <a href="https://attack.mitre.org/versions/v17/techniques/t1204/004/">https://attack.mitre.org/versions/v17/techniques/t1204/004/</a>	Via the ClickFix social engineering technique, users are tricked into clicking a fake CAPTCHA and prompted into executing a malicious Base64-encoded PowerShell process by following instructions to open a Windows Run window (Windows Button + R), pasting clipboard contents (“CTRL + V”), and then executing the malicious script (“Enter”).

**Table 7. Persistence**

Technique Title	ID	Use	Give Feedback

Technique Title	ID	Use
Boot or Logon Autostart Execution: Registry Run Keys/Startup Folder	T1547.001 < <a href="https://attack.mitre.org/versions/v17/techniques/t1547/001/">https://attack.mitre.org/versions/v17/techniques/t1547/001/</a> >	<p>Interlock actors establish persistence by adding a file into a Windows StartUp folder that executes a RAT every time a user logs in.</p> <p>Interlock actors also implement registry key modification by using a PowerShell command to add a run key value (named “Chrome Updater”) that uses a log file as an argument every time a user logs in.</p>

[Give Feedback](#)

**Table 8. Privilege Escalation**

Technique Title	ID	Use
Valid Accounts: Domain Accounts	T1078.002 < <a href="https://attack.mitre.org/versions/v17/techniques/t1078/002/">https://attack.mitre.org/versions/v17/techniques/t1078/002/</a> >	Interlock actors compromise domain administrator accounts to gain additional privileges.

**Table 9. Defense Escalation**

Technique Title	ID	Use
Defense Evasion	TA0005 <a href="https://attack.mitre.org/versions/v17/tactics/ta0005/">https://attack.mitre.org/versions/v17/tactics/ta0005/</a>	Interlock actors execute the <code>removeme</code> function on Linux systems to delete the encryption binary for defense evasion.

Give Feedback

Technique Title	ID	Use
Masquerading: Match Legitimate Resource Name or Location	T1036.005 <a href="https://attack.mitre.org/versions/v17/techniques/t1036/005/">https://attack.mitre.org/versions/v17/techniques/t1036/005/</a>	Interlock actors disguise a malicious run key value by naming it “Chrome Updater”; the run key value uses a specific log file as an argument upon user login.
		Interlock actors disguise files of keystrokes logged by one of their credential stealers with a legitimate Windows filename: <b>conhost.txt.</b>
		Interlock actors disguise an encryption binary, a 64-bit executable, by giving it the same name as the legitimate Console Windows Host executable: <b>conhost.exe</b>

Give Feedback

Technique Title	ID	Use
System Binary Proxy Execution: Rundll32	T1218.011 < <a href="https://attack.mitre.org/versions/v17/techniques/t1218/011/">https://attack.mitre.org/versions/v17/techniques/t1218/011/</a> >	Interlock actors use rundll32.exe to proxy execution of a malicious DLL binary tmp41.wasd.
Indicator Removal: File Deletion	T1070.004 < <a href="https://attack.mitre.org/versions/v17/techniques/t1070/004/">https://attack.mitre.org/versions/v17/techniques/t1070/004/</a> >	Interlock actors execute a DLL binary tmp41.wasd that uses the remove() function to delete their encryption binary for defense evasion.

**Table 10. Credential Access**

Technique Title	ID	Use
Credential Access	TA0006 < <a href="https://attack.mitre.org/versions/v17/tactics/ta0006/">https://attack.mitre.org/versions/v17/tactics/ta0006/</a> >	Interlock actors download credential stealer cht.exe and execute other versions information stealers (including Lumma Stealer and Berserk Stealer) to harvest credentials.

Give Feedback

Technique Title	ID	Use
Credentials from Password Stores: Credentials from Web Browsers	T1555.003 <a href="https://attack.mitre.org/versions/v17/techniques/t1555/003/">https://attack.mitre.org/versions/v17/techniques/t1555/003/</a>	Interlock actors download a credential stealer that collects login information and associated URLs for victims' online accounts.
Input Capture	T1056 <a href="https://attack.mitre.org/versions/v17/techniques/t1056/">https://attack.mitre.org/versions/v17/techniques/t1056/</a>	Interlock actors execute Lumma Stealer and Berserk Stealer information stealers on victim systems.
Input Capture: Keylogging	T1056.001 <a href="https://attack.mitre.org/versions/v17/techniques/t1056/001/">https://attack.mitre.org/versions/v17/techniques/t1056/001/</a>	Interlock actors download <code>klg.dll</code> , a keylogger binary, onto compromised systems, where it logs users' keystrokes in a file named <code>conhost.txt</code> .
Steal or Forge Kerberos Tickets: Kerberoasting	T1558.003 <a href="https://attack.mitre.org/versions/v17/techniques/t1558/003/">https://attack.mitre.org/versions/v17/techniques/t1558/003/</a>	Interlock actors possibly use a Kerberoasting attack to compromise domain administrator accounts.

**Table 11. Discovery**

Technique Title	ID	Use
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Give Feedback

Technique Title	ID	Use
System Owner/User Discovery	T1033 <a href="https://attack.mitre.org/versions/v17/techniques/t1033/">https://attack.mitre.org/versions/v17/techniques/t1033/</a>	Interlock actors execute a PowerShell command <code>WindowsIdentity.GetCurrent()</code> on victim systems to retrieve a WindowsIdentity object that represents the current Windows user.

Give Feedback

Technique Title	ID	Use
System Information Discovery	T1082 < <a href="https://attack.mitre.org/versions/v17/techniques/t1082/">https://attack.mitre.org/versions/v17/techniques/t1082/</a> >	<p>Interlock actors execute a PowerShell command <code>systeminfo</code> on victim systems to access detailed configuration information about the system, including OS configuration, security information, product ID, and hardware properties.</p>
		<p>Interlock actors execute a PowerShell command <code>Get-PSDrive</code> on victim systems to discover the drives in the current session, such as:</p> <ul style="list-style-type: none"> <li>■ Windows logical drives on the computer, including drives mapped to network shares.</li> <li>■ Drives exposed by PowerShell providers.</li> </ul>

Give Feedback

Technique Title	ID	Use
		<ul style="list-style-type: none"> <li>Session-specified temporary drives and persistent mapped network drives.</li> </ul>
System Service Discovery	T1007 <a href="https://attack.mitre.org/versions/v17/techniques/t1007/">https://attack.mitre.org/versions/v17/techniques/t1007/</a>	<p>Interlock actors execute a PowerShell command <code>tasklist /svc</code> on victim systems that lists service information for each process currently running on the system.</p> <p>Actors also execute a PowerShell command <code>Get-Service</code> on victim systems that retrieves objects that represent the services (including running and stopped services) on the system.</p>

[Give Feedback](#)

Technique Title	ID	Use
System Network Configuration Discovery	T1016 < <a href="https://attack.mitre.org/versions/v17/techniques/t1016/">https://attack.mitre.org/versions/v17/techniques/t1016/</a> >	Interlock actors execute a PowerShell command <code>arp -a</code> on victim systems that displays and modifies entries in the Address Resolution Protocol (ARP) cache table (which contains entries on the IPv4 and IPv6 addresses on host endpoints).

**Table 12. Lateral Movement**

Technique Title	ID	Use
Valid Accounts	T1078 < <a href="https://attack.mitre.org/versions/v17/techniques/t1078/">https://attack.mitre.org/versions/v17/techniques/t1078/</a> >	Interlock actors harvest and abuse valid credentials for lateral movement and privilege escalation.
Remote Services: Remote Desktop Protocol	T1021.001 < <a href="https://attack.mitre.org/versions/v17/techniques/t1021.001/">https://attack.mitre.org/versions/v17/techniques/t1021.001/</a> >	Interlock actors use RDP and valid credentials to move laterally between systems.

Give Feedback

**Table 13. Collection**

Technique Title	ID	Use
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Technique Title	ID	Use
Data from Cloud Storage	T1530 < <a href="https://attack.mitre.org/versions/v17/techniques/t1530/">https://attack.mitre.org/versions/v17/techniques/t1530/</a> >	Interlock actors use <b>StorageExplorer.exe</b> , the cloud storage solution Azure Storage Explorer, to explore Microsoft Azure Storage accounts.

**Table 14. Command and Control**

Technique Title	ID	Use
Command and Control	TA0011 < <a href="https://attack.mitre.org/versions/v17/tactics/ta0011/">https://attack.mitre.org/versions/v17/tactics/ta0011/</a> >	Interlock actors use applications Cobalt Strike and SystemBC for C2.

Give Feedback

Technique Title	ID	Use
Ingress Tool Transfer	T1105 <a href="https://attack.mitre.org/versions/v17/techniques/t1105/">https://attack.mitre.org/versions/v17/techniques/t1105/</a>	Interlock actors use a fake Google Chrome or Microsoft Edge browser update to cause users to execute a RAT on the victimized system.
Remote Access Tools	T1219 <a href="https://attack.mitre.org/versions/v17/techniques/t1219/">https://attack.mitre.org/versions/v17/techniques/t1219/</a>	Interlock actors download credential stealers ( <a href="#">cht.exe</a> ) and keylogger binaries ( <a href="#">klg.dll</a> ) once actors establish remote control of a compromised system.

Give Feedback

**Table 15. Exfiltration**

Technique Title	ID	Use
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Technique Title	ID	Use
Exfiltration Over Web Service: Exfiltration to Cloud Storage	T1567.002 <a href="https://attack.mitre.org/versions/v17/techniques/t1567/002/">https://attack.mitre.org/versions/v17/techniques/t1567/002/</a>	Interlock actors exfiltrate data to cloud storage by executing AzCopy to upload data to the Azure storage blob.
Exfiltration Over Alternative Protocol	T1048 <a href="https://attack.mitre.org/versions/v17/techniques/t1048/">https://attack.mitre.org/versions/v17/techniques/t1048/</a>	Interlock actors use file transfer tools like WinSCP to exfiltrate data.

**Table 16. Impact**

Technique Title	ID	Use
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Give Feedback

Technique Title	ID	Use
Data Encrypted for Impact	T1486 <a href="https://attack.mitre.org/versions/v17/techniques/t1486/">https://attack.mitre.org/versions/v17/techniques/t1486/</a>	<p>Interlock actors encrypt victim data using a combined AES and RSA algorithm on compromised systems to interrupt availability to system and network resources. Actors code encryptors using C/C++. Interlock actors use encryptors for both Windows and Linux operating systems.</p> <p>Interlock actors also use a FreeBSD ELF encryptor to encrypt victim data.</p>

Give Feedback

Technique Title	ID	Use
Financial Theft	T1657 <a href="https://attack.mitre.org/versions/v17/techniques/t1657/">https://attack.mitre.org/versions/v17/techniques/t1657/</a>	Interlock actors deliver a ransom note titled !__README__.txt via a GPO which provides victims with instructions to use a .onion URL to contact the actors over the Tor network. Actors use a double-extortion model, both encrypting victim data and threatening release of victim data on their Tor network leak site if the ransom is not paid.

## Mitigations

The authoring agencies recommend organizations implement the mitigations below to improve your organization's cybersecurity posture on the basis of the Interlock ransomware actors' activity. These mitigations align with the Cross-Sector Cybersecurity Performance Goals (CPGs) developed by CISA and the National Institute of Standards and Technology (NIST). The CPGs provide a minimum set of practices and protections that CISA and NIST recommend all organizations implement. CISA and NIST based the CPGs on existing cybersecurity frameworks and guidance to protect against the most common and impactful threats and TTPs. Visit CISA's CPGs webpage [/cross-sector-cybersecurity-performance-goals](#) for more information on the CPGs, including additional recommended baseline protections.

[Give Feedback](#)

In addition to the below mitigations, Healthcare and Public Health (HPH) organizations should use [HPH Sector CPGs](#) to implement cybersecurity protections to address the most common threats and TTPs used against this sector.

At-risk organizations should implement the following mitigations:

- **Prevent Interlock ransomware actors from obtaining initial access:**
  - **Implement domain name system (DNS) filtering** to block users from accessing malicious sites and applications.
  - **Implement web access firewalls** to mitigate and prevent unknown commands or process injection from malicious domains or websites.
  - **Train users** [CPG 2.I <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#basiccybersecuritytraining2i>] to identify, avoid, and report **social engineering attempts**.
- **Implement a recovery plan** [CPG 5.A <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#incidentplanningandpreparedness5a>] to maintain and retain multiple copies of sensitive or proprietary data and servers in a physically separate, segmented, and secure location (e.g., hard drive, storage device, the cloud) [CPG 2.R <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#systembackups2r>].
- **Require all accounts** with password logins (e.g., service accounts, admin accounts, or domain admin accounts) to comply with NIST password standards <https://pages.nist.gov/800-63-4/sp800-63b/passwords/>.
  - Require employees to use long passwords [CPG 2.B <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#minimumpasswordstrength2b>] and consider not requiring recurring password changes, as these can weaken security.
- **Require MFA** [CPG 2.H <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#phishingresistantmultifactorauthenticationmfa2h>] for all services to the extent possible, particularly for webmail, virtual private networks (VPNs), and accounts that access critical systems.
  - Implement ICAM policies across the organization as a precursor to MFA.

Give Feedback

- **Keep all operating systems, software, and firmware up to date**; prioritize patching known exploited vulnerabilities <<https://www.cisa.gov/known-exploited-vulnerabilities-catalog>> in internet-facing systems [CPG 1.E <<https://www.cisa.gov/cybersecurity-performance-goals-cpgs#mitigatingknownvulnerabilities1e>>].
  - Timely patching is efficient and cost effective for minimizing an organization's exposure to cybersecurity threats.
- **Implement robust EDR capabilities** on VMs, systems, and networks.
- **Segment networks** [CPG 2.F <<https://www.cisa.gov/cybersecurity-performance-goals-cpgs#networksegmentation2f>>] to prevent the spread of ransomware.
  - Network segmentation can help prevent the spread of ransomware by controlling traffic flows between—and access to—various subnetworks and by restricting adversary lateral movement.
- **Identify, detect, and investigate abnormal activity and potential traversal of the indicated ransomware** [CPG 3.A <<https://www.cisa.gov/cybersecurity-performance-goals-cpgs#detectingrelevantthreatsandtpp3a>>] **with a networking monitoring tool** [CPG 2.T <<https://www.cisa.gov/cybersecurity-performance-goals-cpgs#logcollection2t>>].
  - To aid in detecting ransomware, implement a tool that logs and reports all network traffic, including lateral movement activity on a network.
  - Implement EDR tools; these are useful for detecting lateral connections as they provide insight into common and uncommon network connections for each host.
- **Filter network traffic** by preventing unknown or untrusted origins from accessing remote services on internal systems.
  - This prevents threat actors from directly connecting to remote access services that they have established for persistence.
- **Install, regularly update, and enable real time detection for antivirus software** on all hosts.
- **Review domain controllers, servers, workstations, and active directories** for new and/or unrecognized accounts.

Give Feedback

- **Audit user accounts with administrative privileges** and configure access controls according to the principle of least privilege [[CPG 2.E <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#separatinguserandprivilegedaccounts2e>](https://www.cisa.gov/cybersecurity-performance-goals-cpgs#separatinguserandprivilegedaccounts2e)].
- **Disable unused ports.**
- **Consider adding an email banner to emails** received from outside of your organization [[CPG 2.M <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#emailsecurity2m>](https://www.cisa.gov/cybersecurity-performance-goals-cpgs#emailsecurity2m)].
- **Disable hyperlinks** in received emails.
- **Implement time-based access for accounts set at the admin level and higher;** for example, the just-in-time (JIT) access method provisions privileged access when needed and can support enforcement of the principle of least privilege (as well as the [Zero Trust model <https://www.cisa.gov/zero-trust-maturity-model>](https://www.cisa.gov/zero-trust-maturity-model)):
  - This is a process where a network-wide policy is set in place to automatically disable admin accounts at the Active Directory level when the account is not in direct need.
  - Individual users may submit their requests through an automated process that grants them access to a specified system for a set timeframe when they need to support the completion of a certain task.
- **Disable command line and scripting activities and permissions** [[CPG 2.N <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#disablemacrosbydefault2n>](https://www.cisa.gov/cybersecurity-performance-goals-cpgs#disablemacrosbydefault2n)].
  - Disabling software utilities that run from the command line makes it more difficult for threat actors to escalate privileges and move laterally.
- **Maintain offline backups of data** and regularly maintain backups and restorations [[CPG 2.R <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#systembackups2r>](https://www.cisa.gov/cybersecurity-performance-goals-cpgs#systembackups2r)]; this avoids severe service interruption and irretrievable data in the event of a compromise.
- **Ensure all backup data is encrypted, immutable** (i.e., cannot be altered or deleted), and covers the entire organization's data infrastructure [[CPG 2.R <https://www.cisa.gov/cybersecurity-performance-goals-cpgs#systembackups2r>](https://www.cisa.gov/cybersecurity-performance-goals-cpgs#systembackups2r)].

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# Validate Security Controls

In addition to applying mitigations, the authoring agencies recommend exercising, testing, and validating your organization's security program against the threat behaviors mapped to the MITRE ATT&CK for Enterprise framework in this advisory. The authoring agencies recommend testing your existing security controls inventory to assess how they perform against the ATT&CK techniques described in this advisory.

To get started:

1. Select an ATT&CK technique described in this advisory (see **Table 5** through **Table 16**).
2. Align your security technologies against the technique.
3. Test your technologies against the technique.
4. Analyze your detection and prevention technologies' performance.
5. Repeat the process for all security technologies to obtain a set of comprehensive performance data.
6. Tune your security program, including people, processes, and technologies, based on the data generated by this process.

The authoring agencies recommend continually testing your security program, at scale, in production environment to ensure optimal performance against the MITRE ATT&CK techniques identified in this advisory.

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## Resources

- [Stopransomware.gov </stopransomware>](#): Whole-of-government, central location for ransomware resources and alerts.
- [HHS Cyber Gateway </stopransomware>](#): Contains key resources for HPH entities to bolster their cyber resilience.
- [#StopRansomware Guide </resources-tools/resources/stopransomware-guide>](#): Resource to mitigate a ransomware attack.

- [Cyber Hygiene Services](#), [Ransomware Readiness Assessment](#): CISA's no-cost cyber hygiene services.
- [MS-ISAC Services](#): MS-ISAC's no-cost cybersecurity services for state, local, tribal, and territorial (SLTT) entities.
- [Ransomware Defense-in-Depth](#): MS-ISAC guidance for SLTT entities to mitigate the threat of ransomware using a defense-in-depth strategy.
- [Combatting Ransomware](#): MS-ISAC guidance on ransomware mitigation strategies aligned with recommendations from NIST and CSF.

## Reporting

Your organization has no obligation to respond or provide information back to FBI in response to this joint advisory. If, after reviewing the information provided, your organization decides to provide information to FBI, reporting must be consistent with applicable state and federal laws.

FBI is interested in any information that can be shared, to include boundary logs showing communication to and from foreign IP addresses, a sample ransom note, communications with threat actors, Bitcoin wallet information, decryptor files, and/or a benign sample of an encrypted file.

Additional details of interest include a targeted company point of contact, status and scope of infection, estimated loss, operational impact, transaction IDs, date of infection, date detected, initial attack vector, and host- and network-based indicators.

The authoring agencies do not encourage paying ransom as payment does not guarantee victim files will be recovered. Furthermore, payment may also embolden adversaries to target additional organizations, encourage other criminal actors to engage in the distribution of ransomware, and/or fund illicit activities. Regardless of whether you or your organization have decided to pay the ransom, FBI and CISA urge you to promptly report ransomware incidents to FBI's [Internet Crime Complaint Center \(IC3\)](#)

Give Feedback

<<https://www.ic3.gov/home/complaintchoice>>, a local FBI Field Office <<https://www.fbi.gov/contact-us/field-offices>>, or CISA via the agency's Incident Reporting System <<https://myservices.cisa.gov/irf>> or its 24/7 Operations Center ([contact@mail.cisa.dhs.gov](mailto:contact@mail.cisa.dhs.gov)) or by calling 1-844-Say-CISA (1-844-729-2472).

State, local, tribal, and territorial governments should report incidents to the MS-ISAC ([SOC@cisecurity.org](mailto:SOC@cisecurity.org) or 866-787-4722).

HPH Sector organizations should report incidents to FBI or CISA but also can reach out to HHS at [HHScyber@hhs.gov](mailto:HHScyber@hhs.gov) for cyber incident support focused on mitigating adverse patient impacts.

## Disclaimer

The information in this report is being provided “as is” for informational purposes only. The authoring agencies do not endorse any commercial entity, product, company, or service, including any entities, products, or services linked within this document. Any reference to specific commercial entities, products, processes, or services by service mark, trademark, manufacturer, or otherwise, does not constitute or imply endorsement, recommendation or favor by the authoring agencies.

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## Version History

**July 22, 2025:** Initial version.

# Notes

<sup>1</sup> Elio Biasotto, et. al., “Unwrapping the Emerging Interlock Ransomware Attack,” *Talos Intelligence* (blog), *Cisco Talos*, last modified November 7, 2024, <https://blog.talosintelligence.com/emerging-interlock-ransomware/> <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.

<sup>2</sup> Sekoia Threat Detection and Research team, “Interlock Ransomware Evolving Under the Radar,” *Sekoia* (blog), *Sekoia*, last modified April 16, 2025, <https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/> <<https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/>>.

<sup>3</sup> Yashvi Shah and Vignesh Dhatchanamoorthy, “ClickFix Deception: A Social Engineering Tactic to Deploy Malware,” *McAfee Labs* (blog), *McAfee*, last modified June 11, 2024, <https://www.mcafee.com/blogs/other-blogs/mcafee-labs/clickfix-deception-a-social-engineering-tactic-to-deploy-malware/> <<https://www.mcafee.com/blogs/other-blogs/mcafee-labs/clickfix-deception-a-social-engineering-tactic-to-deploy-malware/>> and “HC3 Sector Alert: ClickFix Attacks,” Health Sector Cybersecurity Coordination Center, Department of Health and Human Services, last modified October 29, 2024, <https://www.hhs.gov/sites/default/files/clickfix-attacks-sector-alert-tlpclear.pdf> <<https://www.hhs.gov/sites/default/files/clickfix-attacks-sector-alert-tlpclear.pdf>>.

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<sup>4</sup> Shah, “ClickFix Deception: A Social Engineering Tactic to Deploy Malware <<https://www.mcafee.com/blogs/other-blogs/mcafee-labs/clickfix-deception-a-social-engineering-tactic-to-deploy-malware/>>.”

<sup>5</sup> Sekoia Threat Detection and Research team, “Interlock Ransomware Evolving Under the Radar. <<https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/>>”

<sup>6</sup> Bill Toulas, “Interlock Ransomware Gang Deploys New NodeSnake RAT on Universities,” *Bleeping Computer*, May 28, 2025, <https://www.bleepingcomputer.com/news/security/interlock-ransomware-gang-deploys->

[new-nodesnake-rat-on-universities/](https://www.bleepingcomputer.com/news/security/interlock-ransomware-gang-deploys-new-nodesnake-rat-on-universities/) <<https://www.bleepingcomputer.com/news/security/interlock-ransomware-gang-deploys-new-nodesnake-rat-on-universities/>>.

<sup>7</sup> Biasiotto, “[Unwrapping the Emerging Interlock Ransomware Attack](https://blog.talosintelligence.com/emerging-interlock-ransomware/) <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

<sup>8</sup> International law-enforcement and Microsoft took down the Lumma Stealer malware in May 2025 by seizing internet domains the actors used to distribute the malware to actors and taking down domains that hosted the malware’s infrastructure. For more information, see Tara Seals, “Lumma Stealer Takedown Reveals Sprawling Operation,” *Dark Reading*, May 21, 2025, <https://www.darkreading.com/cybersecurity-operations/lumma-stealer-takedown-sprawling-operation> <<https://www.darkreading.com/cybersecurity-operations/lumma-stealer-takedown-sprawling-operation>>, and Steven Masada, “Disrupting Lumma Stealer: Microsoft Leads Global Action Against Favored Cybercrime Tool,” *Microsoft On the Issues* (blog), *Microsoft*, last modified May 21, 2025, <https://blogs.microsoft.com/on-the-issues/2025/05/21/microsoft-leads-global-action-against-favored-cybercrime-tool/> <<https://blogs.microsoft.com/on-the-issues/2025/05/21/microsoft-leads-global-action-against-favored-cybercrime-tool/>>.

<sup>9</sup> Sekoia Threat Detection and Research team, “[Interlock Ransomware Evolving Under the Radar](https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/) <<https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/>>.”

<sup>10</sup> Biasiotto, “[Unwrapping the Emerging Interlock Ransomware Attack](https://blog.talosintelligence.com/emerging-interlock-ransomware/) <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

<sup>11</sup> Biasiotto, “[Unwrapping the Emerging Interlock Ransomware Attack](https://blog.talosintelligence.com/emerging-interlock-ransomware/) <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

<sup>12</sup> Biasiotto, “[Unwrapping the Emerging Interlock Ransomware Attack](https://blog.talosintelligence.com/emerging-interlock-ransomware/) <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

<sup>13</sup> Biasiotto, “[Unwrapping the Emerging Interlock Ransomware Attack](https://blog.talosintelligence.com/emerging-interlock-ransomware/) <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

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<sup>14</sup> Lawrence Abrams, “Meet Interlock — The New Ransomware Targeting FreeBSD Servers,” *Bleeping Computer*, November 3, 2024, <https://www.bleepingcomputer.com/news/security/meet-interlock-the-new-ransomware-targeting-freebsd-servers/> <<https://www.bleepingcomputer.com/news/security/meet-interlock-the-new-ransomware-targeting-freebsd-servers/>>.

<sup>15</sup> Biasotto, “Unwrapping the Emerging Interlock Ransomware Attack <<https://blog.talosintelligence.com/emerging-interlock-ransomware/>>.”

<sup>16</sup> Graham Cluley, “Interlock Ransomware: What You Need to Know,” *Fortra* (blog), *Fortra*, last modified May 30, 2025, <https://www.tripwire.com/state-of-security/interlock-ransomware-what-you-need-know> <<https://www.tripwire.com/state-of-security/interlock-ransomware-what-you-need-know>>.

<sup>17</sup> Sekoia Threat Detection and Research team, “[Interlock Ransomware Evolving Under the Radar](https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/) <<https://blog.sekoia.io/interlock-ransomware-evolving-under-the-radar/>>.”

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