



Detect and respond to threats with ease and confidence

NO TIME TO EXPLAIN!

Jesper Mikkelsen



```
root@admin : % cat presenter.json |jq
> name      : "Jesper Mikkelsen"
> title     : "Technical Director Nordics"
> expirance : "20 years +"
> time_at_trend : "10 years +"
```

```
root@admin : % █
```



**The challenges in IT – Security.
Today and tomorrow..**







```
root@admin: ~/nmap -T5 -A 0.0.0.0/0 █
```



Exploits & Vulnerabilities

Threat Actor Groups, Including Black Basta, are Exploiting Recent ScreenConnect Vulnerabilities

This blog entry gives a detailed analysis of these recent ScreenConnect vulnerabilities. We also discuss our discovery of threat actor groups, including Black Basta and Bl00dy Ransomware gangs, that are actively exploiting CVE-2024-1708 and CVE-2024-1709 based on our telemetry.

Feb 27, 2024





Exploits & Vulnerabilities

CVE-2024-21412: DarkGate Operators Exploit Microsoft Windows SmartScreen Bypass in Zero-Day Campaign

In addition to our Water Hydra APT zero day analysis, the Zero Day Initiative (ZDI) observed a DarkGate campaign which we discovered in mid-January 2024 where DarkGate operators exploited CVE-2024-21412.

Microsoft Confirms Russian Hackers Stole Source Code, Some Customer Secrets

📅 Mar 09, 2024 🧑 Newsroom

Cyber Attack / Threat Intelligence



Microsoft on Friday revealed that the Kremlin-backed threat actor known as **Midnight Blizzard** (aka APT29 or Cozy Bear) managed to gain access to some of its source code repositories and internal systems following a [hack that came to light](#) in January 2024.

Micro Palo Alto Networks zero-day exploited since March to backdoor Secre firewalls

omer

By [Lawrence Abrams](#)

April 13, 2024 08:35 AM 0



Suspected state-sponsored hackers have been exploiting a zero-day vulnerability in Palo Alto Networks firewalls tracked as CVE-2024-3400 since March 26, using the compromised devices to breach internal networks, steal data and credentials.

**A real world example.
When things go bad... fast.**

**BASED ON A
TRUE STORY**



Important: This is a "Pre-release" feature and is not considered an official release. Please review the [Pre-release Disclaimer](#) before using the feature.



Active Exploitation of Critical Vulnerabilities in ConnectWise ScreenConnect



Type Emerging Threat
Last update 2024-02-29 04:07:58



Overview Risk Management Guidance Threat Hunting Queries (4)

Overview

On February 19, 2024, ConnectWise announced critical vulnerabilities in versions 23.9.7 and earlier of their ScreenConnect product. A potential working Proof of Concept (POC) has been released publicly, suggesting that these vulnerabilities might not only be actively exploited in the wild but also could now be trivially exploited by even novice threat actors. Immediate updates to version 23.9.8 are essential to address these significantly heightened risks.

Attack Chain

- Attacker bypasses authentication using **CVE-2024-1709** which gives the attacker access to the system.
- Attacker may drop malicious files to the "\\ScreenConnect\App_Extensions\" directory using **CVE-2024-1708** which gives them persistence on the system.
- Once the attacker established foothold, they may perform various actions depending on their objectives.



Intelligence Data



Intelligence Reports (0) **Tactics, Techniques, and Procedures** Tools (1) Malware (2) CVEs (2) Indicators (0)



Tactic name or ID, Technique name or ID



Tactic ID	Tactic name	Technique ID	Technique name
TA0007	Discovery	T1135	Network Share Discovery
TA0010	Exfiltration	T1567	Exfiltration Over Web Service
TA0011	Command and Control	T1071	Application Layer Protocol
TA0002	Execution	T1059	Command and Scripting Interpreter
TA0007	Discovery	T1046	Network Service Discovery



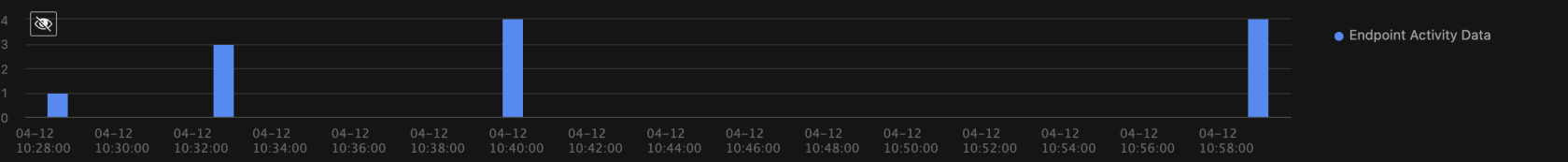
Impact scope

Workbench Alerts (0) Servers (0) Endpoints (0) Email addresses (0)



- DATA GROUPING** <<
- ENDPOINT ACTIVITY DATA
 - Matched Events: 12
 - > endpointGuid
 - > endpointHostName
 - > endpointIp
 - > eventId
 - > eventSubId
 - > hostName
 - > objectHostName
 - > objectIp
 - > objectIps
 - > objectPort
 - > objectUser
 - > pname
 - > dpt
 - > dst
 - > spt
 - > src

SEARCH RESULTS OBTAINED 100% DATA (12 EVENTS) View: Standard View 🔗 📄



Logged

>	2024-04-12 10:59:52	endpointHostName: EC2AMAZ-T1E26CU endpointIp: fe80::207:72d8:c36c:ab4c,172.31.28.200 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.8.8811\76c2afad-c692-40a6-bb44-242459441c99run.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...
>	2024-04-12 10:59:49	endpointHostName: EC2AMAZ-M3TQFSH endpointIp: fe80::65a4:d943:7e15:a873,172.31.21.127 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.8.8811\76c2afad-c692-40a6-bb44-242459441c99run.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...
>	2024-04-12 10:59:46	endpointHostName: EC2AMAZ-HD4IB70 endpointIp: fe80::4990:572e:6ed9:b816,172.31.41.36 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.10.8817\6f564175-4a15-4f0a-a170-6a81b0a775a7run.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...
>	2024-04-12 10:59:41	endpointHostName: TM-TMES endpointIp: 192.168.10.116,fe80::5efe:192.168.10.116 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.10.8817\7a7e15ec5-ad83-456f-813c-6f1e588ca1f5run.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...
>	2024-04-12 10:40:33	endpointHostName: TM-TMES endpointIp: 192.168.10.116,fe80::5efe:192.168.10.116 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.10.8817\6e6120ee-6a8e-48d7-ae21-def842eec1f3run.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...
>	2024-04-12 10:40:27	endpointHostName: EC2AMAZ-T1E26CU endpointIp: fe80::207:72d8:c36c:ab4c,172.31.28.200 processFilePath: C:\Windows\System32\cmd.exe processCmd: "cmd.exe" /c "C:\Windows\TEMP\ScreenConnect\23.9.8.8811\4642fa41-6be3-4f60-8959-774c899be62crun.cmd" eventSubId: 2 - TELEMETRY_PROCESS_CREATE objectFilePath: C:\Windows\System32\net.exe objectCmd: net.exe group "Domain Admins" /domain tags: XSAE.F4612 - Account Discovery on the Do...



Trend Vision One™ Workbench

2024-04-12 16:30

99+

SE-DK

Workbench Insights All Alerts

What's New My Cases Security Playbooks

Status: All Created: Last 24 hours

Owners: All Case status: All

Score	Model name	Findings	Case	Owners
	File Download via Certutil		20240412-00040	
53	WB-11764-20240412-00046 Behavior Monitoring Detection for E Tools		CL-00027-20240412-00039	
24	WB-11764-20240412-00043 Domain Trusts Discovery via Nltest		CL-00027-20240412-00038	
62	WB-11764-20240412-00042 File Download via Certutil		CL-00027-20240412-00037	
62	WB-11764-20240412-00040 File Download via Certutil		CL-00027-20240412-00036	
62	WB-11764-20240412-00038 Possible ScreenConnect Vulnerability		Open new case	
53	WB-11764-20240412-00035 Behavior Monitoring Detection for E Tools		CL-00027-20240412-00035	
24	WB-11764-20240412-00039 Domain Trusts Discovery via Nltest		CL-00027-20240412-00034	
53	WB-11764-20240412-00041 Behavior Monitoring Detection for E Tools		CL-00027-20240412-00033	
62	WB-11764-20240412-00034 Possible ScreenConnect Vulnerability	High	Open new case	
24	WB-11764-20240412-00033 Domain Trusts Discovery via Nltest	Low	CL-00027-20240412-00031	

Open New Case

Case name:*

Possible ScreenConnect Vulnerability

Description:

Looks like we are hit.

Type:

Workbench

Associated items:

WB-11764-20240412-00038

Status:

In progress

Findings:

Confirmed incident

Priority:

P0

Owners:*

Open Cancel



Summary

CL-00027-20240412-00054

Possible ScreenConnect Vulnerability

A possible exploitation on ScreenConnect vulnerability was observed which may leads to post exploitation activities.

Show related assets



Score: 62

Impact scope: 1 3 1

Created: 2024-04-12 10:37:44

Automated responses: [View results](#) [Execute playbook](#)



Highlights

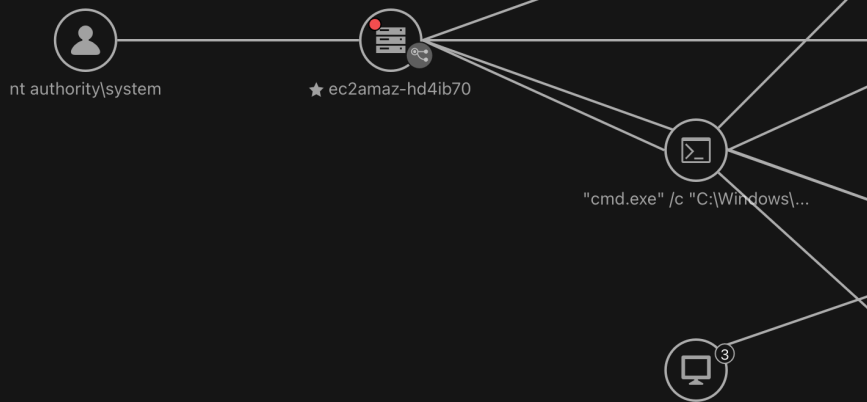
ScreenConnect Invoking Commands

Technique: [T1190 - Exploit Public-Facing Application](#)
[T1133 - External Remote Services](#)

Data source / processor: Endpoint Sensor

2024-04-12 10:32:45 | [View event](#)

- ec2amaz-hd4ib70
- (processCmd) "cmd.exe" /c "C:\Windows\TE...
- (parentUser) SYSTEM
- (endpointHostName) EC2AMAZ-HD4IB70
- (objectCmd) nltest.exe /domain_trusts /all_tr...
- (parentFilePath) C:\Program Files (x86)\Scre...
- (processFilePath) C:\Windows\System32\cm...



Companion Preview ⚙️ - ✕

parameters that are used to establish a connection with the remote support software.

The Base64 encoded string in the parameters is not evidence of suspicious activity as it is a common practice to encode sensitive information in this manner to protect it from being intercepted or modified during transmission. Therefore, it can be concluded that the given command is not suspicious and is a legitimate command used for remote support purposes.

This response is generated by generative AI. You should check the accuracy of the response as appropriate for your use case.

👍 🗨️

Provide an explanation of this Workbench alert

Type your question here ➤



Summary

CL-00027-20240412-00054

Possible ScreenConnect Vulnerability

A possible exploitation on ScreenConnect vulnerability was observed which may leads to post exploitaion activities.

Show related assets

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Highlights

ScreenConnect Invoking Commands

Technique: T1190 - Exploit Public-Facing Application
T1133 - External Remote Services

Data source / processor: Endpoint Sensor

2024-04-12 10:32:45 | [View event](#)

ec2amaz-hd4ib70

(processCmd) "cmd.exe" /c "C:\Windows\TE...

(parentUser) SYSTEM

(endpointHostName) EC2AMAZ-HD4IB70

(objectCmd) nltest.exe /domain_trusts /all_tr...

(parentFilePath) C:\Program Files (x86)\Scre...

(processFilePath) C:\Windows\System32\cm...



Case Viewer

Possible ScreenConnect Vulnerability
CL-00027-20240412-00054

In progress | Confirmed incident

Status: In progress

Findings: Confirmed incident

Priority: P0

Owners: Jesper Mikkelsen

2024-04-12 16:34:07

Note Added

By Jesper Mikkelsen

Workbench ID [WB-11764-20240412-00038] (<https://portal.eu.xdr.trendmicro.com/index.html#/workbench/alerts/WB-11764-20240412-000...>) [View More](#)

Type your note here

Companion Preview

EB7TEA69DD19F728AB9240
565E8C7EFB59821E19E3788
E289301E1E74940C208

- file_sha256: E9AB064ED381C29A3930F75CA3E05605C6EE07F30A69C043F576A5461DE3BAFC
- host: ip-172-31-0-2.eu-west-1.compute.internal with an empty IP address list.

MITRE Techniques

- T1190 (Exploit Public-Facing Application)
- T1133 (External Remote Services)

Add to Case

What should I do next?

Type your question here



Save Progress ⓘ



2024-04-10 13:23:30



Observed Attack Techniques ⓘ Endpoints

2024-04-12 10:32:44 | View event

ec2amaz-hd4ib70

- ScreenConnect Invoking Commands
- Account Discovery on the Domain Controller
- Permission Groups Discovery
- T1133 - External Remote Services
- T1190 - Exploit Public-Facing Application

```
(objectCmd) net.exe group "Domain Admins..."
(parentCmd) "C:\Program Files (x86)\Screen..."
(processCmd) "cmd.exe" /c "C:\Windows\TE..."
(parentFilePath) C:\Program Files (x86)\Scre...
(processFilePath) C:\Windows\System32\cm...
(endpointHostName) EC2AMAZ-HD4IB70
(parentUser) SYSTEM
```

2024-04-12 10:32:45 | View event

ec2amaz-hd4ib70

- ScreenConnect Invoking Commands
- Domain Trusts Discovery via Nltest
- T1133 - External Remote Services
- T1190 - Exploit Public-Facing Application

```
(objectCmd) nltest.exe /domain_trusts /all_tr...
(parentCmd) "C:\Program Files (x86)\Screen..."
(processCmd) "cmd.exe" /c "C:\Windows\TE..."
(parentFilePath) C:\Program Files (x86)\Scre...
(processFilePath) C:\Windows\System32\cm...
(endpointHostName) EC2AMAZ-HD4IB70
(parentUser) SYSTEM
```



services.exe



msiexec.exe



ScreenConnect.C...e.exe



ScreenConnect.C...e.exe



4dc878fa-bdcf-4...n.cmd



services.exe



cmd.exe

Created: 2024-04-12 10:32:44



net.exe



nltest.exe



net.exe





Save Progress

2024-04-10 13:23:30

2024-04-12 10:32:45

Switch to Timeline View

Observed Attack Techniques

2024-04-12 10:32:44 | View event

ec2amaz-hd4ib70

- ScreenConnect Invoking Commands
- Account Discovery on the Domain Controller
- Permission Groups Discovery

- T1133 - External Remote Services
- T1190 - Exploit Public-Facing Application

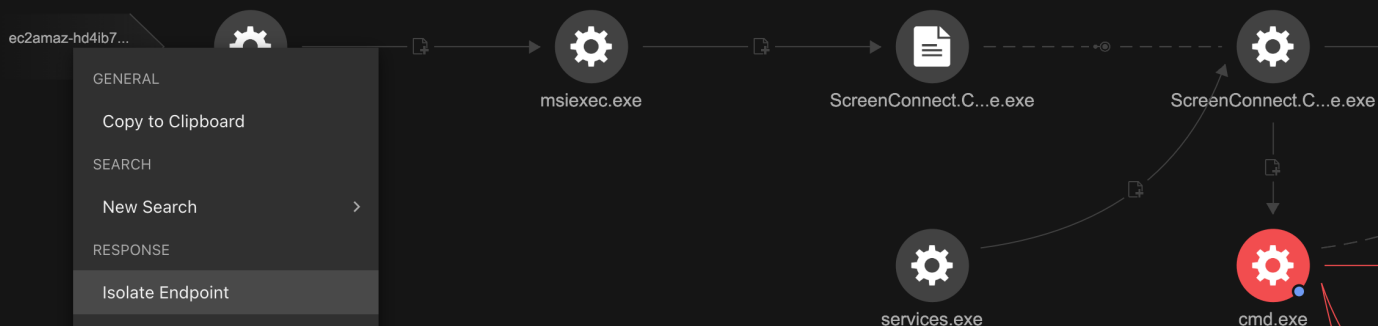
```
(objectCmd) net.exe group "Domain Admins..."
(parentCmd) "C:\Program Files (x86)\ScreenConnect.C...e.exe"
(processCmd) "cmd.exe" /c "C:\Windows\TE...
(parentFilePath) C:\Program Files (x86)\Scre...
(processFilePath) C:\Windows\System32\cm...
(endpointHostName) EC2AMAZ-HD4IB70
(parentUser) SYSTEM
```

2024-04-12 10:32:45 | View event

ec2amaz-hd4ib70

- ScreenConnect Invoking Commands
- Domain Trusts Discovery via Nltest

```
(objectCmd) nltest.exe /domain_trusts /all_tr...
(parentCmd) "C:\Program Files (x86)\ScreenConnect.C...e.exe"
(processCmd) "cmd.exe" /c "C:\Windows\TE...
(parentFilePath) C:\Program Files (x86)\Scre...
(processFilePath) C:\Windows\System32\cm...
(endpointHostName) EC2AMAZ-HD4IB70
(parentUser) SYSTEM
```



ec2amaz-hd4ib70

GENERAL

- Copy to Clipboard

SEARCH

- New Search >

RESPONSE

- Isolate Endpoint
- Start Remote Shell Session
- Run Remote Custom Script

Chat icon

+ / -

Info icon

And in case the team missed something?

100 Adversary is trying to do External Remote Services which leads the Data Encrypted for Impact
Score ⓘ Created: 2024-04-10 07:00:36 Last updated: 2024-04-12 16:15:36 (Alert removed by Jesper Mikkelsen)

Attack Phase

Initial Access, Persistence, Discovery, Command and Control, Impact

Case

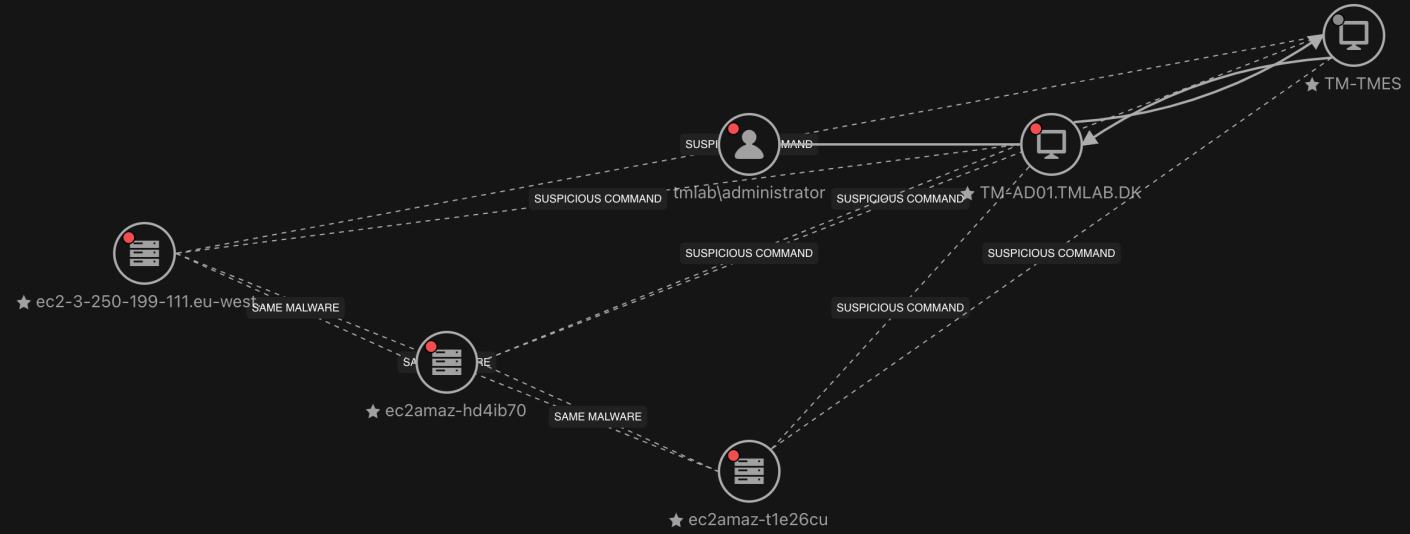
📄 Open new case

Overview Impact Scope (12) Highlighted Objects (85) Alerts (64)

Highlights What's New

- Behavior Monitoring Detection for Built-in Windows Tools**
🕒 2024-04-10 13:32:58 | [View event](#)
📄 ec2amaz-hd4ib70
- Domain Trusts Discovery via Nltest**
🕒 2024-04-10 13:32:58 | [View event](#)
📄 ec2amaz-hd4ib70
- ScreenConnect Invoking Commands**
🕒 2024-04-10 13:32:58 | [View event](#)
📄 ec2amaz-hd4ib70
- Download Via Certutil.exe**
🕒 2024-04-10 13:32:58 | [View event](#)
📄 ec2amaz-hd4ib70
- Ransom Note Detection (Real-time Scan)**
🕒 2024-04-10 13:33:02 | [View event](#)
📄 ec2amaz-hd4ib70
- Ransomware Detection**
🕒 2024-04-10 13:33:02 | [View event](#)
📄 ec2amaz-hd4ib70
- Ransomware File Detected**

Show related assets 🔍 Insight-Based Execution Profile

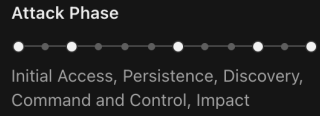


+
-
i

100
Score ⓘ

Adversary is trying to do External Remote Services which leads the Data Encrypted for Impact

Created: 2024-04-10 07:00:36 Last updated: 2024-04-12 16:15:36 (Alert removed by Jesper Mikkelsen)



Case
📄 Open new case

Overview Impact Scope (12) Highlighted Objects (85) **Alerts (64)**

Created: All ▾ Model name: All ▾ Model type: All ▾ Data source / processor: All ▾ Findings: All ▾ 🔍 Search 🏠

<input type="checkbox"/>	Score ⓘ	Model name ⓘ	Model severity	Relationship	Impact scope	Data source / processor	Created	Findings
<input type="checkbox"/>	62	WB-11764-20240410-00050 Possible ScreenConnect Vulnerability	High	Similar commands observed amo...	1 2 1	Endpoint Sensor	2024-04-10 13:38...	-
<input type="checkbox"/>	61	WB-11764-20240410-00058 File Download via Certutil	High	Similar commands observed amo...	1 2 1	Endpoint Sensor	2024-04-10 13:40...	-
<input type="checkbox"/>	61	WB-11764-20240410-00057 Ransom Note Detection (Real-time Scan)	Critical	Same detection name in short per...	1	Server & Workload Protection	2024-04-10 13:41...	-
<input type="checkbox"/>	61	WB-11764-20240410-00054 File Download via Certutil	High	Similar commands observed amo...	1 1 1	Endpoint Sensor	2024-04-10 13:39...	-
<input type="checkbox"/>	61	WB-11764-20240410-00049 Ransom Note Detection (Real-time Scan)	Critical	Same detection name in short per...	1	Server & Workload Protection	2024-04-10 13:38...	-
<input type="checkbox"/>	53	WB-11764-20240412-00046 Behavior Monitoring Detection for Built-in Windows Tools	High	Same detection name in short per...	1	Server & Workload Protection	2024-04-12 10:37...	-
<input type="checkbox"/>	53	WB-11764-20240411-00044 Behavior Monitoring Detection for Built-in Windows Tools	High	Same detection name in short per...	1	Server & Workload Protection	2024-04-11 11:47:...	-
<input type="checkbox"/>	53	WB-11764-20240411-00043 Behavior Monitoring Detection for Built-in Windows Tools	High	Same detection name in short per...	1	Server & Workload Protection	2024-04-11 11:45:...	-
<input type="checkbox"/>	53	WB-11764-20240411-00041 Behavior Monitoring Detection for Built-in Windows Tools	High	Same detection name in short per...	1	Server & Workload Protection	2024-04-11 11:45:...	-





Summary

CL-00027-20240314-00039

Malicious File Detected by Virtual Analyzer

A malicious file was transferred in corporate network and detected by Virtual Analyzer.

Score: 41

Impact scope: 4

Created: 2024-03-14 13:31:21

Automated responses: [View results](#) [Execute playbook](#)

Highlights

Malicious File Was Detected By Virtual Analyzer

Technique: T1570 - Lateral Tool Transfer
Rule name: Potential Threat (File was analyzed by Virtual Analyzer) - HTTP (Response)
Data source / processor: Virtual Network Sensor

2024-03-14 13:15:02 | [View event](#)

ec2-3-251-85-230.eu-west-1.compute.amaz...

Execution Profiles are only available for endpoints with Endpoint Sensor or Activity Monitoring enabled.

(peerIp) 63.34.213.177

(interestedIp) 172.31.41.36

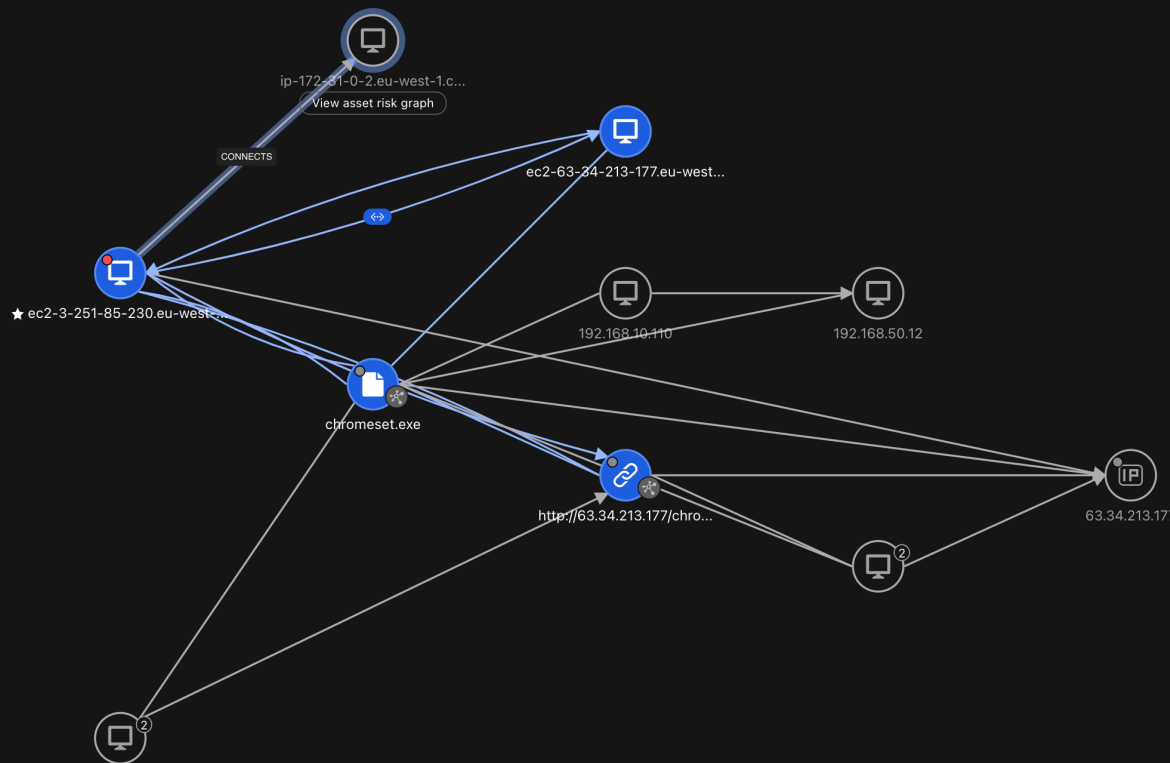
(request) http://63.34.213.177/chromeset.exe

(threatNames) VAN_DROPPER.UMXX

(interestedHost) ip-172-31-41-36.eu-west-1....

(src) 63.34.213.177

Show related assets





Summary

CL-00027-20240314-00039

Malicious File Detected by Virtual Analyzer

A malicious file was transferred in corporate network and detected by Virtual Analyzer.

Score: 41

Impact scope: 4

Created: 2024-03-14 13:31:21

Automated responses: [View results](#) | [Execute playbook](#)

Show related assets



Highlights



Malicious File Was Detected By Virtual Analyzer

Technique: T1570 - Lateral Tool Transfer
Rule name: Potential Threat (File was analyzed by Virtual Analyzer) - HTTP (Response)
Data source / processor: Virtual Network Sensor

2024-03-14 13:15:02 | [View event](#)

ec2-3-251-85-230.eu-west-1.compute.amaz...

Execution Profiles are only available for endpoints with Endpoint Sensor or Activity Monitoring enabled.

(peerIp) 63.34.213.177

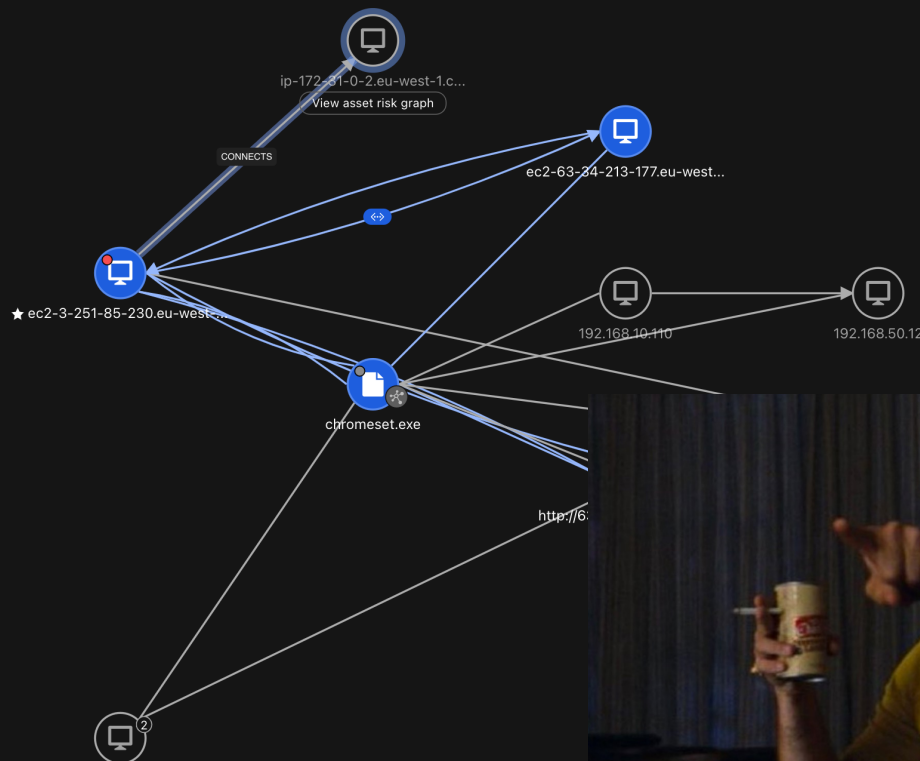
(interestedIp) 172.31.41.36

(request) http://63.34.213.177/chromeset.exe

(threatNames) VAN_DROPPER.UMXX

(interestedHost) ip-172-31-41-36.eu-west-1....

(src) 63.34.213.177





High - 8



3



2

Malicious Transfer

C&C Callback

Export



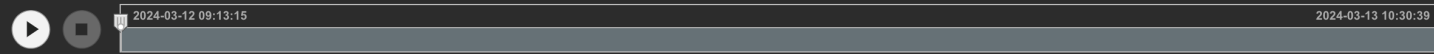
Trigger Object All suspicious activities for URL `http://63.34.213.177/chromeset.exe` were observed:

Activities were detected on `HTTP`.

Malicious files were transferred from `63.34.213.177`.

Malicious files were transferred from `172.31.21.127`, `172.31.28.200`, `172.31.41.36`.

Command and Control (C&C) activities were detected from `172.31.21.127`, `172.31.28.200`, `172.31.41.36` to `63.34.213.177`.



Transactions (All 12) | IOC (All 2)

The arrow specifies the direction of data flow, from source to destination, with the arrowhead pointing to the destination.



Indicators of Compromise

FCF58355696C27394C52111BF5A09DC7C7A61C74

- SHA-1: FCF58355696C27394C52111BF5A09DC7C7A...
- Risk level: ✘ High
- MITRE Tactics (1): [TA0008](#) - Lateral Movement
- Attack pattern (1): Malicious Transfer
- Rule triggered (1): [706] Potential Threat (File was analyzed by Virt...
- Internal hosts (3):
 - 172.31.21.127
 - 172.31.28.200
 - 172.31.41.36
- External host (1): 63.34.213.177
- First seen: 2024-03-12 09:13:16
- Last seen: 2024-03-14 12:15:10

http://63.34.213.177/chromeset.exe



MxDR Security Incident Analysis Report

Case Number: **31415926**

Prepared for **GREENTHIS**





Thank you!

Jesper Mikkelsen

Technical Director Nordics.

