

**The Summary:** Malicious PowerShell Execution and Credential Dumping

## Crowdstrike Incident (or detection) Link:

VMI1146645 at 2023-09-12T07:27:42Z

<https://falcon.us-2.crowdstrike.com/crowdscore/incidents/details/inc:fd0ae32b624a4baa83845321c1cf0e52:b4c93bd1a35a40e5af84da75cb9cfe8a>

## Process Tree:

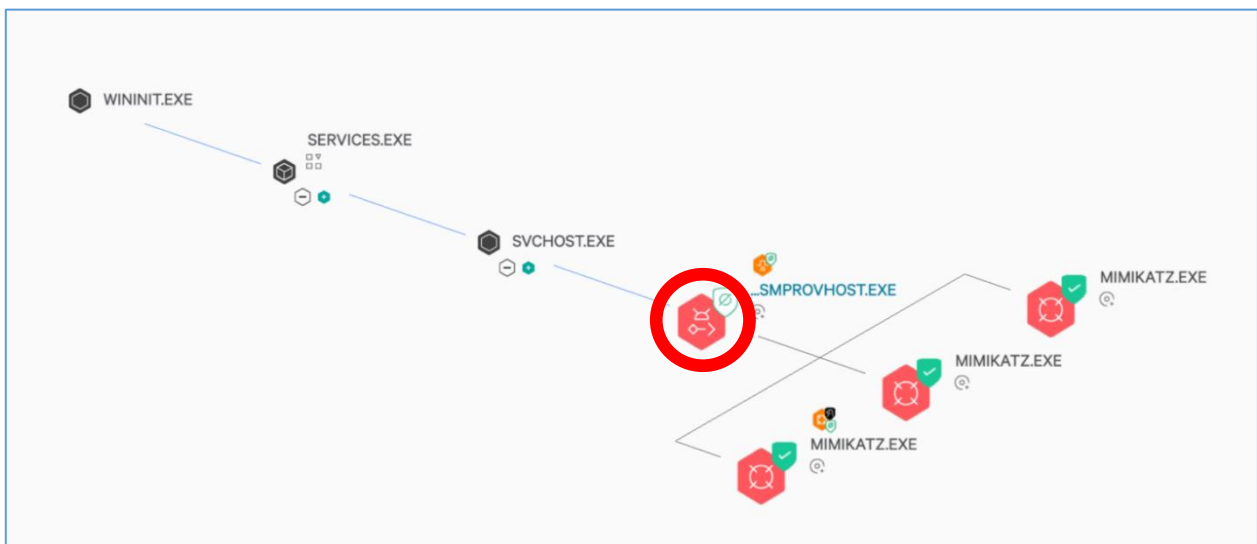
<https://falcon.us-2.crowdstrike.com/activity/detections/detail/fd0ae32b624a4baa83845321c1cf0e52/85905108560?pid=275170693264&processView=tree>

## Description

- **Incident name:** VMI1146645 at 2023-09-12T07:27:42Z
- **Victim IP:** 38.242.232.226 (VMI1146645 / OS Windows Server 2022)
- **Objectives in this incident:** Explore, Follow Through, Gain Access, Keep Access, Falcon Detection Method.
- **Techniques:** Windows Remote Management, Command and Scripting Interpreter, PowerShell, OS Credential Dumping, Masquerading, Sensor-based ML.
- **Involved hosts and end users:** VMI1146645, Administrator.

Host Details	
Current Properties	
HOSTNAME	VMI1146645
PLATFORM	Windows
HOST TYPE	Server
OS	Windows Server 2022
SENSOR VERSION	7.04.17605.0
HOST ID	fd0ae32b624a4baa83845321c1cf0e52
IP	38.242.232.226
LOCAL IP	38.242.232.226
MAC ADDRESS	00:50:56:49:71:48
Properties at detection time	
SENSOR VERSION	6.58.17212.0

## Investigation Findings:



**Analysis:** The command “C:\Windows\system32\wsmprovhost.exe -Embedding” which starts execution of the malicious “\\?\C:\Users\Administrator\Desktop\winPEAS.ps1” and then execution of “Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe” by the user **Administrator** indicates a highly suspicious action. The script, known as Invoke-Mimikatz, is commonly used for credential dumping, which poses a significant security risk.

<https://falcon.us-2.crowdstrike.com/activity/detections/detail/fd0ae32b624a4baa83845321c1cf0e52/85905108560?pid=275170693264&processView=tree>

Quarantined @ Sep. 12, 2023 10:22:22	
STATUS	PURGED
3 FILE NAMES	mimikatz.exe
	mimikatz.exe
	f_000049

<https://falcon.us-2.crowdstrike.com/activity/quarantined-files?filter=sha256%3A%20%2792804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50%27%2Bhostname.raw%3A%27VMI1146645%27%2Busername%3A%27Administrator%27>

## .Observed Files:

The screenshot displays the CrowdStrike Falcon console interface. On the left, a list of files is shown, with 'chrome.exe' highlighted in a red box. An arrow points from this box to the 'Quarantined Files' section on the right. The 'Quarantined Files' section shows a list of files, including 'mimikatz.exe' and 'f\_000049'. The event details for 'chrome.exe' are also visible, showing it was quarantined on Sep. 12, 2023 at 10:22:22. The event is classified as 'High' and is titled 'Machine Learning via Sensor-based ML'. The triggering indicator is 'Associated IOC (SHA256 on file write) 92884faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50'. The file is listed as 'mimikatz.exe' with a file name 'f\_000049'.

**First Event (Sep. 12, 2023 10:22:21):** A cache was created under \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Google\Chrome\User Data\Default\Cache\Cache\_Data\f\_000049 just after *mimikatz.exe* was downloaded using chrome browser.

**Filename (Executable):** *mimikatz.exe*

**Hash - SHA-256:**

92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50

## FILE PATHS

- \Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe,
- \Device\HarddiskVolume2\Users\Administrator\Documents\mimikatz.exe,

- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Google\Chrome\User Data\Default\Cache\Cache\_Data\f\_000049

### Virus Total Result:

<https://www.virustotal.com/gui/file/92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50>

### Brief Community Comments: -

**Security Vendors' Analysis from Virus Total:** **File distributed by Benjamin Delpy**

Multiple vendors labeled it as malware.

**Popular threat label:** trojan.mimikatz/glbyt

### Other reports:

<https://analyze.intezer.com/files/92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50?vt>

92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50

60 / 72

File distributed by Benjamin Delpy

92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50

mimikatz.exe

Size: 1.19 MB | Last Analysis Date: 5 days ago

peexe assembly overlay runtime-modules signed idle direct-cpu-clock-access repeated-clock-access 64bits known-distributor

Community Score

DETECTION DETAILS RELATIONS BEHAVIOR COMMUNITY 13 +

Join the VT Community and enjoy additional community insights and crowdsourced detections, plus an API key to [automate checks](#).

Popular threat label: trojan.mimikatz/glbyt

Threat categories: trojan, hacktool, pua

Family labels: mimikatz, glbyt, hacktool

Security vendors' analysis

Vendor	Detection	Vendor	Detection
AhnLab-V3	Trojan/Win32.RL_Mimikatz.R290617	Alibaba	Trojan/Win32/Mimikatz.4b2
ALYac	Trojan.GenericKD.69246065	Antiy-AVL	RiskWare/Win64.Mimikatz

Do you want to automate checks?

**ACTIONS TAKEN:** All files were quarantined and purged.

Quarantined File Details	
HOSTNAME	VMIT146645
FILE NAMES	\Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe, \Device\HarddiskVolume2\Users\Administrator\Documents\mimikatz.exe, \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Google\Chrome\User Data\Default\Cache\Cache_Data\{f_000049
USERNAME	Administrator
SHA 256	92804faab2175dc501d73e814663058c78c0a042675a8 937266357bcfb96c50
DATE QUARANTINED	Sep. 12, 2023 10:22:22
DATE UPDATED	Oct. 14, 2023 09:51:15

Selected 0 of 1   Release   Delete   Undo Release							Common   Unique	
Date of Quaranti...	File Name	Hostname	Behavioral Threat S...	User	Status	Actions	IOC MANAGEMENT ACTION	
Sep. 12, 2023 10:56...	winPEAS.ps1, winPE...	VMIT146645		Administrator	Purged		None	
LOAD MORE							Associated File	
							\Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe	
							ACTION TAKEN	
							Files quarantined	
							SEVERITY	
							Medium	
							OBJECTIVE	
							Falcon Detection Method	
							TACTIC & TECHNIQUE	
							Falcon Overwatch via Malicious Activity	
							TECHNIQUE ID	
							CST0002	
							IOA NAME	
							OverWatchAlertModerate	
							IOA DESCRIPTION	
							Falcon Overwatch has identified malicious activity of moderate concern. This activity has been raised for your awareness and should be investigated as normal.	
							View All Detections (4)	

Go to this link to **view all detections** related to the mimikatz.exe and cache:  
[https://falcons.crowdstrike.com/activity/detections/?filter=quarantined\\_file\\_hash%3A%2792804faab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50%27&groupBy=none](https://falcons.crowdstrike.com/activity/detections/?filter=quarantined_file_hash%3A%2792804faab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50%27&groupBy=none)

## COMMAND LINE for downloading **mimikatz.exe**:

- "C:\Program Files\Google\Chrome\Application\chrome.exe" --type=utility --utility-sub-type=network.mojom.NetworkService --lang=de --service-sandbox-type=none --mojo-platform-channel-handle=2084 --field-trial-handle=1920,i,9084043800257210304,2273113495787540303,262144 /prefetch:8

## Disk Operations:

explorer.exe:

\\Device\\HarddiskVolume2\\Users\\Administrator\\AppData\\Roaming\\Microsoft\\Windows\\Recent\\de10ae21bb262728c616a707f90aa05088c9d8f2b810fc0f2fb1bddcf9aba938.zip.lnk

\\Device\\HarddiskVolume2\\Users\\Administrator\\AppData\\Roaming\\Microsoft\\Windows\\Recent\\cffa16329e13d62acf61bc633131673dd876a04ed8dd76d178fa98a87e2ee2bb.zip.lnk

\\Device\\HarddiskVolume2\\Users\\Administrator\\AppData\\Roaming\\Microsoft\\Windows\\Recent\\Downloads.lnk

\\Device\\HarddiskVolume2\\Users\\Administrator\\AppData\\Roaming\\Microsoft\\Windows\\Recent\\88b7aa1440c142faa404021ffe25eb4cf1bf7d4b2b7979c7ffdc98014961aadf.xlsx.lnk

#### **chrome.exe:**

\\Device\\HarddiskVolume2\\Windows\\SystemTemp\\chrome\_PuffinComponentUnpacker\_BeginUnzipping9504\_557610398\\page\_embed\_script.js

\\Device\\HarddiskVolume2\\Windows\\SystemTemp\\chrome\_PuffinComponentUnpacker\_BeginUnzipping9504\_1612496392\\Google.Widevine.CDM.dll

\\Device\\HarddiskVolume2\\Windows\\SystemTemp\\chrome\_PuffinComponentUnpacker\_BeginUnzipping9504\_1612496392\\Google.Widevine.CDM.dll

## **Observed Network connections and IP Analysis (for downloading mimikatz.exe)**

[https://falcon.us-2.crowdstrike.com/activity/detections/?filter=quarantined\\_file\\_hash%3A%2792804faaa62175dc501d73e814663058c78c0a042675a8937266357bcfb96c50%27&groupBy=none](https://falcon.us-2.crowdstrike.com/activity/detections/?filter=quarantined_file_hash%3A%2792804faaa62175dc501d73e814663058c78c0a042675a8937266357bcfb96c50%27&groupBy=none)

Chrome connection with the IP: 239.255.255.250 (Phishing Attachment IOC). This IP address might be related with **downloading mimikatz.exe to the server**. Should be blocked immediately.

**IP:** 239.255.255.250 (Phishing Attachment IOC - Multicast)

**User Agent:** -

**Browser Name:** -

**Browser Version:** -

**OS:** -

#### **Analyst Investigation Results:**

**Virus Total Result:** [here <https://www.virustotal.com/gui/ip-address/239.255.255.250>]

**Brief Community Comments:** “ET MALWARE Possible Downadup/Conficker-C P2P encrypted traffic UDP Ping Packet (bit value 1)”

“I added the IP 239.255.255.250 to the user defined IOCs and got a couple thousand alerts from the workstations. Apparently it is a UPnP multicast address”

**Security Vendors' Analysis from Virus Total:** 3 security vendors flagged this IP address as malicious

**Talos Intelligence:**

**REPUTATION DETAILS:**

IP Reputation: **Neutral**

Web Reputation: **Unknown**

**BLOCK LISTS:**

BL.SPAMCOP.NET: -

CBL.ABUSEAT.ORG: -

PBL.SPAMHAUS.ORG: -

SBL.SPAMHAUS.ORG: -

**Shodan Result:** [here|<https://www.shodan.io/search?query=239.255.255.250>]

**Open Ports:** 1900, 1723, 520, 20087, 3001

**Other reports:**

[https://blogs.vmware.com/security/2023/11/jupyter-rising-an-update-on-jupyter-infostealer.html#:~:text=netconn\\_ipv4%3A146.70.101.83%20OR-,239.255.255.250,-OR%20224.0.0.251%20OR](https://blogs.vmware.com/security/2023/11/jupyter-rising-an-update-on-jupyter-infostealer.html#:~:text=netconn_ipv4%3A146.70.101.83%20OR-,239.255.255.250,-OR%20224.0.0.251%20OR)

<https://blogs.vmware.com/security/2023/11/jupyter-rising-an-update-on-jupyter-infostealer.html>

+++++

**Second Event (Sep. 12, 2023 10:53:42):** wsmprovhost.exe was executed.

**File Name:** wsmprovhost.exe

**Hash - SHA-256:**

36f5a0512ff6a9717720fd11b160c88e43cd7a58370a75599a2f9b209ce542d0

**Command Line:** C:\Windows\system32\wsmprovhost.exe -Embedding

**File Path:** \Device\HarddiskVolume2\Windows\System32\wsmprovhost.exe

- **wsmprovhost.exe** is likely legitimate and related to Windows Management Instrumentation (WMI) providers. However, it was exploited to run **winPEAS.ps1** script to initiate **mimikatz** attack in the incident.
- The wsmprovhost.exe process is critical and linked to remote sessions in Windows (Remote Desktop Connection).

- The *wsmprovhost.exe* process indicates that a **Windows Remote PowerShell** session is active and generally appears when entering a remote session. The process is created on the server, and more such are added when you run other processes in the remote session.
  - <https://windowsreport.com/wsmprovhost-exe/>
  - <https://windowsreport.com/remote-desktop-connection-windows-10/>
  - Possible Misuse: <https://strontic.github.io/xcyclopedia/library/wsmprovhost.exe-7FF8C32DD798BAB05FA7B271C09153CA.html>
- *-Embedding* switch is often used with COM (Component Object Model) objects to indicate that the program should be run in a mode where it can be controlled by another program.

**Objective:** Gain Access

**Possible Misuse:** <https://strontic.github.io/xcyclopedia/library/wsmprovhost.exe-7FF8C32DD798BAB05FA7B271C09153CA.html#possible-misuse:~:text=All%20rights%20reserved.-,Possible%20Misuse,-Permalink>

**Virus Total Result:**

<https://www.virustotal.com/gui/file/36f5a0512ff6a9717720fd11b160c88e43cd7a58370a75599a2f9b209ce542d0/detection>

**Brief Community Comments:** -

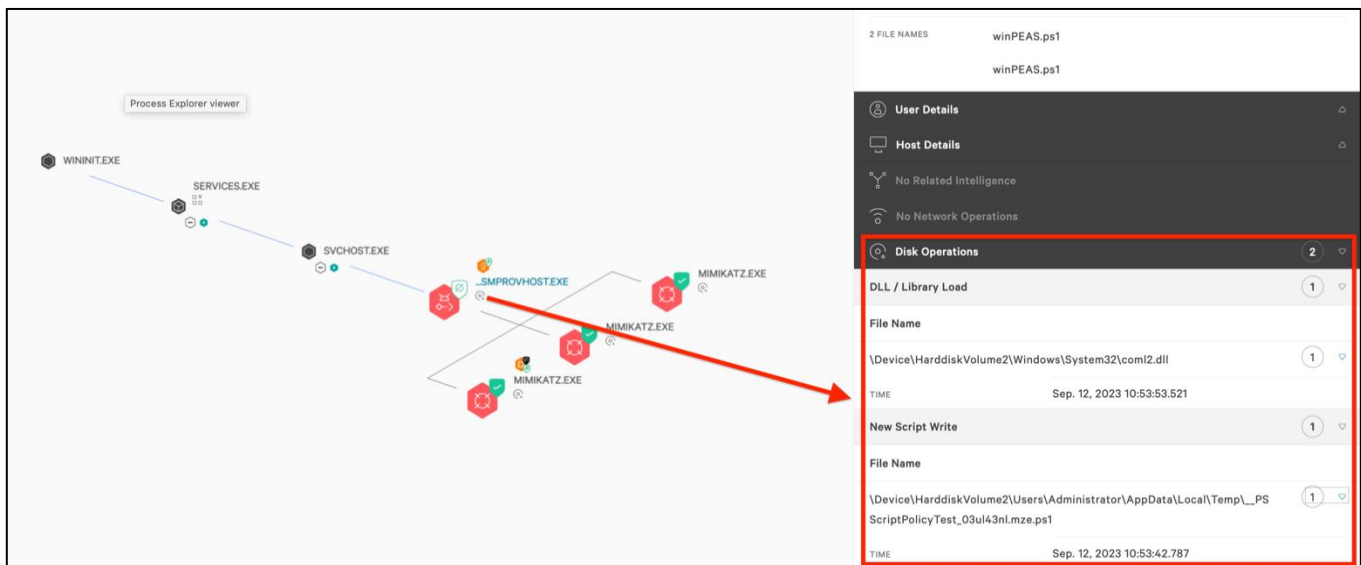
**Security Vendors' Analysis from Virus Total:** **File distributed by Microsoft**

**Popular threat label:** -

**ACTIONS TAKEN:** Operation blocked, Files quarantined

**Disk Operations:**





- \Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe
- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Temp\\_\_PSScriptPolicyTest\_4rs0xa4d.j4j.ps1
- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Temp\\_\_PSScriptPolicyTest\_03ul43nl.mze.ps1
- \Device\HarddiskVolume2\Windows\System32\coml2.dll
- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Temp\\_\_PSScriptPolicyTest\_pu5yy4b0.u0g.ps1
- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Temp\\_\_PSScriptPolicyTest\_03ul43nl.mze.ps1
- \Device\HarddiskVolume2\Users\Administrator\AppData\Local\Temp\\_\_PSScriptPolicyTest\_su1gf442.2md.ps1

+++++

### Third Event (Sep. 12, 2023 10:53:53):

\\?\C:\Users\Administrator\Desktop\winPEAS.ps1 and  
 \\?\C:\Users\Administrator\Documents\winPEAS.ps1 were executed just after the  
 attacker connected to server VMI1146645 via RDP with wsmprovhos.exe.

**Filename:** winPEAS.ps1

**Hash - SHA-256:**

ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da

**Virus Total Result:**

<https://www.virustotal.com/gui/file/ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da>

**Brief Community Comments:** -

**Security Vendors' Analysis from Virus Total:** 18 security vendors and no sandboxes flagged this file as malicious

## Popular threat label: trojan.cajan/powershell

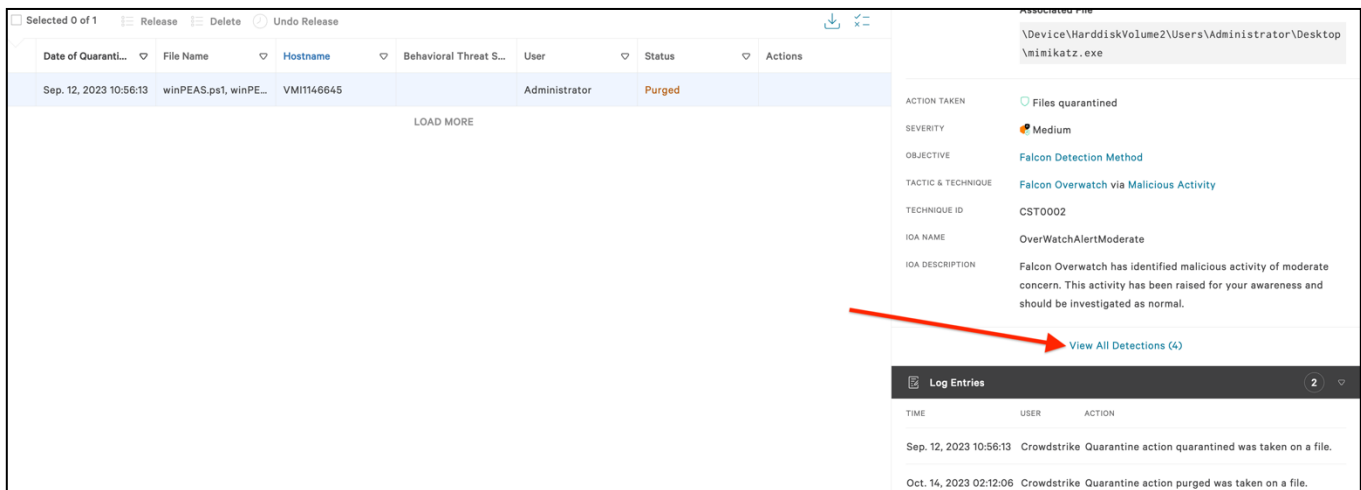
The screenshot displays the CrowdStrike Falcon console interface for a file analysis. At the top, the file hash is `ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da`. A circular badge shows a score of 18/60. A warning message states: "18 security vendors and no sandboxes flagged this file as malicious". The file name is `winPEAS.ps1`, with a size of 70.04 KB and a last analysis date of 17 days ago. Below this, a list of tags includes `powershell`, `detect-debug-environment`, `checks-network-adapters`, `checks-bios`, `calls-wmi`, and `long-sleeps`. The interface has tabs for DETECTION, DETAILS, RELATIONS, BEHAVIOR, and COMMUNITY. A blue banner encourages joining the VT Community. Below, the "Popular threat label" is `trojan.cajan/powershell`, with threat categories `trojan` and `hacktool`, and family labels `cajan` and `powershell`. A table titled "Security vendors' analysis" lists detections from various vendors:

Vendor	Detection	Vendor	Detection
ALYac	Trojan.GenericKD.69467079	Arcabit	Trojan.Generic.D423FBC7
Avira (no cloud)	PUA/Tool.agp	BitDefender	Trojan.GenericKD.69467079
Cynet	Malicious (score: 99)	Emsisoft	Trojan.GenericKD.69467079 (B)
eScan	Trojan.GenericKD.69467079	F-Secure	PotentialRisk.PUA/Tool.agp

⇒ From the CrowdStrike, go to Quarantined file winPEAS.ps1:

The screenshot shows the "Quarantined" section of the CrowdStrike Falcon console. It indicates the file was quarantined on Sep. 12, 2023, at 10:56:13. A red arrow points to an eye icon. The status is "PURGED". Under "2 FILE NAMES", the file `winPEAS.ps1` is listed twice.

<https://falcon.us-2.crowdstrike.com/activity/quarantined-files?filter=sha256%3A%20%27ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da%27%2Bhostname.raw%3A%27VMI1146645%27%2Busername%3A%27Administrator%27>



Go to that link [https://falcon.us-2.crowdstrike.com/activity/detections/?filter=quarantined\\_file\\_hash%3A%27ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da%27&groupBy=none](https://falcon.us-2.crowdstrike.com/activity/detections/?filter=quarantined_file_hash%3A%27ff2e458903bf052f3ccf2a0bee20c74e526be74fb4d71e587e82e79990b2e8da%27&groupBy=none) to view all the detections related with **winPEAS.ps1**.

**Description:** The PowerShell script **winPEAS.ps1** appears to be launching \Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe and \Device\HarddiskVolume2\Users\Administrator\Documents\mimikatz.exe, a password dumping utility.

**Capabilities of winPEAS.ps1 malicious powershell script file:** Windows Privilege Escalation (Privilege Escalation (PrivEsc) in Windows is a process that get the Administrator credential and login.)

**Source Code of winPEAS.ps1:** <https://github.com/carlospolop/PEASS-ng/blob/master/winPEAS/winPEASps1/winPEAS.ps1>

**ACTIONS TAKEN:** Operation blocked, Files (**winPEAS.ps1**) quarantined

**Disk Operations:**

\Device\HarddiskVolume2\Windows\System32\ntdll.dll

\Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe

+++++

**Fourth Event (Sep. 12, 2023 10:59:23):** net.exe executable file, which is normally a legitimate file in Windows to deal with accounts, was executed suspiciously and it might be related with *Lateral Movement via Windows Remote Management*

**Command Line:** "C:\Windows\system32\net.exe" user /domain

**Filename:** net.exe

**Hash - SHA-256:**

f540747022e0d67722989765b5db268707e4e71538ae0764110eec7b8d9aeef6

+++++

**Fifth Event (Sep. 12, 2023 11:03:34):** A suspicious executable file was executed after the incident.

Command Line: `\\?\C:\Windows\system32\conhost.exe 0xffffffff - ForceV1`

**Filename:** conhost.exe

**Hash - SHA-256:**

1169576411670c9305b921d2c2c1500ebbae0158fb9cc3e43a5042237a3d00d9

**Virus Total Result:**

<https://www.virustotal.com/gui/file/1169576411670c9305b921d2c2c1500ebbae0158fb9cc3e43a5042237a3d00d9/community>

**Brief Community Comments: -**

**Security Vendors' Analysis from Virus Total:** 51 security vendors and 1 sandbox flagged this file as malicious

SRC URL reported to urlhaus.abuse.ch #malicious

**Popular threat label:** trojan.dloadr/xmrminer

<https://any.run/report/1169576411670c9305b921d2c2c1500ebbae0158fb9cc3e43a5042237a3d00d9/4eb598a7-03b8-4c74-8826-afba114c03d7>

<https://answers.microsoft.com/en-us/windows/forum/all/im-experiencing-random-high-cpu-usage-up-to-30-by/be7fb2f9-a742-4352-baf7-f4771cd717e6>

<https://answers.microsoft.com/en-us/windows/forum/all/suspicious-conhostexe/a7842ec3-3e17-4ad5-93d4-cf80262ccfb5>

+++++

## **.Observed Suspicious DNS Activity:**

**Domain:** bazaar.abuse.ch

**Virus Total Result:** [here <https://www.virustotal.com/gui/domain/bazaar.abuse.ch>]

**Brief Community Comments:** MalwareBazaar is a site for sharing malware samples with the community. It is safe to visit, but be careful when downloading malware samples.

**Security Vendors' Analysis from Virus Total:** 1 security vendor flagged this domain as malicious

**.Observed Registry Operations:** There is no registry operations.

**.Impact Assessment:** The potential impact of this activity includes unauthorized access to sensitive credentials, potential compromise of user accounts, and a higher risk of lateral movement.

**.Responses:** The execution of the command “C:\Windows\system32\wsmprovhost.exe -Embedding” and “\\?\C:\Users\Administrator\Desktop\winPEAS.ps1” have been blocked and files were quarantined, however the command “\\Device\HarddiskVolume2\Users\Administrator\Desktop\mimikatz.exe” by the user **Administrator** has been executed followed by being blocked and the file was quarantined.

The final command \\?\C:\Windows\system32\conhost.exe 0xffffffff - ForceV1 was executed. This process “meets the machine learning-based on-sensor AV protection's high confidence threshold for malicious files”. And there is no sign of blocking or quarantining action from the CrowdStrike.

+++++

### **Recommended Actions:**

- a. **Contain** affected endpoint VMI1146645
- b. **Isolate** affected endpoint from the network to prevent further potential harm and lateral movement infections.
- c. **Patch** the OS with the latest version.
- d. **Restore** the server from clean backups.
- e. The server should be **fully scanned**.
- f. Apply **performance testing** to verify there is no high usage of CPU and other resources in the machine due to malware artifacts.
- g. **Reset/Lock** the account Administrator
- h. **Check the exploitable file**  
\\Device\HarddiskVolume2\Windows\System32\wsmprovhost.exe against vulnerabilities. **Removing** wsmprovhost.exe and then configuring the host for allowing only VPN or SSH remote connections could be a proper option.
- i. Check out any **spam emails** against phishing attacks.
- j. **Educate** users on identifying phishing attempts.
- k. **Block** the malicious multicast IP address 239.255.255.250. Also block any multicast traffic to or from the server.

**Ticket Priority:**

VMI146645 at 2023-09-12T07:27:42Z	
Score - High  6.0/10	<b>Description</b> Objectives in this incident: Explore, Follow Through, Gain Access, Keep Access, Falcon De Techniques: Windows Remote Management, Command and Scripting Interpreter, PowerSh ased ML. Involved hosts and end users: VMI146645, Administrator.

**7. Assigned Analyst:** Medrkmostafaei (L1 SOC Analyst)