

THE SEVEN DEADLY SINS

Major security failures of companies from the perspective of InfoGuard's CSIRT





1. SIN

LACK OF PATCH MANAGEMENT



TIME TO PATCH



Research suggests the cheap hire of cloud services has allowed cyberattackers to quickly pick out targets.



PARTLY VULNERABLE FOR MONTHS

Mo. 07.02.2022 19:13 votavhhpdclhetxj To FileAttachment.txt 2 KB	RAPID		PRODUCTS × SERVICES ×	SUPPORT & RESOURCES >	RESEARCH
str		Microsof	t Exchange ProxyShe	II RCE]
		Disclosed		Created	
		04/06/2021		08/19/2021	
		Description			
			exploits a vulnerability on Micros		lows an attacker to bypass the 21-34523) and write an arbitrary file
					g advantage of this vulnerability, you
	_	can execute a	rhitrary commands on the remot	e Microsoft Exchange Serve	er This vulnerability affects Exchange



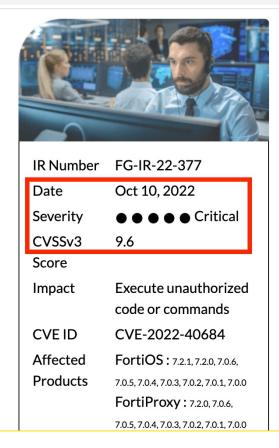
FREELY AVAILABLE EXPLOIT CODE

github	.com/horizon3ai/proxyshell/blob/master/exc	change_proxyshell.py
	200	
	201 class ProxyShell:	
	202	
	203 definit(sel	f, exchange_url, email, verify=False):
	204	
	205 self.email =	None
	206 self.emails	= []
	207 self.exchange	e_url = exchange_url if exchange_url.startswith('https://') else f'https://{exchange_url}'
	208 self.rand_ema	ail = f'{rand_string()}@{rand_string()}.{rand_string(3)}'
	209 self.sid = N	one
	210 self.legacydd	n = None
	211 self.legacydd	ns = []
	212 self.rand_su	<pre>bj = rand_string(16)</pre>
	213 self.target_	be = None
	214 self.servers	= {}
	215 self.version	= None
	216 self.version	s = {'Exchange2016'}
	217 self.domain =	= None
	218 self.domains	= set()
	210	



FORTINET

fortiguard.com/psirt/FG-IR-22-377



PSIRT Advisories

FortiOS / FortiProxy / FortiSwitchManager - Authentication bypass on administrative interface

Summary

An authentication bypass using an alternate path or channel vulnerability [CWE-288] in FortiOS, FortiProxy and FortiSwitchManager may allow an unauthenticated attacker to perform operations on the administrative interface via specially crafted HTTP or HTTPS requests.

Exploitation Status:

Fortinet is aware of an instance where this vulnerability was exploited, and recommends immediately validating your systems against the following indicator of compromise in the device's logs: user="Local_Process_Access"



FORTINET

horizon3ai / CVE-2022-40684 Public										
<> Code	រ៉ៀ Pull requests	🕞 Actions 🖽 Projects 🔃 Security 🗠 Insights								
		History for CVE-2022-40684 / CVE-2022-40684.py								
	-o- Commits on Oct 13, 2022									
		Add POC and readme zach committed 3 days ago								
		-o- End of commit history for this file								



. . .

SECURITY NEWS



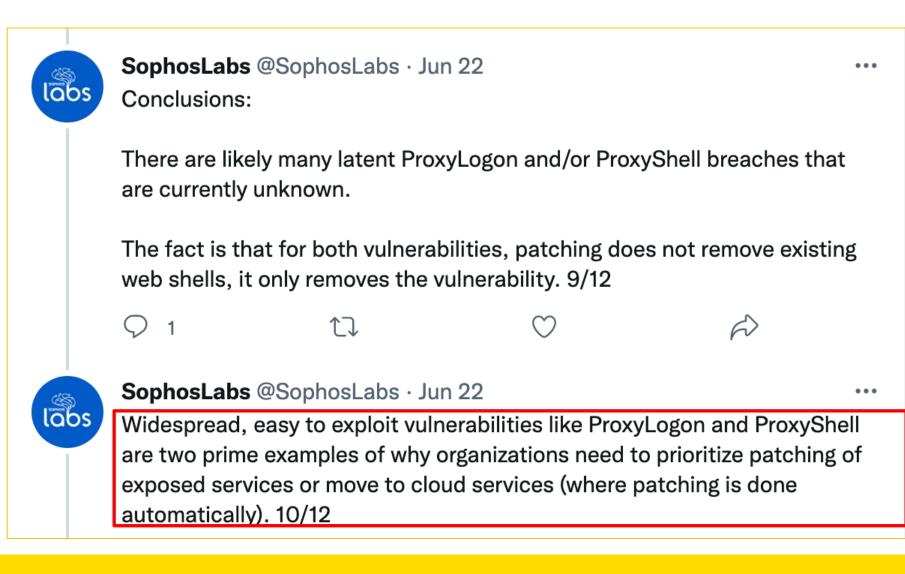
Florian Roth \neq @cyb3rops \cdot 5h Public Twitter List "Cyber"

- my curated list of of cyber security experts with high signal to noise ratio
- 195 members, 11k followers
- use this list if your main feed is too noisy
- tip: use it as a separate panel in tweetdeck.twitter.com

twitter.com/i/lists/201875...

PATCHING







EMERGENCY PATCHES





2. SIN

LACK OF MULTI-FACTOR AUTHENTICATION



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BUSINESS EMAIL COMPROMISE

2021 INTERNET CRIME REPORT

THREAT OVERVIEWS FOR 2021

BUSINESS EMAIL COMPROMISE (BEC)



In 2021, the IC3 received 19,954 Business Email Compromise (BEC)/ Email Account Compromise (EAC) complaints with adjusted losses at nearly \$2.4 billion. BEC/EAC is a sophisticated scam targeting both businesses and individuals performing transfers of funds. The scam is frequently carried out when a subject compromises legitimate business email accounts through social engineering or computer intrusion techniques to conduct ansfers of funds.

unauthorized transfers of funds.

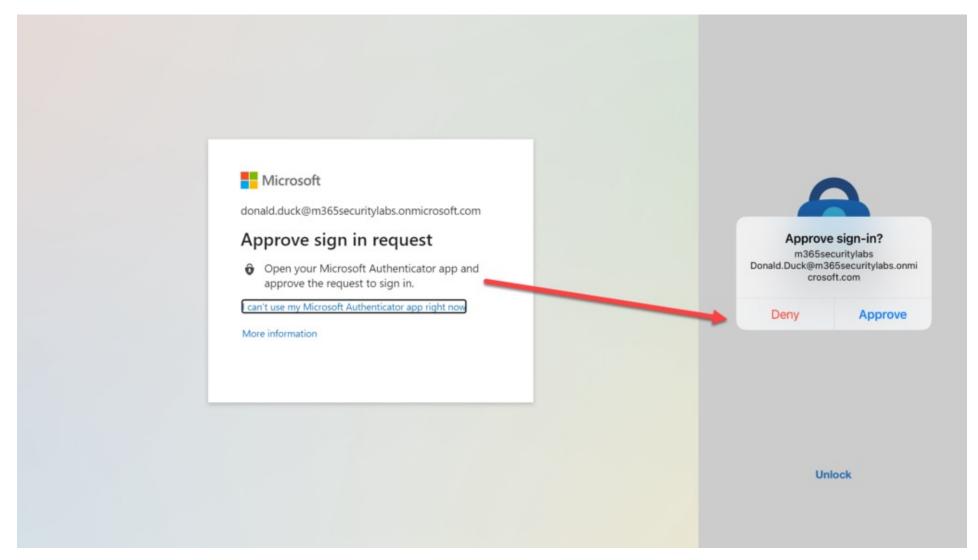


MFA – MFA – MFA



InfoGuard SWISS CYBER SECURITY

BYPASSING MFA





BYPASSING MFA

LAPSUS\$ Chat

they must have some mfa right?

Signin with smartcard doesn't have any MFA

Signin with password will issue MFA through a phone call or authentication app. - However no limit is placed on the amount of calls that can be made, call the employee 100 times at 1am while he is trying to sleep and he will more than likely accept it edited 00:17



Reply

BYPASSING MFA



LAPSUS\$ Chat LAPSUS\$ Chat

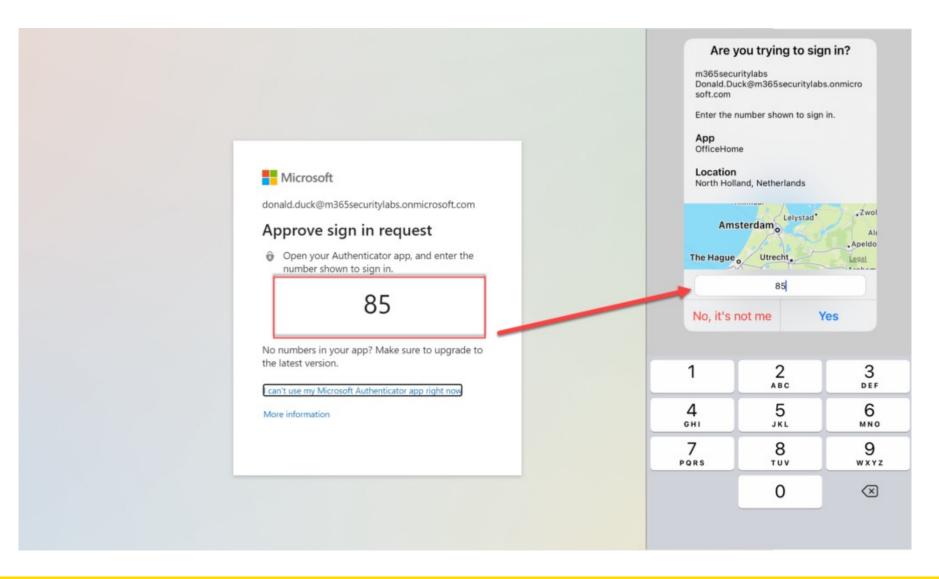
Signin with smartcard doesn't have any MFA *Signin with pas...

Once the employee accepts the initial call you can access the MFA enrollment portal and enroll another device. 00:18

Alternative authentication phone	
Authenticator app or Token	Set up Authenticator app
Authenticator app - iPhone von Stefan	Delete
Authenticator app - Hunchos iPhone	Delete



IMPROVED MFA







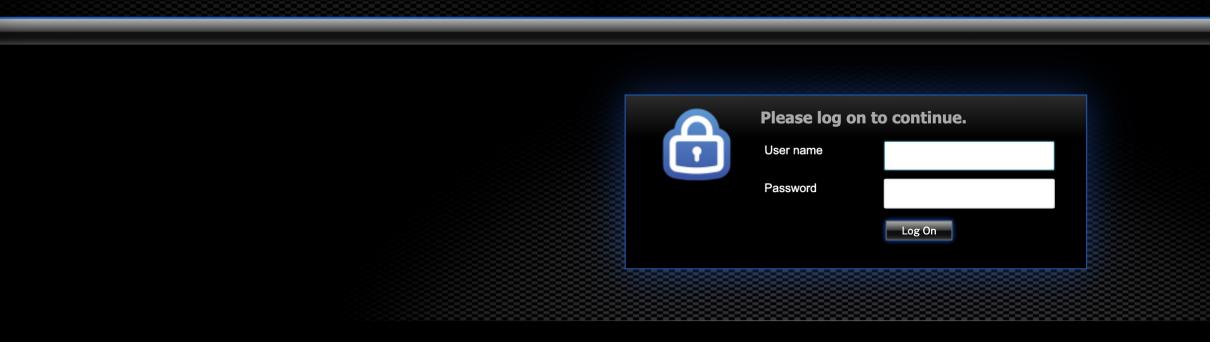
VPN MFA protecting the gateway to the kingdom





REMOTE ACCESS

Citrix Gateway





IGNORING AV-MESSAGES

3. SIN



HIGH RISK KEYWORDS

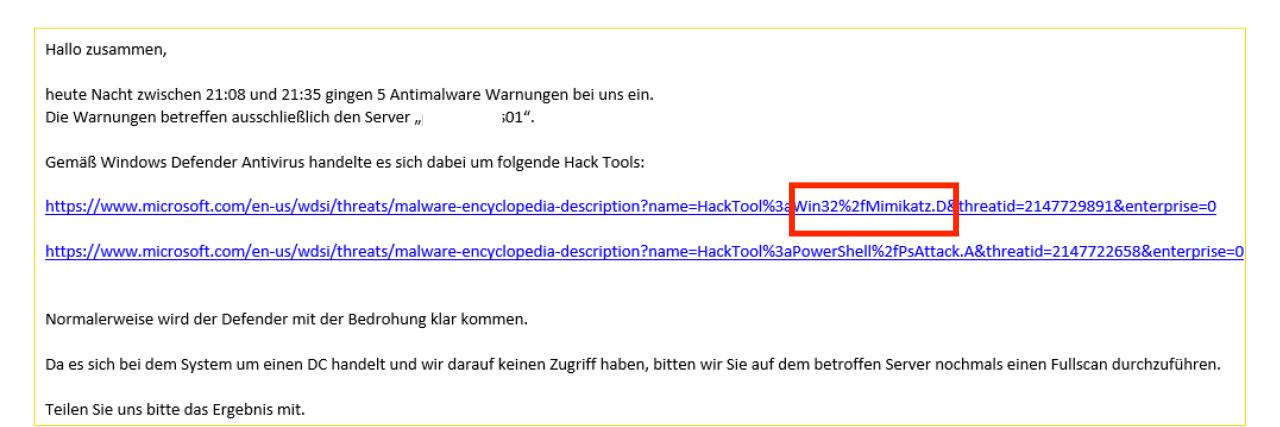
Antivirus Event Analysis Cheat Sheet

Version 1.7.2 Florian Roth @cyb3rops

Attribute	Less Relevant	Relevant		Highly Relevant	
Virus Type	HTML Iframe Keygen Joke Adware Clickjacking Crypto FakeAV	Trojan Backdoor Agent Malware JS Creds PS PowerShell Exploit Ransom	PassView Tool-Netcat Tool-Nmap RemAdm NetTool Crypto Scan	HackTool HTool HKTL PWCrack SecurityTool Clearlogs PHP/BackDoor ASP/BackDoor JSP/BackDoor Backdoor.PHP	CobaltStrike Keylogger MeteTool Meterpreter Metasploit PowerSSH Mimikatz PowerSploit PSWTool PWDump

ONE OF THESE HIGH RISK KEYWORDS







ASSESSMENT OF INFECTIONS

Collection	Threat Name	Severity	Threat Catego	vry	Collection Member Count	Computers Inf
All Deskt	Program:Win32/Contebrew.A!ml	High	Potential Unw	van	479	1
All Syste	Program:Win32/Contebrew.A!ml	High	Potential Unw	van	496	1
COL_AM	Program:Win32/Contebrew.A!ml	High	Potential Unw	van	271	1
All Deskt	Behavior:Win32/CobaltStrike.D!sms	Severe	Behavior		479	1
All Syste	Behavior:Win32/CobaltStrike.D!sms	Severe	Behavior		496	1
COL_AM	Behavior:Win32/CobaltStrike.D!sms	Severe	Behavior		271	1
All Deskt	Trojan:Win32/Sabsik.FL.A!ml	Severe	Trojan		479	1
All Syste	Trojan:Win32/Sabsik.FL.A!ml	Severe	Trojan		496	1
COL_AM	Trojan:Win32/Sabsik.FL.A!ml	Severe	Trojan		271	1



4. SIN

AD HARDENING



PASSWORDS IN THE GPO

Obfuscated Passwords The password in GPO are obfuscated, not encrypted. Consider any passwords listed here as compromised and change it immediatly. Show 10 \$ entries Search: **Domain Administrators** Password origin 🛝 **GPO Name** \uparrow UserName 🛝 ∿ Changed N Password **Direct User Members** Show 10 the entries allgemeine_Client_Einstellungen ? groups.xml support Help 2013-11-13 17:09:02Z allgemeine_Client_Einstellungen 🥐 Sw1 2013-11-13 17:34:36Z groups.xml ladmin Pwd Smart Card never Serv SamAccountName ↑ Enabled 1 Active ^{↑↓} Expired 🛝 Locked 🛝 required 🛝 acco NO YES YES YES NO NO support Showing 1 to 1 of 1 entries (filtered from 10 total entries)



SERVICE ACCOUNTS

Domain Administrators									
Show 10 🗢 entries									
	English		Pwd never	L a alva d	Smart Card	Service			
SamAccountName	Enabled ?	Active ?	Expired	Locked ? ↑↓	required ?	account			
srv_task_admin2	YES	YES	YES	NO	NO	YES			



NO PASSWORD CHANGE

Account	Creation 1	LastChanged
Administrator	2003-12-02 08:24:59Z	2003-12-02 11:40:38Z
CitrixIMS	2003-12-03 12:17:47Z	2003-12-03 13:18:06Z
REM_Batch	2003-12-08 14:47:53Z	2003-12-08 15:47:53Z
CLUSTERADMIN	2003-12-29 12:47:58Z	2003-12-29 13:47:58Z
BackupExec	2004-10-08 12:19:00Z	2004-10-08 14:19:00Z



NO TIERING MODEL

.## ^ ##. "/ ## / \ ## / ³ ## \ / ## '## v ##'	<pre>imikatz 2.2.0 (x64) #19041 May 18 2021 17:07:45 A La Vie, A L'Amour" - (oe.eo) *** Benjamin DELPY `gentilkiwi` (benjamin@gentilkiwi.com)</pre>	
Privilege '20' mimikatz # ts: !!! Warning, f Domain UserName	::logonpasswords False positive can be listed !!!	
mimikatz # _		



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IT'S COMPLICATED



Chirag Savla 🗸 🔸 Jul 24, 2021 🔸 15 min read

Fantastic Windows Logon types and Where to Find Credentials in Them

Hello All,

In this blog post we will explore and learn about various Windows Logon Types and understand how are these logon type events are generated. We will also see if we can extract credentials from individual logon types. We will be using our <u>Active Directory Attack</u> <u>Defense Lab</u> for all the demos.



5. SIN

NO IN-DEPTH ANALYSIS AFTER AN INCIDENT



PASSWORD RESET

EXPLOITS AND VULNERABILITIES

500,000 Fortinet VPN credentials exposed: Turn off, patch, reset passwords

Posted: September 9, 2021 by Pieter Arntz

A threat actor has leaked a list of almost 500,000 Fortinet VPN credentials, stolen from 87,000 vulnerable FortiGate SSL-VPN devices. The breach list provides raw access to organizations in 74 countries, including the USA, India, Taiwan, Italy, France, and Israel, with almost 3,000 US entities affected.

According to Fortinet the credentials were obtained from systems that remained unpatched against CVE-2018-13379 at the time of the actor's scan. Even if the devices have since been patched, if the passwords were not reset, they remain vulnerable.

PATCHING TOO LATE – FORENSIC INVESTIGATION



ints	Q	📰 Sho	ow All					EXCH13 🍚	connected	onnected C+ a			
 HttpProxy ReportingWebService autodiscover 	9			FR B R									
bin ecp			\$	Name	\$	Size 🖨	Mode 🖨	mtime 👻	atime 🗢	ctime 🗢	btime 🗢		
🖿 ews 🖿 mapi				e1ae7e73e0.aspx		2087	-rwxr-xr-x	2021-03- 07T19:23:05.810465Z	2021-03- 07T19:23:05.810465Z	2021-03- 07T19:23:20.4053702Z	2021-03- 07T19:23:05.810465Z		
■ oab ► owa ► auth				Current		0	drwxr-xr-x	2016-11- 06T21:45:24.2816309Z	2016-11- 06T21:45:24.2816309Z	2021-03- 07T19:23:20.4053702Z	2016-11- 06T21:45:23.6722173Z		
 15.0.1178 Current powershell puskastifications 			Ş	Stats Textview	HexView								
 pushnotifications rpc sync PopImap 				\\.\C:\Program Files\Mic Server\V15\FrontEnd\H		-	e1ae7e73e0).aspx	Properties				
roupMetrics ogging ailbox				Size	208				mft name_type	340288-128-3 POSIX			
ublic emoteScripts				Mode Mtime		r-xr-x 1-03-07T1	9:23:05.8104	465Z	SHA256	86968194f77671fbb382 0bfcddf5ad45633445f1e	f9377a7a4369ab36d7589c if		
cripts etup				Atime			9:23:05.8104		MD5	4e3b7ba4d6f96120beec	:4e61d9c397c0		
TransportRoles InifiedMessaging Vorking				Ctime Last Collected			9:23:20.4053 9:34:12 UTC						



LEAKED CREDENTIALS



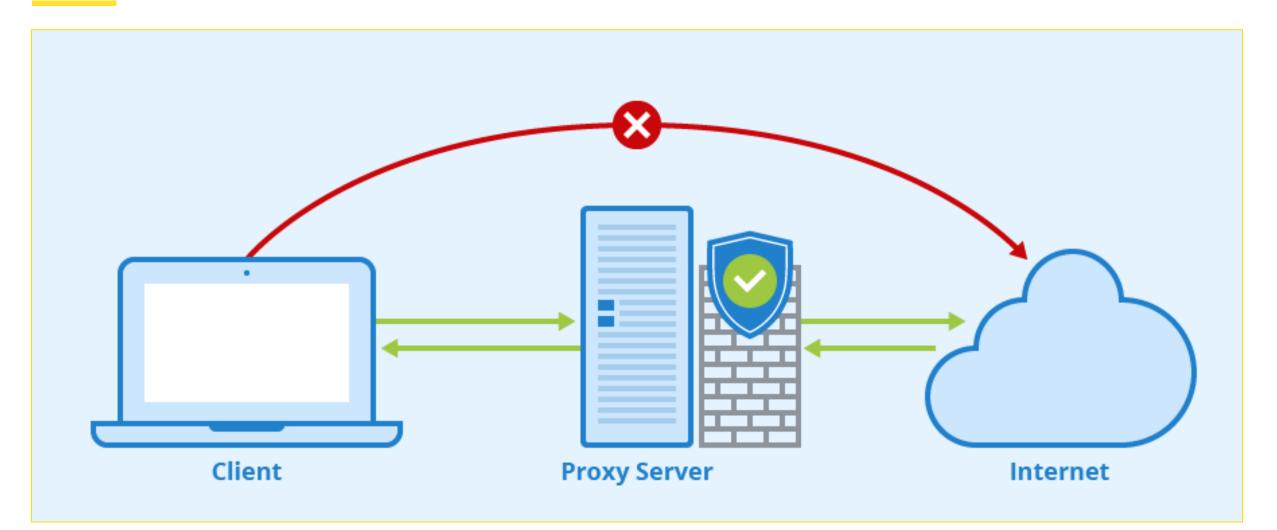


6. SIN

DIRECT ACCESS TO THE INTERNET



GOOD ANALYSIS POSSIBILITIES





PROXY CATEGORIES

information about adoption, immigration information, and immigration services.

Hacking

Sites that distribute, promote or provide tools or other information intended to help gain unauthorized or illegal access to computers, computer networks, or computerized communication and control systems. Also includes sites with instructions for creating or distributing malware or information on performing cyber attacks.

Health

Sites that provide advice and information on general health such as fitness and well-being, personal health, medical services, over-thecounter and prescription medications, health effects of both legal and illegal drug use, alternative and complementary therapies, medical information about ailments, dentistry, optometry, and general psychiatry. Also includes self-help and support organizations dedicated to a disease or health condition.

Humor/Jokes

Sites that primarily focus on comedy, jokes, fun, etc. This may include sites containing jokes of adult or mature nature. Sites containing humorous Adult/Mature content also have an Adult/Mature category rating.

Informational

Sites that provide content that is informational in nature and does not provide a way to

equipment, and other Web-enabled devices. Also includes security camera feeds, which are dually categorized as TV/Video Streams.

Internet Telephony

Sites that facilitate Internet telephony or provide Internet telephony services such as voice over IP (VOIP).

Intimate Apparel/Swimsuit

Sites that contain images or offer the sale of swimsuits or intimate apparel or other types of suggestive clothing. This does not include sites selling undergarments as a subsection of other products offered.

Job Search/Careers

Sites that provide assistance in finding employment and tools for locating prospective employers.

Malicious Outbound Data/Botnets

Sites to which botnets or other malware (as defined in the Malicious Sources category) send data or from which they receive command-andcontrol instructions. Includes sites that contain serious privacy issues, such as "phone home" sites to which software can connect and send user information. Usually does not include sites that can be categorized as Malicious Sources.

Malicious Sources/Malnets

Sites that host or distribute malware or whose purpose for existence is as part of a malicious network (malnet) or the malware



USER AGENT ANALYSIS

j.	
	Data
	GET /gates HTTP/1.1
	Data Raw: 48 6f 73 74 3a 20 34 35 2e 31 35 33 2e 32 34 33 2e 39 33 0d 0a Data Ascii: Host: 45.153.243.93
	Data Raw: 5 73 65 72 2d 41 67 65 6e 74 3a 20 43 51 50 43 50 69 68 4c 51 77 0d 0a Data Ascii: User-Agent: CQPCPihLQw
	Data Raw: 43 6f 6e 74 65 6e 74 2d 4c 65 6e 67 74 68 3a 20 31 37 36 0d 0a Data Ascii: Content-Length: 176
	Data Raw: Od Oa Data Ascii:
	Data Raw: 65 13 30 26 8c a2 51 de 18 a0 6c d4 69 b8 27 06 9d 13 95 9f b5 a3 8c 90 9d 60 16 c7 a0 d9 16 51 3d 7a 5d f3 cf a3 6c ab 7c 54 50 c3 01 25 ef 22 fe 66 06 b3 ec 61 17 97 57 a7 1b 8d 58 53 46 23 6b 63 4f 65 77 f9 91 af 1c d9 cf 6f 4d b2 8c 31 3b c1 6b 04 21 4c 37 cf 8e 69 45 07 9f 6f 88 32



DIFFICULT EXFILTRATION





DNS BEACONING



Last month, I announced Beacon's ability to control a host over DNS. I see Beacon as a low and slow lifeline to get an active session, when it's needed. Sometimes though, Beacon is all you have. There are times when Meterpreter gets caught too quickly or just can't get past the network egress restrictions.



NO EDR / SOC

7. SIN

ENDPOINT DETECTION AND RESPONSE – 24/7 SOC





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EDR DETECTION

#0252-0219 Indication of well known hacking tools based on file names

etails						
Type Tanium Signal v1.0	Platforms	MITRE Technique(s)	Alerts over 30 days	Unresolved Alerts 65	Total Alerts 72	Impor 1/6/2
erts Quick Scans ((0) Definit	ion Suppressio	n Rules Engine Ana	lycic		
	Donne	Juli Suppressio	Trues Engine Ana	119 515		
		Juli Suppressio	IT Rules Engine Ana	19515		
D		Suppressio		iyələ		
	ition Is NOT "c			19515		
group() File Opera				iyələ		
				iyəiə		
group() File Opera		delete"		iy 515		
group() File Opera OR group() File Pa	tion Is NOT "c	delete" metasploit"		iy 515		
group() File Opera OR group() File Pa group() File Pa	tion Is NOT "c	delete" metasploit" sharphound"		iy 515		

Detects the dropping of several well known hacking tools based on file names.

#0253-0220 Indication of well known hacking tools based on process execution

Detects the execution of several well known hacking tools based on common names. EDRaaS - Deploy EDRaaS - Stable Details Type Platforms MITRE Technique(s) Alerts over 30 days Unresolved Alerts **Total Alerts** Imported Date Tanium Signal v1.0 0 20 20 1/6/2021 5:31 PM 2 None Suppression Rules Quick Scans (0) Definition Engine Analysis Alerts OR Process Path Contains "metasploit" Process Path Contains "sharphound'

Process Path Contains "mimikatz"

Process Path Contains "bloodhound"





AV NAMING CONVENTIONS

Ad-Aware	() Trojan.GenericKD.48615413	AhnLab-V3	() Malware/Win.Generic.C5001141
ALYac	() Trojan.GenericKD.48615413	Antiy-AVL	() Trojan/Generic.ASMalwS.353E907
Avast	[] FileRepMalware [Misc]	AVG	() FileRepMalware [Misc]
BitDefender	() Trojan.GenericKD.48615413	CrowdStrike Falcon	() Win/malicious_confidence_100% (W)
Cybereason	() Malicious.d509cc	Emsisoft	() Trojan.GenericKD.48615413 (B)
eScan	() Trojan.GenericKD.48615413	ESET-NOD32	() A Variant Of MSIL/Riskware.SharpHound.B
Fortinet	() Riskware/Sharphound	GData	() Trojan.GenericKD.48615413
K7AntiVirus	() Riskware (00584baa1)	K7GW	() Riskware (00584baa1)
Kaspersky	UDS:DangerousObject.Multi.Generic	Lionic	() Trojan.Multi.Generic.4!c
Malwarebytes	() HackTool.SharpHound.Feye	MAX	() Malware (ai Score=87)
MaxSecure	() Trojan.Malware.1728101.susgen	McAfee	() RDN/Generic.dx
McAfee-GW-Edition	() RDN/Generic.dx	Microsoft	() VirTool:MSIL/SharpHound
Palo Alto Networks	() Generic.ml	Panda	() Trj/GdSda.A
Sangfor Engine Zero	() Riskware.Win32.Agent.ky	SecureAge APEX	() Malicious
Sophos	() BloodHoundAD (PUA)	Symantec	(!) ML.Attribute.HighConfidence
Trellix (FireEye)	() Trojan.GenericKD.48615413	TrendMicro	() TROJ_GEN.R03FC0PCB22

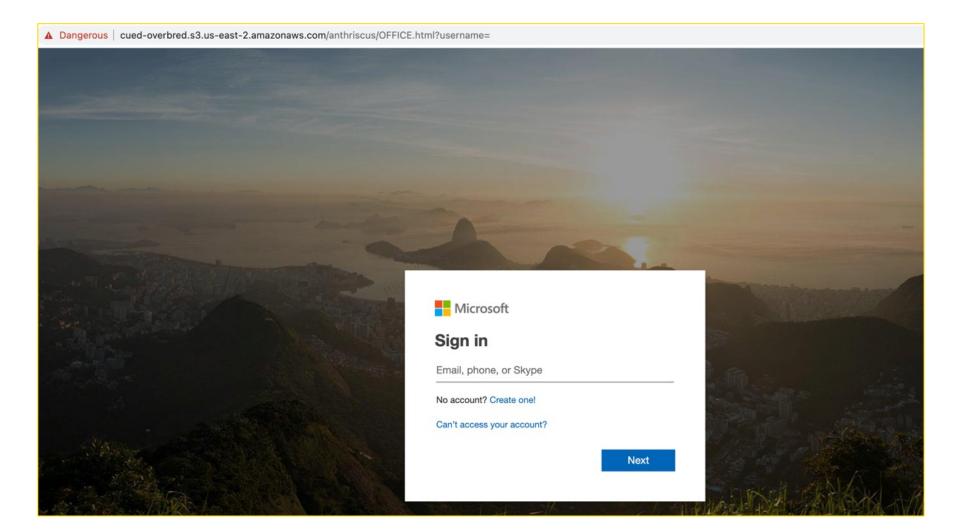




ONE MORE THING...

PHISHING – «COLD COFFEE»

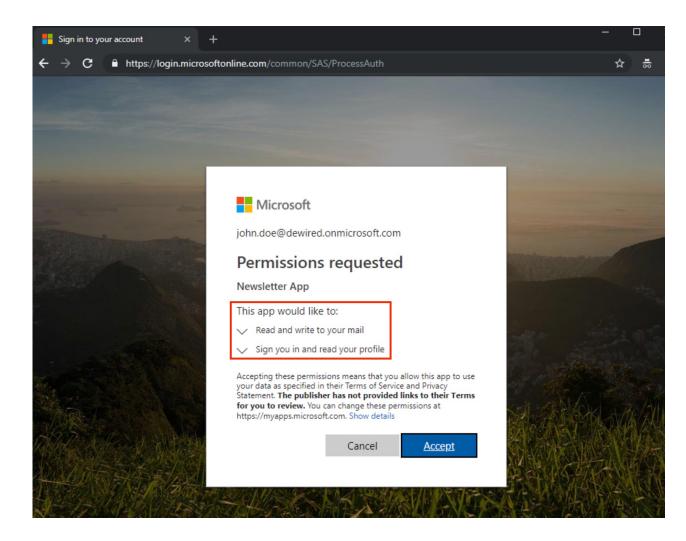




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InfoGuard

ILLICIT CONSENT GRANT – ONE CLICK IS ALL IT TAKES



InfoGuard SWISS CYBER SECURITY

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ILLICIT CONSENT GRANT – ONE CLICK IS ALL IT TAKES



Microsoft Security Intelligence

Microsoft is tracking a recent consent phishing campaign, reported by @ffforward, that abuses OAuth request links to trick users into granting consent to an app named 'Upgrade'. The app governance feature in Microsoft Defender for Cloud Apps flagged the app's unusual behavior.



App with suspicious OAuth scope was flagged high-risk by Machine Learning model, made graph calls to read email and created Inbox Rule

Medium • Unknown • New

Manage alert 🔘 Link alert to another incident ? Consult a threat expert



AZURE ATTACK MATRIX

AZURE AD & M365 ATTACK MATRIX

Reconnaissance	Initial Access	Discovery	Actions	Persistence
Azure AD PowerShell	Bruteforce via OWA	Enumerate Users / Roles / Permissions	Change MFA App Settings	Golden SAML
Enumerate Domains	Bruteforce EWS	Enumerate MFA Settings	Enumerate Teams / OneDrive / SharePoint / Email / Skype etc	Malicious App Registrations
Enumerate Users	Bruteforce OAuth	Enumerate Azure Tenants	Downgrade License	User Account Creation
Enumerate Tennant Domain	Bruteforce via AAD Sign in form	Enumerate Azure Subscriptions	Impersonate Users	Modifying Conditional Access
Enumerate Login Information	Bruteforce through Autologon API	Enumerate Conditional Access Policies	Assign Service Principal Role	Adding Service Principals with Read/Write
	Phishing Emails (Login / OAuth App)	Enumerate Applications	User Access Administrator Role Toggle	Mailbox Rule Creations
	Golden SAML	Pass the PRT	eDiscovery Abuse	Mailbox Folder Permission
	MFA Bypass via IMAP/POP	Pass the Cert	Access Azure Subscriptions	Mail Flow (Transport Rules)
	PTA: Skeleton Keys		Executions of Scripts on Azure VMs	Executions of Scripts on Azure VMs
	Compromise Azura AD Connect			Creating Sanvice Drincipal



InfoGuard AG

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