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Rig Exploit Kit sends Pitou.B Trojan

Published: 2019-06-25 Last Updated: 2019-06-25 00:04:20 UTC by <u>Brad Duncan</u> (Version: 1) <u>0 comment(s)</u> Introduction

<u>As I mentioned last week</u>, Rig exploit kit (EK) is one of a handful of EKs still active in the wild. Today's diary examines another recent example of an infection caused by Rig EK on Monday 2019-06-24.

Rig	EK		Ga	te domain that redirected to Rig EK
http.requ	est or (tcp.port eq 2287 and tcp.flags eq 0×	0002)	or smtp.data.fragment	Kpression +
Time	Dst	port	Host	Info
+ 2019-)	6-24 16:14 185.254.190.200	80	makemoneyeasyw.	ith.me GET / HTTP/1.1
2019-	6-24 16:14 188.225.26.48	80	188.225.26.48	GET /?MjU1MjQ3&DREMhSs&iDgztl=alre
2019-0	0 <u>24 16:1</u> 188.225.26.48	80	188.225.26.48	GET /?MZI1MZM4&xGApMNd&AlVCkZsFQar
2019-0	6-24 16:14 188.225.26.48	80	188.225.26.48	GET /favicon.ico HTTP/1.1
2019-0	6-24 16:14 188.225.26.48	80	188.225.26.48	GET /?NDE2NzQw&lgPoweSlPFgMe&FLnFa
2019-0	6-24 16:16 195.154.255.65	2287	7	10002 → 2287 [SYN] Seq=0 Wit 2192
2019-0	6-24 16:16 173.194.79.26	25		from: "innocent.nshizirungu@edu.je
2019-0	6-24 16:1 213.199.180.170	25		from: "enquiries@vast.org.uk" <sk< th=""></sk<>
2019-0	6-24 16:16 12.110.212.23	25		from: "don.clark@wholefoods.com" <
2019-0	6 24 16:16 62.142.5.26	25		from: "elina.vuorenmaa@elisanet."i
4				
Snom	sont from my			Start of TCP stream
Spann	sent nom my			for Pitou B traffic
infecte	d Windows host			

Shown above: Traffic from the infection filtered in Wireshark.

Rea	RealTime Events Escalated Events								
CNT	Date/Time	Src IP	SPort	Dst IP	DPort	Event Message			
1	2019-06-24	10.6.24.101	49160	188.225.26.48	80	ET CURRENT_EVENTS RIG EK URI Struct Mar 13 2017 M2			
18	2019-06-24	188.225.26.48	80	10.6.24.101	49160	ETPRO CURRENT_EVENTS RIG EK Landing Apr 04 2017 M5			
2	2019-06-24	10.6.24.101	49161	188.225.26.48	80	ET CURRENT_EVENTS RIG EK URI Struct Jun 13 2017			
8	2019-06-24	188.225.26.48	80	10.6.24.101	49161	ETPRO CURRENT_EVENTS RIG EK Flash Exploit Sep 05 2017			
1	2019-06-24	10.6.24.101	10002	195.154.255.65	2287	ETPRO TROJAN Win32/Pitou.B			

Shown above: Some of the alerts generated by this infection using <u>Security Onion</u> with <u>Suricata</u> and the <u>EmergingThreats Pro</u> ruleset viewed in <u>Sguil</u>.

Malvertising campaign redirect domain

EK-based malvertising campaigns have "gate" domains that redirect to an EK. In this case, the gate domain was makemoneyeasywith[.]me. According to Domaintools, this domain was registered on 2019-06-19, and indicators of this domain redirecting to Rig EK were reported as early as 2019-06-21.



Shown above: makemoneyeasywith[.]me redirecting to Rig EK landing page on 2019-06-24.

Rig EK

The Rig EK activity I saw on 2019-06-24 was similar to Rig EK traffic <u>I documented in an ISC</u> <u>diary last week</u>. See the images below for details.



Shown above: Rig EK landing page.



Shown above: Rig EK sends a Flash exploit.



Shown above: Rig EK sends a malware payload.

The malware payload

The malware payload sent by this example of Rig EK appears to be <u>Pitou.B</u>. In my postinfection activity, I saw several attempts at malspam, but I didn't find DNS queries for any of the mail servers associated with this spam traffic.

Prior to the spam activity, I saw traffic over TCP port 2287 which matched a signature for ETPRO TROJAN Win32/Pitou.B, and it also fit <u>the description for Pitou.B provided by</u> <u>Symantec from 2016</u>. I didn't let my infected Windows host run long enough to generate DNS queries for remote locations described in <u>Symantec's Technical Description for this</u> <u>Trojan</u>. However, <u>Any.Run's sandbox analysis of this malware</u> shows DNS queries similar to the Symantec description that happened approximately 9 to 10 minutes after the initial infection activity.

📕 tcp	o.stream eq 4							×	Expression	+
Time		Src	port	Dst		port	Info			A
_ 20	019-06-24 16:1	6 10.6.24.101	10002	195.154.	255.65	2287	10002 → 2287	[SYN]	Seq=0 Wir	1
20	19-06-24 16:1	6 195.154.255.6	5 2287	10.6.24.	101	10002	2287 → 10002	[SYN,	ACK] Seq=	-
20	019-06-24 16:1	6… 10.6.24.101	10002	195.154.	255.65	2287	10002 → 2287	[ACK]	Seq=1 Ack	<
20	019-06-24 16:1	6 10.6.24.101	10002	195.154.	255.65	2287	10002 → 2287	[PSH,	ACK] Seq=	-
20	019-06-24 16:1	6 195.154.255.6	5 2287	10.6.24.	101	10002	2287 → 10002	[ACK]	Seq=1 Ack	<
20	<u> </u>		5 2287	10 6 24	101	10002	2287 - 10002		Son-1 Ack	5
2	Wireshark	· Follow ICP Stream (to	cp.stream e	q 4) · 2019-06	5-24-Rig-E	K-and-pos	st-infection-trame.	рсар	(• - •	×
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4	14	2 TT D% d+	.50	19 Y* G	~.ц NH	9XV.I	×2[y	RA ·		
2	0.05	F6^g	+W0	0	1	+W0		90n	В	
2	N4Do	AL+W0		+W0			+W0	1		
		1		n >						
2	+W0	'+w⊍								
A A	+W0)W	·+w⊍×w0		#+W1	 			*		<u>. H.</u>
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	+W0)W 8')W +'. 1AI.	· + wo	······································	+W1	 . J	' N!Ut	Post-in	fectio	on traf	fic
	+W0. 8')W + 1AI. 6Er	····+w⊍·····×w0·· ···+ ···B <u&····2< th=""><th>иВ</th><th></th><th>.J 9.^F</th><th>N!Ut .N%:."I</th><th>Post-in</th><th>fectio</th><th>on traf</th><th>fic 87</th></u&····2<>	иВ		.J 9.^F	N!Ut .N%:."I	Post-in	fectio	on traf	fic 87
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	+W0	+w0 + + 	21	.#+W1 .0	.J 9.^F c∨ <w MH .2 .B0^i</w 	N!Ut .N%:."I [JR1 9Dt L	Post-in over T(4[cGT 	* fectio CP p	on traf ort 22	fic 87
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	+W0 8')W 1AI. 6ErAI. 6ErAI. kZ.ICh] [%_p C. TJBN1. 0}b Y!.{C	+w0 + + 	21. 	.#+W1 .0		N!Ut N%:.''I [JR1 9Dt L G]Yu JH'.<.I	4[cGT J?A41L	* CP p 	on traf ort 22	fic 87
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Shown above: Post-infection traffic over TCP port 2287.

Tcp.flags eq 0x0002 and tcp.port eq 25 Expression +								
Time Src	port	Dst	port	Info				
2019-06-24 16:16 10.6.24.101	10066	24.103.247.82	25	10066 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10067	216.86.146.40	25	10067 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10068	144.200.18.25	25	10068 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10069	209.17.115.10	25	10069 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10070	184.175.80.138	25	10070 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10071	80.247.227.119	25	10071 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10072	12.110.212.23	25	10072 → 25 [SYN] Seq=0 Win=8192	Le		
2019-06-24 16:16 10.6.24.101	10006	91.220.42.201	25	[TCP Retransmis	sion] 10006 → 25	[\$		
2019-06-24 16:16 10.6.24.101	10005	173.194.79.27	25	[TCP Retransmis	sion] 10005 → 25	[\$		
2019-06-24 16:16 10.6.24.101	10004	104.47.125.36	25	[TCP Retransmis	sion] 10004 → 25	[\$		
2019-06-24 16:16 10.6.24.101	10027	165.212.65.113	25	[TCP Retransmis	sion] 10027 → 25	[\$		
and the second second second	026	156.62.1.195	25	[TCP Retransmis	sion] 10026 → 25	[\$		
Elitering for indication	S 025	23.21.173.93	25	[TCP Retransmis	sion] 10025 → 25	[9		
	024	69.167.179.99	25	[TCP Retransmis	sion] 10024 → 25	[5		
of SMTP traffic	023	104.47.48.36	25	[TCP Retransmis	sion] 10023 → 25	[\$		
	000	102 71 67 06	25	FTCP Potronemie	cion] 10022 . 25	r d 🗸		

Shown above: Filtering for indications of SMTP traffic in the pcap.

	🚄 2019-06-24-Rig-EK-and-post-infection-traffic.pcap 🔶 👝 📼 🗙							
	<u>File Edit View Go</u> Capture	<u>A</u> nalyze <u>S</u> tatistics	Telephony <u>W</u> ireless <u>T</u> ools <u>H</u> elp					
	<u>O</u> pen	Ctrl+O						
_	Open <u>R</u> ecent	1	Wireshark · Export · IMF object list					
l	Merge		Packet Hostname Content Type Size Filename					
-	Import from Hex Dump		1157 tgeorge@alum.rpi.edu EML file 549 bytes Erectile M	leds.eml				
	<u>C</u> lose	Ctrl+W	5 1268 skimogul@bellsouth.net EML file 520 bytes Erectile M 1427 daniele.fritts@arcadecabin.com EML file 536 bytes Erectile M	leds.eml				
	Save	Ctrl+S	1618 k-tsuchida@matsump.co.jp EML file 534 bytes Erectile M	leds.eml				
	Save <u>A</u> s	Ctrl+Shift+S	5					
	File Set)	Text Filter:					
	Export Specified Packets		7 Help Save All Close	Save				
I	Export Packet Dissections	1						
	Export Packet <u>B</u> ytes	Ctrl+Shift+X	$P5 173.194.79$ $P 25 [TCP Retransmission] 10005 \rightarrow 10004$	25 [9				
	Export PDUs to File		p_4 104.47.125 36 25 [ICP Retransmission] 10004 \rightarrow p_7 165 212 6 113 25 [ICP Retransmission] 10027 \rightarrow	25 [3				
	Export TLS Session Keys		$26 156.62.1 195 25 [TCP Retransmission] 10026 \rightarrow$	25 [9				
	Export Objects)	DICOM S.93 25 [TCP Retransmission] 10025 →	25 [\$				
	Print	Ctrl+P	HTTP A 36 25 TT Spam sent from	n mv 🛛				
	Quit	Ctrl+Q						
F	Frame 1072: 66 bvte	s on wire (528	3 SMB Infected Windows	nost				
	Ethernet II, Src: H	ewlettP_1c:47:	a TFTP 1c:47:ae), Dst: Netgear_bb:93:11 (20:eb	.za:b6:93				
	Internet Protocol V	ersion 4 Src	10 6 24 101 Dst 173 194 79 26					

Shown above: Using the Export Objects function in Wireshark to see successfully sent spam.

Wireshark · Follow TCP Stream (tcp.st	tream eq 9) · 2019-06-24-Rig-EK-and-post-infection-traffic.pcap 📀 👝 📼 😒
220 - 220	ESMTP Postfix ESMTP Postfix
EHLO 250 - 250 - PIPELINING	
250-SIZE 280000000 250-STARTTLS 250-ENHANCEDSTATUSCODES	Example of spam sent
250-8BITMIME 250 DSN	from my infected Windows host
RCPT To:< DATA	>
250 2.1.0 OK 250 2.1.5 Ok 354 End data with <cr><lf>.</lf></cr>	<cr><lf></lf></cr>
From: " To: < Subject: Frectile Meds	<pre>></pre>
Date: 24 Jun 2019 14:52:50 Message-ID: <002b01d52aa8\$0	-0100 1aab7da\$41eac59a\$@matsump.co.jp>
Content-Type: text/plain; charset="iso-8859-1	
Content-Transfer-Encoding: X-Mailer: Microsoft Office Thread-Index: Acke3oik77602	7bit Outlook 11 1u6ke3oik776021u6==
X-MimeOLE: Produced By Micr	osoft MimeOLE V6.1.7601.17514
	10/0/10/0000012
250 2.0.0 OK: queued as 8F5 QUIT 221 2.0.0 Bye	E920006
5 client pkts, 6 server pkts, 8 turns.	•

Shown above: An example of spam sent from my infected Windows host.

📕 dns and !(dns.qry.name contains teredo.)							
Time Dst	port	Info					
+ 2019-06-24 17:59…	53	Standard query 0x0000 A kooovaqas.biz					
2019-06-24 17:59	53	Standard query 0x0001 A naaleazas.net					
2019-06-24 17:59	53	Standard query 0x0002 A rogojaob.info					
2019-06-24 17:59	53	Standard query 0x0003 A vaxeiayas.mobi					
2019-06-24 17:59		Standard query response 0x0000 No such name A kooo					
2019-06-24 17:59		Standard query response 0x0002 No such name A rogo					
2019-06-24 17:59		Standard query response 0x0003 No such name A vaxe					
2019-06-24 17:59		Standard query response 0x0001 No such name A naal					
2019-06-24 17:59	53	Standard query 0x0000 A oltaeazas mobi					
2019-06-24 17:59	53	Standard query 0x0001 A amlivaias.us					
2019-06-24 17:59	53	Standard query 0x0002 A ijcaiatas name					
2019-06-24 17:59	53	Standard query 0x0003 A ufayubja.me					
2019-06-24 17:59		Standard guery response 0x0002 No such name A iica					
2019-06-24 17:59		Standard query response 0x0003 No such name A ufay					
2019-06-24 17:59		Standard query response 0x0001 No such name A amli					
2010 06 24 17.50		Standard quary response 0x0000 No such name A alta					

Shown above: DNS queries seen from the <u>Any.Run analysis of this Pitou.B sample</u>.

Indicators of Compromise (IoCs)

The following are IP addresses and domains associated with this infection:

- 185.254.190[.]200 port 80 *makemoneyeasywith[.]me* Gate domain that redirected to Rig EK
- 188.225.26[.]48 port 80 188.225.26[.]48 Rig EK traffic
- 195.154.255[.]65 port 2287 Encoded/encrypted traffic caused by the Pitou.B Trojan
- various IP addresses over TCP port 25 spam traffic from the infected Windows host
- various domains in DNS queries seen from the Any.Run analysis of this Pitou.B sample

The following are files associated with this infection:

SHA256 hash: 9c569f5e6dc2dd3cf1618588f8937513669b967f52b3c19993237c4aa4ac58ea

- File size: 9,203 bytes
- File description: Flash exploit sent by Rig EK on 2019-06-24

SHA256 hash: 835873504fdaa37c7a6a2df33828a3dcfc95ef0a2ee7d2a078194fd23d37cf64

- File size: 827,904 bytes
- File description: Pitou.B malware sent by Rig EK on 2019-06-24

Final words

A pcap of the infection traffic along with the associated malware and artifacts can be found <u>here</u>.

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Keywords: <u>exploit kit</u> <u>Pitou</u> <u>Rig</u> <u>Trojan</u> <u>0 comment(s)</u> Join us at SANS! <u>Attend with Brad Duncan in starting</u>



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