Network Forensic Analysis Report

Submitted by: Yekaterina Alenicheva

Time Thieves

At least two users on the network have been wasting time on YouTube. Usually, IT wouldn't pay much mind to this behavior, but it seems these people have created their own web server on the corporate network. So far, Security knows the following about these time thieves:

- They have set up an Active Directory network.
- They are constantly watching videos on YouTube.
- Their IP addresses are somewhere in the range `10.6.12.0/24`.

You must inspect your traffic capture to answer the following questions in your Network Report:

1. What is the domain name of the users' custom site?

The domain name is Frank-n-Ted.DC.frank-n-ted.com

Filter: ip.addr == 10.6.12.0/24

Į.	ip.add	lr==10.6.12.0/24	l e			⊠ → 4
No	28701 28702 28703 28704	Time 228.045436200 228.046614500 228.047607400 228.049146500 228.051742100	10.6.12.157 10.6.12.157 10.6.12.157	Destination 224.0.0.251 224.0.0.252 224.0.0.22 10.6.12.12 10.6.12.157	Protocol MDNS LLMNR IGMPv3 DNS DNS	Lengt Info 90 Standard query response 0x0000 A 10.6.12.157 74 Standard query 0x994f ANY DESKTOP-86J4BX 62 Membership Report / Join group 224.0.0.251 for any sources / Join group 96 Standard query 0x9C26 SRV _ldaptcp.dcmsdcs.frank-n-ted.com 162 Standard query response 0x9C26 SRV _ldaptcp.dcmsdcs.frank-n-ted.com
	28707 28708 28709 28710 28711 28712	228.053183400 228.054879900 228.059104600 228.062884200 228.063959600 228.064989400 228.065846800 228.073244500	10.6.12.12 10.6.12.157 10.6.12.12 10.6.12.157 10.6.12.12 10.6.12.157	10.6.12.12 10.6.12.157 10.6.12.12 10.6.12.157 10.6.12.157 10.6.12.157 10.6.12.12	DNS DNS CLDAP CLDAP TCP TCP TCP LDAP	99 Standard query 0x888c A frank-n-ted-dc.frank-n-ted.com 106 Standard query response 0x838c A frank-n-ted-dc.frank-n-ted.com A 10.6.1 264 searchRequest(1) " <r00t>" base0bject 236 searchResEntry(1) "<r00t>" searchResDone(1) success [1 result] 66 49668 - 389 [SYN] Seq=0 Win-64240 Len=0 MSS=1460 WS=256 SACK_PERM=1 66 389 - 49668 [SYN, ACK] Seq=0 Ack=1 Win=6535 Len=0 MSS=1460 WS=256 SACK 54 49668 - 389 [ACK] Seq=1 Ack=1 Win=2102272 Len=0 404 searchRequest(2) "<r00t>" base0bject Compared to the search of the sea</r00t></r00t></r00t>
	Hear [Hear Source Hear Hea	eader checksum urce: 10.6.12.1 Stination: 10.6 Datagram Proton n Name System unsaction ID: 6 ags: 0x0100 Sta estions: 1 swer RRs: 0 ditional RRs: 6	0xf643 [validation d status: Unverified] 157 3.12.12 col, Src Port: 50264, (query) x838c undard query	,	TCP	494 SearchRequest(2) " <roun" -="" 1514="" 389="" 49668="" [ack]="" [tcp="" a="" ack="351" baseudject="" len="1460" of="" r<="" segment="" seq="1" td="" win="2102272"></roun">
,	[Re	frank-n-ted-do esponse In: 287 main Nan Transac Flags:	ne System (c tion ID: 0x 0x0100 Stan	query) 838c		
		Additio	RRs: 0 ty RRs: 0 nal RRs: 0			
	•				com:	type A, class IN

2. What is the IP address of the Domain Controller (DC) of the AD network ?

IP address is 10.6.12.12 frank-n-ted-dc.frank-n-ted.com.

```
ip.addr==10.6.12.0/24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X -> - -
                                                                                                                                                                                                                                                                                  Protocol Length Info

MDNS
90 Standard query response 0x0000 A 10.6.12.157
1CMPV3
74 Standard query 0x094f ANY DESKTOP-86J4BX
62 Membership Report / Join group 224.0.0.251 for any sources / Join group DNS
96 Standard query 0x9c26 SRV _ldap_ tcp.dc_msdcs.frank-n-ted.com
DNS
162 Standard query exponse 0x0c26 SRV _ldap_ tcp.dc_msdcs.frank-n-ted.com
90 Standard query 0x038c A frank-n-ted-dc.frank-n-ted.com
90 Standard query 0x038c A frank-n-ted-dc.frank-n-ted.com
        . Time Source
28701 228.045436200 10.6.12.157
28702 228.046614500 10.6.12.157
28703 228.047607400 10.6.12.157
28704 228.04916500 10.6.12.157
28705 228.051742100 10.6.12.12
                                                                                                                                                                                          Destination
224.0.0.251
224.0.0.252
224.0.0.22
                                                                                                                                                                                           10.6.12.12
10.6.12.157
                                                                                                                                                                                                                                                                                                                          90 Standard query 0x838c A frank-n-ted-do.frank-n-ted.com a 10.6.1...
166 Standard query response 0x838c A frank-n-ted-cor Archequest(1) "RR007" base0bject
126 searchResentry(1) "RR007" base0bject
126 searchResentry(1) "RR007" searchResDone(1) success [1 result]
166 49668 — 389 [SYN] Seq-0 MIN-62480 Len-0 MSS-1466 WS-256 SACK PERM-1
166 389 - 49668 [SYN] ACK] Seq-0 Ack=1 Win=65535 Len-0 MSS-1460 WS-256 SACK
154 49668 — 389 [ACK] Seq-1 Ack=1 Win=2102272 Len-0
169 49668 [SYN] ACK] Seq-1 Ack=351 Win=2272 Len-1460 [TCP] segment of a r...
                                                                                                                                                                                                                                                                                    DNS
CLDAP
CLDAP
           28707 228.054879900 10.6.12.12
28708 228.059104600 10.6.12.157
28709 228.062884200 10.6.12.12
                                                                                                                                                                                            10.6.12.157
                                                                                                                                                                                            10.6.12.12
10.6.12.157
        28/09 228.062594200 18.6.12.157
28/10 228.06395960 18.6.12.157
28/11 228.06395960 18.6.12.157
28/12 228.065846800 18.6.12.12
28/12 228.072314500 18.6.12.157
28/14 228.096555000 18.6.12.157
                                                                                                                                                                                          10.6.12.157
10.6.12.12
10.6.12.157
10.6.12.12
10.6.12.12
                                                                                                                                                                                                                                                                                     LDAP
                                                                                                                                                                                                                                                                                     TCP
Header checksum: 0xf643 [validation disabled]
[Header checksum status: Unverified]
Source: 10.6.12.157
Destination: 10.6.12.12

User Datagram Protocol, Src Port: 50264, Dst Port: 53
Domain Name System (query)
Transaction ID: 0x838c

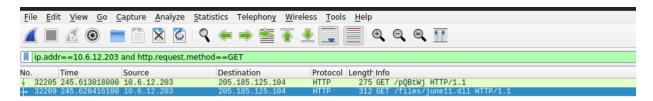
Flags: 0x0100 Standard query
Questions: 1
                      Questions: 1
Answer RRs: 0
Authority RRs: 0
Additional RRs: 0
                  Queries
frank-n-ted-
                       [Response In: 28707]
```

3. What is the name of the malware downloaded to the 10.6.12.203 machine?

Malware file is june11.dll

Filter: ip.addr==10.16.12.203 and http.request.method==GET

Export: File > Export Objects > HTTP



```
Flags: 0x018 (PSH, ACK)
Window size value: 65535
[Calculated window size: 65535]
[Window size scaling factor: -2 (no window scaling used)]
Checksum: 0x341f [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
| [SEQ/ACK analysis]
| [Timestamps]
TCP payload (258 bytes)

| Hypertext Transfer Protocol |
| GET /files/june11.dll HTTP/1.1\r\n
| Accept: */*\r\n
| Accept: */*\r\n
| Accept: #/*\r\n
| Accept: #/*\r\n
| Connection: Keep-Alive\r\n
| Connection: Keep-Alive\r\n
| Connection: Keep-Alive\r\n
| Full request URI: http://205.185.125.104/files/june11.dll]
[HTTP request 1/2]
[Prev request in frame: 32205]
[Response in frame: 32295]
```

```
Hypertext Transfer Protocol

> GET /files/june11.dll HTTP/1.1\r\n

Accept: */*\r\n

Accept: #/*\r\n

Accept: 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

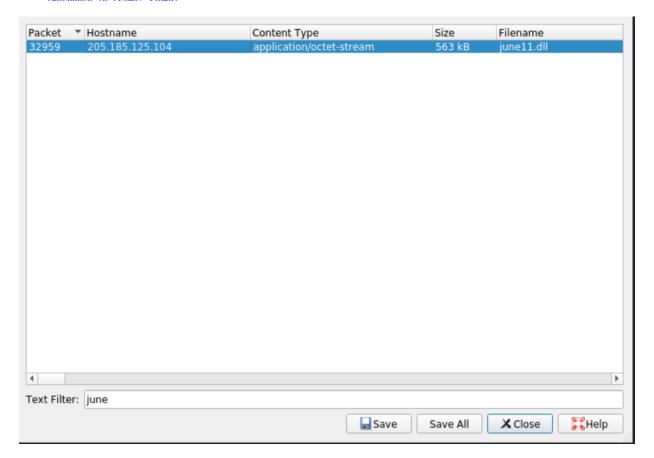
> Cookie: _subid=3mmhfnd8jp\r\n

\r\n

[Full request URI: http://205.185.125.104/files/june11.dll]

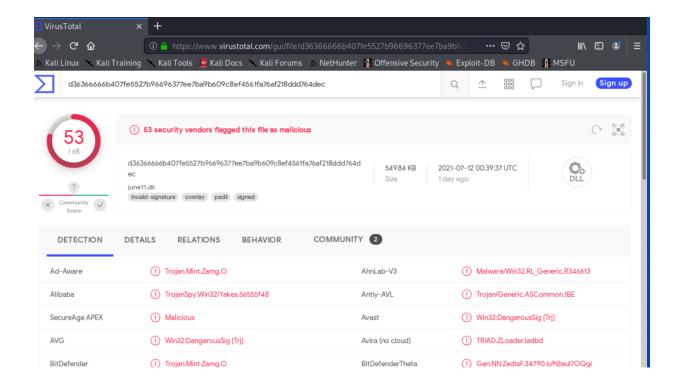
[HTTP request 2/2]

[Prev request in frame: 32205]
```



- 4. Upload the file to [VirusTotal.com] ($\underline{\text{https://www.virustotal.com/gui/}}$).
- 5. What kind of malware is this classified as?

According to VirusTotal this type of malware is Trojan



Vulnerable Windows Machine

The Security team received reports of an infected Windows host on the net work. They know the following:

- Machines in the network live in the range `172.16.4.0/24`.
- The domain mind-hammer.net is associated with the infected computer.
- The DC for this network lives at `172.16.4.4` and is named Mind-Hammer-DC $\,$
- The network has standard gateway and broadcast addresses.

Inspect your traffic to answer the following questions in your network re port:

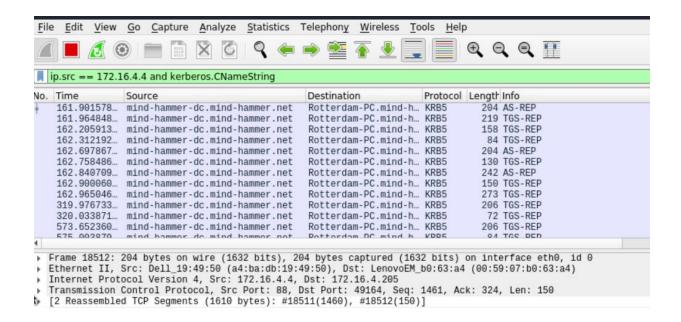
Find the following information about the infected Windows machine:

- Host name: ROTTERDAM-PC

- IP address: 172.16.4.205

- MAC address: 00:59:07:b0:63:a4

Filter: ip.src == 172.16.4.4 and Kerberos.CnameString



2. What is the username of the Windows user whose computer is infected? The username is **matthijs.devries**

Filer: ip.src == 172.16.4.205 and Kerberos.CnameString

0.	Time	Source	Destination	Protocol	Length	Info
	161.856889	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	297	AS-REQ
1	161.874109	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	377	AS-REQ
*	162.654727	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	301	AS-REQ
	162.670341	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	381	AS-REQ
	162.797077	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	292	AS-REQ
	162.812583	Rotterdam-PC.mind-hammer.net	mind-hammer-dc.mind	KRB5	372	AS-REO

3. What are the IP addresses used in the actual infection traffic?

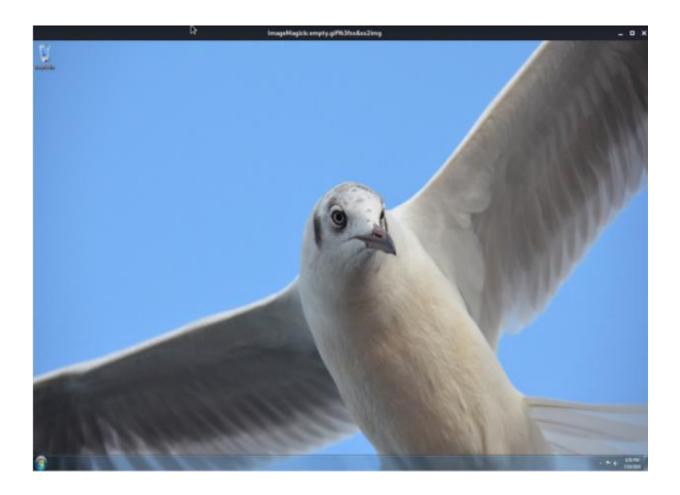
According to Statistics > Conversations IPv4 > 172.16.4.205 > search for highest packets bytes number that indicated suspicious traffic between IPs. As results found the the communication between 172.16.4.205 and 185.243.115.84 are infected traffic. Apply filter to find details of the communication between two Ips.

Filter: ip.addr == 172.16.4.205 and ip.addr == 185.243.115.84

Ethernet · 76	IPv4 · 882	IPv6 TCP ·	1050 U	DP · 1825						
Address A	Address B	Packets ▼	Bytes	Packets A → B		Bytes A → B	Packets B → A	Bytes B → A	Rel Start	Durati
10.11.11.195	12.133.50.21	417	219 k		192	19 k	225	199 k	618.247945	102.
10.11.11.11	10.11.11.195	418	35 k		103	10 k	315	25 k	578.446497	173.
10.11.11.11	10.11.11.179	440	43 k		112	17 k	328	26 k	575.917738	84.0
10.11.11.179	143.204.29.89	449	295 k		217	22 k	232	273 k	587.485181	74.8
10.6.12.203	205.185.125.104	647	599 k		185	10 k	462	588 k	770.685389	79.8
10.11.11.217	172.217.6.162	697	404 k		341	35 k	356	369 k	642.964546	106.
93.95.100.178	172.16.4.205	722	419 k		418	391 k	304	28 k	228.633333	937.
31.13.70.52	172.16.4.205	726	479 k		436	447 k	290	31 k	174.773289	989.
10.11.11.179	13.33.255.25	728	520 k		339	34 k	389	485 k	587.490187	94.0
10.0.0.201	216.58.218.161	732	424 k		330	27 k	402	396 k	17.567069	896.
10.11.11.11	10.11.11.203	843	189 k		351	83 k	492	106 k	580.404235	172
10.0.0.201	168.215.194.14	878	552 k		374	35 k	504	516 k	12.682745	901.
10.0.0.201	96.7.89.194	974	332 k		400	66 k	574	266 k	6.707118	856.
10.11.11.200	104.18.74.113	1,079	697 k		511	34 k	568	662 k	728.300606	22.4
10.11.11.11	10.11.11.200	1,100	219 k		493	98 k	607	120 k	576.148994	176
10.0.0.201	172.217.9.2	1,132	565 k		542	63 k	590	502 k	13.281690	901
168.63.129.16	192.168.1.90	1,133	120 k		506	66 k	627	53 k	429.380897	482.
172.16.4.4	172.16.4.205	1,417	339 k		680	147 k	737	191 k	161.847139	1144
10.6.12.12	10.6.12.157	1,450	352 k		662	164 k	788	187 k	0.006842	855
10.6.12.12	10.6.12.203	1,624	398 k		720	183 k	904	215 k	0.000000	855
10.0.0.2	10.0.0.201	2,166	532 k	1	,040	267 k	1,126	265 k	3.881039	941.
10.11.11.200	151.101.50.208	3,270	2,220 k	1	,613	112 k	1,657	2,108 k	683.987858	66.
5.101.51.151	10.6.12.203	4,326	4,246 k	3	,262	4,177 k	1,064	68 k	781.964292	67.9
192.168.1.90	192.168.1.100	6,728	30 M	4	,317	29 M	2,411	647 k	0.282509	1399
10.0.0.201	23.43.62.169	8,014	8,161 k	2	,620	143 k	5,394	8,017 k	93.661570	918.
10.0.0.201	64.187.66.143	9,376	6,986 k	4	,296	278 k	5,080	6,708 k	32.021926	981
166.62.111.64	172.16.4.205	15,728	16 M	11	,354	15 M	4,374	321 k	163.231603	1001
172.16.4.205	185.243.115.84	35,680	32 M	18	.744	14 M	16,936	17 M	308.224682	1095

lo.	Time	Source	Destination	Protocol	Length Info				
_	308.224682	Rotterdam-PC.mind-hammer.net	b5689023.green.matt	TCP	66 49249 → 80 [SYN]	Seq=0 Win=8192 Len=0 MSS=1460			
	308.226772	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP		ACK] Seq=0 Ack=1 Win=29200 Le			
	308.227736	Rotterdam-PC.mind-hammer.net	b5689023.green.matt	TCP	60 49249 → 80 [ACK]	Seq=1 Ack=1 Win=66304 Len=0			
	308.236484	Rotterdam-PC.mind-hammer.net	b5689023.green.matt	TCP	546 49249 → 80 [PSH,	ACK] Seq=1 Ack=1 Win=66304 Le			
	308.238516	Rotterdam-PC.mind-hammer.net	b5689023.green.matt	HTTP	126 POST /empty.gif	HTTP/1.1 (application/x-www-1			
	308.242321	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	54 80 → 49249 [ACK]	Seq=1 Ack=493 Win=30336 Len=0			
	308.243187	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	54 80 → 49249 FACK1	Seg=1 Ack=565 Win=30336 Len=0			
	308.265781	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	1411 80 → 49249 [ACK]	Seq=1 Ack=565 Win=30336 Len=1			
	308.288381	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	1411 80 → 49249 [ACK]	Seg=1358 Ack=565 Win=30336 Le			
	308.310959	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	1411 80 → 49249 [ACK]	Seg=2715 Ack=565 Win=30336 Le			
9	308.313107	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	135 80 → 49249 [PSH,	ACK] Seq=4072 Ack=565 Win=303			
	308.335730	b5689023.green.mattingsolution	Rotterdam-PC.mind-h	TCP	1411 80 → 49249 [ACK]	Seg=4153 Ack=565 Win=30336 Le			
	300 3E0300	h5600022 groon mattingsolution	Pottordam DC mind h	TCD	1/11 00 . /D2/D TACKI	Sog-5510 Ack-565 Win-20226 L			
Frame 28704: 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on interface eth0, id 0									
▶ If	Ethernet II, Src: LenovoEM_b0:63:a4 (00:59:07:b0:63:a4), Dst: Cisco_e6:c4:77 (00:15:c6:e6:c4:77)								

4. As a bonus, retrieve the desktop background of the Windows host.



Illegal Downloads

IT was informed that some users are torrenting on the network. The Security team does not forbid the use of torrents for legitimate purposes, such as downloading operating systems. However, they have a strict policy against copyright infringement.

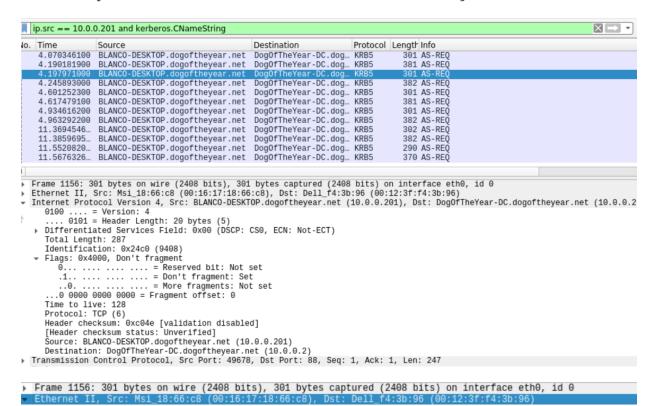
IT shared the following about the torrent activity:

- The machines using torrents live in the range `10.0.0.0/24` and are clients of an AD domain.
- The DC of this domain lives at `10.0.0.2` and is named DogOfTheYear-DC.
- The DC is associated with the domain dogoftheyear.net.

Your task is to isolate torrent traffic and answer the following questions in your Network Report:

1. Find the following information about the machine with IP address `10.0.201`:

- MAC address: 00:16:17:18:66:c8
- Windows username: elmer.blanko
- OS version: BLANKO-DESKTOP



- 2. Which torrent file did the user download? The torrent file is Betty_Boop_Rythm_on_the_Reservation.avi.torrent
 2. Which torrent file did the user download? The torrent file is
- 2. Which torrent file did the user download? The torrent file is Betty_Boop_Rythm_on_the_Reservation.avi.torrent

Filter: ip.addr == 10.0.0.201 and http.request.uri contains ".torrent"

