

Network Analysis

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.

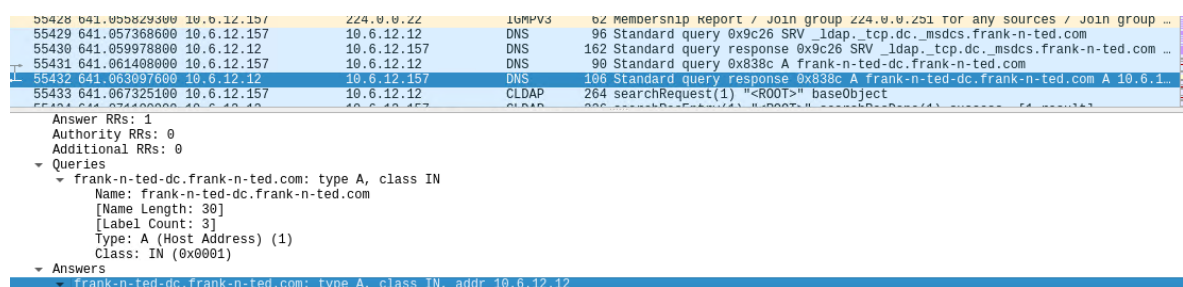
You must inspect your traffic capture to answer the following questions:

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

Frank-n-ted.com

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

10.6.12.12



No.	Time	Source	Destination	Protocol	Length	Info
55428	641.055829300	10.6.12.157	224.0.0.22	IGMPv3	62	Membership Report / Join group 224.0.0.251 for any sources / Join group ...
55429	641.057368600	10.6.12.157	10.6.12.12	DNS	96	Standard query 0x9c26 SRV _ldap._tcp.dc._msdcs.frank-n-ted.com ...
55430	641.059978800	10.6.12.12	10.6.12.157	DNS	162	Standard query response 0x9c26 SRV _ldap._tcp.dc._msdcs.frank-n-ted.com ...
55431	641.061408000	10.6.12.157	10.6.12.12	DNS	90	Standard query 0x838c A frank-n-ted-dc.frank-n-ted.com
55432	641.063097600	10.6.12.12	10.6.12.157	DNS	168	Standard query response 0x838c A frank-n-ted-dc.frank-n-ted.com A 10.6.1...
55433	641.067325100	10.6.12.157	10.6.12.12	CLDAP	264	searchRequest(1) "<R00T>" baseObject

Answer RRs: 1
Authority RRs: 0
Additional RRs: 0

Queries

- frank-n-ted-dc.frank-n-ted.com: type A, class IN
 - Name: frank-n-ted-dc.frank-n-ted.com
 - [Name Length: 30]
 - [Label Count: 3]
 - Type: A (Host Address) (1)
 - Class: IN (0x0001)

Answers

- frank-n-ted-dc.frank-n-ted.com: type A, class IN, addr 10.6.12.12

3. What is the name of the malware downloaded to the 10.6.12.203 machine? Once you have found the file, export it to your Kali machine's desktop.

June11.dll

4. Upload the file to [VirusTotal.com](https://www.virustotal.com). What kind of malware is this classified as?

Spyware and Malware

VirusTotal - URL - e70c4 x +

https://www.virustotal.com/gui/url/e70c46b564e2c7a9d38f0f94cbfafbfb2d307

http://205.185.125.104/files/june11.dll

6 / 93

6 security vendors flagged this URL as malicious

http://205.185.125.104/files/june11.dll

205.185.125.104

404 Status

text/html; charset=UTF-8 Content Type

2021-11-28 21:25:51 UTC

5 months ago

Community Score

DETECTION DETAILS COMMUNITY

Categories

Forcepoint ThreatSeeker	malicious web sites
Sophos	spyware and malware
Comodo Valkyrie Verdict	unknown
Webroot	Malware Sites

History

First Submission	2020-06-12 04:14:29 UTC
Last Submission	2021-11-28 21:25:51 UTC
Last Analysis	2021-11-28 21:25:51 UTC

HTTP Response

Final URL

Vulnerable Windows Machines

The Security team received reports of an infected Windows host on the network. 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:

1. 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

2. What is the username of the Windows user whose computer is infected?

Matthijs.devries

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ip.src==172.16.4.205 and kerberos.CNameString

No.	Time	Source	Destination	Protocol	Length	Info
15556	149.848730300	172.16.4.205	172.16.4.4	KRB5	372	AS-REQ
15549	149.833181700	172.16.4.205	172.16.4.4	KRB5	292	AS-REQ
15517	149.706495400	172.16.4.205	172.16.4.4	KRB5	381	AS-REQ
15510	149.690858700	172.16.4.205	172.16.4.4	KRB5	301	AS-REQ
15340	148.910222300	172.16.4.205	172.16.4.4	KRB5	377	AS-REQ
15332	148.893035700	172.16.4.205	172.16.4.4	KRB5	297	AS-REQ

Transmission Control Protocol, Src Port: 49179, Dst Port: 88, Seq: 1, Ack: 1, Len: 318

Kerberos

- Record Mark: 314 bytes
- as-req
 - pvno: 5
 - msg-type: krb-as-req (10)
 - padata: 2 items
 - req-body
 - Padding: 0
 - kdc-options: 40810010
 - cname
 - name-type: KRB5-NT-PRINCIPAL (1)
 - cname-string: 1 item
 - CNameString: matthijs.devries
 - realm: MIND-HAMMER
 - sname

0070 c6 50 ed 05 f9 b1 ab 1f dd 87 19 78 aa e1 0a a7 .P.....x....
0080 fe eb 31 e9 f9 65 4b 8c e9 35 b7 b8 d1 e6 58 0c ..1..eK..5...X.
0090 ba 78 7a e6 fc c9 1c 51 25 cf 9d 89 3f 3b 30 11 .xz....Q %...?;0.
00a0 a1 04 02 02 00 80 a2 09 04 07 30 05 a0 03 01 010.....
00b0 ff a4 81 c0 30 81 bd a0 07 03 05 00 40 81 00 100....@...
00c0 a1 1d 30 1b a0 03 02 01 01 a1 14 30 12 1b 10 6d ..0.....0...m
00d0 61 74 74 68 69 6a 73 2e 64 65 76 72 69 65 73 a2 atthijs.devries
00e0 0d 1b 0b 4d 49 4e 44 2d 48 41 4d 4d 45 52 a3 20 ...MIND- HAMMER
00f0 30 1e a0 03 02 01 02 a1 17 30 15 1b 06 6b 72 62 0.....0...krb
0100 74 67 74 1b 0b 4d 49 4e 44 2d 48 41 4d 4d 45 52 tgt..MIN D-HAMMER
0110 a5 11 18 0f 32 30 33 37 30 39 31 33 30 32 34 382037 09130248
0120 30 35 5a a6 11 18 0f 32 30 33 37 30 39 31 33 30 05Z...2 03709130
0130 32 34 38 30 35 5a a7 06 02 04 25 a0 57 52 a8 15 24805Z...%WR..
0140 30 13 02 01 12 02 01 11 02 01 17 02 01 18 02 02 0.....0..
0150 ff 79 02 01 03 a9 1d 30 1b 30 19 a0 03 02 01 14 .y.....0..0.....
0160 64 42 04 40 53 4f 54 54 4f 53 44 44 4d 50 43 43 ..OTT FRAM ..

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

- The infected device is at 172.16.4.205
- We see traffic interactions with 205.185.216.10, 185.243.115.84, 166.62.111.64

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

IllegalDownloads

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:

1. Find the following information about the machine with IP address 10.0.0.201:
 - MAC address : 00:16:17:18:66:c8
 - Windows username : elmer.blanco
 - OS version Windows NT 10.0

The screenshot shows a Wireshark interface with a packet capture of Kerberos traffic. The top pane displays a list of packets, and the bottom pane shows the details of a selected packet (No. 67036). The details pane shows the 'kerberos.CNameString' field with the value 'elmer.blanco'.

No.	Time	Source	Destination	Protocol	Length	CNameString	Info
65745	744.704098600	10.0.0.2	10.0.0.201	KRB5	293	BLANCO-DESKTOP\$	TGS-REP
65798	745.008607500	10.0.0.2	10.0.0.201	KRB5	227	BLANCO-DESKTOP\$	TGS-REP
65827	745.174120600	10.0.0.2	10.0.0.201	KRB5	293	BLANCO-DESKTOP\$	TGS-REP
65839	745.233051500	10.0.0.2	10.0.0.201	KRB5	114	BLANCO-DESKTOP\$	TGS-REP
66970	751.007645200	10.0.0.201	10.0.0.2	KRB5	302	BLANCO-DESKTOP\$	AS-REQ
66978	751.024207500	10.0.0.201	10.0.0.2	KRB5	382	BLANCO-DESKTOP\$	AS-REQ
66980	751.052436500	10.0.0.2	10.0.0.201	KRB5	250	BLANCO-DESKTOP\$	AS-REP
66992	751.115116900	10.0.0.2	10.0.0.201	KRB5	199	BLANCO-DESKTOP\$	TGS-REP
67036	751.190289600	10.0.0.201	10.0.0.2	KRB5	290	elmer.blanco	AS-REQ
67044	751.205833000	10.0.0.201	10.0.0.2	KRB5	370	elmer.blanco	AS-REQ
67046	751.233860000	10.0.0.2	10.0.0.201	KRB5	237	elmer.blanco	AS-REP
67058	751.294737700	10.0.0.2	10.0.0.201	KRB5	175	elmer.blanco	TGS-REP
67080	751.379585100	10.0.0.2	10.0.0.201	KRB5	303	elmer.blanco	TGS-REP

The details pane shows the following information for the selected packet (No. 67036):

- req-body
 - Padding: 0
 - kdc-options: 40810010
 - 0... = reserved: False
 - .1... = forwardable: True
 - ..0... = forwarded: False
 - ...0... = proxiable: False
 -0... = proxy: False
 -0... = allow-postdate: False
 -0... = postdated: False
 -0... = unused7: False
 - 1... = renewable: True
 - .0... = unused9: False
 - ..0... = unused10: False
 - ...0... = opt-hardware-auth: False
 -0... = unused12: False

The packet bytes pane shows the raw data of the packet, including the Kerberos message structure.

Kali Linux, an Offensive ... pcap.pcap 07:01 PM

pcap.pcap

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ip.addr==10.0.0.201

No.	Time	Source	Destination	Protocol	Length	Info
65485	743.662269800	10.0.0.201	10.0.0.2	DCERPC	178	Bind: call_id: 3, Fragment: Single, 2 context items: EPMv4 V3.0.
65488	743.673179800	10.0.0.201	10.0.0.2	EPM	222	Map request, DRSUAPI, 32bit NDR
65499	743.677849300	10.0.0.201	10.0.0.2	TCP	66	49673 → 49675 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK...
65491	743.678904200	10.0.0.201	10.0.0.2	TCP	66	49674 → 49666 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK...
65494	743.681879400	10.0.0.201	10.0.0.2	TCP	54	49673 → 49675 [ACK] Seq=1 Ack=1 Win=65536 Len=0
65495	743.682784400	10.0.0.201	10.0.0.2	TCP	54	49674 → 49666 [ACK] Seq=1 Ack=1 Win=65536 Len=0
65496	743.686182600	10.0.0.201	10.0.0.2	DCERPC	214	Bind: call_id: 2, Fragment: Single, 3 context items: RPC_NETLOG...
65498	743.692676400	10.0.0.201	10.0.0.2	RPC_NETLOGON	244	NetrServerReqChallenge request.
65500	743.699134700	10.0.0.201	10.0.0.2	RPC_NETLOGON	314	NetrServerAuthenticate3 request
65501	743.708188700	10.0.0.201	10.0.0.2	TCP	66	49675 → 88 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PER...
65504	743.703763600	10.0.0.201	10.0.0.2	TCP	54	49675 → 88 [ACK] Seq=1 Ack=1 Win=65536 Len=0
65505	743.708498600	10.0.0.201	10.0.0.2	KRBS	361	AS-REQ
65508	743.711756900	10.0.0.201	10.0.0.2	DCERPC	264	Alter context: call_id: 4, Fragment: Single, 1 context items: R...
65509	743.719255200	10.0.0.201	10.0.0.2	TCP	54	49675 → 88 [FIN, ACK] Seq=248 Ack=232 Win=65280 Len=0

....0.. = unused29: False
....0.. = renew: False
....0.. = validate: False

▼ cname
name-type: KRBS-NT-PRINCIPAL (1)
▼ cname-string: 1 item
CNameString: blanco-desktop\$
realm: D0G0FTHEYEAR.NET

▼ sname
name-type: KRBS-NT-SRV-INST (2)
▼ sname-string: 2 items
SNameString: krbtgt
SNameString: D0G0FTHEYEAR.NET
till: 2037-09-13 02:48:05 (UTC)
rtime: 2037-09-13 02:48:05 (UTC)

nonce: 2063583367

0020 00 02 c2 0b 00 58 79 43 88 45 2d 00 5a 12 50 18XyC -E- Z P
0030 01 00 a3 a2 00 00 00 00 00 f3 6a 81 f0 30 81 edj .0
0040 a1 03 02 01 05 a2 03 02 01 0a a3 15 30 13 30 110 0
0050 a1 04 02 02 00 00 a2 09 04 07 30 05 a0 03 01 010
0060 ff a4 81 c9 30 81 c6 a0 07 03 05 00 40 81 00 100
0070 a1 1c 30 1a a0 03 02 01 01 a1 13 30 11 1b 0f 020
0080 6c 61 6e 63 6f 2d 64 65 73 6b 74 6f 70 24 a2 12 lanco-de sktop\$
0090 1b 10 44 4f 47 4f 46 54 48 45 59 45 41 52 2e 4e --D0G0FT HEYEAR.N
00a0 45 54 a3 25 30 23 a0 03 02 01 02 a1 1c 30 1a 1b ET .0#0
00b0 06 6b 72 62 74 67 74 1b 10 44 4f 47 46 54 48 -krbtgt- D0G0FTH
00c0 45 59 45 41 52 2e 4e 45 54 a5 11 18 0f 12 30 33 EYEAR.NE T...203
00d0 37 30 39 31 33 30 32 34 38 30 35 5a a6 11 18 0f 70913024 0052....
00e0 32 30 33 37 30 39 31 33 30 32 34 38 30 35 5a a7 20370913 024805Z
00f0 06 02 04 7a ff c8 87 a8 15 30 13 02 01 12 02 01 ...z0
0100 11 02 01 17 02 01 18 02 02 ff 79 02 01 03 a9 1dy
0110 30 1b 39 19 a0 03 02 01 14 a1 12 04 10 42 4c 41 0 0BLA
0120 4e 43 4f 2d 44 45 53 4b 54 4f 50 20 20 NCO-DESK TOP

Unt32 (kerberos.nonce), 4 bytes

Packets: 104286 · Displayed: 19503 (18.7%) Profile: Default

pcap.pcap

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ip.addr==10.0.0.201 && http

No.	Time	Source	Destination	Protocol	Length	Info
69761	770.590168400	91.189.95.21	10.0.0.201	HTTP	559	HTTP/1.0 200 OK (text/plain)
69995	771.282361800	168.215.194.14	10.0.0.201	HTTP	1084	HTTP/1.1 301 Moved Permanently (text/html)
78898	771.534337700	168.215.195.227	10.0.0.201	HTTP	173	HTTP/1.1 200 OK (text/plain)
78127	771.609881900	168.215.194.14	10.0.0.201	HTTP	678	HTTP/1.1 301 Moved Permanently (text/html)
78176	771.711626800	168.215.195.227	10.0.0.201	HTTP	365	HTTP/1.1 200 OK (text/plain)
77828	833.659124800	72.21.91.29	10.0.0.201	OCSP	842	Response
77829	833.672612800	72.21.91.29	10.0.0.201	OCSP	842	Response
77845	833.810224400	72.21.91.29	10.0.0.201	OCSP	685	Response
68770	764.037491200	10.0.0.201	104.18.20.226	HTTP	313	GET /gsorganizationvalsha2g2/ME0wSzBJMEcwRTAJBgUrDgMCGGUABBOmK...
68730	763.852713700	10.0.0.201	104.18.21.226	HTTP	291	GET /rootr1/MEwSjBIMEwRDAJBgUrDgMCGGUABBS3v7W2nAf4F1NTjpDJKg6...
69750	770.563257500	10.0.0.201	140.211.166.134	HTTP	195	GET /version-1.0 HTTP/1.1
67493	754.296424700	10.0.0.201	151.139.242.39	HTTP	427	GET /eminimalls/mm.js HTTP/1.1
67268	752.331198600	10.0.0.201	168.215.194.14	HTTP	463	GET /nshowcat.html?category=animation HTTP/1.1
67282	752.441022900	10.0.0.201	168.215.194.14	HTTP	474	GET /srsbanner.gif HTTP/1.1

[Group: Sequence]

Request Method: GET
Request URI: /eminimalls/mm.js
Request Version: HTTP/1.1
Referer: http://publicdomaintorrents.info/nshowcat.html?category=animation\r\n
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/64.0.3282.140 Safari/537.36 Edge/17.17134\r\n
Accept: */*\r\n
Accept-Language: en-US\r\n
Accept-Encoding: gzip, deflate\r\n
Host: scripts.chitika.net\r\n
Connection: Keep-Alive\r\n
\r\n
[Full request URI: http://scripts.chitika.net/eminimalls/mm.js]
[HTTP request 1/1]
[Response in frame: 67756]

0000 0d 0a 55 73 65 72 2d 41 67 65 6e 74 3a 20 4d 6f ..User-Agent: Mo
000b 7a 69 9c 6c 61 2f 35 2e 30 20 28 57 89 6e 64 6f Zilla/5.0 (Wind
000c 77 73 29 4e 54 20 31 30 2e 30 3b 29 57 89 6e 30 ws NT 10.0; Win
000d 34 3b 29 78 30 34 20 29 41 70 70 6c 65 57 85 62 4; x64) AppleWeb
000e 4b 69 74 2f 35 33 37 2e 33 30 20 28 4b 48 54 40 Klt/537.36 (KHTM
000f 4c 2c 29 6c 89 6b 05 20 47 65 63 6b 6f 29 29 43 t, like Gecko) C
0100 68 72 6f 6d 65 2f 36 34 2e 30 2e 33 32 38 32 2e hrome/64.0.3282
0110 31 34 30 20 53 61 66 61 72 69 2f 35 33 37 2a 33 140 Safa ri/537.3
0120 36 29 45 64 67 65 2f 31 37 2e 31 37 31 33 34 0d 6 Edge/17.17134
0130 0d 41 63 63 65 70 74 3a 20 2a 2f 2a 00 0a 41 63 .Accept: */*
0140 63 65 70 74 2d 4c 61 6e 67 75 61 67 65 3a 29 85 cept-Lan guage: e
0150 6e 2d 55 53 0d 0a 41 63 63 65 70 74 2d 45 6e 63 n-US
0160 6f 64 69 6e 67 3a 20 67 7a 69 70 2c 20 64 65 66 oding: g zip, def
0170 6c 61 74 65 0d 0a 48 6f 73 74 3a 20 73 63 72 69 late-Mo st: scri
0180 70 74 73 2e 63 68 69 74 69 6b 61 2e 6e 65 74 0d pts.cht tika.net
0190 0a 43 6f 6e 6e 65 63 74 69 6f 6e 3a 20 4b 65 65 .Connect ion: Kee
01a0 70 2d 41 6c 69 76 65 0d 0a 0d 0a p-Alive: ...

HTTP User-Agent header (http.user_agent), 143 bytes

Packets: 104286 · Displayed: 92 (0.1%)

Profile: Default

2. Which torrent file did the user download?

Betty_Boop_Rhythm_on_theReservation.avi.torrent HTTP/1.1\r\n


```

[Calculated window size: 65535]
[Window size scaling factor: -2 (no window scaling used)]
Checksum: 0xc262 [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
  ▾ [SEQ/ACK analysis]
    [iRTT: 0.002718200 seconds]
    [Bytes in flight: 446]
    [Bytes sent since last PSH flag: 446]
  ▸ [Timestamps]
    TCP payload (446 bytes)
  ▾ Hypertext Transfer Protocol
    ▾ GET /grabs/bettybooprythmonthereservationgrab.jpg HTTP/1.1\r\n
      ▾ [Expert Info (Chat/Sequence): GET /grabs/bettybooprythmonthereservationgrab.jpg HTTP/1.1\r\n]
        [GET /grabs/bettybooprythmonthereservationgrab.jpg HTTP/1.1\r\n]
        [Severity level: Chat]
        [Group: Sequence]
      Request Method: GET

```

0000	00 09 b7 27 a1 3e 00 16 17 18 66 c8 08 00 45 00	...!>...f...E-
0010	01 e6 76 81 40 00 80 06 0c e2 0a 00 00 c9 a8 d7	..v.@...
0020	c2 0e c2 99 00 50 2d 00 0d 1e 5c d8 32 c3 50 18P-... \2.P.
0030	ff ff c2 62 00 00 47 45 54 20 2f 67 72 61 62 73b...GE T/grabs
0040	2f 62 65 74 74 79 62 6f 6f 70 72 79 74 68 6d 6f	/bettybo oprythmo
0050	6e 74 68 65 72 65 73 65 72 76 61 74 69 6f 6e 67	ntherese rvationg
0060	72 61 62 2e 6a 70 67 20 48 54 54 50 2f 31 2e 31	rab.jpg HTTP/1.1
0070	0d 0a 52 65 66 65 72 65 72 3a 20 68 74 74 70 3a	..Referer: http:
0080	2f 2f 70 75 62 6c 69 63 64 6f 6d 61 69 6e 74 6f	//public domain to
0090	72 72 65 6e 74 73 2e 69 6e 66 6f 2f 6e 73 68 6f	rrents.i nfo/nsho
00a0	77 6d 6f 76 69 65 2e 68 74 6d 6c 3f 6d 6f 76 69	wmovie.h tml?movi
00b0	65 69 64 3d 35 31 33 0d 0a 41 63 63 65 70 74 3a	eid=513...Accept:
00c0	20 69 6d 61 67 65 2f 70 6e 67 2c 69 6d 61 67 65	image/p ng,image
00d0	2f 73 76 67 2b 78 6d 6c 2c 69 6d 61 67 65 2f 2a	/svg+xml ,image/*
00e0	3b 71 3d 30 2e 38 2c 2a 2f 2a 3b 71 3d 30 2e 35	;q=0.8,* /*;q=0.5
00f0	0d 0a 41 63 63 65 70 74 2d 4c 61 6e 67 75 61 67	..Accept -Languag
0100	65 3a 20 65 6e 2d 55 53 0d 0a 41 63 63 65 70 74	e: en-US...Accept
0110	2d 45 6e 63 6f 64 69 6e 67 3a 20 67 7a 69 70 2c	-Encodin g: gzip,
0120	20 64 65 66 6c 61 74 65 0d 0a 55 73 65 72 2d 41	deflate ..User-A
0130	67 65 6e 74 3a 20 4d 6f 7a 69 6c 6c 61 2f 35 2e	gent: Mozilla/5.
0140	30 20 28 57 69 6e 64 6f 77 73 20 4e 54 20 31 30	0 (Windo ws NT 10