

# JARINGAN KOMPUTER

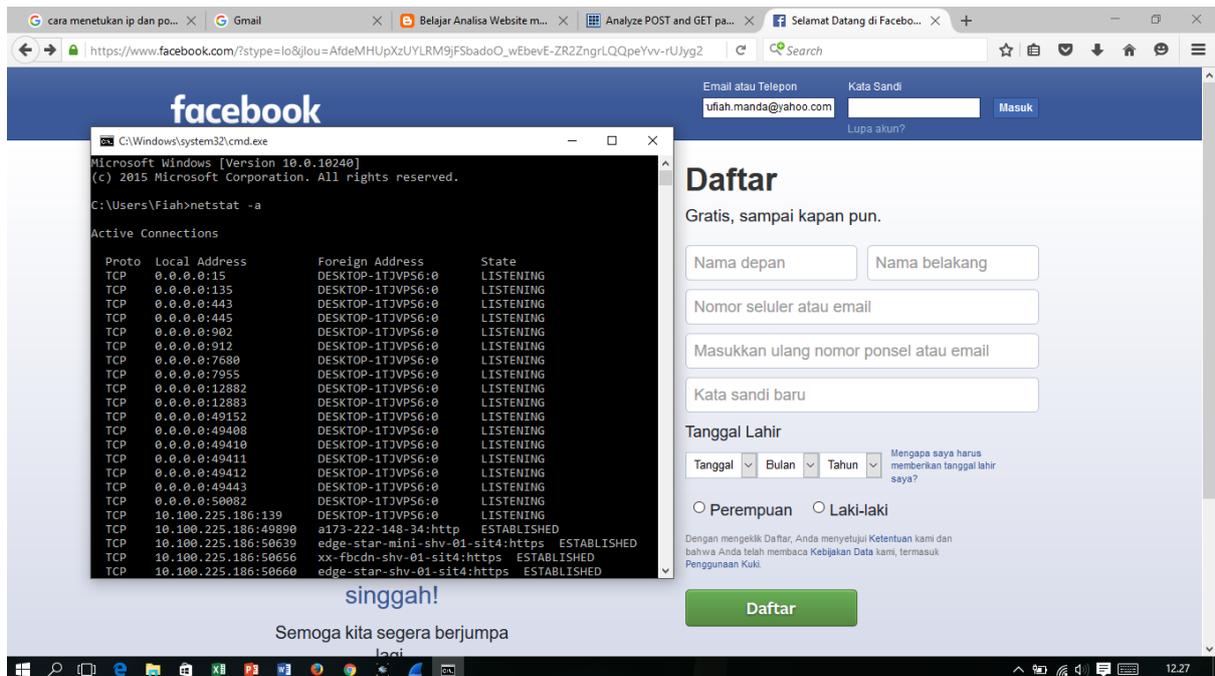
## TASK 5



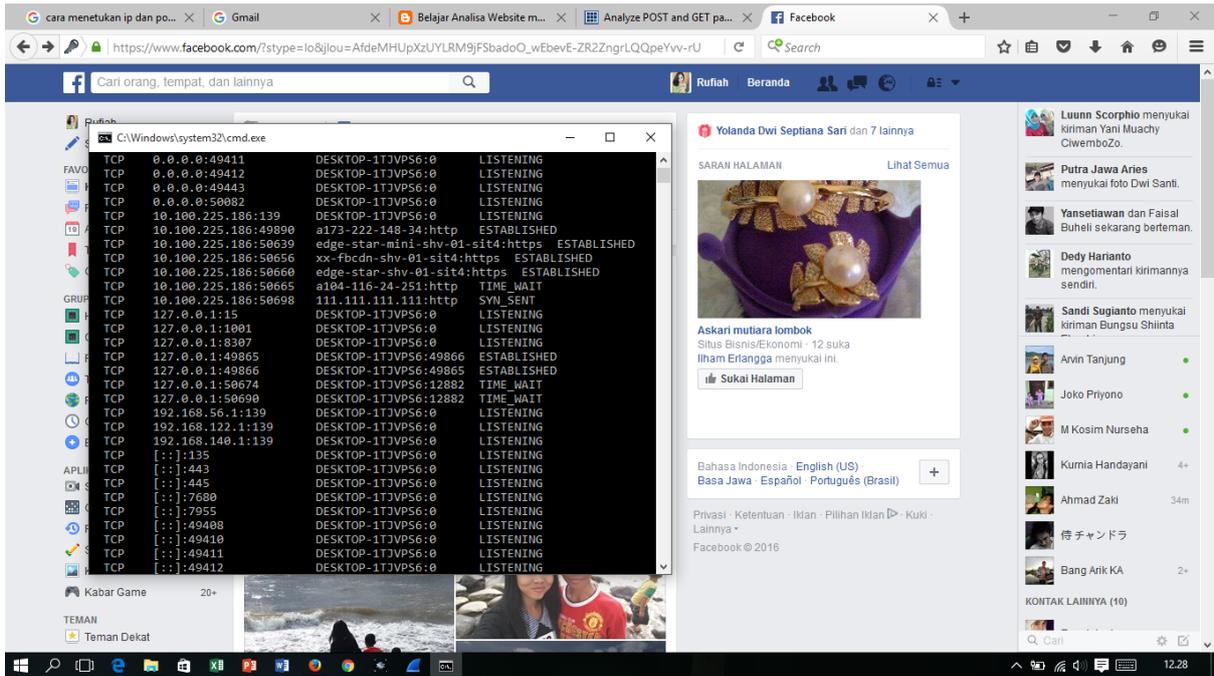
**Nama** : Rufiah  
**NIM** : 09011181419019  
**Dosen** : Deris Stiawan, M.T., PhD

**SISTEM KOMPUTER**  
**FAKULTAS ILMU KOMPUTER**  
**UNIVERSITAS SRIWIJAYA**  
**2016**

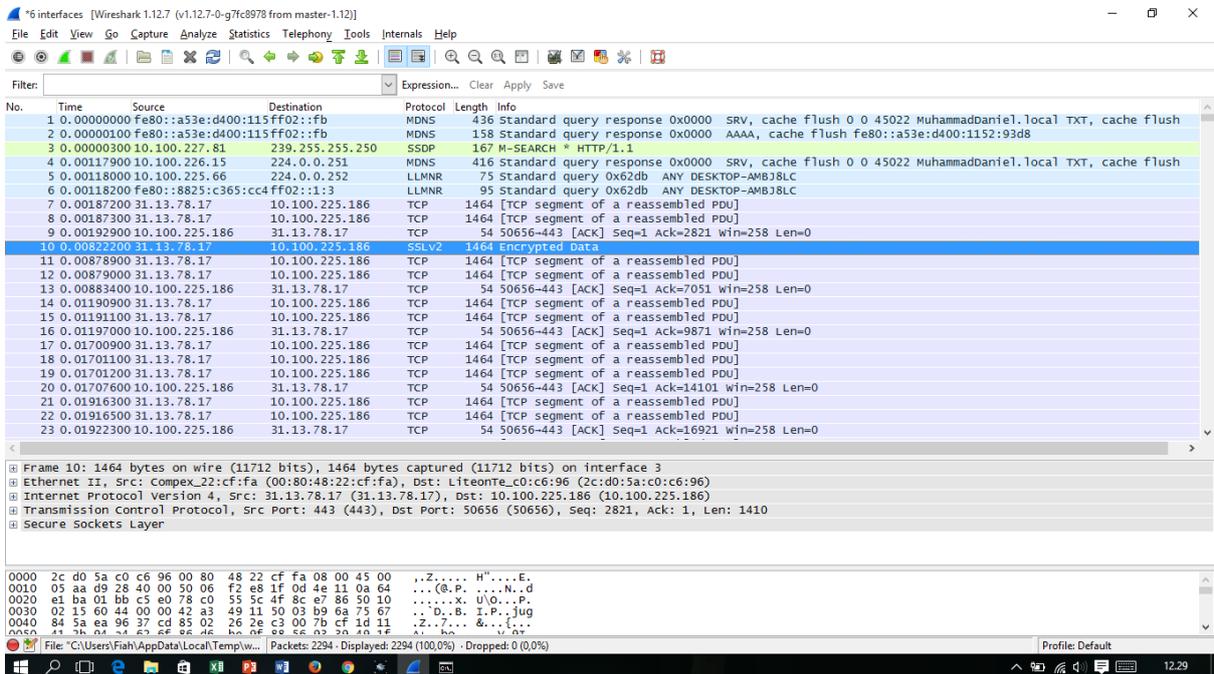
Ketika Url masuk ke <https://www.facebook.com>, ketika netstat di command prompt dengan perintah netstat -a di command prompt ini adalah tampilan pada command prompt nya



Dapat diamati ketika masuk ke facebook.com password yang diketikkan akan dienkripsi. Hal tersebut terekam di port dengan keterangan https. Berarti website ini dilindungi dan menjamin keamanan sistemnya.



## Percobaan menggunakan wireshark Ke facebook.com



6 interfaces [Wireshark 1.12.7 (v1.12.7-0-g7c8978 from master-1.12)]

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

| No. | Time       | Source               | Destination     | Protocol | Length | Info  |
|-----|------------|----------------------|-----------------|----------|--------|---|
| 1   | 0.00000000 | Fe80::a53e:d400::115 | FF02::Fb        | MDNS     | 436    | Standard query response 0x0000 SRV, cache flush 0 0 45022 MuhammadDaniel.local TXT, cache flush |
| 2   | 0.00000100 | Fe80::a53e:d400::115 | FF02::Fb        | MDNS     | 158    | Standard query response 0x0000 AAAA, cache flush Fe80::a53e:d400::1152:93d8                     |
| 3   | 0.00000300 | 10.100.227.81        | 239.255.255.250 | SSDP     | 167    | M-SEARCH * HTTP/1.1   |
| 4   | 0.00117900 | 10.100.226.15        | 224.0.0.251     | MDNS     | 416    | Standard query response 0x0000 SRV, cache flush 0 0 45022 MuhammadDaniel.local TXT, cache flush |
| 5   | 0.00118000 | 10.100.225.66        | 224.0.0.252     | LLMNR    | 75     | Standard query 0x62db ANY DESKTOP-AMBJ8LC   |
| 6   | 0.00118200 | Fe80::8825:c365:cc4  | FF02::1:3       | LLMNR    | 95     | Standard query 0x62db ANY DESKTOP-AMBJ8LC   |
| 7   | 0.00187200 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 8   | 0.00187300 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 9   | 0.00192900 | 10.100.225.186       | 31.13.78.17     | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=2821 Win=258 Len=0  |
| 10  | 0.00822200 | 31.13.78.17          | 10.100.225.186  | SSLV2    | 1464   | Encrypted Data  |
| 11  | 0.00878900 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 12  | 0.00879000 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 13  | 0.00883400 | 10.100.225.186       | 31.13.78.17     | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=7051 Win=258 Len=0  |
| 14  | 0.01190900 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 15  | 0.01191100 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 16  | 0.01197000 | 10.100.225.186       | 31.13.78.17     | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=9871 Win=258 Len=0  |
| 17  | 0.01700900 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 18  | 0.01701100 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 19  | 0.01701200 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 20  | 0.01707600 | 10.100.225.186       | 31.13.78.17     | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=14101 Win=258 Len=0   |
| 21  | 0.01916300 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 22  | 0.01916500 | 31.13.78.17          | 10.100.225.186  | TCP      | 1464   | [TCP segment of a reassembled PDU]  |
| 23  | 0.01922300 | 10.100.225.186       | 31.13.78.17     | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=16921 Win=258 Len=0   |

Frame 10: 1464 bytes on wire (11712 bits), 1464 bytes captured (11712 bits) on interface 3  
 Ethernet II, Src: complex22:cf:fa (00:80:48:22:cf:fa), Dst: Liteontec0:c6:96 (2c:d0:5a:c0:c6:96)  
 Internet Protocol Version 4, Src: 31.13.78.17 (31.13.78.17), Dst: 10.100.225.186 (10.100.225.186)  
 Transmission Control Protocol, Src Port: 443 (443), Dst Port: 50656 (50656), Seq: 2821, Ack: 1, Len: 1410  
 Secure Sockets Layer

```

0000 2c d0 5a c0 c6 96 00 80 48 22 cf fa 08 00 45 00  ..Z....H"....E.
0010 05 aa d9 28 40 00 50 06 f2 e8 1f 0d 4e 11 0a 64  ...(.P. ....N..d
0020 e1 ba 01 bb c5 e0 78 c0 55 5c 4f 8c e7 86 50 10  ....x.U(O...P.
0030 02 15 60 44 00 00 42 a3 49 11 50 03 b9 6a 75 67  ..D.B.I.P..Jug
0040 84 5a ea 96 37 cd 85 02 26 2e c3 00 7b cf 1d 11  ..Z.7...&...{..
0050 11 7b 04 24 63 6f 8e 46 8a 0f ee 8e 02 30 20 1e  ..{.h.k...x..h..
  
```

File: C:\Users\Fiah\AppData\Local\Temp\... Packets: 2294 - Displayed: 2294 (100.0%) - Dropped: 0 (0.0%) Profile: Default

6 interfaces [Wireshark 1.12.7 (v1.12.7-0-g7c8978 from master-1.12)]

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: tcp.stream eq 2 Expression... Clear Apply Save

| No. | Time       | Source         | Destination    | Protocol | Length | Info  |
|-----|------------|----------------|----------------|----------|--------|---|
| 769 | 1.49498900 | 10.100.225.186 | 31.13.78.17    | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=644371 Win=258 Len=0                |
| 770 | 1.53462600 | 10.100.225.140 | 10.100.239.255 | UDP      | 433    | source port: 64538 Destination port: 6866                     |
| 771 | 1.53896300 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 772 | 1.53896400 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 773 | 1.53896600 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 774 | 1.53896700 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 775 | 1.53897500 | 31.13.78.13    | 10.100.225.186 | TCP      | 54     | 443-50701 [ACK] Seq=1 Ack=518 Win=15360 Len=0                 |
| 776 | 1.53897700 | 31.13.78.13    | 10.100.225.186 | TLSv1.2  | 200    | Server Hello, Change Cipher Spec, Encrypted Handshake Message |
| 777 | 1.53897700 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 778 | 1.53897900 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 779 | 1.53898000 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 780 | 1.53915900 | 10.100.225.186 | 31.13.78.17    | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=654241 Win=258 Len=0                |
| 781 | 1.54146200 | 10.100.225.186 | 31.13.78.13    | TLSv1.2  | 105    | Change Cipher Spec, Encrypted Handshake Message               |
| 782 | 1.54521300 | 10.100.225.186 | 31.13.78.13    | TLSv1.2  | 211    | [SSL segment of a reassembled PDU]                            |
| 783 | 1.57348100 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 784 | 1.57348200 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 785 | 1.57348300 | 31.13.78.17    | 10.100.225.186 | SSLV2    | 1464   | Encrypted Data  |
| 786 | 1.57348400 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 787 | 1.57348500 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 788 | 1.57348600 | 31.13.78.17    | 10.100.225.186 | SSLV2    | 1464   | Encrypted Data  |
| 789 | 1.57349000 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 790 | 1.57349100 | 31.13.78.13    | 10.100.225.186 | TLSv1.2  | 135    | [SSL segment of a reassembled PDU]                            |
| 791 | 1.57349100 | 31.13.78.13    | 10.100.225.186 | SSL      | 92     | [SSL segment of a reassembled PDU]                            |

Frame 776: 200 bytes on wire (1600 bits), 200 bytes captured (1600 bits) on interface 3  
 Ethernet II, Src: complex22:cf:fa (00:80:48:22:cf:fa), Dst: Liteontec0:c6:96 (2c:d0:5a:c0:c6:96)  
 Internet Protocol Version 4, Src: 31.13.78.13 (31.13.78.13), Dst: 10.100.225.186 (10.100.225.186)  
 Transmission Control Protocol, Src Port: 443 (443), Dst Port: 50701 (50701), Seq: 1, Ack: 518, Len: 146  
 Secure Sockets Layer

```

0000 2c d0 5a c0 c6 96 00 80 48 22 cf fa 08 00 45 00  ..Z....H"....E.
0010 00 ba 68 62 40 00 50 06 68 a3 1f 0d 4e 0d 0a 64  ..hb@.P.h...N..d
0020 e1 ba 01 bb c6 0d 2f 2a ae 10 ea 18 89 fb 50 18  ..../* .....P.
  
```

Frame (200 bytes): Decrypted SSL record (16 bytes)

File: C:\Users\Fiah\AppData\Local\Temp\... Packets: 2294 - Displayed: 2294 (100.0%) - Dropped: 0 (0.0%) Profile: Default

Wireshark 1.12.7 (v1.12.7-0-g7c8978 from master-1.12)

Filter: tcp.stream eq 2

| No. | Time       | Source         | Destination    | Protocol | Length | Info  |
|-----|------------|----------------|----------------|----------|--------|---|
| 769 | 1.49498900 | 10.100.225.186 | 31.13.78.17    | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=644371 win=258 Len=0                |
| 770 | 1.53462600 | 10.100.225.140 | 10.100.225.186 | UDP      | 433    | Source port: 64538 Destination port: 6866                     |
| 771 | 1.53896300 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 772 | 1.53896400 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 773 | 1.53896600 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 774 | 1.53896700 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 775 | 1.53897500 | 31.13.78.13    | 10.100.225.186 | TCP      | 54     | 443-50701 [ACK] Seq=1 Ack=518 win=15360 Len=0                 |
| 776 | 1.53897700 | 31.13.78.13    | 10.100.225.186 | TLSv1.2  | 200    | Server Hello, Change Cipher Spec, Encrypted Handshake Message |
| 777 | 1.53897700 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 778 | 1.53897900 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 779 | 1.53898000 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 780 | 1.53915900 | 10.100.225.186 | 31.13.78.17    | TCP      | 54     | 50656-443 [ACK] Seq=1 Ack=654241 win=258 Len=0                |
| 781 | 1.54146200 | 10.100.225.186 | 31.13.78.13    | TLSv1.2  | 105    | Change Cipher Spec, Encrypted Handshake Message               |
| 782 | 1.54521300 | 10.100.225.186 | 31.13.78.13    | TLSv1.2  | 211    | [SSL segment of a reassembled PDU]                            |
| 783 | 1.57348100 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 784 | 1.57348200 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 785 | 1.57348300 | 31.13.78.17    | 10.100.225.186 | SSLv2    | 1464   | Encrypted Data  |
| 786 | 1.57348400 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 787 | 1.57348500 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 788 | 1.57348600 | 31.13.78.17    | 10.100.225.186 | SSLv2    | 1464   | Encrypted Data  |
| 789 | 1.57349000 | 31.13.78.17    | 10.100.225.186 | TCP      | 1464   | [TCP segment of a reassembled PDU]                            |
| 790 | 1.57349100 | 31.13.78.13    | 10.100.225.186 | TLSv1.2  | 135    | [SSL segment of a reassembled PDU]                            |
| 791 | 1.57349100 | 31.13.78.13    | 10.100.225.186 | SSL      | 92     | [SSL segment of a reassembled PDU]                            |

Frame 788: 1464 bytes on wire (11712 bits), 1464 bytes captured (11712 bits) on interface 3

Ethernet II, Src: Compex.22:cf:fa (00:80:48:22:cf:fa), Dst: Liteontec.0c:6e:96 (2c:0d:5a:c0:6e:96)

Internet Protocol Version 4, Src: 31.13.78.17 (31.13.78.17), Dst: 10.100.225.186 (10.100.225.186)

0000 1c d0 5a c0 c6 96 00 80 48 22 cf fa 08 00 45 00 ...Z....H.....E

0001 05 aa db 0a 40 00 50 06 f1 06 1f 0d 4e 11 0a 64 ...&.P.....N..

0002 e1 ba 01 bb c5 e0 78 ca 61 82 4f 8c e7 86 50 10 ...X..a.O..P..

0003 02 15 7a 3e 00 00 94 d8 7c 41 16 0f 29 da d2 a8 ...>...IA...)

0004 c9 52 27 13 c6 12 99 d7 16 0f 29 da d2 a8 ...R...SR...Y..

0005 96 3e 22 03 87 53 b0 65 5e 42 56 52 ed d5 72 6d ...>...S.e.ABVR..r

0006 6b a5 f7 8b f2 b9 d4 00 11 e9 1a 11 8e 1a dc 6c ...k.....T....

Frame (1464 bytes) Reassembled TCP (4407 bytes)

Frame (frame), 1464 bytes Packets: 2294 - Displayed: 2294 (100.0%) - Dropped: 0 (0.0%) Profile: Default

Wireshark 1.12.7 (v1.12.7-0-g7c8978 from master-1.12)

Filter: tcp.stream eq 6

Follow TCP Stream (tcp.stream eq 6)

13 Stream Content

16 GET /pub/firefox/releases/47.0.1/update/win32/en-us/firefox-47.0.1.complete.mar HTTP/1.1

16 Host: download.cdn.mozilla.net

16 User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:43.0) Gecko/20100101 Firefox/43.0

16 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

16 Accept-Language: en-US,en;q=0.5

16 Range: bytes=20700000-20999999

16 If-Range: "05ef18d7946a50cb36dd5b120dd526bf"

16 Connection: keep-alive

16 HTTP/1.1 206 Partial Content

16 Content-Type: application/octet-stream

16 X-amz-replication-status: COMPLETED

16 X-amz-version-id: z0xzy9zPazPw.YqDAHwqjwzyp4j2\_Y

16 Last-Modified: Tue, 28 Jun 2016 12:54:02 GMT

16 Etag: "05ef18d7946a50cb36dd5b120dd526bf"

16 Accept-Ranges: bytes

16 Server: AmazonS3

16 X-Amz-Cf-Id: Npiz34gdu0N8Ia769bL2bv1kGBvdbTHU9h77whZCUHEI-UTCCEhA==

16 Date: Mon, 19 Sep 2016 05:24:15 GMT

16 Content-Range: bytes 20700000-20999999/53634515

16 Content-Length: 300000

16 Connection: keep-alive

16 \$...\$j./93j...ss.&M...D?...cy.QY...JFTI...D.D\

16 \$...B...1.8h...6...Z.3.3...A4.xp...R...Z...F..gf#..Le...1.D.D\

16 \$...L...Nu.qp..8...E.5..7.8\

16 \$...R...;].&...4.C...<.../[z\*...].K.8KaB...U.\$...-H-/

16 4.8l...G...j...SL...Q...

16 \tj...b..i...d.7.Z)r..7...ACG...g..2..X.#L.ZS5#...Lw.f(.X...Q...\$...&...&...Q...f..X...e...1.b.a&.F...T...

Entire conversation (300914 bytes)

Find Save As Print ASCII EBCDIC Hex Dump C Arrays Raw

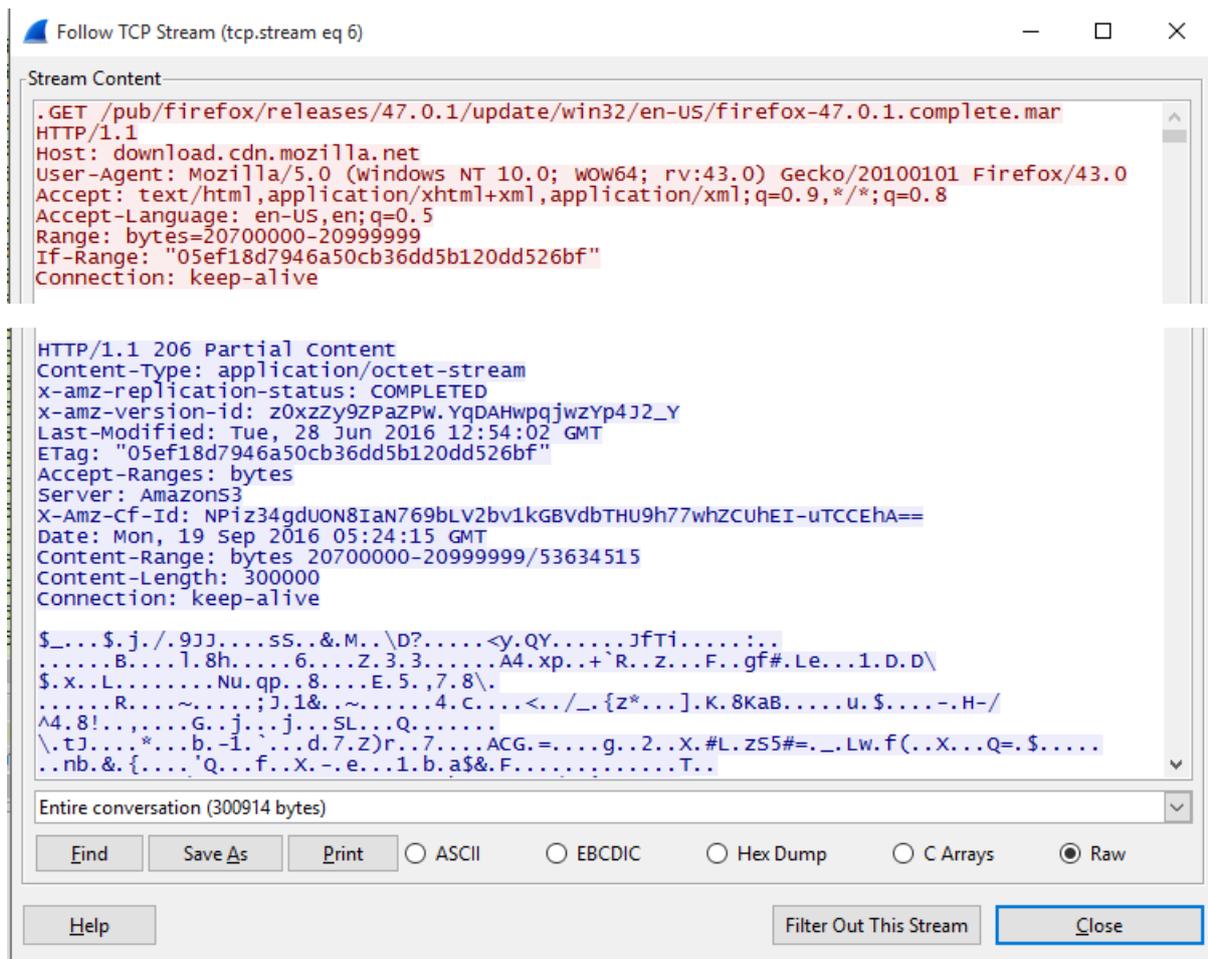
Help Filter Out This Stream Close

0000 76 20 34 37 2e 30 2e 31 2e 03 01 0d 70 0c 03 74 x=47.0.1.complet

0001 65 2e 6d 61 72 20 48 54 54 50 2f 31 2e 31 0d 0a e.mar HT TP/1.1.

0002 18 e6 31 70 61 2e 65 64 64 64 64 64 64 64 64 64 .....

File: C:\Users\Fiah\AppData\Local\Temp\w... Packets: 2294 - Displayed: 292 (12.7%) - Dropped: 0 (0.0%) Profile: Default



## Analisis :

Wireshark digunakan untuk menganalisis paket inbound dan outbound dari sistem kita. Kita gunakan untuk memantau permintaan GET dan POST yang sedang dikirim dari mesin kita. Ini membantu kita menganalisis data yang tepat yang sedang dikirim ke situs web tertentu. Paket mulai dapat ditangkap dan kita dapat melihat mereka di jendela Wireshark. Amatilah protokol paket, Wireshark memberitahu kita apa protokol yang digunakan untuk mentransfer paket. Ini membantu kita menyaring mana paket yang kita butuhkan dan meninggalkan sisanya. Sekarang kita menemukan GET dan POST paket (yang mengikuti protokol HTTP) kita perlu mengatur filter yang sesuai. Perhatikan kotak filter teks. Kita ketik **http.request.method == GET** atau **http.request.method == POST** dan tekan enter. Kita dapat menyimpannya untuk penggunaan selanjutnya juga, sehingga kita tidak perlu mengingat setiap kali kita ingin menyaring paket.

Klik kanan pada paket yang kita ingin menganalisis dan klik pada Follow TCP Stream. Sebuah jendela baru akan terbuka dengan semua rincian data yang dikirim dan diterima. Untuk

lebih akurat, permintaan yang dikirim dan respon diterima. Yang kita pilih mungkin sekali berbeda tetapi dasar-dasar tetap sama.

GET menunjukkan metode yang digunakan (GET atau POST) URL menunjukkan URL yang permintaan sedang dikirim.

Protokol dalam hal ini jelas akan HTTP. Hal ini juga menunjukkan yaitu Jika diubah adalah salah satu pesan header, ini menunjukkan bahwa permintaan ini hanya untuk memeriksa apakah URL tersebut dimodifikasi sejak waktu yang ditentukan.

Seperti yang kita lihat dalam pesan Response semua kita kembali adalah Not Modified User Agent berisi informasi tentang browser yang digunakan. Referer menunjukkan URL dari mana permintaan itu disebut. Terima-Encoding juga merupakan salah satu dari header pesan yang menunjukkan metode encoding yang berbeda yang dapat diterjemahkan oleh browser dari mana permintaan sedang dikirim. Cookie berisi data yang disimpan dalam cookie browser kita saat ini. Kita dapat membaca respon dengan cara yang sama HTTP menunjukkan protokol versi yang digunakan. 304 adalah kode status Not Modified. Anda dapat menemukan semua kode status HTTP Tanggal menunjukkan waktu selama respon yang dihasilkan. Jadi sekarang kita tahu bagaimana menganalisis paket menggunakan Wireshark.