

ĐẠI HỌC QUỐC GIA THÀNH PHỐ HỒ CHÍ MINH
ĐẠI HỌC KHOA HỌC TỰ NHIÊN

ĐẠI HỌC KHOA HỌC TỰ NHIÊN



BÁO CÁO ĐỒ ÁN 2

NGUYỄN TUẤN PHÙNG – TỔNG LÊ THIÊN PHÚC

Năm học: 2018 - 2019

Thành viên

Tên thành viên	MSSV
Tống Lê Thiên Phúc	1753086
Nguyễn Tuấn Phùng	1753087

Số yêu cầu thực hiện được

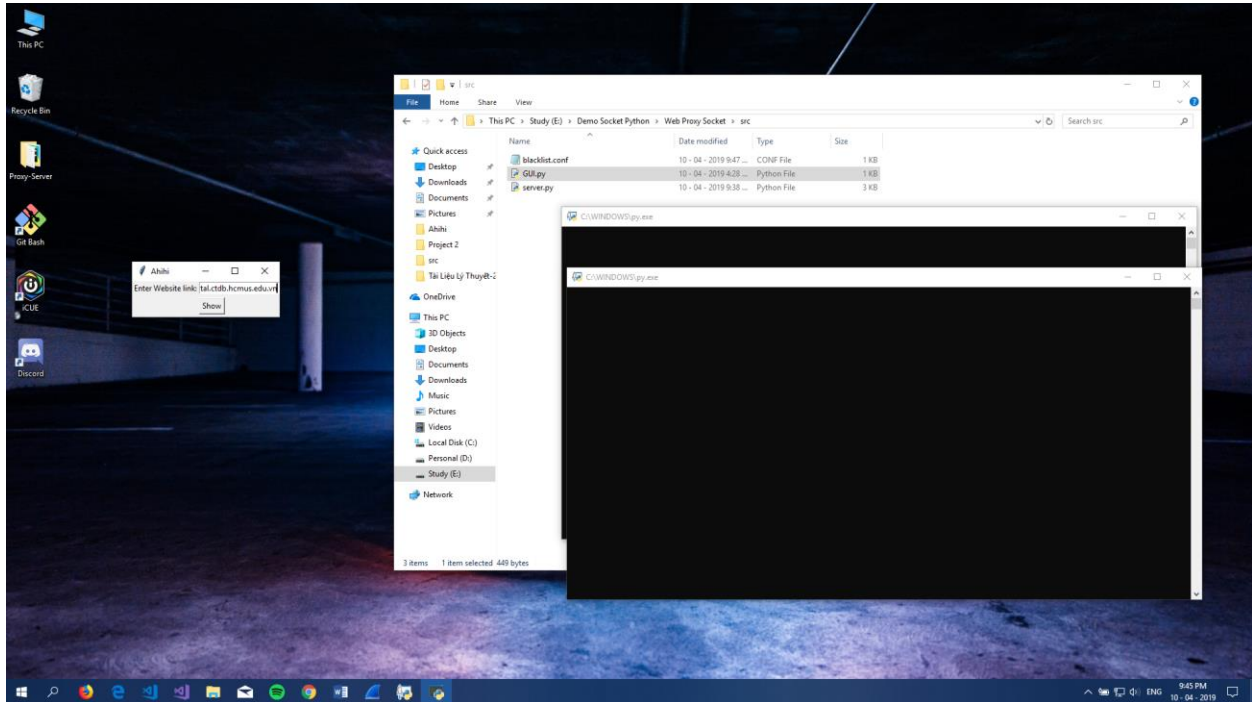
- Hỗ trợ HTTP 1.0/1.1
- Cho phép client truy cập website thông qua proxy
- Xử lý nhiều request từ client
- Sử dụng port 8888
- Chặn truy cập website nếu tên miền có trong blacklist

1. Các hàm cơ bản

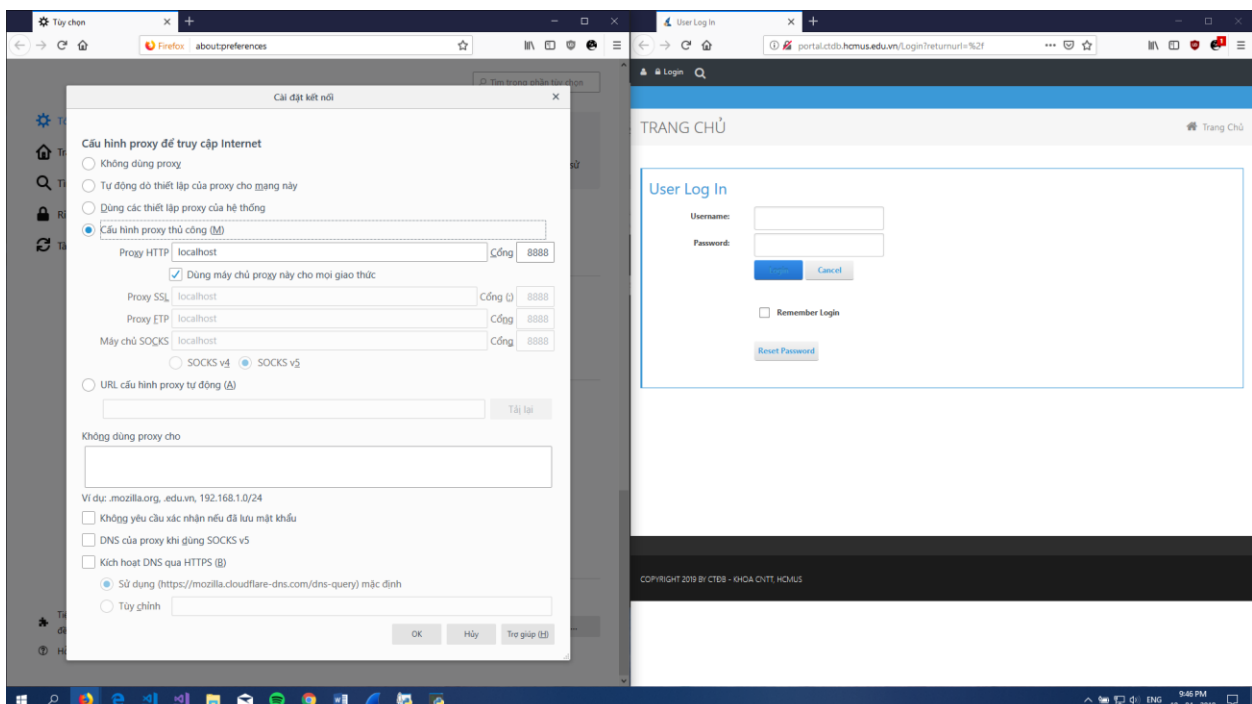
- Black_list(): hàm đọc danh sách các website bị block bởi proxy.
- Proxy_thread(): phân tích gói tin gửi đi từ client đến server.
- Get(request, server, size, black_list): gửi yêu cầu truy cập website đến cho server, đến proxy server thì sẽ check url có trong blacklist hay không, nếu có thì chặn truy cập đến server và gửi respond lỗi về cho client. Nếu không có trong blacklist thì chuyển tiếp request đến cho server và chuyển tiếp respond về cho client.
 - Request: là yêu cầu GET gửi đi từ client
 - Size : số byte đọc gói tin
 - Blacklist: danh sách blacklist
- Post(client, server, size): chuyển tiếp respond từ server về client
- Error(server) : gửi thông báo error khi truy cập website có trong blacklist dưới dạng text/html

2. Bước chạy - Kết quả

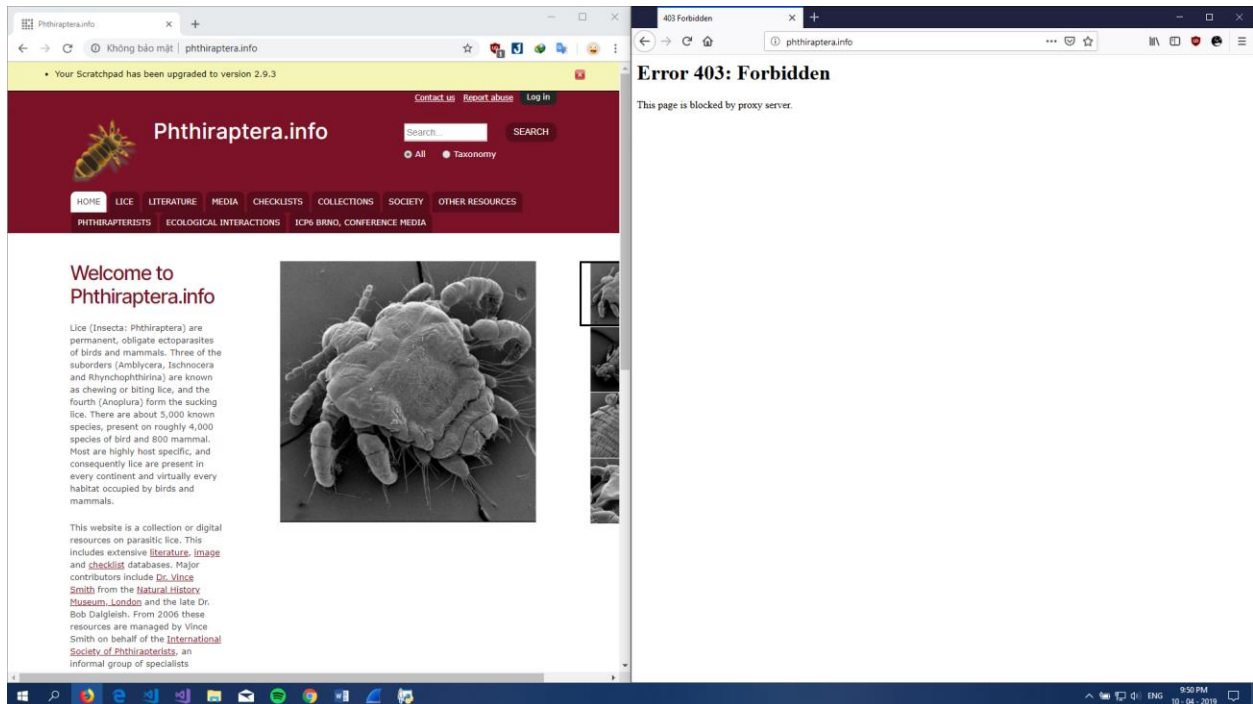
- Mở file server.py và GUI.py
- Nhập địa chỉ web vào trong khung Enter Website Link sau đó nhấn show



- Trình duyệt firefox sẽ tự động chạy trang web cần truy cập, bên phải là kết quả, bên trái là setting port của trình duyệt.



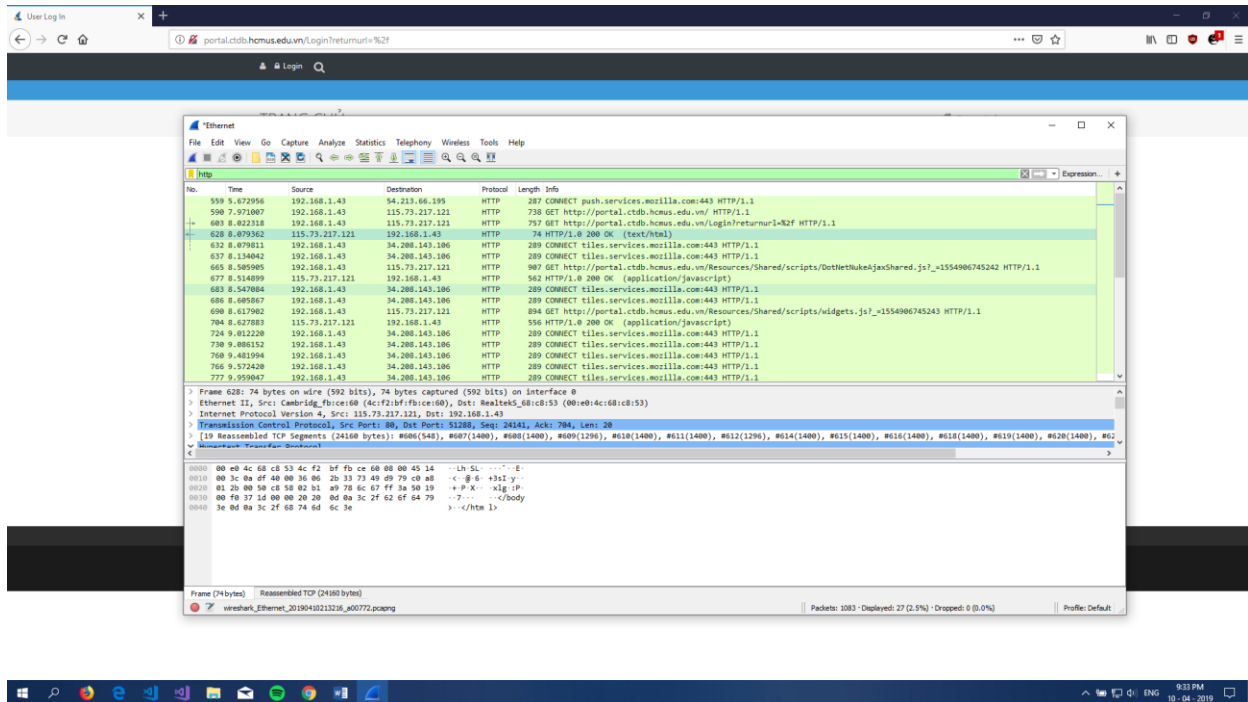
- Ví dụ trong black list được mở dưới dạng notepad, trong đó có 1 website bị cấm là: <http://phthiraptera.info/>



- Bên phải là truy cập vào trong phthiraptera.info bằng google chrome không có sử dụng proxy server và bên phải là truy cập vào phthiraptera.info bằng firefox dưới port 8888 và có proxy server

3. Bắt gói tin bằng wireshark

- Ở đây, website sử dụng là <http://portal.ctdb.hcmus.edu.vn/>



- IP client: 192.168.1.42
- IP server: 115.73.217.121
- Client gửi 1 gói tin GET đến server
- Sau đó server gửi 1 gói tin HTTP/1.0 200 OK để xác nhận kết nối thành công về cho client

Wireshark_proxy_server.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http

No.	Time	Source	Destination	Protocol	Length	Info
559	5.672956	192.168.1.43	54.213.66.195	HTTP	287	CONNECT push.services.mozilla.com:443 HTTP/1.1
590	7.971807	192.168.1.43	115.73.217.121	HTTP	738	GET http://portal.ctdb.hcmus.edu.vn/ HTTP/1.1
603	8.022318	192.168.1.43	115.73.217.121	HTTP	757	GET http://portal.ctdb.hcmus.edu.vn/Login?returnurl=%2f HTTP/1.1
628	8.079362	115.73.217.121	192.168.1.43	HTTP	74	HTTP/1.0 200 OK (text/html)
632	8.079811	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
637	8.134042	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
665	8.505905	192.168.1.43	115.73.217.121	HTTP	907	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/DotNetNukeAjaxShared.js?_1554906745242 HTTP/1.1
677	8.514899	115.73.217.121	192.168.1.43	HTTP	562	HTTP/1.0 200 OK (application/javascript)
683	8.547084	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
686	8.605867	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
698	8.617902	192.168.1.43	115.73.217.121	HTTP	894	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/widgets.js?_1554906745243 HTTP/1.1
704	8.627883	115.73.217.121	192.168.1.43	HTTP	556	HTTP/1.0 200 OK (application/javascript)
724	9.012220	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
730	9.086152	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
760	9.481994	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
766	9.572420	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
777	9.959847	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1

> Frame 603: 757 bytes on wire (6056 bits), 757 bytes captured (6056 bits) on interface 0
 > Ethernet II, Src: RealtekS_68:c8:53 (00:e0:4c:68:c8:53), Dst: Cambridg_fb:ce:60 (4c:f2:bf:fc:ce:60)
 > Internet Protocol Version 4, Src: 192.168.1.43, Dst: 115.73.217.121
 > Transmission Control Protocol, Src Port: 51288, Dst Port: 80, Seq: 1, Ack: 1, Len: 703
 > Hypertext Transfer Protocol

```

0000 4c f2 bf fc ce 60 00 e0 4c 68 c8 53 08 00 45 00  L.....Lh.S..E-
0010 02 e7 ec da 40 00 80 06 00 00 c0 a8 01 2b 73 49  ..@.....+sI
0020 d9 79 c8 58 00 50 6c 67 fc 7b 02 b1 4b 2c 50 18  .y.X.Plg-{-K,P-
0030 02 02 11 70 00 00 47 45 54 20 68 74 70 3a 2f     ....GE T http:/
0040 2f 70 6f 72 74 61 6c 2e 63 74 64 62 2e 68 63 6d  /portal.ctdb.hcm
0050 75 73 2e 65 64 75 2e 76 6e 2f 4c 6f 67 69 6a 2f  us.edu.v n/Login?
0060 72 65 74 75 72 6e 75 72 6c 3d 25 32 66 20 48 54  returnurl=%2f HT
0070 54 50 2f 31 2e 31 0d 0a 48 6f 73 74 3a 20 70 6f  TP/1.1.. Host: po
0080 72 74 61 6c 2e 63 74 64 62 2e 68 63 6d 75 73 2e  rtal.ctd b.hcmus.

```

Wireshark_proxy_server.pcapng

Packets: 1083 · Displayed: 27 (2.5%)

Profile: Default

Wireshark_proxy_server.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http

No.	Time	Source	Destination	Protocol	Length	Info
559	5.672956	192.168.1.43	54.213.66.195	HTTP	287	CONNECT push.services.mozilla.com:443 HTTP/1.1
590	7.971807	192.168.1.43	115.73.217.121	HTTP	738	GET http://portal.ctdb.hcmus.edu.vn/ HTTP/1.1
603	8.022318	192.168.1.43	115.73.217.121	HTTP	757	GET http://portal.ctdb.hcmus.edu.vn/Login?returnurl=%2f HTTP/1.1
628	8.079362	115.73.217.121	192.168.1.43	HTTP	74	HTTP/1.0 200 OK (text/html)
632	8.079811	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
637	8.134042	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
665	8.505905	192.168.1.43	115.73.217.121	HTTP	907	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/DotNetNukeAjaxShared.js?_1554906745242 HTTP/1.1
677	8.514899	115.73.217.121	192.168.1.43	HTTP	562	HTTP/1.0 200 OK (application/javascript)
683	8.547084	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
686	8.605867	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
698	8.617902	192.168.1.43	115.73.217.121	HTTP	894	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/widgets.js?_1554906745243 HTTP/1.1
704	8.627883	115.73.217.121	192.168.1.43	HTTP	556	HTTP/1.0 200 OK (application/javascript)
724	9.012220	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
730	9.086152	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
760	9.481994	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
766	9.572420	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
777	9.959847	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1

> Frame 665: 907 bytes on wire (7256 bits), 907 bytes captured (7256 bits) on interface 0
 > Ethernet II, Src: RealtekS_68:c8:53 (00:e0:4c:68:c8:53), Dst: Cambridg_fb:ce:60 (4c:f2:bf:fc:ce:60)
 > Internet Protocol Version 4, Src: 192.168.1.43, Dst: 115.73.217.121
 > Transmission Control Protocol, Src Port: 51296, Dst Port: 80, Seq: 1, Ack: 1, Len: 853
 > Hypertext Transfer Protocol

```

0000 4c f2 bf fc ce 60 00 e0 4c 68 c8 53 08 00 45 00  L.....Lh.S..E-
0010 03 7d ec e3 40 00 80 06 00 00 c0 a8 01 2b 73 49  .}:@.....+sI
0020 d9 79 c8 60 00 50 0b 58 d1 db 99 b2 f7 df 50 18  .y..P.X.....P-
0030 02 02 12 06 00 00 47 45 54 20 68 74 70 3a 2f     ....GE T http:/
0040 2f 70 6f 72 74 61 6c 2e 63 74 64 62 2e 68 63 6d  /portal.ctdb.hcm
0050 75 73 2e 65 64 75 2e 76 6e 2f 52 65 73 6f 75 72  us.edu.v n/Resour
0060 63 65 73 2f 53 68 61 72 65 64 2f 73 63 72 69 70  ces/Shar ed/scrip
0070 74 73 2f 44 6f 74 4e 65 74 4e 75 6b 65 41 6a 61  ts/DotNe tNukeAja
0080 78 53 68 61 72 65 64 2e 6a 73 3f 5f 3d 31 35 35  xShared. js?_155
0090 34 39 30 36 37 34 35 32 34 32 20 48 54 50 2f 49067452 42 HTTP/
00a0 31 2e 31 0d 0a 48 6f 73 74 3a 20 70 6f 72 74 61  1.1..Hos t: porta
00b0 6c 2e 63 74 64 62 2e 68 63 6d 75 73 2e 65 64 75  1.ctdb.h cmus.edu
00c0 2e 76 6e 6d 0a 55 73 65 72 2d 41 67 65 6e 74 3a  .vn..Use r-Agent:
00d0 20 4d 6f 7a 69 6c 6c 61 2f 35 2e 30 20 28 57 69  Mozilla /5.0 (Wi

```

Wireshark_proxy_server.pcapng

Packets: 1083 · Displayed: 27 (2.5%)

Profile: Default

Wireshark_proxy_server.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http

No.	Time	Source	Destination	Protocol	Length	Info
559	5.672956	192.168.1.43	54.213.66.195	HTTP	287	CONNECT push.services.mozilla.com:443 HTTP/1.1
590	7.971807	192.168.1.43	115.73.217.121	HTTP	738	GET http://portal.ctdb.hcmus.edu.vn/ HTTP/1.1
603	8.022318	192.168.1.43	115.73.217.121	HTTP	757	GET http://portal.ctdb.hcmus.edu.vn/Login?returnurl=%2f HTTP/1.1
628	8.079362	115.73.217.121	192.168.1.43	HTTP	74	HTTP/1.0 200 OK (text/html)
632	8.079811	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
637	8.134842	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
665	8.505905	192.168.1.43	115.73.217.121	HTTP	907	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/DotNetNukeAjaxShared.js?_1554906745242 HTTP/1.1
677	8.514899	115.73.217.121	192.168.1.43	HTTP	562	HTTP/1.0 200 OK (application/javascript)
683	8.547084	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
686	8.605867	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
690	8.617902	192.168.1.43	115.73.217.121	HTTP	894	GET http://portal.ctdb.hcmus.edu.vn/Resources/Shared/scripts/widgets.js?_1554906745243 HTTP/1.1
704	8.627883	115.73.217.121	192.168.1.43	HTTP	556	HTTP/1.0 200 OK (application/javascript)
724	9.012230	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
730	9.086152	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
760	9.481994	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
766	9.572420	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1
777	9.959847	192.168.1.43	34.208.143.106	HTTP	289	CONNECT tiles.services.mozilla.com:443 HTTP/1.1

> Frame 690: 894 bytes on wire (7152 bits), 894 bytes captured (7152 bits) on interface 0
 > Ethernet II, Src: Realtek5_68:c8:53 (00:e0:4c:68:c8:53), Dst: Cambridg_fbice:60 (4c:f2:bf:fc:ce:60)
 > Internet Protocol Version 4, Src: 192.168.1.43, Dst: 115.73.217.121
 > Transmission Control Protocol, Src Port: 51298, Dst Port: 80, Seq: 1, Ack: 1, Len: 840
 > Hypertext Transfer Protocol

```

0000  4c f2 bf fb ce 60 00 e0 4c 68 c8 53 08 00 45 00  L...h.S.E-
0010  03 70 ec e9 40 00 80 06 00 00 c0 a8 01 2b 73 49  p:@.....+sI
0020  d9 79 c8 62 00 50 d4 03 8d 62 6c d4 8e e9 50 18  .y.b.P...b1...P-
0030  02 02 11 f9 00 00 47 45 54 20 68 74 74 70 3a 2f  .....GE T http:/
0040  2f 70 6f 72 74 61 66 2e 63 74 64 62 2e 68 63 6d  /portal.ctdb,hcm
0050  75 73 2e 65 64 75 2e 76 6e 2f 52 65 73 6f 75 72  us.edu.v n/Resour
0060  63 65 73 2f 53 68 61 72 65 64 2f 73 63 72 69 70  ces/Shan ed/scrip
0070  74 73 2f 7f 69 64 67 65 74 73 2e 6a 73 3f 5f 3d  ts/widge ts.js?_
0080  31 35 35 34 39 30 36 37 34 35 32 34 33 20 48 54  15549067 45243 HT
  
```

Wireshark_proxy_server.pcapng | Packets: 1083 - Displayed: 27 (2.5%) | Profile: Default