HW1

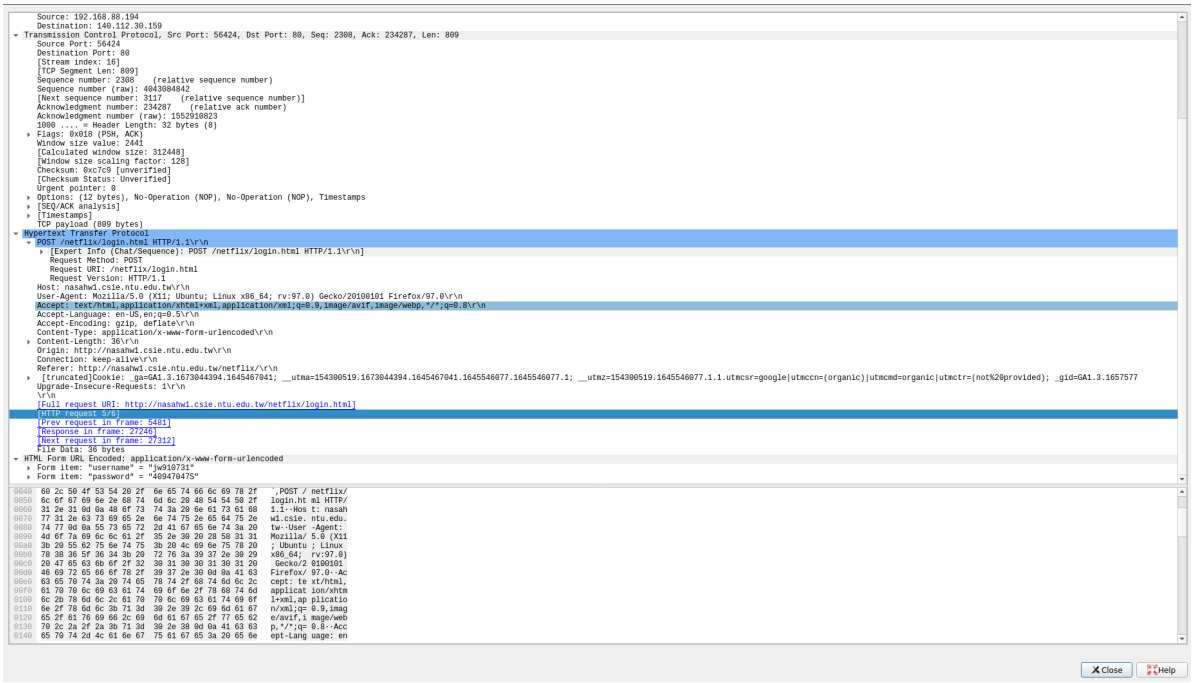
> Get SSL Key: https://support.f5.com/csp/article/K50557518
>
> Export PNG file from Wireshark: https://osqa-ask.wireshark.org/questions/35123/fastest-way-to-display-a-png-file/
>
> NA Question: Computer Network : A Top To Down Approach

NA

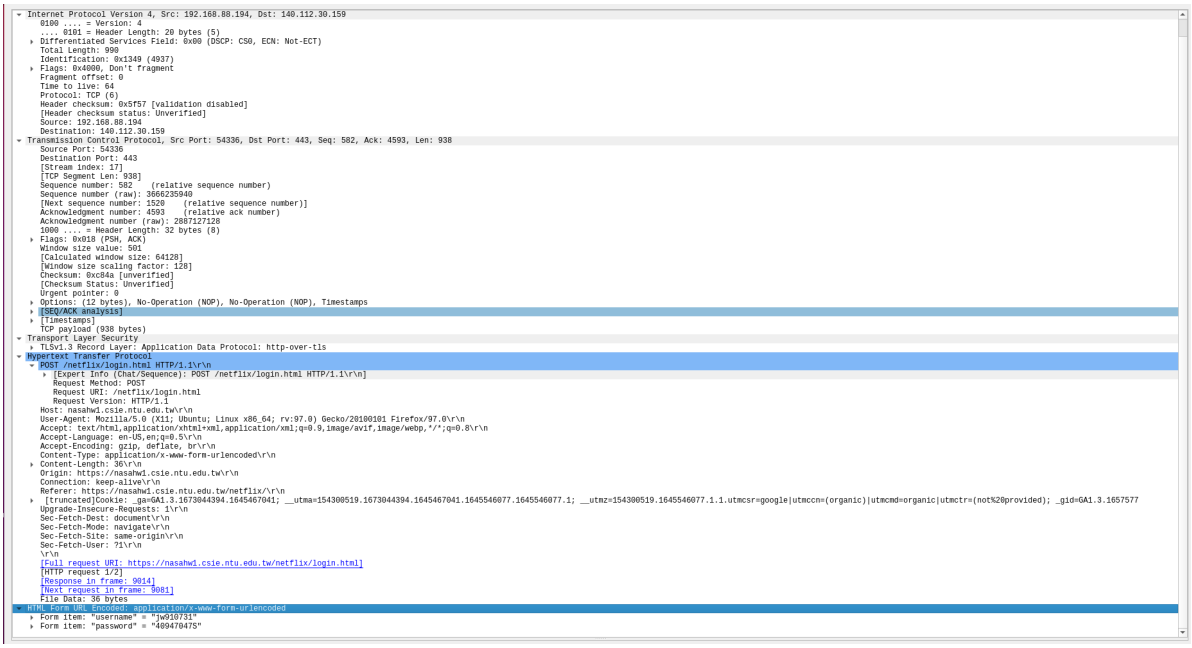
看個影集也會不小心洩漏密碼？！

https://support.f5.com/csp/article/K50557518

1.



2.



農場危機

1. Wireshark 打開，把給的檔案塞進去，filter設定

```
ip.addr==140.112.30.159 #IP為token網站的IP
```

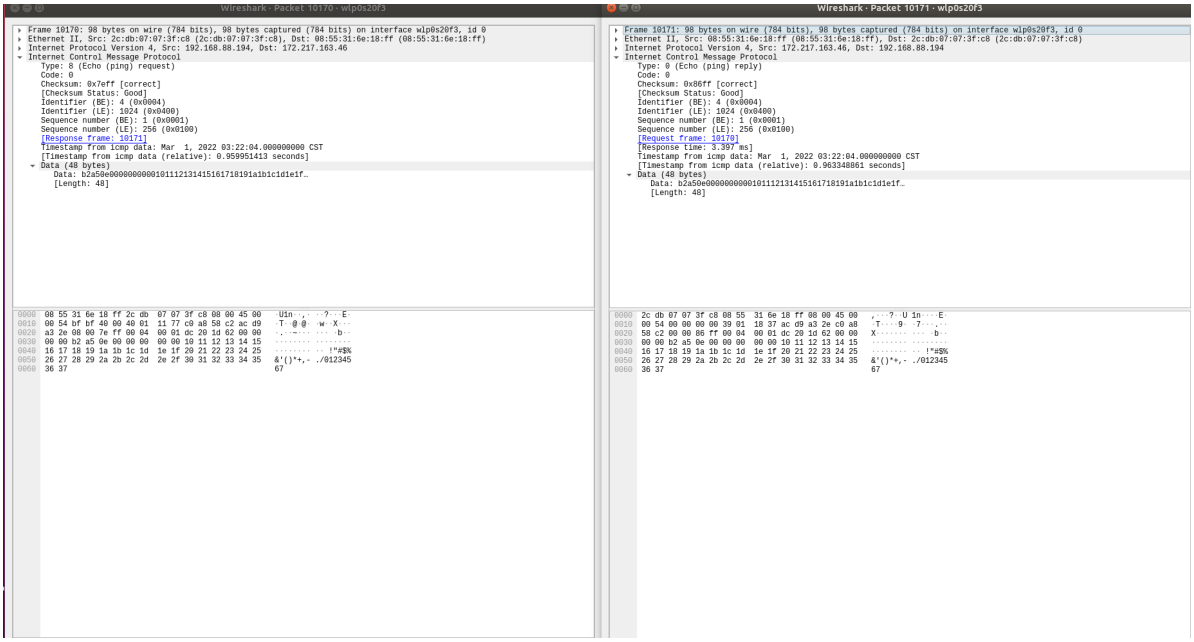
找到一個很奇怪的PNG回應(會找它是因為全部只有他是PNG)，丟到題目給的token網站，出現Wireshark的圖片，回到Wireshark，把那個PNG封包導出，看起來是一個QR Code,

偷偷點開token網頁的src, 發現內容好像有跑某個script, 看了一下是對圖片做某些變換，把script抓下來，在本地對QR Code跑，就找到答案了

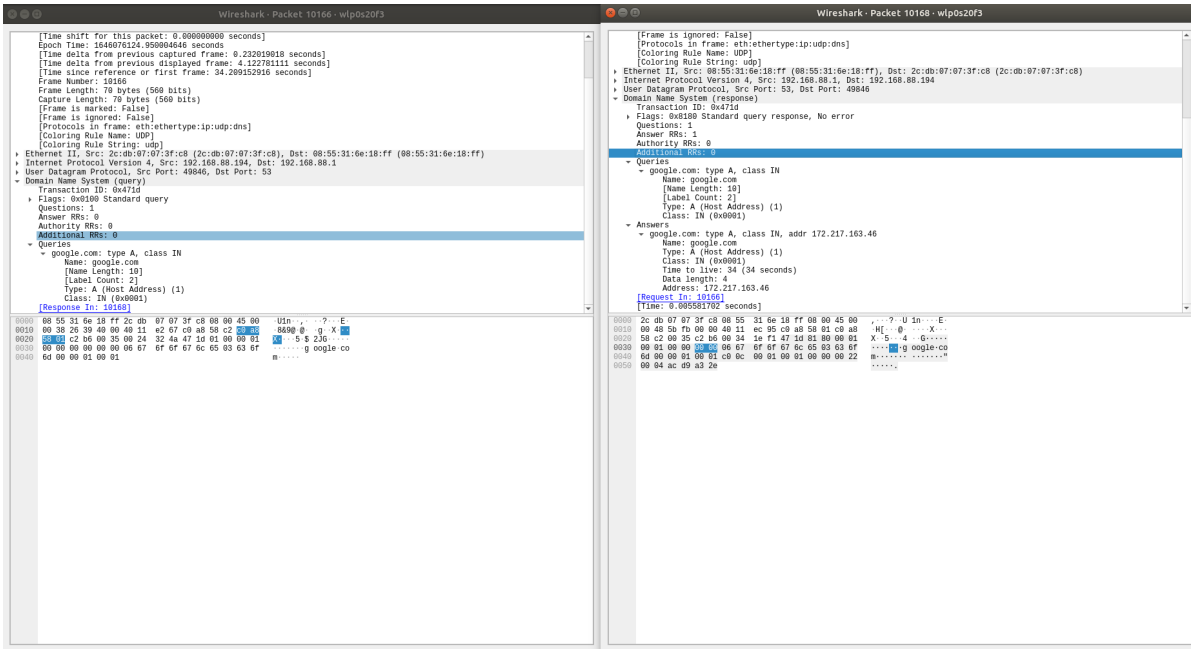
2. NASA{2022_pig_pig🐷🫀🐷}

這麼多的網路協定要是能全部都認識的話該有多好

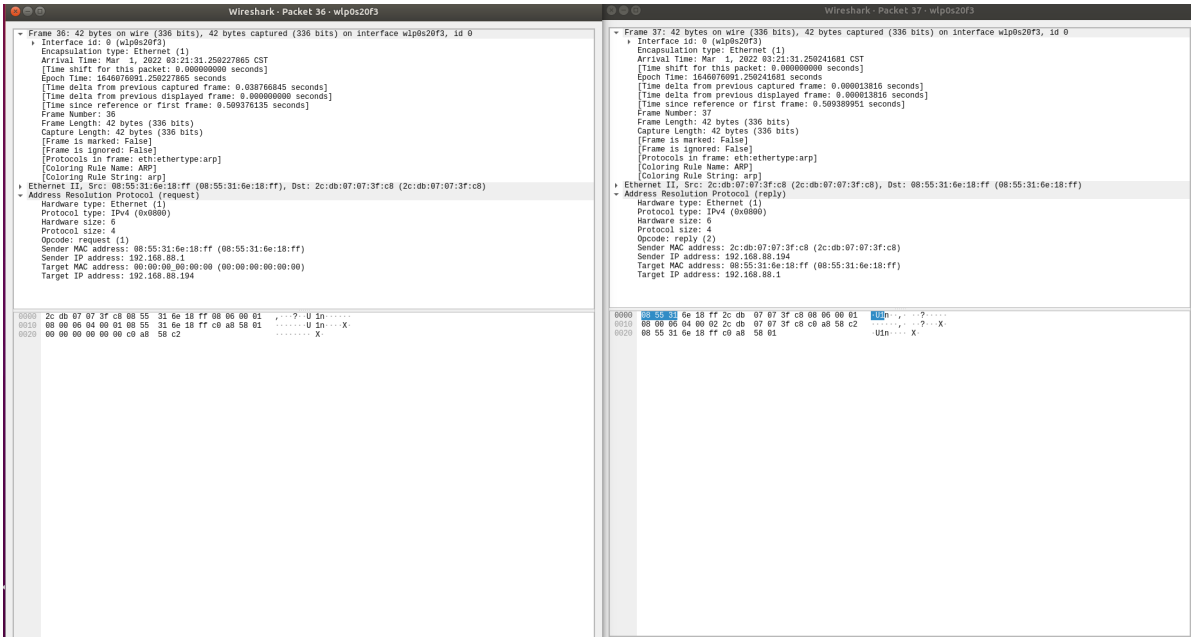
1. ICMP運作在Network Layer ，它作為IP Packet的一個Payload, 提供各式各樣網路層的資訊，比如封包傳送時在中間過程找不到目標地址爛掉，就會得到Network Unreachable的ICMP封包，或者是像Ping之類的功能一樣，送出對應的Type跟Code(Type 8, Code 0)，回傳對應的Echo(Type 0, Code 0)，下圖就是一個ping的來回封包截圖



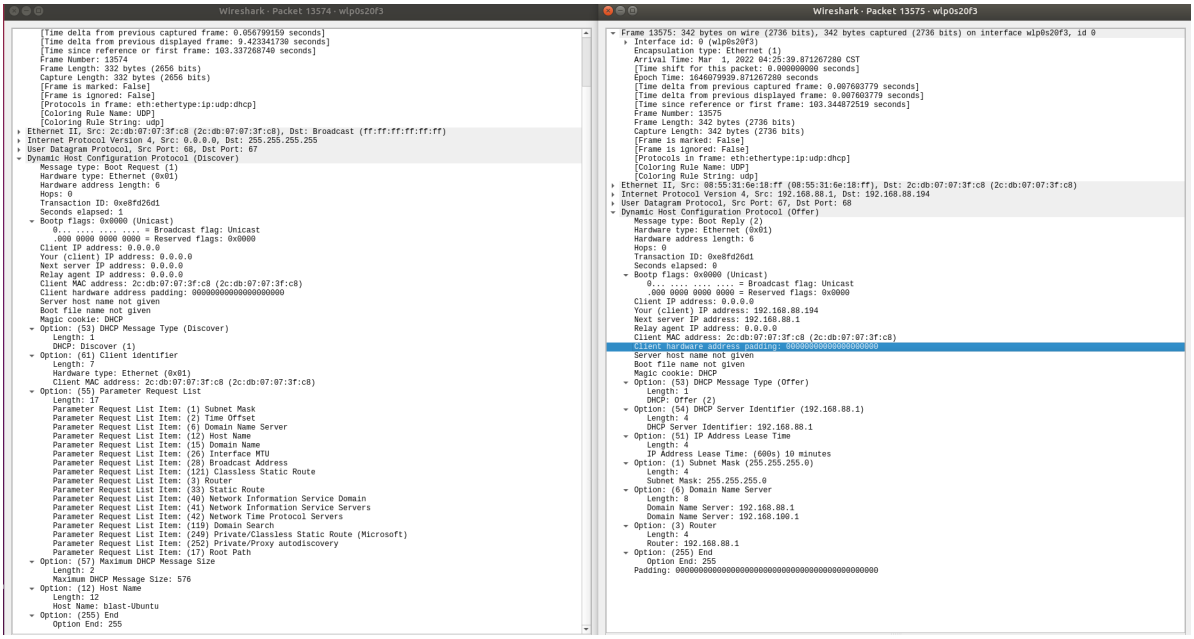
2. DNS Query跑在應用層上，用的是UDP協議(Send: UDP ?-> 53, Recv: ?-> 53)，主要用來做域名->IP Address的查詢，其中內部有許多不同的設置方式(A, CNAME... etc)，導致域名能有不同的設計對到不同或同一個實體IP

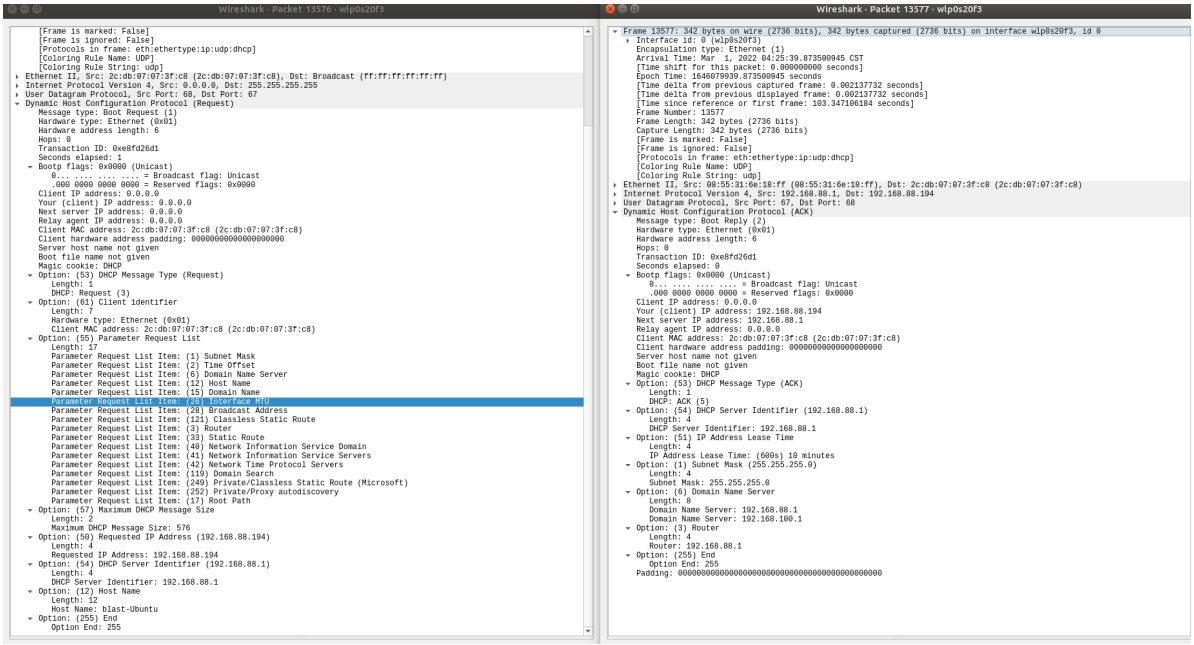


3. ARP跑在Network Layer上，是拿來建立IP->MAC Address間的映射關係用的，因為一台設備不會一開始就有所有接收端的MAC Address, 且使用同個IP的目標機器也不會一直一樣，但是每個封包都要跑在L2上(都要有一個L2的Address), 所以就有ARP這個協議經由廣播的方式去隨時跟蹤IP->MAC Address的對應關係。



4. DHCP跑在Application Layer上，是用來動態分配NAT底下內網IP的協議，使用UDP封包，減緩了IPv4耗盡的速度，也可以拿來做複雜的filter功能，阻擋某些特定封包進出某些機器的能力。





SA

Permission

I. Basic

1. 否，該目錄沒有r權限
2. 是，該目錄有r權限, 父目錄有x
3. 是，該目錄有r權限, 父目錄有x
4. 是，該目錄有x權限, 父目錄有x
5. 否，該目錄沒有x權限
6. 否，dir2沒有x權限
7. 否，該檔案沒有w權限
8. 是，該檔案有w權限，, 父目錄有x
9. 是，該資料夾有w權限，, 父目錄有x
10. 否，該資料夾沒有w權限

II. ACL

> ACL for specific user: https://officeguide.cc/linux-acl-access-control-list-setfacl-getfacl-command-tutorial/

1. 我們不是該資料夾的擁有者而且other沒有w權限

2.
```
chmod 700 40947047s
setfacl -m g:ta:rx 40947047s
```

3.
```
# friend: 40947047s
setfacl -m u:40947030s:x 40947047s      #b
cd 40947047s                            #b
chmod 700 chatroom                      #b
setfacl -m u:40947030s:rwx chatroom/    #b
setfacl -m d:u:40947030s:rw chatroom/   #c
chmod 500 chatroom/                     #d
setfacl -m m::rx chatroom/              #d
```

4.
```
chmod 700 wordle/                       #a
setfacl -m g:ta:rwx ./wordle/game.sh    #a
setfacl -m g:ta:x wordle/               #a
chmod 700 wordlist.txt                  #b
```

c.

setuid是讓其他用戶在執行某個檔案的時候,使用擁有者的身份去執行。

如果今天有一個script，有寫檔的功能跟setuid，那我們將有權限寫檔到某個我們原本沒有權限的檔案因為setuid可以用該檔案擁有者的權限去寫入。

Shell Scripting

> getopts --help
>
> getopts: https://stackoverflow.com/questions/11279423/bash-getopts-with-multiple-and-mandatory-options
>
> check time stamp: https://stackoverflow.com/questions/806906/how-do-i-test-if-a-variable-is-a-number-in-bash
>
> get line of a file: https://stackoverflow.com/questions/26789762/bash-difference-between-raw-string-and-string-in-variable
>
> regex: https://regex101.com/
>
> timestamp convertion: https://checkmk.com/linux-knowledge/convert-unix-timestamp-date
>
> bash's regex: https://stackoverflow.com/questions/1891797/capturing-groups-from-a-grep-regex
>
> bash's regex's manual: https://en.wikibooks.org/wiki/Regular_Expressions/POSIX-Extended_Regular_Expressions
>
> sort array in bash: https://stackoverflow.com/questions/7442417/how-to-sort-an-array-in-bash

2.

> Get substr: https://reactgo.com/bash-get-first-character-of-string/
>
> Function argument: https://stackoverflow.com/questions/6212219/passing-parameters-to-a-bash-function
>
> Check directory: https://devconnected.com/how-to-check-if-file-or-directory-exists-in-bash/
>
> Create repeat character: http://www.unixcl.com/2009/03/repeat-character-in-bash-scripting.html
>
> man ls
>
> Check substr: https://stackoverflow.com/questions/229551/how-to-check-if-a-string-contains-a-substring-in-bash
>
> Symlink Checking: https://koenwoortman.com/bash-script-check-if-file-is-symlink/
>
> Get symlink target and get fullpath: https://stackoverflow.com/questions/7665/how-to-resolve-symbolic-links-in-a-shell-script
>
> sort with ascii value: https://stackoverflow.com/questions/5296428/how-to-sort-a-text-file-according-to-character-code-or-ascii-code-value