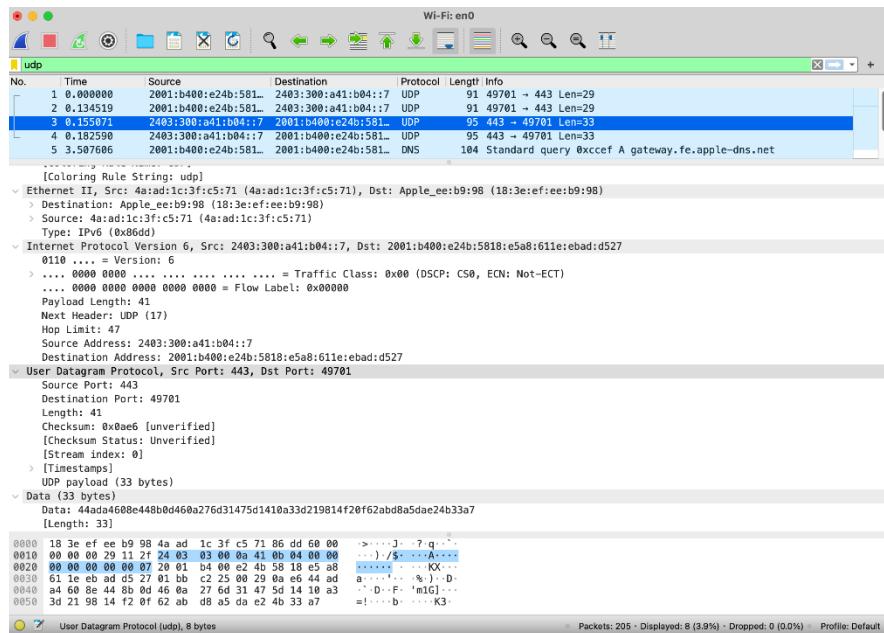


Computer Networks Assignment 1

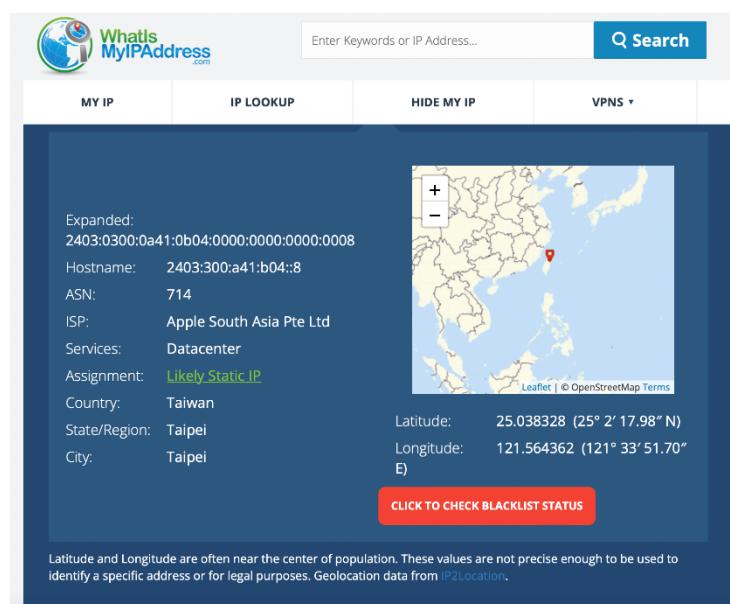
Packet Analysis

B09902062 陳晏霆

- **Analysis of UDP packets.**

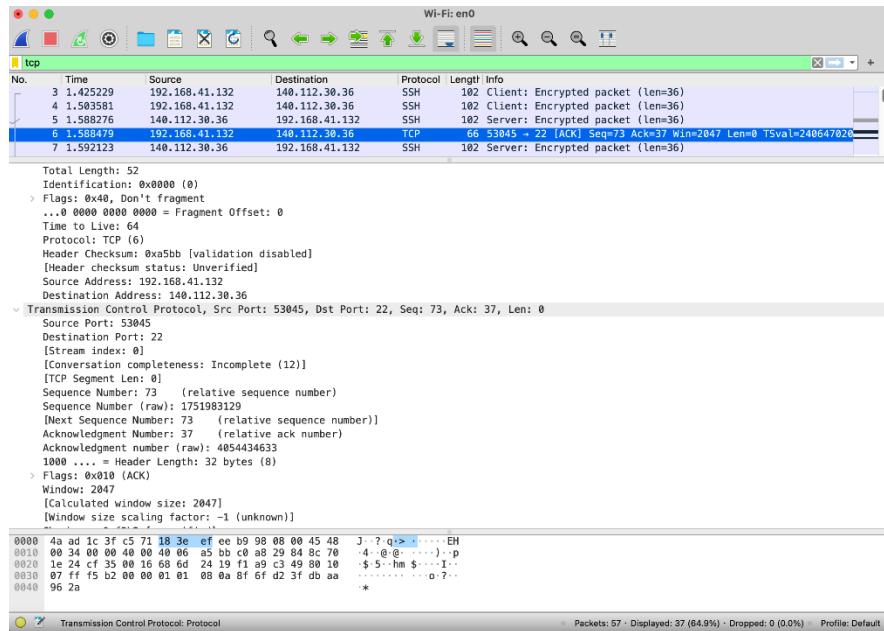


- **Source Port: 443**
- **Destination Port: 49701**
- **Website/Server: Apple South Asia Pte Ltd**
- **Service Provided: Datacenter**
- **Port Used by This Service: 443**



(Website Used: <https://whatismyipaddress.com/ip-lookup>)

- **Analysis of TCP packets.**



- **Source Port: 53045**
- **Destination Port: 22**
- **Port Used by This SSH Server: 22**
- **Public IP or Private IP: private**
- **How Did You Know That: IANA reserve 192.168.0.0 ~ 192.168.255.255 to be private IP addresses.**

Public and private IP address ranges

Your private IP address exists within specific private IP address ranges reserved by the Internet Assigned Numbers Authority (IANA) and should never appear on the internet. There are millions of private networks across the globe, all of which include devices assigned private IP addresses within these ranges:

- Class A: 10.0.0.0 — 10.255.255.255
- Class B: 172.16.0.0 — 172.31.255.255
- Class C: 192.168.0.0 — 192.168.255.255

(Reference: <https://www.avast.com/c-ip-address-public-vs-private>)

- **Compare the headers of transport layer between TCP and UDP.**

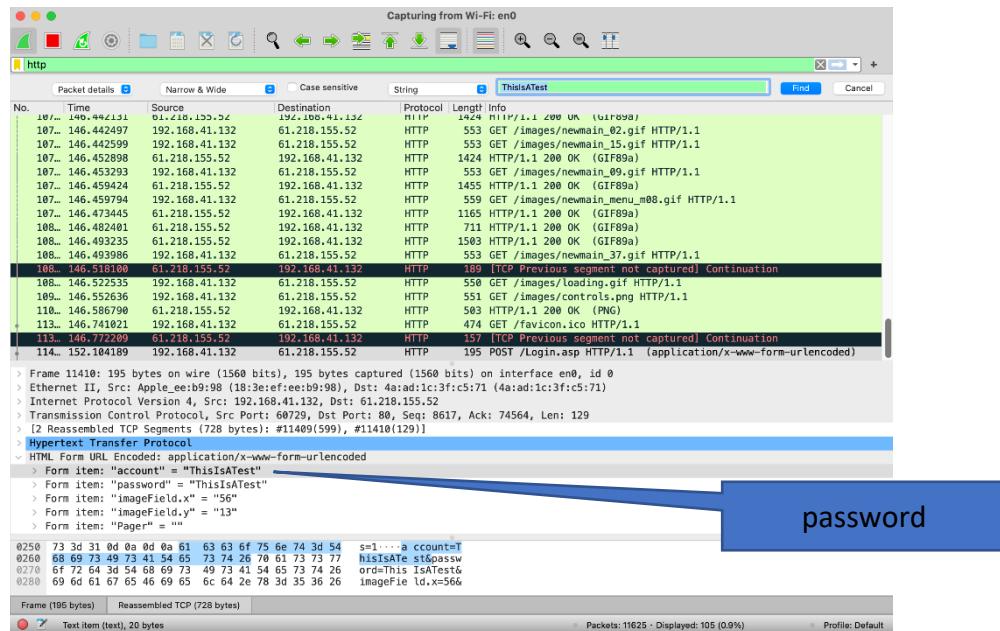
- **Same Fields:** They both contain the source port and the destination port (from bit #0 ~ bit #15 and bit #16 ~ bit #31, respectively), and they both store the header and data checksum.
- **Different Fields:** TCP also stores the sequence number, acknowledgment number, data offset, flags, window size, etc.

TCP Segment Header Format										
Bit #	0	7	8	15	16	23	24	31		
0	Source Port				Destination Port					
32	Sequence Number									
64	Acknowledgment Number									
96	Data Offset	Res	Flags		Window Size					
128	Header and Data Checksum				Urgent Pointer					
160...	Options									

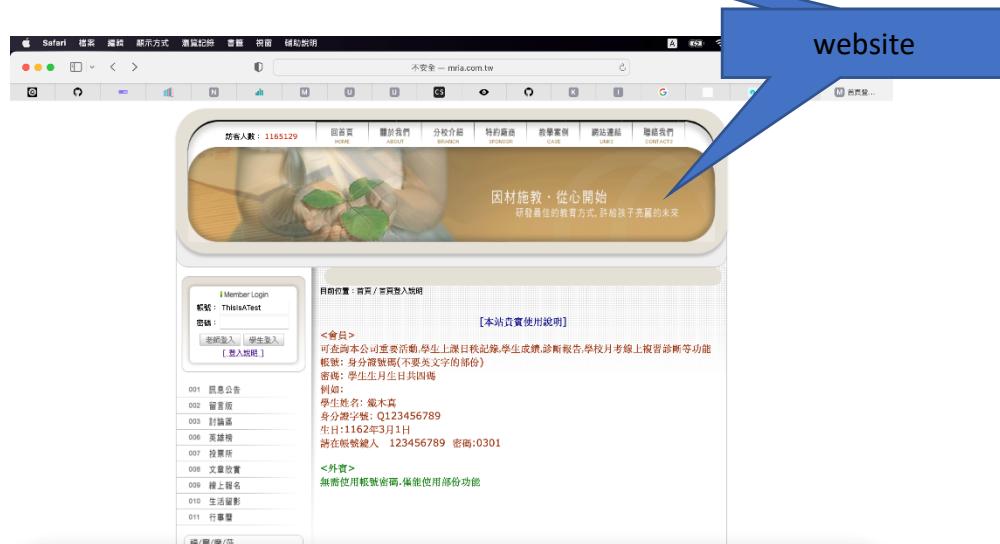
UDP Datagram Header Format								
Bit #	0	7	8	15	16	23	24	31
0	Source Port				Destination Port			
32	Length				Header and Data Checksum			

(Reference: <https://www.softwaretestinghelp.com/tcp-vs-udp/>)

- Find out a plaintext password in the packet.



<http://www.mria.com.tw/about>
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 教學,E化首頁**登入說明| 偉達補習班**偉達成立至今18年,是全國唯一針對國



- Website: 偉達補習班 (<http://www.mria.com.tw/>)
- Why Is It Not Safe: If someone is trying to steal your account, they can find out exactly what your password is by simply capturing the packets.

- *Other observations:*

1. TCP's header size is larger than UDP's (20 bytes vs 8 bytes).
2. TCP is connection-oriented. That is, a connection must be established before any data transmissions; however, UDP is connection-less.
3. A lot of TCP's packets are encrypted, so I didn't find any plaintext passwords in TCP. Therefore, I believe TCP is more reliable than UDP.
4. Despite all the disadvantages described above, people still use UDP because it's faster than TCP.