Wireshark 基礎教學

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授課老師：張宏慶 老師

AGENDA

- Wireshark安裝
- 基礎操作流程

Wireshark安裝(官網)

WIRESHARK

NEWS | Get Acquainted ▾ | Get Help ▾ | Develop ▾ | Our Sponsor | SharkFest

Download Wireshark

The current stable release of Wireshark is 2.4.0. It supersedes all previous releases. You can also download the latest development release (2.4.0rc2) and documentation.

Stable Release (2.4.0)

Windows Installer (64-bit)
Windows Installer (32-bit)
Windows PortableApps® (32-bit)
macOS 10.6 and later Intel 64-bit .dmg
Source Code

Old Stable Release (2.2.8)

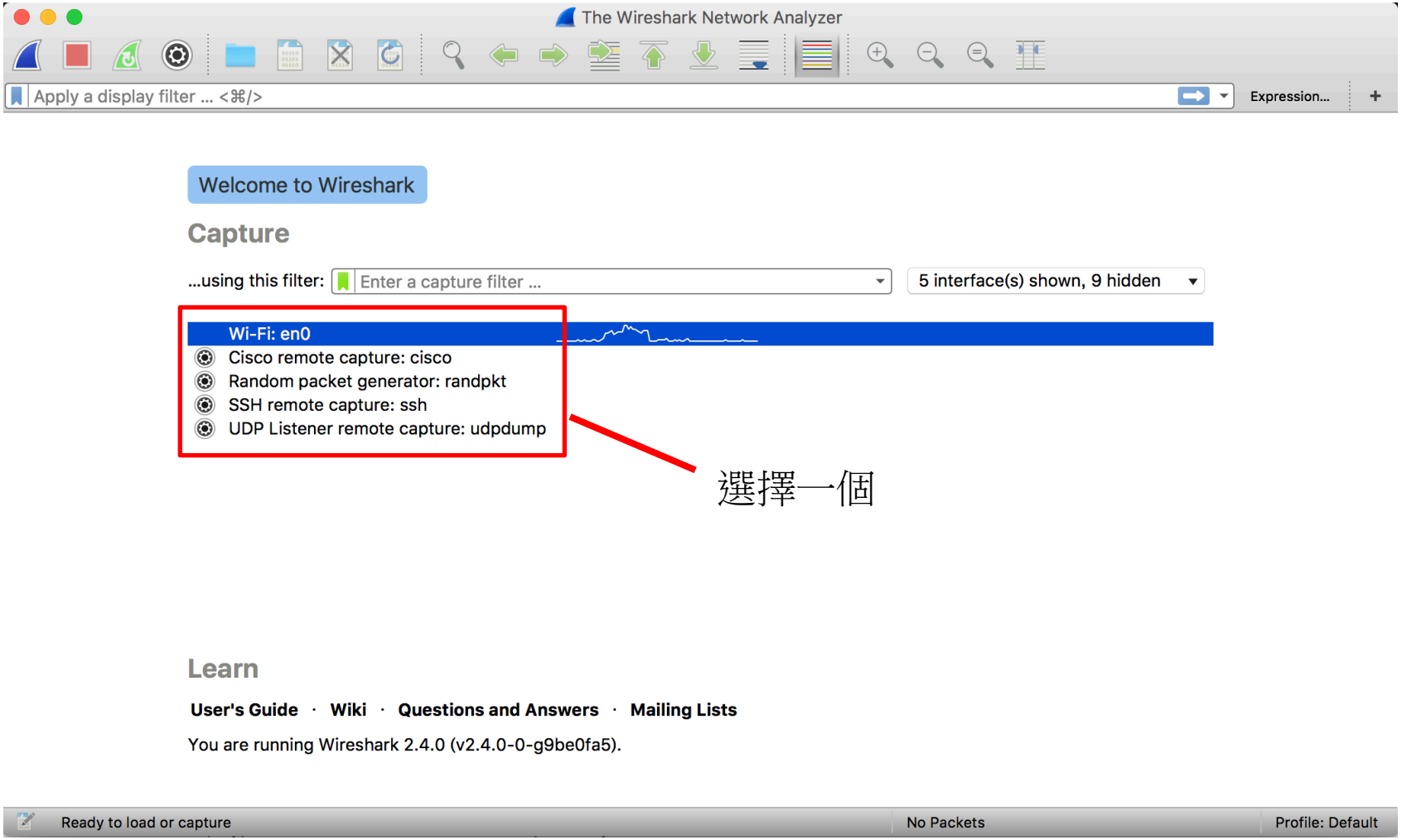
Documentation

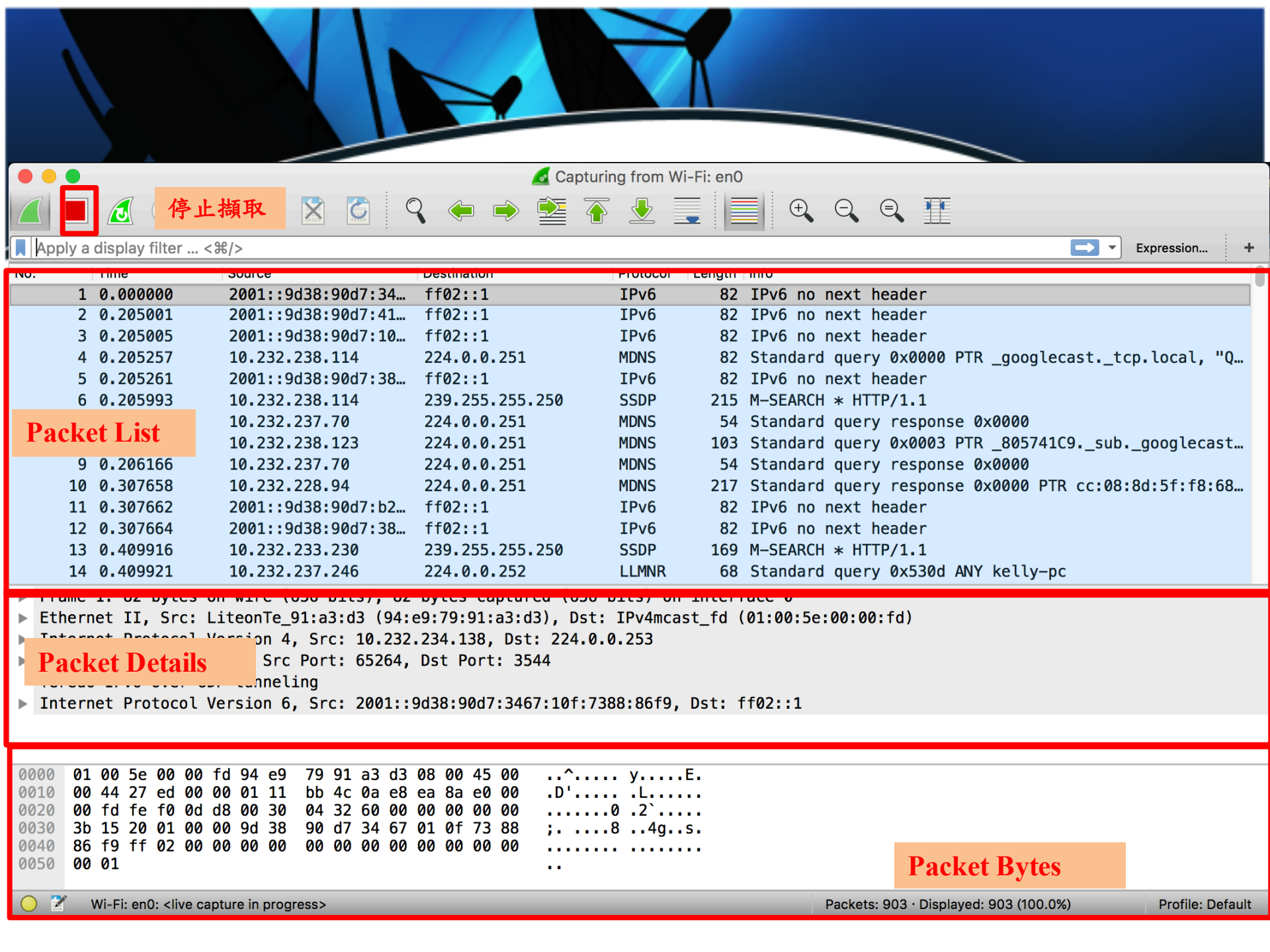
Having Problems?

Explore our download area or look in our third party package list below.

https://www.wireshark.org/download.html

操作流程 - 挑選網路介面卡

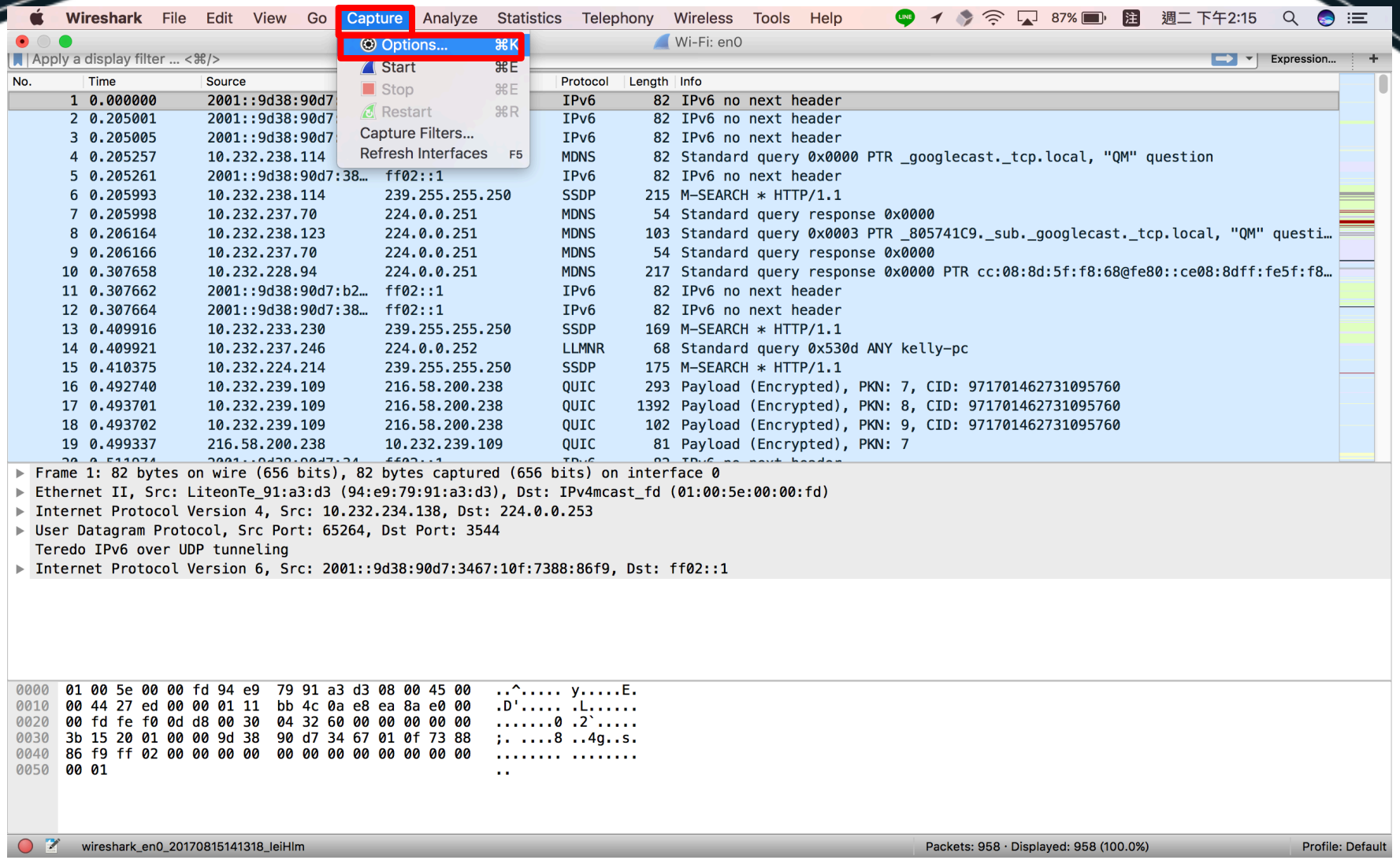



Capturing from Wi-Fi: en0
停止擷取
Apply a display filter ... <⌘/>
Expression...
No. Time Source Destination Protocol Length Info
1 0.000000 2001::9d38:90d7:34… ff02::1 IPv6 82 IPv6 no next header
2 0.205001 2001::9d38:90d7:41… ff02::1 IPv6 82 IPv6 no next header
3 0.205005 2001::9d38:90d7:10… ff02::1 IPv6 82 IPv6 no next header
4 0.205257 10.232.238.114 224.0.0.251 MDNS 82 Standard query 0x0000 PTR _googlecast._tcp.local, "Q…
5 0.205261 2001::9d38:90d7:38… ff02::1 IPv6 82 IPv6 no next header
6 0.205993 10.232.238.114 239.255.255.250 SSDP 215 M-SEARCH * HTTP/1.1
10.232.237.70 224.0.0.251 MDNS 54 Standard query response 0x0000
10.232.238.123 224.0.0.251 MDNS 103 Standard query 0x0003 PTR _805741C9._sub._googlecast…
9 0.206166 10.232.237.70 224.0.0.251 MDNS 54 Standard query response 0x0000
10 0.307658 10.232.228.94 224.0.0.251 MDNS 217 Standard query response 0x0000 PTR cc:08:8d:5f:f8:68…
11 0.307662 2001::9d38:90d7:b2… ff02::1 IPv6 82 IPv6 no next header
12 0.307664 2001::9d38:90d7:38… ff02::1 IPv6 82 IPv6 no next header
13 0.409916 10.232.233.230 239.255.255.250 SSDP 169 M-SEARCH * HTTP/1.1
14 0.409921 10.232.237.246 224.0.0.252 LLMNR 68 Standard query 0x530d ANY kelly-pc
Packet List
Ethernet II, Src: LiteonTe_91:a3:d3 (94:e9:79:91:a3:d3), Dst: IPv4mcast_fd (01:00:5e:00:00:fd)
Src Port: 65264, Dst Port: 3544
Internet Protocol Version 6, Src: 2001::9d38:90d7:3467:10f:7388:86f9, Dst: ff02::1
Packet Details
0000 01 00 5e 00 00 fd 94 e9 79 91 a3 d3 08 00 45 00 ..^..... y.....E.
0010 00 44 27 ed 00 00 01 11 bb 4c 0a e8 ea 8a e0 00 .D'..... .L......
0020 00 fd fe f0 0d d8 00 30 04 32 60 00 00 00 00 00 ....0 .2`.....
0030 3b 15 20 01 00 00 9d 38 90 d7 34 67 01 0f 73 88 ;. ....8 ..4g..s.
0040 86 f9 ff 02 00 00 00 00 00 00 00 00 00 00 00 00 ....
0050 00 01 ..
Packet Bytes
Wi-Fi: en0: <live capture in progress>
Packets: 903 · Displayed: 903 (100.0%)
Profile: Default

操作流程 -封包篩選器

- 擷取篩選器 (Capture filter)
- 顯示篩選器 (Display filter)

擷取篩選器


Wireshark File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
87% 週二 下午2:15
Options... ⌘K
Start ⌘E
Stop ⌘E
Restart ⌘R
Capture Filters...
Refresh Interfaces F5
Wi-Fi: en0
Apply a display filter ... <⌘/>
Expression...
No. Time Source Protocol Length Info
1 0.000000 2001::9d38:90d7 IPv6 82 IPv6 no next header
2 0.205001 2001::9d38:90d7 IPv6 82 IPv6 no next header
3 0.205005 2001::9d38:90d7 IPv6 82 IPv6 no next header
4 0.205257 10.232.238.114 MDNS 82 Standard query 0x0000 PTR _googlecast._tcp.local, "QM" question
5 0.205261 2001::9d38:90d7:38… ff02::1 IPv6 82 IPv6 no next header
6 0.205993 10.232.238.114 239.255.255.250 SSDP 215 M-SEARCH * HTTP/1.1
7 0.205998 10.232.237.70 224.0.0.251 MDNS 54 Standard query response 0x0000
8 0.206164 10.232.238.123 224.0.0.251 MDNS 103 Standard query 0x0003 PTR _805741C9._sub._googlecast._tcp.local, "QM" questi…
9 0.206166 10.232.237.70 224.0.0.251 MDNS 54 Standard query response 0x0000
10 0.307658 10.232.228.94 224.0.0.251 MDNS 217 Standard query response 0x0000 PTR cc:08:8d:5f:f8:68@fe80::ce08:8dff:fe5f:f8…
11 0.307662 2001::9d38:90d7:b2… ff02::1 IPv6 82 IPv6 no next header
12 0.307664 2001::9d38:90d7:38… ff02::1 IPv6 82 IPv6 no next header
13 0.409916 10.232.233.230 239.255.255.250 SSDP 169 M-SEARCH * HTTP/1.1
14 0.409921 10.232.237.246 224.0.0.252 LLMNR 68 Standard query 0x530d ANY kelly-pc
15 0.410375 10.232.224.214 239.255.255.250 SSDP 175 M-SEARCH * HTTP/1.1
16 0.492740 10.232.239.109 216.58.200.238 QUIC 293 Payload (Encrypted), PKN: 7, CID: 971701462731095760
17 0.493701 10.232.239.109 216.58.200.238 QUIC 1392 Payload (Encrypted), PKN: 8, CID: 971701462731095760
18 0.493702 10.232.239.109 216.58.200.238 QUIC 102 Payload (Encrypted), PKN: 9, CID: 971701462731095760
19 0.499337 216.58.200.238 10.232.239.109 QUIC 81 Payload (Encrypted), PKN: 7
Frame 1: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 0
Ethernet II, Src: LiteonTe_91:a3:d3 (94:e9:79:91:a3:d3), Dst: IPv4mcast_fd (01:00:5e:00:00:fd)
Internet Protocol Version 4, Src: 10.232.234.138, Dst: 224.0.0.253
User Datagram Protocol, Src Port: 65264, Dst Port: 3544
Teredo IPv6 over UDP tunneling
Internet Protocol Version 6, Src: 2001::9d38:90d7:3467:10f:7388:86f9, Dst: ff02::1
0000 01 00 5e 00 00 fd 94 e9 79 91 a3 d3 08 00 45 00 ..^..... y.....E.
0010 00 44 27 ed 00 00 01 11 bb 4c 0a e8 ea 8a e0 00 .D'..... .L......
0020 00 fd fe f0 0d d8 00 30 04 32 60 00 00 00 00 00 ....0 .2`.....
0030 3b 15 20 01 00 00 9d 38 90 d7 34 67 01 0f 73 88 ;. ....8 ..4g..s.
0040 86 f9 ff 02 00 00 00 00 00 00 00 00 00 00 00 00 ....
0050 00 01 ..
wireshark_en0_20170815141318_leiHlm
Packets: 958 · Displayed: 958 (100.0%)
Profile: Default

Wireshark · Capture Interfaces

Input | Output | Options

Interface	Traffic	Link-layer Header	Promisc	Snaplen (B)	Buffer (MB)	Mor
▶ Wi-Fi: en0		Ethernet	☑	default	2	☐
Thunderbolt Bridge: bridge0		Ethernet	☑	default	2	—
p2p0		Raw IP	☑	default	2	—
▶ awdl0		Ethernet	☑	default	2	—
▶ utun0		BSD loopback	☑	default	2	—
Thunderbolt 1: en1		Ethernet	☑	default	2	—
Thunderbolt 2: en2		Ethernet	☑	default	2	—
iPhone USB: en6		Ethernet	☑	default	2	—
▶ Loopback: lo0		BSD loopback	☑	default	2	—

☑ Enable promiscuous mode on all interfaces

Manage Interfaces...

Capture filter for selected interfaces: host 140.119.168.10 && port 21

Compile BPFs

Help

Close

Start

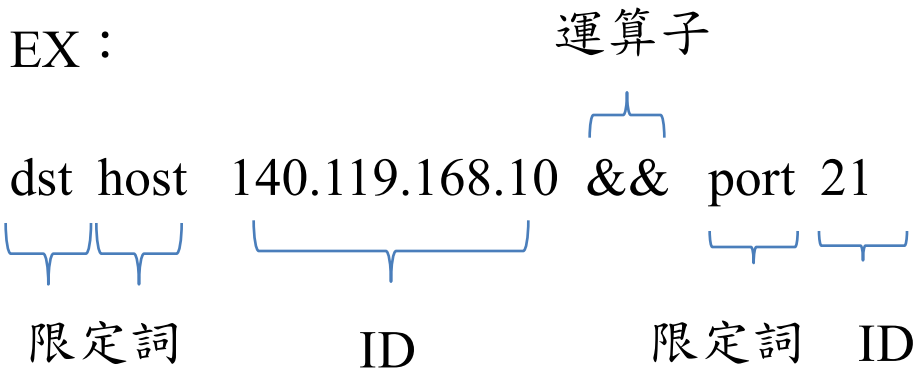
篩選語法

限定詞	說明	舉例
Type	**識別ID名稱或代號**	host, port
Dir	**指定ID名稱或代號之轉換或來的方向**	src , dst
Proto	**限制對特定協定的比對**	ip, tcp, udp, http, ftp

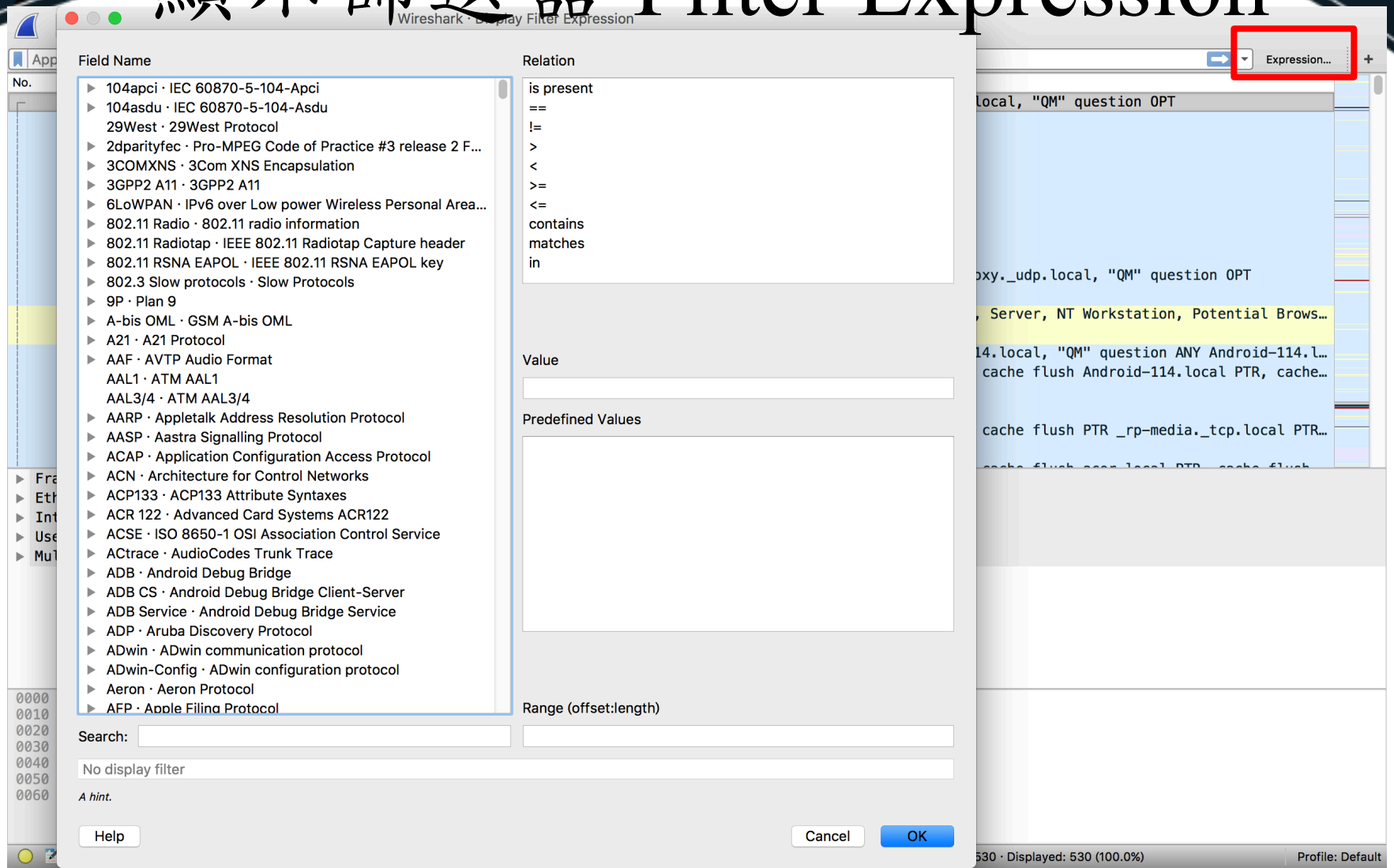
邏輯運算子

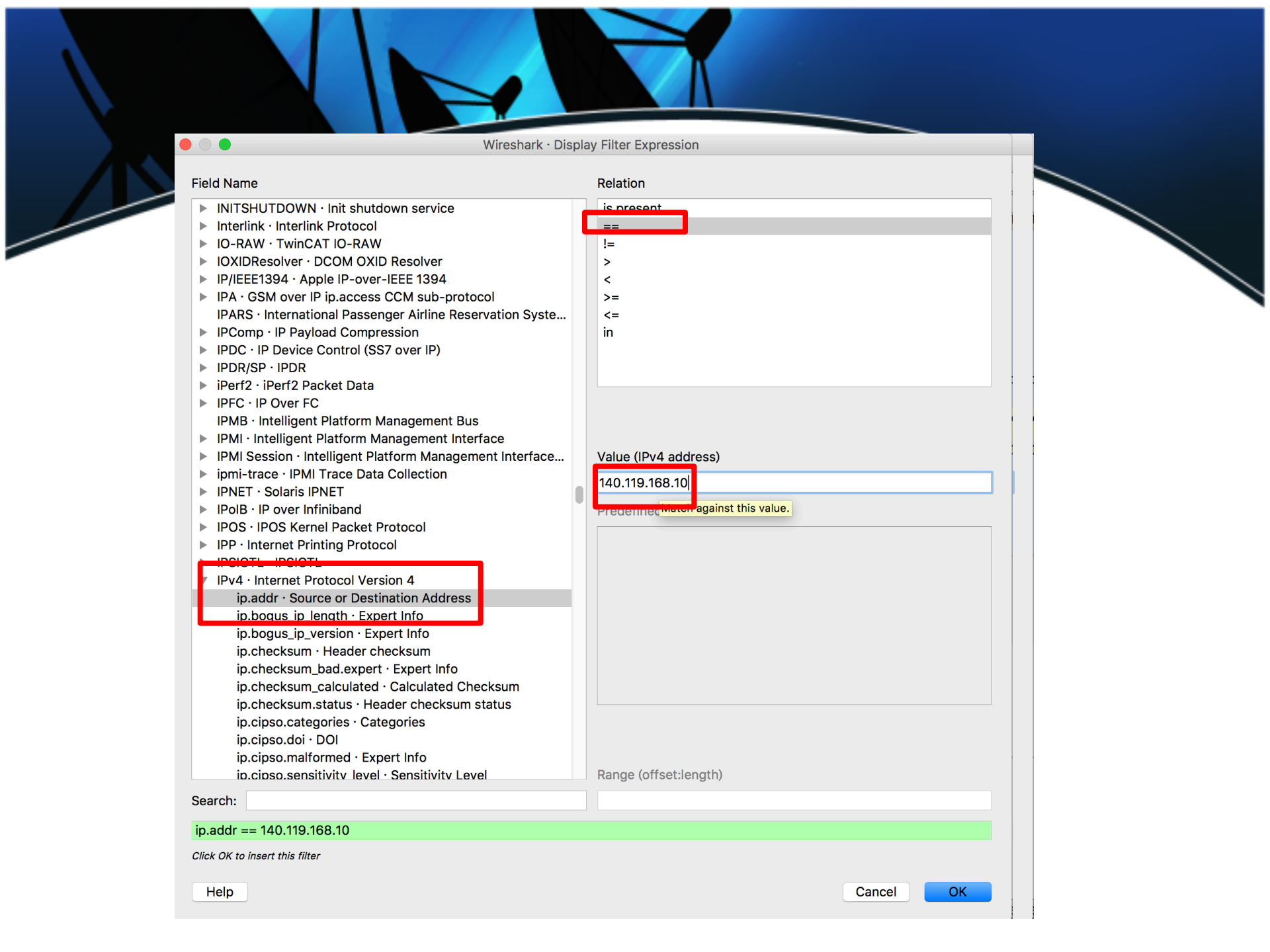
- AND 運算子 (&&)
- OR 運算子 (||)
- NOT 運算子 (!)

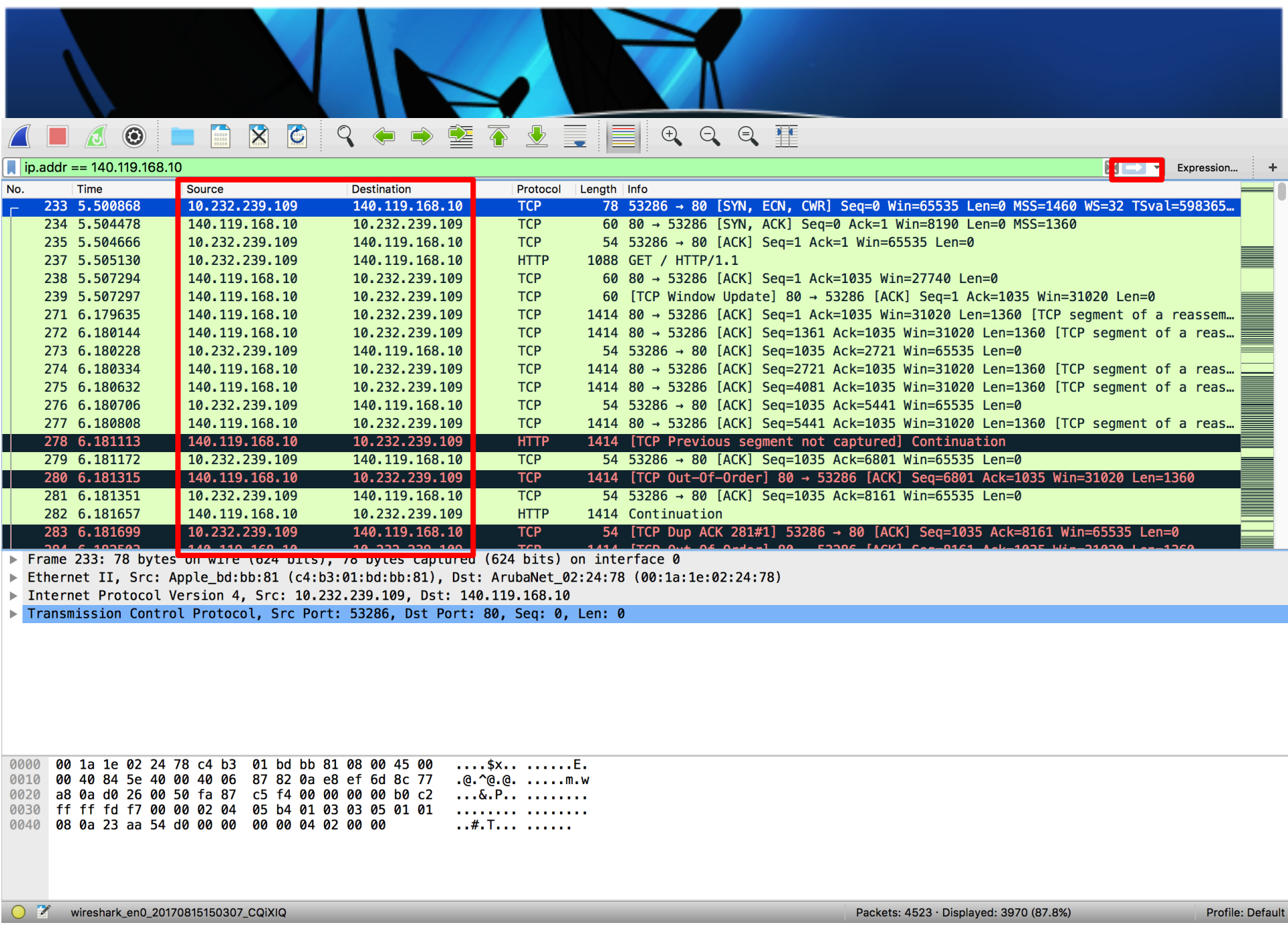
EX：



顯示篩選器 Filter Expression




Wireshark · Display Filter Expression
Field Name
Relation
INITSHUTDOWN · Init shutdown service
Interlink · Interlink Protocol
IO-RAW · TwinCAT IO-RAW
IOXIDResolver · DCOM OXID Resolver
IP/IEEE1394 · Apple IP-over-IEEE 1394
IPA · GSM over IP ip.access CCM sub-protocol
IPARS · International Passenger Airline Reservation Syste...
IPComp · IP Payload Compression
IPDC · IP Device Control (SS7 over IP)
IPDR/SP · IPDR
iPerf2 · iPerf2 Packet Data
IPFC · IP Over FC
IPMB · Intelligent Platform Management Bus
IPMI · Intelligent Platform Management Interface
IPMI Session · Intelligent Platform Management Interface...
ipmi-trace · IPMI Trace Data Collection
IPNET · Solaris IPNET
IPoIB · IP over Infiniband
IPOS · IPOS Kernel Packet Protocol
IPP · Internet Printing Protocol
IPv4 · Internet Protocol Version 4
ip.addr · Source or Destination Address
ip.bogus_ip_length · Expert Info
ip.bogus_ip_version · Expert Info
ip.checksum · Header checksum
ip.checksum_bad.expert · Expert Info
ip.checksum_calculated · Calculated Checksum
ip.checksum.status · Header checksum status
ip.cipso.categories · Categories
ip.cipso.doi · DOI
ip.cipso.malformed · Expert Info
is present
==
!=
>
<
>=
<=
in
Value (IPv4 address)
140.119.168.10
Match against this value.
Predefined
Range (offset:length)
Search:
ip.addr == 140.119.168.10
Click OK to insert this filter
Help
Cancel
OK



ip.addr == 140.119.168.10

Expression...

No.	Time	Source	Destination	Protocol	Length	Info
233	5.500868	10.232.239.109	140.119.168.10	TCP	78	53286 → 80 [SYN, ECN, CWR] Seq=0 Win=65535 Len=0 MSS=1460 WS=32 TSval=598365…
234	5.504478	140.119.168.10	10.232.239.109	TCP	60	80 → 53286 [SYN, ACK] Seq=0 Ack=1 Win=8190 Len=0 MSS=1360
235	5.504666	10.232.239.109	140.119.168.10	TCP	54	53286 → 80 [ACK] Seq=1 Ack=1 Win=65535 Len=0
237	5.505130	10.232.239.109	140.119.168.10	HTTP	1088	GET / HTTP/1.1
238	5.507294	140.119.168.10	10.232.239.109	TCP	60	80 → 53286 [ACK] Seq=1 Ack=1035 Win=27740 Len=0
239	5.507297	140.119.168.10	10.232.239.109	TCP	60	[TCP Window Update] 80 → 53286 [ACK] Seq=1 Ack=1035 Win=31020 Len=0
271	6.179635	140.119.168.10	10.232.239.109	TCP	1414	80 → 53286 [ACK] Seq=1 Ack=1035 Win=31020 Len=1360 [TCP segment of a reassem…
272	6.180144	140.119.168.10	10.232.239.109	TCP	1414	80 → 53286 [ACK] Seq=1361 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
273	6.180228	10.232.239.109	140.119.168.10	TCP	54	53286 → 80 [ACK] Seq=1035 Ack=2721 Win=65535 Len=0
274	6.180334	140.119.168.10	10.232.239.109	TCP	1414	80 → 53286 [ACK] Seq=2721 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
275	6.180632	140.119.168.10	10.232.239.109	TCP	1414	80 → 53286 [ACK] Seq=4081 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
276	6.180706	10.232.239.109	140.119.168.10	TCP	54	53286 → 80 [ACK] Seq=1035 Ack=5441 Win=65535 Len=0
277	6.180808	140.119.168.10	10.232.239.109	TCP	1414	80 → 53286 [ACK] Seq=5441 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
278	6.181113	140.119.168.10	10.232.239.109	HTTP	1414	[TCP Previous segment not captured] Continuation
279	6.181172	10.232.239.109	140.119.168.10	TCP	54	53286 → 80 [ACK] Seq=1035 Ack=6801 Win=65535 Len=0
280	6.181315	140.119.168.10	10.232.239.109	TCP	1414	[TCP Out-Of-Order] 80 → 53286 [ACK] Seq=6801 Ack=1035 Win=31020 Len=1360
281	6.181351	10.232.239.109	140.119.168.10	TCP	54	53286 → 80 [ACK] Seq=1035 Ack=8161 Win=65535 Len=0
282	6.181657	140.119.168.10	10.232.239.109	HTTP	1414	Continuation
283	6.181699	10.232.239.109	140.119.168.10	TCP	54	[TCP Dup ACK 281#1] 53286 → 80 [ACK] Seq=1035 Ack=8161 Win=65535 Len=0

▶ Frame 233: 78 bytes on wire (624 bits), 78 bytes captured (624 bits) on interface 0
▶ Ethernet II, Src: Apple_bd:bb:81 (c4:b3:01:bd:bb:81), Dst: ArubaNet_02:24:78 (00:1a:1e:02:24:78)
▶ Internet Protocol Version 4, Src: 10.232.239.109, Dst: 140.119.168.10
▶ Transmission Control Protocol, Src Port: 53286, Dst Port: 80, Seq: 0, Len: 0

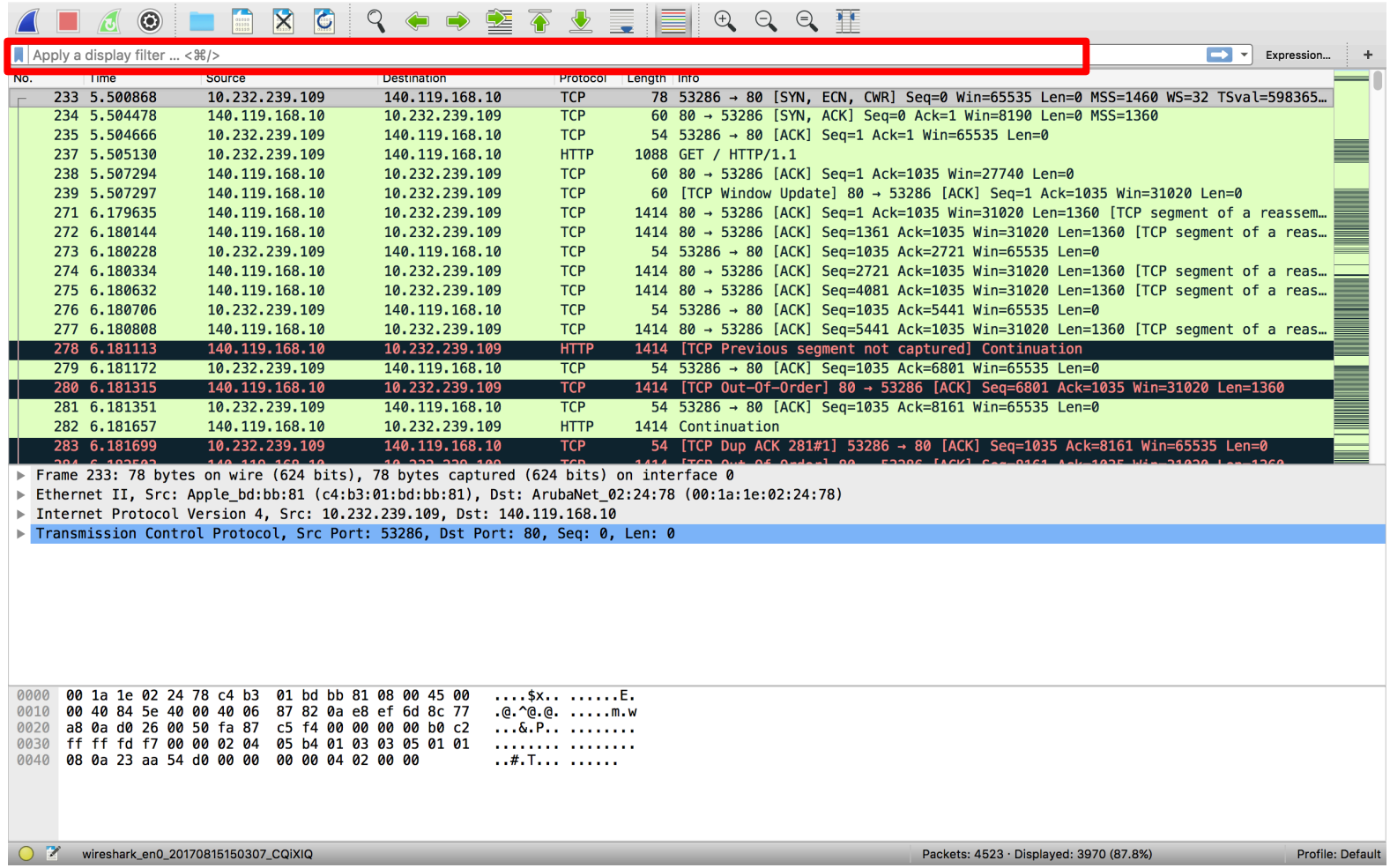
```
0000  00 1a 1e 02 24 78 c4 b3  01 bd bb 81 08 00 45 00   ....$x.. ......E.
0010  00 40 84 5e 40 00 40 06  87 82 0a e8 ef 6d 8c 77   .@.^@.@. .....m.w
0020  a8 0a d0 26 00 50 fa 87  c5 f4 00 00 00 00 b0 c2   ...&.P.. ........
0030  ff ff fd f7 00 00 02 04  05 b4 01 03 03 05 01 01   ........ ........
0040  08 0a 23 aa 54 d0 00 00  00 00 04 02 00 00         ..#.T... ......
```

wireshark_en0_20170815150307_CQiXIQ

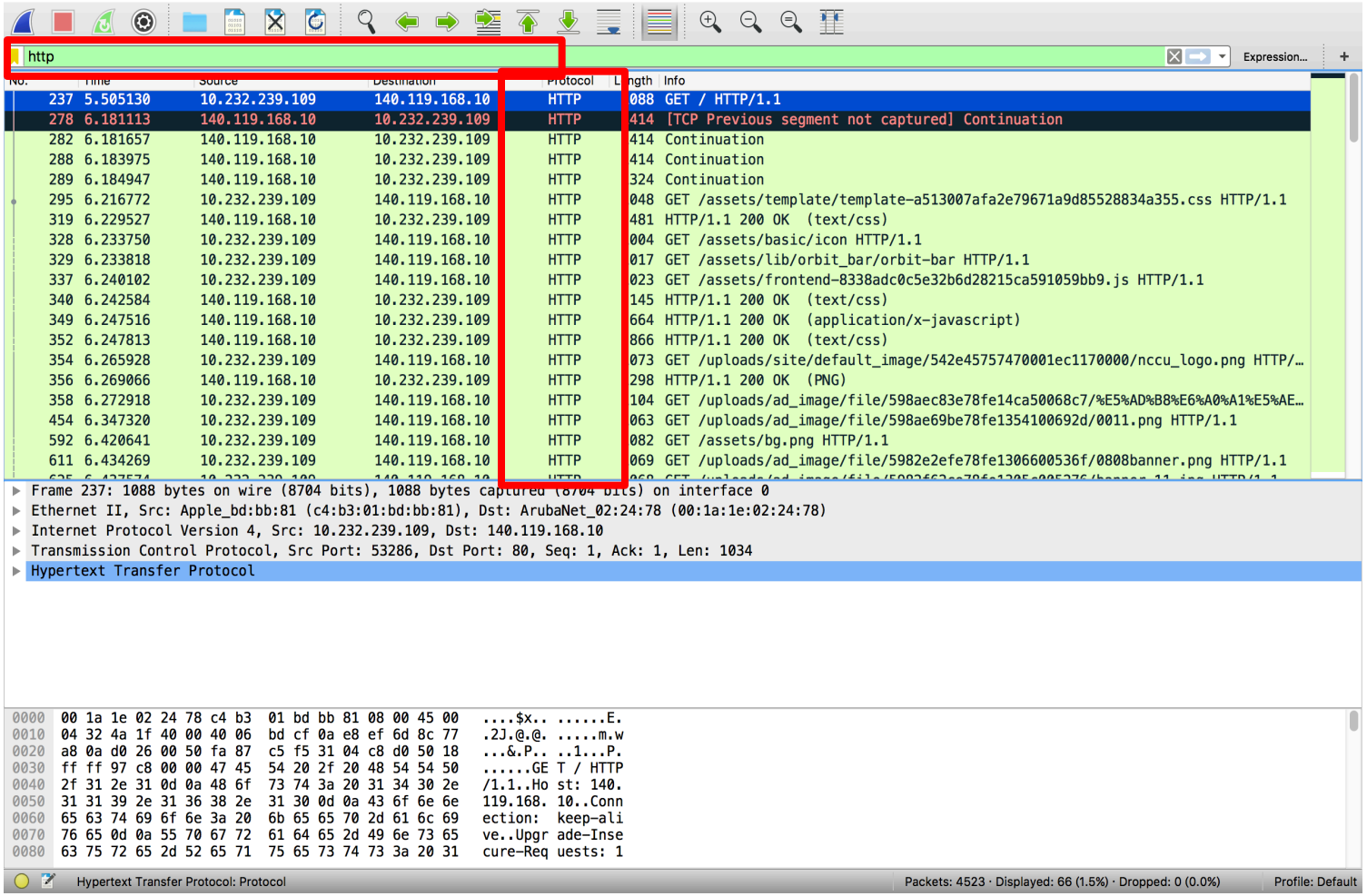
Packets: 4523 · Displayed: 3970 (87.8%)

Profile: Default

顯示篩選器

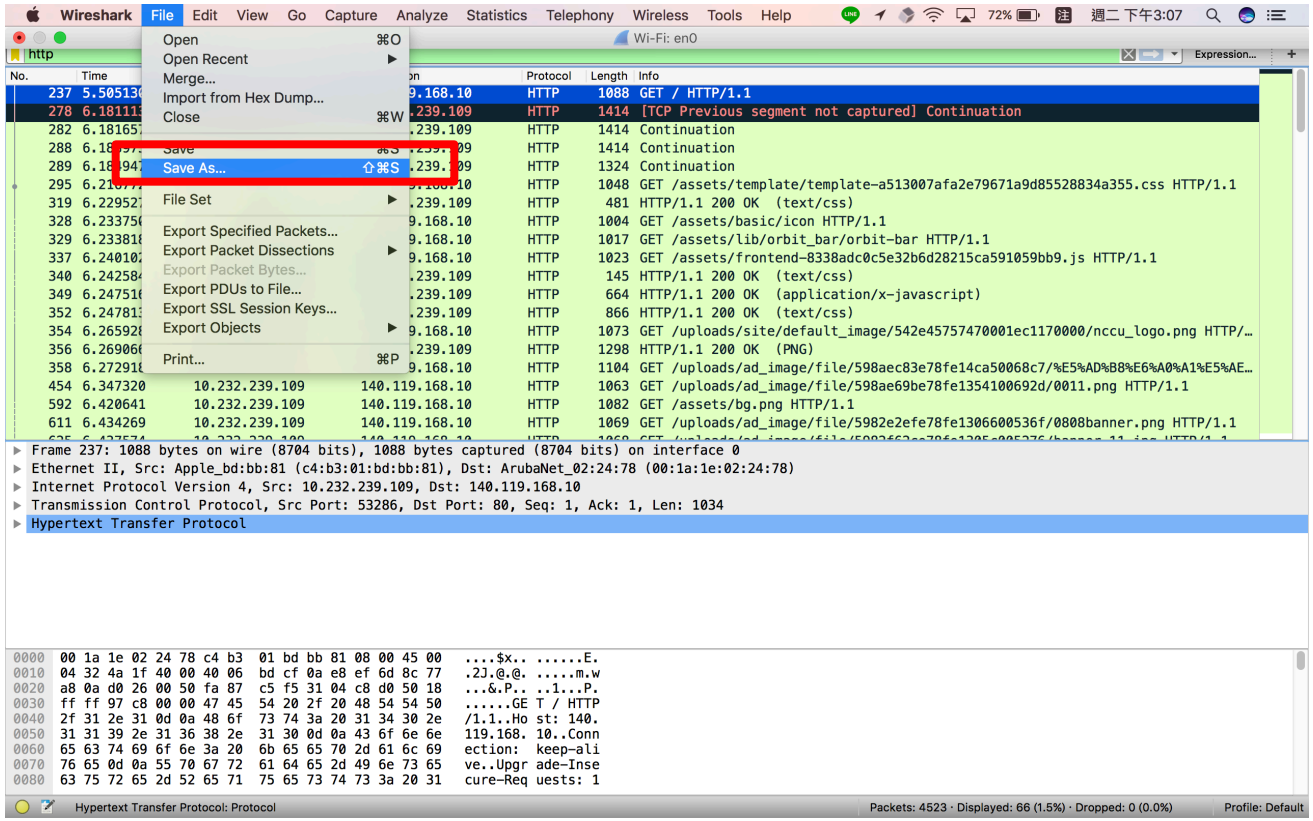

Apply a display filter ... <⌘/>
Expression...
No. Time Source Destination Protocol Length Info
233 5.500868 10.232.239.109 140.119.168.10 TCP 78 53286 → 80 [SYN, ECN, CWR] Seq=0 Win=65535 Len=0 MSS=1460 WS=32 TSval=598365…
234 5.504478 140.119.168.10 10.232.239.109 TCP 60 80 → 53286 [SYN, ACK] Seq=0 Ack=1 Win=8190 Len=0 MSS=1360
235 5.504666 10.232.239.109 140.119.168.10 TCP 54 53286 → 80 [ACK] Seq=1 Ack=1 Win=65535 Len=0
237 5.505130 10.232.239.109 140.119.168.10 HTTP 1088 GET / HTTP/1.1
238 5.507294 140.119.168.10 10.232.239.109 TCP 60 80 → 53286 [ACK] Seq=1 Ack=1035 Win=27740 Len=0
239 5.507297 140.119.168.10 10.232.239.109 TCP 60 [TCP Window Update] 80 → 53286 [ACK] Seq=1 Ack=1035 Win=31020 Len=0
271 6.179635 140.119.168.10 10.232.239.109 TCP 1414 80 → 53286 [ACK] Seq=1 Ack=1035 Win=31020 Len=1360 [TCP segment of a reassem…
272 6.180144 140.119.168.10 10.232.239.109 TCP 1414 80 → 53286 [ACK] Seq=1361 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
273 6.180228 10.232.239.109 140.119.168.10 TCP 54 53286 → 80 [ACK] Seq=1035 Ack=2721 Win=65535 Len=0
274 6.180334 140.119.168.10 10.232.239.109 TCP 1414 80 → 53286 [ACK] Seq=2721 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
275 6.180632 140.119.168.10 10.232.239.109 TCP 1414 80 → 53286 [ACK] Seq=4081 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
276 6.180706 10.232.239.109 140.119.168.10 TCP 54 53286 → 80 [ACK] Seq=1035 Ack=5441 Win=65535 Len=0
277 6.180808 140.119.168.10 10.232.239.109 TCP 1414 80 → 53286 [ACK] Seq=5441 Ack=1035 Win=31020 Len=1360 [TCP segment of a reas…
278 6.181113 140.119.168.10 10.232.239.109 HTTP 1414 [TCP Previous segment not captured] Continuation
279 6.181172 10.232.239.109 140.119.168.10 TCP 54 53286 → 80 [ACK] Seq=1035 Ack=6801 Win=65535 Len=0
280 6.181315 140.119.168.10 10.232.239.109 TCP 1414 [TCP Out-Of-Order] 80 → 53286 [ACK] Seq=6801 Ack=1035 Win=31020 Len=1360
281 6.181351 10.232.239.109 140.119.168.10 TCP 54 53286 → 80 [ACK] Seq=1035 Ack=8161 Win=65535 Len=0
282 6.181657 140.119.168.10 10.232.239.109 HTTP 1414 Continuation
283 6.181699 10.232.239.109 140.119.168.10 TCP 54 [TCP Dup ACK 281#1] 53286 → 80 [ACK] Seq=1035 Ack=8161 Win=65535 Len=0
Frame 233: 78 bytes on wire (624 bits), 78 bytes captured (624 bits) on interface 0
Ethernet II, Src: Apple_bd:bb:81 (c4:b3:01:bd:bb:81), Dst: ArubaNet_02:24:78 (00:1a:1e:02:24:78)
Internet Protocol Version 4, Src: 10.232.239.109, Dst: 140.119.168.10
Transmission Control Protocol, Src Port: 53286, Dst Port: 80, Seq: 0, Len: 0
0000 00 1a 1e 02 24 78 c4 b3 01 bd bb 81 08 00 45 00 ....$x.. ......E.
0010 00 40 84 5e 40 00 40 06 87 82 0a e8 ef 6d 8c 77 .@.^@.@. .....m.w
0020 a8 0a d0 26 00 50 fa 87 c5 f4 00 00 00 00 b0 c2 ...&.P.. ....
0030 ff ff fd f7 00 00 02 04 05 b4 01 03 03 05 01 01 ....
0040 08 0a 23 aa 54 d0 00 00 00 00 04 02 00 00 ..#.T... ......
wireshark_en0_20170815150307_CQiXIQ
Packets: 4523 · Displayed: 3970 (87.8%)
Profile: Default

顯示篩選器


http
Expression...
No. Time Source Destination Protocol Length Info
237 5.505130 10.232.239.109 140.119.168.10 HTTP 088 GET / HTTP/1.1
278 6.181113 140.119.168.10 10.232.239.109 HTTP 414 [TCP Previous segment not captured] Continuation
282 6.181657 140.119.168.10 10.232.239.109 HTTP 414 Continuation
288 6.183975 140.119.168.10 10.232.239.109 HTTP 414 Continuation
289 6.184947 140.119.168.10 10.232.239.109 HTTP 324 Continuation
295 6.216772 10.232.239.109 140.119.168.10 HTTP 048 GET /assets/template/template-a513007afa2e79671a9d85528834a355.css HTTP/1.1
319 6.229527 140.119.168.10 10.232.239.109 HTTP 481 HTTP/1.1 200 OK (text/css)
328 6.233750 10.232.239.109 140.119.168.10 HTTP 004 GET /assets/basic/icon HTTP/1.1
329 6.233818 10.232.239.109 140.119.168.10 HTTP 017 GET /assets/lib/orbit_bar/orbit-bar HTTP/1.1
337 6.240102 10.232.239.109 140.119.168.10 HTTP 023 GET /assets/frontend-8338adc0c5e32b6d28215ca591059bb9.js HTTP/1.1
340 6.242584 140.119.168.10 10.232.239.109 HTTP 145 HTTP/1.1 200 OK (text/css)
349 6.247516 140.119.168.10 10.232.239.109 HTTP 664 HTTP/1.1 200 OK (application/x-javascript)
352 6.247813 140.119.168.10 10.232.239.109 HTTP 866 HTTP/1.1 200 OK (text/css)
354 6.265928 10.232.239.109 140.119.168.10 HTTP 073 GET /uploads/site/default_image/542e45757470001ec1170000/nccu_logo.png HTTP/…
356 6.269066 140.119.168.10 10.232.239.109 HTTP 298 HTTP/1.1 200 OK (PNG)
358 6.272918 10.232.239.109 140.119.168.10 HTTP 104 GET /uploads/ad_image/file/598aec83e78fe14ca50068c7/%E5%AD%B8%E6%A0%A1%E5%AE…
454 6.347320 10.232.239.109 140.119.168.10 HTTP 063 GET /uploads/ad_image/file/598ae69be78fe1354100692d/0011.png HTTP/1.1
592 6.420641 10.232.239.109 140.119.168.10 HTTP 082 GET /assets/bg.png HTTP/1.1
611 6.434269 10.232.239.109 140.119.168.10 HTTP 069 GET /uploads/ad_image/file/5982e2efe78fe1306600536f/0808banner.png HTTP/1.1
Frame 237: 1088 bytes on wire (8704 bits), 1088 bytes captured (8704 bits) on interface 0
Ethernet II, Src: Apple_bd:bb:81 (c4:b3:01:bd:bb:81), Dst: ArubaNet_02:24:78 (00:1a:1e:02:24:78)
Internet Protocol Version 4, Src: 10.232.239.109, Dst: 140.119.168.10
Transmission Control Protocol, Src Port: 53286, Dst Port: 80, Seq: 1, Ack: 1, Len: 1034
Hypertext Transfer Protocol
0000 00 1a 1e 02 24 78 c4 b3 01 bd bb 81 08 00 45 00 ....$x.. ......E.
0010 04 32 4a 1f 40 00 40 06 bd cf 0a e8 ef 6d 8c 77 .2J.@.@. .....m.w
0020 a8 0a d0 26 00 50 fa 87 c5 f5 31 04 c8 d0 50 18 ...&.P.. ..1...P.
0030 ff ff 97 c8 00 00 47 45 54 20 2f 20 48 54 54 50 ......GE T / HTTP
0040 2f 31 2e 31 0d 0a 48 6f 73 74 3a 20 31 34 30 2e /1.1..Ho st: 140.
0050 31 31 39 2e 31 36 38 2e 31 30 0d 0a 43 6f 6e 6e 119.168. 10..Conn
0060 65 63 74 69 6f 6e 3a 20 6b 65 65 70 2d 61 6c 69 ection: keep-ali
0070 76 65 0d 0a 55 70 67 72 61 64 65 2d 49 6e 73 65 ve..Upgr ade-Inse
0080 63 75 72 65 2d 52 65 71 75 65 73 74 73 3a 20 31 cure-Req uests: 1
Hypertext Transfer Protocol: Protocol
Packets: 4523 · Displayed: 66 (1.5%) · Dropped: 0 (0.0%)
Profile: Default

封包儲存

需中斷抓取封包，才能儲存



End