

# EE110300電機資訊工程實習 實驗手冊 個人電腦系統

## 網路的真實面

### 初窺.. 偷窺?!

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# 大綱

- ◆ 網路概觀
- ◆ TCP/IP概述
- ◆ Sniffer & Tools
- ◆ 實習
- ◆ 結論

# 網路概觀

## ◆ ISO OSI Reference Model [Figure 1]

(網路七層)

## ◆ IP & TCP/UDP

### ■ 標準介面

- ◆ Open Data Structure

### ■ 傳輸機制

- ◆ Initiation
- ◆ Transmission & Retransmission
- ◆ Traffic Control
- ◆ ...

# IP & TCP/UDP (1/1)

## ◆ IP Address

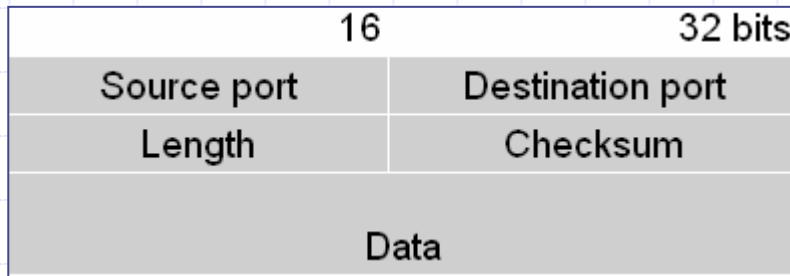
- Class A, B, C, D, E
- XXX.XXX.XXX.XXX

## ◆ IP Header Connectionless

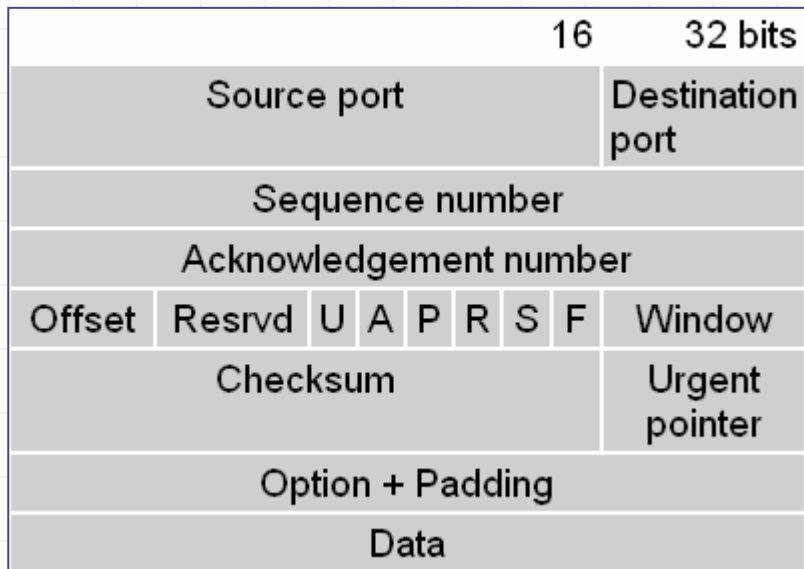
4	8	16	32 bits	
Ver.	IHL	Type of service	Total length	
Identification		Flags	Fragment offset	
Time to live	Protocol		Header checksum	
Source address				
Destination address				
Option + Padding				
Data				

# IP & TCP/UDP (2/2)

## ◆ UDP Header **Connectionless**



## ◆ TCP Header **Connection-oriented**



# Sniffer & Tools

## ◆ Sniffer

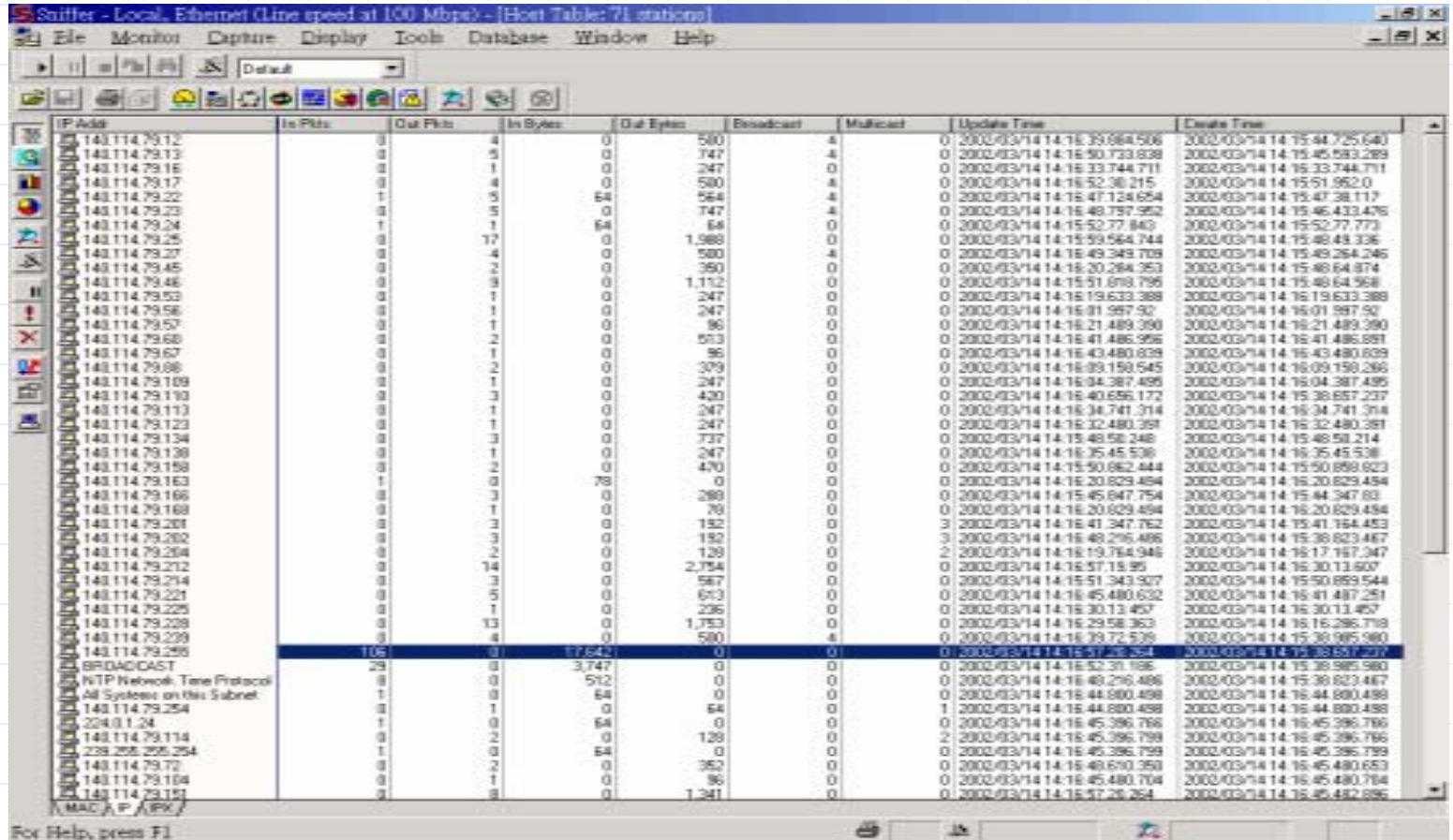
- 窺視網路 (偷窺)

## ◆ Tools

- tcpdump
- NetXRay
- Snffer Pro
- ...

# 實習

## Sniffer Pro



The screenshot displays the Sniffer Pro interface with a table of captured network traffic. The table has the following columns: IP Addr, In Pkts, Out Pkts, In Bytes, Out Bytes, Broadcast, Multicast, Update Time, and Create Time. The table lists various IP addresses and their corresponding packet and byte counts. A summary row is highlighted in blue, showing a total of 106 In Pkts, 0 Out Pkts, 17,642 In Bytes, and 0 Out Bytes. Below the table, there are sections for 'BROADCAST', 'NTP Network Time Protocol', and 'All Systems on this Subnet'.

IP Addr	In Pkts	Out Pkts	In Bytes	Out Bytes	Broadcast	Multicast	Update Time	Create Time
143.114.79.12	0	4	0	580	4	0	0 2002/03/14 14:15:39.084.506	2002/03/14 14:15:44.725.640
143.114.79.13	0	5	0	747	4	0	0 2002/03/14 14:15:50.723.838	2002/03/14 14:15:45.533.289
143.114.79.16	0	1	0	247	0	0	0 2002/03/14 14:15:33.744.711	2002/03/14 14:15:33.744.711
143.114.79.17	0	4	0	500	4	0	0 2002/03/14 14:15:52.38.215	2002/03/14 14:15:51.952.0
143.114.79.22	1	5	64	954	4	0	0 2002/03/14 14:15:47.124.654	2002/03/14 14:15:47.38.117
143.114.79.23	0	5	0	747	4	0	0 2002/03/14 14:15:48.797.952	2002/03/14 14:15:46.433.476
143.114.79.24	1	1	64	64	0	0	0 2002/03/14 14:15:52.77.840	2002/03/14 14:15:52.77.773
143.114.79.25	0	17	0	1,988	0	0	0 2002/03/14 14:15:59.564.744	2002/03/14 14:15:48.43.336
143.114.79.27	0	4	0	500	4	0	0 2002/03/14 14:15:49.349.709	2002/03/14 14:15:49.284.246
143.114.79.45	0	2	0	350	0	0	0 2002/03/14 14:15:20.284.350	2002/03/14 14:15:48.64.874
143.114.79.46	0	9	0	1,112	0	0	0 2002/03/14 14:15:51.819.798	2002/03/14 14:15:48.64.968
143.114.79.53	0	1	0	247	0	0	0 2002/03/14 14:15:19.633.388	2002/03/14 14:15:19.633.388
143.114.79.56	0	1	0	247	0	0	0 2002/03/14 14:15:01.997.92	2002/03/14 14:15:01.997.92
143.114.79.57	0	1	0	96	0	0	0 2002/03/14 14:15:21.489.390	2002/03/14 14:15:21.489.390
143.114.79.60	0	2	0	513	0	0	0 2002/03/14 14:15:41.486.996	2002/03/14 14:15:41.486.891
143.114.79.67	0	1	0	96	0	0	0 2002/03/14 14:15:43.480.839	2002/03/14 14:15:43.480.839
143.114.79.68	0	2	0	379	0	0	0 2002/03/14 14:15:09.150.545	2002/03/14 14:15:09.150.266
143.114.79.109	0	1	0	247	0	0	0 2002/03/14 14:15:04.387.495	2002/03/14 14:15:04.387.495
143.114.79.110	0	3	0	420	0	0	0 2002/03/14 14:15:40.656.172	2002/03/14 14:15:39.657.237
143.114.79.113	0	1	0	247	0	0	0 2002/03/14 14:15:34.741.314	2002/03/14 14:15:34.741.314
143.114.79.123	0	1	0	247	0	0	0 2002/03/14 14:15:32.480.391	2002/03/14 14:15:32.480.391
143.114.79.134	0	3	0	737	0	0	0 2002/03/14 14:15:45.59.348	2002/03/14 14:15:45.59.214
143.114.79.138	0	1	0	247	0	0	0 2002/03/14 14:15:35.45.536	2002/03/14 14:15:35.45.536
143.114.79.158	0	2	0	470	0	0	0 2002/03/14 14:15:50.662.444	2002/03/14 14:15:50.669.623
143.114.79.163	1	0	79	0	0	0	0 2002/03/14 14:15:20.629.494	2002/03/14 14:15:20.629.494
143.114.79.166	0	3	0	289	0	0	0 2002/03/14 14:15:45.647.754	2002/03/14 14:15:44.347.63
143.114.79.169	0	1	0	79	0	0	0 2002/03/14 14:15:20.629.494	2002/03/14 14:15:20.629.494
143.114.79.201	0	3	0	152	0	0	3 2002/03/14 14:15:41.347.762	2002/03/14 14:15:41.194.453
143.114.79.202	0	3	0	152	0	0	3 2002/03/14 14:15:48.216.486	2002/03/14 14:15:38.623.467
143.114.79.204	0	2	0	129	0	0	2 2002/03/14 14:15:19.764.946	2002/03/14 14:15:17.167.347
143.114.79.212	0	14	0	2,754	0	0	0 2002/03/14 14:15:57.15.95	2002/03/14 14:15:30.13.607
143.114.79.214	0	3	0	567	0	0	0 2002/03/14 14:15:51.343.507	2002/03/14 14:15:50.669.544
143.114.79.221	0	5	0	613	0	0	0 2002/03/14 14:15:45.480.632	2002/03/14 14:15:41.487.251
143.114.79.225	0	1	0	236	0	0	0 2002/03/14 14:15:30.13.457	2002/03/14 14:15:30.13.457
143.114.79.229	0	13	0	1,753	0	0	0 2002/03/14 14:15:29.58.363	2002/03/14 14:15:15.285.719
143.114.79.237	0	4	0	500	4	0	0 2002/03/14 14:15:39.72.539	2002/03/14 14:15:38.995.980
143.114.79.255	106	0	17,642	0	0	0	0 2002/03/14 14:15:57.26.264	2002/03/14 14:15:38.657.237
BROADCAST	29	0	3,747	0	0	0	0 2002/03/14 14:15:52.31.186	2002/03/14 14:15:38.995.980
NTP Network Time Protocol	0	0	512	0	0	0	0 2002/03/14 14:15:48.216.486	2002/03/14 14:15:38.623.467
All Systems on this Subnet	1	0	64	0	0	0	0 2002/03/14 14:15:44.880.498	2002/03/14 14:15:44.880.498
143.114.79.254	0	1	0	64	0	0	1 2002/03/14 14:15:44.880.498	2002/03/14 14:15:44.880.498
229.0.0.24	1	0	64	0	0	0	0 2002/03/14 14:15:45.396.766	2002/03/14 14:15:45.396.766
143.114.79.114	0	2	0	129	0	0	2 2002/03/14 14:15:45.396.766	2002/03/14 14:15:45.396.766
229.255.255.254	1	0	64	0	0	0	0 2002/03/14 14:15:45.396.766	2002/03/14 14:15:45.396.766
143.114.79.77	0	2	0	352	0	0	0 2002/03/14 14:15:48.630.350	2002/03/14 14:15:45.480.632
143.114.79.104	0	2	0	96	0	0	0 2002/03/14 14:15:45.480.704	2002/03/14 14:15:45.480.704
143.114.79.157	0	8	0	1,341	0	0	0 2002/03/14 14:15:57.26.264	2002/03/14 14:15:45.482.696

結論

網路不安全

# ISO OSI Reference Model

