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Title: To study the IPsec (ESP and AH) protocol by capturing the packets using Wireshark tool.

**Output:-**

## 1.IPsec(ESP) protocol by capturing packet

The image displays two screenshots of the Wireshark network protocol analyzer. The top screenshot shows a packet capture of ESP (Encapsulating Security Protocol) traffic. The packet list pane on the left shows 33 frames, all of which are ESP packets. The packet details pane on the right shows the structure of the selected packet (Frame 1), which is an Ethernet II packet containing an Internet Protocol Version 4 packet, which in turn contains an Encapsulating Security Payload (ESP) packet. The ESP packet details show the SPI (Security Parameter Index) as 0x58213a3 (2239894435) and the ESP Sequence as 600.

The bottom screenshot shows the same packet capture, but with the 'ESP SAs' (Security Associations) dialog box open. This dialog box displays the details of the Security Association for the selected packet. It shows the Protocol as IPv4, the Src IP as 192.168.0.200, the Dest IP as 192.168.0.108, the SPI as NULL, and the Encryption and Authentication keys as NULL.

No.	Time	Time delta from previo	Source	Destination	Protocol	Length	Time since previous frame in this TCP stream	Length	Dialect
1	2020-05-19 02:01:31.128	0.000000000	192.168.0.200	192.168.0.108	ESP	150			
2	2020-05-19 02:01:31.128	0.000007000	192.168.0.108	192.168.0.200	ESP	150			
3	2020-05-19 02:01:32.133	1.004976000	192.168.0.200	192.168.0.108	ESP	150			
4	2020-05-19 02:01:32.133	0.000004000	192.168.0.108	192.168.0.200	ESP	150			
5	2020-05-19 02:01:33.138	1.004905000	192.168.0.200	192.168.0.108	ESP	150			
6	2020-05-19 02:01:33.138	0.000009000	192.168.0.108	192.168.0.200	ESP	150			
7	2020-05-19 02:01:34.143	1.004684000	192.168.0.200	192.168.0.108	ESP	150			
8	2020-05-19 02:01:34.143	0.000002000	192.168.0.108	192.168.0.200	ESP	150			
9	2020-05-19 02:01:35.148	1.005075000	192.168.0.200	192.168.0.108	ESP	150			
10	2020-05-19 02:01:35.148	0.000003000	192.168.0.108	192.168.0.200	ESP	150			
12	2020-05-19 02:01:36.153	1.004863000	192.168.0.200	192.168.0.108	ESP	150			
13	2020-05-19 02:01:36.153	0.000002000	192.168.0.108	192.168.0.200	ESP	150			
15	2020-05-19 02:01:37.158	1.004901000	192.168.0.200	192.168.0.108	ESP	150			
16	2020-05-19 02:01:37.158	0.000003000	192.168.0.108	192.168.0.200	ESP	150			
17	2020-05-19 02:01:38.163	1.005038000	192.168.0.200	192.168.0.108	ESP	150			
18	2020-05-19 02:01:38.163	0.000009000	192.168.0.108	192.168.0.200	ESP	150			
19	2020-05-19 02:01:39.168	1.004694000	192.168.0.200	192.168.0.108	ESP	150			
20	2020-05-19 02:01:39.168	0.000005000	192.168.0.108	192.168.0.200	ESP	150			
21	2020-05-19 02:01:40.173	1.005011000	192.168.0.200	192.168.0.108	ESP	150			
22	2020-05-19 02:01:40.173	0.000007000	192.168.0.108	192.168.0.200	ESP	150			
25	2020-05-19 02:01:41.178	1.005058000	192.168.0.200	192.168.0.108	ESP	150			
26	2020-05-19 02:01:41.178	0.000007000	192.168.0.108	192.168.0.200	ESP	150			
29	2020-05-19 02:01:42.183	1.004868000	192.168.0.200	192.168.0.108	ESP	150			
30	2020-05-19 02:01:42.183	0.000005000	192.168.0.108	192.168.0.200	ESP	150			
33	2020-05-19 02:01:43.188	1.004905000	192.168.0.200	192.168.0.108	ESP	150			

Frame 1: 150 bytes on wire (1200 bits), 150 bytes captured (1200 bits)

Ethernet II, Src: 0a:22:4b:c1:f4 (0a:22:4b:c1:f4), Dst: e6:9b:ab:a5:db:39 (e6:9b:ab:a5:db:39)

Internet Protocol Version 4, Src: 192.168.0.200, Dst: 192.168.0.108

Encapsulating Security Payload

ESP SPI: 0x58213a3 (2239894435)

ESP Sequence: 600

ESP SAs

Protocol	Src IP	Dest IP	SPI	Encryption	Encryption Key	Authentication	Authentication Key
IPv4	192.168.0.200	192.168.0.108	NULL	NULL	NULL	NULL	NULL

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