

# HW14

1

Wireshark packet capture analysis of an Ethernet II frame. The packet list shows frame 229 at 1.405717s, 554 bytes, from HewlettP\_0e:f2:25 to Keenetic\_1e:95:c8. The packet details pane shows Ethernet II, Src: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25), Dst: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8), Type: IPv4 (0x0800). The packet bytes pane shows the raw data in hexadecimal and ASCII.

No.	Time	Source	Destination	Protocol	Length	Info
229	1.405717	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	554	IPv4
230	1.406225	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	66	IPv4
231	1.406401	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4
232	1.514995	Keenetic_6b:3c:a5	Spanning-tree-(for-...	STP	60	Conf. Root = 57344/0/52:ff:20:6b:3c:a4 Cost = 0 Por
233	1.525095	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	66	IPv4
234	1.525187	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4
235	1.575573	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	60	IPv4
236	1.576375	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
237	1.576375	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
238	1.576852	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
239	1.576852	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	535	IPv4
240	1.576852	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4

> Frame 229: 554 bytes on wire (4432 bits), 554 bytes captured (4432 bits) on interface \Device\NPF\_{45939136-950B-4A86-B5D2-5B4810D20A35}

▼ Ethernet II, Src: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25), Dst: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

- Destination: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)  
Address: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)  
.... ..0. .... = LG bit: Globally unique address (factory default)  
.... ..0. .... = IG bit: Individual address (unicast)
- Source: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)  
Address: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)  
.... ..0. .... = LG bit: Globally unique address (factory default)  
.... ..0. .... = IG bit: Individual address (unicast)

Type: IPv4 (0x0800)

> Data (540 bytes)

Offset	Hex	ASCII
0000	50 ff 20 1e 95 c8 84 a9 3e 0e f2 25 08 00 45 00	P. .... >..%..E.
0010	02 1c 42 ba 40 00 40 06 00 00 c0 a8 01 3f 80 77	..B.@.@. ....?..w
0020	f5 0c c9 b4 00 50 3f 45 9d 76 bd b0 dc 38 50 18	.....P?E ..v...8P.
0030	04 02 39 7a 00 00 47 45 54 20 2f 77 69 72 65 73	..9z..GE T /wires

wireshark\_EthernetFA7XM1.pcapng | Пакеты: 298 · Показаны: 298 (100.0%) · Потеряно: 0 (0.0%) | Профиль: Default

1) 84:a9:3e:0e:f2:25

2) HewlettP\_0e:f2:25

\*Ethernet

Файл Редактирование Просмотр Запуск Захват Анализ Статистика Телефония Беспроводной Инструменты Помощь

Применить дисплейный фильтр ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
229	1.405717	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	554	IPv4
230	1.406225	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	66	IPv4
231	1.406401	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4
232	1.514995	Keenetic_6b:3c:a5	Spanning-tree-(for-...	STP	60	Conf. Root = 57344/0/52:ff:20:6b:3c:a4 Cost = 0 Por
233	1.525095	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	66	IPv4
234	1.525187	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4
235	1.575573	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	60	IPv4
236	1.576375	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
237	1.576375	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
238	1.576852	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	1514	IPv4
239	1.576852	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	535	IPv4
240	1.576852	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	54	IPv4

> Frame 239: 535 bytes on wire (4280 bits), 535 bytes captured (4280 bits) on interface \Device\NPF\_{45939136-950B-4A86-B5D2-5B4810D20A35}

▼ Ethernet II, Src: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8), Dst: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)

▼ Destination: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)

Address: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)

....0. .... = LG bit: Globally unique address (factory default)

....0. .... = IG bit: Individual address (unicast)

▼ Source: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

Address: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

....0. .... = LG bit: Globally unique address (factory default)

....0. .... = IG bit: Individual address (unicast)

Type: IPv4 (0x0800)

> Data (521 bytes)

```

0000  84 a9 3e 0e f2 25 50 ff 20 1e 95 c8 08 00 45 00  ..>..%P. ...E.
0010  02 09 2e 04 40 00 24 06 ef 7f 80 77 f5 0c c0 a8  ..@.$ ...w...
0020  01 3f 00 50 c9 b4 bd b0 ed 54 3f 45 9f 6a 50 18  .?P....T?E.jP.
0030  00 ed 06 f8 00 00 68 6d 65 6e 74 73 20 69 6e 66  .....hm ents inf

```

Source Hardware Address (eth.src), 6 byte(s) | Пакеты: 298 · Показаны: 298 (100.0%) · Потеряно: 0 (0.0%) | Профиль: Default

- 3) Source: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8) (в скобках адрес, до этого устройство)
- 4) Destination: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25) (адрес моего компьютера)

\*Ethernet

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Применить дисплейный фильтр ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
288	2.775182	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	389	IPv4
289	2.783191	HewlettP_0e:f2:25	Keenetic_1e:95:c8	0x0800	188	IPv4
290	2.785496	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	60	IPv4
291	3.112662	HP_f2:9c:bd	IPv4mcast_40:98:8f	0x0800	161	IPv4
292	3.160328	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.113? Tell 192.168.1.1
293	3.160328	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.114? Tell 192.168.1.1
294	3.160428	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.115? Tell 192.168.1.1
295	3.241065	Keenetic_1e:95:c8	Spanning-tree-(for-...	STP	60	Conf. Root = 32768/0/50:ff:20:1e:95:c8 Cost = 0 Port
296	3.368850	Keenetic_1e:95:c8	HewlettP_0e:f2:25	ARP	60	Who has 192.168.1.63? Tell 192.168.1.1
297	3.368861	HewlettP_0e:f2:25	Keenetic_1e:95:c8	ARP	42	192.168.1.63 is at 84:a9:3e:0e:f2:25
298	3.465411	Keenetic_6b:3c:a5	Broadcast	LLDP	283	MA/50:ff:20:6b:3c:a5 IN/Bridge0 120 SysN=Extra SysD=K

> Frame 294: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface \Device\NPF\_{45939136-950B-4A86-B5D2-5B4810D20A35}, id

▼ Ethernet II, Src: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8), Dst: Broadcast (ff:ff:ff:ff:ff:ff)

▼ Destination: Broadcast (ff:ff:ff:ff:ff:ff)

Address: Broadcast (ff:ff:ff:ff:ff:ff)

....1. .... = LG bit: Locally administered address (this is NOT the factory default)

....1. .... = IG bit: Group address (multicast/broadcast)

▼ Source: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

Address: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

....0. .... = LG bit: Globally unique address (factory default)

....0. .... = IG bit: Individual address (unicast)

Type: ARP (0x0806)

> Trailer: 00000000000000000000000000000000e7ef771b

> Address Resolution Protocol (request)

```

0000  ff ff ff ff ff ff 50 ff 20 1e 95 c8 08 06 00 01  ....P. ....
0010  08 00 06 04 00 01 50 ff 20 1e 95 c8 c0 a8 01 01  ....P. ....
0020  00 00 00 00 00 00 c0 a8 01 73 00 00 00 00 00 00  ....s....
0030  00 00 00 00 00 00 00 00 e7 ef 77 1b             ....w

```

Destination Hardware Address (eth.dst), 6 byte(s)

Пакеты: 298 · Показаны: 298 (100.0%) · Потеряно: 0 (0.0%) | Профиль: Default

1) Src: 50:ff:20:1e:95:c8, Dst: ff:ff:ff:ff:ff:ff

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Применить дисплейный фильтр ... <Ctrl-/>

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291	3.112662	HP_f2:9c:bd	IPv4mcast_40:98:8f	0x0800	161	IPv4
292	3.160328	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.113? Tell 192.168.1.1
293	3.160328	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.114? Tell 192.168.1.1
294	3.160428	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.115? Tell 192.168.1.1
295	3.241065	Keenetic_1e:95:c8	Spanning-tree-(for-...	STP	60	Conf. Root = 32768/0/50:ff:20:1e:95:c8 Cost = 0 Port
296	3.368850	Keenetic_1e:95:c8	HewlettP_0e:f2:25	ARP	60	Who has 192.168.1.63? Tell 192.168.1.1
297	3.368861	HewlettP_0e:f2:25	Keenetic_1e:95:c8	ARP	42	192.168.1.63 is at 84:a9:3e:0e:f2:25
298	3.465411	Keenetic_6b:3c:a5	Broadcast	LLDP	283	MA/50:ff:20:6b:3c:a5 IN/Bridge0 120 SysN=Extra SysD=K

....0.... = IG bit: Individual address (unicast)

Type: ARP (0x0806)

> Trailer: 000000000000000000000000e7ef771b

▼ Address Resolution Protocol (request)

Hardware type: Ethernet (1)

Protocol type: IPv4 (0x0800)

Hardware size: 6

Protocol size: 4

Opcode: request (1)

Sender MAC address: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)

Sender IP address: 192.168.1.1

Target MAC address: 00:00:00\_00:00:00 (00:00:00:00:00:00)

Target IP address: 192.168.1.115

0000	ff ff ff ff ff ff 50 ff	20 1e 95 c8 08 06 00 01	.....P.....
0010	08 00 06 04 00 01 50 ff	20 1e 95 c8 c0 a8 01 01	.....P... ..
0020	00 00 00 00 00 00 c0 a8	01 73 00 00 00 00 00 00	.....S.....
0030	00 00 00 00 00 00 00 00	e7 ef 77 1b	.....W

Sender IP address (arp.src.proto\_ipv4), 4 byte(s)

Пакеты: 298 · Показаны: 298 (100.0%) · Потеряно: 0 (0.0%) | Профиль: Default

2) Sender IP address: 192.168.1.1

3) Target MAC address: 00:00:00\_00:00:00 (00:00:00:00:00:00)

\*Ethernet

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290	2.785496	Keenetic_1e:95:c8	HewlettP_0e:f2:25	0x0800	60	IPv4
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292	3.160328	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.113? Tell 192.168.1.1
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294	3.160428	Keenetic_1e:95:c8	Broadcast	ARP	60	Who has 192.168.1.115? Tell 192.168.1.1
295	3.241065	Keenetic_1e:95:c8	Spanning-tree-(for-...	STP	60	Conf. Root = 32768/0/50:ff:20:1e:95:c8 Cost = 0 Port
296	3.368850	Keenetic_1e:95:c8	HewlettP_0e:f2:25	ARP	60	Who has 192.168.1.63? Tell 192.168.1.1
297	3.368861	HewlettP_0e:f2:25	Keenetic_1e:95:c8	ARP	42	192.168.1.63 is at 84:a9:3e:0e:f2:25
298	3.465411	Keenetic_6b:3c:a5	Broadcast	LLDP	283	MA/50:ff:20:6b:3c:a5 IN/Bridge0 120 SysN=Extra SysD=K

.... ..0. .... = LG bit: Globally unique address (factory default)  
 .... ..0. .... = IG bit: Individual address (unicast)

Type: ARP (0x0806)

▼ Address Resolution Protocol (reply)

Hardware type: Ethernet (1)  
 Protocol type: IPv4 (0x0800)  
 Hardware size: 6  
 Protocol size: 4  
 Opcode: reply (2)  
 Sender MAC address: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)  
 Sender IP address: 192.168.1.63  
 Target MAC address: Keenetic\_1e:95:c8 (50:ff:20:1e:95:c8)  
 Target IP address: 192.168.1.1

```

0000  50 ff 20 1e 95 c8 84 a9 3e 0e f2 25 08 06 00 01  P> ..... >...%....
0010  08 00 06 04 00 02 84 a9 3e 0e f2 25 c0 a8 01 3f  .....>...%...?
0020  50 ff 20 1e 95 c8 c0 a8 01 01  P> .....
  
```

Sender MAC address (arp.src.hw\_mac), 6 byte(s) | Пакеты: 298 · Показаны: 298 (100.0%) · Потеряно: 0 (0.0%) | Профиль: Default

4) Sender MAC address: HewlettP\_0e:f2:25 (84:a9:3e:0e:f2:25)