

1.

00:d0:59:a9:3d:68 → AmbitMic

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 Win=5840 Len=0
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 Win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 Win=64240 Len=686
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 Win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 Win=6952 Len=1514
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 Win=6952 Len=1514
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 Win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 Win=6952 Len=1514
16	17.527422	128.119.245.12	192.168.1.105	TCP	489	80-1058 [PSH, ACK] Seq=4381 Ack=633 Win=6952 Len=489
17	17.527457	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=4816 Win=64240 Len=0

- Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits)
- Ethernet II, Src: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68), 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: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
.... ..0. = LG bit: Globally unique address (factory default)
.... ..0. = IG bit: Individual address (unicast)
- Type: ARP (0x0806)
- Address Resolution Protocol (request)

2. 00:06:25:da:af:73 → The Linksys Router

3. 0x800

4. 686 - 632 = 54

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	489	80-1058 [PSH, ACK] Seq=4381 Ack=633 win=6952 Len=435
17	17.527457	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=4816 win=64240 Len=0

Frame 10: 686 bytes on wire (5488 bits), 686 bytes captured (5488 bits)
Ethernet II, Src: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Destination: LinksysG_da:af:73 (00:06:25:da:af:73)
Address: LinksysG_da:af:73 (00:06:25:da:af:73)
...0... = LG bit: Globally unique address (factory default)
...0... = IG bit: Individual address (unicast)
Source: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
...0... = LG bit: Globally unique address (factory default)
...0... = IG bit: Individual address (unicast)
Type: IP (0x0800)
Internet Protocol Version 4, Src: 192.168.1.105 (192.168.1.105), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: 1058 (1058), Dst Port: 80 (80), Seq: 1, Ack: 1, Len: 632
Source Port: 1058 (1058)
Destination Port: 80 (80)
[Stream index: 1]
[TCP Segment Len: 632]
Sequence number: 1 (relative sequence number)
[Next sequence number: 633 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)
Header Length: 20 bytes
... 0000 0001 1000 = Flags: 0x018 (PSH, ACK)
window size value: 64240
[calculated window size: 64240]
[window size scaling factor: -2 (no window scaling used)]
Checksum: 0x7e4f [validation disabled]
[Good checksum: False]
[Bad checksum: False]
Urgent pointer: 0
[SEQ/ACK analysis]
Data (632 bytes)
Data: 474554202f657468657265616c2d6c6162732f485454502d...
[Length: 632]

5. 00:06:25:da:af:73 → The Linksys Router
6. 00:d0:59:a9:3d:68 → AmbitMic
7. 0x800, it corresponds to the IP
8. It appears at 66 bytes

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460 SACK_PERM=1
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	489	80-1058 [PSH, ACK] Seq=4381 Ack=633 win=6952 Len=435
17	17.527457	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=4816 win=64240 Len=0

[coloring Rule Name: HTTP]
[coloring Rule String: http || tcp.port == 80 || http2]

Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Destination: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
.... ..0. = LG bit: Globally unique address (factory default)
.... ..0. = IG bit: Individual address (unicast)

Source: LinksysG_da:af:73 (00:06:25:da:af:73)
Address: LinksysG_da:af:73 (00:06:25:da:af:73)
.... ..0. = LG bit: Globally unique address (factory default)
.... ..0. = IG bit: Individual address (unicast)

Type: IP (0x0800)

Internet Protocol Version 4, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.105 (192.168.1.105)

Transmission Control Protocol, Src Port: 80 (80), Dst Port: 1058 (1058), Seq: 1, Ack: 633, Len: 1460

Source Port: 80 (80)
Destination Port: 1058 (1058)
[Stream index: 1]
[TCP Segment Len: 1460]
Sequence number: 1 (relative sequence number)
[Next sequence number: 1461 (relative sequence number)]
Acknowledgment number: 633 (relative ack number)
Header Length: 20 bytes

.... 0000 0001 0000 = Flags: 0x010 (ACK)
window size value: 6952
[calculated window size: 6952]
[window size scaling factor: -2 (no window scaling used)]

Checksum: 0x5ed0 [validation disabled]
[Good checksum: False]
[Bad checksum: False]
urgent pointer: 0

[SEQ/ACK analysis]

Data (1460 bytes)

Data: 485454502f312e3120323030204f4b0d0a446174653a2053...
[Length: 1460]

0030 1b 28 5e d0 00 00 48 54 54 50 2f 31 2e 31 20 32 .(A HT TP/1.1 2
0040 30 30 20 4f 4b 0d 0a 44 61 74 65 3a 20 53 61 74 00 30 .D ate: Sat
0050 2c 20 32 38 20 41 75 67 20 32 30 30 34 20 31 37 , 28 Aug 2004 17
0060 3a 31 39 3a 33 37 20 47 4d 54 0d 0a 53 65 72 76 :19:37 G MT..serv
0070 65 72 3a 20 41 70 61 63 68 65 2f 32 2e 30 2e 34 er: Apac he/2.0.4
0080 30 20 28 52 65 64 20 48 61 74 20 4c 69 6e 75 78 0 (Red H at Linux
0090 29 0d 0a 4c 61 73 74 2d 4d 6f 64 69 66 69 65 64)..Last- Modified

9.

The left:

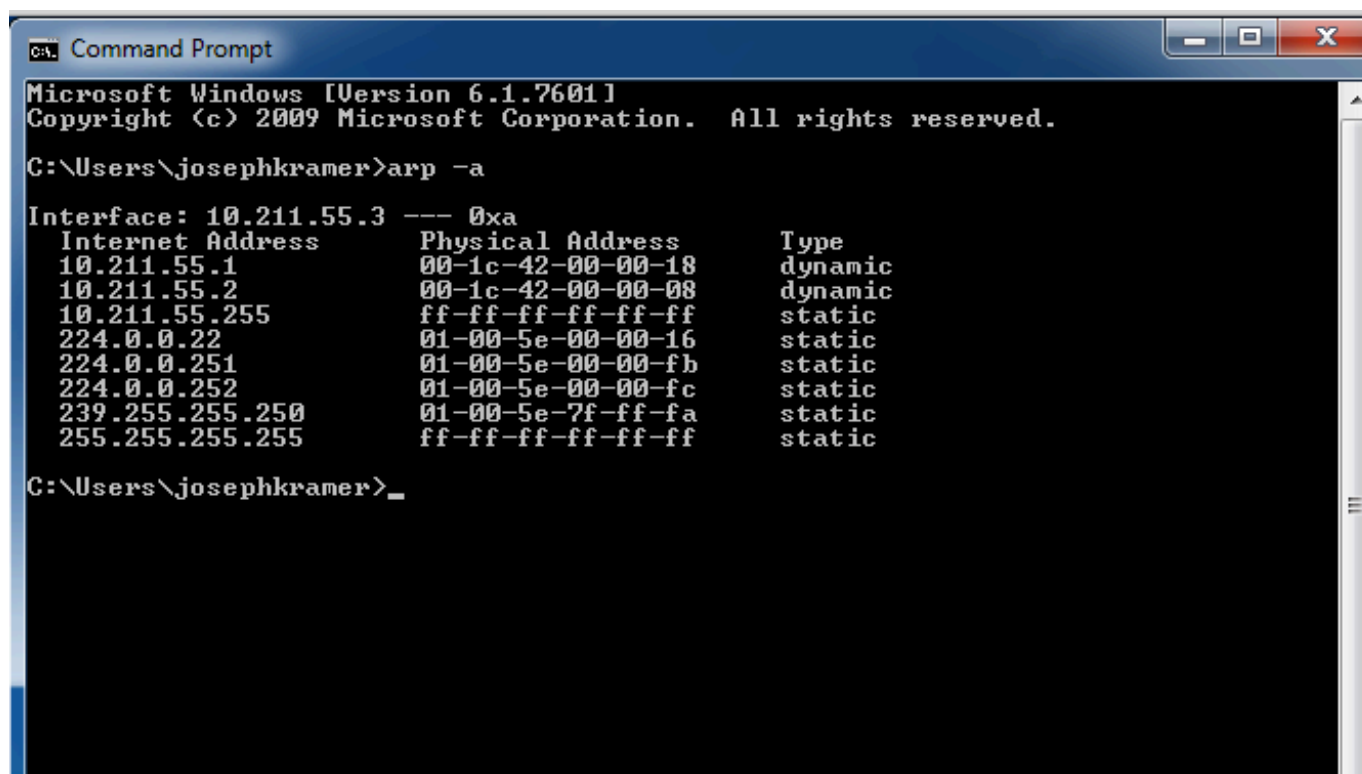
Header: Internet Address
Contains: IP Address

The Middle:

Header: Physical Address
Contains: MAC Address

The Right:

Header: Type
Contains: Protocol Type



```
C:\> Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\josephkramer>arp -a

Interface: 10.211.55.3 --- 0xa
Internet Address      Physical Address      Type
10.211.55.1           00-1c-42-00-00-18     dynamic
10.211.55.2           00-1c-42-00-00-08     dynamic
10.211.55.255         ff-ff-ff-ff-ff-ff     static
224.0.0.22            01-00-5e-00-00-16     static
224.0.0.251           01-00-5e-00-00-fb     static
224.0.0.252           01-00-5e-00-00-fc     static
239.255.255.250       01-00-5e-7f-ff-fa     static
255.255.255.255       ff-ff-ff-ff-ff-ff     static

C:\Users\josephkramer>_
```

10.

Source → 00:d0:59:a9:3d:68

Destination → ff:ff:ff:ff:ff:ff

11.0x0806. This is the ARP state.

The image shows a Wireshark packet capture interface. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Tools, Internals, and Help. Below the menu is a toolbar with various icons for packet analysis. A filter bar is present with a dropdown menu and buttons for Expression..., Clear, Apply, and Save.

The packet list table shows the following entries:

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460 SACK_PERM=1
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	489	80-1058 [PSH, ACK] Seq=4381 Ack=633 win=6952 Len=435
17	17.527457	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=4816 win=64240 Len=0

The packet details pane shows the following information for Frame 1:

- Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits)
- Ethernet II, Src: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68), 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: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
 - Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)
 -0. = LG bit: Globally unique address (factory default)
 -0 = IG bit: Individual address (unicast)
 - Type: ARP (0x0806)
- Address Resolution Protocol (request)

a. 20 bytes from the very beginning

c. Yes, 192.168.1.105

13.

b. 2

c. It appears in the previously blank target MAC address field. This is the senders MAC address, because this is a reply to the broadcast request. . That is the router MAC address of 00:06:25:da:af:73

Filter:

Expression...

Clear

Apply

Save

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460 SACK_PERM=1
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	480	80-1058 [PSH, ACK] Seq=4281 Ack=633 win=6952 Len=425

Frame 2: 60 bytes on wire (480 bits), 60 bytes captured (480 bits)

Encapsulation type: Ethernet (1)

Arrival Time: Aug 28, 2004 10:19:20.158148000 Pacific Daylight Time

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1093713560.158148000 seconds

[Time delta from previous captured frame: 0.001018000 seconds]

[Time delta from previous displayed frame: 0.001018000 seconds]

[Time since reference or first frame: 0.001018000 seconds]

Frame Number: 2

Frame Length: 60 bytes (480 bits)

Capture Length: 60 bytes (480 bits)

[Frame is marked: False]

[Frame is ignored: False]

[Protocols in frame: eth:ethertype:arp]

[Coloring Rule Name: ARP]

[Coloring Rule String: arp]

Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Destination: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

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

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

Source: LinksysG_da:af:73 (00:06:25:da:af:73)

Address: LinksysG_da:af:73 (00:06:25:da:af:73)

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

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

Type: ARP (0x0806)

Padding: 00000000000000000000000000000000

Address Resolution Protocol (reply)

Hardware type: Ethernet (1)

Protocol type: IP (0x0800)

Hardware size: 6

Protocol size: 4

Opcode: reply (2)

Sender MAC address: LinksysG_da:af:73 (00:06:25:da:af:73)

Sender IP address: 192.168.1.1 (192.168.1.1)

Target MAC address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Target IP address: 192.168.1.105 (192.168.1.105)

0000	00 d0 59 a9 3d 68 00 06 25 da af 73 08 06 00 01	..Y.=h..%.s....
0010	08 00 06 04 00 06 25 da af 73 c0 a8 01 01	...%.s....
0020	00 d0 59 a9 3d 68 c0 a8 01 69 00 00 00 00 00	..Y.=h..%.s....
0030	00 00 00 00 00 00 00 00 00 00 00 00 00 00

14.

Source: 00:06:25:da:af:73 → The Linksys Router

Dest: 00:d0:59:a9:3d:68 → AmbitMic

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460 SACK_PERM=1
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	480	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1435

Frame 2: 60 bytes on wire (480 bits), 60 bytes captured (480 bits)

Encapsulation type: Ethernet (1)

Arrival Time: Aug 28, 2004 10:19:20.158148000 Pacific Daylight Time

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1093713560.158148000 seconds

[Time delta from previous captured frame: 0.001018000 seconds]

[Time delta from previous displayed frame: 0.001018000 seconds]

[Time since reference or first frame: 0.001018000 seconds]

Frame Number: 2

Frame Length: 60 bytes (480 bits)

Capture Length: 60 bytes (480 bits)

[Frame is marked: False]

[Frame is ignored: False]

[Protocols in frame: eth:ethertype:arp]

[Coloring Rule Name: ARP]

[Coloring Rule String: arp]

Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Destination: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

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

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

Source: LinksysG_da:af:73 (00:06:25:da:af:73)

Address: LinksysG_da:af:73 (00:06:25:da:af:73)

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

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

Type: ARP (0x0806)

Padding: 00000000000000000000000000000000

Address Resolution Protocol (reply)

Hardware type: Ethernet (1)

Protocol type: IP (0x0800)

Hardware size: 6

Protocol size: 4

opcode: reply (2)

Sender MAC address: LinksysG_da:af:73 (00:06:25:da:af:73)

Sender IP address: 192.168.1.1 (192.168.1.1)

Target MAC address: AmbitMic_a9:3d:68 (00:d0:59:a9:3d:68)

Target IP address: 192.168.1.105 (192.168.1.105)

```

0000 00 d0 59 a9 3d 68 00 06 25 da af 73 08 06 00 01  ..Y.=h..%.s...
0010 08 00 06 04 00 02 00 06 25 da af 73 c0 a8 01 01  ....%.s...
0020 00 d0 59 a9 3d 68 c0 a8 01 69 00 00 00 00 00 00  ..Y.=h..i.....
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
```

15.

This does not need to be rediscovered, because it is an IP address in the same subnet as the router, which has already been mapped in the ARP table.

The image shows a Wireshark packet capture analysis. The top pane displays a list of network packets. Packet 6 is selected, showing an ARP request from 192.168.1.104 to 192.168.1.117. The bottom pane shows the detailed structure of this packet, including Ethernet II, ARP, and Address Resolution Protocol (request) fields. The Ethernet II field shows the source MAC address as Telebit_73:8d:ce and the destination as Broadcast (ff:ff:ff:ff:ff:ff). The ARP field shows the sender IP as 192.168.1.104 and the target IP as 192.168.1.117. The bottom pane also displays the raw packet data in hexadecimal and ASCII format.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	AmbitMic_a9:3d:68	Broadcast	ARP	42	who has 192.168.1.1? Tell 192.168.1.105
2	0.001018	LinksysG_da:af:73	AmbitMic_a9:3d:68	ARP	60	192.168.1.1 is at 00:06:25:da:af:73
3	0.001028	192.168.1.105	199.2.53.206	TCP	62	1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
4	2.962850	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
5	8.971488	192.168.1.105	199.2.53.206	TCP	62	[TCP Retransmission] 1057-631 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
6	13.542974	Telebit_73:8d:ce	Broadcast	ARP	60	who has 192.168.1.117? Tell 192.168.1.104
7	17.444423	192.168.1.105	128.119.245.12	TCP	62	1058-80 [SYN] Seq=0 win=64240 Len=0 MSS=1460 SACK_PERM=1
8	17.465902	128.119.245.12	192.168.1.105	TCP	62	80-1058 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1460 SACK_PERM=1
9	17.465927	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=1 Ack=1 win=64240 Len=0
10	17.466468	192.168.1.105	128.119.245.12	TCP	686	1058-80 [PSH, ACK] Seq=1 Ack=1 win=64240 Len=632
11	17.494766	128.119.245.12	192.168.1.105	TCP	60	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=0
12	17.498935	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1 Ack=633 win=6952 Len=1460
13	17.500025	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=1461 Ack=633 win=6952 Len=1460
14	17.500069	192.168.1.105	128.119.245.12	TCP	54	1058-80 [ACK] Seq=633 Ack=2921 win=64240 Len=0
15	17.527057	128.119.245.12	192.168.1.105	TCP	1514	80-1058 [ACK] Seq=2921 Ack=633 win=6952 Len=1460
16	17.527422	128.119.245.12	192.168.1.105	TCP	480	80-1058 [ACK] Seq=4281 Ack=633 win=6952 Len=125

Frame 6: 60 bytes on wire (480 bits), 60 bytes captured (480 bits)

Encapsulation type: Ethernet (1)

Arrival Time: Aug 28, 2004 10:19:33.700104000 Pacific Daylight Time

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1093713573.700104000 seconds

[Time delta from previous captured frame: 4.571486000 seconds]

[Time delta from previous displayed frame: 4.571486000 seconds]

[Time since reference or first frame: 13.542974000 seconds]

Frame Number: 6

Frame Length: 60 bytes (480 bits)

Capture Length: 60 bytes (480 bits)

[Frame is marked: False]

[Frame is ignored: False]

[Protocols in frame: eth:ethertype:arp]

[Coloring Rule Name: ARP]

[Coloring Rule String: arp]

Ethernet II, Src: Telebit_73:8d:ce (00:80:ad:73:8d:ce), 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: Telebit_73:8d:ce (00:80:ad:73:8d:ce)

Address: Telebit_73:8d:ce (00:80:ad:73:8d:ce)

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

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

Type: ARP (0x0806)

Padding: 00000000000000000000000000000000

Address Resolution Protocol (request)

Hardware type: Ethernet (1)

Protocol type: IP (0x0800)

Hardware size: 6

Protocol size: 4

Opcode: request (1)

Sender MAC address: Telebit_73:8d:ce (00:80:ad:73:8d:ce)

Sender IP address: 192.168.1.104 (192.168.1.104)

Target MAC address: 00:00:00:00:00:00 (00:00:00:00:00:00)

Target IP address: 192.168.1.117 (192.168.1.117)

```

0000 ff ff ff ff ff ff 00 80 ad 73 8d ce 08 06 00 01 ..... .S.....
0010 08 00 06 04 00 01 00 80 ad 73 8d ce c0 a8 01 68 ..... .S.....h
0020 00 00 00 00 00 00 c0 a8 01 75 00 00 00 00 00 ..... .u.....
0030 00 00 00 00 00 00 00 00 00 00 00 00 ..... 

```