LV2 – Osnovna analiza mrežnog prometa

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3.A

PRIPREMA ZA VJEŽBU

1. ARP (Address Resolution Protocol) koristi se za povezivanje IP adresa s fizičkim (MAC) adresama uređaja na lokalnoj mreži. Omogućuje uređajima na istoj mreži da komuniciraju pronalazeći MAC adresu odredišnog uređaja na temelju njegove IP adrese.

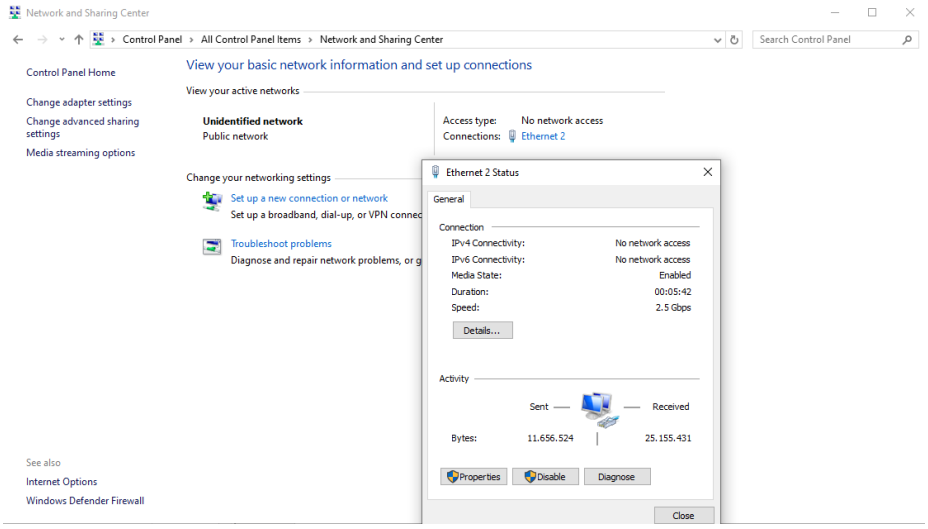
2. ICMP (Internet Control Message Protocol) koristi se za slanje kontrolnih poruka i obavijesti o greškama između uređaja na mreži. Omogućuje dijagnostiku mrežnih problema i obavještava o pogreškama poput nedostupnosti odredišta ili prekoračenja vremena prijenosa.

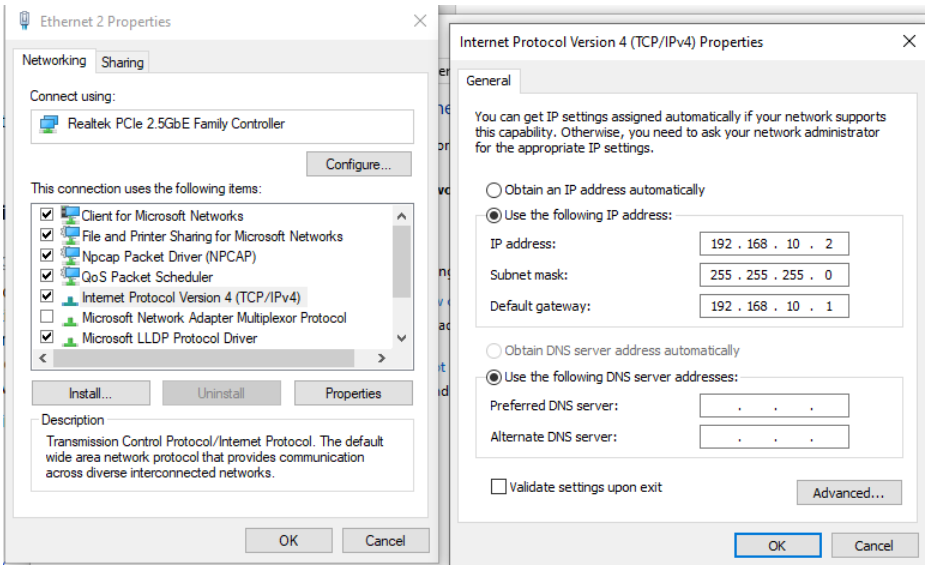
3. Naredba ping testira dostupnost uređaja na mreži slanjem ICMP “Echo Request” paketa i čekanjem “Echo Reply” odgovora. Koristi se za provjeru dostupnosti, mjerenje vremena odziva i otkrivanje mrežnih problema.

IZVOĐENJE VJEŽBE

1. Najprije smo oba računala spojili pomoću RJ45 konektora.

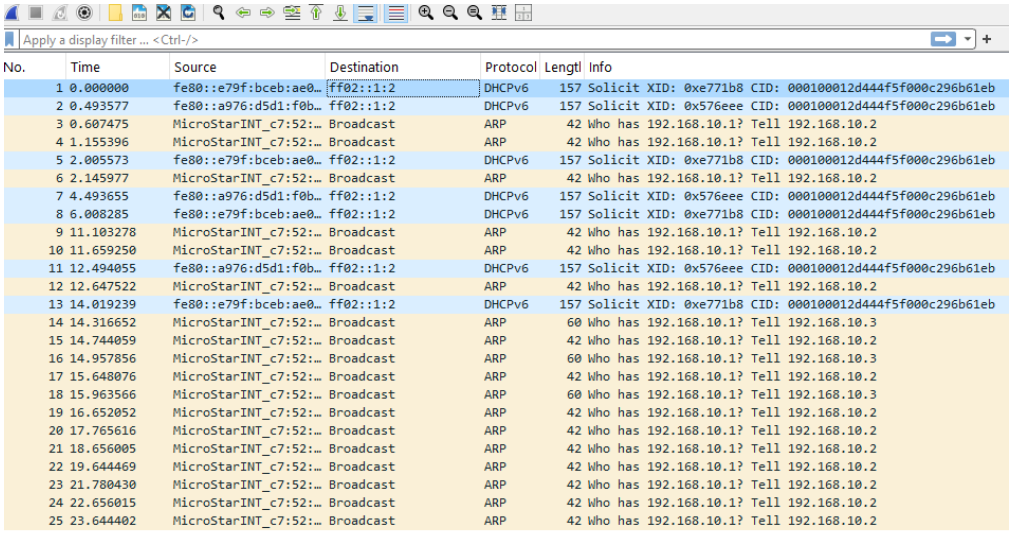
2.





3.

a)



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No.	Time	Source	Destination	Protocol	Lengtl	Info
1	0.000000	fe80::e79f:bceb:ae0…	ff02::1:2	DHCPv6	157	Solicit XID: 0xe771b8 CID: 000100012d444f5f000c296b61eb
2	0.493577	fe80::a976:d5d1:f0b…	ff02::1:2	DHCPv6	157	Solicit XID: 0x576eee CID: 000100012d444f5f000c296b61eb
3	0.607475	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
4	1.155396	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
5	2.005573	fe80::e79f:bceb:ae0…	ff02::1:2	DHCPv6	157	Solicit XID: 0xe771b8 CID: 000100012d444f5f000c296b61eb
6	2.145977	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
7	4.493655	fe80::a976:d5d1:f0b…	ff02::1:2	DHCPv6	157	Solicit XID: 0x576eee CID: 000100012d444f5f000c296b61eb
8	6.008285	fe80::e79f:bceb:ae0…	ff02::1:2	DHCPv6	157	Solicit XID: 0xe771b8 CID: 000100012d444f5f000c296b61eb
9	11.103278	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
10	11.659250	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
11	12.494055	fe80::a976:d5d1:f0b…	ff02::1:2	DHCPv6	157	Solicit XID: 0x576eee CID: 000100012d444f5f000c296b61eb
12	12.647522	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
13	14.019239	fe80::e79f:bceb:ae0…	ff02::1:2	DHCPv6	157	Solicit XID: 0xe771b8 CID: 000100012d444f5f000c296b61eb
14	14.316652	MicroStarINT_c7:52:…	Broadcast	ARP	60	Who has 192.168.10.1? Tell 192.168.10.3
15	14.744059	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
16	14.957856	MicroStarINT_c7:52:…	Broadcast	ARP	60	Who has 192.168.10.1? Tell 192.168.10.3
17	15.648076	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
18	15.963566	MicroStarINT_c7:52:…	Broadcast	ARP	60	Who has 192.168.10.1? Tell 192.168.10.3
19	16.652052	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
20	17.765616	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
21	18.656005	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
22	19.644469	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
23	21.780430	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
24	22.656015	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2
25	23.644402	MicroStarINT_c7:52:…	Broadcast	ARP	42	Who has 192.168.10.1? Tell 192.168.10.2

Wireshark je „uhvatio“ 25 okvira

b) Onake protokola su ARP i DHCPv6

c) ARP- prevodi IP adrese u MAC adrese uutar LAN-a

DHCPv6- koristi se za dovibanje adresa i drugih mrežnih postavki kao npr. Pretpostavljeni gateway, subnet maska i IP adrese DNS servera

d)

ARP paket request:

Sender MAC address: MicroStarINT_c7:52:8a (04:7c:16:c7:52:8a)

Sender IP address: 192.168.10.3

Target MAC address: MicroStarINT_c7:52:d1 (04:7c:16:c7:52:d1)

Target IP address: 192.168.10.2

ARP paket reply:

Sender MAC address: MicroStarINT_c7:52:d1 (04:7c:16:c7:52:d1)

Sender IP address: 192.168.10.2

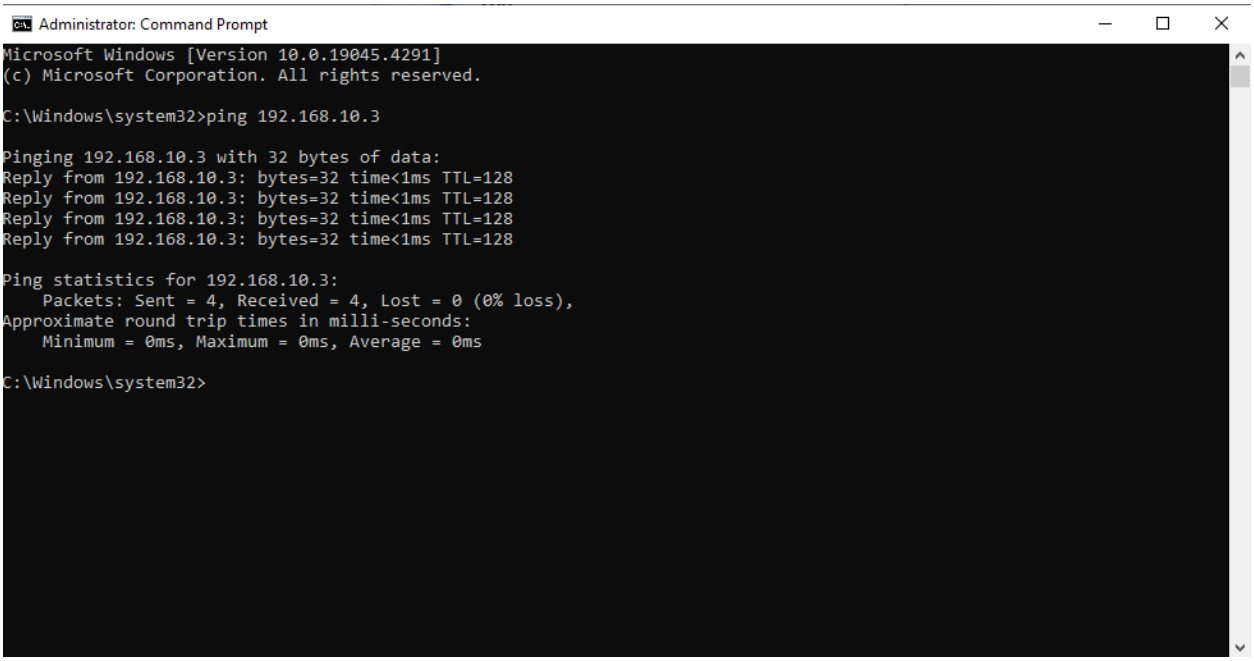
Target MAC address: MicroStarINT_c7:52:8a (04:7c:16:c7:52:8a)

Target IP address

MAC adresa je dugačka 6 bajta a IPv4 4 bajta

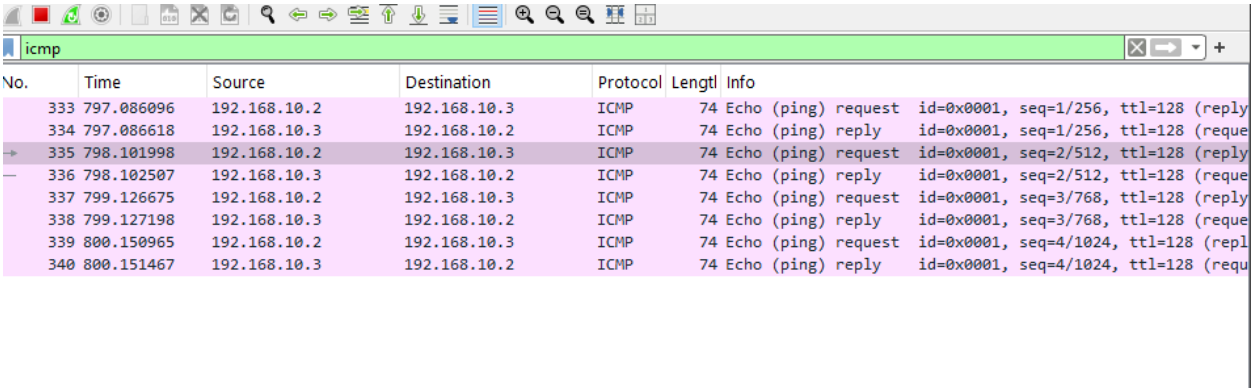
e) Glasi (00:00:00:00:00:00) zato što u početku nije poznata

4.



a) Sve ukupno je 8 ICMP paketa, 4 zahtjeva i 4 odgovora
b) Ping pokreće ICMP protokol
c) ICMP je sastavnio dio IP protokola
d) IP paket je enkapsuliran u Ethernet okvir
e) Source Address: 192.168.10.2

f) Destination Address: 192.168.10.3
g) Source: MicroStarINT_c7:52:d1 (04:7c:16:c7:52:d1)
h) Destination: MicroStarINT_c7:52:8a (04:7c:16:c7:52:8a)
i) Type: IPv4 (0x0800)
j) MAC adresa je dugačka 6 bajta a IPv4 4 bajta
k) Total Length: 60
l) 40 bajta (total lenght – Header lenght= 60-20=40 bajta)
m)



n) Sve ukupno je 8 ICMP paketa, 4 zahtjeva i 4 odgovora
o) Ping pokreće ICMP protokol
p) ICMP je sastavnio dio IP protokola
q) IP paket je enkapsuliran u Ethernet II paket

5.