



INSTITUT PROVENÇANA

Pràctica 5.3

Configuració de paràmetres de la Xarxa a Windows

MÒDUL 1:

SISTEMES INFORMÀTICS

UNITAT FORMATIVA 1:

INSTAL·LACIÓ, CONFIGURACIÓ

I EXPLOTACIÓ DEL SISTEMA INFORMÀTIC

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Curs 2022/2023

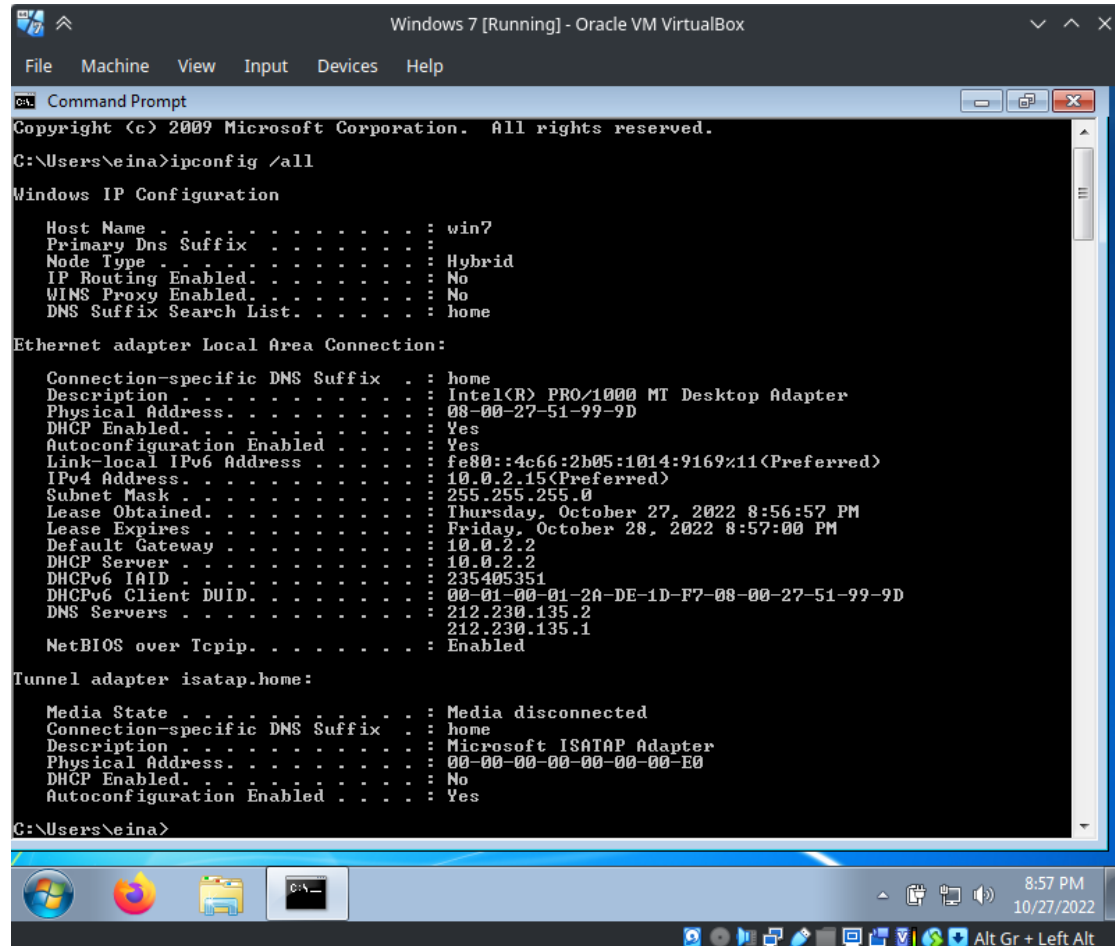


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1 ipconfig

Mostrem tota la informació de les interfícies de xarxa amb `ipconfig /all`.



```

Windows 7 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

C:\> Command Prompt
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\eina>ipconfig /all

Windows IP Configuration

Host Name . . . . . : win7
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : home

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : home
Description . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
Physical Address. . . . . : 08-00-27-51-99-9D
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::4c66:2b05:1014:9169%11(Preferred)
IPv4 Address. . . . . : 10.0.2.15(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Thursday, October 27, 2022 8:56:57 PM
Lease Expires . . . . . : Friday, October 28, 2022 8:57:00 PM
Default Gateway . . . . . : 10.0.2.2
DHCP Server . . . . . : 10.0.2.2
DHCPv6 IAID . . . . . : 235405351
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-DE-1D-F7-08-00-27-51-99-9D
DNS Servers . . . . . : 212.230.135.2
                        212.230.135.1
NetBIOS over Tcpip. . . . . : Enabled

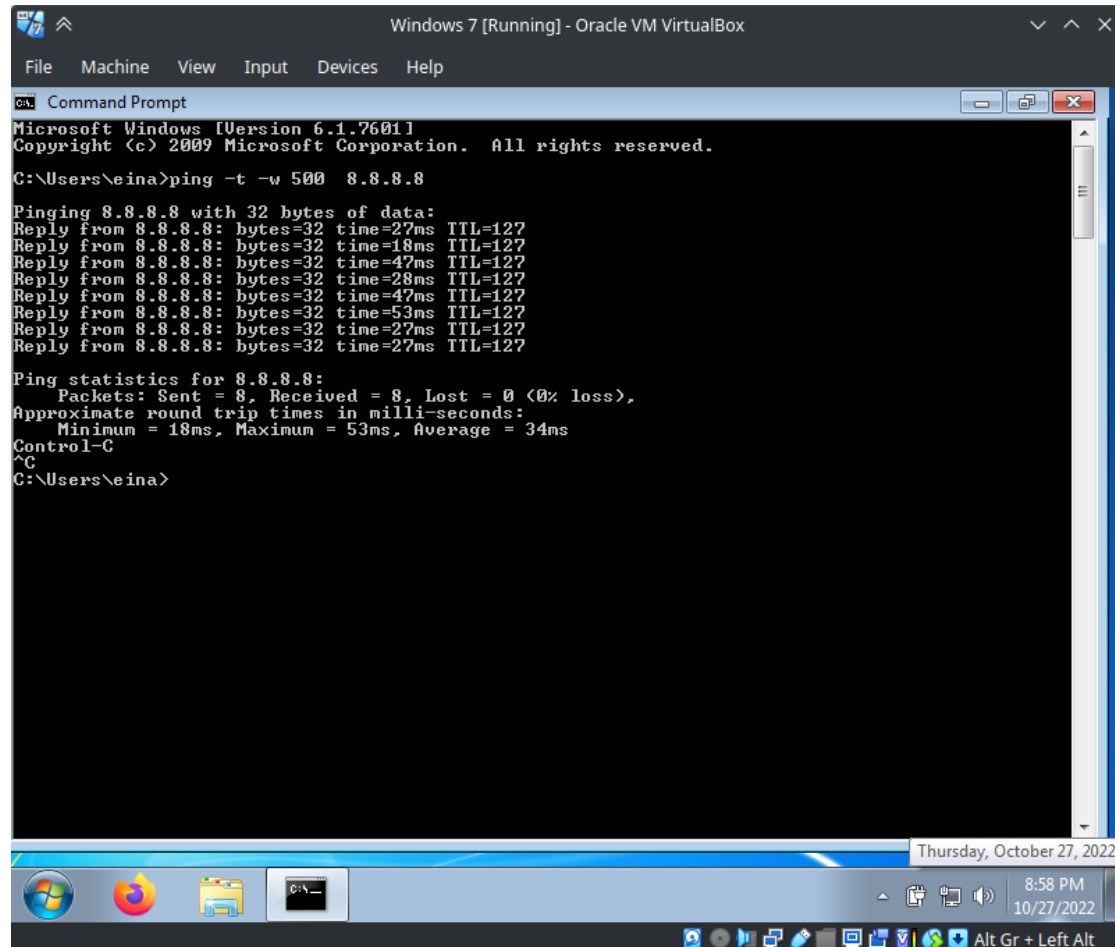
Tunnel adapter isatap.home:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : home
Description . . . . . : Microsoft ISATAP Adapter
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes

C:\Users\eina>
  
```

2 ping

Fem ping al DNS de Google ping 8.8.8.8 fins que interromptem el programa (-t) i esperant com a màxim 500 ms (-w 500).



```
Windows 7 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
C:\> Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\neina>ping -t -w 500 8.8.8.8

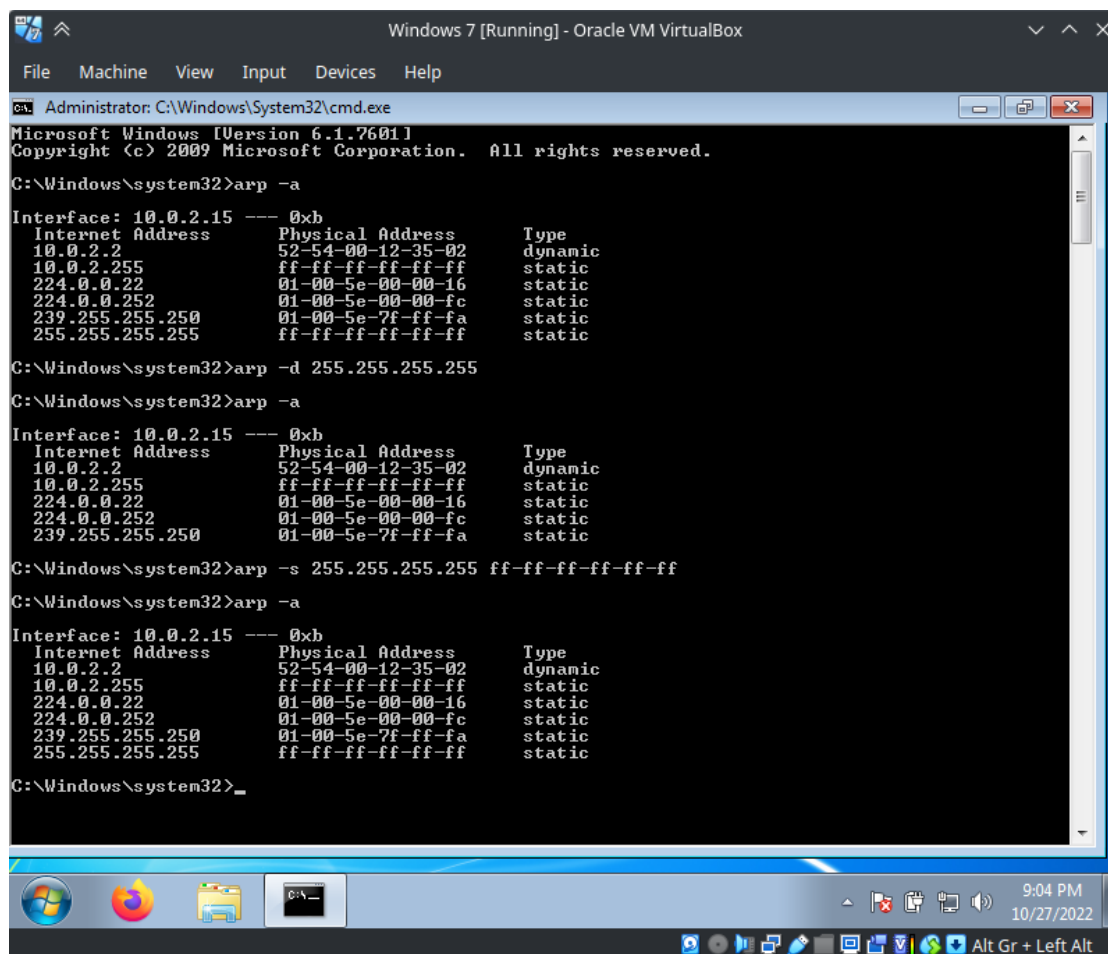
Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=27ms TTL=127
Reply from 8.8.8.8: bytes=32 time=18ms TTL=127
Reply from 8.8.8.8: bytes=32 time=47ms TTL=127
Reply from 8.8.8.8: bytes=32 time=28ms TTL=127
Reply from 8.8.8.8: bytes=32 time=47ms TTL=127
Reply from 8.8.8.8: bytes=32 time=53ms TTL=127
Reply from 8.8.8.8: bytes=32 time=27ms TTL=127
Reply from 8.8.8.8: bytes=32 time=27ms TTL=127

Ping statistics for 8.8.8.8:
    Packets: Sent = 8, Received = 8, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 18ms, Maximum = 53ms, Average = 34ms
Control-C
^C
C:\Users\neina>
```

3 arp

Mostrem la taula de resolució d'adreces MAC guardades a la memòria en cau
arp -a.

Esborrem una entrada (arp -d 255.255.255.255) i la tornem a crear (arp
-s 255.255.255.255 ff-ff-ff-ff-ff-ff).



```

C:\Windows\system32>arp -a

Interface: 10.0.2.15 --- 0xb
Internet Address      Physical Address      Type
10.0.2.2              52-54-00-12-35-02    dynamic
10.0.2.255            ff-ff-ff-ff-ff-ff    static
224.0.0.22            01-00-5e-00-00-16    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:\Windows\system32>arp -d 255.255.255.255

C:\Windows\system32>arp -a

Interface: 10.0.2.15 --- 0xb
Internet Address      Physical Address      Type
10.0.2.2              52-54-00-12-35-02    dynamic
10.0.2.255            ff-ff-ff-ff-ff-ff    static
224.0.0.22            01-00-5e-00-00-16    static
224.0.0.252           01-00-5e-00-00-fc    static
239.255.255.250       01-00-5e-7f-ff-fa    static

C:\Windows\system32>arp -s 255.255.255.255 ff-ff-ff-ff-ff-ff

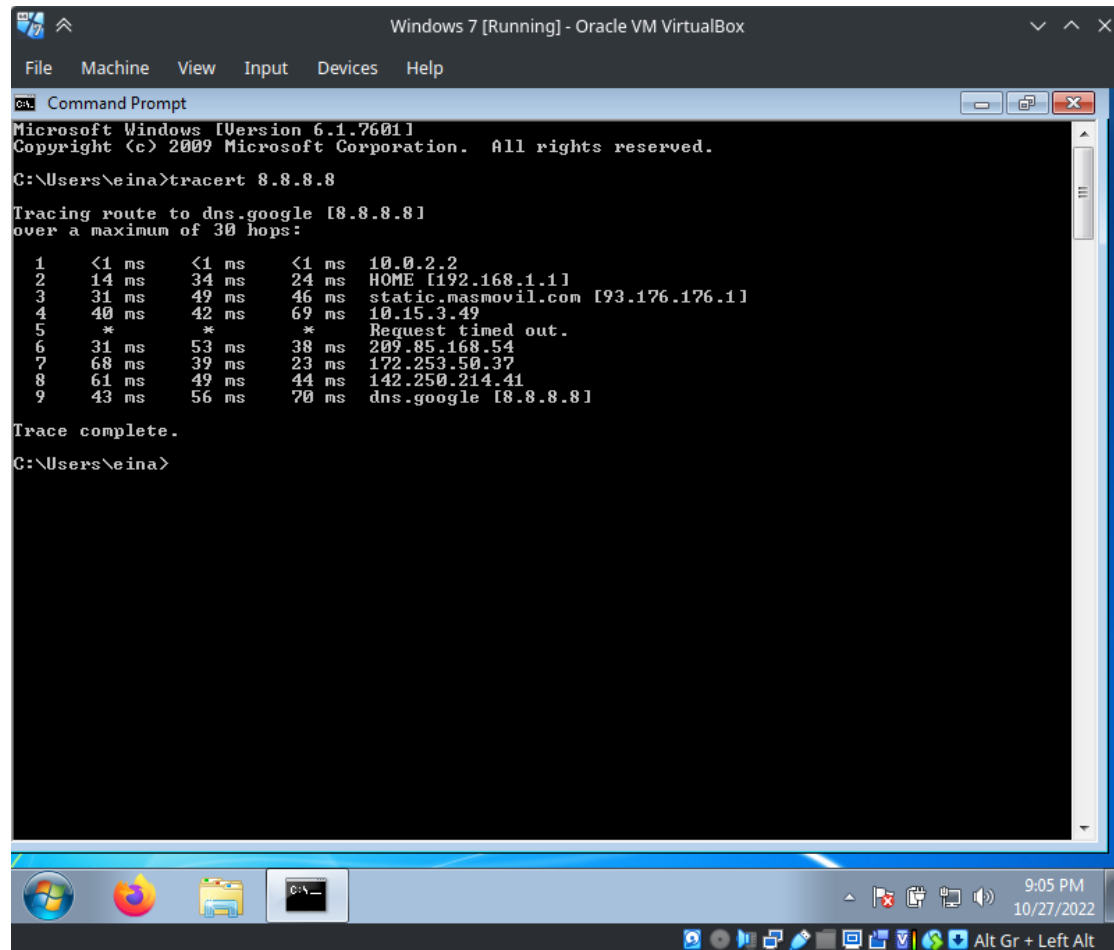
C:\Windows\system32>arp -a

Interface: 10.0.2.15 --- 0xb
Internet Address      Physical Address      Type
10.0.2.2              52-54-00-12-35-02    dynamic
10.0.2.255            ff-ff-ff-ff-ff-ff    static
224.0.0.22            01-00-5e-00-00-16    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:\Windows\system32>_
  
```

4 tracert

Mirem la ruta que seguim per arribar al servidor DNS de Google `tracert` 8.8.8.8.



```

C:\Users\eina>tracert 8.8.8.8

Tracing route to dns.google [8.8.8.8]
over a maximum of 30 hops:
  0  <1 ms    <1 ms    <1 ms    10.0.2.2
  1  14 ms     34 ms     24 ms     HOME [192.168.1.1]
  2  31 ms     49 ms     46 ms     static.masmovil.com [93.176.176.1]
  3  40 ms     42 ms     69 ms     10.15.3.49
  4  *         *         *         Request timed out.
  5  31 ms     53 ms     38 ms     209.85.168.54
  6  68 ms     39 ms     23 ms     172.253.50.37
  7  61 ms     49 ms     44 ms     142.250.214.41
  8  43 ms     56 ms     70 ms     dns.google [8.8.8.8]

Trace complete.
C:\Users\eina>
  
```

5 route

Mostrem la taula d'enrutament amb `route PRINT`.

```

C:\Users\eina>route PRINT
=====
Interface List
11...08 00 27 51 99 9d .....Intel(R) PRO/1000 MT Desktop Adapter
1 .....Software Loopback Interface 1
12...00 00 00 00 00 00 e0 Microsoft ISATAP Adapter
=====

IPv4 Route Table
=====
Active Routes:
Network Destination        Netmask          Gateway           Interface        Metric
0.0.0.0                    0.0.0.0          10.0.2.2          10.0.2.15        10
10.0.2.0                   255.255.255.0    On-link          10.0.2.15        266
10.0.2.15                  255.255.255.255  On-link          10.0.2.15        266
10.0.2.255                 255.255.255.255  On-link          10.0.2.15        266
127.0.0.0                  255.0.0.0        On-link          127.0.0.1        306
127.0.0.1                  255.255.255.255  On-link          127.0.0.1        306
127.255.255.255            255.255.255.255  On-link          127.0.0.1        306
224.0.0.0                  240.0.0.0        On-link          127.0.0.1        306
224.0.0.0                  240.0.0.0        On-link          10.0.2.15        266
255.255.255.255            255.255.255.255  On-link          127.0.0.1        306
255.255.255.255            255.255.255.255  On-link          10.0.2.15        266
=====
Persistent Routes:
None

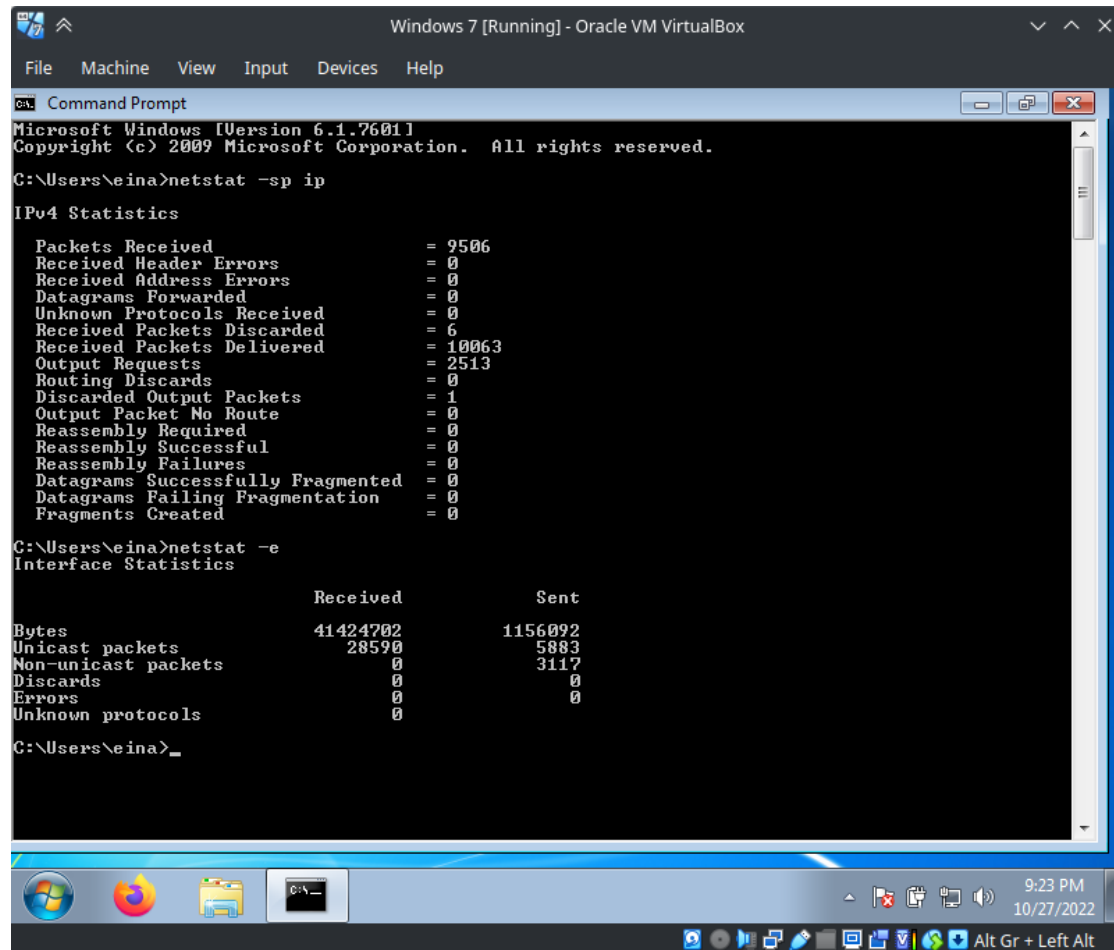
IPv6 Route Table
=====
Active Routes:
If Metric Network Destination      Gateway
1       306 ::1/128 On-link
11      266 fe80::/64 On-link
11      266 fe80::4c66:2b05:1014:9169/128 On-link
1       306 ff00::/8 On-link
11      266 ff00::/8 On-link
=====
Persistent Routes:
None

C:\Users\eina>

```

6 netstat

Mostrem les estadístiques del protocol IPv4 amb `netstat -sp ip` i després les de la interfície d'ethernet amb `netstat -e`.



```

C:\Users\neina>netstat -sp ip

IPv4 Statistics

Packets Received                = 9506
Received Header Errors          = 0
Received Address Errors         = 0
Datagrams Forwarded             = 0
Unknown Protocols Received      = 0
Received Packets Discarded      = 6
Received Packets Delivered      = 10063
Output Requests                 = 2513
Routing Discards                = 0
Discarded Output Packets        = 1
Output Packet No Route          = 0
Reassembly Required             = 0
Reassembly Successful           = 0
Reassembly Failures             = 0
Datagrams Successfully Fragmented = 0
Datagrams Failing Fragmentation = 0
Fragments Created               = 0

C:\Users\neina>netstat -e

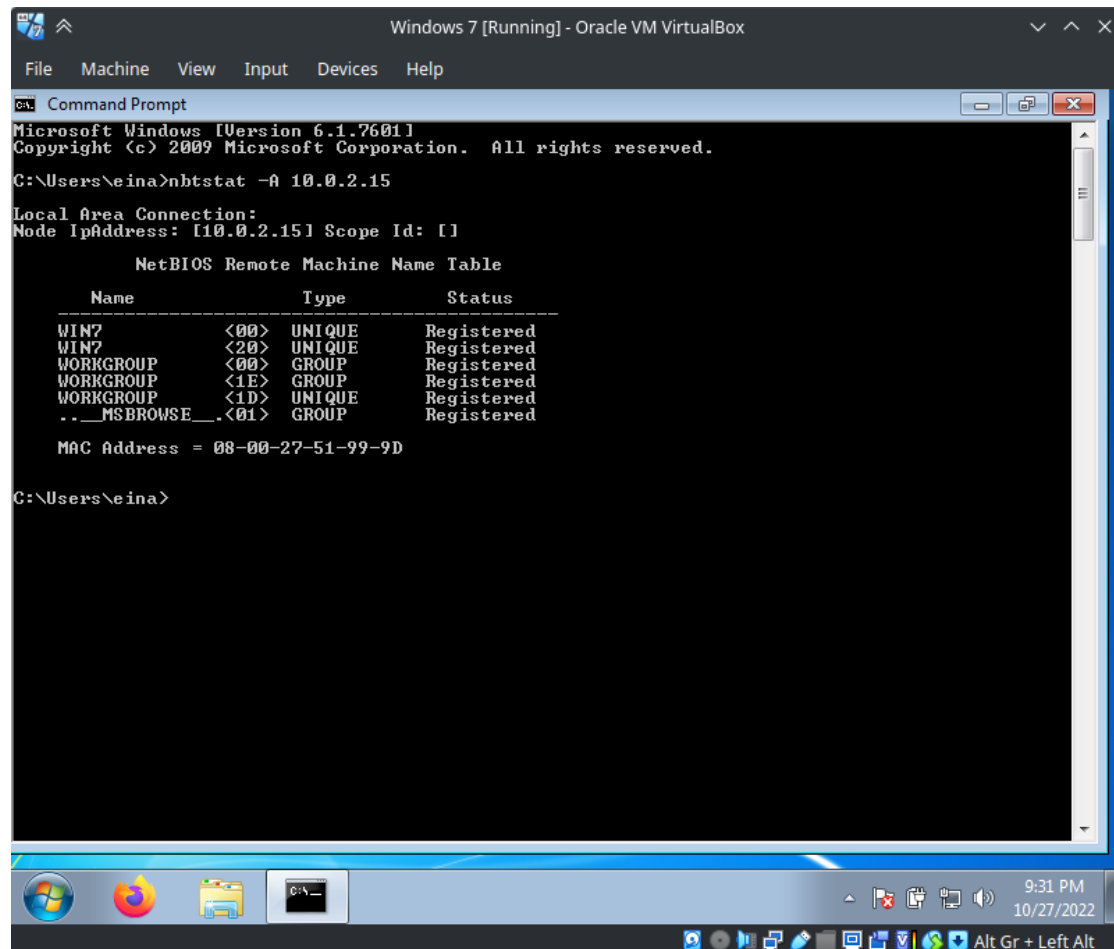
Interface Statistics

                Received                Sent
Bytes           41424702             1156092
Unicast packets    28590              5883
Non-unicast packets    0              3117
Discards          0              0
Errors            0              0
Unknown protocols    0
C:\Users\neina>_

```


7 nbtstat

Amb `nbtstat -A 10.0.2.15` imprimim la taula de noms dels ordinadors connectats al nostre mitjançant la nostra direcció IP.



```

C:\Users\eina>nbtstat -A 10.0.2.15

Local Area Connection:
Node IpAddress: [10.0.2.15] Scope Id: []

NetBIOS Remote Machine Name Table

    Name                Type             Status
    ----                -
    WIN7                 <00>             UNIQUE          Registered
    WIN7                 <20>             UNIQUE          Registered
    WORKGROUP            <00>             GROUP           Registered
    WORKGROUP            <1E>             GROUP           Registered
    WORKGROUP            <1D>             UNIQUE          Registered
    .._MSBROWSE_..      <01>             GROUP           Registered

MAC Address = 08-00-27-51-99-9D

C:\Users\eina>

```

8 nslookup

Iniciem nslookup i hi entrem `google.com`. Per defecte es mostra només el registre A (adreça IPv4), però si introduïm l'ordre `set type=ANY` els podem veure tots (com l'AAAA per l'adreça IPv6, el registre MX per enviar correus o el NS per definir *authoritative name servers*).

```

C:\Users\eina>nslookup
Default Server:  UnKnown
Address:  212.230.135.2

> google.com
Server:  UnKnown
Address:  212.230.135.2

Non-authoritative answer:
Name:    google.com
Addresses:  2a00:1450:4003:80c::200e
           142.250.184.174

> set type=ANY
> google.com
Server:  UnKnown
Address:  212.230.135.2

Non-authoritative answer:
google.com      AAAA IPv6 address = 2a00:1450:4003:80c::200e
google.com      nameserver = ns1.google.com
google.com      nameserver = ns3.google.com
google.com      nameserver = ns2.google.com
google.com      nameserver = ns4.google.com
google.com      primary name server = ns1.google.com
google.com      responsible mail addr = dns-admin.google.com
google.com      serial = 483923725
google.com      refresh = 900 (15 mins)
google.com      retry = 900 (15 mins)
google.com      expire = 1800 (30 mins)
google.com      default TTL = 60 (1 min)
google.com      internet address = 142.250.184.174
google.com      ??? unknown type 65 ???
google.com      MX preference = 10, mail exchanger = smtp.google.com

ns2.google.com  internet address = 216.239.34.10
ns2.google.com  AAAA IPv6 address = 2001:4860:4802:34::a
ns4.google.com  internet address = 216.239.38.10
ns4.google.com  AAAA IPv6 address = 2001:4860:4802:38::a
ns1.google.com  internet address = 216.239.32.10
ns1.google.com  AAAA IPv6 address = 2001:4860:4802:32::a
ns3.google.com  internet address = 216.239.36.10
ns3.google.com  AAAA IPv6 address = 2001:4860:4802:36::a

```