

L11-Introduction to Computer Networking
Homework 5 Answers
Due Date: Jan.9, 2017 by 23:59PM on Google Drive

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Problem1 (50pts):

Answer the following question about the IP address

1 **Write the IP address 129.17.129.97 in its binary form**

10000001.00010001.10000001.01100001

② **Consider an IP subnet with prefix 129.17.129.97/27. Provide the range of IP addresses (of form yyy.yyy.yyy.yyy to zzz.zzz.zzz.zzz) that can be assigned to this subnet**

129.17.129.97 to 129.17.129.126

課題2. (25pts, 5pts for each)

Using the command “ifconfig” to list up the names of all the active network interface on your terminal

Active network interface:

lo0, gif0, stf0, en0, en1, en2, en3, p2p0, bridge0

Explain the result of command “ifconfig | grep mtu”

Result:

```
: ifconfig | grep mtu
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=0<> mtu 1280
en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
en1: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
en2: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
en3: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
p2p0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 2304
bridge0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
```

Explain:

This command display MTU (Maximum Transmission Unit) of each interface.

Explain the result of command “ifconfig | grep inet”

Result:

```
: ifconfig | grep inet
inet6 ::1 prefixlen 128
inet 127.0.0.1 netmask 0xff000000
inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1
inet 163.143.15.69 netmask 0xfffff00 broadcast 163.143.15.255
inet6 fe80::e4d:e9ff:feb8:39d4%en0 prefixlen 64 scopeid 0x4
```

Explain:

This command display IP address of each interface.

Show and explain the result of command “ifconfig | grep status”

Result:

```
: ifconfig | grep status
status: active
status: inactive
status: inactive
status: inactive
status: inactive
status: inactive
```

Explain:

This command display each interface is in operation or not.

Show and explain the result of command “ifconfig | grep ether”

Result:

```
: ifconfig | grep ether
ether 0c:4d:e9:b8:39:d4
media: autoselect (1000baseT <full-duplex,energy-efficient-ethernet>)
ether 88:63:df:9b:b5:eb
ether 32:00:1f:ea:60:00
ether 32:00:1f:ea:60:01
ether 0a:63:df:9b:b5:eb
ether 0e:4d:e9:8b:47:00
```

Explain:


This command displays MAC address of each interface.

課題3. (25pts)

一枚のNICに、2個以上のIPアドレスを設定してみてください。

設定プロセスを記述してください。（適当にスクリーンショット利用することを勧め）

Command: `sudo ifconfig en0 alias 129.17.129.98 netmask 0xffffffff00`



```
std6dc39{s124o234}58: sudo ifconfig eno alias 129.17.129.98 netmask 0xffffffff00
```

```
std6dc39{s1240234}59: ifconfig
loo:  flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        options=3<RXCSUM, TXCSUM>
        inet6 ::1 prefixlen 128
        inet 127.0.0.1 netmask 0xff000000
        inet6 fe80::%loo prefixlen 64 scopeid 0x1
        nd6 options=1<PERFORMNUD>
gifo:  flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stfo:  flags=0<> mtu 1280
eno:   flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        options=10b<RXCSUM, TXCSUM, VLAN_HWTAGGING, AV>
        ether 0c:4d:e9:9b:45:f5
        inet 163.143.16.69 netmask 0xfffff000 broadcast 163.143.16.255
        inet6 fe80::e4d:e9ff:fegb:45f5%eno prefixlen 64 scopeid 0x4
        inet 129.17.129.98 netmask 0xfffff000 broadcast 129.17.129.255
        nd6 options=1<PERFORMNUD>
        media: autoselect(1000baseT <full-duplex,energy-efficient-ethernet>)
        status: active
```