

04/18/2025

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CompTIA LABS

1 & 4

Modules 1 & 4 Labs due Sunday at 9 pm.

YouTube Subnet Mask - Explained
8 Bit octet chart.

Broadcast does not pass router.

Routers do not forward broadcast packets to other networks or subnets.

128	126	127	128	129	130	131	132
128	192	224	240	248	252	254	255
128	64	32	16	8	4	2	1
2	4	8	16	32	64	128	*

192.168.1.0

255.255.255.0 /24

255.255.255.192 /26

192.168.1.

0
64

64+64+64+64=

1 _____

2 _____

3 _____

4 _____

Class A = can produce up to 16 million

Class B =

Class C = can produce up to 254 host

CIDR = slash notation.

A 255.0.0.0 } Classful
B 255.255.0.0 } 'default'
C 255.255.255.0

4.2 IPv4 Subnetting

Classful

Classless

CIDR Classless Inter-Domain Routing.

192.168.89.130 255.255.255.224

128 192 224 240 248 252 254 255

128 64 32 16 8 4 2 1

2 4 8 16 32 64 128 *

125/26 127 128 129/30/31/32

0 - 31	Net ID: 128
32 - 63	Bcast 159
64 - 95	First User: 129
96 - 127	Last: 158
128 - 159	

4.3 IP address Assignment

Control panel

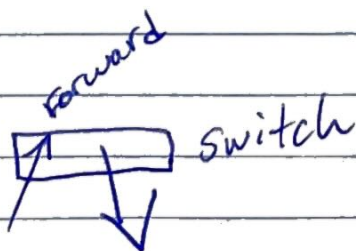
> wifi > IPv4 > properties > general IP

Automatic Private IP Addressing { 10, 192, 169.254.x.x

169 you will not get to the internet. ex: 169.254.99.192

4.4 Internet Addressing / forwarding

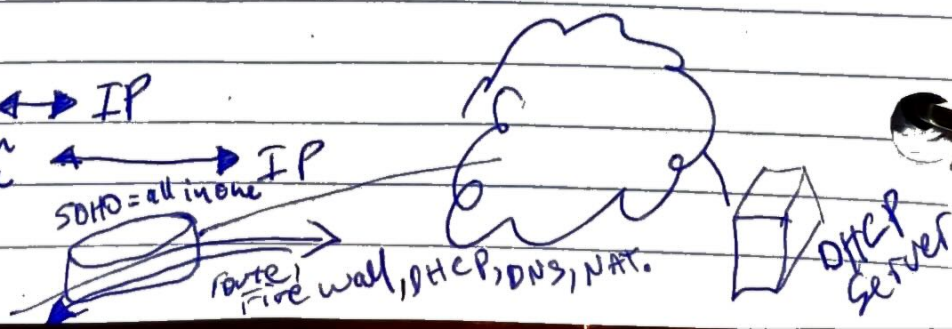
CCNA	3 network packets, routers
CCNP	2 D/L Frame
	1 Physical 1,0



ARP "maps" MAC ↔ IP

DNS "map" Domain name ↔ IP

Default Gateway
router, firewall



SOHO = all-in-one device.

YouTube

Address Resolution Protocol by Sunny Classroom.

MAC = your name as an ex.

MAC = Physical Address.

IPconfig/all

ARP cache.

Command > arp -a

MAC Des. (Broadcast) ff:ff:ff:ff:ff:ff.

MAC source ae:cd:x:x:x:x:x

IP source 192.X.X.X.X

IP Des. 192.X.X.X.X

Unicast: one to one communications

IPv4 - automatically connected to the internet by the DHCP.

YouTube

Unicast → professor messenger.

one station sending info to another station.

Broadcast send info to everyone at once.
one packet, everyone receives.

Multicast - delivery of info to interested system.
one to many. one to a group.

172.31.5.10 /29

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172.31.5.8

172.31.5.15

172.31.5.14

172.31.5.6 /30

Net 172.31.5.4

Bcast 172.31.5.7

172.31.5.8 Network

a1
:2
:3
:4 Net
:5 gateway
:6 Bcast

172.31.5.5

Gateway

172.31.5.21

172.31.5.17 /28

N: 16
B: 31

128 192 224 240 248 252 254 255

128 64 32 16 8 4 2 1

subnet 2 4 8 16 32 64 128

/25 /26 /27 /28 /29 /30 /31 /32

IPv4

unicast

Broadcast

multicast

IPconfig ipconfig /all ipconfig /renew ipconfig /release

arp -a

ping IPaddress or Domain Name

Youtube

IPv6 address classification. Sunny Classroom.

unicast

Anycast = nearest device

Multicast

Broadcast

In IPv6 - no broadcast address/domain. Instead Multicast "group".

FE00::/8 Hex. IPv6

IPv6 vs IPv4.

Youtube

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IPv4 32 bit.

||||| Octet

range 0 to 255.

Binary ~~#~~ 01000000.00000000.00001100.11001010

IPv6 128 bit hexadecimal address

8 sets of 16 bits separated by colon:
each hexa character represents 4 bits.

8	4	2	1
---	---	---	---

0 0 1 0 = 2

A	B	C	D	E	F
10	11	12	13	14	15

~~A~~ ~~B~~ ~~C~~ ~~D~~

0000 = :0:

:: = 0000:0000
