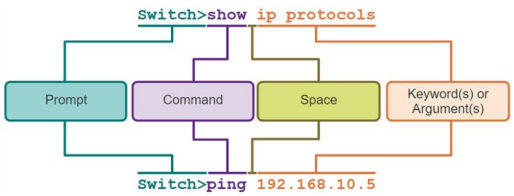
Cheat sheet - Networks Essentials - Cisco

user level

User level	*CLI*	*Enter*	*Exit*	*description*
User Exec Mode	>	-		
Privileged EXEC Mod	#	enable (en)	disable	
global config mode	(config)#	Configure terminal	EXIT	
Line Conf Mode	(config-line)#	line console 0 line vty 0 15	Exit, end , Ctr Z	*Used to configure console, SSH, Telnet, or AUX access*
Interface Conf Mode	(config-if)#	interface Fa0/1 interface vlan 1	Exit, end , Ctr Z	*Used to configure a switch port or router network interface Switch*



Convention	Description
boldface	Boldface text indicates commands and keywords that you enter literally as shown.
italics	Italic text indicates arguments for which you supply values.
[x]	Square brackets indicate an optional element (keyword or argument).
{x}	Braces indicate a required element (keyword or argument).
[x {y | z }]	Braces and vertical lines within square brackets indicate a required choice within an optional element. Spaces are used to clearly delineate parts of the command.

Basic

Device name

s(config)# hostname NAME

Banner

S(config)# banner motd #TEXT#

'Save'

S# copy run start

SHOW

S# show interfaces
S# show startup-config
S# show running-config
S# show flash
S# show version
S# show history
S# show ip
S# show mac-address-table
S#show ip ssh
S#show ssh

Other commands

reload
erase startup-config // clear all the configurations
Ctrl-Shift-6 // All-purpose break sequence
Ctrl-Z // to privileged EXEC mode
Ctrl-C
Tab // autocomplete

Remote access

Secure access

//Console access -> before allowing access to the user EXEC mode:
S(config)# line console 0
S(config-line)# password PW
S(config-line)# login
//secure privileged EXEC access,
S(config)# enable secret PW
//secure VTY lines :
S(config)# line vty 0 15
S(config-line)# password PW
S(config-line)# login
//Encrypt all plaintext passwords :
S(config)# service password-encryption

SSH

S(config)# Hostname S1
S1(config)#ip domain-name cisco.com
S1(config)#crypto key generate rsa
general-keys modulus [1024]
S1(config)#username admin password
PASSADMIN
S1(config)#line vty 0 15
S1(config-line)#transport input ssh
S1(config-line)#login local
S1(config-line)#end

ssh - l ExampleUser A.B.C.D

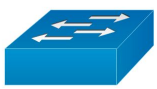
Router and switch

VLAN1—switch

S(config)# interface vlan
S(config-if)# ip address A.B.C.D A.B.C.D
S(config-if)# no shutdown
S(config)# ip default-gateway A.B.C.D

Show - Switch

S# show mac-address-table
S# show running-config

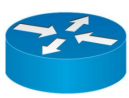


Router interfaces

R(config)# interface Gig 0/1
R(config-if)# ip address A.B.C.D A.B.C.D
R(config-if)# no shutdown

Show - Router

R# show IP interface Brief
R# show IP route



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Subnetmasks

Subnet mask	Mask length	Mask octet	Subnet length	Number of addresses
255.255.255.254	31	4	1	2
255.255.255.252	30	4	2	4
255.255.255.248	29	4	3	8
255.255.255.240	28	4	4	16
255.255.255.224	27	4	5	32
255.255.255.192	26	4	6	64
255.255.255.128	25	4	7	128
255.255.255.0	24	3	8	256
255.255.254.0	23	3	9	512
255.255.252.0	22	3	10	1024
255.255.248.0	21	3	11	2048
255.255.240.0	20	3	12	4096
255.255.224.0	19	3	13	8192
255.255.192.0	18	3	14	16384
255.255.128.0	17	3	15	32768
255.255.0.0	16	2	16	65536
255.254.0.0	15	2	17	131072
255.252.0.0	14	2	18	262144
255.248.0.0	13	2	19	524288
255.240.0.0	12	2	20	1048576
255.224.0.0	11	2	21	2097152
255.192.0.0	10	2	22	4194304
255.128.0.0	9	2	23	8388608
255.0.0.0	8	1	24	16777216

Binary to Decimal

Bits	Value	Power of two
10000000	256	8
1000000	128	7
100000	64	6
10000	32	5
1000	16	4
100	8	3
10	4	2
1	2	1
1	1	0

Formulas

Number of subnets = 2^n
→ where n is the number of borrowed bits
Number of hosts = 2^(32-n)-2
→ where n is the number of subnet mask bits (prefix)

- Netwerkaddress = All hostbits = 0
- Broadcastaddress = All hostbits = 1
- usable hosts = between the network and broadcast address

private range IPv4

10.0.0.0 – 10.255.255.255
172.16.0.0 – 172.31.255.255
192.168.0.0 – 192.168.255.255

Classful IPv4 addresses

Class A	0.0.0.0 – 127.255.255.255
Class B	128.0.0.0 – 191.255.255.255
Class C	192.0.0.0 – 223.255.255.255
Class D	224.0.0.0 – 239.255.255.255

Special IPv4 addresses

Local Host	127.0.0.0 – 127.255.255.255
APIPA	169.254.0.0 – 169.254.255.255

Examples