Basic Configuration:

Router Modes:

Router>: User mode = Limited to basic monitoring commands
Router#: Privileged mode (exec-level mode) = Provides access to all other router commands
Router(config)#: global configuration mode = Commands that affect the entire system
Router(config-if)#: interface mode = Commands that affect interfaces
Router(config-subif)#: subinterface mode = Commands that affect subinterfaces
Router(config-line)#: line mode = Commands that affect in lines modes (console, vty, aux…)
Router(config-router)#: router configuration mode

Interface Cofiguration:

```
Router(config)#default int range fa 0/0 - 1     !(to clear all int config back to default)
Router(config)#default int range fa 0/0 – 1, fa 0/4 - 5
Router(config)#int fa 0/0
Router(config-if)#mac-address 0000.1111.1111     !(hard code a mac address for ease of use)
Router(config-if)#ip address 192.168.1.1 255.255.255.0
```

Clock commands:

```
router# clock set 14:12:00 10 feb 2005
router# show clock
```

enable, disable, conf t, end, exit(exec), exit(global), logout commands:

```
Router(config)# do sh run  !(use do to run any show command from any mode)
Router> enable
 Password: <letmein>
 Router# disable
 Router>
Router# configure terminal
 Router(config)# interface serial 1:1
Router(config-if)# alps ascu 4B
Router(config-alps-ascu)# end
 Router# show interface serial 1:1
Router(config)# exit
 Router# disable
 Router> exit
Router(config-subif)# exit
 Router(config-if)#
Router(config)# exit
 Router# disable
 Router> logout
```

keyboard shortcuts:

```
Ctrl+A    !(move to the start of the line)
Ctrl+E    !(move to the end of the line)
Ctrl+shift+6    !(stop traceroute or ping)
```

terminal command:

```
terminal length 24
terminal history size 256
show history
```

Verifying commands:

```
sh version
sh flash:
sh run   !(default commands don't show in run)
sh start
sh post
sh arp
sh hosts
sh users  !(to see the users who are loggedin to vty)
sh processes cpu
sh processes cpu sort   !(more like top command in linux)
sh process cpu history   !(utilization over time)
```

sh ip int bri

pipe parameter:

sh run | include hostname
sh run | include Revision| modified
sh run | section fa 0/1
sh run | begin line con 0
sh run | exclude interface

resetting switch config:

delete flash:vlan.dat
erase start
reload

Basic switch/router setup commands:

```
SW#setup
Switch(config)# hostname SW1
SW1(config)# enable secret cisco    !MD5 hash
SW1(config)# enable password notcisco    ! Clear text
SW1(config)# line con 0
SW1(config-line)# password cisco
SW1(config-line)# login
SW1(config)# line vty 0 4
SW1(config-line)# password cisco
SW1(config-line)# login
SW1(config)# service password-encryption  !(to encrypt all the password in the config)
SW1(config)# banner motd $
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-
UNAUTHORIZED ACCESS IS PROHIBITED
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-
$
SW1(config)# interface vlan 1
SW1(config-if)# ip address 172.16.1.11 255.255.255.0    ! or DHCP
SW1(config-if)# no shutdown
SW1(config)# ip default-gateway 172.16.1.1
SW1# copy running-config startup-config
SW1# wr
SW1(config)# no ip domain-lookup
SW1(config)# line vty 0 4
SW1(config-line)# history size 15
SW1(config-line)# exec-timeout 0 0
SW1(config-line)# logging synchronous
```

Configuring switch to use SSH:

```
SW1(config)# ip domain-name example.com
SW1(config)# username admin password cisco
SW1(config)# crypto key generate rsa
How many bits in the modulus [512]: 1024
SW1(config)# ip ssh version 2
SW1(config)# line vty 0 4
SW1(config-line)# login local
SW1(config-line)# transport input telnet ssh
SW1# show crypto key mypubkey rsa
```

Aliases:

```
SW1(config)# alias exec c configure terminal
SW1(config)# alias exec s show ip interface brief
SW1(config)# alias exec sr show running-config
```

Description, mdix speed and duplex:

```
SW1(config)# interface fastEthernet 0/1
SW1(config-if)# description LINK TO INTERNET ROUTER
SW1(config-if)# speed 100    !(Options: 10, 100, auto)
```

SW1(config)# interface range fastEthernet 0/5 - 10
SW1(config-if-range)# duplex full !(options: half, full, auto)
SW1(config-if)# mdix auto
SW1(config-if)# no mdix auto

Capturing wireshark packets on a router and export to tftp as pcap:

R1#monitor capture 1 int fa0/0 both !(options: both | in | out)
R1#monitor capture 1 match any
R1#monitor capture 1 start
R1#monitor capture 1 export tftp://10.0.0.100/r1.marking.pcap
R1#no monitor capture 1

Test or verification by generating http traffic converting a router into a http server:

R1(config)#username ali password cisco
R1(config)#username privilege 15
R1(config)#ip http server
R1(config)#ip http authentication local
R1(config)#ip http path bootflash:

R2#copy http://ali:cisco@R1_IP/FILE_NAME null:

ping, traceroute, ssh and telnet:

R1(config)#ip telnet tos B8
R1#ping   !(extended ping)
R1#ping 8.8.8.8 source fa0/0
R1#traceroute   !(extended traceroute)
R1#traceroute 8.8.8.8
R1#telnet bing.com 80
R1#telnet 192.168.1.1 /source-interface loopback0
R1#ssh -l root 192.168.1.1

mac address table:

sh mac-address-table
sh mac-address-table | include 9fe7
sh mac-address-table count
clear mac-address
clear mac-address dynamic
debug matm all   !(to see everything mac address table management switch does)

arp:

arp   !('arp -a' for windows CLI)
clear ip arp

using ACL with a debug command fot tshoot:

R#access-list 1 permit host 10.0.0.2
R#debug ip packet 1 detail