

# Chapter 2

## 1. VLAN

**(config)#vlan [num] → (config)#name [name]**

**(config)#inter fa [0/?]**

**(config)#switchport mode [access or trunk]**

**(config)#switchport access vlan [num vlan]**

**#show vlan brief**

**#show interface trunk**

**#show mac-address table**

---

## 2. STP

**#show spanning-tree**

---

## 3. CDP-LLDP

### CDP

**#show cdp neighbors**

**#show cdp neighbors detail**

### LLDP

**#show lldp neighbors**

**#show lldp neighbors detail**

---

## 4. LACP

**(config)#inter rang fa [0/?-?]**

**(config)#channel-group [num 1-5] mode [active or passive]**

**#show inter status**

**#show etherchannel summary**

# Chapter 3

## 1. Static route

### IPv4

```
(config)#ip add [ip] [subnet]
```

```
(config)#ip route [ip destination] [next-hop]
```

```
(config)#no shut
```

```
(config)#ip route 0.0.0.0 0.0.0.0 [next-hop INTERNET] (default route)
```

```
(config)#ip route [ip destination] [next-hop] [AD] (floating static)
```

```
#show ip route
```

### IPv6

```
(config)#ipv6 unicast-routing
```

```
(config)#ipv6 add [ip] [subnet mask]
```

```
(config)#ipv6 route [ip destination] [next-hop]
```

```
(config)#ipv6 route [ip destination] [next-hop] [AD]
```

```
#show ipv6 route
```

### MLS

```
(config)#inter fa [0/?] → (config)#no switchport
```

```
(config)#ip routing
```

## 2. Dynamic route (OSPF)

```
(config)#router ospf [process id]
```

```
(config-router)# router-id [1.1.1.1] (configure the OSPF Router ID)
```

```
(config)#network [ip] [wildcard mask] area [area id]
```

```
(config)#passive-interface default (جعل كل المنافذ معرفه بشكل افتراضي على الشبكات المجاورة لها)
```

```
#show ip route
```

```
#show ip ospf neighbor
```

```
#show ip ospf database
```

```
#show ip protocols (includes the OSPF Router ID of this router)
```

# Chapter 4

## 1. DHCP

```
(config)#ip dhcp pool [name]
```

```
(config)#network [ip] [subnet mask]
```

```
(config)#default-router [ip-gateway]
```

```
(config)#dns-server [ip-dns]
```

```
(config)#ip dhcp excluded-address [ip]
```

```
(config)#inter fa[0/?] → (config)#ip helper-address [ip interface dhcp] (DHCP relay)
```

```
#show ip dhcp binding
```

---

## 2. NAT (Static - Dynamic)

### Static

```
(config)#inter fa [0/?] inside
```

```
(config)#inter fa [0/?] outside
```

```
(config)#ip nat inside source static [private ip] [public ip]
```

```
#show ip nat trans
```

```
#show ip nat stati
```

### Dynamic

```
(config)#inter fa [0/?] inside
```

```
(config)#inter fa [0/?] outside
```

```
(config)#access-list [num 1-99] permit [private ip network] [wildcard mask] (private)
```

```
(config)#ip nat pool [name] [start ip] [end ip] netmask [subnet mask] (public)
```

```
(config)#ip nat inside source list [num list] pool [pool name]
```

---

## 3. NTP

```
#clock set [hh:mm:ss] [day month year]
```

```
(config)#ntp master [num stratum] (default without number stratum) (NTP-server)
```

```
(config)#ntp server [ip interface ntp-server] (NTP-client)
```

```
#show clock
```

```
#show ntp associations
```

```
#show ntp status
```

---

## 5. SSH

```
(config)#hostname [name]
```

```
(config)#ip domain-name [name]
```

```
(config)#crypto key generate rsa [num bit (512-RSAv1 or 768-RSAv2)]
```

```
(config)#ip ssh version 2
```

```
(config)#line vty [start port] [end port] (0-15)
```

```
(config)#transport input ssh
```

```
(config)#username [username] privilege [num privilege] password [password]
```

```
(config)#enable password [password]
```

plus SWITCHES:

```
(config)#inter vlan 1 → (config)#ip add [ip] [subnet mask] → (config)#no shut
```

```
(config)#ip default-gateway [ip GW]
```

### CLI (PC)

```
$~ ssh -l [username] [ip interface ssh]
```

```
$~ password: ....
```

```
R1>
```

# Chapter 5

## 1. Access control (console\AUX)

```
(config)#enable password [password]
(config)#line console aux [num port 0]
(config-line)#password [password]
(config-line)#login (enable password)
OR using local
(config)#enable password [password]
(config)#username [username] privilege 15 password [password] (local credentials)
(config)#line console aux 0
(config-line)#login local (enable local credentials)
```

---

## 2. ACL (Routers\MLS)

### Standard

```
(config)#access-list [1-99] [deny\permit] host [ip] (deny\permit specific host)
*EX: (config)# access-list 25 deny host 192.168.20.5
(config)#access-list [1-99] [deny\permit] [ip + wildcard mask] (permit\deny entire network)
*EX: (config)# access-list 25 permit 192.168.20.0 0.0.0.255
(config)#access-list [1-99] permit any (permit all other IP addresses) (مهم)
(config)#inter fa0/? → (config)#ip access-group [NUM list] [out\in]
#show access-lists
```

### Extended

```
(config)#access-list [100-199] [deny\permit] [protocol] [src] [dest] (hosts, networks, port)
*EX: (config)#access-list 100 deny tcp host 192.168.20.10 172.16.0.0 0.0.255.255 eq 23
(config)#access-list 100 permit any any (permit all other IP addresses) (مهم)
(config)#inter fa0/? → (config)#ip access-group [NUM list] [out\in]
```

### Named (Standard or Extended)

```
(config)#ip access-list [extended\standard] [NAME]
*EX: (config-ext-nac)#deny tcp host 10.0.0.10 172.16.0.0 0.0.0.255 eq 80
(config-ext-nac)#permit any any (مهم)
(config)#inter fa0/? → (config)#ip access-group [NAME list] [out\in]
(config-ext-nac)#no [الرقم التسلسلي لشرط] (الحذف شرط)
(config-ext-nac)#[لاضافة شرط في مكان معين] [رقم مكان الشرط المراد اضافته] permit icmp any any
```

---

## 3. Port security (Switches)

```
(config)#inter fa0/0
(config-if)#switchport mode access
(config-if)#switchport port-security
(config-if)#switchport port-security mac-address [H.H.H.H or sticky]
(config-if)#switchport port-security maximum [num]
(config-if)#switchport port-security violation [shutdown\protect\restrict]
(config-if)#switchport port-security aging
#show port-security
```

---

## 4. DHCP snooping (Switches)

```
(config)#ip dhcp snooping
(config)#ip dhcp snooping vlan 1
(config)#inter fa0/5 → (config-if)#ip dhcp snooping trust
#show ip dhcp snooping binding
→ (config)#ip dhcp relay information trust-all (inside DHCP server - Router)
OR → (config)#no ip dhcp snooping information option (inside DHCP snooping - SW)
```