# Privilege modes

## User execution mode

*Type:* r

*Prompt indicator:* >

*Navigation*: `enable` to enter user exec mode

## Privileged execution mode

*Type:* r/w

*Prompt indicator:* #

*Navigation:* `disable` to go down to user exec mode

`configure terminal` to enter global configuration mode

## Global configuration mode

The gateway to other configuration modes

*Type:* r/w

*Prompt indicator*: (config)#

*Navigation:*

## Sub configuration modes

Specific modes to configure corresponding aspects of the device

*Common forms:* line configuration mode (console, SSH, Telnet, Aux), interface configuration mode (ports)

*Navigation:* `exit global` to go back to privileged exec mode

`exit` to exit sub-configuration mode

`end` to exit sub-configuration mode to privileged exec mode

# Configuration files

### **Startup configuration file:** config stored in NVRAM, executed on startup

### **Running configuration file:** current config stored in RAM, what preferences are currently set

### Write to memory: `# write memory`

### Show running config: `# show running-config`

### Show startup config: `# show startup-config`

### Save running config file: `# copy running-config startup-config`

### Erase running config file: `# reload`

### Erase startup config file: `# erase startup-config`

# Hostnames

### Configure hostname: `(config)# hostname <name>`

### Remove hostname: `(config)# no hostname`

# VLANs

### Verifying VLAN information: `# show vlan [brief | id <vlan-id> | name <vlan-name> | summary]`

`# show interfaces [<interface-id> | vlan <vlan-id> | switchport]`

### Creating a VLAN: `(config)# vlan <vlan-id>`

`(config-line)# name <vlan-name>`

### Assigning ports to VLAN: `(config)# interface <interface-id>`

`(config-if)# switchport mode access`

`(config-if)# switchport access vlan <vlan-id>`

### Remove VLAN assignment: `(config-if)# no switchport access vlan`

### Deleting VLANs: `(config)# no vlan <vlan-id>`

### Configuring trunk links: `(config)# interface <interface-id>`

`(config-if)# switchport mode trunk`

`(config-if)# switchport trunk native vlan <vlan-id>`

`(config-if)# switchport trunk allowed vlan <vlan-list>`

### Resetting trunk to default state: `(config)# interface <interface-id>`

`(config-if)# no switchport trunk native vlan`

`(config-if)# no switchport trunk allowed vlan`

### Enable trunking to DTP: `(config-if)# switchport mode trunk`

`(config-if)# switchport nonegotiate`

### Verifying port activity: `show vlan` or `show interfaces switchport`

### Display local and peer native VLANs: `show interfaces trunk`

## Inter-VLAN routing

### Make mod eon port connected to router trunk: `(config-if)# switchport mode trunk`

### Interface VLAN (router): `(config)# interface <ip-address>.<subinterface>`

`(config-if)# encapsulation dot1q <vlan-id>`

`(config-if)# ip address <ip-address> <subnet-mask>`

`(config-if)# no shutdown`

### Verify subinterfaces (router): `(config)# show vlan`

# Routing

### Configure a next-hop static route: `(config)# ip route <network-address> <subnet-mask> <ip-address>`

### Configure a directly connected static route: `(config)# ip route <network-address> <subnet-mask> <exit-interface>`

### To configure a fully specified static route: `(config)# ip route <network-address> <subnet-mask> <exit-interface> <ip-address>`

### Configure a floating static route: `(config)# ip route <network-address> <subnet-mask> {<ip-address> | <exit-interface>} [administrative-distance]`

### Configure a default static route: `ip route 0.0.0.0 0.0.0.0 {<ip-address> | <exit-interface>}`

### Verifying static route configuration: `show ip route`

`show ip route static`

`show ip route <network>`

### Verifying a default static route configuration: `show ip route static`

### Troubleshoot a missing route: `ping`, `traceroute`, `show ip route`, `show ip interface brief`, `show cdp neighbors detail`