

Core Modes

| Mode | Syntax | Description |
|--------------------------|---|--|
| User | N/A | Default landing space |
| Privileged (from User) | { enable } | Turn on privileged commands. |
| Global (from Privileged) | { configure terminal } | Configure from the terminal. |
| Interface (from Global) | { interface <interface> <#/#> } | Select an interface to configure. |
| | { interface range <interface> <#/#-#> } | Select a range of interfaces to configure. |
| Line (from Global) | { line console <#> } | Configure primary terminal line. |
| | { line vty <#> <#> } | Configure virtual terminal line. |

Base Configuration

| Mode | Syntax | Description |
|----------------|---------------------------------|--|
| Global | * { no ip domain-lookup } | Configure no IP DNS hostname translation. |
| | { hostname <name> } | Configure system's network name. |
| | { banner motd & <message> & } | Configure a login MOTD banner. |
| | { enable secret <password> } | Configure privileged level encrypted password. |
| | { service password-encryption } | Encrypt system passwords. |
| Interface | { ip address <ip> <subnet> } | Configure IP address of an interface. |
| | { no shutdown } | Configure interface port status up. |
| Line - Console | * { logging synchronous } | Configure synchronised message output. |
| | { password <password> } | Configure password. |
| | { login } | Enable password checking. |
| Line - VTY | { password <password> } | Configure password. |
| | { login } | Enable password checking. |

* Optional or alternative command(s).

Show Commands

| Device & Mode | Syntax | Description |
|------------------------|-----------------------|-----------------------|
| Universal - Privileged | { show access-lists } | Display access lists |
| | { show arp } | Display ARP table. |
| | { show cdp } | Display CDP info. |
| | { show clock } | Display system clock. |
| | { show dhcp } | Display DHCP status. |



Show Commands (cont)

| | |
|--|--|
| { show flash } | Display flash file system info. |
| { show history } | Display session command history. |
| { show interfaces } | Display interface status and config. |
| { show ip interface brief } | Display brief summary of IP status and config. |
| { show ip dhcp <...> } | Display items in the DHCP database. |
| { show logging } | Display the contents of logging buffers. |
| { show port-security interface <interface> <#/#> } | Display port security config. |
| { show running-config } | Display running config. |
| { show sessions } | Display info about Telnet connections. |
| { show startup-config } | Display start-up config. |
| { show ssh } | Display status of SSH server connections. |
| { show users } | Display info about virtual terminal lines. |
| { show version } | Display system hardware and software status. |
| Router - Privileged { show ip route } | Display IP routing table. |
| { show ip nat } | Display IP NAT info. |
| { show ip <bgp/eigrp/ospf/rip> } | Display info on selected protocol. |
| { show protocols } | Display active network routing protocols. |
| Switch - Privileged { show dtp } | Display DTP info. |
| { show etherchannel } | Display etherchannel info. |
| { show mac } | Display MAC config. |
| { show mac-address-table } | Display MAC forwarding table. |
| { show vlan } | Display VTP VLAN status. |
| { show vtp } | Display VTP info. |

To enable typing of privileged level commands in any mode, use { do <e.g. show command> } .



By **Cheetos**
cheatography.com/cheetos/

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How To: Clear Device Configurations

| Device & Mode | Syntax | Description |
|-------------------------------|---------------------------|----------------------------------|
| Universal - Privileged | { erase startup-config } | Erase contents of config memory. |
| | { write erase } | Erase NV memory. |
| Switch - Privileged | { delete flash:vlan dat } | Delete the VLAN database. |

How To: Configure ACLs

| Mode | Syntax | Description |
|-------------------|--|---|
| Global | * { access-list <#> <permit/deny> <ip> <wc mask> } | Add an ACL entry. |
| | { ip access-list <type> <acl_name> } | Configure named ACL. |
| | { <permit/deny> <ip> <wc mask> } | Specify packets to forward/reject. |
| | { exit } | Return to Global mode. |
| | * { interface <interface> <#/#> } | |
| | * { interface range <interface> <#/#-#> } | |
| Interface | { ip access-group <acl_name> <in/out> } | Assign specified ACL to interface inbound/outbound traffic. |
| | { line <line> <#> <#> } | |
| Line - VTY | { access-class <ACL_name> <in/out> } | Assign specified ACL to line inbound/outbound traffic. |
| Global | { ip access-list resequence <acl_name> <start_#> <increment_#> } | Configure ACL resequence. |
| | { <entry_#> } | |

* Optional or alternative command(s).

How To: Configure Default Route

| Mode | Syntax | Description |
|---------------|--|-------------|
| Global | { ip route 0.0.0.0 0.0.0.0 <isp_default_gateway> } | |
| | { ip default-network <isp_default_gateway> } | |

How To: Configure DHCP

| Mode | Syntax | Description |
|---------------|---|--|
| Global | { ip dhcp excluded-address <low ip> <high ip> } | Configure prevent DHCP from assigning certain addresses. |
| | { ip dhcp pool <pool name> } | Configure DHCP address pools. |
| | { network <ip> <subnet> } | Specify network to provide DHCP service for. |
| | { default-router <gateway ip> } | Configure default router (gateway). |
| | { dns-server <dns ip> } | Configure DNS servers. |



How To: Configure DHCP (cont)

```
{ exit }
```

```
{ interface <interface> <#/#> }
```

Interface { ip helper-address <dhcp_server_ip> } Configure DHCP relay.

The IP address range 169.254.## indicates Microsoft Automatic Private Addressing, which indicates a possible DHCP problem.

To release a DHCP assigned IP address, type { ipconfig /release } command in Windows CLI.

To renew a DHCP assigned IP address, type { ipconfig /renew } command in Windows CLI.

How To: Configure IPv6

| Mode | Syntax | Description |
|------------------|--|------------------------------|
| Global | { ipv6 unicast-routing } | Enable IPv6 unicast routing. |
| Interface | { ipv6 address <global_prefix:subnet_id:interface_id/mask> } | Configure IPv6 address. |

How To: Configure L3 Switching

| Mode | Syntax | Description |
|------------------|------------------------------|-------------------------------------|
| Global | { ip routing } | Enable routing on the switch. |
| | { interface vlan <#> } | Select catalyst VLAN. |
| Interface | { ip address <ip> <subnet> } | Configure IP address of VLAN. |
| | { no shutdown } | Configure interface port status up. |

How To: Configure NAT

How To: Configure Port Security

| Mode | Syntax | Description |
|------------------|--|--|
| Global | { interface <interface> <#/#> } | |
| | * { interface range <interface> <#/#-#> } | |
| Interface | { switchport mode access } | Configure interface port to access mode. |
| | { switchport port-security } | Enable interface port security. |
| | { switchport port-security mac-address <?> } | Configure secure mac addresses. |
| | { switchport port-security maximum <?> } | Configure maximum secure addresses. |
| | { switchport port-security violation <?> } | Configure security violation mode. |

* Optional or alternative command(s).



How To: Configure RIPv2

| Mode | Syntax | Description |
|---------------|--------------------------|-----------------------------|
| Global | { router <protocol> } | Configure routing protocol. |
| | { version <#> } | Configure version. |
| | { network <network ip> } | Specify network. |
| | * { no auto-summary } | Disable auto-summary. |

* Optional or alternative command(s).

How To: Configure ROAS

| Device & Mode | Syntax | Description |
|---------------------------|--|---|
| Router - Global | { interface <interface> <#/#.#> } | |
| Router - Interface | { encapsulation dot1q <vlan #> } | Configure IEEE 802.1Q. |
| | { ip address <ip> <subnet> } | Configure IP address. |
| Switch - Global | { interface <interface> <#/#> } | |
| Switch - Interface | { switchport trunk encapsulation dot1q } | Configure trunking characteristics. <i>(older models)</i> |
| | { switchport mode trunk } | Configure trunking mode of the interface. |
| | { switchport nonegotiate } | Configure disable engagement in negotiation protocol. |

Good practice to correlate VLAN- and sub-interface numbers.
 The VLAN will have the first address on the sub-interface network.
 VLAN members to use sub-interface IP address as default gateway.

How To: Configure SSH

| Mode | Syntax | Description |
|-------------------|---------------------------------------|--------------------------------------|
| Global | { ip domain-name <domain> } | Define default domain. |
| | { crypto key generate rsa } | Generate RSA crypto key. |
| | { username <user> secret <password> } | Establish User Name authentication. |
| Line - VTY | { login local } | Enable local password checking. |
| | { transport input <protocols> } | Define transport protocols for line. |



How To: Configure Static Route

| Mode | Syntax | Description |
|--------|--|---------------------------------------|
| Global | { ip route <destination> <subnet> <gateway> <ad_#> } | Configure static route and assign AD. |

How To: Configure Switch Management Interface

| Mode | Syntax | Description |
|--------|------------------------------|-------------------------------------|
| Global | { interface <vlan> <#> } | Select native VLAN. |
| | { ip address <ip> <subnet> } | Configure IP address of VLAN. |
| | { no shutdown } | Configure interface port status up. |

How To: Configure VLANs

| Mode | Syntax | Description |
|-----------|--------------------------------|--|
| Global | { vlan <#> } | Create VLAN. |
| | { name <name> } | Configure VLAN name. |
| Interface | { description <description> } | Configure interface description. |
| | { switchport mode access } | Configure interface port to access only one VLAN |
| | { switchport access vlan <#> } | Allocate interface port to VLAN. |
| | { no shutdown } | Configure interface port status up. |

Good practice to correlate VLAN- and interface numbers.



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cheatography.com/cheetos/

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