

CISCO router configuration

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Connection to the router

You can connect to a router with:

- A serial port
- An Ethernet interface
- Loading the configuration with TFTP
- An administration software using SNMP (Simple Network Management Protocol)
- The router's internal http server

In this example, we will use the serial interface.

1. Use the adapted cable to plug the router RJ45 plug to the PC serial interface
2. Run the `minicom` command, type **Ctrl-A Z** to open the command panel
3. Open the serial interface configuration menu and set the following values:
 - The interface : `/dev/cuau0`
 - The bit rate : `9600 8N1`
 - Set the Hardware control to : No
4. Save the configuration and quit `minicom`
5. Restart the `minicom` command to enter the CISCO configuration page
6. Reset the router configuration:
 - `enable`
 - `write erase`
 - `reload`

Configuration levels

There are four different commands levels, each with a different prompt:

- `>` : The initial mode
- `#` : The configuration mode
- `(config) #` : The Terminal configuration mode
- `(config-if) #` : The Interface configuration mode

We can leave each mode with the `exit` command. Anywhere, we can use the `?` character to get the list of possible commands or options. Tabulation can be used to auto-complete the commands.

Initial mode (`>`)

- `enable` : Enter the configuration mode
- If needed, use password `cisco`

Configuration mode (`#`)

- `show interfaces` : lists the different interfaces of the router
- `write` : write the configuration in file `startup-config`
- `show running-config` : prints the configuration loaded right now

- `show configuration` : prints the configuration in the `startup-config` file
- `configure terminal` : Switches to the terminal configuration mode

Terminal configuration mode ((`config`) #)

- `interface <type> <number>` : switch to the interface configuration mode for the given interface. The type can be `serie`, `fastEthernet`, `vlan`,... (type ? to list them)

For example, to edit the configuration of ethernet plug number 2, use `interface fastEthernet 2`

Interface configuration mode ((`config-if`) #)

For all interfaces:

- `no shutdown` : sets the interface state to UP
- `ip access-group <list_number> {in | out}` : apply the access-list to this interface

Configuring an Ethernet interface (after `interface fastEthernet 2`)

- `switchport access vlan 2` : connects the interface to VLAN 2

Configuring a VLAN (after `interface vlan 2`)

- `ip address <IP> <mask>` : sets the router's IP on this VLAN

Routing

Static routing

In configuration mode (#) : `show ip route` prints the routing table

In terminal configuration mode ((`config`) #) :

- `ip route <networkIP> <mask> <gateway>` : adds a line to the router's routing table
- `no ip route <networkIP> <mask>`

Dynamic routing

In terminal configuration mode ((`config`) #) :

- `router <algo>` choose the routing algorithm and go to router configuration mode

In router configuration mode ((`config-router`) #)

- `network <networkIP>` : try to route to this network