

Router related commands ¹

The Cisco router commands are ordered in a tree structure. This is easily forgotten, but try not to :).

All commands can be abbreviated and tab-completed. In other words, instead of typing `configure terminal`, you can type `conf t` and hit return, or type `conf[tab] t[tab]`. They are equivalent to typing the entire command.

The interface names can also be abbreviated. `Ethernet 0` can be abbreviated as `e0`. For example, the expression `show interfaces Ethernet 0` is equivalent to `sh in e0`.

If you type the question mark character (?) you will get a list of legal choices. For example: `con?` in Enabled Mode will list the two choices `configure` and `connect`. `?` by itself will list all the possible commands for the given state you are in.

The up and down arrows let you scroll through history, like any user-friendly shell (bash, tcsh, csh, etc)

To remove a command from the router's configuration, you use the prefix `no`. For example: `ip address 10.18.34.1 255.255.255.0` is negated by `no ip address 10.18.34.1 255.255.255.0`

Note that all commands are case insensitive.

For more information, see *Configuring IP Routing Protocols*, pages V-164 to V-166.

Basic Mode

`enable`

Lets you into Enabled Mode. You will be prompted for a password. Once in Enabled Mode you will be able to look at the current configuration.

`exit`

Works in all modes: Takes you out from the mode you are in now, one step closer to Basic Mode. If used in Basic Mode, this command will log you out.

Enabled Mode

To get into Enabled Mode, you will need to enter the command `enable` in Basic Mode. If you enter a deeper mode, you can return to Enabled Mode by typing CTRL-Z.

`show configuration`

Show the saved configuration. Note that this does **not** have to be equivalent to the running configuration. The saved configuration is the way the router will default to when it is rebooted.

¹*Id : router - related.tex, v1.122003/01/0813 : 41 : 37fimbloExp*

reload
Reboots the router. When the router is rebooted, the saved configuration will be up and running.

copy running-config startup-config
Saves the running configuration.

write memory
Saves the running configuration. (deprecated)

show running-config
Shows the running configuration on the terminal.

write terminal
Shows the running configuration on the terminal. (deprecated)

erase startup-config
Deletes the saved configuration. See the end of this document for a log of how to wipe the router's memory.

write erase
Deletes the saved configuration. (deprecated)

terminal monitor
Displays logging messages on a terminal (virtual console).

debug ip icmp
Shows generated info about ICMP messages.

no debug all
Turns off all debug information.

show ip route
Shows all routes in the forwarding table.

show ip cache
Shows all routes in the fast switching cache.

show interfaces
Shows information on all interfaces.

show interface ethernet 0
Shows information about the ethernet 0 interface.

show ip interface ethernet 0
Shows IP information concerning the ethernet 0 interface.

traceroute <ip-address>
Prints the route which packets take to the given network host.

ping <ip-address>
Send ICMP ECHO_REQUEST packets to the given network host.

configure terminal
Lets you into Global Configuration Mode.

Global Configuration Mode

To get into Global Configuration Mode, you must first be in Enable Mode, then type the command `configure terminal`.

`ip routing`

Tell the router to route IP packets. (default)

`clns routing`

Tell the router to route CLNS PDUs (OSI model)

`ip subnet-zero`

Allow subnets with 0 in the subnet part. (important!)

`ip classless`

Use the CIDR method of splitting up nets. In other words, skip the old *A*, *B*, and *C* nets.

`no ip domain-lookup`

Turn off DNS reverse lookup. Makes life easier when pinging and tracerouting.

`no service udp-small-servers`

Turn off all UDP services.

`no service tcp-small-servers`

Turn off all TCP services.

`no service config`

Turn off web-based configuration of the router.

`service password-encryption`

Encrypt passwords.

`ip route <net> <netmask> <interface>`

Create a static route.

`interface <interface-name>`

Lets you into Interface Configuration Mode for the given interface.

`router <type> <arg>`

Lets you into Router Configuration Mode for the given routing protocol type. Some examples are: OSPF, BGP, RIP, etc.

`router ospf <pid>`

Lets you configure the OSPF routing process with process ID *pid*.

`router bgp <as>`

Lets you configure the BGP routing process with AS number *as*.

`router rip`

Lets you configure RIP.

Interface Configuration Mode

To get into Interface Configuration Mode for say, the Ethernet 0 interface, type `interface e0` in the Global Configuration Mode.

`ip address <ip-address> <netmask>`
Bind an IP address to this interface.

`ip unnumbered <type> <number>`
Define an unnumbered interface.

`shutdown`
Turn this interface off.

`no shutdown`
Turn this interface on.

`clock rate <bps>`
On the DCE end of a serial interface, set the clock rate. Set it to 2,000,000.

`bandwidth <kb>`
Set the bandwidth of the interface. Used only for statistics. It does not influence the rate of transfer. Set it to 2,000.

`no ip proxy-arp`
Turn off proxy-arp.

`media-type <type>`
Set the media type.

Router Configuration Mode

The available commands in Router Configuration mode depend on which protocol you are editing. The scope of this document does not allow all useful commands in all the different router modes. However, there are a few generic commands.

`passive-interface <interface-type> <interface-number>`
Turn off advertisements of route updates on an interface. (page 679)

`redistribute <protocol> [<process-id>]`
Inject routes from `protocol` to the routing process with the given `process id`. In BGP, the process id is the AS number.

How to reinitialise the router

To reinitialise the router, do the following:

1. Enter enabled mode (**en**)
2. Erase the current saved setup (**erase startup-config**)
3. Reboot the router (**reload**)
4. Answer no when asked if you want to save the system configuration.
5. Proceed with reload.
6. Enter the initial configuration dialog.
7. Answer no to the first two questions (enter basic management setup, see the current interface summary)
8. Enter your hostname as specified in the topology map
9. Set your enable secret to **rt**
10. Set your enable password to **prt**
11. Set your virtual terminal password to **vrt**
12. Answer no to the rest of the questions, until you are asked whether you want to save, where you reply with alternative 2.

In detail:

```
RTA2>en
Password:
RTA2#erase startup-config
Erasing the nvram filesystem will remove all files! Continue? [confirm]
[OK]
Erase of nvram: complete
RTA2#reload
```

```
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm] confirm
```

<snip>

```
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: yes
```

At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.

Basic management setup configures only enough connectivity for management of the system, extended setup will ask you to configure each interface on the system

Would you like to enter basic management setup? [yes/no]: no

First, would you like to see the current interface summary? [yes]: no

Configuring global parameters:

Enter host name [Router]: RTA2

The enable secret is a password used to protect access to privileged EXEC and configuration modes. This password, after entered, becomes encrypted in the configuration.

Enter enable secret: rt

The enable password is used when you do not specify an enable secret password, with some older software versions, and some boot images.

Enter enable password: prt

The virtual terminal password is used to protect access to the router over a network interface.

Enter virtual terminal password: vrt

Configure SNMP Network Management? [yes]: no

Configure IP? [yes]: no

Configure CLNS? [no]: no

Configuring interface parameters:

Do you want to configure Ethernet0 interface? [yes]: no

Do you want to configure Ethernet1 interface? [yes]: no

Do you want to configure Serial0 interface? [yes]: no

Do you want to configure Serial1 interface? [yes]: no

Do you want to configure Serial2 interface? [yes]: no

Do you want to configure Serial3 interface? [yes]: no

The following configuration command script was created:

<snip>

[0] Go to the IOS command prompt without saving this config.

[1] Return back to the setup without saving this config.

[2] Save this configuration to nvram and exit.

Enter your selection [2]:2
Building configuration...