
Configuration of Cisco Routers

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This document provides information on configurations for the Cisco routers of the Internet Lab.

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Setting up a Cisco Router

This section discusses the setup for the Cisco routers in the Internet Lab. The Cisco routers in the lab should run IOS 11.2 or a later version. Each router must have 2 Ethernet interfaces (10 Mbps or 100 Mbps) and one synchronous serial interface.

There are numerous Cisco routers that are suitable for the Internet lab (see: www.tcpip-lab.net)

Label the routers as Router1, Router2, Router3, and Router4. You may also want to label the interfaces.

Step 1: Starting a router

A router is started by turning on the power switch. The operating system (IOS) boots from NVRAM or flash memory. If the router has a slotted chassis, then the interface cards must be installed in the slots of the router. Insert an Ethernet interface card in slot 0 and a synchronous serial interface in slot 1.

Step 2: Establishing a serial connection

Connect the console port of the router via a serial cable to the serial port of a PC or a dumb terminal. The console port of Cisco routers have a RJ-45 connector with rollover cabling.

Step 3: Accessing the router using Kermit

If you are working on a Linux PC, create a *kermit* session to establish a command interface to the router. Instructions can be found in Part 2 of Lab 3. Start *kermit* by typing. Here is the sequence of commands:

```
PC1% kermit
[/root]C-kermit>
[/root]C-kermit> set line /dev/ttyS0 (or /dev/ttyS1)
[/root]C-kermit> set carrier-watch off
[/root]C-kermit> connect
Router1>
```

IOS Configuration of the Cisco Routers

The following instructions set the default configuration for the Cisco routers.

Initial onfiguration of a brand new router

If you have a new Cisco Router, and access the router for the first time, the router enters the initial configuration (“setup”) mode, where IOS asks to type a few configuration settings. These configurations do not require knowledge of IOS commands. See the Cisco website or the manual of the router for additional information. If you perform the initial configuration dialogue, set the following configurations (here shown for *Router1*):

- Set the hostname to *Router1*.
- Set the required passwords (enable secret, enable password, virtual terminal password). We suggest selecting all passwords to be identical. Make sure you write down the password.
- When asked about configuring a protocol, answer “no” to all questions, except to the question to configure *IP*.
- Eventually, IOS display a list of available interfaces. There should be 2 Ethernet interfaces (*Ethernet0* and *Ethernet1*, *Ethernet0/0* and *Ethernet0/1*, or *FastEthernet0/0* and *FastEthernet0/1*), and two serial WAN interfaces (*Serial0* and *Serial1*, *Serial1/0* and *Serial1/1*).

Only configure the IP addresses of the two Ethernet interfaces. Do not configure the other interfaces. Set the IP addresses and subnet masks, as shown in the table below. Select the default for other configuration decisions.

Continue with the configuration

Cisco Router	Interface FastEthernet0/0 (or Ethernet0 or Ethernet0/0)	Interface FastEthernet0/1 (or Ethernet1 or Ethernet0/1)
Router1	IP address 10.0.1.1 Netmask 255.255.255.0	IP address 10.0.2.1 Netmask 255.255.255.0

Router2	IP address	10.0.1.2	IP address	10.0.2.2
	Netmask	255.255.255.0	Netmask	255.255.255.0
Router3	IP address	10.0.1.3	IP address	10.0.2.3
	Netmask	255.255.255.0	Netmask	255.255.255.0
Router4	IP address	10.0.1.4	IP address	10.0.2.4
	Netmask	255.255.255.0	Netmask	255.255.255.0

Configuration of other routers

Note:

- For a used router, you need to have the *enable secret* password available. When the router is new, the enable secret is chosen in the initial configuration. Otherwise, you must know the enable secret. If you do not have the password, consult the Cisco website and find information on resetting the passwords of a router.
- For a brand new, after completing the initial configuration, type the commands in bold.

Below are the commands for Router1. Below the password is set to *root*.

```
>enable
# config term
(config)# hostname Router1
(config)# enable secret rootroot
(config)# no ip domain-lookup
(config)# no cdp run
(config)# interface FastEthernet 0/0 (or eth0, eth0/0)
(config-if)# ip address 10.0.1.1 255.255.255.0
(config-if)# no shutdown
(config-if)# no cdp enable
(config-if)# interface FastEthernet 0/1 (or eth1, eth0/1)
(config-if)# ip address 10.0.2.1 255.255.255.0
(config-if)# no shutdown
(config-if)# no cdp enable
(config-if)# line vty 0 4
(config-line)# login
(config-line)# password rootroot
(config-if)# end
(config)# show interface
(config)# write mem
(config)# exit
```

Now, when the router is rebooted, it has the IP addresses of the interfaces FastEthernet 0/0 and FastEthernet 0/1 already configured. You can view the current configuration by typing:

```
>enable
# show startup-config
```