Boson

ICND1
Lab Guide

100-101
Interconnecting Cisco Networking Devices Part 1
Version 2.0

Labs powered by

NetSim 9
NETWORK SIMULATOR

Boson®

Interconnecting Cisco Networking Devices Part 1

100-101 Lab Guide

Boson®

25 Century Blvd. Ste. 500
Nashville, TN 37214
www.boson.com

NetSim®
NETWORK SIMULATOR®

To perform the labs referenced in this book, please download and install the necessary files (refer to your purchase receipt for the download link), navigate to the appropriate lab in the lab menu in the Boson NetSim, and load the lab. To learn more about the Boson NetSim or to purchase and download the software, please visit www.boson.com/netsim.

Boson

A sample lab is included in this document to display the quality, format, and content of labs that are included in the Boson NetSim and the Boson Courseware products. However, you will not be able to work through this lab in NetSim without purchasing both Boson NetSim and the Boson ICND1 Courseware Lab Pack.

Please visit www.boson.com for more information.

A sample lab is included in this document to display the quality, format, and content of labs that are included in the Boson NetSim and the Boson Courseware products. However, you will not be able to work through this lab in NetSim without purchasing both Boson NetSim and the Boson ICND1 Courseware Lab Pack.

Please visit www.boson.com for more information.

A sample lab is included in this document to display the quality, format, and content of labs that are included in the Boson NetSim and the Boson Courseware products. However, you will not be able to work through this lab in NetSim without purchasing both Boson NetSim and the Boson ICND1 Courseware Lab Pack.

Please visit www.boson.com for more information.

Boson

Labs powered by **NetSim**

Module 5

Device Management

Lab 5.1 – Router Configuration
Lab 5.2 – TFTP and Router Configuration

Labs powered by

NetSim®
NETWORK SIMULATOR®

Lab 5.1 – Router Configuration

To perform this lab in the Boson NetSim, please download the necessary files (refer to your purchase receipt for the download link), navigate to the appropriate lab in the lab menu in NetSim, and load the lab. You can then accomplish the tasks below.

Objective

This lab corresponds to ICND1 Module 5: Device Management, of Boson's CCNA Curriculum. In this lab, you will learn basic help commands available on routers, how to configure IP addresses on routers, and how to configure and use Telnet. A password of **cisco** has been configured on Router2.

Lab Topology

The topology diagram below represents the NetMap in the Simulator:
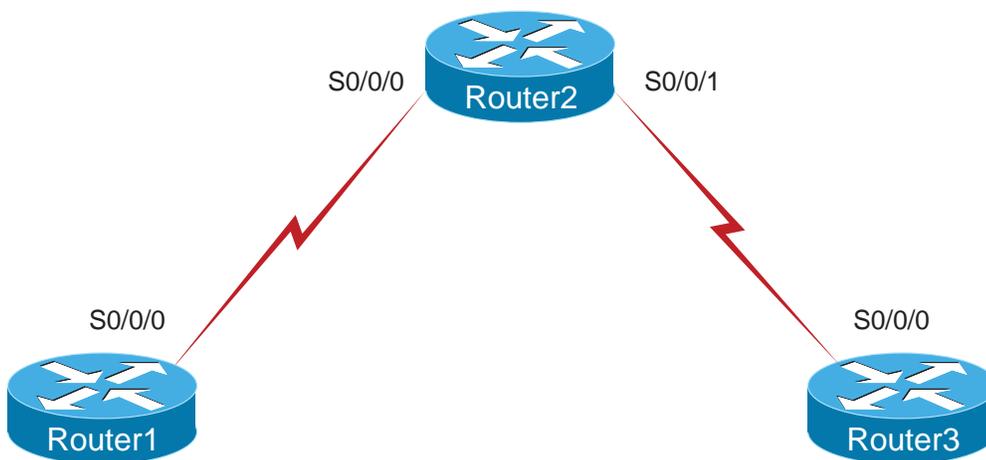
The commands you will need to perform the tasks in this lab, along with their syntax and descriptions, are shown in the Command Summary table below:

Command Summary

Command	Description
clock rate *clock-rate*	sets the clock rate for a data communications equipment (DCE) interface
configure terminal	enters global configuration mode from privileged EXEC mode
enable	enters privileged EXEC mode
end	ends and exits configuration mode
exit	exits one level in the menu structure
hostname *host-name*	sets the device name
interface *type number*	changes from global configuration mode to interface configuration mode
ip address *ip-address subnet-mask*	assigns an IP address to an interface
line console 0	accesses console line configuration mode
line vty 0 4	enters configuration mode for virtual terminal (Telnet) lines

Labs powered by **NetSim**®

Command	Description
login	enables password checking
no shutdown	enables an interface
password *password*	specifies the password that is required for a user to log in
ping *ip-address*	sends an Internet Control Message Protocol (ICMP) echo request to the specified address
show running-config	displays the active configuration file
show cdp neighbors detail	displays directly connected neighbor devices and their device types, interface names, and IP addresses
telnet *host*	starts the terminal emulation program from a PC, router, or switch; permits you to access devices remotely over the network

The IP addresses and subnet masks used in this lab are shown in the table below:

IP Addresses

Device	Interface	IP Address	Subnet Mask
Router1	Serial 0/0/0	34.25.67.1	255.255.255.0
Router2	Serial 0/0/0	34.25.67.2	255.255.255.0
	Serial 0/0/1	10.10.10.2	255.255.255.0
Router3	Serial 0/0/0	10.10.10.1	255.255.255.0

Lab Tasks

Task 1: Learn the Basic User Interface

1. Connect to the console of Router1.

2. At the user EXEC mode prompt, type a question mark (**?**). This will enable you to view a list of commands that can be issued from the user EXEC mode. At the --MORE-- prompt, press the Spacebar to view the next page of information.

3. Issue the **enable** command to enter privileged EXEC mode.

4. At the privileged EXEC mode prompt, type a question mark (**?**). This will enable you to view a list of commands that can be issued from the privileged EXEC mode. At the --MORE-- prompt, press the Spacebar to view the next page of information.

5. At the privileged EXEC mode prompt, type **show ?** to see all the available **show** commands. In addition to showing available commands that can be issued at the user EXEC and privileged EXEC prompt, the question mark offers additional help.

Task 2: Configure a Host Name and IP Address on Router1

Perform the steps in this task on Router1.

1. Enter the command necessary to access global configuration mode.

2. From global configuration mode, configure a host name of **Router1**.

3. Configure the appropriate IP address on the Serial 0/0/0 interface; refer to the IP Addresses table. Enable the Serial 0/0/0 interface.

Task 3: Configure and Secure the Router for Console and Remote Connections

1. You can connect to a Cisco device remotely by using a protocol such as Telnet or locally by using a console connection. Physical access is necessary to connect to the console connection on a Cisco device. Enter the commands necessary to configure a password of **cisco** for console access on Router1 and require a user to log in to the console port.

2. Test the console password by logging out of the router and then pressing the Enter key. With the console password configured, you are required to provide a password before you can access user EXEC mode.

3. Configure Router1 to allow Telnet remote access using its virtual terminal (vty) lines and require a user to log in to enter commands using a Telnet session. Use **boson** as the password.

4. Cisco devices support remote access via the Telnet or Secure Shell (SSH) protocol. Issue the command necessary to allow only Telnet access to Router1.

5. IP addressing and the remote access configurations have already been performed on Router2. From Router2, what protocol can be used to obtain information about neighboring Cisco devices that are directly connected? _____

6. On Router2, issue the appropriate **show** command. What IP address is assigned to Router1? _____

7. Test your configuration by initiating a Telnet session to Router1 from Router2 by using the IP address you recorded in the previous step. The password configured on Router2 for remote access is **boson**.

8. End the Telnet session from Router2 to Router1.

Lab Solutions

Task 1: Learn the Basic User Interface

1. You should press Enter to connect to the console of Router1:

    ```
    Press ENTER to Start!
    Router>
    ```

2. You are now connected to the console of Router1 and are at the user EXEC mode prompt, and you should type **?** to view commands that are available from the user EXEC prompt, which is represented by the > prompt.

    Note: You can view the additional device output one line at a time by pressing Enter or a page at a time by pressing the Spacebar. To stop viewing the output before all of it has been displayed, press the Tab key.

    ```
    Router>?
    access-enable      Create a temporary Access-List entry
    access-profile     Apply user-profile to interface
    connect            Open a terminal connection
    disable            Turn off privileged commands
    disconnect         Disconnect an existing network connection
    enable             Turn on privileged commands
    exit               Exit from the EXEC
    help               Description of the interactive help system
    lock               Lock the terminal
    login              Log in as a particular user
    logout             Exit from the EXEC
    mrinfo             Request neighbor and version information from a multicast
                       router
    mstat              Show statistics after multiple multicast traceroutes
    mtrace             Trace reverse multicast path from destination to source
    name-connection    Name and existing network connection
    pad                Open a X.29 PAD connection
    ping               Send echo messages
    ppp                Start IETF Point-to-Point Protocol (PPP)
    resume             Resume an active network connection
    rlogin             Open an rlogin connection
    show               Show running system information
    slip               Start a Serial-line IP (SLIP)
    systat             Display information about terminal lines
    --MORE--
    <output omitted>
    ```

3. You should issue the **enable** command to enter privileged EXEC mode:

    ```
    Router>enable
    Router#
    ```

4. You should type **?** to view commands that are available from the privileged EXEC mode prompt, which is represented by the # prompt. Sample output is shown below:

```
Router#?
access-template      Create a temporary Access-List entry
alps                 ALPS exec commands
archive              manage archive files
bfe                  For manual emergency modes setting
cd                   Change current directory
clear                Reset functions
clock                Manage the system clock
configure             Enter configuration mode
copy                 Copy from one file to another
debug                Debugging functions (see also 'undebug')
delete               Delete a file
dir                  List files on a filesystem
disable
disconnect           Disconnect an existing network connection
elog                 Event-logging control commands
erase                Erase a filesystem
exit
logout               Exit from the EXEC
more                 Display the contents of a file
mrm                  IP Multicast Routing Monitor Test
ncia                 Start/Stop NCIA Server
ping                 Send echo messages
pwd                  Display current working directory
--MORE--
<output omitted>
```

5. You should type **show ?** to see all the available **show** commands. In addition to showing available commands that can be issued at the user EXEC and privileged EXEC prompt, the question mark offers additional help by showing all the commands available with the initial prefix. Sample output is shown below:

```
Router#show ?
access-lists         List access lists
arp                  ARP table
auto                 Show Automation Template
bgp                  BGP information
cdp                  CDP information
class-map            Show QoS Class-Map
clns                 CLNS network information
clock                Display the system clock
compress             Show compression statistics
configuration        Contents of Non-Volatile memory
controllers          Interface controller status
crypto               Encryption module
debugging            State of each debugging option
dhcp                 Dynamic Host Configuration Protocol status
<output omitted>
```

Labs powered by **NetSim** © 2013 Boson Software, LLC

Task 2: Configure a Host Name and IP Address on Router1

1. You should issue the **configure terminal** command to enter global configuration mode:

    ```
    Router#configure terminal
    Router(config)#
    ```

2. You should issue the **hostname Router1** command to configure the host name on Router1:

    ```
    Router(config)#hostname Router1
    Router1(config)#
    ```

3. You should issue the following commands to configure the appropriate IP address and subnet mask on the Serial 0/0/0 interface of Router1:

    ```
    Router1(config)#interface serial 0/0/0
    Router1(config-if)#ip address 34.25.67.1 255.255.255.0
    Router1(config-if)#no shutdown
    ```

Task 3: Configure and Secure the Router for Console and Remote Connections

1. On Router1, you should issue the following commands to configure a password of **cisco** for the console connection and enable password protection on the console connection:

    ```
    Router1(config-if)#exit
    Router1(config)#line console 0
    Router1(config-line)#password cisco
    Router1(config-line)#login
    ```

2. Test the console password by entering the following commands:

    ```
    Router1(config-line)#end
    Router1#disable
    Router1>exit
    Password:cisco
    Router1>
    ```

3. You should issue the following commands on Router1 to enable remote access from via the vty lines and configure a password of **boson**:

    ```
    Router1>enable
    Router1#configure terminal
    Router1(config)#line vty 0 4
    Router1(config-line)#login
    Router1(config-line)#password boson
    ```

4.   You should issue the following command to allow only Telnet access to Router1:

```
Router1(config-line)#transport input telnet
```

5.   You should issue the **show cdp neighbors detail** command on Router2 to obtain the IP address of Router1. When enabled, the Cisco Discovery Protocol (CDP) can be used to obtain information about directly connected neighboring Cisco devices. Sample output is shown below:

```
Password:cisco
Router2>enable
Router2#show cdp neighbors detail
<output omitted>
------------------------
Device ID: Router1
Entry address(es):
  IP address: 34.25.67.1
Platform: Boson 2811 , Capabilities: Router
Interface: Ser0/0/0, Port ID (outgoing port): Ser 0/0/0
Holdtime:  162 sec

Version :
Boson Operating System Software
Software, Version 12.3(16), RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2011 by Systems, Inc.
Compiled Fri 02-Mar-09 17:34 by dchih
```

6.   The IP address assigned to Router1 is 34.25.67.1.

7.   On Router2, you should issue the following commands to initiate a Telnet session to Router1:

```
Router2#telnet 34.25.67.1
Trying 34.25.67.1 ... Open
Password:boson
Router1>
```

8.   The following command will end the Telnet session:

```
Router1>exit
Router2#
```

Sample Configuration Script

Router1

```
Router1#show running-config
Building configuration...
Current configuration : 773 bytes
!
Version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Router1
!
ip subnet-zero
!
ip cef
no ip domain-lookup
!
interface Serial0/0/0
 ip address 34.25.67.1 255.255.255.0
 no ip directed-broadcast
!
interface Serial0/0/1
 no ip address
 no ip directed-broadcast
 shutdown
!
interface FastEthernet0/0
 no ip address
 no ip directed-broadcast
 shutdown
!
interface FastEthernet0/1
 no ip address
 no ip directed-broadcast
 shutdown
!
ip classless
no ip http server
!
line con 0
 login
 password cisco
line aux 0
line vty 0 4
 login
 password boson
 transport input telnet
!
no scheduler allocate
end
```

Certification Candidates

Boson Software's ExSim-Max practice exams are designed to simulate the complete exam experience. These practice exams have been written by in-house authors who have over 30 years combined experience writing practice exams. ExSim-Max is designed to simulate the live exam, including topics covered, question types, question difficulty, and time allowed, so you know what to expect. To learn more about ExSim-Max practice exams, please visit www.boson.com/exsim-max-practice-exams or contact Boson Software.

Organizational and Volume Customers

Boson Software's outstanding IT training tools serve the skill development needs of organizations such as colleges, technical training educators, corporations, and governmental agencies. If your organization would like to inquire about volume opportunities and discounts, please contact Boson Software at orgsales@boson.com.

Contact Information

E-Mail: support@boson.com
Phone: 877-333-EXAM (3926)
            615-889-0121
Fax: 615-889-0122
Address: 25 Century Blvd., Ste. 500
            Nashville, TN 37214

Boson.com

8 7 7 . 3 3 3 . 3 9 2 6   s u p p o r t @ b o s o n . c o m