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ICND2
Lab Guide

200-101

Interconnecting Cisco Networking Devices Part 2
Version 2.0

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Interconnecting Cisco Networking Devices Part 2

200-101 Lab Guide

Boson

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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.

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 ICND2 Courseware Lab Pack.

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Module 1

Cisco Device Management

Lab 1.1 – Device Management

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Lab 1.1 – Device Management

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 ICND2 Module 1: Cisco Device Management, of Boson's CCNA Curriculum. In this lab, you will learn basic device management techniques including how to save and load router configurations from a Trivial File Transfer Protocol (TFTP) server and how to modify the configuration register.

Lab Topology

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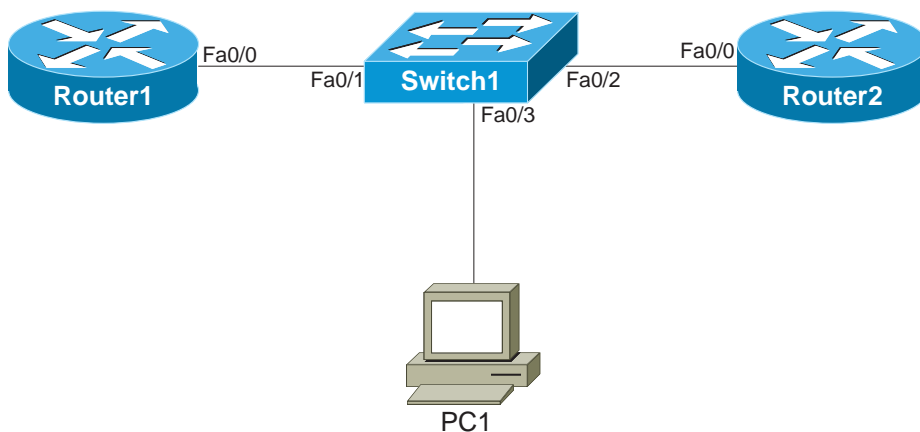
The commands you will need to perform the tasks in this lab, along with their syntax and descriptions, are shown in the Command Summary table below:

Command Summary

Command	Description
configure terminal	enters global configuration mode from privileged EXEC mode
config-register *value*	changes configuration register settings
copy running-config {startup-config | **tftp** | *device***:***filename*}	copies a device's running configuration file to another destination
copy tftp {running-config | **startup-config** | *device***:***filename*}	copies a file from a TFTP server to another destination
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
show running-config	displays the active configuration file
show tftp-configs	used in NetSim to display a list of files copied using TFTP and stored on a PC
show version	displays hardware platform and software versions

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

IP Addresses

Device	Interface	IP Address	Subnet Mask
Router1	FastEthernet 0/0	24.37.2.1	255.255.255.0
Router2	FastEthernet 0/0	24.37.2.2	255.255.255.0

Device	IP Address	Subnet Mask	Default Gateway
PC1	24.37.2.252	255.255.255.0	24.37.2.1

Lab Tasks

Task 1: Save a Configuration to a TFTP Server

This task involves saving the current router configuration to the TFTP server.

1.　　On Router2, copy the running configuration to the TFTP server on PC1.

2.　　When prompted for the address or name of the TFTP server, provide PC1's IP address (**24.37.2.252**), press the Enter key, and then provide the name of the configuration file that will be stored on PC1. Name the configuration file **router2_config**. After you press Enter, the router will take a few seconds to establish the connection; then you will see it copy the configuration file.

3.　　On PC1, issue the **show tftp-configs** command in order to display the configurations that are stored on the TFTP server. You should see the configuration you just saved.

　　　Note: The **show tftp-configs** command does not work on real PCs; it works only in NetSim.

Task 2: Load a Configuration from a TFTP Server

This task involves loading the configuration from the TFTP server onto Router2. Perform the following steps on Router2.

1.　　Change the host name of the router to **Bad_Router**.

2.　　Copy the configuration you stored on the TFTP server into the running configuration.

3.　　When the router prompts you for a name or an IP address, enter the IP address of the TFTP server (**24.37.2.252**).

4.　　Enter the name of the configuration file (**router2_config**) that should be obtained from the TFTP server.

5.　　After the configuration is copied to Router2, what do you observe? _____

　　　_____

Task 3: Modify the Configuration Register

This task involves changing how Router1 boots. Perform the following steps on Router1.

1.   View the current configuration register settings for Router1.

2.   Modify the configuration register to configure the device to boot to a `rommon>` prompt.

3.   Verify that the configuration register setting for Router1 has been applied.

4.   Copy the running configuration to the startup configuration file.

Lab Solutions

Task 1: Save a Configuration to a TFTP Server

You might need to upgrade IOS on a Cisco router or switch when you need additional features that are not available in the version of IOS that you are currently using. Before you can upgrade IOS, you must configure a TFTP server at a network location that can be accessed by the router or switch. The TFTP server can be run from any supported device on the network as long as the router or switch to be upgraded can connect to the device. In this lab, the TFTP server has been configured for you.

1. On Router2, issue the following commands to copy the running configuration to the TFTP server on PC1:

   ```
   Router2>enable
   Router2#copy running-config tftp
   ```

2. When prompted for the address or name of the TFTP server, provide PC1's IP address, press Enter, and then provide the name of the configuration file that will be stored on PC1. Name the configuration file **router2_config**. After you press Enter, the router will take a few seconds to establish the connection; then you will see it copy the configuration file. Sample output is below:

   ```
   Address or name of remote host[]? 24.37.2.252
   Destination filename [temp.rtr]? router2_config
   !!!!!
   ```

3. On PC1, issue the **show tftp-configs** command in order to display the configurations that are stored on the TFTP server. You should see the configuration you just saved. Sample output from PC1 is below:

   ```
   C:>show tftp-configs

       Filename            File Size

       router2_config      2481 bytes
   ```

   Note: The **show tftp-configs** command does not work on real PCs; it works only in NetSim.

Task 2: Load a Configuration from a TFTP Server

1. On Router2, issue the following commands to change the host name of the router to **Bad_Router**:

   ```
   Router2#configure terminal
   Router2(config)#hostname Bad_Router
   Bad_Router(config)#exit
   ```

2. On Router2, issue the following command to copy the configuration you stored on the TFTP server into the running configuration:

   ```
   Bad_Router#copy tftp running-config
   ```

3.   When Router2 prompts you for a name or an IP address, enter the IP address of the TFTP server:

```
Address or name of remote host[]? 24.37.2.252
```

4.   When prompted, enter the name of the configuration file that should be obtained from the TFTP server:

```
Source filename[]? router2_config
```

5.   The router will download the configuration and load it into the running configuration. You can verify that the load was successful because the host name will be restored to what it was when the configuration was saved.

```
Router2#
```

Task 3: Modify the Configuration Register

1.   On Router1, issue the **show version** command to view the current configuration register settings. The configuration register is currently set to 0x2102, which is the default. Sample output is below:

```
Router1>enable
Router1#show version

Boson Operating Simulation Software
BOSS (tm) C2800 Software (C2800-Enterprise), Version 12.3, RELEASE SOFTWARE
Copyright (c) 1998-2013 by Boson Software, Inc.

BOSS ROM: System Bootstrap, Version 12.3, RELEASE SOFTWARE
Router Uptime Is 0 days, 1 hour, 52 minutes
System restarted by power-on
System image file is ""flash:c2800-enterprise.12.2.boss"". booted via flash
2 Fast Ethernet/IEEE 802.3 interface(s)
2 Serial network interface(s)

32K bytes of simulated non-volatile configuration memory.
8192K bytes of simulated System flash (Read/Write)

Configuration register is 0x2102
```

2.   By default, when a Cisco device is unable to locate a valid Cisco IOS image in flash memory during the boot process, it will attempt to locate a valid IOS image on a TFTP server on the local network. If it cannot locate a TFTP server, it will enter ROM monitor (ROMmon) mode. When a router enters ROMmon mode, the `rommon>` prompt will be displayed instead of the standard prompt that is displayed on devices that are properly configured. The device will then load a limited version of the IOS from ROM. On Router1, issue the following commands to modify the configuration register to set the device to boot to a `rommon>` prompt:

```
Router1#configure terminal
Router1(config)#config-register 0x2120
```

3. Issue the **show version** command to view the configuration register settings for Router1. The
    configuration register is now set to 0x2120. Sample output from Router1 is below:

    ```
    Router1(config)#end
    Router1#show version

    Boson Operating Simulation Software
    BOSS (tm) C2800 Software (C2800-Enterprise), Version 12.3, RELEASE SOFTWARE
    Copyright (c) 1998-2013 by Boson Software, Inc.

    BOSS ROM: System Bootstrap, Version 12.3, RELEASE SOFTWARE
    Router Uptime Is 0 days, 1 hour, 52 minutes
    System restarted by power-on
    System image file is ""flash:c2800-enterprise.12.2.boss"". booted via flash
    2 Fast Ethernet/IEEE 802.3 interface(s)
    2 Serial network interface(s)

    32K bytes of simulated non-volatile configuration memory.
    8192K bytes of simulated System flash (Read/Write)

    Configuration register is 0x2120
    ```

4. On Router1, issue the **copy running-config startup-config** command to copy the running
    configuration to the startup configuration file. On a real router, you could then reboot the device to
    ROMmon mode. ROM does not contain a full version of the Cisco IOS. The boot image loaded from
    ROM will enable you to download a valid IOS image from a specific TFTP server. This process is not
    currently supported in NetSim.

Sample Configuration Scripts

Router1	Router2
Router1#show running-config Building configuration... Current configuration : 689 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 no ip address no ip directed-broadcast shutdown ! interface Serial0/1 no ip address no ip directed-broadcast shutdown ! interface FastEthernet0/0 ip address 24.37.2.1 255.255.255.0 no ip directed-broadcast ! interface FastEthernet0/1 no ip address no ip directed-broadcast shutdown ! ip classless no ip http server ! line con 0 line aux 0 line vty 0 4 ! no scheduler allocate end	Router2#show running-config Building configuration... Current configuration : 689 bytes ! Version 12.3 service timestamps debug uptime service timestamps log uptime no service password-encryption ! hostname Router2 ! ip subnet-zero ! ip cef no ip domain-lookup ! interface Serial0/0 no ip address no ip directed-broadcast shutdown ! interface Serial0/1 no ip address no ip directed-broadcast shutdown ! interface FastEthernet0/0 ip address 24.37.2.2 255.255.255.0 no ip directed-broadcast ! interface FastEthernet0/1 no ip address no ip directed-broadcast shutdown ! ip classless no ip http server ! line con 0 line aux 0 line vty 0 4 ! no scheduler allocate end

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