BTEC National Diploma

Networking, Routers and Routing

southwark college

Assignment 1: Router Management Basics

Deadline: Week of 1/05/06

Student Name_____ Date handed in:_____

Grading Criteria

It is possible to achieve criteria for the following from this assignment.

BTEC Grading Criteria	Tick	Date	Key Skills
P1. use available router configuration methods, e.g. command line, HTTP console, vty console and telnet			*PS3 LP3*
P2. backup or restore or upgrade OS image or configuration files using TFTP or another suitable method			*PS3 LP3*

Assignment Feedback (with smart targets)

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Student Feedback

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Internal Verifier Comments:

Signed: _____ Date: _____

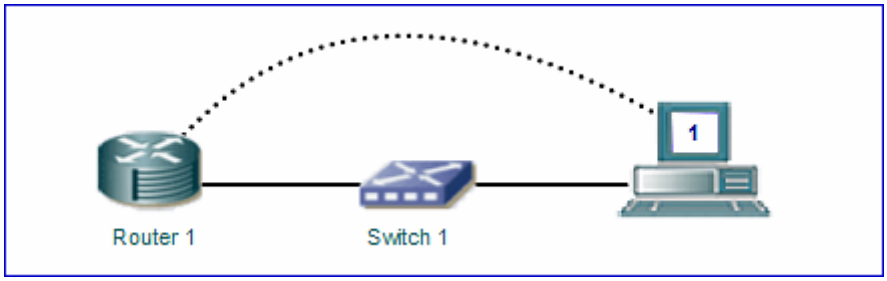
Assignment Brief

Set by: ADR Verified by: Stuart Blackmore Date: Sep 2004

Assignment 1 – Skills Test

This practical test provides you with the opportunity to apply the skills you have developed to date. You will need to demonstrate that you can connect to a router using different methods, make basic configuration changes and backup an IOS image and a configuration file to a TFTP server.

It is crucial to read and understand the scenarios, complete each task carefully and provide full documentation as evidence that you have fulfilled all the requirements.



Objectives:

This assignment contains a skills test section only, which provides the opportunity for you to demonstrate practical skills in router management and configuration. The test must be carried out in the networking lab on the specified date. You will need to demonstrate the ability to carry out the following:-

- Setup a network similar to the diagram above.
- Connect to a router via a management console and Telnet in turn.
- Assign a name to the router, set passwords, message-of-the-day and enable Telnet access.
- Configure an Ethernet interface with an IP address and subnet mask.
- Setup a TFTP server on a Host 1. Backup the IOS image to the TFTP server. Backup and restore a configuration file to the TFTP server.
- Document the network.

It is possible for you to achieve the BTEC grading points **P1** and **P2** on successful completion of this assignment. A percentage grade out of a 100 will also be awarded which will count toward your Cisco case study grade.

Scenario

A company with an extended internetwork requires the installation of an additional subnet. A new router has been purchased especially but it needs configuring and testing. You have been assigned the task of designing the subnet addressing scheme and configuring and testing the router. In particular, you have been asked to carry out the following:-

- ☐ *decide on a Class C private addressing scheme*
- ☐ *decide on basic configuration settings for the router*
- ☐ *configure and test the new router*
- ☐ *install a TFTP server and backup the router's IOS image and configuration file to the server.*

Task 1 Design the network

The included network diagram shows two computers and a router. A console connection is needed between Host 1 and the router. The TFTP server will also be installed on Host 1. Referring to the diagram, decide how you will configure Router 1 and Host 1 and record the information in the tables below. This will help you keep track of the configuration process. You should choose a private Class C IP address range.

	Router 1
Hostname *choose your own first name or surname*	
Console Password	
Secret Password	
VTY Password	
Ethernet interface used	
Ethernet IP address and subnet mask	
MOTD *choose a message warning that unauthorized use of the system is unlawful or something similar*	

	Host 1
IP address and subnet mask	
TFTP server port	

Task 2 Setup the network

2.1 Using appropriate cables connect Host 1 to the management console port of the router; then connect Host 1 to the switch and the switch to the router.

Task 3 Login to the router

3.1 Using HyperTerminal, login to the router. *If you are prompted for a password, you may ask the instructor for assistance in removing it.*

3.2 If the router asks you to `enter` the `initial configuration dialog`, say **n** and proceed onto **Task 3**. If you are not prompted, this means there is an existing startup configuration which you need to erase. Enter EXEC mode, erase the existing startup configuration and reload the router. When the router reloads you should see the following

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

Type **n** and press **Enter**.

Task 4 Carry out some basic configurations

4.1 On the router, enter the global configuration mode and set the routers name to that which you specified in your design task.

4.2 Configure the message-of-the-day (MOTD). You should test it by logging out of the router and logging back in again.

Task 5 Set passwords

5.1 In global configuration mode, set passwords and allow logins for the following

- Enable password, console, virtual terminals, HTTP

Task 6 Set an IP address on the Ethernet interface

To allow access to this router via Telnet or HTTP, or to connect to a TFTP server, an IP address needs to be assigned to the correct Ethernet interface.

6.1 Change to the proper command mode and configure the appropriate Ethernet interface. Set the interface to the IP address and subnet mask you specified in your design task. Don't forget to enable the interface.

Task 7 Verify and save the configuration

7.1 Verify that all settings are correct using an appropriate **show** command. *A screenshot is required*.

7.2 Copy the running configuration to the startup configuration.

Task 8 Verify connectivity

To verify that the Ethernet interface of the router has been set correctly, you can use the ping command from Host 1. First you will need to configure TCP/IP on Host 1.

8.1 Set the IP address and subnet mask of Host 1 to whatever you specified in your design task.

8.2 Ping the routers Ethernet interface from Host 1. If you do not receive a reply, you will need to check the configuration of the router and Host 1, and try to identify and fix the problem. *A screenshot is required*.

Task 9 Connect to the router via Telnet and HTTP

9.1 Check you can Telnet to the router from Host 1 and login successfully. *A screenshot is required*.

Task 10 Provide evidence you have completed the task successfully

Check you have created the following screenshots:-

- ☐ **Screenshot 1:** Use the **`show startup-config`** command to show you have changed the hostname, set passwords, set the MOTD banner, enabled HTTP and Telnet and configured the Ethernet interface. Ensure your screenshot(s) shows **all** of this information.
- ☐ **Screenshot 2:** Show you can **ping** the router and receive a reply.
- ☐ **Screenshot 3:** Showing you can connect to the router using Telnet.

Please ensure you annotate all screenshots

Checklist

- ☐ Hostname changed
- ☐ MOTD set and acceptable
- ☐ Console password set
- ☐ VTY password set
- ☐ Telnet login enabled
- ☐ Enable password set
- ☐ Ethernet interface configured
- ☐ Ethernet interface enabled
- ☐ Configuration file copied to startup
- ☐ Host 1 TCP/IP address configured
- ☐ Successful Ping from Host 1 to the router
- ☐ Successful Telnet session

Scenario Continued

Now you have completed the configuration of the router and Host 1, you need to set up a TFTP server on Host 1 and backup the router's IOS image and your configuration file to the server.

Task 11 Setup the TFTP server

11.1 Install the TFTP server on Host 1. Start the TFTP server.

Task 12 Copy the IOS image and your running-config to the TFTP server

12.1 Use the appropriate command from the routers console to record is the name and length of the Cisco IOS image stored in flash?

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12.2 Copy the IOS image from Flash to the TFTP server, using the default name.

12.3 Copy your **`running-config`** to the TFTP server. Record the name under which you saved the file.

_____

Task 13 Verify transfer of files

13.1 Check the TFTP log to verify that you have successfully transferred both the IOS image file and your **`running-config`** file. *A screenshot is required*.

Task 14 Restore your running-config to the TFTP server

It is best to check that the configuration you saved to the TFTP server has been saved properly, in case you need to use it in the future.

14.1 Change your routers name to **`Router`**

14.2 Restore your **`running-config`** from the TFTP server. You should see the router copying the file. If the procedure completes successfully, you should also see your hostname revert back to the hostname in your saved **`running-config.`** *A screenshot is required*.

Task 15 Provide evidence you have completed the tasks successfully

Create and save the following screenshots:-

- ☐ **Screenshot 4:** This should show the TFTP log window, indicating you have successfully transferred the IOS image file and the configuration file.
- ☐ **Screenshot 5:** This should show the response from router when you restore the **`running-config`** file from the TFTP server.
- ☐ **Printout of `running-config` file:** Retrieve your **`running-config`** file from the TFTP server and print it out.

Please ensure you annotate all screenshots

Checklist

- ☐ TFTP Server installed
- ☐ IOS image file copied to TFTP server
- ☐ Running configuration file copied to TFTP server
- ☐ Configuration file restored from the TFTP server
- ☐ Printout of running configuration file

Task 16 Reset the router

16.1 Erase the startup configuration from NVRAM. Issue the appropriate **show** command to verify the router is back in its default state. *A screenshot is required*.

Create and save the following screenshots:-

- ☐ **Screenshot 6:** Show you have restored the router back to its default state.

Checklist

- ☐ Router reset properly