



Lab 1.4.1 Introductory Lab 1 - Getting Started and Building Start.txt

Objective

This lab may introduce new CCNP lab equipment and certain IOS features. This introductory activity also describes how to use a simple text editor to create all or part of a router configuration and apply that configuration to a router.

Equipment Requirements

- A single router, preferably a 2600 series router (however, the 1700 series routers will also work), and a workstation running Windows 2000 operating system
- One 3 1/2-inch floppy disk with label

Preliminary

Modular interfaces. Cisco routers can come with a variety of interface configurations. Some models have only fixed interfaces. This means that users cannot change or replace the interfaces. Other models have one or more modular interfaces. This allows the user to add, remove, or replace interfaces as needed.

Fixed interface identification, such as Serial 0, S0, and Ethernet 0, E0, may already be familiar. Modular routers use notation such as Serial 0/0 or S0/1, where the first number refers to the module and the second number refers to the interface. Both notations use 0 as their starting reference, so S0/1 indicates that there is another serial interface S0/0.

FastEthernet. Many routers today are equipped with FastEthernet interfaces. FastEthernet has 10/100 Mbps autosensing. FastEthernet 0/0 or Fa0/0 notation must be used on routers with FastEthernet interfaces.

The `ip subnet-zero` command. The `ip subnet-zero` command is enabled by default in IOS 12. This command allows IP addresses to be assigned in the first subnet, called subnet 0. Because subnet 0 uses only binary zeros in the subnet field, its subnet address can potentially be confused with the major network address. With the advent of classless IP, the use of subnet 0 has become more common. The labs in this manual assume that addresses can be assigned to the router interfaces using subnet 0. If any routers are used that have an IOS earlier than 12.0, the global configuration command `ip subnet-zero` must be added to the router configuration.

The `no shutdown` command. Interfaces are shut down by default. Remember to type a `no shutdown` command in interface configuration mode when the interface is ready to be brought up. The command `no shutdown` will not appear in the output of the `show running-config` command.

Passwords. The `login` command is applied to virtual terminals by default. This means that in order for the router to accept Telnet connections, a password must be configured. Otherwise, the router will not allow a Telnet connection, replying with the error message `password required, but none set`.

Step 1

Take a few moments to examine the router. Become familiar with any serial, BRI (ISDN), PRI (ISDN), and DSU/CSU interfaces on the router. Look closely at any connectors or cables that are not familiar.

Step 2

Establish a HyperTerminal session to the router.
Enter privileged EXEC mode.

Step 3

To clear the configuration, issue the `erase startup-config` command.

Confirm the objective when prompted, and answer 'no' if asked to save changes. The result should look something like this:

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

When the prompt returns, issue the `reload` command.

Confirm the objective when prompted. After the router finishes the boot process, choose not to use the AutoInstall facility, as shown:

```
Would you like to enter the initial configuration dialog? [yes/no]: no
Would you like to terminate autoinstall? [yes]: ← Press Enter to accept default.
Press RETURN to get started!
```

Step 4

In privileged mode, issue the `show run` command.

Note the following default configurations while scrolling through the running configuration:

- The version number of the IOS
- The `ip subnet-zero` command, which allows the use of subnet 0
- Each available interface and its name.
Note: Each interface has the `shutdown` command applied to its configuration.
- The `no ip http server` command, which prevents the router from being accessed by a Web browser
- No passwords are set for CON, AUX, and VTY sessions, as shown here:

```
line con 0
transport input none          (not applicable in IOS 12.2)
line aux 0
line vty 0 4
```

Using Copy and Paste with Notepad

In the next steps, use the copy and paste feature to edit router configurations. A text file needs to be created that can be pasted into the labs and used as a starting point for the router configuration. Specifically, a login configuration must be built that can be used with every lab included in this manual.

Step 5

If necessary, issue the `show run` command again so that **line con** and **line vty** are showing on the screen:

```
line con 0
transport input none      (not applicable in IOS 12.2)
line aux 0
line vty 0 4
!
end
```

Select the text as shown in this step and choose the `copy` command from HyperTerminal Edit menu.

Next, open Notepad. Notepad is typically found on the Start menu under Programs, Accessories. After Notepad opens, select **Paste** from the Notepad Edit menu.

Edit the lines in Notepad to look like the following lines. The one space indent is optional:

```
enable secret class
line con 0
  transport input none      (not applicable in IOS 12.2)
  password cisco
  login
line aux 0
  password cisco
  login
line vty 0 4
  password cisco
  login
```

This configuration sets the enable secret to **class** and requires a login for all console, AUX port, and virtual terminal connections. The AUX port is usually a modem. The password for these connections is set to **cisco**.

Note: Each of the passwords can be set to something else if so desired.

Step 6

Save the open file in Notepad to a floppy disk as **start.txt**.

Select all the lines in the Notepad document and choose **Edit > Copy**.

Step 7

Use the Windows taskbar to return to the HyperTerminal session, and enter global configuration mode.

From the HyperTerminal Edit menu, choose **Paste to Host**.

Issue the `show run` command to see if the configuration looks okay.

As a shortcut, the contents of the `start.txt` file can now be pasted to any router before getting started with a lab.

Other Useful Commands

To enhance the `start.txt` file, consider adding one of the following commands:

- `ip subnet-zero` ensures that an older IOS allows IP addresses from subnet 0.
- `ip http server` allows access to the router using a Web browser. Although this configuration might not be desirable on a production router, it does enable an HTTP server for testing purposes in the lab.
- `no ip domain-lookup` prevents the router from attempting to query a DNS when a word is input that is not recognized as a command or a host table entry. This saves time when making a typo or misspelling a command.
- `logging synchronous` in the `line con 0` configuration returns to a fresh line when the input is interrupted by a console logging message.
- `configure terminal (config t)` can be used in a file so that a command does not have to be typed before pasting the contents of the file to the router.

Step 8

Use the Windows taskbar to return to Notepad and edit the lines so that they read as shown:

```
config t
!
enable secret class
ip subnet-zero
ip http server
no ip domain-lookup
line con 0
  logging synchronous
  password cisco
  login

  transport input none          (not applicable in IOS 12.2)
line aux 0
password cisco
login
line vty 0 4
password cisco
login
!
end
copy run start
```

Save the file to the floppy disk so the work is not lost.

Select and copy all the lines, and return to the HyperTerminal session.

Because the `config t` command was included in the script, entering global configuration mode before pasting is no longer necessary.

If necessary, return to privileged EXEC mode. From the Edit menu, select **Paste to Host**.

After the paste is complete, confirm the copy operation.

Use `show run` to see if the configuration looks okay.

Using Notepad to Assist in Editing

Understanding how to use Notepad can reduce typing and typos during editing sessions. Another major benefit is that an entire router configuration can be done in Notepad when at home or at the office and then paste it to the router console when access is available. In the next steps, a simple editing example will be looked at.

Step 9

Configure the router with the following commands:

```
Router#config t
Router(config)#router rip
Router(config)#network 192.168.1.0
Router(config)#network 192.168.2.0
Router(config)#network 192.168.3.0
Router(config)#network 192.168.4.0
Router(config)#network 192.168.5.0
```

Press **Ctrl+Z**, and verify the configuration with `show run`. RIP was just set up to advertise a series of networks. However, the routing protocol is to be changed to IGRP. With the `no router rip` command, the RIP process is completely removed. The `network` commands would still need to be retyped. The next steps show an alternative method.

Step 10

Issue the `show run` command and hold the output so that the `router rip` commands are displayed. Using the keyboard or mouse, select the `router rip` command and all `network` statements.

Copy the selection.

Use the taskbar to return to Notepad.

Open a new document and paste the selection onto the blank page.

Step 11

In the new document, type the word **no** and a space in front of the word **router**.

Press the **End** key, and press **Enter**.

Type `router igrp 100`, but do not press **Enter**. The result should look like as follows:

```
no router rip
router igrp 100
network 192.168.1.0
network 192.168.2.0
network 192.168.3.0
network 192.168.4.0
network 192.168.5.0
```

Step 12

Select the results and copy them.

Use the taskbar to return to the HyperTerminal session.

While in global configuration mode, paste the results.

Use the `show run` command to verify the configuration.

Reflection

How could using copy and paste with Notepad be helpful in other editing situations?
