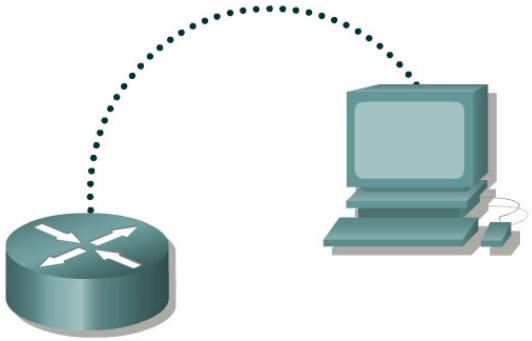
Lab 5.2.6a Password Recovery Procedures



Router designation	Router name	Enable secret password	Enable/VTY/ and Console passwords
Router 1	GAD	class	cisco

Straight-through cable	
Serial cable	
Console (Rollover)	
Crossover cable	

Objective

- Gain access to a router with an unknown privileged mode (enable) password.

Background/Preparation

This lab demonstrates gaining access to a router with an unknown privileged mode (enable) password. One point to be made here is that anyone with this procedure and access to a console port on a router can change the password and take control of the router. That is why it is of critical importance that routers also have physical security to prevent unauthorized access.

Setup a network as displayed in the figure. Any router that meets the interface requirements may be used. Possible routers include 800, 1600, 1700, 2500, 2600 routers, or a combination. Refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce slightly different output.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

Note: Configure the hostname and passwords on the router. Have an instructor, lab assistant, or other student change the enable secret password. Perform **`copy running-config startup-config`** and reload the router.

Note: The version of HyperTerminal provided with Windows 95, 98, NT and 2000 was developed for Microsoft by Hilgraeve. Some versions may not issue a "break" sequence as required for the Cisco router password recovery technique. If this is the case, upgrade to

HyperTerminal Private Edition (PE) available free of charge for personal and educational use. The program may be downloaded at http://www.hilgraeve.com.

Step 1 Attempt login to the router

a. Make the necessary console connections and establish a HyperTerminal session with the router. Attempt to logon to the router using the enable password **cisco**. The output should look like the following:

```
Router>enable
Password:
Password:
Password:
% Bad secrets

Router>
```

Step 2 Document the current config-register setting

a. At the user EXEC prompt type **show version**.

b. Record the value displayed for configuration register _____ . For example 0x2102.

Step 3 Enter the ROM Monitor mode

a. Turn the router off, wait a few seconds and turn it back on. When the router starts displaying "System Bootstrap, Version …" on the HyperTerminal screen, press the **Ctrl** key and the **Break** key together. The router will boot in ROM monitor mode. Depending on the router hardware, one of several prompts such as: "**rommon 1 >**" or simply "**>**" may show.

Step 4 Examine the ROM Monitor mode help

a. Type **?** at the prompt. The output should be similar to this:

```
rommon 1 >?
alias               set and display aliases command
boot                boot up an external process
break               set/show/clear the breakpoint
confreg             configuration register utility
context             display the context of a loaded image
dev                 list the device table
dir                 list files in file system
dis                 display instruction stream
help                monitor builtin command help
history             monitor command history
meminfo             main memory information
repeat              repeat a monitor command
reset               system reset
set                 display the monitor variables
sysret              print out info from last system return
tftpdnld            tftp image download
xmodem              x/ymodem image download
```

Step 5 Change the configuration register setting to boot without loading configuration file

a. From the ROM Monitor mode, type **confreg 0x2142** to change the config-register.

```
rommon 2 >confreg 0x2142
```


Step 6 Restart Router

a. From the ROM Monitor mode, type **reset** or power cycle the router.

```
rommon 2 >reset
```

b. Due to the new configuration register setting, the router will not load the configuration file. The system prompts:

"Would you like to enter the initial configuration dialog? [yes]:"

Enter **no** and press **Enter**.

Step 7 Enter Privileged EXEC mode and change password

a. Now at the user mode prompt Router>, type **enable** and press **Enter** to go to the privileged mode without a password.

b. Use the command **copy startup-config running-config** to restore the existing configuration. Since the user is already in privileged EXEC no password is needed.

c. Type **configure terminal** to enter the global configuration mode.

d. In the global configuration mode type **enable secret class** to change the secret password.

e. While still in the global configuration mode, type **config-register xxxxxxx**. xxxxxxx is the original configuration register value recorded in Step 2. Press **Enter**.

f. Use the **Ctrl z** combination to return to the privileged EXEC mode.

g. Use the **copy running-config startup-config** command to save the new configuration.

h. Before restarting the router, verify the new configuration setting. From the privileged EXEC prompt, enter the **show version** command and press **Enter**.

i. Verify that the last line of the output reads:

Configuration register is 0x2142 (will be 0x2102 at next reload).

j. Use the **reload** command to restart the router.

Step 8 Verify new password and configuration

a. When the router reloads the enable password should be **class**.

Upon completion of the previous steps, logoff by typing **exit**. Turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

```
Router>enable
```

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

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

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

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

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

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	
In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.					

