



Lab 5.1.5 Troubleshooting Configuration Register Boot Problems



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

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

Objective

- Check and document the configuration register settings related to boot method.
- Configure the router to boot using the configuration file in NVRAM and reload the router.

Background/Preparation

Setup a network similar to the one in the previous diagram. 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. The following steps are intended to be executed on each router unless specifically instructed otherwise.

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

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

Step 1 Login to the router

- a. Connect to the router and login.

Step 2 Configure the router name and configuration register setting

- a. Enter the following commands:

```
Router>enable
Router#configure terminal
Router(config)#hostname GAD
GAD(config)#config-register 0x2142
GAD(config)#exit
```

Step 3 Save the existing running-config to the startup-config

- a. At the privileged EXEC command prompt enter:

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 4 Restart the router

- a. At the privileged EXEC command prompt enter:

```
GAD#reload
Proceed with reload? [confirm] [Enter]
```

This will save the current blank configuration and reload the router.

After the reload the router will respond with:

```
--- System Configuration Dialog ---

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

Type n and press Enter.
```

Step 5 View the running configuration file

- a. Enter **show running-config** at the privileged EXEC mode prompt. The router will display information on the running configuration file stored in RAM.
- b. Is the configuration that was just entered shown? _____

Step 6 Reload the saved configuration

- a. At the privileged EXEC command prompt enter:

```
Router#copy startup-config running-config
Destination filename [running-config]? [Enter]
```

Step 7 Display IOS version and other important information

- a. Enter **show version** command at the router prompt.
The router will return information about the IOS that is running in RAM.
- b. Once the command is entered, notice that at the end of the output shows a configuration register setting of 0x2142. This is the problem. This configuration register setting is set to boot up in the password recovery mode. This is why the configuration saved to NVRAM is not showing.

Step 8 Change the config-register to boot from NVRAM, save, and reload the router

- a. Enter global configuration mode and enter the following commands:

```
Router>enable
GAD#configure terminal
```

```
GAD(config)#config-register 0x2102
GAD(config)#exit
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
GAD#reload
Proceed with reload? [confirm] [Enter]
```

Step 9 Verify the configuration register setting

- a. Once the router has rebooted, it should boot from NVRAM. Verify this by issuing the command, **show version**.

```
GAD#show version
```

The results will be shown. You should be able to see the config-register 0x2102.

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**.

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

```
Router>enable
```

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(config)#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.					