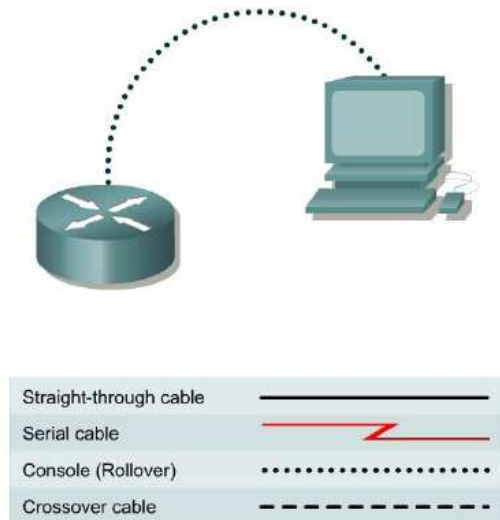


Lab: Establishing a Console Session with Router

Topology Diagram



Step 1 Connect a Router and Computer with a Console Cable

Connect the console (rollover) cable to the console port on the router. Connect the other cable end to the PC with a DB-9 or DB-25 adapter to the COM 1 port.

Step 2 Power on devices

Step 3 Configure TeraTerm to Establish a Console Session with the Router.

COM1 Properties:

Bits per second = **9600**
Data bits = **8**
Parity = **None**
Stop bits = **1**
Flow control = **None**

Step 4 Continue without the setup dialog

a. The router prompts, "Continue with configuration dialog?" Enter **no** to continue without the setup dialog.

Command Modes and Router Identification

How does the router prompt look like?

What does this prompt mean?

Step 1 Enter privileged EXEC mode

a. Enter **enable** at the user mode prompt.

Router>**enable**

b. If prompted for a password, enter the password class.

c. What prompt did the router display?

d. What does this prompt mean?

Step 2 Enter global configuration mode

a. Enter **configure terminal** at the privilege mode prompt.

Router#**configure terminal**

b. What prompt did the router display? _____

c. What does this prompt mean?

Step 3 Exit from global configuration mode

a. Enter **exit** at the config mode prompt.

Router(config)#**exit**

Step 4 Go back to user EXEC mode

a. Enter **disable** at the privileged mode prompt.

Router#**disable**

Step 5 Use the HELP feature

a. Enter the **help** command by typing the **?** at the user EXEC router prompt.

Router>**?**

List eight available commands from the router response:

Step 6 Use the HELP feature at privileged EXEC mode

a. Enter enable mode by using the **enable** command

Router>**enable** [Enter]

b. Enter the help mode by typing a question mark (**?**) at the router privileged EXEC prompt.

Router#**?**

c. List ten (10) available commands from the router response:

Step 7 List the show commands

a. List all show commands by entering **show ?** at the router privileged EXEC prompt.

Router#**show ?**

b. Is **running-config** one of the available commands from this mode?

Step 8 Examine the running configuration

a. Router#show running-config

Step 9 Use the command history feature

a. Use the command **history** to see and reuse the previously entered commands. Press the up arrow or **Ctrl-p** to see the last entered command. Press it again to go to the command before that. Press the down arrow or **Ctrl-n** to go back through the list. This function lets the command history be viewed.

b. What appeared at the router prompt when the up arrow was pressed?

Step 10 Display IOS version and other important information with the „show version“ command

a. Enter the **show version** command. The router will return information about the IOS that is running in RAM.

b. What is the IOS version?

c. What is the name of the system image (IOS) file? _____

d. Where was the router IOS image booted from? _____

e. What type of processor (CPU) and how much RAM does this router have?

f. How many Ethernet interfaces does this router have? _____

How many serial interfaces? _____

g. The router backup configuration file is stored in non-volatile random access memory (NVRAM).

How much NVRAM does this router have? _____

h. The router operating system (IOS) is stored in Flash memory. How much Flash memory does this router have? _____

i. What is the configuration register set to? _____

Step 11 Display the time and date for the router

a. Enter the **show clock** command. What information is displayed? _____

Step 12 Display a cached list of host names and addresses

a. Enter the **show hosts** command. What information is displayed with **show hosts**?

Step 13 Display users who are connected to the router

a. Enter the **show users** command. What information is displayed with **show users**?

Step 14 Show the router ARP table

a. Enter the **show arp** command at the router prompt. What is the ARP table?

Step 15 Show information about the Flash memory device

- a. Enter **show flash** at the router prompt.
- b. How much Flash memory is available and used?

- c. What is the file that is stored in Flash memory?

- d. What is the size in bytes of the Flash memory?

Simple Router configuration

Step 1 Enter global configuration mode

- a. Enter **configure terminal** at the privilege EXEC mode prompt.

Step 2 Enter a hostname of GAD for this router

- a. Enter **hostname GAD** at the prompt.
Router(config)#**hostname GAD**
 - b. What prompt did the router display?
-

Step 3 Configure console password

Configure the console password on the router and exit from line console:

```
GAD(config)#line console 0  
GAD(config-line)#password cisco  
GAD(config-line)#login  
GAD(config-line)#exit
```

Step 4 Configure telnet passwords

Configure the password on the virtual terminal lines and exit line mode:

```
GAD(config)#line vty 0 4  
GAD(config-line)#password cisco  
GAD(config-line)#login  
GAD(config-line)#exit
```

Step 5 Configure the enable password

```
GAD(config)#enable password cisco  
GAD(config)#exit
```

Step 6 Return to the user EXEC mode

```
GAD#disable
```

Step 7 Enter the privileged EXEC mode again

This time a prompt for a password will show. Enter **cisco**

```
GAD>enable  
Password:cisco
```

Step 8 Return to the configuration mode

```
GAD#configure terminal
```

Step 9 Configure the enable secret password

```
GAD(config)#enable secret class  
GAD(config)#exit
```

Note: Remember the enable secret password is encrypted from the configuration view. Also do not type **enable secret password class**, or the secret password will be password, not class. The enable password is unencrypted and can be viewed from the configuration.

Step 10 Return to the user EXEC mode

```
GAD#disable
```

Step 11 Enter the privileged EXEC mode again

A prompt for a password will show. Enter **cisco**. If it fails, continue until the bad secrets message is displayed:

```
GAD>enable  
Password:cisco  
Password:cisco  
Password:cisco  
% Bad secrets
```

Configuring Message-of-the-Day (MOTD)

Step 1 Enter Global Configuration mode

a. Enter **configure terminal** at the router prompt. Notice the change in the router prompt.

Step 2 Display help for the banner motd command

- Enter **banner motd ?** at the router prompt.
- What is the character called that is used to indicate the beginning and end of the banner?

Step 3 Choose an appropriate MOTD

a. The login banner should be a warning not to attempt login unless authorized. In the following space, enter an appropriate warning banner. The message can contain any printable character as well as spaces and carriage returns.

Step 4 Enter the desired banner message

a. From the global configuration mode enter **banner motd # message #**. The “#” signs are used as delimiters and the “message” is the banner message chosen in the previous step.

Step 5 Test the MOTD display

a. Exit the console session. Reenter the router to display the message-of-the-day. This is done by pressing the **Enter** key. This will display the message entered into the configuration.

Step 6 Verify the MOTD by looking at the router configuration

- Enter the **show running-config** command.
 - How does the banner MOTD show in the configuration listing?
-

Configuring an Ethernet Interface

Step 1 Configure the FastEthernet 0/0 interface

Note: The designation for the first Ethernet interface on the router will vary. It may be ethernet 0, fastethernet 0 or fastethernet 0/0 depending on the type of router.

```
GAD(config)#interface fastEthernet 0/0
GAD(config-if)#ip address 192.168.14.1 255.255.255.0
GAD(config-if)#no shutdown
GAD(config-if)#exit
GAD (config)#exit
```

Note: Once interface configuration mode is entered, note the IP address of the interface. Enter the subnet mask.

The command **no shutdown** turns on the interface.

Shutdown is when the interface is off.

Step 2 Display FastEthernet 0/0s configuration information

```
GAD#show interface fastethernet 0/0
```

Note: This will show the details of the Ethernet interface.

- List at least three details discovered by issuing this command.
- FastEthernet0/0 is _____. Line protocol is _____.
- Internet address is _____.
- Encapsulation _____
- To what OSI layer is the "Encapsulation" referring? _____

Configuring a Serial Interface

Step 1 Configure serial interface Serial 0/0

From global configuration mode, configure serial interface Serial 0/0 on Router GAD

```
GAD(config)#interface serial 0/0
GAD(config-if)#ip address 192.168.15.1 255.255.255.0
GAD(config-if)#clock rate 56000
GAD(config-if)#no shutdown
GAD(config-if)#exit
GAD(config)#exit
```

Note: Once the interface configuration mode is entered, note the IP address of the interface. Enter the subnet mask. Enter the clock rate only on the DCE side of the device.

Step 2 Display information about Serial0/0 interface on GAD

- Enter the command show interface serial 0/0 on GAD.

```
GAD#show interface serial 0/0
```

This will show the details of interface serial 0/0.

- b. List at least three details discovered by issuing this command.
 - c. Serial0/0 is _____. Line protocol is _____.
 - d. Internet address is _____.
 - e. Encapsulation _____
 - f. To what OSI layer is the “Encapsulation” referring? _____
 - g. If the Serial interface was configured, why did the **show interface serial 0/0** say that the interface is down?
-

Step 3 Save the configuration

- a. Save the running configuration to the startup configuration at the privileged EXEC mode.
GAD#**copy running-config startup-config**

Note: Save the running configuration for the next time that the router is restarted. The router can be restarted either by a software **reload** command or a power shutdown. The running configuration will be lost if the running configuration is not saved. The router uses the startup configuration when the router is started.

Configuring Interface Descriptions

Step 1 Enter Interface Configuration mode

- a. Enter **interface serial 0/0** at the global configuration prompt. Refer to interface chart. What does the router prompt look like in interface configuration mode?
-

Step 2 Display help for the description command

- a. Enter **description ?** at the router prompt. What is the maximum number of characters in an interface description?
-

Step 3 Choose a description for the interface

- a. An interface description includes the purpose and location of the interface, other devices or locations connected to the interface, and circuit identifiers. Descriptions help the support personnel better understand the scope of problems related to an interface. Descriptions also allow for a faster resolution of problems.
- b. Enter the description text. Then enter **Ctrl-z** or type **end** to return to the privileged EXEC mode.

Note: this would be the same as typing **exit** to leave the interface configuration mode and **exit** again to leave Global Configuration mode. This is a keyboard shortcut.

Configuring Host Tables

Background/Preparation

IP host tables allow a router to use names to identify all of the attached interfaces on that router. These names can be used in place of an IP address in commands that use IP addresses to identify a location such as ping or Telnet.

a. From the global configuration mode, enter the command **ip host** followed by the name of each router in the network, as well as all of the IP addresses of the interfaces on each of the routers.

For example to name the GAD router accessible from BHM by the name "G", enter:

```
BHM(config)#ip host G 172.16.0.1 172.17.0.1
```

Completing the lab

Step 1 View your router configuration

a. to view running-configuration, enter

```
GAD#show running-configuration
```

b. to view saved configuration which is in file „startup-configuration“, enter

```
GAD#show startup-configuration
```

Step 2 Erase your router configuration

If startup-configuration is not empty you have to erase it.

```
GAD#erase startup-configuration
```

Note: You can ensure that configuration is deleted by entering „show startup-configuration“ again.

Step 3 Turn off the router and disconnect attached cables