Module F Router Walk-through

Command	**What it Does**
Router# -OR- Switch#	Either device can be listed. Router# will be used in this document unless otherwise specified.
Router# show run	Displays your current running configuration
Router# Copy run start	Copies the current running configuration to memory (saves it!)
Router# write -OR- **wr**	Alternative for **copy run start.** Writes config directly to NVRAM
Router# show version	Shows the current version of IOS, configuration registry number, uptime, MAC address, and other information
Router# erase startup-configuration Router# reload	Wipes startup config. Allows you to start with a default configuration. Works on routers and switches
Router# show ip route	Shows the routing table
Router# show ip interface brief	Shows summary of interfaces
Routers# show ip ospf neighbor	Shows neighbors directly connected
Router# ping 192.168.1.1	Sends a PING to that IP address
exit	Sends you back one level
Keyboard	**What it Does**
CTRL + SHIFT 6	Press these keys to stop all unwanted process and return to your prompt
CTRL Z	Exits all configuration modes and returns you to privileged exec mode (Router#)
CTRL A	Moves the cursor to the beginning of the CLI line
CTRL E	Moves the cursor to the end of the CLI line
SPACE BAR	Advances the CLI a page at a time, scrolling
ENTER	Advances the CLI line by line

Cable Types

- Straight-Through: Connect different devices
- Crossover: Connects like devices
- Console: Configuring devices

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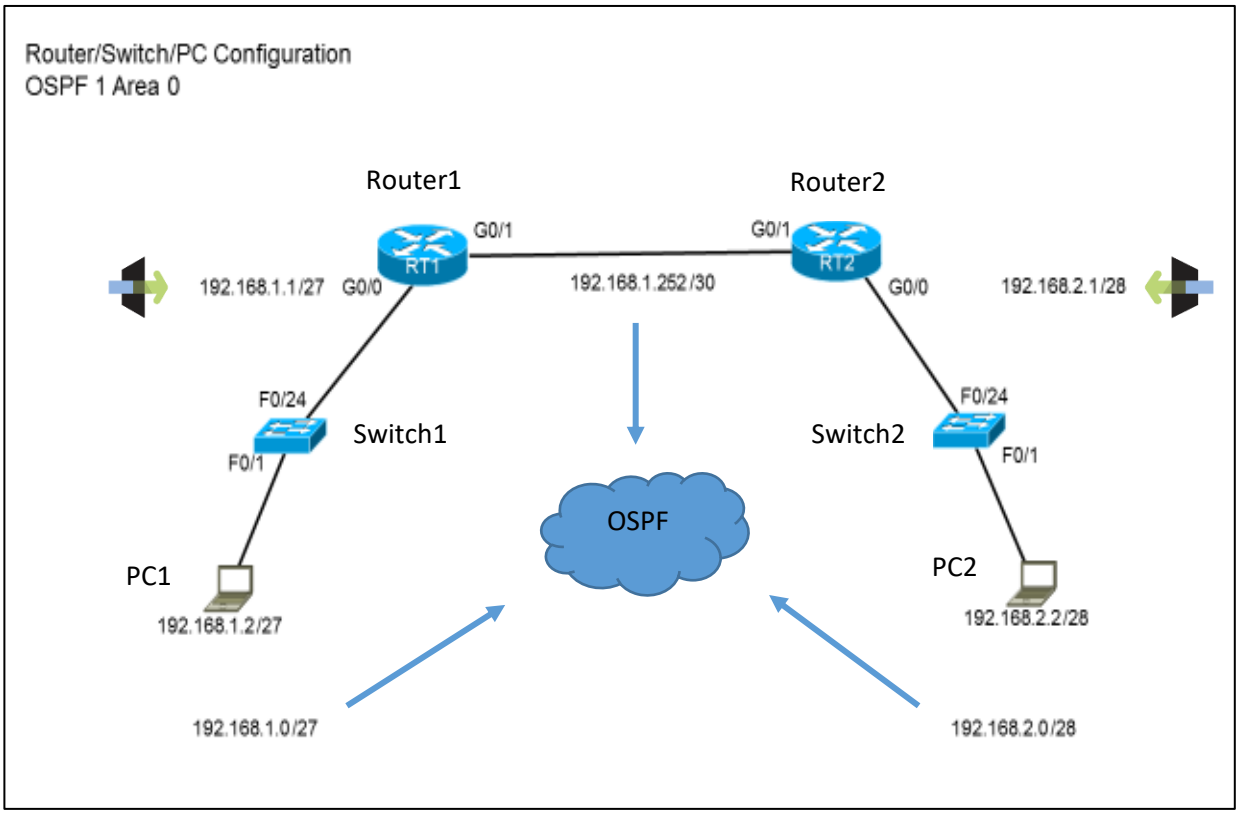
Network Diagram



Router 1 Admin

<u>Note: Items displayed in *italics* are variable, depending on parameters required</u>.

Router> **enable**
Router# **configure terminal (** Or **config t** for short. This enters the global configuration mode)
Router(config)# **hostname *Router1*** (sets the hostname to the italicized portion)
Router1 (config)# **banner motd *** *This router was configured by me.* *****
Router1 (config)# **banner login *** *Unauthorized access is strictly prohibited !******
Router1 (config)# **enable password cisco**
Router1 (config)#**no ip domain-lookup**
Router1 (config)# **line console 0** (enables config mode to configure console line)
Router1 (config-line)# **password** *cisco* (where ***cisco*** is the given console password)
Router1 (config-line)# **login** (tells the router or switch to require the password to gain access)
Router1 (config-line)# **exec-timeout 0 0** (disables your connection from timing out – use only in bench testing, never in a production environment)
Router1 (config-line)# **logging synchronous** (Stops console messages from interfering, always puts the cursor back to where you were typing)
Router1 (config-line)# **exit** (drops out of line config mode)
Router1 (config)# **line vty 0 4** (5 total VTY "lines", numbered 0 through 4. These allow for remote connections to configure your device)

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Router1 (config-line)# **password** *cisco* (where ***cisco*** is the given vty password)
Router1 (config-line)# **login**
Router1 (config-line)#**transport input** *telnet* (other options are ssh, all or none)
Router1 (config-line)# **exit** (drops out of line config mode)

Router 1 Interface Configurations

(NOTE: Using Ethernet Interfaces - IF YOU ARE INSTRUCTED TO USE SERIAL CONNECTIONS, GO TO PAGE 7)

Router1 (config)#**interface G0/1** (use F0/1 instead if instructor directs)
Router1(config-if)# **ip address** *192.168.1.253 255.255.255.252* (IP address, Subnet mask - these change when you have a different network)
Router1 (config-if)# **description** *This is my WAN connection to Router2*
Router1 (config-if)# **no shutdown** (opens the interface to allow traffic)
Router1(config-if)# **exit**

Router1 (config)#**interface G0/0** (use F0/0 instead if instructor directs)
Router1 (config-if)# **ip address** *192.168.1.1 255.255.255.224* (IP address, Subnet mask)
Router1 (config-if)# **description** *This is my LAN connection to Switch1*
Router1 (config-if)# **no shutdown**
Router1 (config-if)# **exit**

Router 1 Routing Protocols

Router1 (config)# **router ospf** *100* (This is the Process ID Number)
Router1(config-router)# **network** *192.168.1.0 0.0.0.31* **area 0** (Advertise the proper network, proper wildcard mask and area.)
Router1 (config-router)# **network** *192.168.1.252 0.0.0.3* **area 0** *(Advertise the proper network, proper wildcard mask and area.)*
Router1 (config-router)# **exit** (or CTRL Z. CTRL Z exits all global modes and returns you to the privileged exec mode)
Router1 (config-if*)#* **exit** (this backs you out one level at a time)
Router1 (config)# **exit**
Router1# **copy run start** *or* **wr**
Router1# **show run**

Module F Router Walk-through
Router 2 Admin

Router> **enable**
Router# **config t** (enables global-config mode)
Router(config)# **hostname** *Router2* (sets the hostname to the underlines portion)
Router2(config)# **banner motd *** *This router was configured by me.* *****
Router2 (config)# **banner login *** *Unauthorized access prohibited* *****
Router2 (config)# **enable password** *cisco (or enable secret cisco)*
Router2 (config)#**no ip domain-lookup**
Router2 (config)# **line console 0** (enables config mode to configure console line)
Router2 (config-line)# **password** cisco (where **cisco** is the given console password)
Router2 (config-line)# **login** (tells the router or switch to require the password to gain access)
Router2 (config-line)# **exec-timeout 0 0** (disables your connection from timing out – use only in bench testing, never in a production environment)
Router1 (config-line)# **logging synchronous** (Stops console messages from interfering, always puts the cursor back to where you were typing)
Router2 (config-line)# **exit** (drops out of line config mode)
Router2 (config)# **line vty 0 4** (5 total VTY "lines", numbered 0 through 4. These allow for remote connections to configure your device)
Router2 (config-line)# **password** *cisco* (where ***cisco*** is the given vty password)
Router2 (config-line)# **login**
Router2 (config-line)#**transport input** *telnet* (other options are ssh, all or none)
Router2 (config-line)# **exit** (drops out of line config mode)

Router 2 Interface Configuration

(NOTE: When using Ethernet Interfaces - IF YOU ARE TO USE SERIAL CONNECTIONS, GO TO PAGE 7)

Router2 (config)#**interface G0/1** (use F0/1 instead if instructor directs)
Router2(config-if)# **ip address** *192.168.1.254 255.255.255.252* (IP address, SM – this is the other end of your link. It MUST be in the same subnet to communicate)
Router2(config-if)# **description** *This is my WAN connection to Router1*
Router2 (config-if)# **no shutdown**
Router2 (config-if)# **exit**

Router2 (config)#**interface G0/0** (use F0/1 instead if instructor directs)
Router2(config-if)# **ip address** *192.168.2.1 255.255.255.240* (IP address, Subnet mask)
Router2(config-if)# **description** *This is my LAN connection to Switch2*
Router2(config-if)# **no shutdown**
Router2 (config-if)# **exit**

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Router 2 Routing Protocols

Router2 (config)# **router ospf** *100* (This is the Process ID Number)
Router2(config-router)# **network** *192.168.1.0 0.0.0.31* **area 0** (Advertise the proper network, proper wildcard mask and area.)
Router2 (config-router)# **network** *192.168.1.252 0.0.0.3* **area 0** (Advertise the proper network, proper wildcard mask and area.)
Router2 (config-router)# **network** *192.168.2.0 0.0.0.15* **area 0** (Advertise the proper network, proper wildcard mask and area.)
Router2 (config-router)# **exit** (or **CTRL Z**. CTRL Z exits all global modes and returns you to the privileged exec mode)
Router2 (config-if)# **exit** (this backs you out one level at a time)
Router2 (config)# **exit**
Router2# **copy run start** or **wr**
Router2# **show run**

Wildcard Mask Rules:

Used for OSPF commands

Formulas	Example:
255.255.255.255	255.255.255.255
- Subnet Mask	- 255.255.255.128
Wildcard Mask	0 . 0 . 0 . 127

Configure Packet Tracer PCs interface (as needed):

- Place the PC on the screen
- Select the DESKTOP tab
- Select Interface > Fast Ethernet 0
- Enable the STATIC IP option in IP CONFIGURATION
- Enter the correct **IP Address, Subnet Mask, Default Gateway** per your network diagram

Setting Your Physical Workstation IP (as needed):

- Click on Network Connection on Desktop
- Double-Click Local Connection
- Click Properties
- Scroll to the bottom and double-click Internet Protocol (TCP/IP)
- Replace existing info with your assigned workstation IP, SM, and Default Gateway
- Once information is updated Click on OK then OK again, an hourglass should appear telling you the information is being updated on your NIC.

Module F Router Walk-through

Ping the Router from your PC:

- Create the network in Packet Tracer just like in the network diagram. You do not need to configure the switches yet. Just make sure the switches are powered on.
- Connect a straight-through cable from your PC's NIC to the local switch's Ethernet port.
- On your PC, double-click on Command Prompt on your desktop.
- At the command prompt, type **ipconfig** to show the IP settings for your workstation.
- Type **ping XXX.XXX.XXX.XXX** (your Gateway address - The router's IP address)
- Good: At least 3 *Reply From* lines, Bad: *Destination Host Unreachable*
- If bad, double-check your PC IP Address, your router's IP address, and ensure your cable is in the correct port and firmly seated.

Module F Router Walk-through

CONFIGURATIONS IF YOU ARE TOLD TO USE SERIAL CONNECTIONS

Router 1 Interface Configurations

Router1(config-if)# **interface** *s0/0/1* (or S0/0/0 if instructor directs)
Router1(config-if)# **ip address** *192.168.1.253 255.255.255.252* (IP address, Subnet Mask)
Router1(config-if)# **description** *This is my connection to Router2* (Station to your right)
Router1T(config-if)# **encapsulation** *ppp (*Encapsulation is configured on both WAN links S0/0/0 and S0/0/1)
Router1 (config-if)# **no shutdown**
Router1 (config-if)# **exit**

Router1(config)#**interface G0/0** (use F0/0 instead if instructor directs)
Router1(config-if)# **ip address** *192.168.1.1 255.255.255.224* (IP address, Subnet mask)
Router1(config-if)# **description** *This is my LAN connection to Switch1*
Router1(config-if)# **no shutdown**
Router1(config-if)# **exit**
Router1# **copy run start** or **wr**

Router 2 Interface Configurations

Router2(config-if)# **interface** *s0/0/1 (or S0/0/0 if instructor directs)*
Router2(config-if)# **ip address** *192.168.1.254 255.255.255.252* (IP address, SM)
Router2(config-if)# **description** *This is my connection to Router2* (Station to your left)
Router2(config-if)# **encapsulation ppp** (This is the PREFERRED encapsulation to be configured on both WAN links S0/0/0 and S0/0/1)
Router2(config-if)# **no shutdown**
Router2(config-if)# **exit**

Router2(config)#**interface G0/0** (use F0/0 instead if instructor directs)
Router2(config-if)# **ip address** *192.168.2.1 255.255.255.240* (IP address, Subnet mask)
Router2(config-if)# **description** *This is my LAN connection to Switch2*
Router2(config-if)# **no shutdown**
Router2(config-if)# **exit**
Router2# **copy run start** or **wr**