Packet Tracer - Use Diagnostic Commands

Objectives

Part 1: Gather End User Device Settings

Part 2: Gather Information about Network Devices

Part 3: Diagnose Connectivity Issues

Background / Scenario

In this Packet Tracer (PT) activity, you will use various commands to gather device information and troubleshoot device configuration and connectivity issues. Device information includes IP address, default gateway, and DNS server settings. These settings are critical to enable a device to communicate on networks and connect to the internet.

Instructions

Part 1: Gather End User Device Settings

In this part, you will document the IP address settings for end devices.

Step 1: Document the IP address settings for HQ-Laptop-1.

- a. The activity opens in the HQ cluster. The Wiring Closet is the tall, black chassis in the bottom left corner of the first floor. Locate all the devices on the first floor: PCs 1-1, 1-2, 1-3, and 1-4; printer FL-1P; and HQ-Laptop-1.
- b. Click **HQ-Laptop-1 > Desktop** tab **> Command Prompt**.
- c. Enter the **ipconfig** command.

Which IPv4 address is displayed for the Wireless0 Connection?

-Answer Area

Alamat tersebut mungkin ditampilkan sebagai 169.254.0.0/16 karena koneksi nirkabel mungkin belum terbentuk. Alamat tersebut akan berada dalam jaringan 192.168.50.0/24.

Show Answer

If the IPv4 address is in the 169.254.0.0/16 range, what method is being used to assign IPv4 addresses? Why is the laptop assigned an IPv4 address in the 169.254.0.0/16 range?

Answer Area

Alamat IPv4 berada dalam rentang 169.254.0.0/16, metode yang digunakan untuk menetapkan alamat tersebut adalah APIPA (Automatic Private IP Addressing). APIPA secara otomatis memberikan alamat IP kepada perangkat ketika perangkat gagal mendapatkan alamat IP dari server DHCP.

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Show Answer

If the IPv4 address is in the 169.254.0.0/16, wait a few seconds and repeat the **ipconfig** command.

When the IPv4 address is no longer from 169.254.0.0/16 range, what is the IP addressing information displayed? Record your answers in the table below.

Wireless0	IP Addressing Information	
	FE80::20A:F3FF:FEE4:EEAA	
Link-local IPv6 Address	1.	
	Answer Area	
IPv6 Address		
	Answer Area 192.168.50.4	
IPv4 Address		
	Answer Area 255.255.25.0	
Subnet Mask		
	Answer Area 192.168.50.1	
Default Gateway		
	Answer Area Tidak tersedia	
DNS Servers		

Click **Show Answer** to a sample answer table.

Show Answer

Do you see a DNS server address? Explain.

-AnswerArea

Output pada perintah ipconfig tidak menampilkan
informasi alamat server DNS.

11

d. Enter the **ipconfig /all** command.

Do you see the DNS server address? What is it?

—Answer Area



Show Answer

Step 2: Document the IP address settings for Net-Admin.

- a. Click Wiring Closet > Net-Admin > Desktop tab > Command Prompt.
- b. Enter the **ipconfig /all** command.

What is the IP addressing information displayed under the FastEthernet0 interface? Record your answers in the table below.

FastEthernet0	IP Addressing Information	
	Answer Area 0001.C910.22D6	
Physical Address		
	FE80::201:C9FF:FE10:22D6	
Link-local IPv6 Address	1,	
Link-local if vo Address		
	- Answer Area	
	''	
IPv6 Address	1.	
	Answer Area	
	192.168.99.9	
15 4444	/,	
IPv4 Address		
	Answer Area	
	255.255.255.0	
Subnet Mask	1.	

FastEthernet0	IP Addressing Information		
	Answer Area 192.168.99.1		
Default Gateway			
	Answer Area 10.2.0.125		
DNS Servers	11		

Click Show Answer to a sample answer table.

Show Answer

Blank Line, No additional information

Part 2: Gather Information about Network Devices

In this part, you will document information about the link to ISP. You will then document the IP addressing information for all the end devices in HQ and discover that devices belong to different virtual local area networks (VLANs).

Step 1: Gather network connection information about the link between HQ and ISP.

The **HQ-Edge** router is the router between the HQ network and the ISP. We need to identify the upstream device information located in the ISP.

- a. In the Wiring Closet left rack, click HQ-Edge > CLI tab.
- b. Press Enter to get the HQ-Edge> prompt, and then enter the enable command.
- c. Enter the **show ip route** | **begin Gateway** command.

What is the address for the gateway of last resort (or default gateway)?



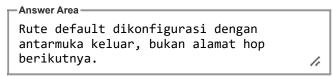
Show Answer

Why is the next hop address not displayed?



d. Enter the **show running-config | begin ip route** command.

How is the default route configured? Does it use the next hop address?



Show Answer

e. Enter the show cdp neighbors detail command.

What is the IPv4 address of the next hop (ISP) address?



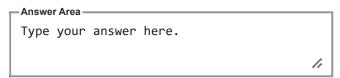
Show Answer

Which port on the ISP router is connected to HQ-Edge?



Show Answer

What IOS version is used on the ISP router?



Show Answer

- f. Enter the ping 10.0.0.49 command.
- g. Enter the **show arp** command.

What is the MAC address of the interface on the ISP router that is connected to HQ-Edge?



h. Close **HQ-Edge** and exit the **Wiring Closet**.

Step 2: Gather network connection information about the devices in HQ.

a. From 1-1, 1-2, 1-3, 1-4, FL-1P, and HQ-Laptop-1, use the ipconfig command to find their IPv4 addresses and Default Gateways.

Device	IPv4 Address	Default Gateway	
	Answer Area 192.168.10.4	Answer Area 192.168.10.1	
1-1	<i>[</i>	//	
	Answer Area 192.168.10.3	Answer Area 192.168.10.1	
1-2	1.	11	
	Answer Area 192.168.20.3	Answer Area 192.168.20.1	
1-3	//	1,	
	Answer Area 192.168.20.2	Answer Area 192.168.20.1	
1-4	//	1,	
	Answer Area 192.168.50.2	Answer Area 192.168.50.1	
FL-1P	//	//	
	Answer Area 192.168.50.4	Answer Area 192.168.50.1	
HQ-Laptop-1	4	1,	

Click **Show Answer** to a sample answer table.

b. From PC 1-1, open **Command Prompt**, and then enter the **arp -a** command.

What information is displayed?

Show Answer

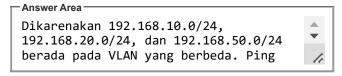
- c. Use the ping command to ping 1-2, 1-3, 1-4, FL-1P, and HQ-Laptop-1.
- d. Enter the arp -a command.

What information is displayed?



Show Answer

Why do the entries in the ARP table not contain information about devices in the 192.168.20.0 and 192.168.50.0 networks while the ping is successful?



Show Answer

e. To find the route a packet takes to reach the DNS server, enter the tracert 10.2.0.125 command.

What information is displayed?

```
Answer Area

Tracing route to 10.2.0.125 over a maximum of 30 hops:

1 0 ms 2 ms 0 ms 192.168.10.1

2 12 ms 0 ms 0 ms 10.0.0.49

3 1 ms 0 ms 0 ms 10.2.0.125
```

Show Answer

How many routers, or hops, are between PC 1-1 and the DNS server?

```
Answer Area

2 buah router atau hop.
```

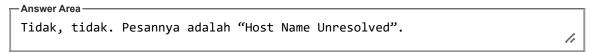
Part 3: Diagnose Connectivity Issues

In this part, you will use a variety of diagnostic commands and techniques. You will use the **nslookup** command to query a DNS server and troubleshoot a DNS database. You will then diagnose why a ping fails but web access is successful. Finally, you will use the **netstat** command to discover which ports are listening on the target device.

Step 1: Test a URL to investigate a connectivity issue.

- a. On PC 1-1, close the Command Prompt, and then click Web Browser.
- b. Enter the URL test.ptsecurity.com.

Does the web page display? If not, what is the message?



Show Answer

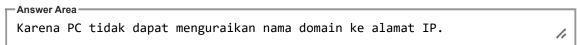
c. Enter the IP address 192.168.75.2.

Does the web page display?



Show Answer

Why does the web page display by using the IP address but not the domain name?



Show Answer

Step 2: Use the nslookup command to verify DNS service.

- a. Close Web Browser, and then click Command Prompt.
- b. Enter the **ping test.ptsecurity.com** command.

What message is displayed?

Ping request could not find host test.ptsecurity.com. Please check the name and try again.

What does the message indicate?

-AnswerArea Yang ditunjukkan adalah entri DNS tidak ada dalam basis data server DNS.

Show Answer

c. Enter the nslookup test.ptsecurity.com command.

What message is displayed?

```
Answer Area

Server : [10.2.0.125]
Address: 10.2.0.125

*** UnKnown can't find test.ptsecurity.com: Non-existent domain.
```

Show Answer

Which server is the default DNS server?

```
Answer Area 10.2.0.125
```

Show Answer

- d. The **nslookup** command supports the use of alternate DNS server. Enter the **nslookup** /? command to learn options available for the command.
- e. Enter the nslookup test.ptsecurity.com 192.168.99.3 command and press Enter.

Note: Packet Tracer may take several seconds to converge.

What message is displayed?

In Step 2c, why is the domain name unable to be resolved?

```
Answer Area

Karena ketika nama domain dimasukkan
kedalam kotak URL, PC mencoba
mengatasinya melalui server DNS
```

Show Answer

Step 3: Use output from the ping command to diagnose connectivity issues.

a. Enter the ping mail.cybercloud.com command.

What message is displayed?

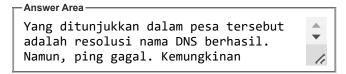
```
Answer Area
C:\>ping mail.cybercloud.com

Pinging 172.19.0.4 with 32 bytes of data:

Request timed out.
Ping statistics for 172.19.0.4:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Show Answer

What information is indicated by the message?



b. Enter the **ping www.ptsecurity.com** command.

What message is displayed?

```
Answer Area
C:\>ping www.ptsecurity.com

Pinging 10.0.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 10.0.0.3: Destination host unreachable.
Reply from 10.0.0.3: Destination host unreachable.

Ping statistics for 10.0.0.3:
   Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Show Answer

What information is indicated by the message?

```
-AnswerArea
Terdapat firewall di jalur yang memblokir ping ke tujuan
```

Show Answer

c. Close the Command Prompt, open Web Browser, and then navigate to www.ptsecurity.com.

Does the web page display?



Show Answer

What conclusion can be drawn?

Step 4: Use the netstat command to find active and listening ports.

- a. Close Web Browser, and reopen Command Prompt.
- b. In HQ, click the Wiring Closet
- c. From the right rack, click the FTP server > Desktop tab > Command Prompt.
- d. Arrange the PC 1-1 and FTP server Command Prompt windows side by side.
- e. From the PC 1-1 window, enter the netstat command.

What message is displayed? Does it show any data?



Show Answer

f. From the **FTP** server, enter the **netstat** command.

What message is displayed? Does it show any data?

Answer Are	ea ————			
C:\>net	stat			
Activo	Connections			
ACCIVE	Connections			
Proto	Local Address	Foreign Address	State	
TCP	0.0.0.0:25	0.0.0.0:0	CLOSED	
TCP	0.0.0.0:110	0.0.0.0:0	CLOSED	
TCP	0.0.0.0:8443	0.0.0.0:0	CLOSED	
				11

- g. On FTP server, enter the ipconfig command to determine its IP address.
- h. From PC 1-1, start an FTP session with the FTP server.
- i. On the FTP server, enter the netstat command.

What message is displayed? Is there any new information?

```
- Answer Area -
C:\>netstat
Active Connections
  Proto Local Address
                                 Foreign Address
                                                          State
         0.0.0.0:25
                                                          CLOSED
  TCP
                                  0.0.0.0:0
  TCP
         0.0.0.0:110
                                  0.0.0.0:0
                                                          CLOSED
  TCP
         0.0.0.0:8443
                                  0.0.0.0:0
                                                          CLOSED
  TCP
         192.168.75.2:21
                                 192.168.10.4:1027
                                                          ESTABLISHED
                                                                               10
```

Show Answer

Which port is the listening port and what is the status of the connection?

-Answer Area
Port pendengar adalah port TCP 21 dan koneksi TCP terjalin.

Show Answer

- j. From PC 1-1, enter bob as the username.
- k. From the **FTP** server, enter the **netstat** command.

Does the displayed information change?



No.

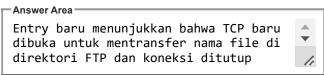
Hide Answer

- I. From PC 1-1, enter cisco123 as the password.
- m. From **PC 1-1**, enter the **dir** command.
- n. From the FTP server, enter the netstat command.

Does the displayed information change?

```
Answer Area -
Iya berubah, menampilkan sebagai berikut :
C:\>netstat
Active Connections
  Proto Local Address
                                 Foreign Address
                                                         State
         0.0.0.0:25
                                 0.0.0.0:0
                                                         CLOSED
  TCP
  TCP
         0.0.0.0:110
                                 0.0.0.0:0
                                                         CLOSED
  TCP
         0.0.0.0:8443
                                 0.0.0.0:0
                                                         CLOSED
         192.168.75.2:21
                                 192.168.10.4:1029
                                                         ESTABLISHED
  TCP
                                                                               10
```

What is indicated by this new entry?



Show Answer

- o. From **PC 1-1**, enter the **put Sample2.txt** command and press **Enter**. This will upload the Sample2.txt file to the **FTP** server.
- p. From the **FTP** server, enter the **netstat** command.

Does the displayed information change?

```
Answer Area

Iya berubah, baris baru menunjukkan :

TCP 192.168.75.2:1032 192.168.10.4:1032 CLOSING
```

Show Answer

q. Wait for a few seconds and then enter the netstat command again.

Does the displayed information change?

```
Answer Area

Iya berubah. Baris "CLOSING" sudah tidak ada lagi.
```

- r. From **PC 1-1**, enter the **quit** command.
- s. From the FTP server, enter the netstat command.

Does the displayed information change?

```
-Answer Area
Iya berubah, sekarang koneksi TCP antara 192.168.75.2:21 dan
192.168.10.4:1029 Tertutup
```

Show Answer

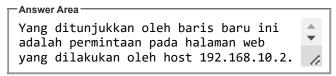
- t. From PC 1-1, close Command Prompt, and then open Web Browser.
- u. Navigate to 192.168.75.2.
- v. From the FTP server, enter the netstat command.

Does the displayed information change?



Show Answer

What does this new entry indicate?



Show Answer

End of documen

Show All Answers

Clear My Responses

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