Packet Tracer - Troubleshoot Connectivity Issues

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	172.16.1.1	255.255.255.0	N/A
	G0/1	172.16.2.1	255.255.255.0	N/A
	S0/0/0	209.165.200.226	255.255.255.252	N/A
R2	G0/0	209.165.201.1	255.255.255.224	N/A
	S0/0/0 (DCE)	209.165.200.225	255.255.255.252	N/A
PC-01	NIC	172.16.1.3	255.255.255.0	172.16.1.1
PC-02	NIC	172.16.1.4	255.255.255.0	172.16.1.1
PC-A	NIC	172.16.2.3	255.255.255.0	172.16.2.1
PC-B	NIC	172.16.2.4	255.255.255.0	172.16.2.1
Web	NIC	209.165.201.2	255.255.255.224	209.165.201.1
DNS1	NIC	209.165.201.3	255.255.255.224	209.165.201.1
DNS2	NIC	209.165.201.4	255.255.255.224	209.165.201.1

Objectives

In this Packet Tracer activity, you will troubleshoot and resolve connectivity issues, if possible. Otherwise, the issues should be clearly documented so they can be escalated.

Background / Scenario

Users are reporting that they cannot access the web server, www.cisco.pka after a recent upgrade that included adding a second DNS server. You must determine the cause and attempt to resolve the issues for the users. Clearly document the issues and any solution(s). You do not have access to the devices in the cloud or the server www.cisco.pka. Escalate the problem if necessary.

Note: Router R1 can only be accessed using SSH with the username **Admin01** and password **cisco12345**. Router R2 is in the ISP cloud and is not accessible by you.

Instructions

Step 1: Determine connectivity issues from PC-01.

a. On PC-01, open the command prompt. Enter the command **ipconfig** to verify what IP address and default gateway have been assigned to PC-01. Correct as necessary according to the Addressing Table.

PC1 IPv4 address does not match with the addressing table. We need to fix it by updating ip in ip configuration.

b. After verifying/correcting the IP addressing issues on PC-01, issue pings to the default gateway, web server, and other PCs. Were the pings successful? Record the results.

Ping to default gateway (172.16.1.1)?

Yes.

To web server (209.165.201.2)?

Yes.

Ping to PC-02?

Yes.

To PC-A?

No. Destination host unreachable.

To PC-B?

No. Destination host unreachable.

c. Use the web browser to access the web server on PC-01. Access the web server by first entering the URL http://www.cisco.pka and then by using the IP address 209.165.201.2. Record the results.

Can PC-01 access www.cisco.pka?

Yes.

Using the web server IP address?

Yes.

d. Document the issues and provide the solution(s). Correct the issues if possible.

The PC-01's IP address was configured improperly. To solve this issue, we need to manually correct the IP address to 172.16.1.3.

Step 2: Determine connectivity issues from PC-02.

a. On PC-02, open the command prompt. Enter the command **ipconfig** to verify the configuration for the IP address and default gateway. Correct as necessary.

PC2 Default Gateway does not match with the addressing table. We need to fix it by updating the default gateway in IP configuration.

b. After verifying/correcting the IP addressing issues on PC-02, issue pings to the default gateway, web server, and other PCs. Were the pings successful? Record the results.

Ping to default gateway (172.16.1.1)?

Yes.

To web server (209.165.201.2)?

Yes.

Ping to PC-01?

Yes.

To PC-A?

No.

To PC-B?

No.

c. Navigate to www.cisco.pka using the web browser on PC-02. Record the results.

Questions:

Can PC-02 access www.cisco.pka?

Yes.

Using the web server IP address?

Yes.

d. Document the issues and provide the solution(s). Correct the issues if possible.

The PC-02's Default Gateway was configured improperly. To solve this issue, we need to manually correct the default gateway to 172.16.1.1.

Step 3: Determine connectivity issues from PC-A.

a. On PC-A, open the command prompt. Enter the command **ipconfig** to verify the configuration for the IP address and default gateway. Correct as necessary.

Everything looks fine.

b. After correcting the IP addressing issues on PC-A, issue the pings to the web server, default gateway, and other PCs. Were the pings successful? Record the results.

To web server (209.165.201.2)?

No.

Ping to default gateway (172.16.2.1)?

No.

Ping to PC-B?

Yes.

To PC-01?

No.

To PC-02?

No.

c. Navigate to www.cisco.pka using the web browser on PC-A. Record the results.

Can PC-A access www.cisco.pka?

No.

Using the web server IP address?

No.

d. Document the issues and provide the solution(s). Correct the issues if possible.

Since the PC can't access anything beyond the Switch S2, there must be a misconfiguration in the IP address of G0/1. It can be fixed using CLI. As R1 CLI is locked, we need to use PC-01 to connect remotely to the Router R1. We will use the following command to Login into the R1 by using PC1.

```
C:\>ssh
Cisco Packet Tracer PC SSH
Usage: SSH -l username target
C:\>ssh -l Admin01 172.16.1.1
Password:
Warning: Unauthorized Access is Prohibited.
R1#show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 172.16.1.1 YES manual up up
GigabitEthernet0/1 172.16.3.1 YES manual up up
Serial0/0/0 209.165.200.226 YES manual up up
Serial0/0/1 unassigned YES unset down down
Vlan1 unassigned YES unset administratively down down

R1#
```

As we can see, G0/1 ip address does not match with address table. Now we will fix it by following command.

```
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ip address 172.16.2.1 255.255.255.0
```

Step 4: Determine connectivity issues from PC-B.

a. On PC-B, open the command prompt. Enter the command **ipconfig** to verify the configuration for the IP address and default gateway. Correct as necessary.

Everything looks fine.

b. After correcting the IP addressing issues on PC-B, issue the pings to the web server, default gateway, and other PCs. Were the pings successful? Record the results.

To web server (209.165.201.2)?

Yes.

Ping to default gateway (172.16.2.1)?

Yes.

Ping to PC-A?

Yes.

To PC-01?

Yes.

To PC-02?

Yes.

c. Navigate to www.cisco.pka using the web browser. Record the results.

Can PC-B access www.cisco.pka?

No.

Using the web server IP address

Yes.

d. Document the issues and provide the solution(s). Correct the issues if possible.

PC-B is using the DNS2 server which may did not configured correctly. We were unable to fix the issue because we lack access to that DNS server.

e. Could all the issues be resolved on PC-B and still make use of DNS2? If not, what would you need to do?

No, we can't make use of DNS 2 for now. But we can use DNS1 server which PC1, PC2 and PCA is using. This will solve the problem.

Step 5: Verify connectivity.

Verify that all the PCs can access the web server www.cisco.pka.

Yes.

Your completion percentage should be 100%. If not, verify that the IP configuration information is correct on all devices and that it matches what is shown in the addressing table.