

Packet Tracer Lab 4 Solution Guide

Users Unable to Reach External Resources

Incident ID: INC-1004

Objective

This lab focuses on identifying and restoring external network connectivity following scheduled maintenance.

Although workstations successfully obtain IP addresses through DHCP and local communication remains operational, users cannot communicate with external resources.

The objective is to troubleshoot the issue using a structured methodology, identify the root cause, restore connectivity, and validate successful internet access.

Root Cause

The DHCP pool on RTR-BRANCH-01 was configured with an incorrect default gateway.

Instead of assigning:

192.168.10.1

the DHCP server assigned:

192.168.10.254

As a result:

- Clients received valid IP addresses.
- Local communication remained operational.
- Traffic destined for external networks was sent to a gateway that does not exist.

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Symptoms Observed

- DHCP functioning.
- Valid IP addresses assigned.
- Local communication operational.
- Internet unavailable.
- External web server unreachable.
- Invalid default gateway assigned.

Troubleshooting Process

Troubleshooting Process

Step 1 — Verify IP Configuration

From a workstation:

```
ipconfig
```

Students should identify:

- Valid IP address
 - Valid subnet mask
 - Incorrect default gateway (192.168.10.254)
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Step 2 — Verify Local Connectivity

```
ping 192.168.10.101
```

Should succeed.

This confirms:

- Layer 2 connectivity
- Local switching

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- Local communication
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Step 3 — Verify Gateway Connectivity

ping 192.168.10.254

Should fail.

This is the primary indicator of the issue.

Step 4 — Verify External Connectivity

ping 209.165.200.226

Fails.

ping 8.8.8.10

Fails.

Step 5 — Review DHCP Configuration

On RTR-BRANCH-01:

show running-config

Students identify:

default-router 192.168.10.254

Commands Used / Tools Used

- ipconfig
- ping
- Show running-config

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Resolution

On RTR-BRANCH-01:

```
conf t  
  
ip dhcp pool OFFICE-LAN  
  
no default-router 192.168.10.254  
  
default-router 192.168.10.1  
  
end  
  
write memory
```

Renew the workstation DHCP lease:

```
ipconfig /release  
  
ipconfig /renew
```

Validation

Successful resolution should include:

- Default gateway assigned as 192.168.10.1
- Successful ping to 192.168.10.1
- Successful ping to 209.165.200.226
- Successful ping to 8.8.8.10
- Internet connectivity restored across all workstations.

Key Takeaways

- Receiving a DHCP address does not guarantee full network connectivity.
- Always verify the configured default gateway before troubleshooting routing or ISP connectivity.

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- Local connectivity can remain operational while external communication fails.
- DHCP configuration errors are a common cause of enterprise connectivity issues.
- Follow a structured troubleshooting methodology and validate service restoration after completing repairs.