

Packet Tracer Lab 4

Enterprise Wireless Login Failure Investigation

Incident ID: INC-1004

Difficulty

Beginner

Estimated Time

15–25 Minutes

Skills Covered

- DHCP Troubleshooting
- Default Gateway Validation
- IP Configuration Analysis
- Local vs Remote Connectivity Testing
- Ping Testing
- Structured Troubleshooting Methodology
- Layer 3 Fundamentals

Scenario

Following scheduled network maintenance performed earlier in the day, multiple users have reported they are unable to access external resources hosted outside the local office network.

Although workstations continue receiving IP addresses successfully and local communication remains operational, users cannot access internet-based services or communicate with external systems.

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You have been assigned to investigate the issue, restore external connectivity, and validate that normal network operations have resumed.

Customer Report

Reported By: Office Operations

Users Affected: Entire Office

Goal

- Identify the cause of the connectivity issue.
- Restore external network access.
- Validate internet connectivity.
- Document your findings.

Environment

The lab environment includes:

- Branch Router
- Layer 2 Access Switch
- ISP Router
- Internal Workstations
- External Web Server
- DHCP Services

Known Variables

- Workstations are successfully receiving DHCP addresses.

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- Users can communicate with other devices on the local network.
- Branch Router LAN Interface: **192.168.10.1**
- DHCP Network: **192.168.10.0/24**
- ISP Router: **209.165.200.226**
- External Web Server: **8.8.8.10**
- Scheduled network maintenance completed prior to the incident.
- Follow a structured troubleshooting methodology before making configuration changes.

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Are users receiving valid IP addresses?
- Is the subnet mask correct?
- Can users communicate locally?
- Can users reach their configured default gateway?
- Where does communication stop?
- Have recent DHCP configuration changes impacted connectivity?

Focus on validating workstation network configuration before modifying router settings.

Expected Outcome

By the end of this lab, users should successfully regain access to external resources while maintaining local network connectivity.

Users should also be able to explain the troubleshooting process used to identify and resolve the issue.

Optional BridgeOpsOne Workflow

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Initial Update

- Multiple users unable to access external resources.
 - Local network appears operational.
 - Investigation underway.
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Timeline Updates

Document:

- DHCP validation
 - Gateway testing
 - Root cause identified
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Final Resolution

Summarize:

- Root cause
- Corrective actions
- Validation completed

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Help Desk
- Desktop Support
- Network Operations Centers (NOC)
- Enterprise IT
- MSP Support

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The purpose of this lab is to develop:

- DHCP troubleshooting
- Gateway validation
- Layer 3 thinking
- Structured troubleshooting

Deliverables

At the conclusion of this lab, users should be able to:

- Explain the issue.
- Describe the troubleshooting methodology.
- Restore internet connectivity.
- Validate successful external communication.
- Communicate findings clearly.

Hints

If you become stuck during troubleshooting, consider the following:

- Verify workstation IP addressing.
- Compare local and remote connectivity.
- Verify the configured default gateway.
- Review the DHCP pool configuration.
- Follow a structured troubleshooting methodology instead of guessing.