

Packet Tracer Lab 2

DNS Resolution Failure Investigation

Incident ID: INC-1002

Difficulty

Beginner

Estimated Time

15–30 Minutes

Skills Covered

- DNS Troubleshooting
- Ping Testing
- Name Resolution Verification
- DHCP Option Validation
- IP Connectivity Testing
- Structured Troubleshooting Methodology

Scenario

Users at a small office report they are unable to access websites and cloud applications following recent network maintenance performed earlier in the day.

Multiple users across the environment are affected.

Initial reports indicate that some network connectivity may still be operational, but users are unable to browse external websites or resolve domain names successfully.

BridgeOpsOne

You have been assigned as the technician responsible for identifying the issue, restoring functionality, and validating that systems are operating normally again.

Customer Report

Reported By: HR Department

Users Affected: HR, Sales, Operations

Business Impact: Users are unable to access company websites and internet resources. Daily business operations are being disrupted across multiple departments.

Issue Started: Shortly after scheduled network maintenance.

Priority: Medium

Goal

- Identify the root cause of the DNS issue
- Restore proper name resolution
- Validate internet and website connectivity
- Document your findings

Environment

The lab environment includes:

- Multiple user workstations
- Access switch
- Branch router
- ISP simulation router
- Internal DNS server
- DHCP services

BridgeOpsOne

- Web server hosting external content

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Do devices have valid IP configurations?
- Can devices reach the assigned DNS server?
- Can devices communicate with the local gateway?
- Can devices reach external IP addresses?
- Is DNS resolution functioning properly?
- What DNS server is being assigned to clients?
- Is the DNS server reachable and operational?

Focus on isolating the issue step-by-step rather than immediately assuming the problem.

Expected Outcome

By the end of this lab, users should successfully regain access to websites and external resources through proper DNS resolution.

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

Optional BridgeOpsOne Workflow

This section is optional but recommended for users who want a more realistic operations-center experience.

Using BridgeOpsOne, simulate how operational teams communicate during active incidents.

1. Create an Initial Update

Create an initial customer-safe incident update describing the issue.

BridgeOpsOne

Example topics:

- Users reporting connectivity issues
- Multiple systems affected
- Investigation in progress

Use the Generate feature if needed to clean and professionalize your update.

2. Save Timeline Updates

During troubleshooting, provide 2–3 operational updates describing:

- What you are investigating
- What you have ruled out
- Progress toward resolution

Add these updates to your incident timeline within the Command Center.

Focus on keeping updates:

- Professional
- Concise
- Customer safe

3. Create a Final Resolution Statement

Once DNS functionality is restored, create a final resolution update summarizing:

- What caused the issue
- Actions taken
- Current environment status

BridgeOpsOne

- Monitoring and validation steps

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Help Desk
- NOC Environments
- MSP Support
- Desktop Support
- Junior Network Support Roles

The purpose of this lab is to help develop:

- Troubleshooting confidence
- Structured thinking
- Communication skills
- Operational awareness

Deliverables

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

- Explain the issue
- Describe the troubleshooting process
- Demonstrate the fix
- Validate successful DNS resolution
- Restore website connectivity
- Communicate findings clearly

Hints

- Verify whether devices can communicate using IP addresses.

BridgeOpsOne

- Compare the results of:

ping 8.8.8.10

and

ping bridgeopsone.com

- Use: `ipconfig /all` to review current network settings.
- Check which DNS server is assigned to the workstation.
- Determine whether the issue is related to:
 - Connectivity
 - DNS resolution
 - Or both
- Validate that the DNS server is reachable.
- Consider what information DHCP may be assigning to clients.
- Follow a structured troubleshooting process and avoid making assumptions too early.