

Packet Tracer Lab 14

Campus Wireless Service Outage Investigation

Incident ID: INC-1014

Difficulty

Advanced

Estimated Time

20–40 Minutes

Skills Covered

- Wireless Infrastructure Troubleshooting
- Wireless LAN Controller (WLC) Validation
- Lightweight Access Point (LAP) Verification
- Wireless Client Connectivity Testing
- Default Gateway Verification
- Ping Testing
- Structured Troubleshooting Methodology

Scenario

Following scheduled maintenance performed earlier in the day, users throughout the campus have reported that the corporate wireless network is unavailable.

Employees are unable to connect laptops, tablets, and smartphones to the enterprise wireless network. Existing wireless clients appear to retain valid IP addresses but cannot communicate with internal network resources.

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Wired devices continue operating normally, allowing employees using wired workstations to access internal applications and network services without issue.

You have been assigned to investigate the issue, restore wireless connectivity, and validate that the wireless infrastructure has returned to normal operation.

Customer Report

Reported By: Operations Department

Users Affected: All wireless users

Business Impact: Employees report that laptops, tablets, and smartphones are unable to access internal network resources over the corporate wireless network. Wired workstations continue operating normally.

Issue Started: Shortly after scheduled network maintenance.

Priority: High

Goal

- Identify the cause of the wireless outage.
- Restore wireless infrastructure connectivity.
- Validate that access points successfully reconnect to the wireless controller.
- Verify wireless clients can communicate with internal network resources.
- Document your findings.

Environment

The lab environment includes:

- Cisco 2911 Edge Router
- Core Switch
- Cisco Wireless LAN Controller (WLC)

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- Two Lightweight Access Points (AP1 & AP2)
- DHCP Server
- DNS Server
- AAA Server
- Enterprise Wireless Network
- Laptop
- Tablet
- Smartphone

Known Variables

- Wired network services remain operational.
- DHCP, DNS, and AAA services are functioning correctly.
- Wireless clients may continue displaying valid IP configurations despite the reported connectivity issue.
- Existing wireless clients may still display valid network configurations.
- Multiple wireless devices are affected simultaneously.
- Follow a structured troubleshooting methodology before making configuration changes.

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Are all wireless users affected?
- Do wireless clients receive valid IP addresses?
- Can wireless clients communicate with their default gateway?
- Are DHCP, DNS, and AAA services functioning normally?
- Are the access points operational?

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- Can the access points communicate with the Wireless LAN Controller?
- Has a recent infrastructure change impacted wireless services?

Focus on identifying where communication stops instead of immediately assuming the root cause.

Expected Outcome

By the end of this lab, users should successfully restore wireless service across the campus.

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

Optional BridgeOpsOne Workflow

1. Create an Initial Update

Create a customer-safe update describing:

- Campus-wide wireless outage
 - Multiple users unable to connect
 - Investigation underway
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2. Save Timeline Updates

Provide 2–3 operational updates describing:

- Investigation progress
- Validation performed
- Findings

Add updates to your Command Center timeline.

3. Create a Final Resolution Statement

Summarize:

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- Root cause
- Corrective actions
- Current wireless infrastructure status
- Validation completed

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Network Operations Centers (NOC)
- Enterprise Wireless Support
- Enterprise IT
- Network Engineering
- Infrastructure Operations

The purpose of this lab is to develop:

- Wireless infrastructure troubleshooting
- Layer 2/Layer 3 validation
- Controller and Access Point troubleshooting
- Structured operational thinking
- Operational communication

Deliverables

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

- Explain the issue.
- Describe the troubleshooting methodology.
- Restore wireless services.
- Validate controller and access point connectivity.

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- Verify wireless client connectivity.
- Communicate findings clearly.

Hints

If you become stuck during troubleshooting, consider the following:

- Verify whether wired devices are functioning normally.
- Determine whether the issue affects multiple wireless devices.
- Confirm clients receive valid IP configurations.
- Test connectivity to the default gateway.
- Verify access point connectivity.
- Check Wireless LAN Controller availability.
- Follow a structured troubleshooting methodology instead of guessing.
- Compare successful DHCP assignment with actual network connectivity.