

Packet Tracer Lab 13

Enterprise Wireless Login Failure Investigation

Incident ID: INC-1013

Difficulty

Intermediate

Estimated Time

20–40 Minutes

Skills Covered

- WPA2-Enterprise (802.1X) Authentication
- RADIUS (AAA) Authentication
- Wireless LAN Controller (WLC) Validation
- Access Point Verification
- Infrastructure Device Verification
- Wireless Client Validation
- Structured Troubleshooting Methodology
- Operational Validation

Scenario

Following scheduled wireless infrastructure maintenance performed earlier in the day, users throughout the organization have reported that they are unable to connect to the corporate wireless network.

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The wireless network remains visible to users, and access points appear to be operating normally. However, authentication attempts consistently fail across multiple wireless devices, preventing users from accessing internal network resources.

You have been assigned to investigate the issue, restore enterprise wireless authentication, and validate that wireless connectivity has been fully restored. The scenario format follows the same structure as your earlier labs.

Customer Report

Reported By: Operations Department

Users Affected: Wireless users

Business Impact:

Employees cannot connect to the corporate wireless network using enterprise credentials.

Issue Started:

Shortly after scheduled wireless maintenance.

Priority:

High

Goal

- Identify the cause of the wireless authentication failure.
- Restore enterprise wireless authentication.
- Verify successful wireless client authentication.
- Validate network connectivity.
- Document your findings.

Environment

The lab environment includes:

- Cisco Wireless LAN Controller (WLC)

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- Two Lightweight Access Points
- AAA/RADIUS Server
- DHCP Server
- DNS Server
- Edge Router
- Layer 2 Switch
- Laptop
- Tablet
- Smartphone

Known Variables

- The wireless network (SSID) is visible.
- Access Points remain online and joined to the WLC.
- The AAA server is powered on and operational.
- Enterprise wireless client profiles have already been configured with valid user credentials.
- Users should not modify wireless client usernames or passwords.
- Follow a structured troubleshooting methodology before making configuration changes.
- The AAA server configuration may be inspected as part of the troubleshooting process.

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Are the Access Points operational?
- Is the WLAN configured correctly?
- Is the WLC functioning normally?

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- Is the AAA server operational?
- Can the WLC communicate with the configured RADIUS server?
- Does the configured RADIUS server information match the actual AAA server configuration?
- Has a recent configuration change impacted enterprise authentication?

Focus on validating each infrastructure component before making configuration changes.

Expected Outcome

By the end of this lab, users should successfully restore enterprise wireless authentication.

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

Optional BridgeOpsOne Workflow

1. Create an Initial Update

Create a customer-safe update describing:

- Wireless authentication failures
- Enterprise Wi-Fi unavailable
- Investigation underway

2. Save Timeline Updates

Provide 2–3 operational updates describing:

- Investigation progress
- Validation performed
- Infrastructure findings

Add updates to your Command Center timeline.

3. Create a Final Resolution Statement

Summarize:

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

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Network Operations Centers (NOC)
- Enterprise IT
- Wireless Infrastructure Support
- Network Engineering
- Help Desk Escalation Teams

The purpose of this lab is to develop:

- Enterprise wireless troubleshooting
- RADIUS authentication validation
- Infrastructure verification
- Operational communication

Deliverables

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

- Explain the issue.
- Describe the troubleshooting methodology.

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- Restore enterprise wireless authentication.
- Validate successful wireless client connectivity.
- Demonstrate successful network communication.
- Communicate findings clearly.

Hints

If you become stuck during troubleshooting, consider the following:

- Verify the wireless network is still being broadcast.
- Confirm the Access Points remain joined to the WLC.
- Verify enterprise authentication is configured on the WLAN.
- Compare the configured RADIUS server information on the WLC with the actual AAA server configuration.
- Verify infrastructure device IP addressing before making changes.
- Follow a structured troubleshooting methodology instead of guessing.
- Compare the configured RADIUS server IP on the WLC with the actual IP address configured on the AAA server.