

Packet Tracer Lab 14 Solution Guide

Campus Wireless Service Outage

Incident ID: INC-1014

Objective

This lab focuses on identifying and restoring enterprise wireless services following scheduled maintenance.

Although wireless clients initially retain valid IP addressing information, they are unable to communicate with network resources because the wireless infrastructure has lost connectivity to the Wireless LAN Controller (WLC).

The objective is to troubleshoot the issue using a structured methodology, identify the root cause, restore controller connectivity, and validate that wireless services have been fully restored.

Root Cause

The switch interface connecting the Wireless LAN Controller (FastEthernet0/2) was placed into an administratively down state during scheduled maintenance.

As a result:

- The Wireless LAN Controller lost network connectivity.
- Lightweight Access Points lost communication with the controller.
- Campus-wide wireless connectivity was disrupted.
- Existing wireless clients retained their IP addresses but could no longer communicate across the network.

Symptoms Observed

- Wired network services operating normally.
- DHCP functioning correctly.

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- DNS functioning correctly.
- AAA services functioning correctly.
- Wireless clients retain valid IP addresses.
- Wireless clients unable to communicate with network resources.
- Wireless connectivity unavailable across the campus.

Troubleshooting Process

Step 1 — Verify Client IP Configuration

From a wireless client:

ipconfig

Verify:

- Valid IP address
- Valid subnet mask
- Valid default gateway

This confirms DHCP is functioning correctly.

Step 2 — Verify Network Connectivity

Attempt to ping the default gateway.

Example:

ping 192.168.100.1

The ping should fail.

This indicates the issue exists beyond DHCP assignment.

Step 3 — Compare Wired vs Wireless Services

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Observe:

- Wired devices operating normally.
- Wireless devices unable to communicate.

This indicates the issue is isolated to the wireless infrastructure rather than the entire network.

Step 4 — Verify Wireless Infrastructure

Access the Wireless LAN Controller.

Verify that the Wireless LAN Controller is no longer reachable and confirm whether the access points remain associated with the controller. If the controller is unreachable, investigate the network path between the switch and the controller.

Step 5 — Verify Switch Interface Status

Access SW-Core.

Run:

show interfaces status

or

show interfaces fa0/2

Users should identify that FastEthernet0/2 is administratively down.

This is the primary indicator of the issue.

Commands Used

```
ipconfig
ping
show interfaces status
show interfaces fa0/2
configure terminal
```

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```
interface FastEthernet0/2  
no shutdown  
write memory
```

Resolution

Resolution

Restore connectivity to the Wireless LAN Controller.

On **SW-Core**:

```
conf t  
interface FastEthernet0/2  
no shutdown  
end  
write memory
```

Validation

Successful resolution should include:

- Wireless LAN Controller reconnects.
- AP1 successfully rejoins the controller.
- AP2 successfully rejoins the controller.
- Laptop regains wireless connectivity.
- Tablet regains wireless connectivity.
- Smartphone regains wireless connectivity.
- Successful ping to the default gateway.
- Campus wireless services restored.
- Wireless clients successfully communicate with the default gateway and internal network resources.

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Key Takeaways

- Wireless services depend on the underlying network infrastructure.
- A client retaining a valid IP address does **not** guarantee network connectivity.
- Compare working and non-working services before making assumptions.
- Always validate controller connectivity during enterprise wireless troubleshooting.
- Follow a structured troubleshooting methodology.
- Verify complete service restoration after completing repairs.