

Packet Tracer Lab 11

IP Phone Deployment Failure

Incident ID: INC-1011

Difficulty

Intermediate

Estimated Time

20–40 Minutes

Skills Covered

- Cisco CallManager Express (CME) Troubleshooting
- Cisco IP Phone Registration
- Voice Deployment Validation
- DHCP Verification
- Voice VLAN Validation
- show ephone
- Telephony-Service Configuration Review
- Structured Troubleshooting Methodology

Scenario

Following scheduled maintenance performed earlier in the day, several newly deployed Cisco IP phones have failed to complete registration.

While some departments continue operating normally, users in other departments report that their phones remain stuck during the startup process and are unable to place or receive calls.

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User workstations continue functioning normally and employees can still access internal network resources.

You have been assigned to investigate the issue, restore phone registration, and validate that all Cisco IP phones are successfully deployed.

Customer Report

Reported By: IT Operations

Users Affected: Sales and IT Departments (HR phones remain operational.)

Business Impact: Several departments are unable to place or receive internal phone calls because their Cisco IP phones have not completed registration.

Issue Started: Shortly after scheduled maintenance.

Priority: High

Goal

- Identify the cause of the phone deployment failure.
- Restore Cisco IP phone registration.
- Validate successful phone deployment.
- Verify voice communications have been restored.
- Document your findings.

Environment

The lab environment includes:

- Cisco 2811 Router (Cisco CME)
- Core Switch
- Three Access Switches

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- HR Department
- Sales Department
- IT Department
- Cisco IP Phones
- Department Workstations
- Voice VLAN
- DHCP Services

Known Variables

- User workstations continue functioning normally.
- PCs should successfully obtain DHCP addresses.
- Internal network connectivity is operational.
- Some Cisco IP phones register successfully while others do not.
- Phones remain powered on throughout the investigation.
- Follow a structured troubleshooting methodology before making configuration changes.

Packet Tracer Note

During troubleshooting, you may notice repeated %IPPHONE-6-REG_ALARM messages appearing on the router console while Cisco IP phones repeatedly attempt to register.

If these messages interfere with entering commands, you may temporarily suppress console logging with:

```
configure terminal
no logging console
end
```

This only suppresses console log messages and **does not resolve the underlying issue.**

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Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Which departments are affected?
- Which phones successfully registered?
- Are workstations functioning normally?
- Is DHCP functioning correctly?
- Is the Voice VLAN operational?
- Can phones communicate with the voice gateway?
- Are phones attempting to register?
- Could the issue be related to Cisco CME configuration?

Focus on identifying what is working before assuming the entire voice environment has failed.

Expected Outcome

By the end of this lab, users should successfully restore registration for all Cisco IP phones.

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.

1. Create an Initial Update

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

Example topics:

- Multiple departments reporting connectivity issues
- Internal applications inaccessible

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- 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 has been 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 connectivity has been restored, create a final resolution update summarizing:

- What caused the issue
- Actions taken
- Current environment status
- Monitoring and validation steps

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Network Operations Centers (NOC)
- Unified Communications Support

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- Enterprise IT
- Voice Infrastructure Support
- Network Engineering

The purpose of this lab is to develop:

- Voice troubleshooting skills
- Cisco CME troubleshooting
- Structured operational thinking
- Operational communication

Deliverables

Users should be able to:

- Explain the issue.
- Describe the troubleshooting methodology.
- Restore phone registration.
- Validate successful deployment.
- Demonstrate successful phone calls.
- Communicate findings clearly.

Hints

- Determine which departments are affected.
- Compare working phones with non-working phones.
- Verify workstation connectivity before assuming a complete outage.
- Use:

`ipconfig`

to verify workstation network settings.

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- Use:

ping

to verify network connectivity.

- Use:

show ephone

to verify registered phones.

- Review the Cisco CME telephony-service configuration.
- Follow a structured troubleshooting methodology instead of guessing.
- Compare the number of registered phones with the expected number of deployed phones.