

**113-SIG-3004**  
**Implement Wireless LANs to Provide Network Access in a Small to Medium-sized Network**  
**Status: Approved**

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**Distribution Restriction:** Approved for public release; distribution is unlimited.

**Destruction Notice:** None

**Foreign Disclosure: FD1** - This training product has been reviewed by the training developers in coordination with the US Army Signal School and FG foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

**Condition:** Your network is fully operational. Users must have the ability to connect from any location and at any time, and the ability to roam while staying connected. Therefore, you decide to research how other businesses and educational and community groups set up their WLANs for better access to their employees and clients. You have 1 Linksys EA Series Router (EA4500 with Firmware version 2.1.39.145204 or comparable), 1 PC with wireless NIC.

**Standard:** Implements wireless LANs and visits a website to verify network access.

**Special Condition:** None

**Safety Risk:** Low

**MOPP 4:**

<b>Task Statements</b>
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**Cue:** None

<b>DANGER</b>
None

<b>WARNING</b>
None

<b>CAUTION</b>
None

**Remarks:** None

**Notes:** All required references and technical manuals will be provided by the local Command via Cisco Networking Academy at [www.netacad.com](http://www.netacad.com).

## Performance Steps

1. Configure a wireless router.
  - a. Verify that the existing wired network is operational and wired hosts can access internet services.
  - b. Insert setup CD into PC to configure basic router settings. (follow installation instruction prompts)
  - c. Secure the wireless network according to organizational requirements.
  - d. Backup the configuration.
2. Configure wireless clients.
  - a. Enable wireless network connection on PC.
  - b. Click the wireless icon on system tray to display a list of wireless networks.
  - c. Select the preferred network.
  - d. Click connect.
  - e. Enter network security key.
  - f. Test connection by launching a web browser and visiting a website.
3. Troubleshoot devices that are not fully operational and communicating with the network.
  - a. Follow a systematic approach to resolve the issue (OSI or TCP/IP layer model) to isolate the network problem.
  - b. Restore wireless client connection to the WLAN.
    - (1) Verify that the PC has received an IP address via DHCP or is configured with a static IP address. ipconfig
    - (2) Confirm that the device can connect to the wired network. ping ip address
    - (3) If necessary, reload drivers as appropriate for the client. It may be necessary to try a different wireless NIC.
    - (4) If the wireless NIC of the client is working, check the security mode and encryption settings on the client.

c. Restore poorly functioning wireless connection.

(1) Check the distance between the PC and an access point (AP). Is the PC out of the planned coverage area?

(2) Check the channel settings on the wireless client. The client software should detect the appropriate channel as long as the SSID is correct.

(3) Check for the presence of other devices in the area that may be interfering with the 2.4 GHz band.

(4) Ensure that all the devices are actually in place. Consider a possible physical security issue. Is there power to all devices and are they powered on?

(5) Inspect links between cabled devices looking for bad connectors or damaged or missing cables. Verify the wired LAN by pinging devices, including the AP. If connectivity still fails at this point, perhaps something is wrong with the AP or its configuration.

d. Restore AP.

(1) Check the power status of the AP.

(2) Update firmware.

(a) Access the Wi-Fi home page.

(b) Open the connectivity window.

(c) Under the Firmware Update label, click Check for Updates.

e. Increase router bandwidth.

(1) Upgrade your wireless clients.

(2) Segment/Split the traffic.

(3) Ensure the physical wireless router location is free of obstructions.

(4) Deploy a powerline wireless technology or use a Wi-Fi Range Extender.

(Asterisks indicates a leader performance step.)

**Evaluation Guidance:** Score the Soldier GO if all steps are passed (P). Score the Soldier NO GO if any step is failed (F). If the Soldier fails any step, show what was done wrong and how to do it correctly.

**Evaluation Preparation:** Ensure that the equipment is available, serviceable, and ready for use. Use the reference and evaluation guide to score the Soldier's performance. Brief Soldier: Tell the Soldier what is required IAW the task condition and standards.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Configured wireless router.			
2. Configured wireless clients.			
3. Resolved issues.			

**Supporting Reference(s):** None

**TADSS :** None

**Equipment Items (LIN):** None

**Materiel Items (NSN) :**

Step ID	NSN	LIN	Title	Qty
	5895-01-572-1386		Modem, Communications: Point-to-Point Wireless Ethernet Bridge	1
	7025-01-476-6079		WIRELESS LAN ADAPTE	1

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :** None

**Supported Individual Tasks :** None

**Supported Collective Tasks :**

Task Number	Title	Proponent	Status
11-6-7292	Conduct Cable Installation Activities (Strat Sig Cable Units)	11 - Signal (Collective)	Approved

**ICTL Data :**

ICTL Title	Personnel Type	MOS Data

MOS 25C Radio Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25C
MOS 25Q Multichannel Transmission Systems Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25Q
MOS 25U Signal Support Systems Specialist Skill Levels 1, 2, 3, and 4	Enlisted	MOS: 25U
MOS 25L Cable Systems Installer-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25L
MOS 25N Nodal Network Systems Operator-Maintainer Skill Levels 1, 2, and 3	Enlisted	MOS: 25N
MOS 25B Information Technology Specialist Skill Levels 1, 2, 3, 4 and 5	Enlisted	MOS: 25B