



Australian Government

ICTTEN404 Install and configure a wireless mesh network

Release: 1

ICTTEN404 Install and configure a wireless mesh network

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to connect and test wireless networking equipment or radio communications equipment.

It applies to individuals working as technicians and technical officers for private and public organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Telecommunications – Telecommunications Networks Engineering

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Configure wireless mesh nodes and wireless access points	1.1 Determine internet protocol (IP) addressing schemes from design plan, obtained from appropriate personnel 1.2 Confirm compatibility of factory installed firmware in wireless routers with mesh routing requirements – otherwise install upgrade firmware 1.3 Configure wireless router settings and wireless fidelity (WiFi) for wireless access point settings for inclusion in mesh network 1.4 Connect mesh node and access node back-to-back via a straight LAN cable according to design plan
2. Connect separate mesh	2.1 Configure routing software on mesh and backbone nodes to

ELEMENT	PERFORMANCE CRITERIA
networks via backbone	enable mesh traffic to reach backbone 2.2 Connect mesh node and backbone node back-to-back via a straight LAN cable 2.3 Configure gateway server and gateway node and add required services to network
3. Test connectivity within mesh network	3.1 Assemble all wireless mesh routers with configuration sheets attached, and power up routers 3.2 Connect PC to a wireless mesh router and confirm an IP address is provided automatically by dynamic host configuration protocol (DHCP) 3.3 Confirm connectivity to mesh nodes and the gateway by pinging individual IP addresses, and rectify faulty nodes if required
4. Test network connectivity via wireless backbone	4.1 Install mesh nodes according to design plan 4.2 Install and align directional antennas on wireless backbone path according to installation instructions and work health and safety (WHS) procedures 4.3 Confirm connectivity between mesh clusters at either end of wireless backbone
5. Clean up worksite and complete administrative work	5.1 Remove waste from worksite, dispose of according to environmental requirements and restore work area to customer's satisfaction 5.2 Update documentation records and make recommendations according to enterprise policy 5.3 Notify customer of job completion and obtain sign-off

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	4.2, 5.2	Recognises and interprets technical documentation to determine job requirements
Writing	5.2, 5.3	Uses clear, specific and industry-related terminology to produce and update workplace documentation in

		predetermined formats
Numeracy	1.3, 2.3	Performs calculations to interpret results and evaluate different types of technical data and configure system performance
Navigate the world of work	4.2, 5.1, 5.2	Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context
Interact with others	1.1, 5.3	Selects appropriate form, channel and mode of communication when liaising with customers, vendors and installation personnel on technical and operational matters
Get the work done	1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3	- Understands key principles and concepts underpinning design and operation of digital systems and tools and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology - Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks - Implements actions according to a predetermined plan, making adjustments if necessary - Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account - When dealing with complex issues, may use intuition to identify problems, switching to analytical processes to modify activities depending on operational contingencies, risk situations and environments to generate possible solutions

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTTEN404 Install and configure a wireless mesh network	ICTTEN4050A Install and configure a wireless mesh network	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTTEN404 Install and configure a wireless mesh network

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Performance Evidence

Evidence of ability to:

- configure wireless mesh nodes
- install wireless mesh nodes, access point nodes and gateway
- test nodes for connectivity.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain requirements for 802.11 wireless protocols
- describe allocation of internet protocol (IP) addresses and subnet masks
- summarise antenna gain and polarisation
- outline cable loss
- explain calculation of effective isotropic radiated power (EIRP)
- explain calculation of line of site radio range
- explain decibels and related units
- outline network topologies
- describe radio frequency (RF) bands
- summarise routing protocols
- outline transmission control protocols(TCP)-IP describe wireless networking hardware, access points, wireless routers and gateway.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which configuring and installing wireless mesh network may be conducted
- technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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