Australian Government

ICTTEN527 Plan wireless mesh networks

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to design a scalable wireless access network using mesh technology for growing communities to provide users with secure wireless roaming beyond traditional wireless local area network (LAN) boundaries, and which are readily deployed in areas that lack wired backhaul.

It applies to individuals who have proficient technical skills such as planning and field officers from private and public organisations who conduct work on wireless networking or radio communications equipment.

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

Unit Sector

Telecommunications Networks Engineering

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Research requirements of wireless mesh network (WMN)	1.1 Obtain WMN design specifications and scope from relevant personnel and arrange for site access in compliance with required security arrangements, legislation, codes, regulations and standards 1.2 Evaluate the use of frequency bands when operating the WMN 1.3 Evaluate and select wireless technology, internet protocol (IP) version and mesh routing protocol in line with design specifications and scope 1.4 Specify and source hardware and software requirements
2. Prepare detailed WMN	2.1 Determine and evaluate the maximum line of sight distances

ELEMENT	PERFORMANCE CRITERIA
designs	achievable between backbone nodes and mesh nodes 2.2 Plan sites where mesh nodes will be located and plot to scale on a map 2.3 Estimate quantity and length of links required between mesh nodes and confirm design is within specifications 2.4 Design backbone links in mesh topology and determine scalability of future deployments 2.5 Select location of the internet gateway for the WMN 2.6 Allocate operating frequencies at mesh nodes, backbone nodes and wireless access points for optimum network performance with minimal interference from adjacent network routers
3. Plan IP addresses and subnet masks	3.1 Produce an addressing scheme and allocate IP addresses and subnet mask to mesh nodes, backbone nodes and access points 3.2 Produce a configuration scheme to secure network
4. Document WMN plan	4.1 Document design, installation plan and drawings for the WMN 4.2 Following installation, configuration and testing of the WMN, incorporate required ‘as built’ amendments

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Numeracy	• Performs calculations, interprets results and evaluates different types of technical data for design solutions
Oral communication	• Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding
Reading	• Analyses plans and other documentation from a variety of sources, and consolidates information to evaluate requirements
Writing	• Prepares workplace documentation including reports and design solutions incorporating technical language to communicate complex information clearly and effectively
Teamwork	• Recognises and applies protocols governing what to communicate, with whom and how, in own work context
Planning and organising	• Uses a combination of formal, logical planning processes and understanding of context for complex, high-impact activities with strategic implications

SKILL	DESCRIPTION
Problem solving	• Applies formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions
Technology	• Selects and uses digital technologies and systems to achieve work goals and enhance work processes

Unit Mapping Information

Supersedes and is equivalent to ICTTEN517 Plan a wireless mesh network.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2