



Australian Government

ICTNWK620 Design and implement wireless network security

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 6.0.

Application

This unit describes the skills and knowledge required to mitigate security threats to a wireless local area network (WLAN) by implementing security standards and policies.

It applies to individuals working in specialised Information and Communications Technology (ICT) roles including wireless help desk support technicians, wireless network support specialists and wireless network engineers.

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

Unit Sector

Networking

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. Prepare to implement wireless network security	1.1 Evaluate benchmarked organisational and regulatory security policies and network security standards 1.2 Assess organisational requirements against regulatory security compliance 1.3 Develop and document security solution plan according to organisational requirements and future growth expectations
2. Design, implement and test guest access services	2.1 Analyse and select architecture for guest access services 2.2 Produce map and set up guest access accounts 2.3 Configure WLAN controller authorisation

ELEMENT	PERFORMANCE CRITERIA
	2.4 Configure anchor and internal controllers 2.5 Troubleshoot guest access issues
3. Design, implement and test security of wireless client devices	3.1 Design and configure authentication of clients and management frame protection on clients and controllers 3.2 Configure access control servers and integrate with wireless network 3.3 Configure client-and server-side digital certificate services 3.4 Troubleshoot secure wireless connectivity services
4. Design, implement and test integration of wireless network	4.1 Analyse network admission control architectures and assess feasibility of network integration 4.2 Analyse high-level authentication process flow and confirm that integration is compatible 4.3 Configure and test admission control wireless controller 4.4 Troubleshoot network access integration issues of control
5. Evaluate and plan secure wireless connectivity services	5.1 Configure intrusion detection system (IDS) and monitor network activities for malicious activities and policy violations 5.2 Analyse IDS report and review threat-mitigation strategies 5.3 Update security solution plan, mitigate wireless vulnerabilities and check network integrity according to network security requirements
6. Manage WLAN integration requirements and advanced security platform requirements	6.1 Evaluate end-to-end security solutions and assess compatibility to integrate with required wireless solutions 6.2 Analyse WLAN firewall configuration requirements and confirm compliance with organisational and network security requirements 6.3 Configure and test WLAN controllers and detect wired and wireless intrusion prevention and detection system (IPDS) security protection 6.4 Finalise reports and documentation and submit to required personnel

Foundation Skills

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

SKILL	DESCRIPTION
Learning	• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies • Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations
Numeracy	• Interprets numerical data and undertakes measurements to evaluate performance and interoperability of network
Reading	• Interprets complex technical information to determine hardware requirements
Writing	• Develops a broad range of material including plans, maps and other documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Planning and organising	• Demonstrates knowledge of own legal rights and responsibilities and considers implications of these when planning and undertaking work
Problem solving	• Demonstrates a sophisticated knowledge of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology
Self-management	• Demonstrates an acute awareness of the importance of knowledge, monitoring and controlling access to digitally stored and transmitted information
Technology	• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used • Uses nuanced knowledge of context to adapt configuration procedures to requirements of network, troubleshoot and debug WLAN issues and modify work depending on operational contingencies, risk situations and environments

Unit Mapping Information

Supersedes and is equivalent to ICTNWK607 Design and implement wireless network security.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTNWK620 Design and implement wireless network security

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- plan, implement and manage wireless network security on a medium size network on at least one occasion.

In the course of the above, the candidate must:

- document requirements, processes and outcomes.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- configuration, verification and troubleshooting procedures for:
 - router operation and routing
 - virtual local area network (VLAN) switching and inter-switching communications
- iDevice Operating System (iOS) and internet protocol (IP) networking models
- intrusion prevention system (IPS) and intrusion detection system (IDS) security protection
- network security threat mitigation strategies
- aspects of wireless, including:
 - industry standard regulations, standards and certifications
 - deployment schemes
 - network security technology
 - network topologies, architectures and elements
 - networking protocols
- WLAN with reference to:
 - advanced security platforms
 - devices, their specification and use

- radio frequency characteristics and their measuring techniques.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- a site or prototype where network installation may be conducted
- industry standard hardware and software, including:
 - live network
 - stand-alone and lightweight WLAN controllers and access points (AP)
 - WLAN site survey tools
 - IDS and IPS
- organisational guidelines.

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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